

Municipality of Leamington Water and Wastewater Rate Study

Presentation of 2011 Water and Wastewater
Rate Analysis

September 20, 2011

Watson & Associates Economists Ltd

Study Purpose

- ❑ Confirm current and future water and wastewater system capital needs (replacement & growth)
- ❑ Identify cost recovery options for capital projects
- ❑ Estimate future operating costs over next 10 years
- ❑ Recommend new rates to recover the cost of the water and wastewater systems (PCC only)

Areas of Discussion

- ❑ Legislation for Water/Wastewater/Stormwater
- ❑ Consumption and Forecast
- ❑ Capital Needs and Financing
- ❑ Lifecycle Costs (Existing Infrastructure)
- ❑ Operating Expenditures
- ❑ Rates
- ❑ Policy Matters
- ❑ Next Steps

Legislation for Water, Wastewater and Stormwater

Since Walkerton, new legislation has been passed by the Province to enhance the provision of services. These include:

- ❑ Safe Drinking Water Act
- ❑ Sustainable Water and Sewage Systems Act
- ❑ O.Reg. 453/07 - Safe Drinking Water Act
- ❑ Clean Water Act
- ❑ Water Opportunities and Water Conservation Act, 2010

Water Opportunities and Water Conservation Act, 2010

- On November 29, 2010, Bill 72, The *Water Opportunities and Water Conservation Act, 2010* received Royal Assent (note: Regulations have not been passed at this time).

- The Act provides for the following elements :
 - Foster innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors;

 - Prepare Water Conservation Plans to attain water conservation targets to be established by regulations

 - Prepare Sustainability Plans for Water, Wastewater and Stormwater Services

Water Opportunities and Water Conservation Act, 2010

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

Water Opportunities and Water Conservation Act, 2010

- The Financial Plan shall include:
 - An asset management plan for the physical infrastructure;
 - Financial Plan;
 - For water, a conservation plan
 - Assessment of risks that may interfere with the future delivery of the municipal service, including, if required by the regulations, the risks posed by climate change and a plan to deal with those risks;
 - Strategies for maintaining and improving the municipal service to ensure future demand can be satisfied, consider technologies to improve the service and potential increased co-operation with other municipal service providers.

Water Opportunities and Water Conservation Act, 2010

- Performance indicators will be established by service
 - May relate to the financing, operation and / or maintenance of a service or to any other matter which may be included in the plan
 - May be different for different service providers or for different areas of the Province

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

Present Water and Wastewater Rate Structure - (2010 & 2011)

Customer	2010 Water			2011 Water		
	Monthly Base Charge	Monthly Water Meter Replacement Charge	Volume Charge (m ³)	Monthly Base Charge	Monthly Water Meter Replacement Charge	Volume Charge (m ³)
Residential and Small Non-Residential	\$15.00	\$3.00	\$0.6798	\$15.00	\$3.00	\$0.6798
Large Non-Residential	\$15.00	\$3.00	\$0.7414	\$15.00	\$3.00	\$0.7414
Regulated Greenhouse	\$15.00	\$3.00	\$0.7414	\$15.00	\$3.00	\$0.7414
Unregulated Greenhouse	\$15.00	\$3.00	\$0.8074	\$15.00	\$3.00	\$0.8074
Unregulated Greenhouse (Over 3 acres)	\$15.00	\$3.00	\$1.6148	\$15.00	\$3.00	\$1.6148
Unmetered Customers (Flat Rate)	\$43.00			\$43.00		
Hydrant Customers (Flat Rate)	\$67.59			\$67.59		
Fireline Customers (Flat Rate)	\$43.00			\$43.00		

Customer	2010 Wastewater		2011 Wastewater	
	Monthly Minimum Charge*	Volume Rate (over 20.91 m ³ per month)	Monthly Minimum Charge*	Volume Rate (over 20.91 m ³ per month)
All customers	\$28.23	\$1.35	\$28.23	\$1.35

Present Wastewater Rate Structure

- ❑ The current Wastewater rate funds the portion of costs associated with the Pollution Control Plant, as well as associated fleet and equipment and some expenditures relating to pump stations.
- ❑ The expenditures which relate to sanitary sewers, combined sanitary and storm sewers (including all capital and operating expenditures), are currently funded through the tax base and the rates provided herein continue this practice.
- ❑ Legislation may force the municipality to move from funding the sanitary sewers and/or stormwater service from the current tax base to a rate base. At this time the model that has been developed for the Municipality will allow staff to easily fully fund the system(s) through rates in the future if required.

Forecast Users and Billable Volumes

- ❑ The current rate structure for water consists of a monthly base charge, a monthly meter replacement charge and a volume charge per m³ based on an increasing block rate structure.
- ❑ There are also flat rates for customers who do not have meters and for those customers with hydrants and firelines.
- ❑ We have assumed an average annual water consumption of 250m³ per new residential household (based on existing usage data) and 8,000m³ per acre of new greenhouse development. For wastewater, it assumed that new residential households will fall within the minimum volume of 251m³ annually.
- ❑ Have assumed no growth in non-residential consumption to be conservative.

Forecast Users and Billable Volumes

- ❑ Forecast of new residential users is based on the forecast previously used during the 2010 water and wastewater study.
- ❑ Forecast of new acres of greenhouse developments is based on discussions with staff and is in line with current information for 2012 and 2013. For the years 2014-2021 the forecast is based on the previous forecast used during the 2010 water and wastewater study.
- ❑ The forecast also assumes that over 2012 and 2013, 90% of current unregulated greenhouses will become regulated which will move those users to the lower volume rate.

Customer Account Profile - Existing

	Water Nov/Dec-10 #of users	Wastewater Nov/Dec-10 #of users
Metered		
Residential & Non-Res (<= 1")	8,399	5,584
Non-Residential > 1" (excluding GH and Heinz)	529	569
Reg Greenhouse	35	0
Non Reg Greenhouse	146	0
Heinz	1	1
Total	9,110	6,154

	Water	Wastewater
Non-Metered		
Residential & Non-Res (<= 1")	14	0
Total	14	0

	Water	Wastewater
Hydrant Maintenance		
All Users	2	0
Total	2	0

	Water	Wastewater
Fireline		
All Users	3	0
Total	3	0

Water Forecast Users and Billable Volumes

Water Customer Forecast

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Existing	9,241	9,241	9,241	9,241	9,241	9,241	9,241	9,241	9,241	9,241
New - Growth	18	53	88	134	192	250	336	449	562	675
Total	9,259	9,294	9,329	9,375	9,433	9,491	9,577	9,690	9,803	9,916

Water Consumption Forecast (m³)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Existing Residential & Small Non-Residential	2,492,340	2,492,340	2,492,340	2,492,340	2,492,340	2,492,340	2,492,340	2,492,340	2,492,340	2,492,340
Existing Large Non-Residential	326,587	326,587	326,587	326,587	326,587	326,587	326,587	326,587	326,587	326,587
Existing Greenhouse Regulated	2,074,666	3,130,680	3,130,680	3,130,680	3,130,680	3,130,680	3,130,680	3,130,680	3,130,680	3,130,680
Existing Greenhouse Unregulated	1,308,967	252,952	252,952	252,952	252,952	252,952	252,952	252,952	252,952	252,952
Existing Greenhouse Unregulated (Over 3 acres)	0	0	0	0	0	0	0	0	0	0
New Residential	4,500	13,250	22,000	33,500	48,000	62,500	84,000	112,250	140,500	168,750
New Greenhouse Regulated	207,989	567,971	759,962	839,958	919,953	999,949	1,079,945	1,159,941	1,239,937	1,319,933
Total Excluding Heinz	6,415,049	6,783,781	6,984,521	7,076,017	7,170,513	7,265,009	7,366,505	7,474,751	7,582,997	7,691,243
Existing Heinz	1,729,402	1,729,402	1,729,402	1,729,402	1,729,402	1,729,402	1,729,402	1,729,402	1,729,402	1,729,402
Total Including Heinz	8,144,451	8,513,183	8,713,923	8,805,419	8,899,915	8,994,411	9,095,907	9,204,153	9,312,399	9,420,645

Note: Existing Consumption is based on 2010 Consumption

Change to reflect 90% of unregulated greenhouses becoming regulated over 2 years

Wastewater Forecast Users and Billable Volumes

Wastewater Customer Forecast

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Existing	6,154	6,154	6,154	6,154	6,154	6,154	6,154	6,154	6,154	6,154
New - Growth	14	42	71	109	156	204	273	365	457	549
Total Customers	6,168	6,196	6,225	6,263	6,310	6,358	6,427	6,519	6,611	6,703

Wastewater Flows Forecast (m³)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Block 1										
Existing	1,229,732	1,229,732	1,229,732	1,229,732	1,229,732	1,229,732	1,229,732	1,229,732	1,229,732	1,229,732
New	3,513	10,611	17,708	27,315	39,201	51,088	68,494	91,584	114,674	137,764
Total Block 1	1,233,245	1,240,343	1,247,440	1,257,047	1,268,934	1,280,820	1,298,226	1,321,316	1,344,406	1,367,496
Block 2										
Existing	714,731	714,731	714,731	714,731	714,731	714,731	714,731	714,731	714,731	714,731
New	0	0	0	0	0	0	0	0	0	0
Total Block 2	714,731	714,731	714,731	714,731	714,731	714,731	714,731	714,731	714,731	714,731
Total Excluding Heinz	1,947,976	1,955,073	1,962,171	1,971,778	1,983,664	1,995,550	2,012,957	2,036,047	2,059,137	2,082,227

Note: Existing Customers & Volumes are based on 2010 Data

Capital Infrastructure

- Capital needs were based on the Town's five year capital forecast
- Works identified based on 2011 capital budget, review of capital infrastructure replacement
- Capital works were identified by
 - Need
 - Timing
 - Costs

Capital Water System Needs

– 2012-2021 – (inflated \$)

Capital Expenditures

Description	Timing	Total Water
Vehicle Replacement	2012-2015	201,000
Engineering of Watermain Projects	2012-2015	1,681,000
Construction of Watermain Projects	2012-2015	1,978,000
Unforeseen Projects	2012-2021	1,117,000
Growth Related Works	2012-2021	-
Lifecycle Capital Works	2013-2021	20,325,000
Total		25,302,000

Capital Wastewater System Needs

– 2012-2021 – (inflated \$)

Capital Expenditures

Description	Timing	Total Wastewater
Biosolids (CSP mixer, cyclone, Drum, furnace)	2014	2,081,000
Screw Pumps	2013-2014	1,083,000
Overhaul Centrifuges	2015	212,000
Growth Related Works	2012-2021	2,000,000
Lifecycle (PCC) Capital Works	2013-2021	4,859,000
Total		10,235,000

Capital Financing Options

- ✓ Reserves/Reserve Funds
- ✓ Operating Budget Transfers
- ✓ Development Charges
- ✓ Debt
- ❑ Grants
- ❑ Local Improvement
- ❑ Municipal Act (Part 12)

Proposed 2012-2021 Capital Financing – Water and Wastewater Programs (inflated \$)

Capital Financing

Description	Water	Wastewater
Provincial/Federal Grants	-	-
Development Charges	-	-
Non-Growth Related Debenture Requirements	-	2,969,200
Growth Related Debenture Requirements	-	611,800
Operating Contributions	-	307,884
Transfer from Water Meter Replacement Reserve	3,280,000	
Transfer from Water Reserve	22,022,000	
Transfer from PCC Capital Reserve		6,346,116
Total Capital Financing	25,302,000	10,235,000

Capital Forecast Option B – Water

- ❑ Staff requested that a second option for water be undertaken to determine the rate impact of moving forward the capital expenditures currently forecasted in 2012-2015, to be funded entirely over 2012-2013.
- ❑ The Municipalities Water Reserve is at a level which allows for the full funding of the four year forecast over 2012 & 2013; there was no additional rate impact.
- ❑ If moving the capital forward, the water reserve balance would decrease from an estimated 2013 closing balance of \$5.18 million to \$2.78 million.
- ❑ To assist in reducing this impact on the 2013 year end reserve balance, \$1.7 million of lifecycle capital expenditures could be delayed and constructed later in the forecast.

Water Reserve

- ❑ It is noted that the water reserve is currently funding the Development Charge discount that new greenhouse developments receive.
- ❑ In 2011, \$400,000 was budgeted to fund the DC discount, however, due to higher than expected growth in 2011, staff are now estimating that an additional \$700,000 will be required in 2011 to fully fund the Greenhouse DC discount.

Lifecycle Infrastructure Costs

Area	Total Replacement Value (2010\$)	Amount to be funded in 10 year forecast	Net Replacement Value	Annual Lifecycle Replacement
Water:				
Water Facilities (Pumping Stations), Fleet & Equipment	1,399,160	732,031	667,129	25,953
Water Hydrants	4,230,000	513,000	3,717,000	126,911
Water Meters	1,972,276	1,142,516	829,760	61,068
Water Valves	4,464,198	869,300	3,594,898	127,455
Watermains	96,903,183	11,689,028	85,214,155	2,272,474
Water Connections	16,496,049	5,094,564	11,401,485	471,079
Total Water	125,464,866	20,040,440	105,424,427	3,084,939
Wastewater:				
Sanitary Facilities, Fleet & Equipment	35,278,852	6,411,367	28,867,485	646,367
Pumping Stations	1,672,546	1,108,517	564,029	37,457
Sub-Total Rate Funded	36,951,398	7,519,884	29,431,514	683,824
Sanitary Sewers	20,567,569	1,359,295	19,208,274	610,776
Combined Main Inventory*	18,864,483	15,408,087	3,456,396	188,841
Sub-Total Tax Funded	39,432,052	16,767,382	22,664,670	799,617
Total Wastewater	76,383,450	24,287,266	52,096,184	1,483,441
Stormwater: **				
Storm Sewers	41,105,315	2,612,391	38,492,924	1,176,713
Overflow Inventory	164,269	42,183	122,085	5,001
Combined Main Inventory*	18,864,483	15,408,087	3,456,396	188,841
Total Stormwater	60,134,067	18,062,661	42,071,406	1,370,555
Total	261,982,383	62,390,367	199,592,016	5,938,935

Funded from Tax Base Currently

Investment Per Customer	\$
Water	13,577
Wastewater	12,412
Stormwater ***	9,772
Total	35,761

* Combined Sanitary and Storm Mains - assumed that replacements would include separation of the systems therefore double the cost

** Stormwater Facilities/Ponds not included in analysis

*** Based on number of Wastewater Customers

Lifecycle Infrastructure Costs

- ❑ For wastewater infrastructure, only the facility is being funded from rates currently with sanitary sewers and combined sanitary/storm sewers currently funded through the Urban Tax Levy.
- ❑ Annual updates of the current assets should be undertaken during the annual budget process to ensure that all current assets are captured within the calculations, thus ensuring that new works such as the works currently underway on the Pollution Control Plant are captured and are valued at the most current replacement value.

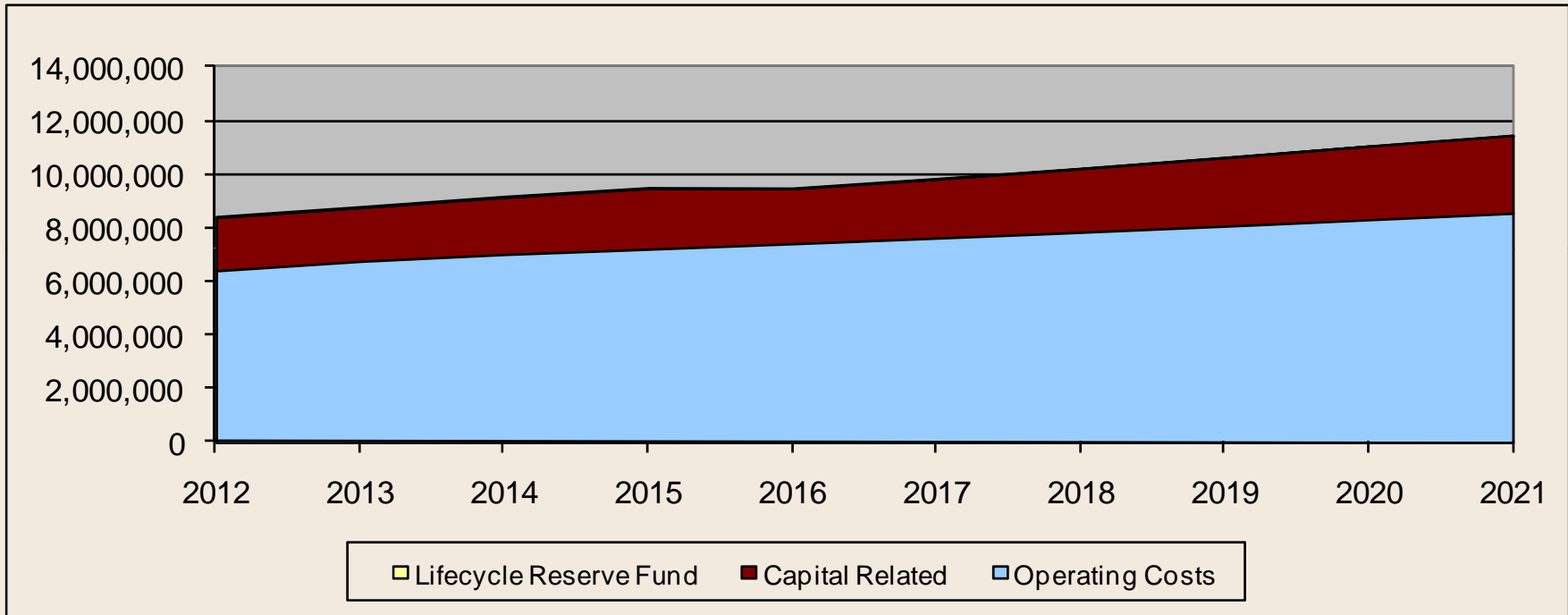
Lifecycle Reserves

- Lifecycle contributions for each service have been rationalized.
- Transfers to lifecycle reserve funds are not included in the analysis at this time however, it is recommended the Municipality move towards transferring funding for both water and wastewater in the future to reserve funds. This will smooth rate impacts over time and minimize debt needs.
- It is also recommended that interest be allocated to generate additional revenue in the future.

Operating Budgets

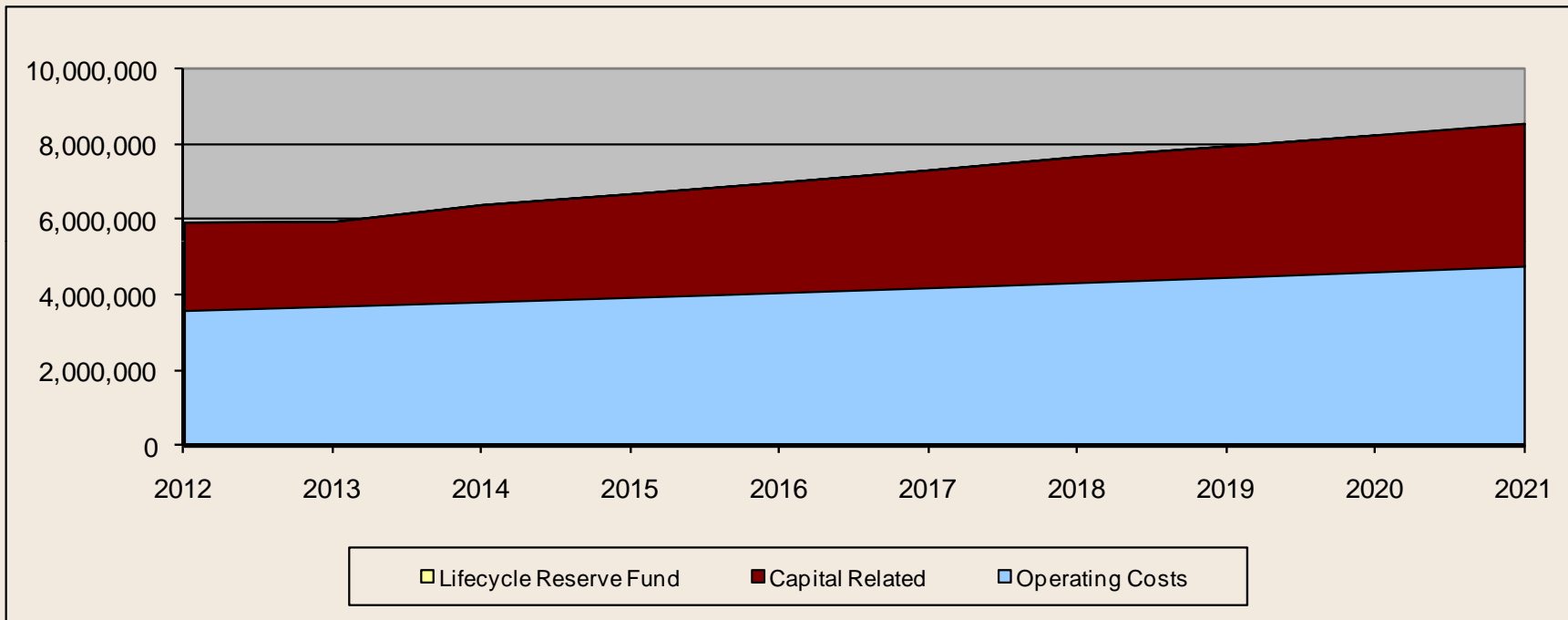
- Operating expenditures are increasing over the forecast to recognize:
 - Inflationary impacts applied to water operating expenditures (2% annually to all expenditures)
 - Inflationary impacts applied to wastewater operating expenditures (5% annually for chemicals and utility expenses and 2% annually to all other expenditures)
 - Union Water rates have been inflated by 2% annually beginning in 2012

Water Operating Budget – Impact on Future Budgets



Description	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Operating Costs	6,411,420	6,760,394	7,017,083	7,212,580	7,415,067	7,622,818	7,840,641	8,068,779	8,302,955	8,543,320
Capital Related	2,010,811	2,027,002	2,151,330	2,280,706	2,064,800	2,210,773	2,372,655	2,548,803	2,737,703	2,893,752
Lifecycle Reserve Fund	0	0	0	0	0	0	0	0	0	0
Total	8,422,231	8,787,396	9,168,413	9,493,286	9,479,867	9,833,591	10,213,296	10,617,582	11,040,658	11,437,073

Wastewater (PCC) Operating Budget – Impact on Future Budgets



Description	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Operating Costs	3,601,907	3,714,217	3,830,788	3,951,805	4,077,461	4,207,962	4,343,521	4,484,361	4,630,716	4,782,831
Capital Related	2,354,614	2,259,388	2,592,935	2,760,596	2,943,608	3,138,063	3,357,280	3,499,236	3,646,757	3,799,935
Lifecycle Reserve Fund	0	0	0	0	0	0	0	0	0	0
Total	5,956,521	5,973,606	6,423,723	6,712,400	7,021,069	7,346,025	7,700,801	7,983,597	8,277,473	8,582,766

Rate Structures

- ❑ The use of a the monthly charges and volume charges for water and minimum charge and volume charges for wastewater (presently used) is recommended to be continued.
- ❑ Consideration is suggested to assess whether refinements to the charges for wastewater, to include all costs associated with the service, should take place in the future.

Water and Wastewater Rates - Calculated

Water Rate Forecast

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Metered Customers:											
Monthly Base Charge	15.00	15.30	15.61	15.92	16.24	16.56	16.89	17.23	17.57	17.93	18.28
Monthly Meter Replacement Charge	3.00	3.06	3.12	3.18	3.25	3.31	3.38	3.45	3.51	3.59	3.66
Total Monthly Charges	18.00	18.36	18.73	19.10	19.49	19.87	20.27	20.68	21.08	21.52	21.94
Volume Charges (per m³):											
Residential and Small Non-Residential	0.6798	0.7070	0.7282	0.7500	0.7725	0.7957	0.8196	0.8442	0.8695	0.8956	0.9180
Large Non-Residential	0.7414	0.7711	0.7942	0.8180	0.8426	0.8678	0.8939	0.9207	0.9483	0.9768	1.0012
Regulated Greenhouse	0.7414	0.7711	0.7942	0.8180	0.8426	0.8678	0.8939	0.9207	0.9483	0.9768	1.0012
Unregulated Greenhouse	0.8074	0.8397	0.8649	0.8908	0.9176	0.9451	0.9734	1.0026	1.0327	1.0637	1.0903
Unregulated Greenhouse (Over 3 acres)	1.6148	1.6794	1.7298	1.7817	1.8351	1.8902	1.9469	2.0053	2.0654	2.1274	2.1806
Montly Flat Rates:											
Unmetered Customers	43.00	43.86	45.18	46.53	47.93	49.36	50.85	52.37	53.94	55.56	57.23
Fireline Customers	43.00	43.86	45.18	46.53	47.93	49.36	50.85	52.37	53.94	55.56	57.23
Hydrant Customers	67.59	68.94	71.01	73.14	75.33	77.59	79.92	82.32	84.79	87.33	89.95

Wastewater Rate Forecast

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
All Customers:											
Minimum Monthly Charge (incl. 20.91m ³ /month)	28.23	31.34	34.79	38.27	40.18	42.19	44.30	46.52	47.92	49.36	50.84
Volume Charges (over 20.91m ³ /month):	1.35	1.50	1.66	1.83	1.92	2.02	2.12	2.22	2.29	2.36	2.43

Water and Wastewater Average Annual Residential Bill - 250 m³ annual usage

Annual Residential Water Bill - Based on 250 m³ annual consumption)

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Metered Customers:											
Base Charges	216.00	220.32	224.76	229.20	233.88	238.44	243.24	248.16	252.96	258.24	263.28
Volume Charge	169.95	176.75	182.05	187.51	193.14	198.93	204.90	211.05	217.38	223.90	229.50
Total Annual Water Bill	385.95	397.07	406.81	416.71	427.02	437.37	448.14	459.21	470.34	482.14	492.78

Annual Residential Wastewater Bill - Based on 250 m³ annual volume)

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
All Customers:											
Minimum Monthly Charge (incl. 20.91m ³ /month)	338.76	376.08	417.48	459.24	482.16	506.28	531.60	558.24	575.04	592.32	610.08
Volume Charges (over 20.91m ³ /month):	-	-	-	-	-	-	-	-	-	-	-
Total Annual Wastewater Bill	338.76	376.08	417.48	459.24	482.16	506.28	531.60	558.24	575.04	592.32	610.08

Water/Wastewater Bill Comparison based on 250 m³ annual usage

Rank	Municipality	Water Charges	Wastewater Charges	Total Charges
1	Lambton Shores	\$675.38	\$550.38	\$1,225.76
2	Essex (Ward 3)	\$566.50	\$591.50	\$1,158.00
3	Amherstburg	\$415.50	\$723.22	\$1,138.72
4	Essex (Ward 4)	\$566.50	\$571.50	\$1,138.00
5	Essex (Ward 1)	\$529.00	\$484.00	\$1,013.00
6	Plympton-Wyoming (Wyoming)	\$388.76	\$583.14	\$971.90
7	Lakeshore	\$523.08	\$441.62	\$964.70
8	Plympton-Wyoming (Plympton)	\$394.72	\$539.52	\$934.24
9	Sarnia	\$437.82	\$481.60	\$919.41
10	Chatham-Kent (Urban)	\$388.00	\$391.50	\$779.50
11	Leamington (Proposed) (2012)	\$397.07	\$376.08	\$773.15
12	Tecumseh	\$429.74	\$322.24	\$751.98
13	Windsor	\$367.29	\$375.00	\$742.29
14	Leamington (Existing)	\$385.95	\$337.52	\$723.47
15	St. Clair	\$288.00	\$360.00	\$648.00
16	Kingsville (Gosfield North)	\$263.31	\$305.00	\$568.31
17	Essex (Ward 2)	\$529.00	\$0.00	\$529.00
18	Kingsville	\$263.31	\$263.32	\$526.63
18	Kingsville (Gosfield South)	\$263.31	\$263.32	\$526.63
20	Lasalle	\$341.00	\$185.00	\$526.00

Next Steps

1. Council considers the proposed water and wastewater rates.
2. Council adoption of rates (subsequent to September 20th).

Questions
