TOWN OF AMHERSTBURG

WASTEWATER RATE STUDY

IN ASSOCIATION WITH

CH2M HILL CANADA LIMITED

JULY, 2006

PLANNING FOR GROWTH

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1. INTRODUCTION

1.1 Background

The Town of Amherstburg has a population of approximately 21,560 (2005). About 75% of the Town's residents are provided with sewage collection and treatment services by way of communal sewage systems owned by the municipality. The remaining population is serviced by private sewage treatment systems, comprised mostly of septic tanks. The Towns collection and treatment system is comprised of six separate sewage service areas with six individual sewage treatment plants. One system, the McGregor Lagoons, provides sewage collection and treatment for customers in Amherstburg and about 1,000 people in the Town of Essex. The rates charged vary depending on the sewer billing area that existed prior to the amalgamation of the former Town of Amherstburg with the former Townships of Anderdon and Malden in 1998. Sewage service areas, billings areas and rates are as described in Table 1-1.

Table 1-1: Town of Amherstburg Sewage Collection and Treatment Systems

Plant	Treatment	Rated Capacity (m^3/d)	Residential Customers	General Service Customers	Total[a] Customers	Sanitary Billing Area	Flat Rate Per Quarter	Base Rate Monthly $	Volumetric Rate $ per m^3
Amherstburg PCP	Primary Treatment	7,770	3,542	242	3,784	Amherstburg	NA	4.80	.2240
						Part Malden	NA	2.40	.1120
						Texas Road	NA	-	0.09
Edgewater Lagoons	Lagoons	1,614	1,021	3	1,024	Edgewater	41.25	NA	NA
Boblo STP	Rotating Biological Contactor	258	61	0	61	Boblo Island	NA	No Rate	No Rate
McGregor Lagoons	Lagoons	1,127	318 [b]	8	326	McGregor	NA	6.36	0.2968
McLeod STP	Sequencing Batch Reactor	1,015	536	0	536	Malden - Amherst Point Bar Point	NA	8.00	1.6550
Big Creek STP	Rotating Biological Contactor	195	110	0	110	Malden - Lake Erie Country Club	NA	8.00	1.6550
Total			5,588	253	5,841				

NA = Not Applicable, [a] Based on 2005 customer listing, [b] One residential service connection for Lucier Estates (servicing approximately 377residential units)

The rates charged in most areas are based on the rates in effect in each of the former municipalities prior to amalgamation. There are two exceptions to this, the Boblo Island area

and the areas in the former Township of Malden serviced by the McLeod and Big Creek Sewage Treatment Facilities. The McLeod and Big Creek treatment facilities commenced operation in November of 2001 and the initial rate for customers serviced by these facilities was set in May of 2003 at a flat rate charge of $88.44 quarterly. The current rate of $24.00 quarterly and $1.655 per cubic metre of water was established in June of 2004. In the case of Boblo Island, customers connected to the sewage treatment system are currently not charged for service. There was an agreement between the Town (former Township of Malden) and the developer that required the developer to pay all costs for the operation of the Boblo STP until October of 2005; the Town now needs to establish a rate for these customers.

A preliminary review of the wastewater rates in Amherstburg was completed in May of 2005. The conclusions of this review were that in general the existing sewage rates:

- Are not sufficient to recover the existing operating costs
- Do not include all associated service delivery costs and do not account for the full cost of providing the service
- May not be seen as fair and equitable and in some cases encourage wasteful use; and
- Do not have sufficient documented justification

After considering the matter, Amherstburg Town Council decided to conduct a full review of its sewage rates. Council further directed that this review and its resultant rate structure be based on the concept of single tariff pricing (the same unit rate for all customers).

C.N. Watson and Associates Ltd. and CH2M HILL Canada Ltd. have been retained by the Town to assist in completing this review. The assessment provided herein addresses the current situation in Amherstburg in the context of the evolving regulatory situation in the Province and forecasts the implications onto wastewater rates over the next ten year period.

1.2 Study Process

As noted, C.N. Watson and Associates Ltd. and CH2M Hill Canada Ltd. were retained by the Town of Amherstburg to undertake a wastewater rate study. The objectives of the study and the steps involved in carrying out this assignment are summarized below:

- Identify all current and future wastewater system capital needs to assess the immediate and longer-term implications.
- Identify potential methods of cost recovery from the capital needs listing. These recovery methods may include other statutory authorities (e.g. Development Charges, *Municipal Act*, etc.) as an offset to recovery through the wastewater rates.
- Identify existing operating costs by component and estimate future operating costs over the next ten years. This assessment identifies fixed and variable costs in order to project those costs sensitive to changes to the existing infrastructure inventory, as well as costs which may increase commensurate with growth.
- Determine potential rate structure(s) to be considered by the Town.
- Recommend appropriate rate structures along with associated policies to implement and manage the rate structures over the next ten years.
- Provide discussion papers and policy recommendations to staff and Council, relative to the findings.

1.3 Regulatory Changes in Ontario

On December 12, 2001, the Honourable Chris Hodgson, Minister of Municipal Affairs and Housing introduced Bill 155, the "Sustainable Water and Sewage System Act" (only given first reading). This legislation was re-introduced in the fall 2002 legislature as Bill 175, by the Minister of the Environment, Chris Stockwell and was given Royal Assent on December 13, 2002.

In brief, Bill 175 will require full cost pricing of municipal water and wastewater systems. The Act has defined full cost to include:

> "operating costs, financing costs, renewal and replacement costs and improvement costs associated with extracting, treating or distributing water to the public and collecting, treating or discharging wastewater, and such other costs which may be specified by regulation."

It is noted that the initial requirements of Bill 175 have been addressed in this study. While all requirements from this Bill will not be known until regulations are made (expected during this year), the principles on which the Bill directs have been incorporated into this study's approach. Subsequent refinements will be required upon finalization of the Regulations.

1.4 Summary of Bill 175

As noted earlier, the Sustainable Water and Sewage Systems Act was proclaimed on Dec. 13, 2002. The intent of the Act is to introduce the requirement for municipalities to undertake an assessment of the "full cost" of providing their water and wastewater services. It is noted that, at the time of writing, the regulations, which accompany the Act, have not been issued. Hence, the full breadth of the Act is yet to be assessed until that information is available. In total, there are 40 areas within the Act to which the Minister may make Regulations.

Full costs for providing wastewater service is defined in subsection 4(7) of the Act and includes "source protection costs, operating costs, financing costs, renewal and replacement costs and improvement costs associated with collecting, treating or discharging wastewater and such other costs which may be specified by regulation."

The Act will require the preparation of two reports for submission to the Ministry of the Environment (or such other member of the Executive Council as may be assigned the administration of this Act under the Executive Council Act). The first report is on the "full cost of services" and the second is the "cost recovery plan". Once these reports have been reviewed and approved by the Ministry, the municipality will be required to implement the plans within a specified time period.

In regards to the "Full Cost of Services" report, the municipality (deemed a regulated entity under the Act) must prepare and approve a report concerning the provision of water and sewage services. This report must include an inventory of the infrastructure, a management plan providing for the long-term integrity of the systems and address the full cost of providing the services (other matters may be specified by the regulations) along with the revenue obtained to provide them. A professional engineer must certify the inventory and management plan portion of the report. The municipality's auditor will be required to provide a written opinion

on the report. The report must be approved by the municipality and then be forwarded to the Ministry along with the engineer's certification and the auditor's opinion. The regulations will stipulate the timing for this report.

The second report is referred to as a "Cost Recovery Plan" and will address how the municipality intends to pay for the full costs of providing the service. The regulations may specify limitations on what sources of revenue the municipality may use. The regulations may also provide limits as to the level of increases any customer or class of customer may experience over any period of time. Provision is made for the municipality to implement increases above these limits however ministerial approval would be required first. Similar to the first report, the municipal auditor must provide a written opinion on the report prior to Council's adoption, and this opinion must accompany the report when submitted to the Province.

The Act provides the Minister the power to approve or not approve the plans. If the Minister is not satisfied with the report or if a municipality does not submit a plan, the Minister may have a plan prepared. The cost to the Crown for preparing the plan will be recovered from the municipality. As well, the Minister may direct two or more regulated municipalities to prepare a joint plan. This joint plan may be directed at the onset or be directed by the Minister after receiving the individual plans from the municipalities.

The Minister also has the power to order a municipality to generate revenue from a specific revenue source or in a specified manner. The Minister may also order a regulated entity to do or refrain from doing such things as the Minister considers advisable to ensure that the entity pays the full cost of providing the services to the public.

Once the plans are approved and in place, the municipality will be required to submit progress reports. The timing of these reports and the information to be contained therein will be established by the regulations. A municipal auditor's opinion must be provided with the progress report. Municipalities may also revise the plans if they deem the estimate does not reflect the full cost of providing the services, as a result of a change in circumstances, regulatory or other changes that affect their plan, etc. The municipality must then revise its prior plan, provide an auditor's opinion, and submit the plan to the Minister.

As noted earlier, the regulations to accompany the Act will provide significant detail to the specific requirements that municipalities will have to conform to. As the timing of the regulations

along with the timing provided to conform to the Regulations and Act is unclear at this time, it is not possible to address all matters contemplated by the Province. However, this report will address many of the matters in principle pending finalization of the regulations.

1.5 New *Municipal Act* – Rate Setting

As of January 1, 2003, a new Municipal Act has come into force, which provides changes to the regulatory regime for the municipalities. Section 391 of the Act provides the authority for imposing user fees. For the purposes of the Act, water and wastewater rates are deemed as user fees.

Ontario Regulation 244/02, section 12 set out specific requirements related to establishing water and wastewater rules. In summary:

- the amount of the fees and charges must not exceed the cost of providing the system(s)
- by-laws passed to implement the rates will expire (if not repealed earlier) by December 31 of the year following the year the by-law was passed.
- amendments to the by-law do not effect the term
- prior to passage of the of the by-law:
    - hold at least one public meeting
    - notice of the public meeting required at least 21 days before meeting
    - make available information regarding service description, cost of service, amount of the charge and rationale for the charge
    - at the public meeting, any person attending has the opportunity to speak to the matter

1.6 Forecast Growth and Servicing Requirements

A review of the Town's billing information and the annual operations wastewater flow summaries for the various sewage treatment facilities was undertaken for the year 2005. Based on this data, the annual consumption for each user type was determined as illustrated in Table 1-2.

TABLE 1-2: 2005 SEWER USE AND PLANT FLOWS (m^3)

	Sewer Use (Metered Data)					
Plant	**Res**	**GS**	**Res + GS**	**I&I**	**Plant Flow**	**I&I (%)**
Amherstburg	1,011,567	503,895	1,515,462	660,068	2,175,531	30%
Edgewater	335,866	741	336,607	84,606	421,213	20%
Boblo	24,544	0	24,544	19,220	43,764	44%
McGregor	170,390	4,486	174,876	76,959	251,835	31%
McLeod + Big Creek	127,585	0	127,585	29,987	157,573	19%
Total	**1,669,953**	**509,122**	**2,179,075**	**870,840**	**3,049,915**	**29%**

Res – Residential Service
GS – General Service

Total sewage volumes generated in each sewage collection area were determined from water and sewer billing data provided by Essex Power. For instances where metered volumes were unavailable, volumes were estimated by multiplying the number of sewage bills issued by the average water consumption for the area. For periods where neither sewage nor water flows were available, consumption was based on average water use multiplied by the number of service connections. Inflow and Infiltration (I&I) was determined as the difference between plant influent flows and estimated sewage flows.

A forecast of development based on the average number of building permits issued in the Town over the past 10 years was developed and allocated to the various sewage areas based on projected development activity in those areas. Projections were based on incorporating expected reductions in I&I and typical average water use for new residential development. Table 1-3 summarizes the forecasted sewage volumes by sector and Table 1-4 summarizes the forecasted increase in customers by sector.

TABLE 1-3: FORECASTED SEWAGE USE VOLUMES BY SECTOR (X1000 m^3)

		2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Amherstburg, Edgewater & Boblo (Combined)	Res	1,390	1,425	1,460	1,495	1,530	1,566	1,601	1,636	1,671	1,706
	GS	505	505	505	505	505	505	505	505	505	505
	Total	1,894	1,929	1,965	2,000	2,035	2,070	2,105	2,141	2,176	2,211
McGregor	Res	174	180	186	193	199	206	212	218	225	231

TABLE 1-3: FORECASTED SEWAGE USE VOLUMES BY SECTOR (X1000 m³)

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	GS	4	4	4	4	4	4	4	4	4	4
	Total	178	184	191	197	204	210	216	223	229	236
McLeod	Res	108	111	113	116	118	121	124	126	129	131
	GS	0	0	0	0	0	0	0	0	0	0
	Total	108	111	113	116	118	121	124	126	129	131
Big Creek	Res	21.0	21.7	22.3	23.0	23.6	24.2	24.9	25.5	26.2	26.8
	GS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	21.0	21.7	22.3	23.0	23.6	24.2	24.9	25.5	26.2	26.8
All Areas	**Res**	**1,692**	**1,737**	**1,782**	**1,827**	**1,872**	**1,916**	**1,961**	**2,006**	**2,051**	**2,096**
	GS	**509**	**509**	**509**	**509**	**509**	**509**	**509**	**509**	**509**	**509**
	Total	**2,201**	**2,246**	**2,291**	**2,336**	**2,381**	**2,425**	**2,470**	**2,515**	**2,560**	**2,605**

Note: 2006 flows are based on 50% growth; all remaining consecutive years are based on 100% growth rates.

TABLE 1-4: FORECASTED SEWAGE USE CUSTOMERS BY SECTOR

		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Amherstburg, Edgewater & Boblo (Combined)	Res	4,679	4,789	4,899	5,009	5,119	5,229	5,339	5,449	5,559	5,669
	GS	245	245	245	245	245	245	245	245	245	245
	Total	4,924	5,034	5,144	5,254	5,364	5,474	5,584	5,694	5,804	5,914
McGregor	Res	328	348	368	388	408	428	448	468	488	508
	GS	8	8	8	8	8	8	8	8	8	8
	Total	336	356	376	396	416	436	456	476	496	516
McLeod	Res	540	548	556	564	572	580	588	596	604	612
	GS	0	0	0	0	0	0	0	0	0	0
	Total	540	548	556	564	572	580	588	596	604	612
Big Creek	Res	111	113	115	117	119	121	123	125	127	129
	GS	0	0	0	0	0	0	0	0	0	0
	Total	111	113	115	117	119	121	123	125	127	129

TABLE 1-4: FORECASTED SEWAGE USE CUSTOMERS BY SECTOR											
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
All Areas	Res	5,658	5,798	5,938	6,078	6,218	6,358	6,498	6,638	6,778	6,918
	GS	253	253	253	253	253	253	253	253	253	253
	Total	5,911	6,051	6,191	6,331	6,471	6,611	6,751	6,891	7,031	7,171

2. CAPITAL INFRASTRUCTURE NEEDS

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2.1 Amherstburg Pollution Control Plant

The Town of Amherstburg is currently in the process of completing a Schedule "C" Environmental Assessment (EA) Study for three sewage areas, Amherstburg, Edgewater and Boblo Island. The EA was initiated because current daily flows to the Amherstburg Pollution Control Plant (PCP) are near the plant capacity of 7,770 m^3/d. Although Edgewater and Boblo both have some reserve capacity, significant growth is expected in both sewage areas which will quickly use any remaining capacity and result in the need to provide additional treatment capability. As detailed in the Phase Two EA Report, issued in March 2005, the recommended solution includes combining all three sewage areas, and treating waste at an expanded and upgraded Amherstburg PCP. Upgrading the Amherstburg PCP to provide secondary treatment is expected to improve effluent water for both the Amherstburg and Edgewater sewage areas. Currently the Amherstburg PCP provides primary treatment only and Edgewater provides lagoon treatment.

In September 2005 the Town applied for funding under the Canada Ontario Rural Infrastructure Fund (COMRIF) Intake Two funding program; the application was based on upgrading the Amherstburg PCP from a primary treatment plant to an 11,500 m^3/d conventional activated sludge plant with anaerobic digestion. The plant is expected to have sufficient capacity to treat sewage from all three areas up to the year 2030. In April of 2006 the Town was approved for COMRIF funding assistance up to $10,621,280 (Total Federal and Provincial funding).

The proposed work, in the COMRIF application includes upgrades, replacement and new construction of: the influent pump station, grit removal, primary screening, primary clarifiers, secondary clarifiers, aeration basins, blowers, air diffusion, chemical feed, anaerobic digesters, dewatering, UV disinfection, pump stations & forcemains to connect Edgewater & Boblo to the Amherstburg PCP and decommissioning of the old Edgewater & Boblo plants. The total estimated cost for this work is approximately $28,631,500 and the cost sharing of costs is outlined in Table 2-1. The cost of the PCP upgrades to be funded from the rate is estimated at $9,587,860 (2005 $).

Table 2-1: PCC UPGRADE EXPANSION AND RELATED CAPITAL COSTS UNINFLATED (2006 $)	
Description	**Total**
Total Project Costs	$ 28,631,500
Less Development Charges Share (Growth)	$ 8,422,360
Amherstburg Non-Growth Costs	$ 20,209,140
Less Federal Funding of Non Growth Costs	$ 5,310,640
Less Provincial Funding of Non Growth Costs	$ 5,310,640
Amherstburg - Sewer Rate Share	**$ 9,587,860**

2.2 Inflow and Infiltration Program

In 2004 a wastewater flow analysis was undertaken for the Amherstburg sewage area. This analysis determined that about 38% of the annual yearly flow to the PCP is from Inflow and Infiltration (I&I). The plant does not have sufficient capacity to accept the high flows caused by I&I and the result is that about 15% of the annual yearly flow to the plant is being bypassed to the Detroit River untreated.

I&I flow enters the sewage system through leaky pipes, combined sewers and improper connections. During periods of high I&I the plant can not accept all of the flow and so a portion is by-passed directly to the Detroit River with out treatment, degrading overall river water quality. Typically communities strive for an I&I of approximately 12 to 15%. The Ministry of Environment directed the Town to find ways of reducing the number of bypass events and the volume of sewage being bypassed to the river untreated. As a result of this direction, in the fall of 2004 the Town completed and Inflow and Infiltration study which included smoke testing and video surveillance of components of the sewage system to determine the primary inflow and infiltration problem areas. Based on this investigation, system improvements to reduce the amount of I&I entering the sewer system were recommended. These improvements included:

- Disconnection of private storm drains from the sanitary sewer
- Disconnection of road catch basins from the sanitary sewer and their connection to the storm sewer
- Repair or replacement existing leaking manholes on sanitary sewers
- Relining of a deteriorated section of sanitary sewer trunk main on Dalhousie Street
- The elimination of manholes and/or the reconfiguration of manhole overflow weirs in sanitary sewer manholes

- Completion of combined sewer separation subprojects in four general areas tributary to the Amherstburg PCP. The St. Arnaud area, the Simcoe Street area, the Dalhousie Street area and the Laird Road area.

In January 2005 the Town of Amherstburg applied for funding under the Canada Ontario Rural Infrastructure Fund (COMRIF) Intake One funding program, to help pay for the recommended improvements. The total cost of the inflow and infiltration program is $4,560,000 (2005$). The estimated cost of the work included in the application as being eligible for funding was $3,750,000. In April of 2005 the Town was approved for COMRIF funding for up to $2,500,000 (Total Federal and Provincial funding). The cost of the inflow and infiltration program to be funded from the rate is estimated at $2,060,000 (2005 $).

2.3 McGregor Sewage Lagoons Upgrades

A third major component of Wastewater capital costs is for a number of upgrades and renewal works at the McGregor Lagoons. Works planned include:

- Reconstruction of a sanitary pumping station at Lucier Estates
- Installation of chemical feed
- Fencing maintenance
- Installation of effluent disinfection in accordance with the system's Certificate of Approval
- Scheduled cleanout of the three lagoon cells, and
- An environmental assessment for future lagoon expansion

The total cost of upgrades and maintenance of the McGregor Lagoons is approximately $1,730,200 and all of this work is to be funded from the rate.

2.4 Capital Forecast

Table 2-2 provides a 10-year capital forecast for Wastewater Service for the Town of Amherstburg. The basis for this forecast is the engineering assessments described above and discussions with staff. The forecast provides for $35.7 million in capital spending (uninflated), summarized as follows:

- Sewer Separation Program - $4,560,000

- Boblo Wastewater Treatment Plant - $79,396
- Amherstburg Pollution Control Plant - $28,795,340 (includes plant expansion and maintenance items)
- McGregor Lagoons - $1,730,200
- Edgewater Lagoons - $114,500
- Additional Capital Costs for Public Works (equipment & vehicle purchases) - $204,560
- Additional Capital Costs for Public Works (road restoration of sewer works) - $200,000

TABLE 2-2: SEWAGE SYSTEMS CAPITAL COSTS UNINFLATED (2006 $)

		Forecast					
Description	**Total**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011 to 2015**
Amherstburg - PCP Upgrade & Expansion (COMRIF)	23,560,150	600,000	2,044,677	10,409,147	10,409,147	97,179	0
Decommissioning of Edgewater Lagoons	387,000	0	0	0	0	0	387,000
Demolition of Existing Infrastructure (COMRIF)	664,350	0	0	664,350	0	0	0
Connect Edgewater to Amherstburg PCP	1,600,000	0	0	0	0	1,600,000	0
Connect Boblo to Amherstburg PCP	880,000	0	0	0	0	0	880,000
Connect Amherst Quarry to Amherstburg PCP	910,000	0	0	0	0	0	910,000
Connect Alma St. Industrial to Amherstburg PCP	630,000	0	0	0	0	0	630,000
Amherstburg - Other Works	163,840	163,840	0	0	0	0	0
Edgewater - Replace 3 lagoon distribution gates	20,000	10,000	10,000	0	0	0	0
Edgewater - Other	94,500	94,500	0	0	0	0	0
Boblo	79,396	0	79,396	0	0	0	0
McGregor	1,730,200	195,200	1,195,000	0	170,000	0	170,000
McLeod	0	0	0	0	0	0	0
Big Creek	0	0	0	0	0	0	0
Sewer Separation Program	4,560,000	2,380,000	1,750,000	430,000	0	0	0
Public Works - Mechanical	204,560	760	173,800	30,000	0	0	0
Public Works - Roads Related Sewage Works	200,000	160,000	40,000	0	0	0	0
Total	35,683,996	3,604,300	5,292,873	11,533,497	10,579,147	1,697,179	2,977,000

3. LIFE CYCLE COSTING

3. LIFE CYCLE COSTING

3.1 Overview of Life Cycle Costing

3.1.1 Definition

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

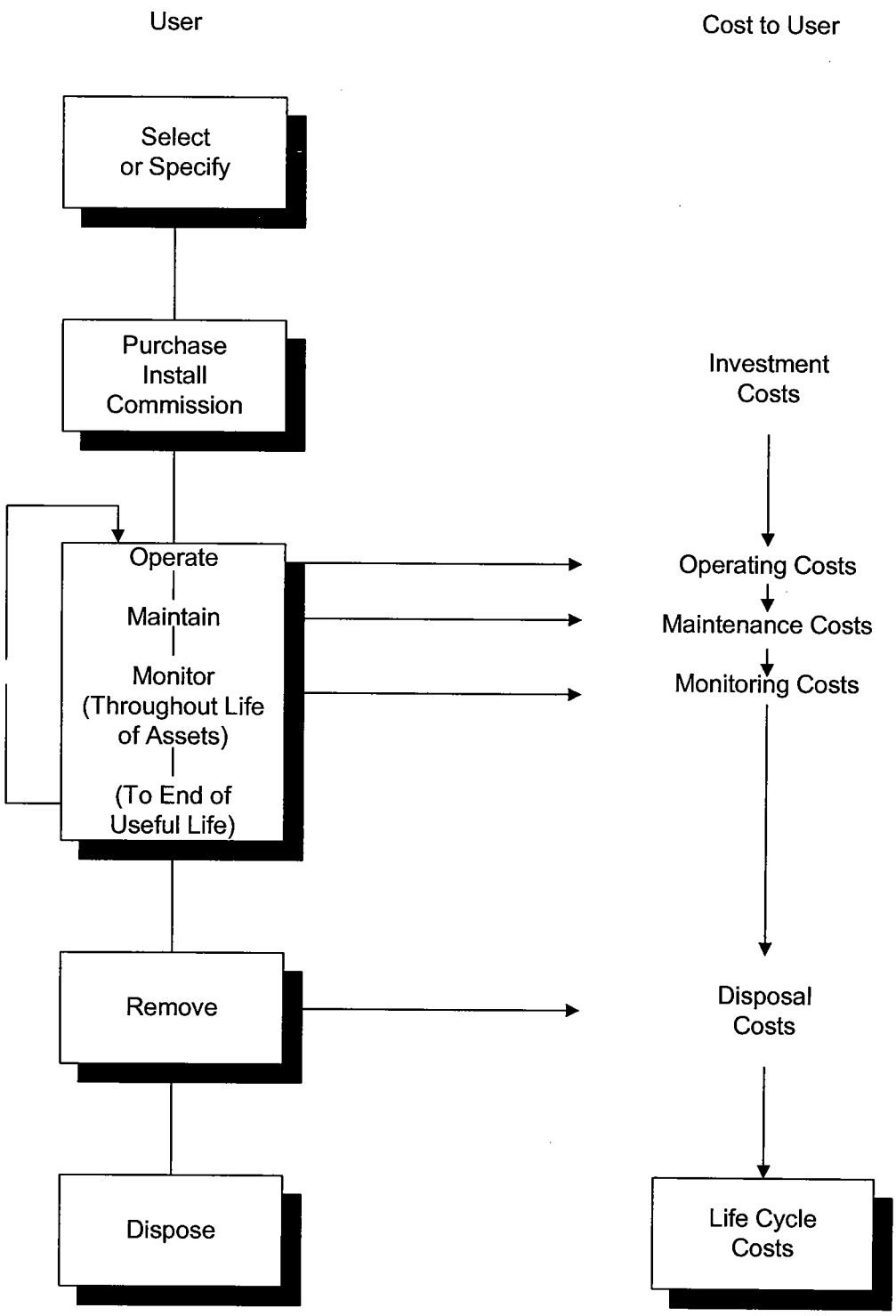
By definition, life cycle costs are all the costs which are incurred during the life cycle of a physical asset, from the time its acquisition is first considered, to the time it is taken out of service for disposal or redeployment. The stages which the asset goes through in its life cycle are specification, design, manufacture (or build), install, commission, operate, maintain and disposal. Figure 3-1 depicts these stages in a schematic form.

3.1.2 Financing Costs

This section will focus on financing mechanisms in place to fund the costs incurred throughout the asset's life.

In a municipal context, services are provided to benefit tax/rate payers. Acquisition of assets is normally timed in relation to direct needs within the community. At times, economies of scale or technical efficiencies will lead to oversizing an asset to accommodate future growth within the municipality. Over the past few decades, new financing techniques such as development charges have been employed based on the underlying principle of having tax/rate payers who benefit directly from the service paying for that service. Operating costs which reflect the cost of the service for that year are charged directly to all existing tax/rate payers who have received the benefit. Operating costs are normally charged through the tax base or user rates.

Figure 3-1
Life Cycle Costing



Capital expenditures are recouped through several methods; operating budget contributions, development charges, reserves, developer contributions and debentures, being the most common.

New construction related to growth could produce development charges and developer contributions (e.g. works internal to a subdivision which are the responsibility of the developer to construct) to fund a significant portion of projects, where new assets are being acquired to allow growth within the municipality to continue. As well, debentures could be used to fund such works, with the debt charge carrying costs recouped from taxpayers in the future.

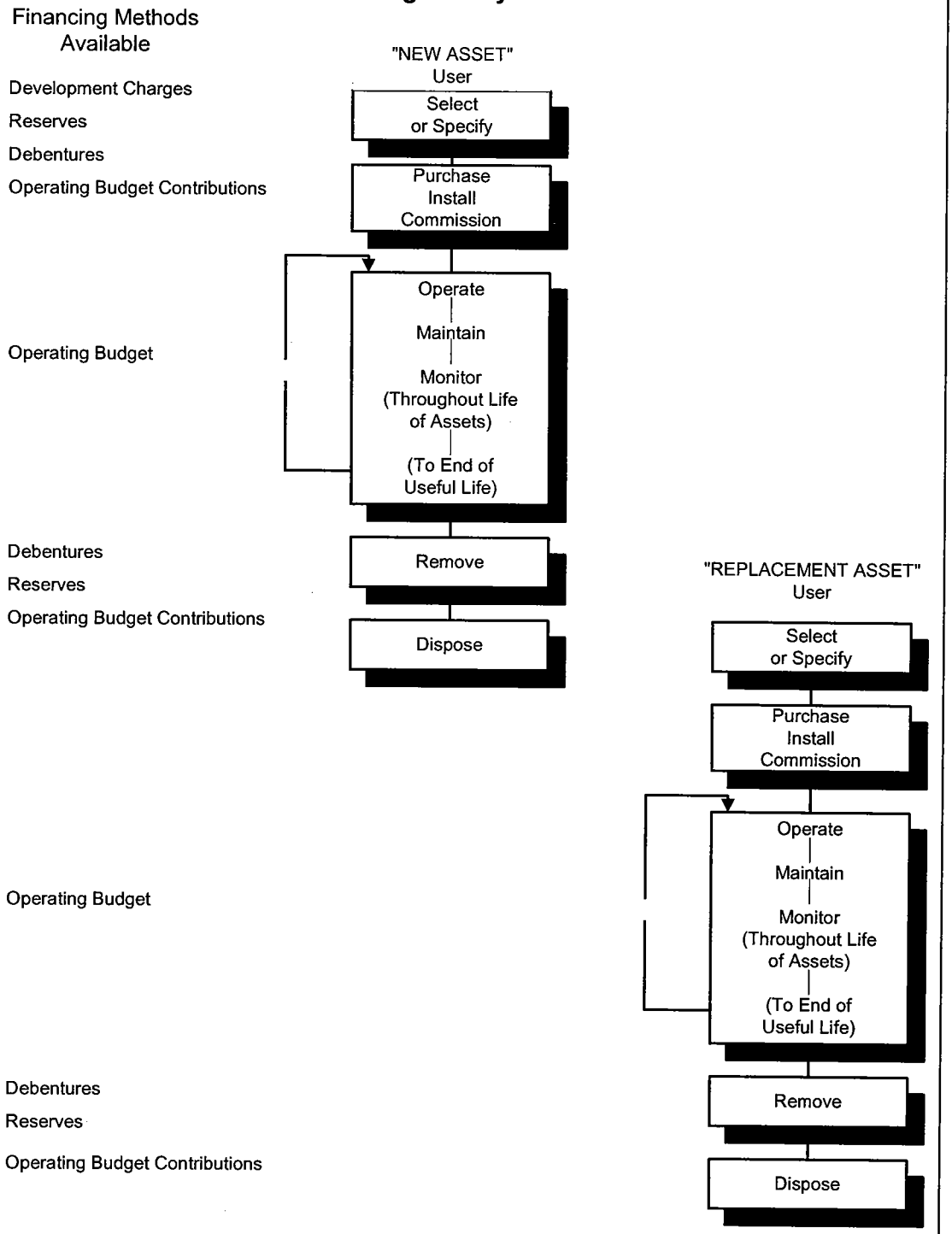
However, capital construction to replace existing infrastructure is largely not growth-related and will therefore not yield development charges or developer contributions to assist in financing these works. Hence, a municipality will be dependent upon debentures, reserves and contributions from the operating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

Figure 3-2 depicts the costs of an asset from its initial conception through to replacement and then continues to follow the associated costs through to the next replacement.

As referred to earlier, growth-related financing methods such as development charges and developer contributions could be utilized to finance the growth-related component of the new asset. These revenues are collected (indirectly) from the new homeowner who benefits directly from the installation of this asset. Other financing methods may be used as well to finance the non-growth related component of this project; reserves which have been collected from past tax/rate payers, operating budget contributions which are collected from existing tax/rate payers and debenturing which will be carried by future tax/rate payers. Ongoing costs for monitoring, operating and maintaining the asset will be charged annually to the existing tax/rate payer.

When the asset requires replacement, the sources of financing will be limited to reserves, debentures and contributions from the operating budget. At this point, the question is raised; "If the cost of replacement is to be assessed against the tax/rate payer who benefits from the replacement of the asset, should the past tax/rate payer pay for this cost or should future rate payers assume this cost?" If the position is taken that the past user has used up the asset, hence he should pay for the cost of replacement, then a charge should be assessed annually, through the life of the asset to have funds available to replace it when the time comes. If the

Figure 3-2
Financing Life Cycle Costs



position is taken that the future tax/rate payer should assume this cost, then debenturing and possibly, a contribution from the operating budget should be used to fund this work.

Charging for the cost of using up of an asset is the fundamental concept behind depreciation methods utilized by the private sector. This concept allows for expending the asset as it is used up in the production process. The tracking of these costs forms part of the product's selling price and hence end users are charged for the asset's depreciation. The same concept can be applied in a municipal setting to charge existing users for the asset's use and set those funds aside in a reserve to finance the cost of replacing the asset in the future.

3.1.3 Costing Methods

There are two fundamental methods of calculating the cost of the usage of an asset and for the provision of the revenue required when the time comes to retire and replace it. The first method is the Depreciation Method. This method recognizes the reduction in the value of the asset through wear and tear, and aging. There are two commonly used forms of depreciation: the straight-line method and the reducing balance method.

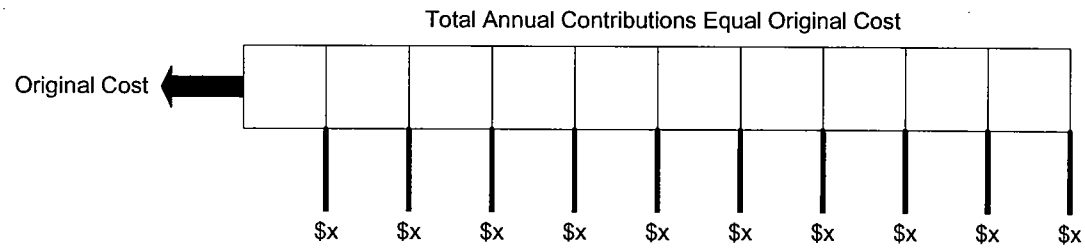
The straight line method is calculated by taking the original cost of the asset, subtracting its estimated salvage value (estimated value of the asset at the time it is disposed of) and dividing this by the estimated number of years of useful life. The reducing balance method is calculated by utilizing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

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

Of the two costing methods, the sinking fund method is preferred for municipalities. This method considers the potential investment earnings over time and is better able to accommodate changes in replacement costs and timing associated with periodic engineering assessment updates.

FIGURE 3-3

STRAIGHT LINE DEPRECIATION

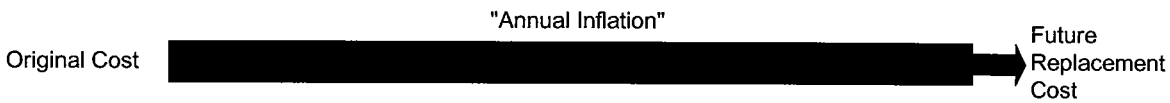


Formula:

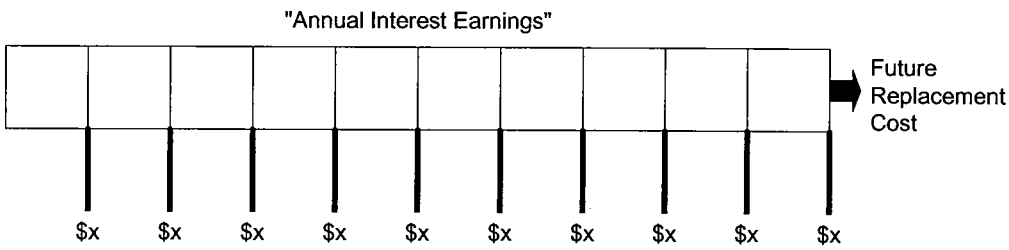
$$\frac{\text{Original Cost - Salvage Cost}}{\text{Number of Years of Useful Life}}$$

SINKING FUND METHOD

1. "Estimate Future Replacement Cost"



2. "Estimate Annual Contribution which will Grow with Interest to Equal Future Replacement Cost"



3.2 Impact on Budgets

Detailed sanitary sewer inventory information was obtained from the Town. The age of the systems date back to the 1950s in the Amherstburg plant area, the 1970's in Edgewater, the 1980's in McGregor and McLeod, the 1990's on Boblo Island and most recently, Big Creek was constructed over the past 6 years.

The detailed sanitary sewer and wastewater treatment plant inventories are provided in Appendix B. As well, the lifecycle "sinking fund" method calculation has also been provided to determine the level of investment the Town may wish to consider as part of its budgeting practices. This information is summarized below:

Area	Total Replacement Value		Amount to be funded in 10 year forecast	Net Asset Funded through Lifecycle	Annual Lifecycle Replacement
Wastewater					
Treatment Plant					
- Amherstburg	18,162,610	*	18,162,610	-	-
- McGregor	2,515,828			2,515,828	49,309
- Big Creek	4,380,762			4,380,762	75,275
- Boblo	1,541,000	*	1,541,000	-	-
- Edgewater	6,507,900	*	6,507,900	-	-
- McLeod	5,945,329			5,945,329	178,691
Total Treatment Plant	39,053,429		26,211,510	12,841,919	303,276
Pumping Stations/Forcemains					
- Amherstburg	3,473,774			3,473,774	84,473
- McGregor	1,669,863			1,669,863	32,983
- Big Creek	732,367			732,367	10,097
- Boblo	344,435			344,435	6,073
- Edgewater	3,833,312			3,833,312	98,248
- McLeod	815,712			815,712	11,246
Total Pumping Stations/Forcemains	10,869,464		-	10,869,464	243,119
Sanitary Sewers:					
- Amherstburg	54,550,750			54,550,750	612,877
- McGregor	4,939,896			4,939,896	52,005
- Big Creek	1,228,558			1,228,558	7,192
- Boblo	1,778,723			1,778,723	12,767
- Edgewater	21,381,284			21,381,284	197,750
- McLeod	10,227,790			10,227,790	61,204
Total Sanitary Sewers	94,107,001		-	94,107,001	943,795
Grand Total	**144,029,894**		**26,211,510**	**117,818,384**	**1,490,190**

* Amounts are deemed to be fully replaced by the reengineering of the Amherstburg Plant which will accommodate the flows for all three areas.

It is noted that the inventory of the complete wastewater system and plant will be required to be assessed and reported on by a professional engineer as part of the documentation required under Bill 175 (Sustainable Water and Sewage Systems Act). The detailed specifics of the required assessment and reporting will not be known until the Province has set these standards

by regulation under the Sustainable Water and Sewage Systems Act. With respect to lifecycle costing the following information was taken into consideration:

- approximate age
- material type
- main lengths
- diameter of the mains
- estimated useful life
- estimated unit replacement cost

Provided within the operating budget forecast is a provision for contributions into a Lifecycle Reserve to ensure that adequate funds are available to construct the replacement of the infrastructure when required. In the early years the annual contribution is less than the calculated $1.49 million as it is being phased-in over an approximate five year period (2008-2012).

4. CAPITAL COST FINANCING OPTIONS

4. CAPITAL COST FINANCING OPTIONS

4.1 Summary of Capital Cost Financing Alternatives

Historically, the powers that municipalities have had to raise alternative revenues to taxation to fund capital services have been restrictive. Over the past few years, legislative reforms have been introduced. Some of these have expanded municipal powers (e.g. Bill 26 introduced in 1996 to provide for expanded powers for imposing fees and charges), while others appear to restrict them (Bill 98 in 1997 providing amendments to the *Development Charges Act*).

The Province passed a new *Municipal Act* which came into force on January 1, 2003. Part XII of the Act and O.Reg. 244/02, govern a municipalities ability to impose fees and charges. In contrast to the previous Municipal Act, this Act provides municipalities with broadly defined powers and does not differentiate between fees for operating and capital purposes. It is anticipated that the powers to recover capital costs under the previous Municipal Act will continue within the new Statutes and Regulations, as indicated by s.9(2) and s.452 of the new Municipal Act.

Under s.484 of Municipal Act, 2001, the Local Improvement Act was repealed with the in force date of the Municipal Act (January 1, 2003). The municipal powers granted under the Local Improvement Act now fall under the jurisdiction of the Municipal Act. To this end, on December 20, 2002, O.Reg. 390/02 was filed, which allows for the Local Improvement Act to be deemed to remain in force until April 1, 2003.

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

RECOVERY METHODS	SECTION REFERENCE
• *Development Charges Act, 1997*	4.2

• *Municipal Act*
  • Fees and Charges
  • Sewer and Water Area Charges
  • Connection Fees
  • Local Improvements
	4.3

4.2 *Development Charges Act, 1997*

In November, 1996, the Ontario Government introduced Bill 98, a new *Development Charges Act*. The Province's stated intentions were to "create new construction jobs and make home ownership more affordable" by reducing the charges and to "make municipal Council decisions more accountable and more cost effective." The basis for this Act is to allow municipalities to recover the growth-related capital cost of infrastructure necessary to accommodate new growth within the municipality. Generally the new Act provided the following changes to the former Act.

- Replace those sections of the 1989 DCA which govern municipal development charges. (Education development charges are not to be significantly altered at this time.)

- Limit services which can be financed from development charges, specifically excluding parkland acquisition, administration buildings, and cultural, entertainment, tourism, solid waste management and hospital facilities.

- Ensure that the level of service used in the calculation of capital costs will not exceed the average level of service over the previous decade. Level of service is to be measured from both a quality and quantity perspective.

- Provide that uncommitted excess capacity available in existing municipal facilities and benefits to existing residents are removed from the calculation of the charge.

- Ensure that the development charge revenues collected by municipalities are spent only on those capital costs identified in the calculation of the development charge.

- Require municipalities to contribute funds (e.g. taxes, user charges or other non-development charge revenues) to the financing of certain projects primarily funded from development charges. The municipal contribution is 10 percent for services such as recreation, parkland development, libraries, etc.

- Permit (but apparently not require) municipalities to grant developers credits for the direct provision of services identified in the development charge calculation and, when credits are granted, require the municipality to reimburse the developer for the costs the

municipality would have incurred if the project had been financed from the development charge reserve fund.

- Set out provisions for front-end financing capital projects (limited to essential services) required to service new development.

- Set out provisions for appeals and complaints, and transitional rules, including that municipalities will have up to 18 months from the date of proclamation of the new Act to establish new development charge by-laws, otherwise the old by-laws will expire.

4.3 ***Municipal Act***

4.3.1 Part XII of the Municipal Act provides municipalities with broad powers to impose fees and charges via passage of a by-law. These powers, as presented in s.391(1), include imposing fees or charges:

- "for services or activities provided or done by or on behalf of it;
- for costs payable by it for services or activities provided or done by or on behalf of any other municipality or local board; and
- for the use of its property including property under its control"

  Restrictions are provided to ensure that the form of the charge is not akin to a poll tax. Any charges not paid under this authority may be added to the tax roll and collected in a like manner. The fees and charges imposed under this part are not appealable to the OMB.

4.3.2 s.221 of the previous Municipal Act, permitted municipalities to impose charges, by by-law, on owners or occupants of land who would or might derive benefit from the construction of sewage (storm and sanitary) or water works being authorized (in a Specific Benefit Area). For a by-law imposed under this section of the previous Act:

- A variety of different means could be used to establish the rate and recovery of the costs could be imposed by a number of methods at the discretion of Council (i.e. lot size, frontage, number of benefiting properties, etc.);

- Rates could be imposed in respect to costs of major capital works, even though an immediate benefit was not enjoyed;
- Non-abutting owners could be charged;
- Recovery was authorized against existing works, where a new water or sewer main was added to such works, "notwithstanding that the capital costs of existing works has in whole or in part been paid."
- Charges on individual parcels could be deferred;
- Exemptions could be established;
- Repayment was secured; and
- OMB approval was not required.

While under the new Municipal Act no provisions are provided specific to the previous s.221, the intent to allow capital cost recovery through fees and charges is embraced within s.391. The new Municipal Act also maintains the ability of municipalities to impose capital charges for water and sewer services on landowners not receiving an immediate benefit from the works. Under s.391(2) of the Act, "a fee or charge imposed under subsection (1) for capital costs related to sewage or water services or activities may be imposed on persons not receiving an immediate benefit from the services or activities but who will receive a benefit at some later point in time." Also, capital charges imposed under s.391 are not appealable to the OMB on the grounds that the charges are "unfair or unjust."

4.3.3 s.222 of the previous Municipal Act permitted municipalities to pass a by-law requiring buildings to connect to the municipality's sewer and water systems, charging the owner for the cost of constructing services from the mains to the property line. Under the new Municipal Act, this power still exists under Part II, General Municipal Powers (s.9(3)b of the Municipal Act). Enforcement and penalties for this use of power are contained in s.427(1) of the Municipal Act.

4.3.4 Under the previous *Local Improvement Act*:

- A variety of different types of works could be undertaken, such as watermain, storm and sanitary sewer projects, supply of electrical light or power, bridge construction, sidewalks, road widening and paving.
- Council could pass a by-law for undertaking such work on petition of a majority of benefiting taxpayers, on a 2/3 vote of Council and on sanitary grounds, based on the

recommendation of the Minister of Health. The by-law was required to go to the OMB, which might hold hearings and alter the by-law, particularly if there were objections.

- The entire cost of a work was assessed only upon the lots abutting directly on the work, according to the extent of their respective frontages, using an equal special rate per metre of frontage.
- As noted, this Act was repealed as of April 1, 2003; however, O.Reg. 119/03 was enacted on April 19, 2003 which restores many of the previous *Local Improvement Act* provisions; however, the authority is now provided under the *Municipal Act*.

4.4 Grant Funding Availability

Since the early 1980's, the level of Provincial and Federal assistance toward municipal infrastructure has declined significantly. By the mid 1990's, there were very limited funds available from senior levels of government. In mid-2000, initiatives from the Provincial and Federal level were announced; providing for a new program (OSTAR) to assist small cities, towns and rural areas in addressing infrastructure improvements. As of November 2004, a new program (COMRIF) has been introduced. An overview of that program is provided below:

- the program is targeted at municipalities with a population of less than 250,000;
- the objectives of the program include enhancing/renewing aging infrastructure, improving quality of the environment, protecting the health and safety of citizens, support long term growth and building strong communities;
- the program funding will total $900 million to which one-third funding would be contributed each by the federal, provincial and local governments;
- application will be taken in three stages (January 10, 2005, Spring 2005, Spring 2006);
- for projects up to $15 million, approval may be granted by the Review Committee. For amounts over $15 million, cabinet approval is required;
- eligible services include water and sewage treatment, waste management, roads, bridges, public transit, municipal energy improvements, cultural, recreation and tourism.

4.5 Existing Reserves/Reserve Funds

The Municipality has established reserve funds for water and wastewater capital costs. The following table summarizes the water and wastewater reserves utilized in this analysis and the respective 2005 year-end closing balances.

Reserve Fund	Amount as of December 31, 2005
Capital Reserve Fund	(1,182,709.53)
Equipment Replacement Reserve	-
Lifecycle Reserve Fund	-
Development Charges Reserve Fund - Wastewater	455,857.00

4.6 Debenture Financing

Although it is not a direct method of minimizing the overall cost to the ratepayer, debentures are used by municipalities to assist in cash flowing large capital expenditures.

The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act*. Ontario Regulations 403/02 provides the current rules respecting municipal debt and financial obligations. Through the rules established under these regulations, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own purpose revenue may be allotted for servicing the debt (i.e. debt charges). Appendix A provides for the most recent debt capacity letter from the Province. As of 2006, the Town has the ability to issue approximately $15 million based on debt with a ten year term or up to $23 million for debt with a twenty year term.

It should be noted, however, that the issuance of debt should be managed at levels sustainable by the municipality. Issuance of large amounts of debt in any one year can have dramatic impacts on taxes and rates. Hence, proper management of capital spending and the level of debt issued annually must be monitored and evaluated over the longer-term period.

4.7 Infrastructure Renewal Bonds

The Ontario Strategic Financing Authority (OSIFA) is a relatively new crown agency, reporting to the Ministry of Finance, which has been set up as a tool to offer low-cost and longer-term financing to assist municipalities in renewing their infrastructure. OSIFA combines the infrastructure renewal needs of municipalities into an infrastructure investment "pool". OSIFA will raise investment capital to finance loans to the public sector by selling a new investment product called Infrastructure Renewal Bonds to individual and institutional investors.

OSIFA provides access to infrastructure capital that would not otherwise be available to smaller borrowers. Larger borrowers receive a longer term on their loans than they could obtain in the financial markets, and can also benefit from significant savings on transaction costs such as legal costs and underwriting commissions. Under the OSIFA approach, all borrowers receive the same low interest rate. OSIFA will enter into financial agreement with each municipality subject to technical and credit reviews, for a loan up to the maximum amount of the loan request.

The first round of OSIFA's 2004-05 infrastructure renewal program was focused on municipal priorities of clean water infrastructure, sewage treatment facilities, municipal roads and bridges, public transit and waste management infrastructure. The focus of the program has expanded somewhat to include:

- clean water infrastructure;
- sewage infrastructure;
- waste management infrastructure;
- municipal roads and bridges;
- public transit;
- municipal long-term care homes;
- renewal of municipal social housing and culture;
- tourism and recreation infrastructure.

It is noted that the interest rates will vary from time to time. The following interest rates were available to municipalities for the following term, based on a serial repayment schedule as of July 20, 2006:

5 years	4.69%
10 years	4.85%
15 years	4.97%
20 years	5.07%
25 years	5.14%
30 years	5.18%

To be eligible to receive these loans, municipalities must submit a formal application along with pertinent financial information. Allotments are prioritized and distributed based upon the Province's assessment of need.

4.8 Recommended Approach

Of the various alternatives provided in this section, the following are recommended for further consideration of the Town of Amherstburg:

- Grants – Presently, the Town has grant funding approval for works required at the Amherstburg Plant and for the sewer separation program.

- Reserves – As noted, there is a deficit ($1.18 million) in the capital reserve fund which will be recovered from the wastewater rates. It is also recommended that an Equipment Replacement reserve be established to assist with capital replacement in the future.

- Debt - Debentures have been used to assist in financing the capital program. Given the anticipated debt required for water ($12.8 million) and the debt required in the 2006 capital budget for roads, bridges, etc. ($4.24 million), along with the requirement for debt identified in this study for wastewater ($9.88 million) the debt capacity for the Town will be fully utilized. It is observed that the growth related expenditures will be incurred in advance of development charge collections which will result in the need to enter into accelerated payment timing arrangements and/or front-ending agreements with developers (i.e. the Town will not have the debt capacity to cash flow the growth related costs). The debt charges associated with the total non-growth related debt required of $9.88 million over the 10 year forecast will be recovered from the wastewater rates. A cash-flow assessment has been undertaken on the expected

development charge revenue flows vs. the growth needs and a negative cash flow in anticipated. Therefore, it is recommended that the Town enter into accelerated payment timing agreements and/or front-ending arrangements to assist with financing the growth-related capital requirements.

- OSIFA Bonds – No provision for funding has been made at this time.

- Development Charges – Provision has been made for development charge payments based on the current development charge by-law however, based on the Town's present policy of not charging non-residential growth, only the residential revenues were included herein. $4.7 million has been forecast to be directly used for financing capital and as noted above, additional financial arrangements with developers will be required due to growth-related expenditures/revenue shortfalls.

Table 4-1 provides for the full capital expenditure and funding program by year.

Table 4-1
Town of Amherstburg
Wastewater Service
Capital Budget Forecast
Inflated $

Description	Total	Forecast									
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Capital Expenditures											
Sewage Collection System Capital Costs:											
Amherstburg - PCP Upgrade & Expansion (COMRIF)	24,666,707	600,000	2,085,571	10,829,677	11,046,270	105,190	0	0	0	0	0
Decommissioning of Edgewater Lagoons	427,279	0	0	0	0	0	427,279	0	0	0	0
Demolition of Existing Infrastructure	691,190	0	0	691,190	0	0	0	0	0	0	0
Connection of Edgewater to Amherstburg PCP	1,731,891	0	0	0	0	1,731,891	0	0	0	0	0
Connection of Boblo to Amherstburg PCP	1,031,060	0	0	0	0	0	0	0	0	1,031,060	0
Connection of Amherst Quarry to Amherstburg PCP	1,045,304	0	0	0	0	0	0	0	1,045,304	0	0
Connection of Alma St. Industrial ot Amherstburg PCP	709,482	0	0	0	0	0	0	709,482	0	0	0
Amherstburg - Other Works	163,840	163,840	0	0	0	0	0	0	0	0	0
Edgewater - Replace 3 lagoon distribution gates	20,200	10,000	10,200	0	0	0	0	0	0	0	0
Edgewater - Other	94,500	94,500	0	0	0	0	0	0	0	0	0
Boblo	80,984	0	80,984	0	0	0	0	0	0	0	0
McGregor	1,782,199	195,200	1,218,900	0	180,405	0	187,694	0	0	0	0
McLeod	0	0	0	0	0	0	0	0	0	0	0
Big Creek	0	0	0	0	0	0	0	0	0	0	0
Sewer Separation Program - Eligible for Subsidy	4,234,402	2,230,000	1,557,030	447,372	0	0	0	0	0	0	0
Sewer Separation Program - Ineligible for Subsidy	377,970	150,000	227,970	0	0	0	0	0	0	0	0
PW - Mechanical	209,248	760	177,276	31,212	0	0	0	0	0	0	0
PW - Roads Related Sewage Works	200,800	160,000	40,800	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
Total Capital Expenditures	37,467,057	3,604,300	5,398,730	11,999,450	11,226,675	1,837,081	614,973	709,482	1,045,304	1,031,060	0
Capital Financing											
Provincial/Federal Grants - Amherstburg	11,100,018	270,000	938,507	4,873,354	4,970,822	47,335	0	0	0	0	0
Provincial/Federal Grants - Sewer Seperation Program	2,822,935	1,486,667	1,038,020	298,248	0	0	0	0	0	0	0
Development Charges *	9,045,016	149,000	505,637	2,599,122	2,651,105	354,305	0	709,482	1,045,304	1,031,060	0
Non-Growth Related Debenture Requirements	9,884,116	1,698,633	1,916,567	3,228,725	2,604,749	435,441	0	0	0	0	0
Growth Related Debenture Requirements	0	0	0	0	0	0	0	0	0	0	0
Operating Contributions	0	0	0	0	0	0	0	0	0	0	0
Reserves and Reserve Funds	4,614,973	0	1,000,000	1,000,000	1,000,000	1,000,000	614,973	0	0	0	0
Total Capital Financing	37,467,057	3,604,300	5,398,730	11,999,450	11,226,675	1,837,081	614,973	709,482	1,045,304	1,031,060	0

* Requires accellerated payments or front-ending arrangements

5. OVERVIEW OF EXPENDITURES AND REVENUES

5. OVERVIEW OF EXPENDITURES AND REVENUES

5.1 Wastewater Operating Expenditures

Forecast budget expenditures for the 2006-2015 period are based on the 2006 operating budget for the Town. The costs for each type of operating expenditure have been reviewed with staff to establish expenditures which would be affected by inflationary adjustments, growth (either by number of customers or increases in overall consumption) or other matters. Based on the review undertaken (see Table 5-1):

- all operating-related expenditures are adjusted for inflation annually;

- additional expenses ($60,000 in 2006 dollars) have been included to recognize additional employees required to meet legislative requirements.

In addition to the above, the capital-related portion of the budget must also be considered. Generally, this portion of the budget provides for existing and/or future debt charges, reserve fund transfers or direct transfers to the capital program. The budget presented on Table 5-1 provides for:

- Existing Debt – The Town has existing debt charges for past borrowing to finance the capital program. Current payments are approximately $370,000 and will be fully paid off by 2022.

- New Debt – The capital program provides for funding of non-growth-related expenditures via debt. The repayment for amounts borrowed must be recovered in future years through the operating budget. Debt charges are expected to grow to almost $1.34 million by the end of the forecast (debt calculations provided for in Appendix C).

- Transfers to Reserves – The Town is experiencing negative balances in the wastewater reserve and therefore must increase the amount transferred to reserves to both recover the existing deficit and to assist in financing future capital. As per the program set out in Chapter 3, this amount may be reduced over the forecast period as adequate funding will be available.

- Life cycle Reserves – As per Chapter 4, additional capital expenditures will be needed in future years to replace aging infrastructure. Commensurate with Bill 175, an Infrastructure Management Plan will need to be developed and submitted to the Province for approval. These contributions will be set aside to finance the needs arising from that plan.

Table 5-1 provides for the net expenditure amounts which will be required to be funded by wastewater rates.

Table 5-1
Town of Amherstburg
Wastewater Service
Operating Budget Forecast
Inflated $

Description	Forecast									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Expenditures										
Operating Costs										
Amherstburg	1,057,236	1,078,381	1,099,949	1,121,948	1,144,387	1,167,274	1,190,620	1,214,432	1,238,721	1,263,495
Edgewater	337,241	343,986	350,866	357,883	365,041	372,342	379,788	387,384	395,132	403,035
Boblo	116,058	118,379	120,747	123,162	125,625	128,138	130,700	133,314	135,981	138,700
McGregor	286,926	292,664	298,518	304,488	310,578	316,789	323,125	329,587	336,179	342,903
McLeod	256,963	262,102	267,344	272,691	278,145	283,708	289,382	295,170	301,073	307,095
Big Creek	115,534	117,844	120,201	122,605	125,057	127,558	130,110	132,712	135,366	138,073
New Employees		61,200	62,424	63,672	64,946	66,245	67,570	68,921	70,300	71,706
Sub Total Operating	2,169,958	2,274,557	2,320,048	2,366,449	2,413,778	2,462,054	2,511,295	2,561,521	2,612,751	2,665,006
Capital-Related										
Existing Debt Non-Growth Related	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684
Existing Debt Growth Related	65,296	0	0	0	0	0	0	0	0	0
New Non-Growth Related Debt	0	230,790	491,190	929,870	1,283,772	1,342,935	1,342,935	1,342,935	1,342,935	1,342,935
New Growth Related Debt	0	0	0	0	0	0	0	0	0	0
Capital From Current	0	0	0	0	0	0	0	0	0	0
Transfer to Equipment Reserve	30,000	60,000	90,000	120,000	150,000	0	0	0	0	0
Transfer to Rate Stabilization Reserve										
Transfer to Reserves and Reserve Funds	1,182,710	1,600,000	1,400,000	990,000	600,000	550,000	30,000	100,000	200,000	290,000
Sub Total Capital Related	1,580,690	2,193,474	2,283,874	2,342,554	2,336,456	2,195,619	1,675,619	1,745,619	1,845,619	1,935,619
Total Expenditures	3,750,648	4,468,031	4,603,922	4,709,004	4,750,235	4,657,673	4,186,914	4,307,140	4,458,370	4,600,625
Revenues										
Base Charge	1,316,538	1,373,714	1,432,854	1,493,263	1,555,709	1,620,234	1,686,897	1,755,739	1,825,990	1,898,499
Recovery from Local Improvement	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684
Contributions from Development Charges Reserve Fund	65,296	0	0	0	0	0	0	0	0	0
Contributions from Reserves / Reserve Funds	0	0	0	0	0	0	0	0	0	0
Total Operating Revenue	1,684,518	1,676,398	1,735,538	1,795,947	1,858,394	1,922,918	1,989,581	2,058,423	2,128,674	2,201,183
Wastewater Billing Recovery - Operating	2,066,130	2,791,633	2,868,384	2,913,056	2,891,841	2,734,755	2,197,333	2,248,716	2,329,696	2,399,442
Lifecycle Reserve Contribution ($)			120,000	280,000	500,000	870,000	1,490,190	1,490,190	1,490,190	1,490,190
Wastewater Billing Recovery - Total	**2,066,130**	**2,791,633**	**2,988,384**	**3,193,056**	**3,391,841**	**3,604,755**	**3,687,522**	**3,738,906**	**3,819,885**	**3,889,632**
Total Revenue	**3,750,648**	**4,468,031**	**4,723,922**	**4,989,004**	**5,250,235**	**5,527,673**	**5,677,103**	**5,797,329**	**5,948,560**	**6,090,815**

* Table includes Base Charge Revenue which is discussed further in Chapter 6.

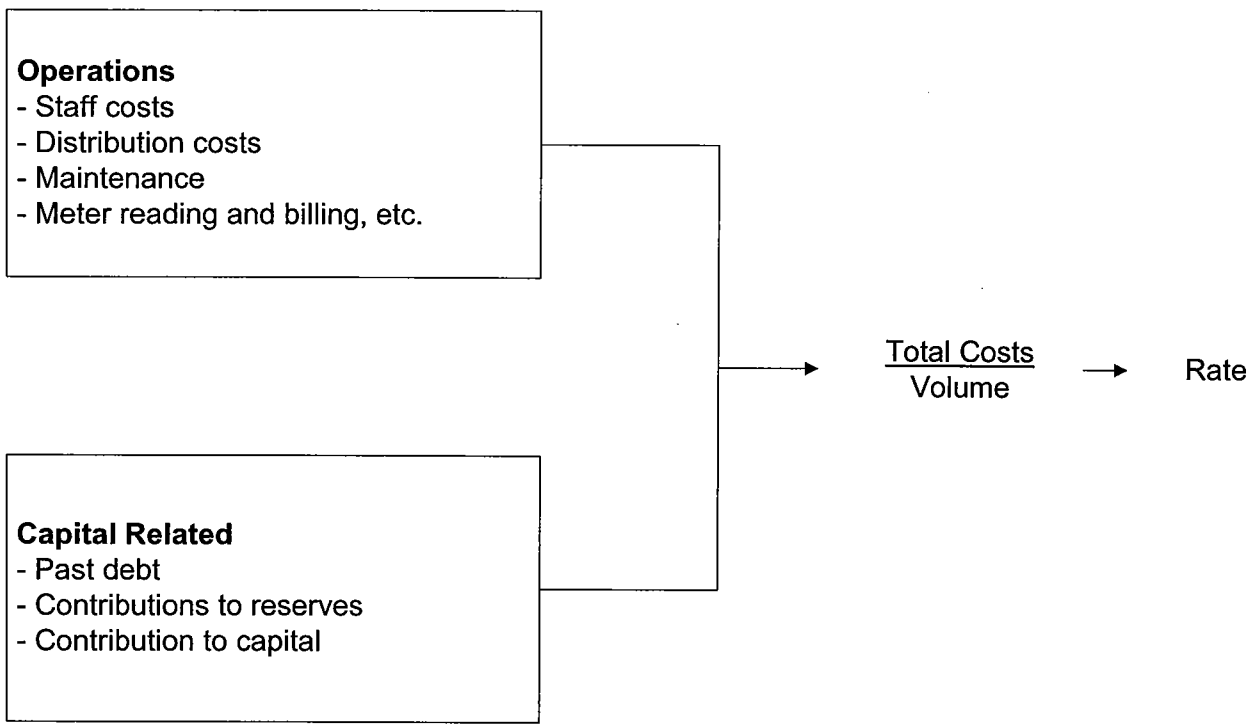
6. PRICING STRUCTURES

6. PRICING STRUCTURES

6.1 Introduction

Rates in their simplest form can be defined as total costs to maintain the utility function divided by the total expected volume to be generated for the period. Total costs are usually a combination of operating costs (e.g. staff costs, distribution costs, maintenance, administration, etc.) and capital-related costs (e.g. past debt to finance capital projects, transfers to reserves to finance future expenditures, etc.). The schematic below provides a simplified illustration of the rate calculation for water.

"ANNUAL COSTS"



These operating and capital expenditures will vary over time. An example of factors which will affect the expenditures over time are provided below:

Operations

- Inflation
- Increased maintenance as system ages
- Changes to Provincial legislation

Capital Related

- New capital will be built as areas expand
- Replacement capital needed as system ages
- Financing of capital costs are a function of policy regarding reserves and direct financing from rates (pay as you go), debt and user pay methods (development charges, *Municipal Act*)

6.2 Alternative Pricing Structures

Throughout Ontario, and as well, Canada, the use of pricing mechanisms varies between municipalities. The use of a particular form of pricing depends upon numerous factors, including Council preference, administrative structure, surplus/deficit system capacities, economic/ demographic conditions, to name a few.

Municipalities within Ontario have two basic forms of collecting revenues for water purposes, those being through incorporation of the costs within the tax rate charged on property assessment and/or through the establishment of a specific water rate billed to the customer. Within the rate methods, there are four basic rate structures employed:

- Flat Rate
- Constant Rate
- Declining Block Rate
- Increasing (or Inverted) Block Rate.

The definitions and general application of the various methods are as follows:

Property Assessment: This method incorporates the total costs of providing water into the general requisition or the assessment base of the municipality. This form of collection is a "wealth tax", as payment increases directly with the value of property owned and bears no necessary relationship to actual consumption. This form is easy to administer as the costs to be recovered are incorporated in the calculation for all general services, normally collected through property taxes.

Flat Rate: This rate is a constant charge applicable to all customers served. The charge is calculated by dividing the total number of user households and other entities (e.g. businesses) into the costs to be recovered. This method does not recognize differences in actual consumption but provides for a uniform spreading of costs across all users. Some municipalities define users into different classes of similar consumption patterns, that is a commercial user, residential user and industrial user, and charge a flat rate by class. Each user is then billed on a periodic basis. No meters are required to facilitate this method, but an accurate estimate of the number of users is required. This method ensures a set revenue for the collection period but is not sensitive to consumption, hence may cause a shortfall or surplus of revenues collected.

Constant Rate: This rate is a volume-based rate, in which the consumer pays the same price per unit consumed, regardless of the volume. The price per unit is calculated by dividing the total cost of the service by the total volume used by total consumers. The bill to the consumer climbs uniformly as the consumption increases. This form of rate requires the use of meters to record the volume consumed by each user. This method closely aligns the revenue recovery with consumption. Revenue collected varies directly with the consumption volume.

Declining Block Rates: This rate structure charges a successively lower price for set volumes, as consumption increases through a series of "blocks". That is to say that within set volume ranges, or blocks, the charge per unit is set at one rate. Within the next volume range the charge per unit decreases to lower rate, and so on. Typically, the first, or first and second blocks cover residential and light commercial uses. Subsequent blocks normally are used for heavier commercial and industrial uses. This rate structure requires the use of meters to record the volume consumed by each type of user. This method requires the collection and analysis of consumption patterns by user

classification to establish rates at a level which does not over or under collect revenue from rate payers.

Increasing or Inverted Block Rates: The increasing block rate works essentially the same way as the declining block rate, except that the price of water in successive blocks increases rather than declines. Under this method the consumer's bill rises faster with higher volumes used. This rate structure also requires the use of meters to record the volume consumed by each user. This method requires, as with the declining block structure, the collection and analysis of consumption patterns by user classification to establish rates at a level which does not over or under collect from rate payers.

6.3 Assessment of Alternative Pricing Structures

The adoption by a municipality or utility of any one particular pricing structure is normally a function of a variety of administrative, social, demographic and financial factors. The number of factors and the weighting each particular factor receives can vary between municipalities. The following is a review of some of the more prevalent factors:

Cost Recovery

Cost recovery is a prime factor in establishing a particular pricing structure. Costs can be loosely defined into different categories: operations; maintenance; capital; financing; administration. These costs often vary between municipalities and even within a municipality, based on consumption patterns, infrastructure age, economic growth, etc.

The pricing alternatives defined earlier can all achieve the cost recovery goal, but some do so more precisely than others. Fixed pricing structures, such as Property Assessment and Flat Rate, are established on the value of property or on the number of units present in the municipality, but do not adjust in accordance with consumption. Thus, if actual consumption for the year is greater than projected, the municipality incurs a higher cost of production, but the revenue base remains static (since it was determined at the beginning of the year), thus potentially providing a funding shortfall. Conversely, if the consumption level declines below projections, fixed pricing structures will produce more revenue than actual costs incurred.

The other pricing methods (declining block, constant rate, increasing block) are consumption based and generally will generate revenues in proportion to actual consumption.

Administration

Administration is defined herein as the staffing, equipment and supplies required to support the undertaking of a particular pricing strategy. This factor not only addresses the physical tangible requirements to support the collection of the revenues, but also the intangible requirements, such as policy development.

The easiest pricing structure to support is the Property Assessment structure. As municipalities undertake the process of calculating property tax bills and the collection process for their general services, the incorporation of the water costs into this calculation would have virtually no impact on the administrative process and structure.

The Flat Rate pricing structure is relatively easy to administer as well. It is normally calculated to collect a set amount, either on a monthly, quarterly, semi annual or annual basis and is billed directly to the customer. The impact on administration centres mostly on the accounts receivable or billing area of the municipality, but normally requires minor additional staff or operating costs to undertake.

The three remaining methods, those being Increasing Block Rate, Constant Rate and Declining Block Rate, have a more dramatic effect on administration. These methods are dependent upon actual consumption and hence involve a major structure in place to administer. First, meters must be installed in all existing units in the municipality and units to be subsequently built must be required to include these meters. Second, meter readings must be undertaken periodically. Hence staff must be available for this purpose or a service contract must be negotiated. Third, the billings process must be expanded to accommodate this process. Billing must be done per a defined period, requiring staff to produce the bills. Lastly, either through increased staffing or by service contract, an annual maintenance program must be set up to ensure meters are working effectively in recording consumed volumes.

The benefit derived from the installation of meters is that information on consumption patterns becomes available. This information provides benefit to administration in calculating rates which will ensure revenue recovery. Additionally, when planning what services are to be

constructed in future years, the municipality or utility has documented consumption patterns distinctive to its own situation, which can be used to project sizing of growth-related works.

Equity

Equity is always a consideration in the establishment of pricing structures but its definition can vary depending on a municipality's circumstances and based on the subjective interpretation of those involved. For example: is the price charged to a particular class of rate payer consistent with those of a similar class in surrounding municipalities; through the pricing structure does one class of rate payer pay more than another class; should one pay based on ability to pay, or on the basis that a unit of water costs the same to supply no matter who consumes it; etc. There are many interpretations. Equity therefore must be viewed broadly in light of many factors as part of achieving what is best for the municipality as a whole.

Conservation

In today's society, conservation of natural resources is increasingly being more highly valued. Controversy continuously focuses on the preservation of non-renewable resources and on the proper management of renewable resources. Conservation is also a concept which applies to a municipality facing physical limitations in the amount of water which can be supplied to an area. As well, financial constraints can encourage conservation in a municipality where the cost of providing each additional unit is increasing.

Pricing structures such as property assessment and flat rate do not, in themselves, encourage conservation. In fact, depending on the price which is charged, they may even encourage resource "squandering," either because consumers, without the price discipline, consume water at will, or the customer wants to get his money's worth and hence adopts more liberal consumption patterns. The fundamental reason for this is that the price paid for the service bears no direct relationship to the volume consumed and hence is viewed as a "tax," instead of being viewed as the price of a purchased commodity.

The Declining Block Rate provides a decreasing incentive towards conservation. By creating awareness of volumes consumed, the consumer can reduce his total costs by restricting consumption; however the incentive lessens as more water is consumed, because the marginal cost per unit declines as the consumer enters the next block pricing range. Similarly, those

whose consumption level is at the top end of a block have reduced incentive to reduce consumption.

The Constant Rate structure presents the customer with a linear relationship between consumption and the cost thereof. As the consumer pays a fixed cost per unit, his bill will vary directly with the amount consumed. This method presents tangible incentive for consumers to conserve water. As metering provides direct feedback as to usage patterns and the consumer has direct control over the total amount paid for the commodity, the consumer is encouraged to use only those volumes that are reasonably required.

The Inverted Block method presents the most effective pricing method for encouraging conservation. Through this method, the price per unit consumed increases as total volumes consumed grow. The consumer becomes aware of consumption through metering with the charges increasing dramatically with usage. Hence, there normally is an awareness that exercising control over usage can produce significant savings. This method not only encourages conservation methods, but may also penalizes legitimate high volume users if not properly structured.

Figure 6-1 provides a schematic representation of the various rate structures (note property tax as a basis for revenue recovery has not been presented for comparison, as the proportion of taxes paid varies in direct proportion to the market value of the property). The graphs on the left-hand side of the figure present the cost per unit for each additional amount of water consumed. The right-hand side of the figure presents the impact on the customer's bill as the volume of water increases. The schematic is summarized below for each rate structure.

FIGURE 6-1
WASTEWATER RATE PRICING CONCEPTS

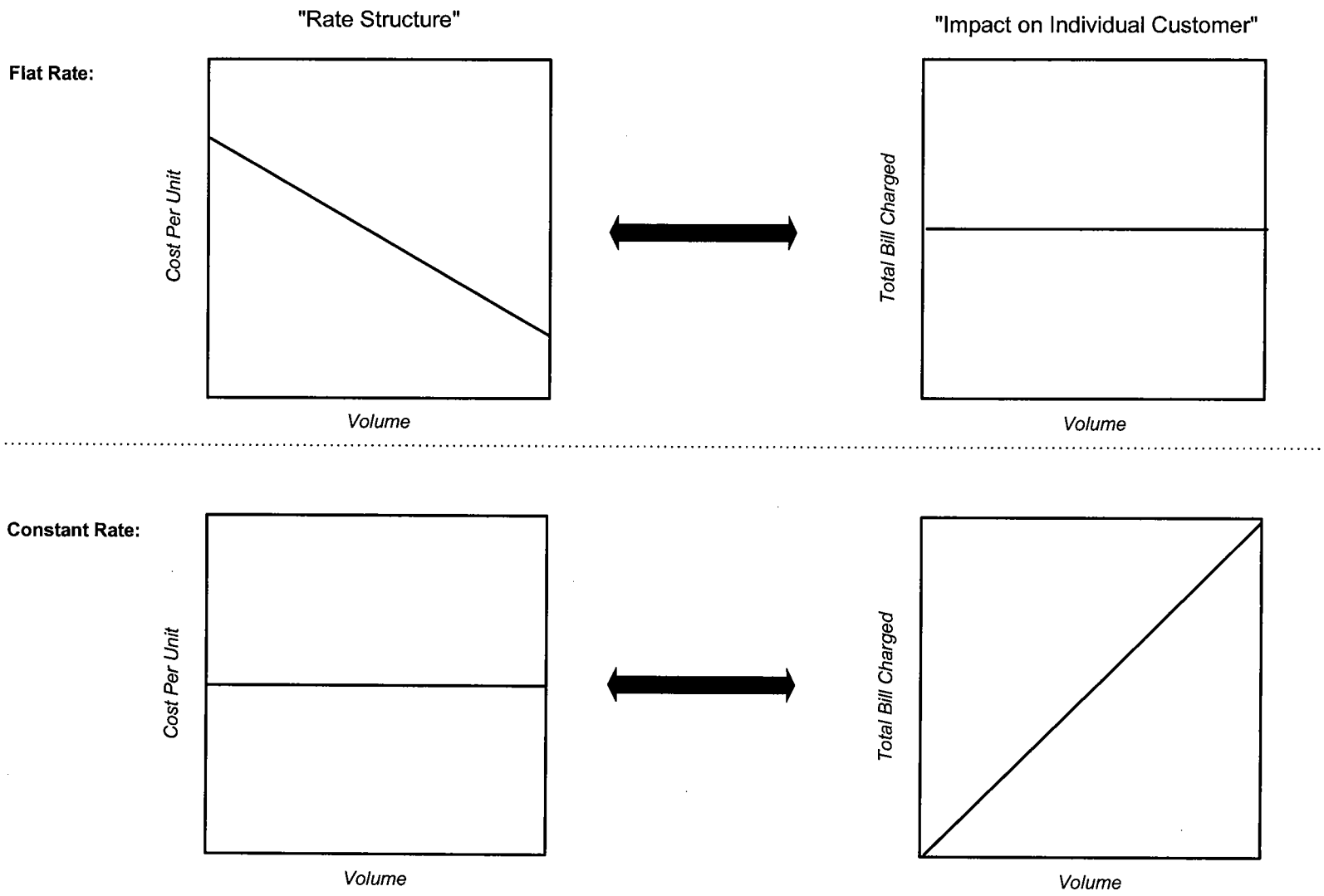


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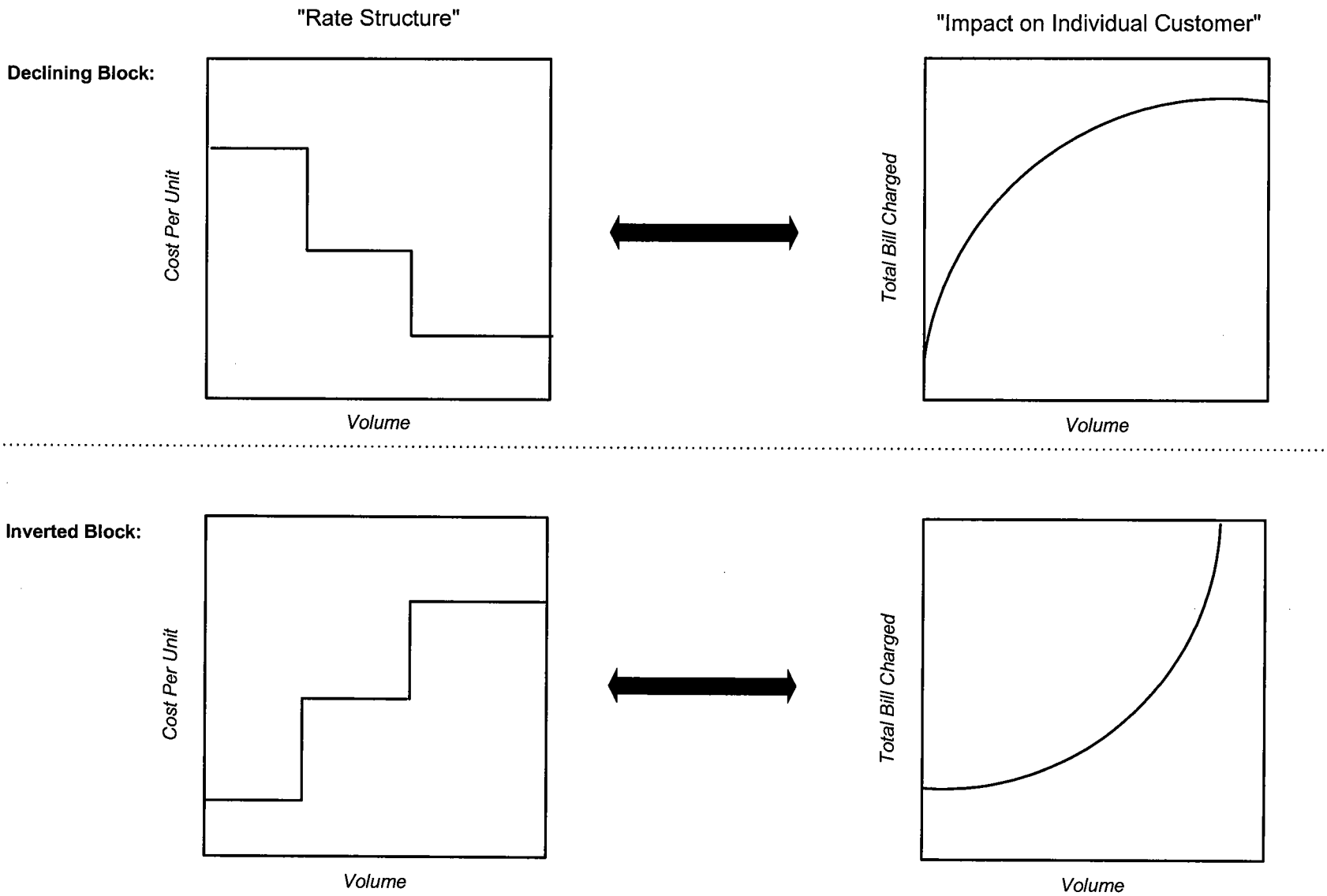
FIGURE 6-1 (Cont'd)
WASTEWATER RATE PRICING CONCEPTS



RATE STRUCTURE	COST PER UNIT AS VOLUME CONSUMPTION INCREASES	IMPACT ON CUSTOMER BILL AS VOLUME CONSUMPTION INCREASES
Flat Rate	Cost per unit decreases as more volume consumed	Bill remains the same no matter how much volume is consumed
Constant Rate	Cost per unit remains the same	Bill increases in direct proportion to consumption
Declining Block	Cost per unit decreases as threshold targets are achieved	Bill increases at a slower rate as volumes increase
Increasing (Inverted) Block	Cost per unit increases as threshold targets are achieved	Bill increases at a faster rate as volumes increase

6.4 Rate Structures in Ontario

In a recent survey of over 150 municipalities (approximately half of the municipalities who provide water and/or sewer), all forms of rate structures are in use by Ontario municipalities. The most common rate structure is the constant rate (for metered municipalities). Most municipalities (approximately 85%) who have volume rate structures also impose a base monthly charge.

Historically, the development of a base charge often reflected either the recovery of meter reading/billing/collection costs, plus administration or those costs plus certain fixed costs (such as capital contributions or reserve contributions). More recently, many municipalities have started to establish base charges based on ensuring a secure portion of the revenue stream which does not vary with volume consumption. Selection of the quantum of the base charge is a matter of policy selected by individual municipalities.

6.5 Recommended Rate Structures

At the present time, the Town generally uses a base charge plus a constant rate structure for most metered customers and a flat rate structure for non-metered customers. However, these rates vary considerably by area (see Table 1-1) and include Boblo where currently there is no charge in effect.

It is recommended that the Town move to a standardized rate so that all customers pay the same cost for the same service received. It is recommended that a new rate structure be developed similar to the water rates for consistency and ease of understanding. Presently the water rates employ a base charge plus volume charge. In regard to the base charge for wastewater, it is recommended that the Town increase the wastewater base charges to an amount equal to 150% of the water base charges in 2006 and then increase the base charges annually, by inflation, beginning in 2007. This amount generally covers most of the transfer to reserves required for the future (such as lifecycle reserve, equipment replacement reserve and capital reserve) and is necessary to assist in minimizing the amount of debt required to finance the capital program. The following base charges are recommended for 2006:

Recommended 2006 Base Charge

Meter Size	Rate/mo.
5/8"	$18.00
3/4"	$18.00
1"	$24.00
1-1/4" – 1-1/2"	$30.00
2"	$45.00
4"	$112.50
6"	$300.00
8"	$450.00
10"	$450.00

Discussions were undertaken with staff and Council regarding the pros and cons of each of the rate structures. As noted, it is recommended that a constant rate structure be used. This rate blends the benefits of conservation and economic development while also being the most equitable in its application. It is also recommended that the constant rate be implemented for all

customers and not vary by area or system. The base charge revenues for wastewater are calculated in Table 7-1. These amounts were included as an operating budget revenue as projected on Table 5-1.

7. ANALYSIS OF WASTEWATER RATES AND POLICY MATTERS

7. ANALYSIS OF WASTEWATER RATES AND POLICY MATTERS

7.1 Introduction

To summarize the analysis undertaken thus far, Chapter 2 reviewed capital-related issues 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 including an annual lifecycle capital replacement reserve contribution. This chapter also identified non-rate revenues to assist in offsetting the charges for volumetric rates. Chapter 6 provided for a review of various rate structures and recommended that the constant rate structure (with a monthly base charge) will be calculated for Council's consideration.

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 metered volume forecast provided in Section 1.6.

7.2 Base Charge

As noted in the last chapter, many municipalities impose a base monthly charge to its metered customers. This charge is imposed whether wastewater service is used during the period or not.

The establishment of a base charge is normally undertaken by policy; however, it may also be linked to certain components of the operating expenditures (i.e. to reflect the cost of billing, to recovery fixed costs within the system, etc.). Generally, the base charge will vary with the size of the meter (i.e. as the meter size increases, so does the base charge).

Based on surveys undertaken, the base charge can range from a few dollars per month up to approximately $18 for residential users. As recommended in the last chapter, rates equal to 150% of current water base charges in the Town are being recommended. Table 7-1 provides

for the calculation of the annual revenue expected to be raised via the recommended base charges. These charges have been indexed annually for inflation and have also recognized the growth in the number of users commensurate with the growth forecast discussed in Chapter 1.

Table 7-1
Town of Amherstburg
Base Charge

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total											
Existing Customers		5,841	5,841	5,841	5,841	5,841	5,841	5,841	5,841	5,841	5,841
New Customers		70	210	350	490	630	770	910	1,050	1,190	1,330
Subtotal Residential Customers		5,911	6,051	6,191	6,331	6,471	6,611	6,751	6,891	7,031	7,171
Total Annual Revenue		**$1,316,538**	**$1,373,714**	**$1,432,854**	**$1,493,263**	**$1,555,709**	**$1,620,234**	**$1,686,897**	**$1,755,739**	**$1,825,990**	**$1,898,499**

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
5/8" & 3/4"											
Existing		5,685	5,685	5,685	5,685	5,685	5,685	5,685	5,685	5,685	5,685
New		70	210	350	490	630	770	910	1,050	1,190	1,330
Subtotal Customers		5,755	5,895	6,035	6,175	6,315	6,455	6,595	6,735	6,875	7,015
Monthly Base Charge	12.00	18.00	$18.36	$18.73	$19.10	$19.48	$19.87	$20.27	$20.68	$21.09	$21.51
Annual Base Charge	$144.00	$216.00	$220.32	$224.76	$229.20	$233.76	$238.44	$243.24	$248.16	$253.08	$258.12
Total Annual Revenue		**$1,243,080**	**$1,298,786**	**$1,356,427**	**$1,415,310**	**$1,476,194**	**$1,539,130**	**$1,604,168**	**$1,671,358**	**$1,739,925**	**$1,810,712**

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1"											
Existing		91	91	91	91	91	91	91	91	91	91
New											
Subtotal Customers		91	91	91	91	91	91	91	91	91	91
Monthly Base Charge	16.00	24.00	$24.48	$24.97	$25.47	$25.98	$26.50	$27.03	$27.57	$28.12	$28.68
Annual Base Charge	$192.00	$288.00	$293.76	$299.64	$305.64	$311.76	$318.00	$324.36	$330.84	$337.44	$344.16
Total Annual Revenue		**$26,208**	**$26,732**	**$27,267**	**$27,813**	**$28,370**	**$28,938**	**$29,517**	**$30,106**	**$30,707**	**$31,319**

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1 1/4" & 1 1/2"											
Existing		7	7	7	7	7	7	7	7	7	7
New											
Subtotal Customers		7	7	7	7	7	7	7	7	7	7
Monthly Base Charge	20.00	30.00	$30.60	$31.21	$31.84	$32.47	$33.12	$33.78	$34.46	$35.15	$35.85
Annual Base Charge	$240.00	$360.00	$367.20	$374.52	$382.08	$389.64	$397.44	$405.36	$413.52	$421.80	$430.20
Total Annual Revenue		**$2,520**	**$2,570**	**$2,622**	**$2,675**	**$2,727**	**$2,782**	**$2,838**	**$2,895**	**$2,953**	**$3,011**

Table 7-1
Town of Amherstburg
Base Charge

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2"											
Existing		52	52	52	52	52	52	52	52	52	52
New											
Subtotal Customers		52	52	52	52	52	52	52	52	52	52
Monthly Base Charge	30.00	45.00	$45.90	$46.82	$47.75	$48.71	$49.68	$50.68	$51.69	$52.72	$53.78
Annual Base Charge	$360.00	$540.00	$550.80	$561.84	$573.00	$584.52	$596.16	$608.16	$620.28	$632.64	$645.36
Total Annual Revenue		**$28,080**	**$28,642**	**$29,216**	**$29,796**	**$30,395**	**$31,000**	**$31,624**	**$32,255**	**$32,897**	**$33,559**

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
4"											
Existing		3	3	3	3	3	3	3	3	3	3
New											
Subtotal Customers		3	3	3	3	3	3	3	3	3	3
Monthly Base Charge	75.00	112.50	$114.75	$117.05	$119.39	$121.77	$124.21	$126.69	$129.23	$131.81	$134.45
Annual Base Charge	$900.00	$1,350.00	$1,377.00	$1,404.60	$1,432.68	$1,461.24	$1,490.52	$1,520.28	$1,550.76	$1,581.72	$1,613.40
Total Annual Revenue		**$4,050**	**$4,131**	**$4,214**	**$4,298**	**$4,384**	**$4,472**	**$4,561**	**$4,652**	**$4,745**	**$4,840**

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
6"											
Existing		2	2	2	2	2	2	2	2	2	2
New											
Subtotal Customers		2	2	2	2	2	2	2	2	2	2
Monthly Base Charge	200.00	300.00	$306.00	$312.12	$318.36	$324.73	$331.22	$337.85	$344.61	$351.50	$358.53
Annual Base Charge	$2,400.00	$3,600.00	$3,672.00	$3,745.44	$3,820.32	$3,896.76	$3,974.64	$4,054.20	$4,135.32	$4,218.00	$4,302.36
Total Annual Revenue		**$7,200**	**$7,344**	**$7,491**	**$7,641**	**$7,794**	**$7,949**	**$8,108**	**$8,271**	**$8,436**	**$8,605**

Wastewater	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
8" & 10"											
Existing		1	1	1	1	1	1	1	1	1	1
New											
Subtotal Customers		1	1	1	1	1	1	1	1	1	1
Monthly Base Charge	300.00	450.00	$459.00	$468.18	$477.54	$487.09	$496.84	$506.77	$516.91	$527.25	$537.79
Annual Base Charge	$3,600.00	$5,400.00	$5,508.00	$5,618.16	$5,730.48	$5,845.08	$5,962.08	$6,081.24	$6,202.92	$6,327.00	$6,453.48
Total Annual Revenue		**$5,400**	**$5,508**	**$5,618**	**$5,730**	**$5,845**	**$5,962**	**$6,081**	**$6,203**	**$6,327**	**$6,453**

7.3 Wastewater Rates

The wastewater rate calculations are provided in Tables 7-2 and 7-3. Table 7-2 provides for the operating budget (as presented in Table 5-1) and includes the projected revenue to be generated from the base charge (Table 7-1). The "Water Billing Recovery – Total" line represents the amount to be recommended from the volumetric rates. Table 7-3 provides for the calculated rates. As can be seen, the overall rates are anticipated to increase for all customers except those customers in the McLeod and Big Creek areas where there will be a decrease in the constant rate. This initial change in the constant rate in 2006 will bring all customers in line with the recommend unified constant rate. This rate would then increase by 32% from 2006 to 2007, 5% annually in both 2008 and 2009 and then annually by 4% until 2012. Factors which are affecting the rates (over and above inflation) are as follows:

- current operating deficit
- operating-related portion of the budget will increase by inflation and additional staffing requirements;
- capital-related portion will increase with the issuance of new debt and increase in reserve contributions;
- life cycle contributions are phased in over time.

7.4 Town's Commitment to Sustainable Asset Management

With the pending imposition of Bill 175 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 the lifecycle reserve contributions. Table 7-4, following, summarizes the level of expenditures contained within the future rates over the next ten years.

Table 7-2
Town of Amherstburg
Wastewater Service
Operating Budget Forecast
Inflated $

Description	Forecast									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Expenditures										
Operating Costs										
Amherstburg	1,057,236	1,078,381	1,099,949	1,121,948	1,144,387	1,167,274	1,190,620	1,214,432	1,238,721	1,263,495
Edgewater	337,241	343,986	350,866	357,883	365,041	372,342	379,788	387,384	395,132	403,035
Boblo	116,058	118,379	120,747	123,162	125,625	128,138	130,700	133,314	135,981	138,700
McGregor	286,926	292,664	298,518	304,488	310,578	316,789	323,125	329,587	336,179	342,903
McLeod	256,963	262,102	267,344	272,691	278,145	283,708	289,382	295,170	301,073	307,095
Big Creek	115,534	117,844	120,201	122,605	125,057	127,558	130,110	132,712	135,366	138,073
New Employees		61,200	62,424	63,672	64,946	66,245	67,570	68,921	70,300	71,706
Sub Total Operating	2,169,958	2,274,557	2,320,048	2,366,449	2,413,778	2,462,054	2,511,295	2,561,521	2,612,751	2,665,006
Capital-Related										
Existing Debt Non-Growth Related	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684
Existing Debt Growth Related	65,296	0	0	0	0	0	0	0	0	0
New Non-Growth Related Debt	0	230,790	491,190	929,870	1,283,772	1,342,935	1,342,935	1,342,935	1,342,935	1,342,935
New Growth Related Debt	0	0	0	0	0	0	0	0	0	0
Capital From Current	0	0	0	0	0	0	0	0	0	0
Transfer to Equipment Reserve	30,000	60,000	90,000	120,000	150,000	0	0	0	0	0
Transfer to Rate Stabilization Reserve										
Transfer to Reserves and Reserve Funds	1,182,710	1,600,000	1,400,000	990,000	600,000	550,000	30,000	100,000	200,000	290,000
Sub Total Capital Related	1,580,690	2,193,474	2,283,874	2,342,554	2,336,456	2,195,619	1,675,619	1,745,619	1,845,619	1,935,619
Total Expenditures	3,750,648	4,468,031	4,603,922	4,709,004	4,750,235	4,657,673	4,186,914	4,307,140	4,458,370	4,600,625
Revenues										
Base Charge	1,316,538	1,373,714	1,432,854	1,493,263	1,555,709	1,620,234	1,686,897	1,755,739	1,825,990	1,898,499
Recovery from Local Improvement	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684
Contributions from Development Charges Reserve Fund	65,296	0	0	0	0	0	0	0	0	0
Contributions from Reserves / Reserve Funds	0	0	0	0	0	0	0	0	0	0
Total Operating Revenue	1,684,518	1,676,398	1,735,538	1,795,947	1,858,394	1,922,918	1,989,581	2,058,423	2,128,674	2,201,183
Wastewater Billing Recovery - Operating	2,066,130	2,791,633	2,868,384	2,913,056	2,891,841	2,734,755	2,197,333	2,248,716	2,329,696	2,399,442
Lifecycle Reserve Contribution ($)			120,000	280,000	500,000	870,000	1,490,190	1,490,190	1,490,190	1,490,190
Wastewater Billing Recovery - Total	**2,066,130**	**2,791,633**	**2,988,384**	**3,193,056**	**3,391,841**	**3,604,755**	**3,687,522**	**3,738,906**	**3,819,885**	**3,889,632**
Total Revenue	**3,750,648**	**4,468,031**	**4,723,922**	**4,989,004**	**5,250,235**	**5,527,673**	**5,677,103**	**5,797,329**	**5,948,560**	**6,090,815**

Table 7-3
Town of Amherstburg
Wastewater Service
Wastewater Rate Forecast
Inflated $

Description	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Wastewater Billing Recovery		2,066,130	2,791,633	2,988,384	3,193,056	3,391,841	3,604,755	3,687,522	3,738,906	3,819,885	3,889,632
Total Consumption (m^3)		2,201,545	2,246,485	2,291,425	2,336,365	2,381,305	2,426,245	2,471,185	2,516,125	2,561,065	2,606,005
Constant Rate		**0.94**	**1.24**	**1.30**	**1.37**	**1.42**	**1.49**	**1.49**	**1.49**	**1.49**	**1.49**

Table 7-4
Town of Amherstburg
Town's Commitment to Sustainable Asset Management
Contributions Towards Capital Budget Replacements and Reserves
Inflated $

Year	Wastewater		
	Capital Budget	Lifecycle Reserve	Subtotal
2006	719,340	-	719,340
2007	1,590,134	-	1,590,134
2008	8,921,744	120,000	9,041,744
2009	8,395,165	280,000	8,675,165
2010	1,482,776	500,000	1,982,776
2011	427,279	870,000	1,297,279
2012	-	1,490,190	1,490,190
2013	-	1,490,190	1,490,190
2014	-	1,490,190	1,490,190
2015	-	1,490,190	1,490,190
Total	**21,536,438 ***	**7,730,759**	**29,267,197**

* These works relate to the Upgrade and Expansion of the Amherstburg Plant and replace the current treatment facilities for Amherstburg, Edgewater and Boblo

8. RECOMMENDATIONS

8. RECOMMENDATIONS

As presented within this report, operating expenditures have been identified and forecasted over a ten-year period for wastewater services provided by the Town of Amherstburg to residents of Amherstburg and residents of the Town of Essex receiving wastewater services provided by the Town of Amherstburg (McGregor Sanitary Service Area). In addition, a long-term lifecycle plan has been provided consistent with the requirements of Bill 175.

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

1. That Council consider the Capital Plan for wastewater as provided in Table 2-2 and the associated Capital Financing Plan as set out in Table 4-1.
2. That Council approve the phase-in provision for lifecycle costs for the replacement of wastewater infrastructure, subject to the requirements of Bill 175 through regulations.
3. That Council provides for the recovery of all wastewater costs through full cost recovery rates.
4. That Council adopt the unified monthly base charge rates as provided in Section 6.5.
5. That Council adopt the unified constant rate charges presented in Chapter 7, which reflect the full cost of providing wastewater service to Amherstburg's Wastewater Service Areas.
6. That discussions be undertaken with the development community to assist in financing the growth-related capital program via accelerated payment timing agreements and/or front-ending arrangements.

APPENDIX A
2005 DEBT CAPACITY CALCULATIONS FROM THE PROVINCE

Ministry of Municipal Affairs and Housing
777 Bay Street,
Toronto, Ontario.
M5G 2E5

Ministère des affaires municipales et du logement
777 rue Bay
Toronto (Ontario)
M5G 2E5

ANNUAL REPAYMENT LIMIT
(UNDER ONTARIO REGULATION 403/02)

MMA CODE:	**45409**	
MUNID:	**37025**	
MUNICIPALITY:	**Amherstburg T**	
UPPER TIER:	**Essex Co**	
REPAYMENT LIMIT:		**C$2,194,515**

The repayment limit has been calculated based on data contained in the 2004 Financial Information Return, as submitted to the Ministry. This limit represents the maximum amount which the municipality had available as of December 31, 2004 to commit to payments relating to debt and financial obligations. Prior to the authorization by Council of a long term debt or financial obligation, this limit must be adjusted by the Treasurer in the prescribed manner. The limit is effective January 01, 2006.

FOR ILLUSTRATION PURPOSES ONLY,
the additional long-term borrowing which a municipality could undertake over a 5 - year, a 10 - year, a 15 - year and a 20 - year period is shown.

DETERMINATION OF ANNUAL DEBT REPAYMENT LIMIT

MUNICIPALITY: Amherstburg T **MMAH CODE: 45409**

1.0		GROSS DEBT CHARGES		
	1.1	Principal	SLC 74 3099 01	1,326,950
	1.2	Interest	SLC 74 3099 02	693,234
	1.3	SUBTOTAL	Add Lines 1.1, 1.2	2,020,184
2.0		DEBT CHARGES ON O.C.W.A. PROVINCIAL PROJECT		
	2.1	Water Projects – this municipality only	SLC 74 2810 03	0
	2.2	Water Projects – share of integrated project(s)	SLC 74 2820 03	0
	2.3	Sewer Projects – this municipality only	SLC 74 2830 03	0
	2.4	Sewer Projects – share of integrated project(s)	SLC 74 2840 03	0
	2.5	SUBTOTAL	Add Lines 2.1 thru 2.4	0
3.0		PAYMENT IN RESPECT OF LONG TERM COMMITMENTS AND LIABILITIES	SLC 42 6010 01	0
4.0		**SUBTOTAL - DEBT CHARGES**	**Add Lines 1.3,2.5,3.0**	2,020,184
5.0		AMOUNTS RECOVERED FROM UNCONSOLIDATED ENTITIES		
	5.1	Electricity (Principal)	SLC 74 3030 01	0
	5.2	Electricity (Interest)	SLC 74 3030 02	0
	5.3	Gas and Telephone (Principal)	SLC 74 3040 01 + SLC 74 3050 01	0
	5.4	Gas and Telephone (Interest)	SLC 74 3040 02 + SLC 74 3050 02	0
	5.5	SUBTOTAL	Add Lines 5.1 thru 5.4	0
6.0		PAYMENTS TO PROVINCE FOR DOWNTOWN REVITALIZATION PROGRAM LOANS	SLC 42 5410 01	0
7.0		DEBT CHARGES FOR TILE DRAINAGE AND SHORELINE ASSISTANCE	SLC 40 1850 02 + SLC 40 1850 08	52040
8.0		**SUBTOTAL - DEBT CHARGES TO BE EXCLUDED**	**Add Lines 5.5,6.0,7.0**	52,040
9.0		**NET DEBT CHARGES**		1,968,144

 Date Prepared: January 12, 2006

DETERMINATION OF ANNUAL DEBT REPAYMENT LIMIT

MUNICIPALITY: Amherstburg T		MMAH CODE: 45409	
10.0	TOTAL REVENUE FUND REVENUES	SLC 10 9910 01	16,965,079
11.0	FEES FOR REPAYING THE PROVINCE FOR DOWNTOWN REVITALIZATION LOANS	SLC 42 5410 01	0
12.0	FEES FOR TILE DRAINAGE AND SHORELINE ASSISTANCE	SLC 12 1850 04	0
13.0	GRANTS FROM GOVERNMENT OF ONTARIO, GOVERNMENT OF CANADA AND OTHER MUNICIPALITIES		
13.1	Ontario Grants	SLC 10 0699 01 + SLC 10 0810 01	216,504
13.2	Canada Grants	SLC 10 0820 01	3,115
13.3	Other Municipalities	SLC 10 1099 01	94,823
13.4	SUBTOTAL	Add Lines 13.1 thru 13.3	314,442
14.0	FEES AND REVENUES FOR JOINT LOCAL BOARDS FOR HOMES FOR THE AGED		0
15.0	NET REVENUE FUND REVENUES	Lines 10 less Lines 11,12,13.4,14	16,650,637
16.0	25% OF NET REVENUE FUND REVENUE		4,162,659
17.0	ANNUAL REPAYMENT LIMIT 25% of Net Revenue Fund Revenues less Net Debt Charges		2,194,515

SLC denotes Schedule, Line, Column

FOR ILLUSTRATION PURPOSES ONLY

If the municipality could borrow at 7.0% or 9.0% annually, the annual repayment limit shown in 17 above would allow it to undertake additional long-term borrowing as follows:

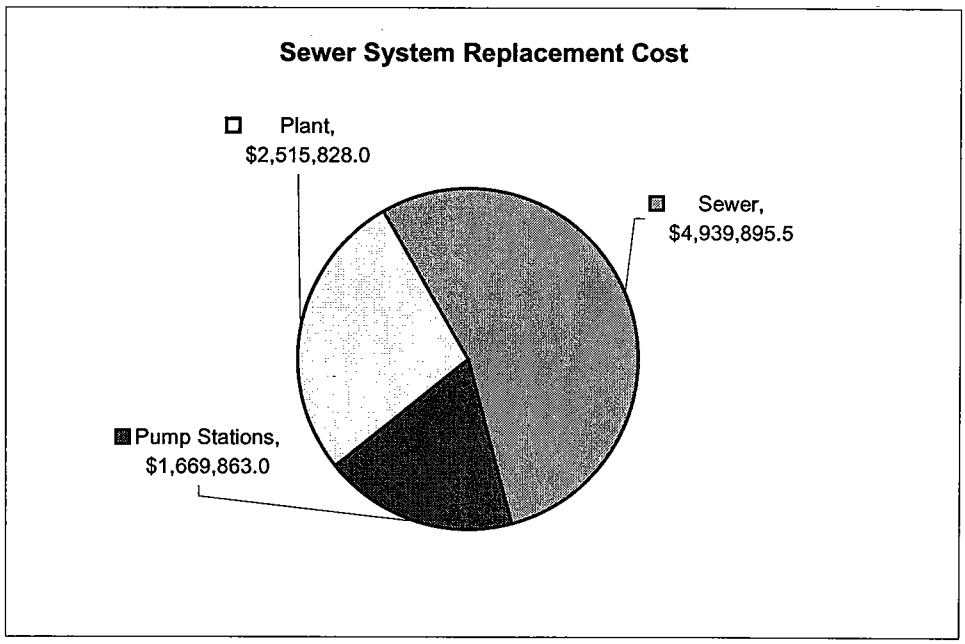
	7.0% Interest Rate:	
(a)	20 years @ 7.0% p.a.	23,248,726
(b)	15 years @ 7.0% p.a.	19,987,456
(c)	10 years @ 7.0% p.a.	15,413,357
(d)	05 years @ 7.0% p.a.	8,997,946
	9.0% Interest Rate:	
(a)	20 years @ 9.0% p.a.	20,032,733
(b)	15 years @ 9.0% p.a.	17,689,304
(c)	10 years @ 9.0% p.a.	14,083,648
(d)	05 years @ 9.0% p.a.	8,535,899

Date Prepared: January 12, 2006

APPENDIX B
SYSTEM INVENTORY DATA

APPENDIX B-1
SUMMARY OF WASTEWATER INVENTORY
McGregor

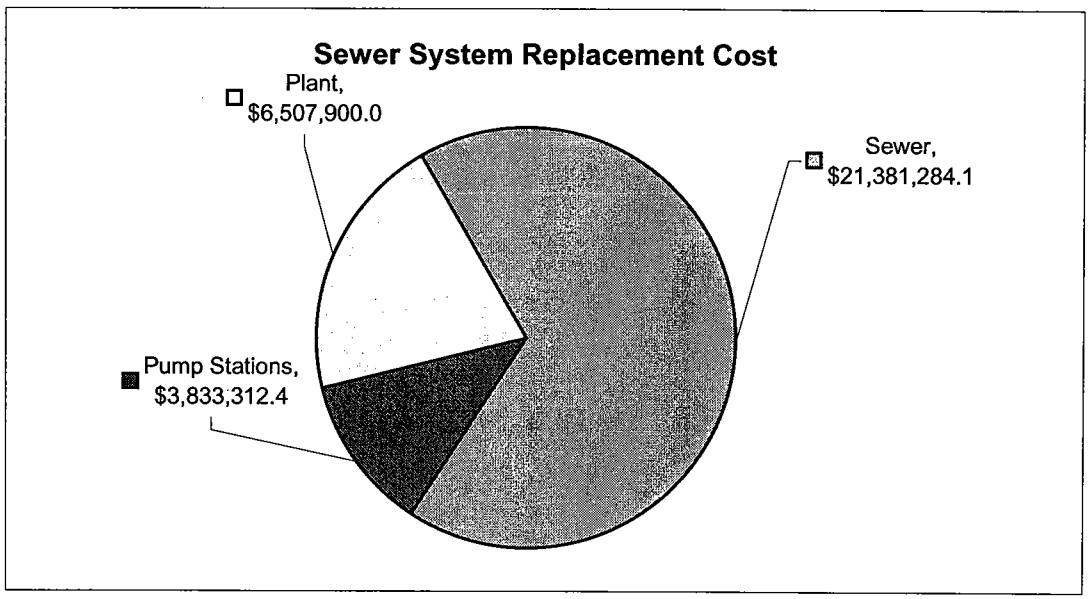
	Quantity		Replacement Cost	Annual Lifecycle Contribution	Amount Required in 10 Year Capital Forecast
Sewer	10	km	$ 4,939,895.5	$ 52,005.3	$ -
Pump Stations	4	each	$ 1,669,863.0	$ 32,983.0	$ -
Plant	Lagoon	each	$ 2,515,828.0	$ 49,309.2	$ -
Totals			$ 9,125,586.5	$ 134,297.5	$ -



APPENDIX B-2
SUMMARY OF WASTEWATER INVENTORY
Edgewater

	Quantity		Replacement Cost	Annual Lifecycle Contribution	Amount Required in 10 Year Capital Forecast
Sewer	40	km	$ 21,381,284.1	$ 197,749.5	$ -
Pump Stations	9	each	$ 3,833,312.4	$ 98,248.0	$ -
Plant	Secondary	each	$ 6,507,900.0	$ -	* $ 6,507,900.0
Totals			$ 31,722,496.5	$ 295,997.4	$ 6,507,900.0

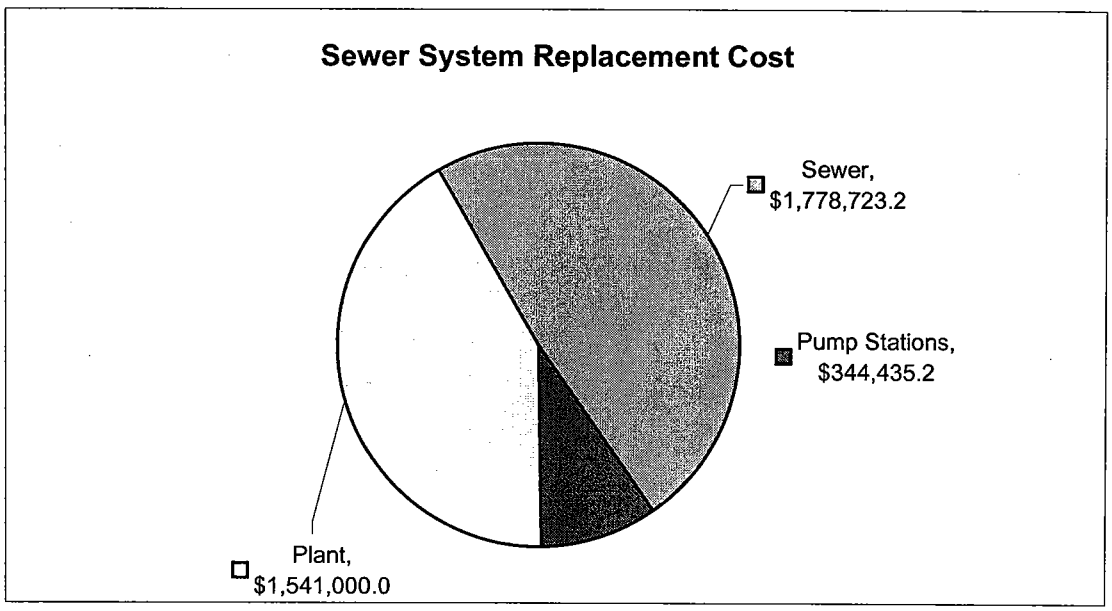
* Replacement of Plant in conjunction with the Upgrade and Expansion of the Amherstburg Plant



APPENDIX B-3
SUMMARY OF WASTEWATER INVENTORY
Boblo

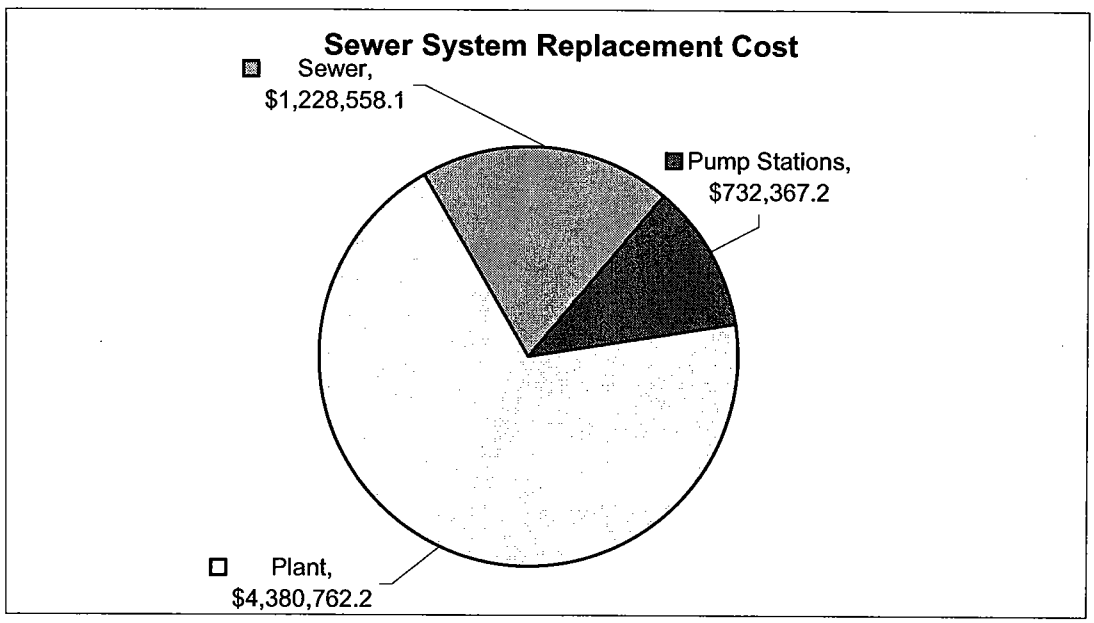
	Quantity	Replacement Cost	Annual Lifecycle Contribution	Amount Required in 10 Year Capital Forecast
Sewer	3 km	$ 1,778,723.2	$ 12,767.4	$ -
Pump Stations	1 each	$ 344,435.2	$ 6,072.5	$ -
Plant	Secondary each	$ 1,541,000.0	$ -	* $ 1,541,000.0
Totals		$ 3,664,158.4	$ 18,839.9	$ 1,541,000.0

* Replacement of Plant in conjunction with the Upgrade and Expansion of the Amherstburg Plant



APPENDIX B-4
SUMMARY OF WASTEWATER INVENTORY
Big Creek

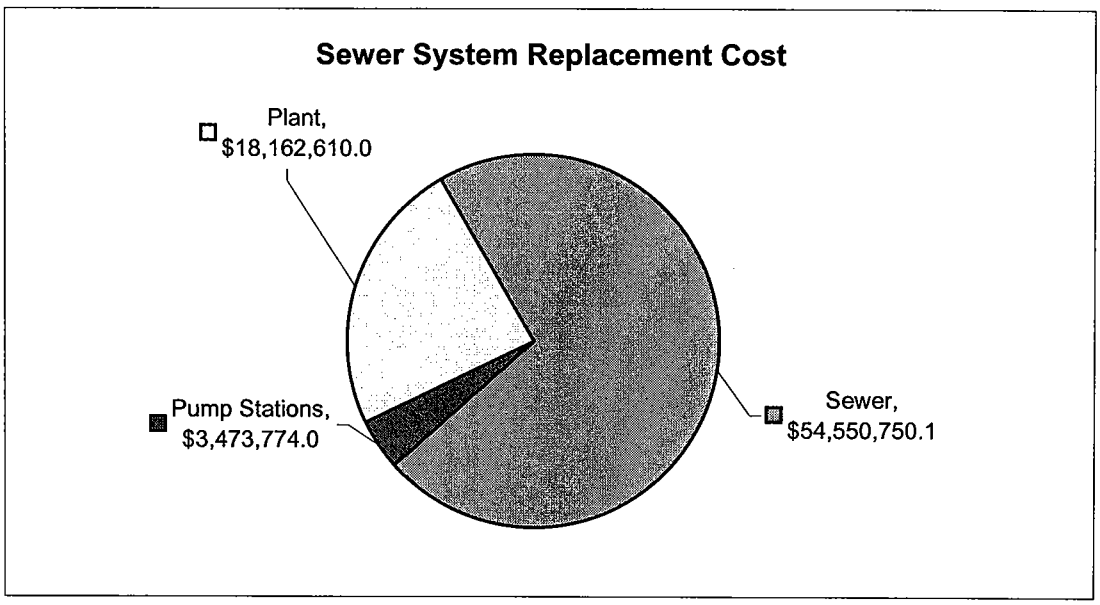
	Quantity	Replacement Cost	Annual Lifecycle Contribution	Amount Required in 10 Year Capital Forecast
Sewer	3 km	$ 1,228,558.1	$ 7,191.6	$ -
Pump Stations	2 each	$ 732,367.2	$ 10,096.7	$ -
Plant	Secondary each	$ 4,380,762.2	$ 75,275.4	$ -
Totals		$ 6,341,687.4	$ 92,563.7	$ -



APPENDIX B-5
SUMMARY OF WASTEWATER INVENTORY
Amherstburg

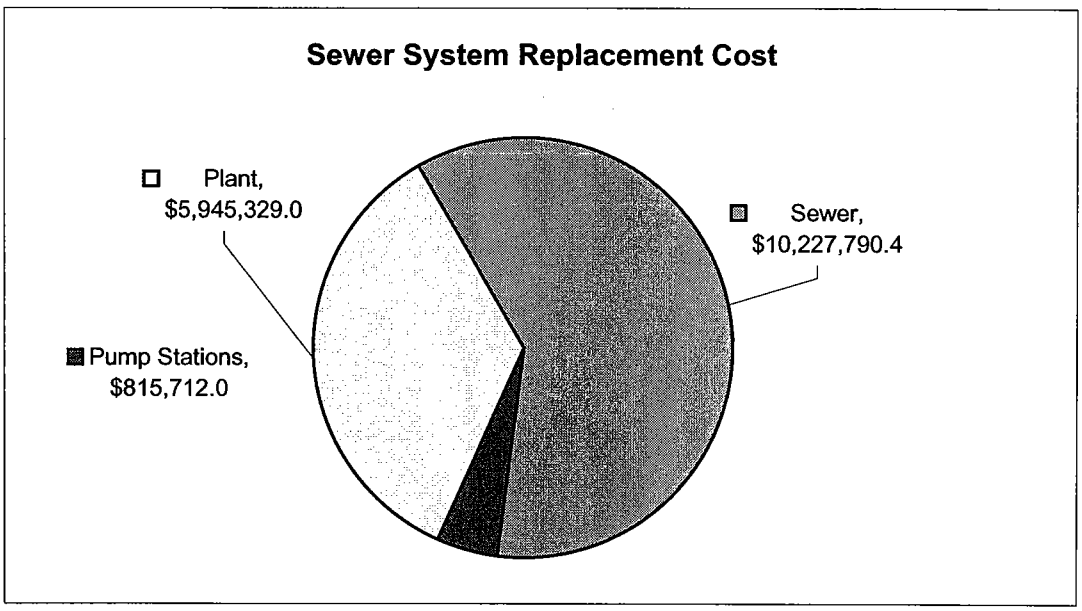
Amherstburg PCP Sewage Area Inventory	Quantity		Replacement Cost	Annual Lifecycle Contribution	Amount Required in 10 Year Capital Forecast
Sewer	92	km	$ 54,550,750.1	$ 612,876.9	$ -
Pump Stations	5	each	$ 3,473,774.0	$ 84,472.7	$ -
Plant	Secondary	each	$ 18,162,610.0	$ -	* $ 18,162,610.0
Totals			$ 76,187,134.2	$ 697,349.5	$ 18,162,610.0

* Replacement of Plant part of the works identified in the Capital Budget as the Amherstburg PCP Upgrade & Expansion project



APPENDIX B-6
SUMMARY OF WASTEWATER INVENTORY
McLeod

	Quantity		Replacement Cost	Annual Lifecycle Contribution	Amount Required in 10 Year Capital Forecast
Sewer	18	km	$ 10,227,790.4	$ 61,204.4	$ -
Pump Stations	2	each	$ 815,712.0	$ 11,245.7	$ -
Plant	Secondary	each	$ 5,945,329.0	$ 178,691.4	$ -
Totals			$ 16,988,831.5	$ 251,141.5	$ -



APPENDIX C
DETAILED WASTEWATER RATE CALCULATIONS

Appendix C-1
Town of Amherstburg
Wastewater Service
Capital Budget Forecast
Inflated $

Description	Total	Forecast									
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Capital Expenditures											
Sewage Collection System Capital Costs:											
Amherstburg - PCP Upgrade & Expansion (COMRIF)	24,666,707	600,000	2,085,571	10,829,677	11,046,270	105,190	0	0	0	0	0
Decommissioning of Edgewater Lagoons	427,279	0	0	0	0	0	427,279	0	0	0	0
Demolition of Existing Infrastructure	691,190	0	0	691,190	0	0	0	0	0	0	0
Connection of Edgewater to Amherstburg PCP	1,731,891	0	0	0	0	1,731,891	0	0	0	0	0
Connection of Boblo to Amherstburg PCP	1,031,060	0	0	0	0	0	0	0	0	1,031,060	0
Connection of Amherst Quarry to Amherstburg PCP	1,045,304	0	0	0	0	0	0	0	1,045,304	0	0
Connection of Alma St. Industrial ot Amherstburg PCP	709,482	0	0	0	0	0	0	709,482	0	0	0
Amherstburg - Other Works	163,840	163,840	0	0	0	0	0	0	0	0	0
Edgewater - Replace 3 lagoon distribution gates	20,200	10,000	10,200	0	0	0	0	0	0	0	0
Edgewater - Other	94,500	94,500	0	0	0	0	0	0	0	0	0
Boblo	80,984	0	80,984	0	0	0	0	0	0	0	0
McGregor	1,782,199	195,200	1,218,900	0	180,405	0	187,694	0	0	0	0
McLeod	0	0	0	0	0	0	0	0	0	0	0
Big Creek	0	0	0	0	0	0	0	0	0	0	0
Sewer Separation Program - Eligible for Subsidy	4,234,402	2,230,000	1,557,030	447,372	0	0	0	0	0	0	0
Sewer Separation Program - Ineligible for Subsidy	377,970	150,000	227,970	0	0	0	0	0	0	0	0
PW - Mechanical	209,248	760	177,276	31,212	0	0	0	0	0	0	0
PW - Roads Related Sewage Works	200,800	160,000	40,800	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
Total Capital Expenditures	37,467,057	3,604,300	5,398,730	11,999,450	11,226,675	1,837,081	614,973	709,482	1,045,304	1,031,060	0
Capital Financing											
Provincial/Federal Grants - Amherstburg	11,100,018	270,000	938,507	4,873,354	4,970,822	47,335	0	0	0	0	0
Provincial/Federal Grants - Sewer Seperation Program	2,822,935	1,486,667	1,038,020	298,248	0	0	0	0	0	0	0
Development Charges *	9,045,016	149,000	505,637	2,599,122	2,651,105	354,305	0	709,482	1,045,304	1,031,060	0
Non-Growth Related Debenture Requirements	9,884,116	1,698,633	1,916,567	3,228,725	2,604,749	435,441	0	0	0	0	0
Growth Related Debenture Requirements	0	0	0	0	0	0	0	0	0	0	0
Operating Contributions	0	0	0	0	0	0	0	0	0	0	0
Reserves and Reserve Funds	4,614,973	0	1,000,000	1,000,000	1,000,000	1,000,000	614,973	0	0	0	0
Total Capital Financing	37,467,057	3,604,300	5,398,730	11,999,450	11,226,675	1,837,081	614,973	709,482	1,045,304	1,031,060	0

* Requires accellerated payments or front-ending arrangements

Appendix C-2
Town of Amherstburg
Wastewater Service
Schedule of Non-Growth Related Debenture Repayments
Inflated $

Debenture Year	Principal (Inflated)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2006	1,698,633		230,790	230,790	230,790	230,790	230,790	230,790	230,790	230,790	230,790
2007	1,916,567			260,400	260,400	260,400	260,400	260,400	260,400	260,400	260,400
2008	3,228,725				438,680	438,680	438,680	438,680	438,680	438,680	438,680
2009	2,604,749					353,902	353,902	353,902	353,902	353,902	353,902
2010	435,441						59,162	59,162	59,162	59,162	59,162
2011	0							0	0	0	0
2012	0								0	0	0
2013	0									0	0
2014	0										0
2015	0										
Total Annual Debt Charges	**9,884,116**	0	230,790	491,190	929,870	1,283,772	1,342,935	1,342,935	1,342,935	1,342,935	1,342,935

Appendix C-3
Town of Amherstburg
Wastewater Service
Schedule of Growth Related Debenture Repayments
Inflated $

Debenture Year	Principal (Inflated)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2006	0		0	0	0	0	0	0	0	0	0
2007	0			0	0	0	0	0	0	0	0
2008	0				0	0	0	0	0	0	0
2009	0					0	0	0	0	0	0
2010	0						0	0	0	0	0
2011	0							0	0	0	0
2012	0								0	0	0
2013	0									0	0
2014	0										0
2015	0										
Total Annual Debt Charges	**0**	0	0	0	0	0	0	0	0	0	0

Appendix C-4
Town of Amherstburg
Wastewater Service
Wastewater Reserves/ Reserve Funds Continuity
Inflated $

Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Opening Balance	-1,182,710	0	624,000	1,064,960	1,097,158	725,045	686,475	745,134	878,939	878,939
Transfer from Operating	1,182,710	1,600,000	1,400,000	990,000	600,000	550,000	30,000	100,000	200,000	290,000
Transfer to Capital		1,000,000	1,000,000	1,000,000	1,000,000	614,973	0	0	0	0
Transfer to Operating - Debt	0	0	0	0	0	0	0	0	0	0
Closing Balance	0	600,000	1,024,000	1,054,960	697,158	660,072	716,475	845,134	1,078,939	1,168,939
Interest	0	24,000	40,960	42,198	27,886	26,403	28,659	33,805	43,158	46,758

Appendix C-5
Town of Amherstburg
Wastewater Service
Wastewater Development Charge Reserve Fund Continuity
Inflated $

Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Opening Balance	455,857	922,749	1,118,752	-840,930	-2,919,088	-2,677,448	-2,043,127	-2,106,467	-2,506,470	-2,506,470
Development Charge Proceeds	645,698	658,611	671,784	685,219	698,924	712,902	727,160	741,704	756,538	771,668
Transfer to Capital	149,000	505,637	2,599,122	2,651,105	354,305	0	709,482	1,045,304	1,031,060	0
Transfer to Operating - Existing Debt	65,296	0	0	0	0	0	0	0	0	0
Transfer to Operating - New Debt	0	0	0	0	0	0	0	0	0	0
Closing Balance	887,259	1,075,723	-808,586	-2,806,815	-2,574,469	-1,964,545	-2,025,449	-2,410,068	-2,780,993	-1,734,802
Interest	35,490	43,029	-32,343	-112,273	-102,979	-78,582	-81,018	-96,403	-111,240	-69,392
Required for DC's	149,000	505,637	2,599,122	2,651,105	354,305	-	709,482	1,045,304	1,031,060	-

Appendix C-6
Town of Amherstburg
Wastewater Service
Equipment Reserve Fund Continuity
Inflated $

Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Opening Balance	0	31,200	94,848	192,242	324,732	493,721	513,470	534,008	555,369	555,369
Transfer from Operating	30,000	60,000	90,000	120,000	150,000	0	0	0	0	0
Transfer to Capital	0	0	0	0	0	0	0	0	0	0
Transfer to Operating	0	0	0	0	0	0	0	0	0	0
Closing Balance	30,000	91,200	184,848	312,242	474,732	493,721	513,470	534,008	555,369	555,369
Interest	1,200	3,648	7,394	12,490	18,989	19,749	20,539	21,360	22,215	22,215

Appendix C-7
Town of Amherstburg
Wastewater Service
Wastewater Lifecycle Reserve Fund Continuity
Inflated $

Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Opening Balance	0	0	0	124,800	420,992	957,832	1,900,945	3,526,780	5,217,649	5,217,649
Transfer from Operating	0	0	120,000	280,000	500,000	870,000	1,490,190	1,490,190	1,490,190	1,490,190
Transfer to Capital	0	0	0	0	0	0	0	0	0	0
Transfer to Operating	0	0	0	0	0	0	0	0	0	0
Closing Balance	0	0	120,000	404,800	920,992	1,827,832	3,391,135	5,016,970	6,707,838	6,707,838
Interest	0	0	4,800	16,192	36,840	73,113	135,645	200,679	268,314	268,314

Appendix C-8
Town of Amherstburg
Wastewater Service
Operating Budget Forecast
Inflated $

Description	Forecast									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Expenditures										
Operating Costs										
Amherstburg	1,057,236	1,078,381	1,099,949	1,121,948	1,144,387	1,167,274	1,190,620	1,214,432	1,238,721	1,263,495
Edgewater	337,241	343,986	350,866	357,883	365,041	372,342	379,788	387,384	395,132	403,035
Boblo	116,058	118,379	120,747	123,162	125,625	128,138	130,700	133,314	135,981	138,700
McGregor	286,926	292,664	298,518	304,488	310,578	316,789	323,125	329,587	336,179	342,903
McLeod	256,963	262,102	267,344	272,691	278,145	283,708	289,382	295,170	301,073	307,095
Big Creek	115,534	117,844	120,201	122,605	125,057	127,558	130,110	132,712	135,366	138,073
New Employees		61,200	62,424	63,672	64,946	66,245	67,570	68,921	70,300	71,706
Sub Total Operating	2,169,958	2,274,557	2,320,048	2,366,449	2,413,778	2,462,054	2,511,295	2,561,521	2,612,751	2,665,006
Capital-Related										
Existing Debt Non-Growth Related	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684
Existing Debt Growth Related	65,296	0	0	0	0	0	0	0	0	0
New Non-Growth Related Debt	0	230,790	491,190	929,870	1,283,772	1,342,935	1,342,935	1,342,935	1,342,935	1,342,935
New Growth Related Debt	0	0	0	0	0	0	0	0	0	0
Capital From Current	0	0	0	0	0	0	0	0	0	0
Transfer to Equipment Reserve	30,000	60,000	90,000	120,000	150,000	0	0	0	0	0
Transfer to Rate Stabilization Reserve										
Transfer to Reserves and Reserve Funds	1,182,710	1,600,000	1,400,000	990,000	600,000	550,000	30,000	100,000	200,000	290,000
Sub Total Capital Related	1,580,690	2,193,474	2,283,874	2,342,554	2,336,456	2,195,619	1,675,619	1,745,619	1,845,619	1,935,619
Total Expenditures	3,750,648	4,468,031	4,603,922	4,709,004	4,750,235	4,657,673	4,186,914	4,307,140	4,458,370	4,600,625
Revenues										
Base Charge	1,316,538	1,373,714	1,432,854	1,493,263	1,555,709	1,620,234	1,686,897	1,755,739	1,825,990	1,898,499
Recovery from Local Improvement	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684	302,684
Contributions from Development Charges Reserve Fund	65,296	0	0	0	0	0	0	0	0	0
Contributions from Reserves / Reserve Funds	0	0	0	0	0	0	0	0	0	0
Total Operating Revenue	1,684,518	1,676,398	1,735,538	1,795,947	1,858,394	1,922,918	1,989,581	2,058,423	2,128,674	2,201,183
Wastewater Billing Recovery - Operating	2,066,130	2,791,633	2,868,384	2,913,056	2,891,841	2,734,755	2,197,333	2,248,716	2,329,696	2,399,442
Lifecycle Reserve Contribution ($)			120,000	280,000	500,000	870,000	1,490,190	1,490,190	1,490,190	1,490,190
Wastewater Billing Recovery - Total	**2,066,130**	**2,791,633**	**2,988,384**	**3,193,056**	**3,391,841**	**3,604,755**	**3,687,522**	**3,738,906**	**3,819,885**	**3,889,632**
Total Revenue	**3,750,648**	**4,468,031**	**4,723,922**	**4,989,004**	**5,250,235**	**5,527,673**	**5,677,103**	**5,797,329**	**5,948,560**	**6,090,815**

Appendix C-9
Town of Amherstburg
Wastewater Service
Wastewater Rate Forecast
Inflated $

Description	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Wastewater Billing Recovery		2,066,130	2,791,633	2,988,384	3,193,056	3,391,841	3,604,755	3,687,522	3,738,906	3,819,885	3,889,632
Total Consumption (m^3)		2,201,545	2,246,485	2,291,425	2,336,365	2,381,305	2,426,245	2,471,185	2,516,125	2,561,065	2,606,005
Constant Rate		**0.94**	**1.24**	**1.30**	**1.37**	**1.42**	**1.49**	**1.49**	**1.49**	**1.49**	**1.49**

APPENDIX D

COMPARISON OF SEPARATE RATES VS. UNIFIED RATE

Appendix D
Town of Amherstburg
Wastewater Service
Cost Per Customer Based on Separate Rates by System

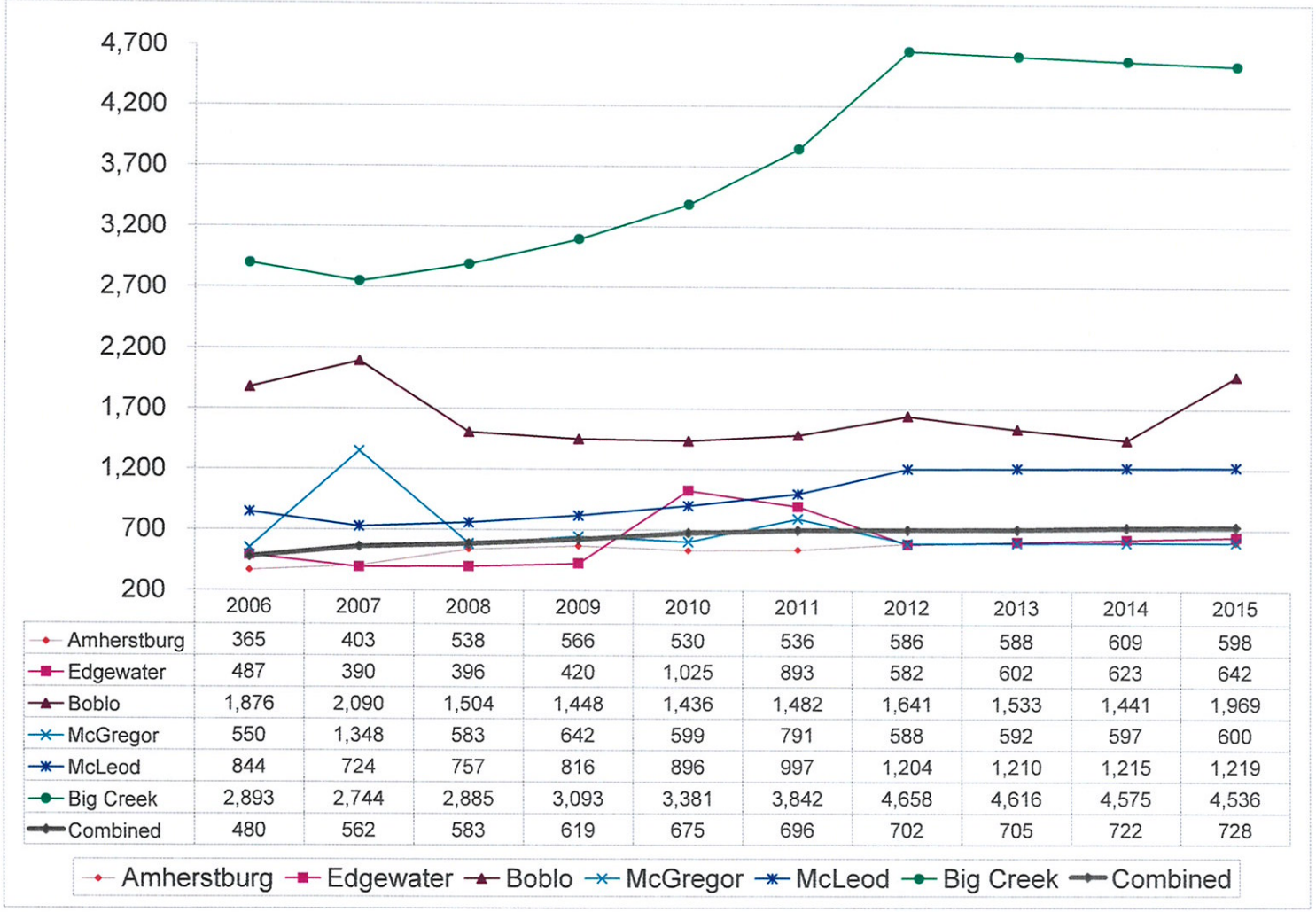
Description	Forecast									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Amherstburg:										
Lifecycle	-	-	56,400	131,600	235,000	408,900	700,389	700,389	700,389	700,389
Operating	1,057,236	1,078,381	1,099,949	1,121,948	1,144,387	1,167,274	1,190,620	1,214,432	1,238,721	1,263,495
Transfer to Reserves and Reserve Funds	809,739	849,920	1,396,360	940,500	13,620	-	30,000	68,465	136,929	198,548
Existing Debt - Growth Related	65,296	-	-	-	-	-	-	-	-	-
New Debt - Growth Related	-	-	-	110,456	402,722	402,722	402,722	408,157	504,664	408,157
Existing Debt - Non-Growth Related										
New Debt - Non-Growth Related	-	190,070	333,502	772,182	1,108,373	1,112,803	1,112,803	1,112,803	1,112,803	1,112,803
New Employee	-	39,651	40,445	41,253	42,078	42,920	43,778	44,654	45,547	46,458
Additional Transfer to Equipment Reserve	19,437	38,874	58,311	77,748	97,185	-	-	-	-	-
Total Expenditures	1,951,708	2,196,897	2,984,966	3,195,687	3,043,364	3,134,619	3,480,312	3,548,900	3,739,054	3,729,850
Existing Customers (Residential Equivalent)	5,304	5,304	5,304	5,304	5,304	5,304	5,304	5,304	5,304	5,304
New Customers	49	147	245	343	441	539	637	735	833	931
Total Customers	5,353	5,451	5,549	5,647	5,745	5,843	5,941	6,039	6,137	6,235
Cost per Customer	365	403	538	566	530	536	586	588	609	598
Edgewater:										
Lifecycle	-	-	10,800	25,200	45,000	78,300	134,117	134,117	134,117	134,117
Operating	337,241	343,986	350,866	357,883	365,041	372,342	379,788	387,384	395,132	403,035
Transfer to Reserves and Reserve Funds	156,333	19,840	1,820	-	586,380	382,140	-	13,218	26,436	38,333
Existing Debt - Growth Related										
New Debt - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt - Non-Growth Related										
New Debt - Non-Growth Related	-	14,198	15,109	15,109	15,109	69,841	69,841	69,841	69,841	69,841
New Employee	-	10,728	10,943	11,162	11,385	11,613	11,845	12,082	12,324	12,570
Additional Transfer to Equipment Reserve	5,259	10,518	15,777	21,036	26,295	-	-	-	-	-
Total Expenditures	498,834	399,271	405,315	430,390	1,049,210	914,235	595,591	616,642	637,850	657,895
Existing Customers (Residential Equivalent)	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024
New Customers	0	0	0	0	0	0	0	0	0	0
Total Customers	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024
Cost per Customer	487	390	396	420	1,025	893	582	602	623	642
Boblo:										
Lifecycle	-	-	7,200	16,800	30,000	52,200	89,411	89,411	89,411	89,411
Operating	116,058	118,379	120,747	123,162	125,625	128,138	130,700	133,314	135,981	138,700
Transfer to Reserves and Reserve Funds	9,313	45,440	140	-	-	-	-	787	1,575	2,284
Existing Debt - Growth Related										
New Debt - Growth Related	-	-	-	-	-	-	-	-	-	106,121
Existing Debt - Non-Growth Related										
New Debt - Non-Growth Related	-	-	7,230	7,230	7,230	7,230	7,230	7,230	7,230	7,230
New Employee	-	636	649	662	675	689	703	717	731	746
Additional Transfer to Equipment Reserve	312	624	936	1,248	1,560	-	-	-	-	-
Total Expenditures	125,683	165,080	136,903	149,102	165,091	188,257	228,045	231,460	234,928	344,492
Existing Customers (Residential Equivalent)	61	61	61	61	61	61	61	61	61	61
New Customers	6	18	30	42	54	66	78	90	102	114
Total Customers	67	79	91	103	115	127	139	151	163	175
Cost per Customer	1,876	2,090	1,504	1,448	1,436	1,482	1,641	1,533	1,441	1,969

Appendix D
Town of Amherstburg
Wastewater Service
Cost Per Customer Based on Separate Rates by System

Description	Forecast									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
McGregor:										
Lifecycle	-	-	1,200	2,800	5,000	8,700	14,902	14,902	14,902	14,902
Operating	286,926	292,664	298,518	304,488	310,578	316,789	323,125	329,587	336,179	342,903
Transfer to Reserves and Reserve Funds	108,701	674,080	560	49,500	-	167,860	-	9,191	18,382	26,653
Existing Debt - Growth Related										
New Debt - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt - Non-Growth Related										
New Debt - Non-Growth Related	-	26,521	135,349	135,349	153,060	153,060	153,060	153,060	153,060	153,060
New Employee	-	3,415	3,483	3,553	3,624	3,696	3,770	3,846	3,923	4,001
Additional Transfer to Equipment Reserve	1,674	3,348	5,022	6,696	8,370	-	-	-	-	-
Total Expenditures	397,300	1,000,029	444,131	502,385	480,632	650,106	494,857	510,586	526,446	541,519
Existing Customers (Residential Equivalent)	712	712	712	712	712	712	712	712	712	712
New Customers	10	30	50	70	90	110	130	150	170	190
Total Customers	722	742	762	782	802	822	842	862	882	902
Cost per Customer	550	1,348	583	642	599	791	588	592	597	600
McLeod (Amherst Point & Bar Point):										
Lifecycle	-	-	24,000	56,000	100,000	174,000	298,038	298,038	298,038	298,038
Operating	256,963	262,102	267,344	272,691	278,145	283,708	289,382	295,170	301,073	307,095
Transfer to Reserves and Reserve Funds	81,831	8,960	980	-	-	-	-	6,919	13,838	20,065
Existing Debt - Growth Related										
New Debt - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt - Non-Growth Related	114,475	114,475	114,475	114,475	114,475	114,475	114,475	114,475	114,475	114,475
New Debt - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
New Employee	-	5,618	5,731	5,845	5,962	6,081	6,203	6,327	6,453	6,583
Additional Transfer to Equipment Reserve	2,754	5,508	8,262	11,016	13,770	-	-	-	-	-
Total Expenditures	456,023	396,664	420,792	460,028	512,352	578,264	708,098	720,929	733,878	746,255
Existing Customers (Residential Equivalent)	536	536	536	536	536	536	536	536	536	536
New Customers	4	12	20	28	36	44	52	60	68	76
Total Customers	540	548	556	564	572	580	588	596	604	612
Cost per Customer	844	724	757	816	896	997	1,204	1,210	1,215	1,219
Big Creek (Lake Erie County Club):										
Lifecycle	-	-	20,400	47,600	85,000	147,900	253,332	253,332	253,332	253,332
Operating	115,534	117,844	120,201	122,605	125,057	127,558	130,110	132,712	135,366	138,073
Transfer to Reserves and Reserve Funds	16,794	1,760	140	-	-	-	-	1,420	2,840	4,118
Existing Debt - Growth Related										
New Debt - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt - Non-Growth Related	188,209	188,209	188,209	188,209	188,209	188,209	188,209	188,209	188,209	188,209
New Debt - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
New Employee	-	1,151	1,174	1,197	1,221	1,245	1,270	1,296	1,322	1,348
Additional Transfer to Equipment Reserve	564	1,128	1,692	2,256	2,820	-	-	-	-	-
Total Expenditures	321,100	310,092	331,816	361,867	402,307	464,913	572,921	576,969	581,069	585,080
Existing Customers (Residential Equivalent)	110	110	110	110	110	110	110	110	110	110
New Customers	1	3	5	7	9	11	13	15	17	19
Total Customers	111	113	115	117	119	121	123	125	127	129
Cost per Customer	2,893	2,744	2,885	3,093	3,381	3,842	4,658	4,616	4,575	4,536

Appendix D

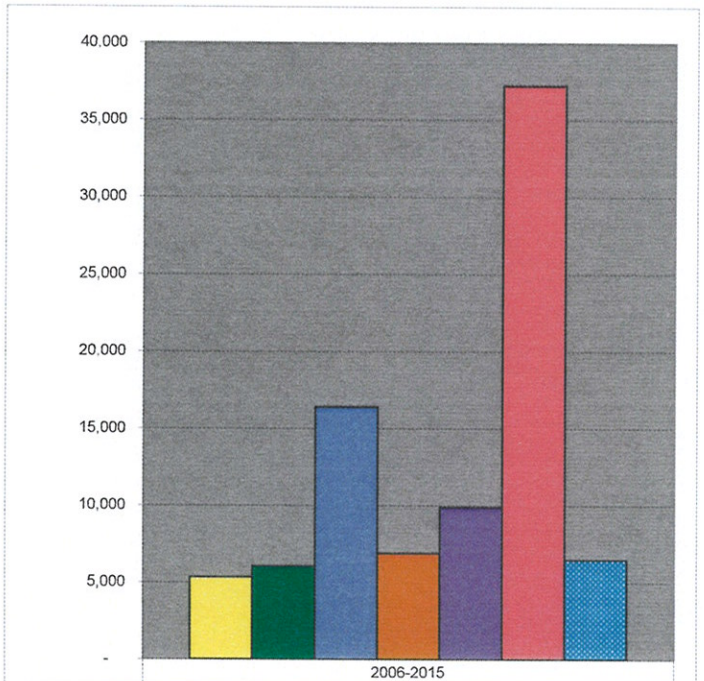
Separate vs. Unified Rate - Yearly Charge



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Amherstburg	365	403	538	566	530	536	586	588	609	598
Edgewater	487	390	396	420	1,025	893	582	602	623	642
Boblo	1,876	2,090	1,504	1,448	1,436	1,482	1,641	1,533	1,441	1,969
McGregor	550	1,348	583	642	599	791	588	592	597	600
McLeod	844	724	757	816	896	997	1,204	1,210	1,215	1,219
Big Creek	2,893	2,744	2,885	3,093	3,381	3,842	4,658	4,616	4,575	4,536
Combined	480	562	583	619	675	696	702	705	722	728

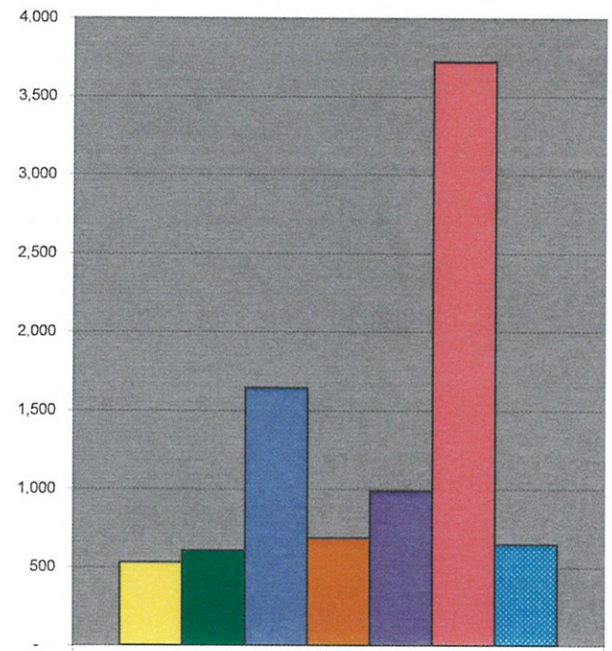
Appendix D

Separate vs. Unified Rate
Average Yearly Costs 2006-2015



	2006-2015
Amherstburg	5,319
Edgewater	6,060
Boblo	16,419
McGregor	6,891
McLeod	9,882
Big Creek	37,223
Combined	6,473

Separate vs. Unified Rate
Total Costs 2006-2015



	2006-2015
Amherstburg	532
Edgewater	606
Boblo	1,642
McGregor	689
McLeod	988
Big Creek	3,722
Combined	647