

Appendix 1-6

Water and Wastewater Rate Study (October 2007)

TOWN OF TECUMSEH

**WATER AND WASTEWATER RATE
STUDY**

October 22, 2007

In Association with KMK Consulting Limited

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 **Planning for growth**

8. RECOMMENDATIONS

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

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

1. That Council consider the Capital Plans for water and wastewater as provided in Tables 2-1 and 2-2 and the associated Capital Financing Plan as set out in Tables 4-1 and 4-2.
2. That Council approve the adoption of lifecycle costs for the replacement of water and wastewater infrastructure, consistent with the sustainability requirements of O.Reg 453/07.
3. That Council provides for the recovery of all water and wastewater costs through full cost recovery rates.
4. That Council consider the rates provided in Chapter 7 for the water and wastewater systems.

Table 2-1
Town of Tecumseh
Water Service
Capital Budget Forecast
Initiated \$

Description	Total	Forecast													
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017				
Capital Expenditures															
Tools/equipment	280,000	26,000	26,000	27,000	27,000	28,000	28,000	29,000	29,000	30,000	30,000	30,000	30,000	30,000	30,000
Meter purchases	951,000	87,000	88,000	90,000	92,000	94,000	96,000	98,000	100,000	102,000	104,000	104,000	104,000	104,000	104,000
Main program - Riverside	428,000	0	104,000	108,000	108,000	110,000	0	0	0	0	0	0	0	0	0
Watermain cleaning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main program - Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water modeling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water rate study	35,000	0	0	0	0	17,000	0	0	0	0	0	0	0	0	18,000
From Water & Wastewater Rate Study - July, 2003															
Phase II															
Cast Iron Watermains Replacement	2,793,000	255,000	260,000	265,000	271,000	276,000	282,000	287,000	293,000	299,000	299,000	287,000	287,000	289,000	305,000
Growth Related - From DC Background Study															
Water Masterplan update	68,000	0	32,000	0	0	0	0	36,000	0	0	0	0	0	0	0
Proposed Water Servicing Implementation Plan - as provided by KWK Feb. 2007															
Feedermain installations and metering facilities throughout Tecumseh	956,000	956,000	0	0	0	0	0	0	0	0	0	0	0	0	0
West Tecumseh Trunk Watermain Phase 1 (from CR 22 to CR 42)	311,000	311,000	0	0	0	0	0	0	0	0	0	0	0	0	0
400 mm trunk watermain from County Road 22 to Intersection Road	107,000	107,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Extra over 400 mm watermain cost for County Road 22 crossing by jacking and boring	224,000	224,000	0	0	0	0	0	0	0	0	0	0	0	0	0
600 mm trunk watermain on Intersection Road from Banwell Road to North Service Easement	122,000	122,000	0	0	0	0	0	0	0	0	0	0	0	0	0
800 mm trunk watermain from Intersection Road to CP Rail Line	5,000	5,000	0	0	0	0	0	0	0	0	0	0	0	0	0
400 mm gate valve	10,000	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Connection to existing 600 mm feedermain on County Road 22	840,000	0	416,000	424,000	0	0	0	0	0	0	0	0	0	0	0
400 mm trunk watermain from County Road 22 to CP Rail	220,000	0	109,000	111,000	0	0	0	0	0	0	0	0	0	0	0
Extra over 400 mm watermain cost for County Road 22 crossing by jacking and boring	252,000	0	125,000	127,000	0	0	0	0	0	0	0	0	0	0	0
300 mm dia trunk watermain along CP rail line from Lesperance Road to Manning Road	32,000	0	16,000	16,000	0	0	0	0	0	0	0	0	0	0	0
400 mm gate valve	21,000	0	10,000	11,000	0	0	0	0	0	0	0	0	0	0	0
Connection to existing 400 mm feedermain on County Road 22	267,000	0	0	0	0	132,000	136,000	0	0	0	0	0	0	0	0
West Tecumseh Trunk Watermain Phase 2 (from CR 42 to HWY 401 - 401 Highway Commercial)	580,000	0	0	0	0	287,000	293,000	0	0	0	0	0	0	0	0
600 mm dia trunk watermain crossing CP Rail line	111,000	0	0	0	0	55,000	56,000	0	0	0	0	0	0	0	0
600 mm dia trunk watermain from CP rail line to north limit of Odessa Drive	134,000	0	0	0	0	66,000	68,000	0	0	0	0	0	0	0	0
800 mm dia trunk watermain from north limit of Odessa Drive to County Road 42	22,000	0	0	0	0	11,000	11,000	0	0	0	0	0	0	0	0
800 mm gate valve	455,000	0	0	0	0	0	225,000	230,000	0	0	0	0	0	0	0
Connection to existing 600 mm feedermain on County Road 42	228,000	0	0	0	0	0	113,000	115,000	0	0	0	0	0	0	0
400 mm trunk watermain from CP Rail to County Road 42	295,000	0	0	0	0	0	146,000	149,000	0	0	0	0	0	0	0
400 mm dia trunk watermain crossing CP Rail line	22,000	0	0	0	0	0	11,000	11,000	0	0	0	0	0	0	0
400 mm dia trunk watermain on County Road 42 from 12th Concession Road to Manning Road															
Connection to existing 600 mm feedermain on County Road 42															

Table 2-1
Town of Tecumseh
Water Service
Capital Budget Forecast
inited \$

Description	Forecast										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Description	Forecast										
600 mm gate valve	0	0	0	0	0	0	0	0	0	0	0
Connection to 900 mm watermain north of HWY 401 in Windsor	0	0	0	0	0	0	0	0	0	0	0
Connection to existing 300 mm watermain on Walker Road	0	0	0	0	0	0	0	0	0	0	0
Lifecycle Replacement	Lifecycle Replacement										
Watermains	0	0	0	0	0	0	0	0	0	0	0
Vehicles	16,000	50,000	51,000	17,000	97,000	129,000	0	19,000	57,000	59,000	493,000
Facilities	0	0	0	0	0	0	0	0	0	0	0
Total Capital Expenditures	11,367,000	1,236,000	1,228,000	516,000	1,173,000	1,593,000	956,000	441,000	488,000	1,619,000	11,367,000

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

Description	Forecast									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital Expenditures										
Tools/Equipment	280,000	26,000	27,000	27,000	26,000	26,000	29,000	29,000	30,000	30,000
Water purchases	951,000	87,000	90,000	92,000	94,000	96,000	98,000	100,000	102,000	104,000
Main program - Riverside	0	0	0	0	0	0	0	0	0	0
Watermain cleaning	428,000	104,000	106,000	108,000	110,000	0	0	0	0	0
Main program - Design	0	0	0	0	0	0	0	0	0	0
Water modeling	0	0	0	0	0	0	0	0	0	0
Water rate study	35,000	0	0	0	17,000	0	0	0	0	18,000
From Water & Wastewater Rate Study - July, 2003										
Phase II										
Cast Iron Watermains Replacement	2,793,000	260,000	265,000	271,000	276,000	282,000	287,000	293,000	299,000	305,000
Growth Related - From DC Background Study										
Water Masterplan update	66,000	0	0	0	0	0	36,000	0	0	0
Proposed Water Servicing Implementation Plan - as provided by KWK Feb. 2007										
Feedermain installations and metering facilities throughout Tecumseh	956,000	0	0	0	0	0	0	0	0	0
West Tecumseh Trunk Watermain Phase 1 (from CR 22 to CR 42)	311,000	0	0	0	0	0	0	0	0	0
400 mm trunk watermain from County Road 22 to Intersection Road	107,000	0	0	0	0	0	0	0	0	0
Extra over 400 mm watermain cost for County Road 22 crossing by jacking and boring	0	0	0	0	0	0	0	0	0	0
600 mm trunk watermain on Intersection Road from Benwell Road to North Service Easement	224,000	0	0	0	0	0	0	0	0	0
800 mm trunk watermain from Intersection Road to CP Rail Line	122,000	0	0	0	0	0	0	0	0	0
400 mm gate valve	5,000	0	0	0	0	0	0	0	0	0
Connection to existing 600 mm feedermain on County Road 22	10,000	0	0	0	0	0	0	0	0	0
400 mm trunk watermain from County Road 22 to CP Rail	840,000	416,000	424,000	0	0	0	0	0	0	0
Extra over 400 mm watermain cost for County Road 22 crossing by jacking and boring	0	0	111,000	0	0	0	0	0	0	0
300 mm dia trunk watermain along CP rail line from Lesperance Road to Manning Road	252,000	0	127,000	0	0	0	0	0	0	0
400 mm gate valve	32,000	0	16,000	0	0	0	0	0	0	0
Connection to existing 400 mm feedermain on County Road 22	21,000	0	11,000	0	0	0	0	0	0	0
West Tecumseh Trunk Watermain Phase 2 (from CR 42 to HWY 401 - 404 Highway Commercial)										
600 mm dia trunk watermain crossing CP Rail line	267,000	0	0	0	132,000	135,000	0	0	0	0
600 mm dia trunk watermain from CP rail line to north limit of Odessa Drive	580,000	0	0	0	287,000	293,000	0	0	0	0
600 mm dia trunk watermain from north limit of Odessa Drive to County Road 42	111,000	0	0	0	55,000	56,000	0	0	0	0
600 mm gate valve	134,000	0	0	0	66,000	68,000	0	0	0	0
Connection to existing 600 mm feedermain on County Road 42	22,000	0	0	0	11,000	11,000	0	0	0	0
East Tecumseh Trunk Watermain (from CR 22 to CR 42)										
400 mm trunk watermain from CP Rail to County Road 42	455,000	0	0	0	0	225,000	230,000	0	0	0
400 mm dia trunk watermain crossing CP Rail line	228,000	0	0	0	0	113,000	115,000	0	0	0
400 mm dia trunk watermain on County Road 42 from 12th Concession Road to Manning Road	295,000	0	0	0	0	146,000	149,000	0	0	0
Connection to existing 600 mm feedermain on County Road 42	22,000	0	0	0	0	11,000	11,000	0	0	0

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

Description	Forecast									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
West Tecumseh Trunk Watermain Phase 2 (from CR 42 to HWY 401 - 401 Highway Commercial)										
600mm trunk watermain on south service easement from 12th Concession to County Road 42	0	0	0	0	0	0	0	0	0	219,000
800mm trunk watermain on 12th Concession Road from Baseline Road to south service easement	0	0	0	0	0	0	0	0	0	132,000
Extra over 600mm watermain cost for tunneling under Sullivan Creek	0	0	0	0	0	0	0	0	0	20,000
800mm trunk watermain on Baseline Road from 12th Concession Road to 12th Concession Road	0	0	0	0	0	0	0	0	0	34,000
400mm trunk watermain on Baseline Road from 11th Concession Road to 12th Concession Road	0	0	0	0	0	0	0	0	0	110,000
200 mm dia watermain on Baseline Road and Manning Road from 12th Concession Road to existing 200mm watermain	0	0	0	0	0	0	0	0	0	105,000
800mm trunk watermain on 12th Concession Road from south of HWY 401 to Baseline Road	0	0	0	0	0	0	0	0	0	329,000
Extra over 600mm watermain cost for tunneling under Highway 401	0	0	0	0	0	0	0	0	0	98,000
Extra over 800mm watermain cost for tunneling under Pike Creek	0	0	0	0	0	0	0	0	0	20,000
400 mm gate valve	0	0	0	0	0	0	0	0	0	2,000
600 mm gate valve	0	0	0	0	0	0	0	0	0	29,000
Connection to existing 600 mm feedermain on County Road 42	0	0	0	0	0	0	0	0	0	5,000
Lifecycle Replacement										
Watermains	0	0	0	0	0	0	0	0	0	0
Vehicles	16,000	50,000	51,000	17,000	97,000	129,000	0	19,000	57,000	58,000
Facilities	0	0	0	0	0	0	0	0	0	0
Total Capital Expenditures	2,119,000	1,236,000	1,228,000	515,000	1,173,000	1,593,000	955,000	441,000	488,000	1,819,000
Capital Financing										
Provincial-Federal Grants	351,600	416,000	424,000	0	0	253,000	268,000	0	0	0
OSTAR Approved Grant	1,683,000	6,477	22,080	33,857	47,000	48,000	49,000	50,000	51,000	52,000
Developer Contributions	3,202	259,800	238,300	0	551,000	776,400	246,400	0	0	880,800
Revenue from Meter Sales	402,100	0	0	0	0	0	0	0	0	0
Development Charges	0	0	0	0	0	0	0	0	0	0
Non-Growth Related Debiture Requirements	0	0	0	0	0	0	0	0	0	0
Growth Related Debiture Requirements	0	0	0	0	0	0	0	0	0	0
Other Revenue (2007 Budget)	0	0	0	0	0	0	0	0	0	0
Operating Contributions	0	0	0	0	0	0	0	0	0	0
Transfer from Lifecycle Reserve Fund	0	0	0	0	0	0	0	0	0	0
Transfer from Vehicle Reserve	495,000	50,000	51,000	17,000	97,000	129,000	0	19,000	57,000	59,000
Reserves and Reserve Funds	5,119,984	503,723	482,620	464,143	478,000	386,600	401,600	372,000	360,000	627,200
Total Capital Financing	11,367,000	1,288,000	1,228,000	515,000	1,173,000	1,593,000	955,000	441,000	488,000	1,819,000

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

Description	Forecast									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital Expenditures										
Rate study	35,000	0	0	0	17,000	0	0	0	0	18,000
Pump Stations	0	0	0	0	0	0	0	0	0	0
Oldcastle package treatment plant	0	0	0	0	0	0	0	0	0	0
Oldcastle package treatment plant	335,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Flushing	0	0	0	0	0	0	0	0	0	0
Lou Romano buy-in	156,000	166,000	0	0	0	0	0	0	0	0
Provision for Service Realignment	0	0	0	0	0	0	0	0	0	0
Growth Related	68,000	32,000	0	0	0	0	36,000	0	0	0
Wastewater Masterplan update	510,000	0	0	0	0	0	0	0	0	0
Share of Windsor trunks - phase 1A & 3	510,000	0	0	0	0	0	0	0	0	0
Share of Windsor trunks - phase 1B	0	0	0	0	0	0	0	0	0	0
2007 Proposed Wastewater Servicing Implementation Plan										
County Road 22 Relief Sewer and Outlet										
1200 mm dia. Outlet Sewer on County Road 22 from Barwell Road to	165,000	0	0	0	0	0	0	0	0	0
Trunk Sewer through future development lands	151,000	0	0	0	0	0	0	0	0	0
600 mm dia Relief Sewer from Trunk Sewer through future development	16,000	0	0	0	0	0	0	0	0	0
lands to Lesperance Road	6,000	0	0	0	0	0	0	0	0	0
Flow Monitoring Chamber for diversion flow	0	0	0	0	0	0	0	0	0	0
Connection to existing Lesperance Road Trunk Sewer	0	0	0	0	0	0	0	0	0	0
West Tecumseh Trunk Sewer from CR 22 to CP Rail										
1200 mm trunk sanitary sewer from County Road 22 to CP Rail	1,025,000	0	0	0	0	0	0	0	0	0
Flow Monitoring Chamber on West Tecumseh Trunk Sewer	82,000	0	0	0	0	0	0	0	0	0
Allowance for Permanent Easement across future development lands	0	0	0	0	0	0	0	0	0	0
from County Road 22 to CP Rail lands	51,000	0	0	0	0	0	0	0	0	0
East Tecumseh Trunk Sewer from CR 22 to CP Rail										
375 mm trunk sanitary sewer in East Tecumseh Hamlet north of CP Rail	838,000	583,000	255,000	0	0	0	0	0	0	0
Sylvestre Pumping Station Upgrades										
Upgrade the Sylvestre pumping station for "east" side growth in	0	725,000	318,000	0	0	0	0	0	0	0
Tecumseh Hamlet	1,046,000	0	0	0	0	0	0	0	0	0
Force main from Sylvestre pumping station to existing Trunk Sewer on	185,000	56,000	0	0	0	0	0	0	0	0
Lesperance Road	0	0	0	0	0	0	0	0	0	0
North Talbot Road Trunk Sewer										
2,800 m of 600 mm North Talbot Road Trunk Sewer from 8th	2,776,000	543,000	1,385,000	848,000	0	0	0	0	0	0
Concession Road to Old West Avenue in City of Windsor including	563,000	110,000	281,000	172,000	0	0	0	0	0	0
connection to existing sanitary sewer	0	0	0	0	0	0	0	0	0	0
Extra over sewer cost for tunneling under Highway 401	0	0	0	0	0	0	0	0	0	0
1,800 m of 450 mm Sewer extension on 8th Concession Road and	787,000	154,000	393,000	240,000	0	0	0	0	0	0
Oldcastle Road front North Talbot Road trunk Sewer	0	0	0	0	0	0	0	0	0	0
Flow monitoring station and controls upstream of North Talbot Road	0	56,000	143,000	88,000	0	0	0	0	0	0
Outlet	287,000	0	0	0	0	0	0	0	0	0

7. ANALYSIS OF WATER RATES AND POLICY MATTERS

7.1 Introduction

To summarize the analysis undertaken thus far, Chapter 2 reviewed capital-related issues for all customers within Tecumseh (including the Lakeshore customers that are serviced by the Town) and responds to the provincial directives to maintain and upgrade infrastructure to required levels. Chapter 4 provided a review of capital financing options to which lifecycle reserve contributions will be the predominant basis for financing future capital replacement. Chapter 5 established the 10-year operating forecast of expenditures for Tecumseh customers. Non-rate revenues (including base charge revenues) to assist in offsetting the charges for volumetric rates were also identified in Chapter 5. This chapter will provide for the calculation of the rates over the next 10-year period. These calculations will be based on the net operating expenditures provided in Chapter 5, divided by the water consumption forecast volumes provided in Section 1.6. Note that within Tecumseh, the volume operating rates include the cost of purchased water based upon the current agreement with the Windsor Utilities Commission.

7.2 Water Rates

Based on the discussion of rate structures provided in section 6.5 and the recommendation to continue with the present structures, the rates are calculated in Table 7-1. The Table takes the net recoverable amounts from Table 5-1 (the product of total expenditures plus lifecycle cost less the non-rate revenues) and completes the calculation by dividing by the consumption into the net expenditures to calculate the constant rate.

Detailed calculations are provided in Appendix D. A summary of the recommended rates are as follows:

Water Rate Summary (based on a residential customer)

Rates	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Monthly Base Charge	10.18	10.38	10.59	10.80	11.02	11.24	11.46	11.69	11.93	12.17	12.41
Volume Charge	0.87	0.97	1.06	1.15	1.20	1.21	1.21	1.21	1.21	1.21	1.21

7.3 Wastewater Rates

Similar to water, the recommendation provided herein is to continue with the monthly base service charge constant volume rate. Table 7-2 sets out the calculations of the recommended rates. The Table takes the net recoverable amounts from Table 5-2 (the product of total expenditures plus lifecycle cost less the non-rate revenues) and completes the calculation by dividing the consumption into the net expenditures to calculate the constant rate.

Detailed calculations are provided in Appendix E. A summary of the recommended volume rates are as follows:

Wastewater Rate Summary (based on a residential customer)

Rates	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Monthly Base Charge	10.18	10.38	10.59	10.80	11.02	11.24	11.46	11.69	11.93	12.17	12.41
Volume Charge	0.57	0.63	0.69	0.76	0.82	0.82	0.82	0.82	0.82	0.82	0.82

7.4 Town's Commitment to Sustainable Asset Management

With the pending legislation and its requirement for municipalities to move towards full cost recovery, it is important to highlight the Town's commitment towards sustainable asset management, as provided for in the plan. As discussed throughout the report, contributions for replacement/rehabilitation works are provided within both the capital forecast and the lifecycle reserve contributions. Table 7-3, following, summarizes the level of expenditures contained within the future rates for the water and wastewater services, over the next ten years.

7-1
 Town of Tecumseh
 Water Services
 Water Rate Forecast
 Inflated \$

Description	2007 (Calculated)	2007 (Passed)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Water Billing Recovery	2,774,212		3,359,130	3,675,808	4,014,963	4,289,155	4,631,282	4,408,178	4,486,574	4,580,080	4,644,018	4,740,118
Total Weighted Consumption (m ³)	3,180,314		3,476,414	3,489,014	3,509,514	3,540,014	3,583,114	3,654,254	3,715,394	3,776,534	3,849,074	3,933,044
Constant Rate	0.87 \$	0.80	0.87	1.06	1.16	1.20	1.21	1.21	1.21	1.21	1.21	1.21

Town of Tecumseh
 Wastewater Service
 Wastewater Rate Forecast
 Inflated \$

Description	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Wastewater Billing Recovery		1,812,008	1,986,753	2,176,299	2,397,648	2,450,103	2,500,704	2,550,021	2,599,952	2,657,021	2,726,121
Total Weighted Consumption (m ³)		2,853,723	2,880,323	2,879,823	2,917,323	2,870,423	3,031,588	3,092,703	3,153,843	3,226,383	3,310,353
Constant Rate	\$ 0.57	-0.53	0.69	0.76	0.82	0.82	0.82	0.82	0.82	0.82	0.82

Table 7-3
Town of Tecumseh
Town of Tecumseh's Commitment to Sustainable Asset Management
Contributions Towards Capital Budget Replacements and Reserves
 Initiated \$

Year	Water			Wastewater			Total
	Capital Budget	Lifecycle Reserve	Subtotal	Capital Budget	Lifecycle Reserve	Subtotal	
2008	255,000	200,000	200,000	-	100,000	100,000	300,000
2009	260,000	700,000	700,000	16,000	200,000	200,000	900,000
2010	265,000	1,350,000	1,350,000	-	300,000	300,000	1,650,000
2011	271,000	1,600,000	1,600,000	-	500,000	500,000	2,100,000
2012	276,000	2,000,000	2,000,000	-	800,000	800,000	2,800,000
2013	282,000	2,000,000	2,000,000	-	1,000,000	1,000,000	3,000,000
2014	287,000	2,000,000	2,000,000	-	1,000,000	1,000,000	3,000,000
2015	293,000	2,000,000	2,000,000	-	1,211,957	1,211,957	3,211,957
2016	299,000	2,000,000	2,000,000	-	1,211,957	1,211,957	3,211,957
2017	305,000	2,000,000	2,000,000	-	1,211,957	1,211,957	3,211,957
Total	2,793,000	15,850,000	15,850,000	16,000	7,535,871	7,535,871	23,385,871