

WATER AND WASTEWATER RATE STUDY

Town of Midland



HEMSON Consulting Ltd.

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EXECUTIVE SUMMARY

A. BACKGROUND AND STUDY OBJECTIVE

In 2008, the Town of Midland undertook a water and wastewater rate study. This study identified and recommended increases to the Town's rates and a schedule of rate increase covering the period 2008 to 2018. Since the completion of the 2008 study, there have been changes to the pattern of water consumption in the Town. Furthermore, the Town's water and wastewater system operating and capital costs have changed. In the spring of 2010, the Town determined that it was necessary to review and update the water and wastewater rate study to ensure that the Town was raising sufficient revenues to fund the water and wastewater system.

The objective of this study was to review and recommend, as necessary, new water and wastewater rates that address the following:

- Water consumption by different types of users;
- Total anticipated water demand;
- Full recovery of system operating costs;
- Full recovery of capital infrastructure financing needs (net of DC recoveries); and
- Establishment of reserves to fund the rehabilitation and replacement of infrastructure.

The study was also to examine the structure of the rates to ensure an equitable and fair treatment of the various user types.

To undertake the analysis, a long term financial planning model covering a 10-year period from 2011 to 2020 was developed to assist the Town in evaluating the adequacy of its provisions for financing the periodic rehabilitation and eventual replacement of its extensive water and wastewater infrastructure.

The analysis and the model are built on the concept of establishing full cost recovery rates consistent with the requirements of the *Sustainable Water and Sewage Systems Act*.

In undertaking this analysis, Hemson Consulting:

- Established a detailed inventory database for the existing water and wastewater system;

- Analyzed the Town's reserve funds and developed a reserve fund financial model to calculate the annual funding needed to meet the long term capital requirements for rehabilitation and replacement of the system;
- Calculated water and wastewater rates which fully recover the costs of providing water and wastewater services in the Town.

B. ASSOCIATED LEGISLATION

- The analysis gives consideration to the *Provincial Sustainable Water and Sewage System Act*. The assignment produces a full cost of services analysis as well as a cost recovery plan.
- The Town is given authority to impose user fees for water and wastewater services under Section 391 of the *Municipal Act*.
- Associated regulation (*O. Reg. 584/06*) sets out the conditions by which a municipality must administer the fees.

C. GROWTH AND DEMAND FORECASTS

Future costs of the Town's water and wastewater system will largely be driven by demand placed on the system by water consumers.

- The current number of equivalent connections is 6,872; this number is expected to increase to 8,012 by 2020.
- In response to current water conservation practice and a declining household population, the annual metered water demand is projected to remain stable at 1,989,079 m³ per annum throughout the 10-year planning period.
- For the purpose of this analysis, wastewater flows were assumed to be equivalent to water flows.

D. OPERATION AND MAINTENANCE COSTS

1. Expenditures

- Water and wastewater operation and maintenance costs were established based on the Town's 2011 operating budget. Expenditures were increased annually at a rate of 2 percent to account for inflation.

- The total operating expenditures for the water system in 2011 is \$2,542,700. This figure is expected to increase to \$3,040,300 by 2020.
- The total operating expenditures for the wastewater system in 2011 is \$2,968,000. This figure is expected to increase to \$3,341,700 by 2020.

2. Non-user Rate Revenues

- Non-user rate revenues are budget items which decrease the net operating budget but are not recovered through water or wastewater user rates (i.e. cost recoveries).
- The Town is forecast to recover approximately \$50,000 in 2011 through non-user rate revenues for both the water and wastewater system. Non-user rate revenues were increased annually at a rate of 2 percent to account for inflation.

E. INFRASTRUCTURE AND CAPITAL

1. Water and Wastewater Infrastructure

- The asset information contained in our analysis was gathered from the Town's existing database.
- The Town has a relatively young water and wastewater system with average ages of about 34 years for its assets.
- The historic value of the Town's total water and wastewater infrastructure inventory exceeds \$80.53 million.
- The largest share of water infrastructure is attributed to linear infrastructure valued at approximately \$20.10 million.
- Similarly, the largest share of infrastructure in the wastewater system is also attributed to linear infrastructure valued at approximately \$21.12 million.

2. Non-growth Related Capital

Over the next 10-year period, additional infrastructure will be required to support growth within the Town. The majority of infrastructure related to growth will receive funding through development charge revenues and other developer contributions.

- The Town will be responsible for funding the portion of growth-related capital that is not funded from development charges or development contributions (non-growth related portion). It is anticipated that approximately \$22.03 million will be required over the 10-year period for both water and wastewater system.

- The Town anticipates funding approximately 74%, or \$16.31 million of the non-growth related costs, from water and wastewater reserves.
- The remaining 26%, or \$5.72 million, of the non-growth related costs will be funded from the water and wastewater rates.
- Existing debentures for large water and wastewater projects have been included in the analysis.

3. Asset Rehabilitation and Replacement

Provisions for infrastructure replacement are calculated for each asset individually based on their remaining useful life. The aggregate of all individual provisions form the required annual contribution to a reserve fund.

- The analysis provides for a gradual phase-in to full funding.
- Over the 10-year period, the Town will contribute approximately \$14.62 million to reserves for the eventual rehabilitation and replacement of water and wastewater assets.

F. RATE STRUCTURE

The water and wastewater rates have been calculated to promote customer control and water conservation measures. As such, a fixed or minimum charge is calculated to recover 25% of the operating, capital, rehabilitation and replacement costs of the water and wastewater system. A consumption based charge is then calculated to recover the remaining 75% of the costs. A rate structure which is reliant on water use allows the customer to control the amount they would pay based on the amount of water consumed or wastewater generated.

The Town of Midland can fully recover all costs related to the water and wastewater system through the sale of water and wastewater. Three rate structure options are presented:

- 1) **Constant Rate:** A fixed or minimum charge is established in addition to a consumption based charge which is applied to each unit of water consumed or wastewater generated.
- 2) **Increasing Block:** A fixed or minimum charge is established in addition to a consumption based charge where the unit rate increases relative to water use and wastewater generated.

- 3) **Humpback Rate:** A fixed or minimum charge is established in addition to a consumption charge where the unit rate increases relative to water use and wastewater generated to a determined rate before retreating back to the lowest consumption charge.

G. CALCULATED RATES

1. Water

The required user rate revenue for the Midland water system in 2011 is forecast to be \$2,788,400. This is the amount of revenue which must be collected through the sale of water to fully recover the operating, capital, rehabilitation and replacement costs of the water system.

The calculated rates derived from each of the rate structure options, to recover these costs, are included in the table below:

Fixed Fee		Volumetric Charge	
Meter Size	Base Monthly Charge	Fee Structure	Charge per m ³
3/4"	\$8.29	Option 1	\$1.05
1"	\$17.23	Option 2	
1 1/2"	\$37.88	Tier 1: 0 - 10m ³	\$1.00
2"	\$68.92	Tier 2: 10 - 30m ³	\$1.07
3"	\$146.41	Tier 3: > 30m ³	\$1.12
4"	\$258.37	Option 2	
6"	\$344.52	Tier 1: 0 - 10m ³	\$1.04
8"	\$387.54	Tier 2: 10 - 30m ³	\$1.14
10"	\$430.62	Tier 3: > 30m ³	\$1.04

2. Wastewater

The required user rate revenue for the Midland wastewater system in 2011 is forecast to be \$3,297,800. This is the amount of revenue which must be collected through the sale of wastewater to fully recover the operating, capital, rehabilitation and replacement costs of the wastewater system.

The calculated rates derived from each of the rate structure options, to recover these costs, are included in the table below:

Fixed Fee		Volumetric Charge	
Meter Size	Base Monthly Charge	Fee Structure	Charge per m ³
3/4"	\$9.81	Option 1	\$1.24
1"	\$20.39	Option 2	
1 1/2"	\$44.83	Tier 1: 0 - 10m ³	\$1.17
2"	\$81.55	Tier 2: 10 - 30m ³	\$1.27
3"	\$173.26	Tier 3: > 30m ³	\$1.33
4"	\$305.74	Option 2	
6"	\$407.69	Tier 1: 0 - 10m ³	\$1.22
8"	\$458.59	Tier 2: 10 - 30m ³	\$1.34
10"	\$509.58	Tier 3: > 30m ³	\$1.22

3. Impact on a Typical User

The following tables represent the change in the annual water and wastewater bill on a sample of typical users in the Town.

Impact under Option 1:

User Type	Annual Consumption (m ³)	2011 Annual Charge	Option 1		
			Annual Charge	\$ Change	% Change
Residential					
Household - 200 m ³	200	\$626	\$675	\$49	8%
Household - 350 m ³	350	\$951	\$1,019	\$67	7%
Non-Residential					
Retail User	1,000	\$3,766	\$4,096	\$330	9%
Industrial User	17,000	\$38,486	\$40,736	\$2,250	6%
High Volume User	60,000	\$138,177	\$146,427	\$8,250	6%

Impact under Option 2:

User Type	Annual Consumption (m ³)	2011 Annual Charge	Option 2		
			Annual Charge	\$ Change	% Change
Residential					
Household - 200 m ³	200	\$626	\$665	\$39	6%
Household - 350 m ³	350	\$951	\$1,016	\$64	7%
Non-Residential					
Retail User	1,000	\$3,766	\$4,196	\$430	11%
Industrial User	17,000	\$38,486	\$43,396	\$4,910	13%
High Volume User	60,000	\$138,177	\$155,967	\$17,790	13%

Impact under Option 3:

User Type	Annual Consumption (m ³)	2011 Annual Charge	Option 3		
			Annual Charge	\$ Change	% Change
Residential					
Household - 200 m ³	200	\$626	\$687	\$61	10%
Household - 350 m ³	350	\$951	\$1,059	\$107	11%
Non-Residential					
Retail User	1,000	\$3,766	\$4,118	\$353	9%
Industrial User	17,000	\$38,486	\$40,278	\$1,793	5%
High Volume User	60,000	\$138,177	\$144,679	\$6,502	5%

H. RECOMMENDATIONS AND FINDINGS

Based upon the findings of the analysis, the following recommendations are put forth for consideration.

- Ensure that the rates fully fund all of the Town's anticipated annual costs including all operating costs and capital financing needs.
- The Town establish rates which are fair and equitable to all users of the system as presented in the three options.
- The rates include a provision for the repair and ultimate replacement of water and wastewater infrastructure.
- The rates, representing full cost recovery, are competitive with surrounding municipalities.

I BACKGROUND AND STUDY OBJECTIVE

A. BACKGROUND

The Town of Midland is located in Simcoe County on the southern shores of Georgian Bay. The Town has a current population of approximately 16,851 persons.

The Midland water system has approximately 6,872 equivalent metered residential connections with water supplied from five point of entry wells. The distribution system consists of about 105 kilometres of mains. The wastewater collection system utilizes 5 pump stations and approximately 95 kilometres of pipes. The average age of the water and wastewater system is approximately 34 years.

In 2008, the Town of Midland completed a water and wastewater rate study. This study identified and recommended increases to the Town's rates and a schedule of rate increases covering the period 2008 to 2018. Since the completion of the 2008 study, there have been changes to the pattern of water consumption in the Town and the water and wastewater system operating and capital costs have changed.

In the spring of 2010, the Town determined that it was necessary to review and update the water and wastewater rate study to ensure that the Town was raising sufficient revenues to fund the water and wastewater system.

B. STUDY OBJECTIVE

The purpose of this study is to develop a Full Cost Recovery Plan for the Town of Midland, which is consistent with the anticipated future requirements of the *Sustainable Water and Sewer Systems Act* which establishes a strategy for fully funding water and wastewater services in the Town. The Plan includes provisions for financing the ongoing rehabilitation and eventual replacement of the Town's extensive inventory of water and wastewater related infrastructure.

In accordance with the *Municipal Act*, water and wastewater rates are considered user fees. Therefore the specific requirements of this Act are also adhered to when developing the water and wastewater rates.

The two Acts governing the preparation of this report and the resulting water and sewer rates are described in more detail in the following chapter.

The first step in a study of this nature is to establish a population and household forecast as this is the basis for determining anticipated water consumption and wastewater

generation levels. The study period for this analysis examines the period from 2011 through 2020.

The Town provided a comprehensive inventory of the water and wastewater assets, including life expectancies and valuations to the assets. With this information a life-cycle cost for each asset can be developed. As a means of extending the assets' life cycles, a schedule for the periodic rehabilitation of infrastructure is created. A review of the systems' ability to adequately provide servicing to the community is then conducted. Any additional infrastructure required to support the anticipated growth is also taken into consideration. Growth related water and wastewater infrastructure needs are usually funded through development charges and direct developer contributions for local and internal servicing needs. The non-growth related costs will therefore require funding from the Town, usually through the user rates.

The Town's current water and wastewater rates, reserves and annual operating budgets are analyzed. Based on this analysis, the financial position of the Town's water and wastewater system is determined.

The next step in the study process is to compare the Town's current financial position with the fiscal requirements of the Act. A strategy for the Town to achieve full cost recovery for its water and wastewater services can then be developed.

The final step in the process is to evaluate the impacts of implementing the full cost recovery rates to the residents and businesses of the Town.

A financial model was developed to assist the Town in completing a number of tasks. Its primary objective is to assist in finalizing the required Cost Recovery Plan report, in compliance with the Act described in the following section. The model serves a secondary purpose, as a dynamic rate setting tool. Using the model, the Town is able to perform sensitivity analyses of water and wastewater rates, rate structure and also phase-in options. The model calculates future capital expenditure requirements and projects future operating and maintenance costs. It also calculates the water and wastewater rates necessary to recover the full costs of the Town's water and wastewater systems. The following process diagrams illustrate the overall approach.

Figure 1
Full Cost of Services Model

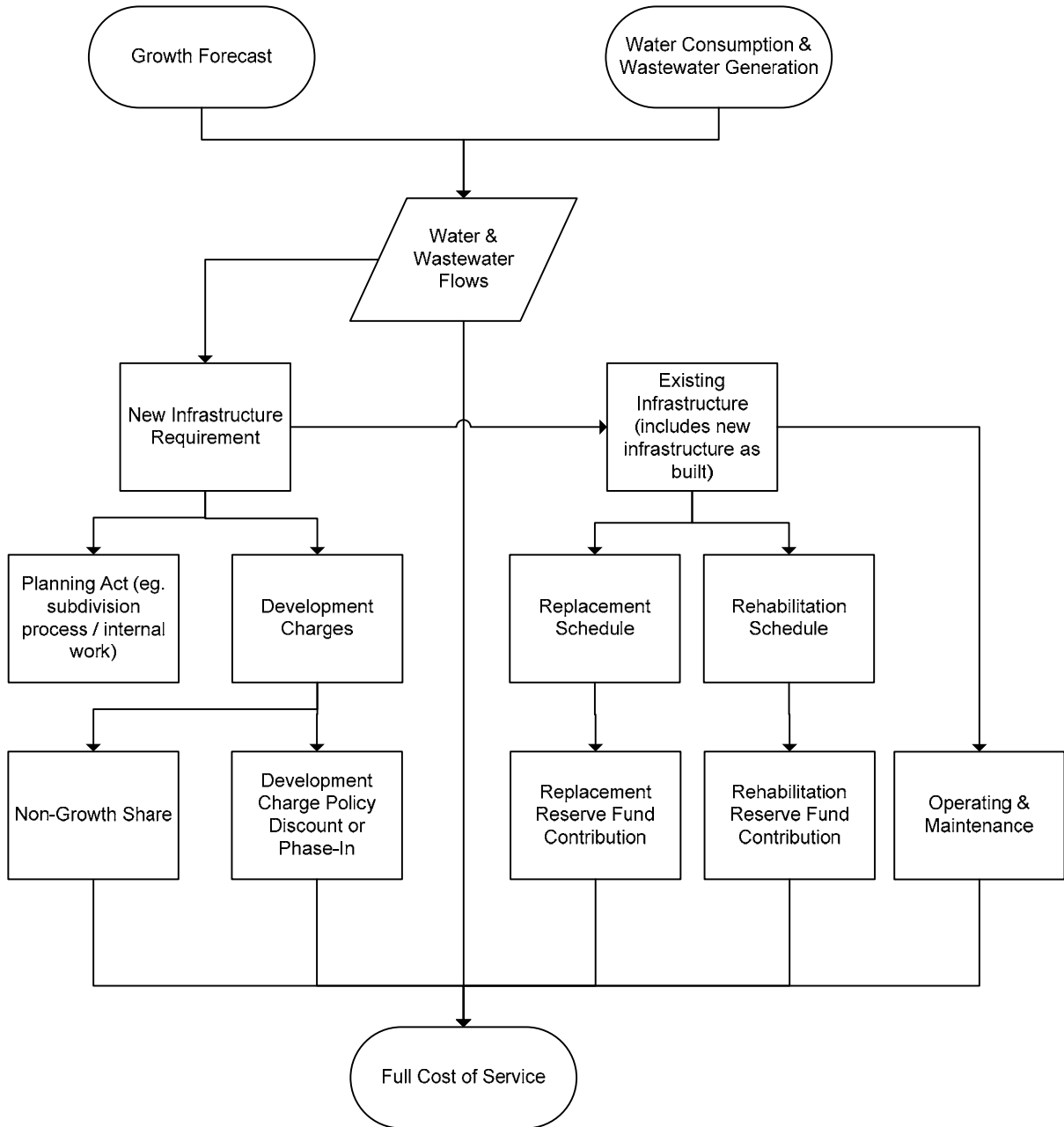
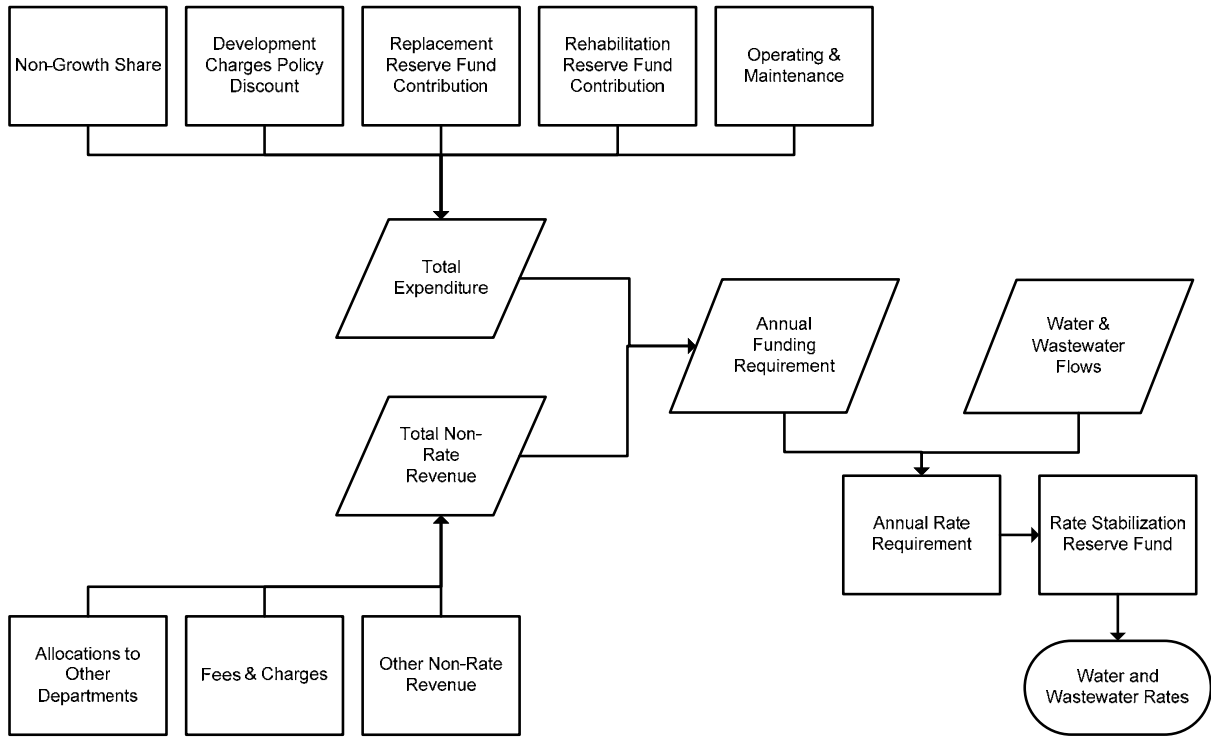


Figure 2
Cost Recovery Plan Model



II ASSOCIATED LEGISLATION

A. SUSTAINABLE WATER AND SEWAGE SYSTEMS ACT

This report was prepared in keeping with the *Sustainable Water and Sewage Systems Act* (the Act) which will require the Town of Midland to complete a Water and Wastewater Systems Full Cost of Services Report and Cost Recovery Plan. The regulations governing the Act have not been established, however it is anticipated that this Report and Plan will facilitate future compliance with the legislation, once the regulations are in place.

The two reports required under the *Sustainable Water and Sewage Systems Act* are the Full Cost of Services Report and the Cost Recovery Plan.

The Full Cost of Services Report provides an inventory and asset management plan, ensuring the integrity of the water and wastewater infrastructure. The full cost of services includes:

“the source protection costs, operating costs, financing costs, renewal and replacement costs and improvement costs” – Sustainable Water and Sewer Systems Act, 2002, S.O. 2002, c.29, s.3 (7)

The Report addresses the full cost of providing water and wastewater services, including provisions for the periodic rehabilitation and eventual replacement of the water and wastewater infrastructure.

The Act also requires municipalities to develop a Cost Recovery Plan. The Cost Recovery Plan consists of a revenue plan, identifying the revenue requirements to finance the system. The plan includes the development of water and wastewater rates which will fund the expansion, upgrading, rehabilitation, replacement, operation and maintenance of the water and wastewater systems. Financing, administrative and all other relevant costs related to providing the services are also included. This Plan will be the basis of a strategy to ensure water and wastewater services are fully funded.

B. MUNICIPAL ACT

The Town is given authority to impose user fees for water and wastewater services under Section 391 of the Municipal Act. The accompanying regulation, Ontario Regulation 584/06 sets out the conditions by which a municipality must administer the fees. When developing water and wastewater rates, the requirements outlined in Ontario Regulation 584/06 must be adhered to.

III GROWTH AND DEMAND FORECASTS

Future costs of the Town's water and wastewater system will largely be driven by demands placed on the system by water consumers. A forecast of future consumption demands must therefore be developed.

A. GROWTH FORECAST

The population growth forecast used in this study was based on the Town's most recent Development Charge Background Study completed in 2009. The Town's current population of 16,851 persons is expected to increase to about 17,930 persons by 2020.

B. WATER AND SEWERAGE DEMAND FORECASTS

The water and wastewater demand forecasts were developed by holding water consumption and wastewater generated constant throughout the 10-year planning period to reflect current water conservation practice and a declining household population. Unlike water consumption, wastewater flows are not metered. For the purposes of this analysis, wastewater flows were assumed to be equivalent to water flows. This assumption allows for an equitable distribution of the wastewater system costs to users. It is recommended that all new developments be connected and receive municipal water and wastewater servicing where possible.

Existing users in Midland receiving municipal water service, consume an average of about 0.79 cubic meters of water per equivalent residential connection per day. The total number of equivalent metered residential units connected to the water system is 6,872. These users consumed a total of about 1,989,079 cubic meters of water in 2010. The total number of equivalent metered residential units receiving municipal water is expected to increase to 8,012 by 2020 and will continue to consume 1,989,079 million cubic meters of water per annum.

The wastewater system has the same number of equivalent metered residential units connected to the wastewater system. The number of users connected to the municipal wastewater system is expected to increase at the same rate as water users to 8,012 equivalent connections by 2020.

Table 1 summarizes the current population, number of equivalent connections and consumptions patterns, and also the anticipated demand in year 2020.

Table 1			
Summary of Growth & Demand			
All Users			
Year	Population	Equivalent Connections	Consumption
2010	16,851	6,872	1,989,079 m ³
2011	16,991	7,004	1,989,079 m ³
2020	17,930	8,012	1,989,079 m ³

Appendix A provides detailed growth and demand forecasts for the Midland area. These forecasts were used to prepare the Cost Recovery Plan.

IV OPERATION AND MAINTENANCE COSTS

The total revenue the Town needs to collect through user rates is calculated by netting out non-user rate revenues from total expenditures.

A. OPERATING EXPENDITURES

Using the Town's 2011 operating budgets, expenditures were increased annually at a rate of 2 percent to account for inflation. The Town does not anticipate any new costs related to the systems operations and maintenance, therefore, only annual inflation adjustments were made to the operating expenditures throughout the planning period.

The total operating expenditures for the water system in 2011 is projected to be \$2.54 million. The projected operating costs are expected to increase to \$3.04 million by 2020. These figures do not include capital contributions.

The total operating expenditures for the wastewater system in 2011 is projected to be \$2.97 million. The projected operating costs are expected to increase to \$3.34 million by 2020. These figures also do not include capital contributions.

Table 2			
Operating & Maintenance Costs			
	Budget 2011	Projected	
		2012	2020
Midland Water	\$ 2,542,700	\$ 2,593,714	\$ 3,040,323
Midland Wastewater	\$ 2,968,000	\$ 3,006,307	\$ 3,341,667

B. NON-USER RATE REVENUES

Non-user rate revenues are budget items which decrease the net operating budget but which are not recovered through water or wastewater user rates. Examples of non-user rate revenues are allocations to other departments, and cost recoveries. For the purposes of this study, a 2 percent inflation rate is also applied to non-user rate revenues annually.

The Midland water system is forecast to recover approximately \$50,000 in 2011 through non-user rate revenues from cost recoveries and other various sources of non-user rate revenues.

Table 3			
Non-User Rate Revenues			
	Budget 2011	Projected	
		2012	2020
Midland Water	\$ 26,000	\$ 26,520	\$ 31,072
Midland Wastewater	\$ 24,000	\$ 24,480	\$ 28,682

Detailed operating expenditures and non-user rate revenues for the water and wastewater systems are set out in Appendix B.

V INFRASTRUCTURE AND CAPITAL

A. WATER AND WASTE WATER INFRASTRUCTURE

The information contained in the analysis was gathered from the Town's existing database. The information is used not only to describe, but also define the quantity, age and replacement value of the existing infrastructure. The inventory was grouped into eleven main asset categories, seven of which relate to water servicing and the remaining four to wastewater servicing.

Table 4	
Water & Wastewater Asset Categories	
Water	Wastewater
Watermain	Sewer mains
Storage/ pumping station	Treatment Plant
Hydrants	Pumping Station
Watermain Gate Valves	Manhole
Municipal Wells	
Sampling Stations	
Special Devices	

The historic value of the Town's extensive water and wastewater infrastructure inventory exceeds \$80.53 million. The Midland system has a replacement value of approximately \$132.32 million. Both the water and wastewater systems are relatively young with average ages of 34 years.

The largest share of water infrastructure by historic value is attributed to linear infrastructure, which is valued over \$20 million, and accounts for nearly 60% of the infrastructure related to the Midland water system.

Approximately 68% of the Town's water infrastructure is relatively new and has a remaining useful life of over 50 years in age. Although the life-cycles of the infrastructure have considerably long lives, approximately 4.6% of the water infrastructure is due to be replaced over the next 10 years.

Table 5		
Midland Water System Assets Value by Asset Category		
Asset Category	Value	Share
Watermain	\$ 20,094,903	60.3%
Storage/ pumping station	\$ 6,525,390	19.6%
Hydrants	\$ 1,241,606	3.7%
Watermain Gate Valves	\$ 421,179	1.3%
Municipal Wells	\$ 4,802,170	14.4%
Sampling Stations	\$ 60,786	0.2%
Special Devices	\$ 183,111	0.5%
TOTAL	\$ 33,329,146	

Table 6		
Midland Water System Assets Remaining Life		
Category Description	Total Value	% of Total
0 years, overdue	\$ 756,825	2.3%
0 to 9 years	\$ 779,057	2.3%
10 to 19 years	\$ 1,920,111	5.8%
20 to 29 years	\$ 2,888,111	8.7%
30 to 39 years	\$ 3,570,025	10.7%
40 to 49 years	\$ 844,076	2.5%
50 years or more	\$22,570,940	67.7%

The wastewater system is similar to the water system, in that the largest share of infrastructure by historic value is also attributed to linear infrastructure, which is valued over \$21 million. The next largest portion of the wastewater system replacement value is the wastewater treatment plant, valued at \$19.74 million.

Similar to the water system, approximately 70% of the Town's wastewater infrastructure is relatively new and has a remaining useful life of over 50 years in age. Approximately, 9.5% of wastewater infrastructure is due to be replaced over the next ten years.

Table 7		
Midland Wastewater System Assets Value by Asset Category		
Asset Category	Value	Share
Sewer mains	\$ 21,124,370	63.4%
Treatment Plant	\$ 19,743,005	59.2%
Pumping Station	\$ 3,339,526	10.0%
Manhole	\$ 2,997,821	9.0%
TOTAL	\$ 47,204,722	

Table 8		
Midland Wastewater System Assets Remaining Life		
Category Description	Total Value	% of Total
0 years, overdue	\$ 1,958,000	4.1%
0 to 9 years	\$ 2,509,815	5.3%
10 to 19 years	\$ 5,727,867	12.1%
20 to 29 years	\$ 1,469,634	3.1%
30 to 39 years	\$ 1,238,509	2.6%
40 to 49 years	\$ 946,767	2.0%
50 years or more	\$ 33,354,129	70.7%

B. NON-GROWTH RELATED CAPITAL

Over the next 10 year period, additional infrastructure will be required to support growth within the Town. Infrastructure related to growth will receive funding through development charge revenues and other developer contributions.

A development charge policy discount would result in a revenue shortfall and therefore any policy discount would need to be recovered through the user rates. Capital improvements and financing costs related to non-growth related infrastructure are also the responsibility of the Town. These costs will need to be funded through user rates.

The following table summarizes the planned capital expenditures over the next 10 year period.

Table 9	
Capital Expenditures	
Water	\$ 11,036,825
Wastewater	\$ 11,045,623

The non-growth related portion of capital expenditures, which the Town will be responsible for funding, is summarized in the table below.

Table 10		
Growth & Non-Growth Share of Capital Expenditures		
	Growth Related	Non-Growth Related
Water	\$ -	\$ 11,036,825
Wastewater	\$ 1,907,961	\$ 9,137,662

Detailed capital expenditures planned over the study period are outlined in Appendix C.

C. ASSET REHABILITATION AND REPLACEMENT

In addition to annual operating and maintenance costs, the water and wastewater infrastructure will require periodic rehabilitation and eventually need to be replaced. Capital expenditures to carry out the rehabilitation and replacement of the aging infrastructure are not growth related and therefore would not receive funding through development charge revenues or other developer contributions. When the assets require rehabilitation or are due for replacement, the source of funds are essentially limited to reserves or contributions from operating. In maintaining a user-pay approach, it is important for the Town to build sufficient reserves for the scheduled replacement of infrastructure through contributions from operating.

1. Provisions For Infrastructure Rehabilitation And Replacement

The rehabilitation and replacement schedules were created using the tangible capital asset data provided by the Town. Provisions for infrastructure replacement are initially calculated for each asset based on their remaining useful life and the anticipated cost of replacement. The aggregate of all individual provisions form the required annual contribution to a reserve fund. A full cost approach is employed to calculate the annual reserve fund contributions. This approach is recognized as a fair approach to charging customers for the use of these assets. As current assets are used by customers, provisions are made for the eventual replacement of these assets. Essentially, customers are paying for the assets they are using. In calculating the annual provisions, a number of assumptions are made to account for inflation, interest and the Town's policies and practices. A 2 percent inflation rate and a 3.5 percent investment rate are assumed throughout this analysis.

The combined total of all the individual annual provisions for water assets is the contribution requirement the Town must make to the water infrastructure reserve funds each year. The same concept applies to wastewater assets and the wastewater infrastructure replacement reserve fund. This ensures adequate funds are available for asset replacements as scheduled. The total annual contribution decreases as infrastructure is replaced because the number of payments is reset to the number of years between required replacements for that particular asset's lifecycle. These changes result in fluctuations to the annual contributions and ultimately the user rates. Implementing the decreasing contribution amounts would also require a large increase in the user rates in the first year.

To mitigate an impractical increase of the user rates, reserve fund contributions are phased in gradually over the analysis. By the end of the planning period, 2020, the Town will be making significant annual contributions to the reserves providing for a funding source for future infrastructure repair and replacement.

The required annual provision for asset rehabilitation and replacement is briefly summarized in Appendices C.

Table 11			
Reserve Contributions for 2011			
	Sum of fully calculated annual provision	2011 Contribution	2020 Contribution
Water	\$ 2,005,483	\$ 100,274	\$ 1,322,863
Wastewater	\$ 3,442,596	\$ 172,130	\$ 1,832,587

By the end of the planning period, the reserve fund balances calculated using the stabilized method leaves the Town in a position to move forward.

Table 12	
Calculated Reserve Balance at End of Period	
Water	\$ 6,229,220
Wastewater	\$ 8,391,201

VI RATE STRUCTURES

Various water and wastewater rate structures are in place across Ontario municipalities. The varying rate structures include flat rates, constant rates, humpback block rates, declining block rates and inclining block rates. Rate structures may also include fixed or minimum charges. The implementation of a particular rate structure depends on a number of factors including administrative and financial factors.

A. BACKGROUND

The Town currently has in place a fixed fee charge, in addition to a constant consumption based charge which is applied to each unit of water consumed or wastewater generated. Additionally, the Town employs a sewage summer discount for residential users to offset the increased cost of sewer use during this time. Also note, wastewater in Midland is billed in the same manner as water.

Users without meters are currently charged a flat rate based on current rates applied against an average level of household consumption. The flat rate applies to both water and wastewater rates in the Midland area.

B. ISSUES TO CONSIDER

Various rate structures were evaluated as part of the study and key objectives were targeted in evaluating a rate structure and calculating rates.

1. Cost Recovery

In determining water and wastewater rates, the full costs of providing services are recovered. The costs are to include, operation and maintenance, periodic rehabilitation and non-growth related capital costs, including the cost of long-term sustainability of infrastructure through reserve fund contributions.

2. Equity

A ‘user-pay’ approach was used in selecting a rate structure and calculating water and wastewater rates. An entirely equitable approach is considerably more difficult to apply when not all connections are metered and also when water and wastewater systems vary greatly in age, value and size.

3. Conservation

Considering the direction of environmental awareness, it is important in determining a rate structure, if and when practical to do so, measures to promote conservation be taken into account. It is also important to recognize that not all users have the ability to change their levels of consumption and as such, should not be penalized.

4. Administration

An important part of a rate structure is transparency to both the users and service provider. Also, easing administrative requirements may reduce the overall administrative cost, which would ultimately provide for a reduction of rates.

5. Economic Development

While recognizing the importance of the above objectives, it is also important to maintain the Town's attractiveness to industry's which may rely heavily on water and or wastewater service to conduct business. A rate structure must allow the Town to continue to be competitive from an economic development perspective.

C. MOVING FORWARD

The water and wastewater rates have been calculated to promote customer control and water conservation measures. As such, a fixed or minimum charge is calculated to recover 25% of the operating, capital, rehabilitation and replacement costs of the water and wastewater system. A consumption based charge is then calculated to recover the remaining 75% of the costs. A rate structure which is reliant on water use allows the customer to control the amount they would pay based on the amount of water consumed or wastewater generated.

The Town of Midland can fully recover all costs related to the water and wastewater system through the sale of water and wastewater. Three rate structure options are presented:

Option 1: Constant Rate - A fixed or minimum charge is established in addition to a consumption based charge which is applied to each unit of water consumed or wastewater generated.

Option 2: Increasing Block - A fixed or minimum charge is established in addition to a consumption based charge where the unit rate increases relative to water use and wastewater generated.

Option 3: Humpback Rate - A fixed or minimum charge is established in addition to a consumption charge where the unit rate increases relative to water use and wastewater generated to a determined rate before retreating back to the lowest consumption charge.

VII CALCULATED RATES

In calculating the water and wastewater rates, a number of assumptions were applied. The water and wastewater rates are calculated to fully recover the cost of operating the system and identified in year capital needs. Furthermore, the rates begin to provide for contributions to asset replacement reserves.

An immediate implementation of a rate that fully funded the calculated asset rehabilitation and replacement contributions would result in significant impacts to all users in the Town. The analysis is based on providing for a gradual movement towards full rates starting with infrastructure replacement contributions of 5% of the fully calculated contribution level in 2011 increasing to 60% by 2020. These contributions, when combined with the Town's ongoing capital works, will demonstrate a significant movement to long-term full cost recovery rates.

Inflation Rate – An inflation rate of 2 per cent per annum is applied to operating, maintenance, rehabilitation and capital expenditures.

Common base monthly rates under all scenarios set to fund 25% of the net expenditure needs. The consumption rates fund the balance, 75%, of the net expenditure needs.

Annual Rate Increase – After 2011, the analysis, under all scenarios, provides for annual rate increase of approximately 5% to allow for inflation and increasing rehabilitation and replacement reserve contributions.

A. WATER RATES

The required user rate revenue for the Midland water system in 2011 is forecast to be \$2.79 million. This is the amount of revenue which must be collected through the sale of water to fully recover the operating, capital, rehabilitation and replacement costs of the water system.

Table 13

Fixed Fee		Volumetric Charge	
Meter Size	Base Monthly Charge	Fee Structure	Charge per m ³
3/4"	\$8.29	Option 1	\$1.05
1"	\$17.23	Option 2	
1 1/2"	\$37.88	Tier 1: 0 - 10m ³	\$1.00
2"	\$68.92	Tier 2: 10 - 30m ³	\$1.07
3"	\$146.41	Tier 3: > 30m ³	\$1.12
4"	\$258.37	Option 2	
6"	\$344.52	Tier 1: 0 - 10m ³	\$1.04
8"	\$387.54	Tier 2: 10 - 30m ³	\$1.14
10"	\$430.62	Tier 3: > 30m ³	\$1.04

The detailed calculations of the water rates are outlined in Appendix D.

B. WASTEWATER RATES

The required user rate revenue for the Midland wastewater system in 2011 is forecast to be \$3.30 million. This is the amount of revenue which must be collected through wastewater charges to fully recover the operating, capital, rehabilitation and replacement costs of the wastewater system. Detailed calculations of the wastewater rates are outlined in Appendix E.

Table 14

Fixed Fee		Volumetric Charge	
Meter Size	Base Monthly Charge	Fee Structure	Charge per m ³
3/4"	\$9.81	Option 1	\$1.24
1"	\$20.39	Option 2	
1 1/2"	\$44.83	Tier 1: 0 - 10m ³	\$1.17
2"	\$81.55	Tier 2: 10 - 30m ³	\$1.27
3"	\$173.26	Tier 3: > 30m ³	\$1.33
4"	\$305.74	Option 2	
6"	\$407.69	Tier 1: 0 - 10m ³	\$1.22
8"	\$458.59	Tier 2: 10 - 30m ³	\$1.34
10"	\$509.58	Tier 3: > 30m ³	\$1.22

C. IMPACT ON A TYPICAL USER

Tables 15, 16, and 17 present a comparison of the newly calculated water and wastewater rates with those that would come into force January 1st, 2011 under the current by-law. The following tables illustrate the sensitivity of the total calculated fees for water and wastewater based upon different household and non-residential consumption partners for each of the three rate options.

Overall, the water and wastewater rates are increasing in Midland. The level of increase is different among each consumer as the rates are reliant on water use and wastewater generation. This allows the customer to control the amount they would pay based on the amount of water consumed or wastewater generated.

Impact under Option 1:

Table 15

User Type	Annual Consumption (m ³)	2011 Annual Charge	Option 1		
			Annual Charge	\$ Change	% Change
Residential					
Household - 200 m ³	200	\$626	\$675	\$49	8%
Household - 350 m ³	350	\$951	\$1,019	\$67	7%
Non-Residential					
Retail User	1,000	\$3,766	\$4,096	\$330	9%
Industrial User	17,000	\$38,486	\$40,736	\$2,250	6%
High Volume User	60,000	\$138,177	\$146,427	\$8,250	6%

Impact under Option 2:

Table 16

User Type	Annual Consumption (m ³)	2011 Annual Charge	Option 2		
			Annual Charge	\$ Change	% Change
Residential					
Household - 200 m ³	200	\$626	\$665	\$39	6%
Household - 350 m ³	350	\$951	\$1,016	\$64	7%
Non-Residential					
Retail User	1,000	\$3,766	\$4,196	\$430	11%
Industrial User	17,000	\$38,486	\$43,396	\$4,910	13%
High Volume User	60,000	\$138,177	\$155,967	\$17,790	13%

Impact under Option 3:

Table 17

User Type	Annual Consumption (m ³)	2011 Annual Charge	Option 3		
			Annual Charge	\$ Change	% Change
Residential					
Household - 200 m ³	200	\$626	\$687	\$61	10%
Household - 350 m ³	350	\$951	\$1,059	\$107	11%
Non-Residential					
Retail User	1,000	\$3,766	\$4,118	\$353	9%
Industrial User	17,000	\$38,486	\$40,278	\$1,793	5%
High Volume User	60,000	\$138,177	\$144,679	\$6,502	5%

VII RECOMMENDATIONS AND FINDINGS

The calculated rates presented in the three options establish water and wastewater rates to all users of the system which are fair and equitable. The analysis considers the direction of environmental awareness; therefore, a rate structure which promotes customer control and water conservation measures has been taken into account. The calculated rates also maintain the Town's competitiveness with surrounding municipalities.

The three rate options included in this report ensure that the water and wastewater rates fully fund all of the Town's anticipated annual costs including all operating costs and capital financing needs. It is fiscally prudent that the Town include a provision for the eventual repair and ultimate replacement of water and wastewater infrastructure. An immediate implementation of a rate that fully funded the calculated asset rehabilitation and replacement contributions would result in significant impacts to all users in the Town. The analysis demonstrates, in all scenarios, an increasing annual contribution to reserves for asset rehabilitation and replacement. These contributions, when combined with the Town ongoing capital works, will demonstrate a significant movement towards long-term full cost recovery rates.

APPENDIX A

GROWTH FORECAST

APPENDIX A

TABLE 1

**TOWN OF MIDLAND
GROWTH FORCAST AND WATER DEMAND**

Mid-Year	Population	# of Equivalent Units	Total Annual Water Consumption
2010	16,851	6,872	1,989,079
2011	16,991	7,004	1,989,079
2012	17,094	7,121	1,989,079
2013	17,196	7,239	1,989,079
2014	17,300	7,359	1,989,079
2015	17,404	7,481	1,989,079
2016	17,509	7,603	1,989,079
2017	17,613	7,704	1,989,079
2018	17,718	7,805	1,989,079
2019	17,824	7,907	1,989,079
2020	17,930	8,012	1,989,079
2021	18,037	8,115	1,989,079
2022	18,132	8,201	1,989,079
2023	18,229	8,287	1,989,079
2024	18,325	8,373	1,989,079
2025	18,422	8,461	1,989,079
2026	18,520	8,549	1,989,079
2027	18,600	8,622	1,989,079
2028	18,680	8,698	1,989,079
2029	18,760	8,772	1,989,079
2030	18,841	8,847	1,989,079
2031	18,922	8,923	1,989,079

APPENDIX B

OPERATING EXPENDITURES & NON-USER RATE REVENUES

APPENDIX B
TABLE 1

TOWN OF MIDLAND
WATER USER RATES - OPERATING BUDGET FORECAST

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Town Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget
	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
<u>Operating Expenditures</u>										
Annual Gross Operating Expenditures										
Salaries/Wages/ Benefits/Pensions	\$983,050	\$1,002,711	\$1,022,765	\$1,043,221	\$1,064,085	\$1,085,367	\$1,107,074	\$1,129,215	\$1,151,800	\$1,174,836
Materials/Service/Rents/Contracts	\$516,133	\$526,456	\$536,985	\$547,724	\$558,679	\$569,853	\$581,250	\$592,875	\$604,732	\$616,827
Chemicals/Hydro/Utilities	\$208,000	\$212,160	\$216,403	\$220,731	\$225,146	\$229,649	\$234,242	\$238,927	\$243,705	\$248,579
Transfer to Reserve/Capital Fund	\$843,517	\$860,387	\$877,595	\$895,147	\$913,050	\$931,311	\$949,937	\$968,936	\$988,315	\$1,008,081
Less: New Water Metres	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)
Subtotal Annual Gross Operating Expenditures	\$2,542,700	\$2,593,714	\$2,645,748	\$2,698,823	\$2,752,960	\$2,808,179	\$2,864,502	\$2,921,953	\$2,980,552	\$3,040,323
<u>Non-User Rate Revenues</u>										
Annual Operating Revenues										
Cost Recoveries	(\$10,000)	(\$10,200)	(\$10,404)	(\$10,612)	(\$10,824)	(\$11,041)	(\$11,262)	(\$11,487)	(\$11,717)	(\$11,951)
Other Non-User Rate Revenues	(\$16,000)	(\$16,320)	(\$16,646)	(\$16,979)	(\$17,319)	(\$17,665)	(\$18,019)	(\$18,379)	(\$18,747)	(\$19,121)
Subtotal Non-User Rate Revenues	(\$26,000)	(\$26,520)	(\$27,050)	(\$27,591)	(\$28,143)	(\$28,706)	(\$29,280)	(\$29,866)	(\$30,463)	(\$31,072)

APPENDIX B
TABLE 2

TOWN OF MIDLAND
WASTEWATER USER RATES - OPERATING BUDGET FORECAST

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Town Budget Restated	Budget Projected	Budget Projected	Budget Projected	Budget Projected	Budget Projected	Budget Projected	Budget Projected	Budget Projected	Budget Projected
Operating Expenditures										
Annual Gross Operating Expenditures										
Salaries/Wages/ Benefits/Pensions	\$827,800	\$844,356	\$861,243	\$878,468	\$896,037	\$913,958	\$932,237	\$950,882	\$969,900	\$989,298
Materials/Service/Rents/Contracts	\$809,430	\$825,619	\$842,131	\$858,974	\$876,153	\$893,676	\$911,550	\$929,781	\$948,376	\$967,344
Chemicals/Hydro/Utilities	\$278,100	\$283,662	\$289,335	\$295,122	\$301,024	\$307,045	\$313,186	\$319,449	\$325,838	\$332,355
Transfer to Reserve/Capital Fund	\$1,060,670	\$1,060,670	\$1,060,670	\$1,060,670	\$1,060,670	\$1,060,670	\$1,060,670	\$1,060,670	\$1,060,670	\$1,060,670
Less: New Water Meters	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)	(\$8,000)
Subtotal Annual Gross Operating Expenditures	\$2,968,000	\$3,006,307	\$3,045,379	\$3,085,234	\$3,125,885	\$3,167,349	\$3,209,643	\$3,252,782	\$3,296,784	\$3,341,667
Non-User Rate Revenues										
Annual Operating Revenues										
Cost Recoveries	(\$13,000)	(\$13,260)	(\$13,525)	(\$13,796)	(\$14,072)	(\$14,353)	(\$14,640)	(\$14,933)	(\$15,232)	(\$15,536)
Other Non-User Rate Revenues	(\$11,000)	(\$11,220)	(\$11,444)	(\$11,673)	(\$11,907)	(\$12,145)	(\$12,388)	(\$12,636)	(\$12,888)	(\$13,146)
Subtotal Annual Operating Revenues	(\$24,000)	(\$24,480)	(\$24,970)	(\$25,469)	(\$25,978)	(\$26,498)	(\$27,028)	(\$27,568)	(\$28,120)	(\$28,682)

APPENDIX C

CAPITAL EXPENDITURES & ASSET REPLACEMENT CONTRIBUTION

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APPENDIX C
TABLE 1

TOWN OF MIDLAND
WATER USER RATES - TOTAL WATER CAPITAL EXPENDIDURES

PROJECT NAME / DESCRIPTION	Timing	Gross Cost	DC Eligible		Non-DC Eligible	
			%	\$	%	\$
Projects						
Purchase of Lands beside the Flume	2011	\$ 35,000	0%	\$ -	100%	\$ 35,000
Compliance Audit - Consulting Fees	2011	\$ 10,000	0%	\$ -	100%	\$ 10,000
Water Audit and Rate Study - Consulting Fees	2011	\$ 15,000	0%	\$ -	100%	\$ 15,000
Well Head Protection - Consulting Fees	2011	\$ 10,000	0%	\$ -	100%	\$ 10,000
Private Well Abandonment - Consulting Fees	2011	\$ 15,000	0%	\$ -	100%	\$ 15,000
Well 12 Replacement (Bring Well 1 Online)	2011	\$ 10,000	0%	\$ -	100%	\$ 10,000
Well 15 Rehab & Insp	2011	\$ 55,000	0%	\$ -	100%	\$ 55,000
Well 7B Rehab & Insp	2011	\$ 55,000	0%	\$ -	100%	\$ 55,000
Tower and Reservoir Maintenance	2011	\$ 10,000	0%	\$ -	100%	\$ 10,000
Groundwater Strategy SSEA - Consulting Fees	2011	\$ 5,000	0%	\$ -	100%	\$ 5,000
Hartman To Gervais WM Looping	2011	\$ 70,000	0%	\$ -	100%	\$ 70,000
Valve Replacement Program	2011	\$ 15,000	0%	\$ -	100%	\$ 15,000
Lanigan Infrastructure Replacement	2011	\$ 290,000	0%	\$ -	100%	\$ 290,000
New Watermains and Misc	2011	\$ 30,000	0%	\$ -	100%	\$ 30,000
Water Efficiency Program	2011	\$ 15,000	0%	\$ -	100%	\$ 15,000
Mountainview Well Exploration/ Observation	2011	\$ 130,000	0%	\$ -	100%	\$ 130,000
Well 12 Replacement (Bring Well 1 Online)	2012	\$ 105,000	0%	\$ -	100%	\$ 105,000
Well Inspection and Rehab - 11	2012	\$ 55,000	0%	\$ -	100%	\$ 55,000
Dominion Street Tower	2012	\$ 50,000	0%	\$ -	100%	\$ 50,000
Private Well Abandonment	2012	\$ 15,000	0%	\$ -	100%	\$ 15,000
Well Head Protection Monitoring Program	2012	\$ 10,000	0%	\$ -	100%	\$ 10,000
Groundwater Strategy SSEA - Consulting Fees	2012	\$ 5,000	0%	\$ -	100%	\$ 5,000
Tower and Reservoir Maintenance	2012	\$ 10,000	0%	\$ -	100%	\$ 10,000
Private Well Abandonment	2013	\$ 15,000	0%	\$ -	100%	\$ 15,000
Well Inspection and Rehab - 6	2013	\$ 55,000	0%	\$ -	100%	\$ 55,000
Valve Replacement	2013	\$ 15,000	0%	\$ -	100%	\$ 15,000
New Watermains and Misc	2013	\$ 250,000	0%	\$ -	100%	\$ 250,000
Well Head Protection Monitoring Program	2013	\$ 10,000	0%	\$ -	100%	\$ 10,000
Master Plan Update	2013	\$ 35,000	0%	\$ -	100%	\$ 35,000
Groundwater Strategy SSEA - Consulting Fees	2013	\$ 5,000	0%	\$ -	100%	\$ 5,000
Tower and Reservoir Maintenance	2013	\$ 10,000	0%	\$ -	100%	\$ 10,000
Sunnyside Pumphouse	2013	\$ 40,000	0%	\$ -	100%	\$ 40,000
Dominion Street Tower	2013	\$ 200,000	0%	\$ -	100%	\$ 200,000
Leak Detection Program	2014	\$ 25,000	0%	\$ -	100%	\$ 25,000
Well Inspection and Rehab - 7A	2014	\$ 55,000	0%	\$ -	100%	\$ 55,000
Well Inspection and Rehab - 16	2014	\$ 55,000	0%	\$ -	100%	\$ 55,000
Well Inspection and Rehab - 17	2014	\$ 55,000	0%	\$ -	100%	\$ 55,000
New Watermains and Misc	2014	\$ 250,000	0%	\$ -	100%	\$ 250,000
Private Well Abandonment	2014	\$ 15,000	0%	\$ -	100%	\$ 15,000
Well Head Protection Monitoring Program	2014	\$ 10,000	0%	\$ -	100%	\$ 10,000
Groundwater Strategy SSEA - Consulting Fees	2014	\$ 5,000	0%	\$ -	100%	\$ 5,000
Tower and Reservoir Maintenance	2014	\$ 10,000	0%	\$ -	100%	\$ 10,000
Water Financial Plans	2014	\$ 10,000	0%	\$ -	100%	\$ 10,000
Well Inspection and Rehab - 20,24,25,26	2015	\$ 5,000	0%	\$ -	100%	\$ 5,000
Well Inspection and Rehab - 14	2015	\$ 55,000	0%	\$ -	100%	\$ 55,000
Well Inspection and Rehab - 15	2015	\$ 55,000	0%	\$ -	100%	\$ 55,000
New Watermains and Misc	2015	\$ 250,000	0%	\$ -	100%	\$ 250,000
Private Well Abandonment	2015	\$ 15,000	0%	\$ -	100%	\$ 15,000
Well Head Protection Monitoring Program	2015	\$ 10,000	0%	\$ -	100%	\$ 10,000
Groundwater Strategy SSEA - Consulting Fees	2015	\$ 5,000	0%	\$ -	100%	\$ 5,000
Valve Replacement	2015	\$ 15,000	0%	\$ -	100%	\$ 15,000
Future Infrastructure Replacement	2015	\$ 150,000	0%	\$ -	100%	\$ 150,000
Tower and Reservoir Maintenance	2015	\$ 10,000	0%	\$ -	100%	\$ 10,000
Water Audit and Rate Study - Consulting Fees	2016	\$ 15,000	0%	\$ -	100%	\$ 15,000
Master Plan Update	2016	\$ 40,000	0%	\$ -	100%	\$ 40,000
Private Well Abandonment	2016	\$ 15,000	0%	\$ -	100%	\$ 15,000
Well Inspection and Rehab - 7B	2016	\$ 55,000	0%	\$ -	100%	\$ 55,000
Well Inspection and Rehab - 9	2016	\$ 55,000	0%	\$ -	100%	\$ 55,000
New Watermains and Misc	2016	\$ 250,000	0%	\$ -	100%	\$ 250,000

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APPENDIX C
TABLE 2

**TOWN OF MIDLAND
WATER USER RATES - TOTAL WATER CAPITAL EXPENDIDURES**

PROJECT NAME / DESCRIPTION	Timing	Gross Cost	DC Eligible		Non-DC Eligible		
			%	\$	%	\$	
Projects							
Well Head Protection Monitoring Program	2016	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Groundwater Strategy SSEA - Consulting Fees	2016	\$ 5,000	0%	\$ -	100%	\$ 5,000	
Future Infrastructure Replacement	2016	\$ 265,000	0%	\$ -	100%	\$ 265,000	
Tower and Reservoir Maintenance	2016	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Well Inspection and Rehab - 11	2017	\$ 55,000	0%	\$ -	100%	\$ 55,000	
Valve Replacement	2017	\$ 15,000	0%	\$ -	100%	\$ 15,000	
New Watermains and Misc	2017	\$ 250,000	0%	\$ -	100%	\$ 250,000	
Private Well Abandonment	2017	\$ 115,000	0%	\$ -	100%	\$ 115,000	
Well Head Protection Monitoring Program	2017	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Groundwater Strategy SSEA - Consulting Fees	2017	\$ 5,000	0%	\$ -	100%	\$ 5,000	
Future Infrastructure Replacement	2017	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Tower and Reservoir Maintenance	2017	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Well Inspection and Rehab - 6	2018	\$ 55,000	0%	\$ -	100%	\$ 55,000	
New Watermains and Misc	2018	\$ 250,000	0%	\$ -	100%	\$ 250,000	
Private Well Abandonment	2018	\$ 15,000	0%	\$ -	100%	\$ 15,000	
Well Head Protection Monitoring Program	2018	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Groundwater Strategy SSEA - Consulting Fees	2018	\$ 5,000	0%	\$ -	100%	\$ 5,000	
Future Infrastructure Replacement	2018	\$ 20,000	0%	\$ -	100%	\$ 20,000	
Tower and Reservoir Maintenance	2018	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Water Financial Plans	2018	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Master Plan Update	2019	\$ 40,000	0%	\$ -	100%	\$ 40,000	
Valve Replacement	2019	\$ 15,000	0%	\$ -	100%	\$ 15,000	
Well Inspection and Rehab - 7A	2019	\$ 55,000	0%	\$ -	100%	\$ 55,000	
New Watermains and Misc	2019	\$ 250,000	0%	\$ -	100%	\$ 250,000	
Private Well Abandonment	2019	\$ 15,000	0%	\$ -	100%	\$ 15,000	
Well Head Protection Monitoring Program	2019	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Groundwater Strategy SSEA - Consulting Fees	2019	\$ 5,000	0%	\$ -	100%	\$ 5,000	
Future Infrastructure Replacement	2019	\$ 300,000	0%	\$ -	100%	\$ 300,000	
Tower and Reservoir Maintenance	2019	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Well Head Protection Monitoring Program	2020	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Private Well Abandonment	2020	\$ 15,000	0%	\$ -	100%	\$ 15,000	
Well Inspection and Rehab - TBD	2020	\$ 55,000	0%	\$ -	100%	\$ 55,000	
Tower and Reservoir Maintenance	2020	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Groundwater Strategy SSEA - Consulting Fees	2020	\$ 5,000	0%	\$ -	100%	\$ 5,000	
Future Infrastructure Replacement	2020	\$ 50,000	0%	\$ -	100%	\$ 50,000	
New Watermains and Misc	2020	\$ 250,000	0%	\$ -	100%	\$ 250,000	
Debt Charges							
Vindin & Well 7 Pumphouses	2011	\$ 130,474	0%	\$ -	100%	\$ 130,474	
Vindin & Well 7 Pumphouses	2012	\$ 125,870	0%	\$ -	100%	\$ 125,870	
Vindin & Well 7 Pumphouses	2013	\$ 121,202	0%	\$ -	100%	\$ 121,202	
Vindin & Well 7 Pumphouses	2014	\$ 116,540	0%	\$ -	100%	\$ 116,540	
Vindin & Well 7 Pumphouses	2015	\$ 111,898	0%	\$ -	100%	\$ 111,898	
Vindin & Well 7 Pumphouses	2016	\$ 54,159	0%	\$ -	100%	\$ 54,159	
Sunnyside Water Tower	2011	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2012	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2013	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2014	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2015	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2016	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2017	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2018	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2019	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Sunnyside Water Tower	2020	\$ 183,420	0%	\$ -	100%	\$ 183,420	
Mountainview Reservoir	2011	\$ 112,183	0%	\$ -	100%	\$ 112,183	
Mountainview Reservoir	2012	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2013	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2014	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2015	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2016	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2017	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2018	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2019	\$ 224,366	0%	\$ -	100%	\$ 224,366	
Mountainview Reservoir	2020	\$ 224,366	0%	\$ -	100%	\$ 224,366	

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APPENDIX C
TABLE 3

**TOWN OF MIDLAND
WATER USER RATES - TOTAL WATER CAPITAL EXPENDIDURES**

PROJECT NAME / DESCRIPTION	Timing	Gross Cost	DC Eligible		Non-DC Eligible		
			%	\$	%	\$	
Projects							
Building Improvements							
Bowling Green Condominium	2011	\$ 40,000	0%	\$ -	100%	\$ 40,000	
Midland Mews Condominium	2011	\$ 40,000	0%	\$ -	100%	\$ 40,000	
Equipment							
CC Cameras (Vindin Flume & Well #7)	2011	\$ 24,000	0%	\$ -	100%	\$ 24,000	
Telephone Upgrades (1/2 share with Waste)	2011	\$ 1,600	0%	\$ -	100%	\$ 1,600	
New Meter Reading Probe (1/2 share with Waste)	2011	\$ 1,000	0%	\$ -	100%	\$ 1,000	
Parts Washer (1/2 share with Waste)	2011	\$ 800	0%	\$ -	100%	\$ 800	
Colorimeters	2011	\$ 1,600	0%	\$ -	100%	\$ 1,600	
Various	2012	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2013	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2014	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2015	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2016	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2017	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2018	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2019	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Various	2020	\$ 25,000	0%	\$ -	100%	\$ 25,000	
Computer Software							
SCADA Upgrades (Main System Update)	2011	\$ 15,000	0%	\$ -	100%	\$ 15,000	
SCADA Upgrades (Main System Update)	2012	\$ 3,000	0%	\$ -	100%	\$ 3,000	
SCADA Upgrades (Main System Update)	2014	\$ 20,000	0%	\$ -	100%	\$ 20,000	
SCADA Upgrades (Main System Update)	2015	\$ 3,000	0%	\$ -	100%	\$ 3,000	
SCADA Upgrades (Main System Update)	2017	\$ 20,000	0%	\$ -	100%	\$ 20,000	
SCADA Upgrades (Main System Update)	2018	\$ 3,000	0%	\$ -	100%	\$ 3,000	
SCADA Upgrades (Main System Update)	2020	\$ 20,000	0%	\$ -	100%	\$ 20,000	
Asset Management Software	2013	\$ 20,000	0%	\$ -	100%	\$ 20,000	
Asset Management Software	2016	\$ 20,000	0%	\$ -	100%	\$ 20,000	
Asset Management Software	2019	\$ 20,000	0%	\$ -	100%	\$ 20,000	
Computer Hardware							
Printer - Billing	2012	\$ 4,500	0%	\$ -	100%	\$ 4,500	
Printer - Billing	2015	\$ 4,500	0%	\$ -	100%	\$ 4,500	
Printer - Billing	2018	\$ 4,500	0%	\$ -	100%	\$ 4,500	
Radio Upgrades	2012	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Radio Upgrades	2016	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Radio Upgrades	2017	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Radio Upgrades	2018	\$ 10,000	0%	\$ -	100%	\$ 10,000	
Radio Upgrades	2019	\$ 10,000	0%	\$ -	100%	\$ 10,000	
PLC Upgrades	2012	\$ 30,000	0%	\$ -	100%	\$ 30,000	
PLC Upgrades	2016	\$ 30,000	0%	\$ -	100%	\$ 30,000	
PLC Upgrades	2017	\$ 30,000	0%	\$ -	100%	\$ 30,000	
PLC Upgrades	2018	\$ 30,000	0%	\$ -	100%	\$ 30,000	
PLC Upgrades	2019	\$ 30,000	0%	\$ -	100%	\$ 30,000	
Various (TBD)	2013	\$ 7,500	0%	\$ -	100%	\$ 7,500	
Various (TBD)	2016	\$ 7,500	0%	\$ -	100%	\$ 7,500	
Various (TBD)	2019	\$ 7,500	0%	\$ -	100%	\$ 7,500	
Vehicles							
New Dump Box	2012	\$ 25,000	0%	\$ -	100%	\$ 25,000	
W12 2005 F250 Van	2012	\$ 35,000	0%	\$ -	100%	\$ 35,000	
replace tandem dump with used vehicle from public works W85	2012	\$ 40,000	0%	\$ -	100%	\$ 40,000	
1990 john deer back hoe replacement	2013	\$ 25,000	0%	\$ -	100%	\$ 25,000	
2006 F250 van W16	2014	\$ 35,000	0%	\$ -	100%	\$ 35,000	
W3 2009 Pickup	2018	\$ 32,000	0%	\$ -	100%	\$ 32,000	
W14 2009 Maintenance Truck & Chassis	2018	\$ 80,000	0%	\$ -	100%	\$ 80,000	
W9 2010 Pickup	2019	\$ 35,000	0%	\$ -	100%	\$ 35,000	
TOTAL CAPITAL EXPENDITURE		\$ 11,036,825		\$ -		\$ 11,036,825	

APPENDIX C
TABLE 4

TOWN OF MIDLAND
WATER USER RATES - CAPITAL BUDGET FORECAST SUMMARY

	2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		
	Budget	Projected	Budget	Projected	Budget	Projected	Budget	Projected	Budget	Projected	Budget	Projected	Budget	Projected	Budget	Projected	Budget	Projected	Budget	Projected	
Capital Expenditures																					
Annual Capital Renewal Expenditures																					
Non Growth-Related Share of DC Eligible Capital	\$1,320,077		\$975,279		\$1,291,645		\$1,161,305		\$1,214,687		\$1,407,089		\$1,101,148		\$1,111,108		\$1,447,335		\$1,013,182		
Smoothing of Capital Program	\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		
Asset Replacement Reserve Contribution	\$2,005,483		\$1,991,659		\$2,060,163		\$2,115,316		\$2,188,140		\$2,243,468		\$2,238,908		\$2,292,634		\$2,358,455		\$2,204,772		
Subtotal Annual Capital Renewal Expenditures	\$3,325,560		\$2,966,938		\$3,351,808		\$3,276,621		\$3,402,827		\$3,650,557		\$3,340,056		\$3,403,742		\$3,805,790		\$3,217,954		

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APPENDIX C
TABLE 5

**TOWN OF MIDLAND
WASTEWATER USER RATES - TOTAL WASTEWATER CAPITAL EXPENTIDURES**

PROJECT NAME / DESCRIPTION	Timing	Gross Cost	DC Eligible		Non-DC Eligible	
			%	\$	%	\$
Projects						
Colborne Street Trunk - Phase 3	2011	\$ 125,000	0%	\$ -	100%	\$ 125,000
SCADA Controls	2011	\$ 10,000	0%	\$ -	100%	\$ 10,000
Relining - Trunk Sewer (Fire Hall to Fourth Street)	2011	\$ 180,000	0%	\$ -	100%	\$ 180,000
Rate Study	2011	\$ 12,000	0%	\$ -	100%	\$ 12,000
Hauled Sewage Odor Control - Study	2012	\$ 4,000	0%	\$ -	100%	\$ 4,000
Hauled Sewage Odor Control - Implementation	2013	\$ 50,000	0%	\$ -	100%	\$ 50,000
WWTC Aerators	2013	\$ 20,000	71%	\$ 14,242	29%	\$ 5,758
WWTC Aerators	2014	\$ 1,500,000	71%	\$ 1,068,150	29%	\$ 431,850
Relining - Fourth Street - Montreal to Ottawa	2012	\$ 180,000	0%	\$ -	100%	\$ 180,000
Leachate Pretreatment Facility - Consultants	2015	\$ 40,000	0%	\$ -	100%	\$ 40,000
Leachate Pretreatment Facility	2016	\$ 200,000	0%	\$ -	100%	\$ 200,000
Rate Study	2016	\$ 12,000	0%	\$ -	100%	\$ 12,000
Relining - Fourth Street - Ottawa to Victoria	2013	\$ 180,000	0%	\$ -	100%	\$ 180,000
Second Clarifier Expansion	2018	\$ 1,000,000	71%	\$ 712,100	29%	\$ 287,900
Second Clarifier Expansion	2019	\$ 79,672	71%	\$ 56,734	29%	\$ 22,938
Second Clarifier Expansion	2020	\$ 79,672	71%	\$ 56,734	29%	\$ 22,938
Debt Charges						
97 Upgrade	2011	\$ 549,398	0%	\$ -	100%	\$ 549,398
97 Upgrade	2012	\$ 549,985	0%	\$ -	100%	\$ 549,985
97 Upgrade	2013	\$ 548,723	0%	\$ -	100%	\$ 548,723
97 Upgrade	2014	\$ 549,312	0%	\$ -	100%	\$ 549,312
97 Upgrade	2015	\$ 240,096	0%	\$ -	100%	\$ 240,096
Infrastructure	2011	\$ 9,173	0%	\$ -	100%	\$ 9,173
Russell St Sanitary	2011	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2012	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2013	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2014	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2015	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2016	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2017	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2018	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2019	\$ 97,702	0%	\$ -	100%	\$ 97,702
Russell St Sanitary	2020	\$ 97,702	0%	\$ -	100%	\$ 97,702
Pumping Station	2011	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2012	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2013	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2014	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2015	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2016	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2017	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2018	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2019	\$ 105,035	0%	\$ -	100%	\$ 105,035
Pumping Station	2020	\$ 105,035	0%	\$ -	100%	\$ 105,035
Generator	2011	\$ 105,059	0%	\$ -	100%	\$ 105,059
Generator	2012	\$ 105,059	0%	\$ -	100%	\$ 105,059
Generator	2013	\$ 105,059	0%	\$ -	100%	\$ 105,059
Generator	2014	\$ 105,059	0%	\$ -	100%	\$ 105,059
Generator	2015	\$ 105,059	0%	\$ -	100%	\$ 105,059
Disinfection/Dechlorinization	2011	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2012	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2013	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2014	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2015	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2016	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2017	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2018	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2019	\$ 78,776	0%	\$ -	100%	\$ 78,776
Disinfection/Dechlorinization	2020	\$ 78,776	0%	\$ -	100%	\$ 78,776
Future Debt	2015	\$ 119,509	0%	\$ -	100%	\$ 119,509
Future Debt	2016	\$ 119,509	0%	\$ -	100%	\$ 119,509
Future Debt	2017	\$ 119,509	0%	\$ -	100%	\$ 119,509
Future Debt	2018	\$ 119,509	0%	\$ -	100%	\$ 119,509
Future Debt	2019	\$ 119,509	0%	\$ -	100%	\$ 119,509
Future Debt	2020	\$ 119,509	0%	\$ -	100%	\$ 119,509

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APPENDIX C
TABLE 6

**TOWN OF MIDLAND
WASTEWATER USER RATES - TOTAL WASTEWATER CAPITAL EXPENTIDURES**

PROJECT NAME / DESCRIPTION	Timing	Gross Cost	DC Eligible		Non-DC Eligible	
			%	\$	%	\$
Projects						
Consultants						
EA Update	2012	\$ 20,000	0%	\$ -	100%	\$ 20,000
Co-Generation	2013	\$ 20,000	0%	\$ -	100%	\$ 20,000
Building Improvements						
Building Additions and Improvements	2011	\$ 69,207	0%	\$ -	100%	\$ 69,207
Equipment						
Alum Feed Pump	2011	\$ 3,500	0%	\$ -	100%	\$ 3,500
VFD Drives #2 Pump Station	2011	\$ 15,000	0%	\$ -	100%	\$ 15,000
Third VFD for #1 Pump Station	2011	\$ 19,000	0%	\$ -	100%	\$ 19,000
RAS Valve	2011	\$ 2,500	0%	\$ -	100%	\$ 2,500
Telephone Upgrades (1/ share with Water)	2011	\$ 1,600	0%	\$ -	100%	\$ 1,600
SCADA Standards Revision (1/2 share with Water)	2011	\$ 5,000	0%	\$ -	100%	\$ 5,000
New Meter Reading Probe (1/2 share with Water)	2011	\$ 1,000	0%	\$ -	100%	\$ 1,000
CC Cameras WWTC & Pump Station #1	2011	\$ 16,000	0%	\$ -	100%	\$ 16,000
Parts Washer (1/2 share with Water)	2011	\$ 800	0%	\$ -	100%	\$ 800
Auger	2011	\$ 80,000	0%	\$ -	100%	\$ 80,000
Various	2012	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2013	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2014	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2015	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2016	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2017	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2018	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2019	\$ 25,000	0%	\$ -	100%	\$ 25,000
Various	2020	\$ 25,000	0%	\$ -	100%	\$ 25,000
Vehicles						
2006 ranger pickup - replacement W6	2014	\$ 32,000	0%	\$ -	100%	\$ 32,000
2007 Car Pontiac Wave - replacement W4	2015	\$ 25,000	0%	\$ -	100%	\$ 25,000
2010 passenger van - replacement	2017	\$ 32,000	0%	\$ -	100%	\$ 32,000
2010 4x4 pickup with plow - replacement	2018	\$ 42,000	0%	\$ -	100%	\$ 42,000
Computer Software						
Miscellaneous Software	2011	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2013	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2014	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2015	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2016	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2017	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2018	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2019	\$ 3,000	0%	\$ -	100%	\$ 3,000
Miscellaneous Software	2020	\$ 3,000	0%	\$ -	100%	\$ 3,000
MiTown Software Upgrade	2012	\$ 3,000	0%	\$ -	100%	\$ 3,000
Remote MiTown for Locaters	2012	\$ 6,000	0%	\$ -	100%	\$ 6,000
Asset Management	2013	\$ 20,000	0%	\$ -	100%	\$ 20,000
Asset Management	2016	\$ 20,000	0%	\$ -	100%	\$ 20,000
Asset Management	2019	\$ 20,000	0%	\$ -	100%	\$ 20,000
Computer Hardware						
Various	2011	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2012	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2013	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2014	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2015	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2016	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2017	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2018	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2019	\$ 5,000	0%	\$ -	100%	\$ 5,000
Various	2020	\$ 5,000	0%	\$ -	100%	\$ 5,000
Printer - Billing	2012	\$ 4,500	0%	\$ -	100%	\$ 4,500
Printer - Billing	2015	\$ 4,500	0%	\$ -	100%	\$ 4,500
Printer - Billing	2018	\$ 4,500	0%	\$ -	100%	\$ 4,500
Data Radio	2012	\$ 20,000	0%	\$ -	100%	\$ 20,000
Data Radio	2016	\$ 5,000	0%	\$ -	100%	\$ 5,000
Data Radio	2018	\$ 5,000	0%	\$ -	100%	\$ 5,000
PLC Upgrades	2018	\$ 70,000	0%	\$ -	100%	\$ 70,000
TOTAL CAPITAL EXPENDITURE		\$ 11,045,623		\$ 1,907,961		\$ 9,137,662

APPENDIX C
TABLE 7

TOWN OF MIDLAND
WASTEWATER USER RATES - CAPITAL BUDGET FORECAST SUMMARY

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget
	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Capital Expenditures										
Annual Capital Renewal Expenditures										
Non Growth-Related Share of DC Eligible Capital	\$1,523,625	\$1,252,701	\$1,320,197	\$1,550,837	\$937,006	\$755,681	\$535,312	\$988,203	\$570,011	\$557,032
Smoothing of Capital Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Asset Replacement Reserve Contribution	\$3,438,710	\$3,559,815	\$3,478,269	\$3,589,939	\$3,605,598	\$3,271,976	\$3,284,950	\$3,287,670	\$2,683,708	\$2,735,205
Subtotal Annual Capital Renewal Expenditures	\$4,962,335	\$4,812,516	\$4,798,466	\$5,140,776	\$4,542,604	\$4,027,657	\$3,820,262	\$4,275,873	\$3,253,719	\$3,292,237

APPENDIX D

DETAILED WATER RATE CALCULATIONS

APPENDIX D
TABLE 1

TOWN OF MIDLAND
WATER RATE CALCULATIONS - FIXED FEE AND CONSUMPTION CHARGE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Water Services										
Expenditures										
Annual Gross Operating Expenditures	\$2,542,700	\$2,593,714	\$2,645,748	\$2,698,823	\$2,752,960	\$2,808,179	\$2,864,502	\$2,921,953	\$2,980,552	\$3,040,323
Capital										
Annual Capital Renewal Expenditures										
Non Growth-Related Share	\$1,320,077	\$975,279	\$1,291,645	\$1,161,305	\$1,214,687	\$1,407,089	\$1,101,148	\$1,111,108	\$1,447,335	\$1,013,182
Funding From water reserves	(\$1,148,628)	(\$784,708)	(\$1,055,040)	(\$887,878)	(\$950,736)	(\$1,102,997)	(\$806,338)	(\$795,838)	(\$1,063,838)	(\$676,338)
Sub-total Capital	\$171,449	\$190,571	\$236,605	\$273,427	\$263,951	\$304,092	\$294,810	\$315,270	\$383,497	\$336,844
Asset Replacement Reserve Contribution										
Calculated Annual Contribution	\$2,005,483	\$1,991,659	\$2,060,163	\$2,115,316	\$2,188,140	\$2,243,468	\$2,238,908	\$2,292,634	\$2,358,455	\$2,204,772
Contribution Smoothing - %	95%	90%	85%	83%	77%	70%	65%	60%	55%	40%
Contribution Smoothing - \$	(\$1,905,208)	(\$1,792,493)	(\$1,751,138)	(\$1,755,712)	(\$1,684,867)	(\$1,570,428)	(\$1,455,290)	(\$1,375,581)	(\$1,297,150)	(\$881,909)
Subtotal Annual Capital Renewal Expenditures	\$100,274	\$199,166	\$309,024	\$359,604	\$503,272	\$673,040	\$783,618	\$917,054	\$1,061,305	\$1,322,863
Total Expenditures	\$2,814,423	\$2,983,451	\$3,191,378	\$3,331,854	\$3,520,183	\$3,785,311	\$3,942,930	\$4,154,276	\$4,425,353	\$4,700,030
Revenues										
Non-Rate Revenues										
Cost Recoveries	(\$10,000)	(\$10,200)	(\$10,404)	(\$10,612)	(\$10,824)	(\$11,041)	(\$11,262)	(\$11,487)	(\$11,717)	(\$11,951)
Other Non-User Rate Revenues	(\$16,000)	(\$16,320)	(\$16,646)	(\$16,979)	(\$17,319)	(\$17,665)	(\$18,019)	(\$18,379)	(\$18,747)	(\$19,121)
Sub-Total Non-Rate Revenues	(\$26,000)	(\$26,520)	(\$27,050)	(\$27,591)	(\$28,143)	(\$28,706)	(\$29,280)	(\$29,866)	(\$30,463)	(\$31,072)
Net Rate Funding Need	\$2,788,423	\$2,956,931	\$3,164,327	\$3,304,263	\$3,492,040	\$3,756,605	\$3,913,650	\$4,124,410	\$4,394,890	\$4,668,957

User Rates										
Fixed Monthly										
Charge Per Equivalent Residential Unit	\$8.29	\$8.65	\$9.11	\$9.35	\$9.72	\$10.29	\$10.58	\$11.01	\$11.58	\$12.14
Number of Equivalent Units	7,004	7,121	7,239	7,359	7,481	7,603	7,704	7,805	7,907	8,012
Total Annual Fixed Monthly Revenue	\$696,758	\$739,160	\$791,367	\$825,680	\$872,584	\$938,818	\$978,100	\$1,031,197	\$1,098,757	\$1,167,188
Consumption Charge										
Funding Requirement	\$2,091,665	\$2,217,771	\$2,372,960	\$2,478,583	\$2,619,456	\$2,817,787	\$2,935,550	\$3,093,213	\$3,296,133	\$3,501,769
Total Annual Billed Consumption (m ³)	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079
Charge Per Cubic Metre	\$1.05	\$1.11	\$1.19	\$1.25	\$1.32	\$1.42	\$1.48	\$1.56	\$1.66	\$1.76

Charge Per Typical House (200m³/year)										
Fixed Charge	\$99.48	\$103.80	\$109.32	\$112.20	\$116.64	\$123.48	\$126.96	\$132.12	\$138.96	\$145.68
Consumption	\$210.00	\$222.00	\$238.00	\$250.00	\$264.00	\$284.00	\$296.00	\$312.00	\$332.00	\$352.00
Annual Per Typical Household - Water Service	\$309.48	\$325.80	\$347.32	\$362.20	\$380.64	\$407.48	\$422.96	\$444.12	\$470.96	\$497.68
Sanitary Sewer										
Fixed Charge	\$117.72	\$121.68	\$126.12	\$132.72	\$136.92	\$138.96	\$147.72	\$153.48	\$150.00	\$166.56
Consumption	\$248.00	\$262.00	\$276.00	\$294.00	\$308.00	\$318.00	\$344.00	\$362.00	\$358.00	\$402.00
Annual Per Typical Household - Sanitary Sewer	\$365.72	\$383.68	\$402.12	\$426.72	\$444.92	\$456.96	\$491.72	\$515.48	\$508.00	\$568.56
Total Typical Household Charge - Water and Sewer	\$675.20	\$709.48	\$749.44	\$788.92	\$825.56	\$864.44	\$914.68	\$959.60	\$978.96	\$1,066.24

APPENDIX D
TABLE 2

TOWN OF MIDLAND
WATER RATE CALCULATIONS - FIXED FEE AND 3 TIER CONSUMPTION CHARGE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Water Services										
Expenditures										
Operating										
Annual Gross Operating Expenditures	\$2,542,700	\$2,593,714	\$2,645,748	\$2,698,823	\$2,752,960	\$2,808,179	\$2,864,502	\$2,921,953	\$2,980,552	\$3,040,323
Capital										
Annual Capital Renewal Expenditures										
Non Growth-Related Share	\$1,320,077	\$975,279	\$1,291,645	\$1,161,305	\$1,214,687	\$1,407,089	\$1,101,148	\$1,111,108	\$1,447,335	\$1,013,182
Funding From water reserves	(\$1,148,628)	(\$784,708)	(\$1,055,040)	(\$887,878)	(\$950,736)	(\$1,102,997)	(\$806,338)	(\$795,838)	(\$1,063,838)	(\$676,338)
Sub-total Capital	\$171,449	\$190,571	\$236,605	\$273,427	\$263,951	\$304,092	\$294,810	\$315,270	\$383,497	\$336,844
Asset Replacement Reserve Contribution										
Calculated Annual Contribution	\$2,005,483	\$1,991,659	\$2,080,163	\$2,115,316	\$2,188,140	\$2,243,468	\$2,238,908	\$2,292,634	\$2,358,455	\$2,204,772
Contribution Smoothing - %	95%	90%	85%	83%	77%	70%	65%	60%	55%	40%
Contribution Smoothing - \$	(\$1,905,208)	(\$1,792,493)	(\$1,751,138)	(\$1,755,712)	(\$1,684,867)	(\$1,570,428)	(\$1,455,290)	(\$1,375,581)	(\$1,297,150)	(\$881,909)
Subtotal Annual Capital Renewal Expenditures	\$100,274	\$199,166	\$309,024	\$359,604	\$503,272	\$673,040	\$783,618	\$917,054	\$1,061,305	\$1,322,863
Total Expenditures	\$2,814,423	\$2,983,451	\$3,191,378	\$3,331,854	\$3,520,183	\$3,785,311	\$3,942,930	\$4,154,276	\$4,425,353	\$4,700,030
Revenues										
Non-Rate Revenues										
Cost Recoveries	(\$10,000)	(\$10,200)	(\$10,404)	(\$10,612)	(\$10,824)	(\$11,041)	(\$11,262)	(\$11,487)	(\$11,717)	(\$11,951)
Other Non-User Rate Revenues	(\$16,000)	(\$16,320)	(\$16,646)	(\$16,979)	(\$17,319)	(\$17,665)	(\$18,019)	(\$18,379)	(\$18,747)	(\$19,121)
Sub-Total Non-Rate Revenues	(\$26,000)	(\$26,520)	(\$27,050)	(\$27,591)	(\$28,143)	(\$28,706)	(\$29,280)	(\$29,866)	(\$30,463)	(\$31,072)
Net Rate Funding Need	\$2,788,423	\$2,956,931	\$3,164,327	\$3,304,263	\$3,492,040	\$3,756,605	\$3,913,650	\$4,124,410	\$4,394,890	\$4,668,957

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
User Rates										
Fixed Monthly										
Charge Per Equivalent Residential Unit	\$8.29	\$8.65	\$9.11	\$9.35	\$9.72	\$10.29	\$10.58	\$11.01	\$11.58	\$12.14
Number of Equivalent Units	7,004	7,121	7,239	7,359	7,481	7,603	7,704	7,805	7,907	8,012
Total Annual Fixed Monthly Revenue	\$696,758	\$739,160	\$791,367	\$825,680	\$872,584	\$938,818	\$978,100	\$1,031,197	\$1,098,757	\$1,167,188
Consumption Charge										
Funding Requirement	\$2,091,665	\$2,217,771	\$2,372,960	\$2,478,583	\$2,619,456	\$2,817,787	\$2,935,550	\$3,093,213	\$3,296,133	\$3,501,769
Total Annual Billed Consumption (m ³)	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079
Tier 1: Water Demand	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805
Tier 2: Water Demand	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816
Tier 3: Water Demand	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459
Charge Per Cubic Metre										
Tier 1: 0 - 10m ³	\$1.00	\$1.06	\$1.13	\$1.19	\$1.25	\$1.33	\$1.39	\$1.45	\$1.52	\$1.59
Tier 2: 10 - 30m ³	\$1.07	\$1.13	\$1.21	\$1.26	\$1.33	\$1.45	\$1.50	\$1.60	\$1.72	\$1.85
Tier 3: > 30m ³	\$1.12	\$1.19	\$1.27	\$1.32	\$1.40	\$1.52	\$1.58	\$1.68	\$1.81	\$1.94

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Charge Per Typical House (200m³/year)										
Fixed Charge	\$99.48	\$103.80	\$109.32	\$112.20	\$116.64	\$123.48	\$126.96	\$132.12	\$138.96	\$145.68
Consumption: Tier 1	\$120.00	\$127.20	\$135.60	\$142.80	\$150.00	\$159.60	\$166.80	\$174.00	\$182.40	\$190.80
Consumption: Tier 2	\$96.03	\$90.85	\$97.28	\$101.30	\$106.93	\$116.58	\$120.60	\$128.64	\$138.29	\$148.74
Consumption: Tier 3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Per Typical Household - Water Service	\$305.51	\$321.85	\$342.20	\$356.30	\$373.57	\$399.66	\$414.36	\$434.76	\$459.65	\$485.22
Sanitary Sewer										
Fixed Charge	\$117.72	\$121.68	\$126.12	\$132.72	\$136.92	\$138.96	\$147.72	\$153.48	\$150.00	\$166.56
Consumption: Tier 1	\$140.40	\$147.60	\$156.00	\$164.40	\$171.60	\$180.00	\$189.60	\$199.20	\$208.80	\$219.60
Consumption: Tier 2	\$101.60	\$106.40	\$113.60	\$120.80	\$128.80	\$136.00	\$143.20	\$151.20	\$160.00	\$168.00
Consumption: Tier 3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Per Typical Household - Sanitary Sewer	\$359.72	\$375.68	\$395.72	\$417.92	\$437.32	\$454.96	\$480.52	\$503.88	\$518.80	\$554.16
Total Typical Household Charge - Water and Sewer	\$665.23	\$697.53	\$737.92	\$774.22	\$810.89	\$854.62	\$894.88	\$938.64	\$978.45	\$1,039.38



APPENDIX D
TABLE 3

TOWN OF MIDLAND
WATER RATE CALCULATIONS - FIXED FEE AND 3 TIER HUMPBACK CONSUMPTION CHARGE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Water Services										
Expenditures										
Operating										
Annual Gross Operating Expenditures	\$2,542,700	\$2,593,714	\$2,645,748	\$2,698,823	\$2,752,960	\$2,808,179	\$2,864,502	\$2,921,953	\$2,980,552	\$3,040,323
Capital										
Annual Capital Renewal Expenditures										
Non Growth-Related Share	\$1,320,077	\$975,279	\$1,291,645	\$1,161,305	\$1,214,687	\$1,407,089	\$1,101,148	\$1,111,108	\$1,447,335	\$1,013,182
Funding From water reserves	(\$1,148,628)	(\$784,708)	(\$1,055,040)	(\$887,878)	(\$950,736)	(\$1,102,997)	(\$806,338)	(\$795,838)	(\$1,063,838)	(\$676,338)
Sub-total Capital	\$171,449	\$190,571	\$236,605	\$273,427	\$263,951	\$304,092	\$294,810	\$315,270	\$383,497	\$336,844
Asset Replacement Reserve Contribution										
Calculated Annual Contribution	\$2,005,483	\$1,991,659	\$2,080,163	\$2,115,316	\$2,188,140	\$2,243,468	\$2,238,908	\$2,292,634	\$2,358,455	\$2,204,772
Contribution Smoothing - %	95%	90%	85%	83%	77%	70%	65%	60%	55%	40%
Contribution Smoothing - \$	(\$1,905,208)	(\$1,792,493)	(\$1,751,138)	(\$1,755,712)	(\$1,684,867)	(\$1,570,428)	(\$1,455,290)	(\$1,375,581)	(\$1,297,150)	(\$881,909)
Subtotal Annual Capital Renewal Expenditures	\$100,274	\$199,166	\$309,024	\$359,604	\$503,272	\$673,040	\$783,618	\$917,054	\$1,061,305	\$1,322,863
Total Expenditures	\$2,814,423	\$2,983,451	\$3,191,378	\$3,331,854	\$3,520,183	\$3,785,311	\$3,942,930	\$4,154,276	\$4,425,353	\$4,700,030
Revenues										
Non-Rate Revenues										
Cost Recoveries	(\$10,000)	(\$10,200)	(\$10,404)	(\$10,612)	(\$10,824)	(\$11,041)	(\$11,262)	(\$11,487)	(\$11,717)	(\$11,951)
Other Non-User Rate Revenues	(\$16,000)	(\$16,320)	(\$16,646)	(\$16,979)	(\$17,319)	(\$17,665)	(\$18,019)	(\$18,379)	(\$18,747)	(\$19,121)
Sub-Total Non-Rate Revenues	(\$26,000)	(\$26,520)	(\$27,050)	(\$27,591)	(\$28,143)	(\$28,706)	(\$29,280)	(\$29,866)	(\$30,463)	(\$31,072)
Net Rate Funding Need	\$2,788,423	\$2,956,931	\$3,164,327	\$3,304,263	\$3,492,040	\$3,756,605	\$3,913,650	\$4,124,410	\$4,394,890	\$4,668,957

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
User Rates										
Fixed Monthly										
Charge Per Equivalent Residential Unit	\$8.29	\$8.65	\$9.11	\$9.35	\$9.72	\$10.29	\$10.58	\$11.01	\$11.58	\$12.14
Number of Equivalent Units	7,004	7,121	7,239	7,359	7,481	7,603	7,704	7,805	7,907	8,012
Total Annual Fixed Monthly Revenue	\$696,758	\$739,160	\$791,367	\$825,680	\$872,584	\$938,818	\$978,100	\$1,031,197	\$1,098,757	\$1,167,188
Consumption Charge										
Funding Requirement	\$2,091,665	\$2,217,771	\$2,372,960	\$2,478,583	\$2,619,456	\$2,817,787	\$2,935,550	\$3,093,213	\$3,296,133	\$3,501,769
Total Annual Billed Consumption (m ³)	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079
Tier 1: Water Demand	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805
Tier 2: Water Demand	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816
Tier 3: Water Demand	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459
Charge Per Cubic Metre										
Tier 1: 0 - 10m ³	\$1.04	\$1.10	\$1.17	\$1.23	\$1.30	\$1.39	\$1.45	\$1.53	\$1.63	\$1.73
Tier 2: 10 - 30m ³	\$1.14	\$1.21	\$1.29	\$1.35	\$1.43	\$1.53	\$1.60	\$1.68	\$1.79	\$1.90
Tier 3: > 30m ³	\$1.04	\$1.10	\$1.17	\$1.23	\$1.30	\$1.39	\$1.45	\$1.53	\$1.63	\$1.73
Charge Per Typical House (200m³/year)										
Fixed Charge	\$99.48	\$103.80	\$109.32	\$112.20	\$116.64	\$123.48	\$126.96	\$132.12	\$138.96	\$145.68
Consumption: Tier 1	\$124.80	\$132.00	\$140.40	\$147.60	\$156.00	\$166.80	\$174.00	\$183.60	\$195.60	\$207.60
Consumption: Tier 2	\$91.66	\$97.28	\$103.72	\$108.54	\$114.97	\$123.01	\$128.64	\$135.07	\$143.92	\$152.76
Consumption: Tier 3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Per Typical Household - Water Service	\$315.94	\$333.08	\$353.44	\$368.34	\$387.61	\$413.29	\$429.60	\$450.79	\$478.46	\$506.04
Sanitary Sewer										
Fixed Charge	\$117.72	\$121.68	\$126.12	\$132.72	\$136.92	\$138.96	\$147.72	\$153.48	\$150.00	\$166.56
Consumption: Tier 1	\$146.40	\$154.80	\$163.20	\$174.00	\$183.60	\$193.20	\$202.80	\$213.60	\$225.60	\$237.60
Consumption: Tier 2	\$107.20	\$113.52	\$119.68	\$127.60	\$134.64	\$141.68	\$148.72	\$156.64	\$165.44	\$174.24
Consumption: Tier 3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Per Typical Household - Sanitary Sewer	\$371.32	\$390.00	\$409.00	\$434.32	\$455.16	\$473.84	\$499.24	\$523.72	\$541.04	\$554.16
Total Typical Household Charge - Water and Sewer	\$687.26	\$723.08	\$762.44	\$802.66	\$842.77	\$887.13	\$928.84	\$974.51	\$1,019.52	\$1,060.20



APPENDIX E

DETAILED WASTEWATER RATE CALCULATIONS

APPENDIX E
TABLE 1

TOWN OF MIDLAND
WASTEWATER RATE CALCULATIONS - FIXED FEE AND CONSUMPTION CHARGE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Wastewater Services										
Expenditures										
Operating										
Annual Gross Operating Expenditures	\$2,968,000	\$3,006,307	\$3,045,379	\$3,085,234	\$3,125,885	\$3,167,349	\$3,209,643	\$3,252,782	\$3,296,784	\$3,341,667
Capital										
Annual Capital Renewal Expenditures										
Non-Growth Related Share	\$1,523,625	\$1,252,701	\$1,320,197	\$1,550,837	\$937,006	\$755,681	\$535,312	\$988,203	\$570,011	\$557,032
Funding From Sewer Reserves	<u>(\$1,341,994)</u>	<u>(\$1,052,301)</u>	<u>(\$1,106,539)</u>	<u>(\$849,128)</u>	<u>(\$696,921)</u>	<u>(\$521,575)</u>	<u>(\$316,575)</u>	<u>(\$406,575)</u>	<u>(\$384,247)</u>	<u>(\$364,247)</u>
Sub-total Capital	\$181,631	\$200,400	\$213,658	\$701,709	\$240,085	\$234,106	\$218,737	\$581,628	\$185,764	\$192,785
Asset Replacement Reserve Contribution										
Calculated Annual Contribution	\$3,438,710	\$3,559,815	\$3,478,269	\$3,589,939	\$3,605,598	\$3,271,976	\$3,284,950	\$3,287,670	\$2,683,708	\$2,735,205
Contribution Smoothing - %	95%	92%	88%	96%	79%	74%	65%	70%	52%	33%
Contribution Smoothing - \$	<u>(\$3,266,774)</u>	<u>(\$3,275,029)</u>	<u>(\$3,060,877)</u>	<u>(\$3,446,342)</u>	<u>(\$2,848,423)</u>	<u>(\$2,421,262)</u>	<u>(\$2,135,217)</u>	<u>(\$2,301,369)</u>	<u>(\$1,395,528)</u>	<u>(\$902,618)</u>
Subtotal Annual Capital Renewal Expenditures	<u>\$171,935</u>	<u>\$284,785</u>	<u>\$417,392</u>	<u>\$143,598</u>	<u>\$757,176</u>	<u>\$850,714</u>	<u>\$1,149,732</u>	<u>\$986,301</u>	<u>\$1,288,180</u>	<u>\$1,832,587</u>
Total Expenditures	\$3,321,566	\$3,491,492	\$3,676,430	\$3,930,540	\$4,123,145	\$4,252,169	\$4,578,112	\$4,820,711	\$4,770,728	\$5,367,039
Revenues										
Non-Rate Revenues										
Cost Recoveries	(\$13,000)	(\$13,260)	(\$13,525)	(\$13,796)	(\$14,072)	(\$14,353)	(\$14,640)	(\$14,933)	(\$15,232)	(\$15,536)
Other Non-User Rate Revenues	<u>(\$11,000)</u>	<u>(\$11,220)</u>	<u>(\$11,444)</u>	<u>(\$11,673)</u>	<u>(\$11,907)</u>	<u>(\$12,145)</u>	<u>(\$12,388)</u>	<u>(\$12,636)</u>	<u>(\$12,888)</u>	<u>(\$13,146)</u>
Sub-Total Non-Rate Revenues	<u>(\$24,000)</u>	<u>(\$24,480)</u>	<u>(\$24,970)</u>	<u>(\$25,469)</u>	<u>(\$25,978)</u>	<u>(\$26,498)</u>	<u>(\$27,028)</u>	<u>(\$27,568)</u>	<u>(\$28,120)</u>	<u>(\$28,682)</u>
Net Rate Funding Need	\$3,297,566	\$3,467,012	\$3,651,460	\$3,905,071	\$4,097,167	\$4,225,671	\$4,551,084	\$4,793,143	\$4,742,608	\$5,338,357

User Rates	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fixed Monthly										
Charge Per Equivalent Residential Unit	\$9.81	\$10.14	\$10.51	\$11.06	\$11.41	\$11.58	\$12.31	\$12.79	\$12.50	\$13.88
Number of Equivalent Units	7,004	7,121	7,239	7,359	7,481	7,603	7,704	7,805	7,907	8,012
Total Annual Fixed Monthly Revenue	\$824,511	\$866,483	\$912,983	\$976,686	\$1,024,299	\$1,056,513	\$1,138,035	\$1,197,911	\$1,186,050	\$1,334,479
Monthly Fixed Revenue Target	\$824,392	\$866,753	\$912,865	\$976,268	\$1,024,292	\$1,056,418	\$1,137,771	\$1,198,286	\$1,185,652	\$1,334,589
Consumption Charge										
Funding Requirement	\$2,473,055	\$2,600,529	\$2,738,477	\$2,928,385	\$3,072,868	\$3,169,158	\$3,413,049	\$3,595,232	\$3,556,558	\$4,003,878
Total Annual Billed Consumption (m ³)	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079
Charge Per Cubic Metre	\$1.24	\$1.31	\$1.38	\$1.47	\$1.54	\$1.59	\$1.72	\$1.81	\$1.79	\$2.01
Charge Per Typical House (200m³/year)										
Fixed Charge	\$117.72	\$121.68	\$126.12	\$132.72	\$136.92	\$138.96	\$147.72	\$153.48	\$150.00	\$166.56
Consumption	\$248.00	\$262.00	\$276.00	\$294.00	\$308.00	\$318.00	\$344.00	\$362.00	\$358.00	\$402.00
Annual Per Typical Household - Sewer Service	\$365.72	\$383.68	\$402.12	\$426.72	\$444.92	\$456.96	\$491.72	\$515.48	\$508.00	\$568.56



APPENDIX E
TABLE 2

TOWN OF MIDLAND
WASTEWATER RATE CALCULATIONS - FIXED FEE AND 3 TIER CONSUMPTION CHARGE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Wastewater Services										
Expenditures										
Operating										
Annual Gross Operating Expenditures	\$2,968,000	\$3,006,307	\$3,045,379	\$3,085,234	\$3,125,885	\$3,167,349	\$3,209,643	\$3,252,782	\$3,296,784	\$3,341,667
Capital										
Annual Capital Renewal Expenditures										
Non-Growth Related Share	\$1,523,625	\$1,252,701	\$1,320,197	\$1,550,837	\$937,006	\$755,681	\$535,312	\$988,203	\$570,011	\$557,032
Funding From Sewer Reserves	<u>(\$1,341,994)</u>	<u>(\$1,052,301)</u>	<u>(\$1,106,539)</u>	<u>(\$849,128)</u>	<u>(\$696,921)</u>	<u>(\$521,575)</u>	<u>(\$316,575)</u>	<u>(\$406,575)</u>	<u>(\$384,247)</u>	<u>(\$364,247)</u>
Sub-total Capital	\$181,631	\$200,400	\$213,658	\$701,709	\$240,085	\$234,106	\$218,737	\$581,628	\$185,764	\$192,785
Asset Replacement Reserve Contribution										
Calculated Annual Contribution	\$3,438,710	\$3,559,815	\$3,478,269	\$3,589,939	\$3,605,598	\$3,271,976	\$3,284,950	\$3,287,670	\$2,683,708	\$2,735,205
Contribution Smoothing - %	95%	92%	88%	96%	79%	74%	65%	70%	52%	33%
Contribution Smoothing - \$	<u>(\$3,266,774)</u>	<u>(\$3,275,029)</u>	<u>(\$3,060,877)</u>	<u>(\$3,446,342)</u>	<u>(\$2,848,423)</u>	<u>(\$2,421,262)</u>	<u>(\$2,135,217)</u>	<u>(\$2,301,369)</u>	<u>(\$1,395,528)</u>	<u>(\$902,618)</u>
Subtotal Annual Capital Renewal Expenditures	<u>\$171,935</u>	<u>\$284,785</u>	<u>\$417,392</u>	<u>\$143,598</u>	<u>\$757,176</u>	<u>\$850,714</u>	<u>\$1,149,732</u>	<u>\$986,301</u>	<u>\$1,288,180</u>	<u>\$1,832,587</u>
Total Expenditures	\$3,321,566	\$3,491,492	\$3,676,430	\$3,930,540	\$4,123,145	\$4,252,169	\$4,578,112	\$4,820,711	\$4,770,728	\$5,367,039
Revenues										
Non-Rate Revenues										
Cost Recoveries	(\$13,000)	(\$13,260)	(\$13,525)	(\$13,796)	(\$14,072)	(\$14,353)	(\$14,640)	(\$14,933)	(\$15,232)	(\$15,536)
Other Non-User Rate Revenues	<u>(\$11,000)</u>	<u>(\$11,220)</u>	<u>(\$11,444)</u>	<u>(\$11,673)</u>	<u>(\$11,907)</u>	<u>(\$12,145)</u>	<u>(\$12,388)</u>	<u>(\$12,636)</u>	<u>(\$12,888)</u>	<u>(\$13,146)</u>
Sub-Total Non-Rate Revenues	<u>(\$24,000)</u>	<u>(\$24,480)</u>	<u>(\$24,970)</u>	<u>(\$25,469)</u>	<u>(\$25,978)</u>	<u>(\$26,498)</u>	<u>(\$27,028)</u>	<u>(\$27,568)</u>	<u>(\$28,120)</u>	<u>(\$28,682)</u>
Net Rate Funding Need	\$3,297,566	\$3,467,012	\$3,651,460	\$3,905,071	\$4,097,167	\$4,225,671	\$4,551,084	\$4,793,143	\$4,742,608	\$5,338,357

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
User Rates										
Fixed Monthly										
Charge Per Equivalent Residential Unit	\$9.81	\$10.14	\$10.51	\$11.06	\$11.41	\$11.58	\$12.31	\$12.79	\$12.50	\$13.88
Number of Equivalent Units	7,004	7,121	7,239	7,359	7,481	7,603	7,704	7,805	7,907	8,012
Total Annual Fixed Monthly Revenue	\$824,511	\$866,483	\$912,983	\$976,686	\$1,024,299	\$1,056,513	\$1,138,035	\$1,197,911	\$1,186,050	\$1,334,479
Consumption Charge										
Funding Requirement	\$2,473,055	\$2,600,529	\$2,738,477	\$2,928,385	\$3,072,868	\$3,169,158	\$3,413,049	\$3,595,232	\$3,556,558	\$4,003,878
Total Annual Billed Consumption (m ³)	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079
Tier 1: Sewer Demand	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805
Tier 2: Sewer Demand	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816
Tier 3: Sewer Demand	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459
Charge Per Cubic Metre										
Tier 1: 0- 10m3	\$1.17	\$1.23	\$1.30	\$1.37	\$1.43	\$1.50	\$1.58	\$1.66	\$1.74	\$1.83
Tier 2: 10- 30m3	\$1.27	\$1.33	\$1.42	\$1.51	\$1.61	\$1.70	\$1.79	\$1.89	\$2.00	\$2.10
Tier 3: >30m3	\$1.33	\$1.40	\$1.49	\$1.59	\$1.69	\$1.79	\$1.88	\$1.98	\$2.10	\$2.21

APPENDIX E
TABLE 3

TOWN OF MIDLAND
WASTEWATER RATE CALCULATIONS - FIXED FEE AND 3 TIER HUMPBACK CONSUMPTION CHARGE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Wastewater Services										
Expenditures										
Operating										
Annual Gross Operating Expenditures	\$2,968,000	\$3,006,307	\$3,045,379	\$3,085,234	\$3,125,885	\$3,167,349	\$3,209,643	\$3,252,782	\$3,296,784	\$3,341,667
Capital										
Annual Capital Renewal Expenditures	\$1,523,625	\$1,252,701	\$1,320,197	\$1,550,837	\$937,006	\$755,681	\$535,312	\$988,203	\$570,011	\$557,032
Non-Growth Related Share	(\$1,341,994)	(\$1,052,301)	(\$1,106,539)	(\$849,128)	(\$696,921)	(\$521,575)	(\$316,575)	(\$406,575)	(\$384,247)	(\$364,247)
Funding From Sewer Reserves	\$181,631	\$200,400	\$213,658	\$701,709	\$240,085	\$234,106	\$218,737	\$581,628	\$185,764	\$192,785
Sub-total Capital										
Asset Replacement Reserve Contribution	\$3,438,710	\$3,559,815	\$3,478,269	\$3,589,939	\$3,605,598	\$3,271,976	\$3,284,950	\$3,287,670	\$2,683,708	\$2,735,205
Calculated Annual Contribution	95%	92%	88%	96%	79%	74%	65%	70%	52%	33%
Contribution Smoothing - %	(\$3,266,774)	(\$3,275,029)	(\$3,060,877)	(\$3,446,342)	(\$2,848,423)	(\$2,421,262)	(\$2,135,217)	(\$2,301,369)	(\$1,395,528)	(\$902,618)
Contribution Smoothing - \$	\$171,935	\$284,785	\$417,392	\$143,598	\$757,176	\$850,714	\$1,149,732	\$986,301	\$1,288,180	\$1,832,587
Subtotal Annual Capital Renewal Expenditures										
Total Expenditures	\$3,321,566	\$3,491,492	\$3,676,430	\$3,930,540	\$4,123,145	\$4,252,169	\$4,578,112	\$4,820,711	\$4,770,728	\$5,367,039
Revenues										
Non-Rate Revenues										
Cost Recoveries	(\$13,000)	(\$13,260)	(\$13,525)	(\$13,796)	(\$14,072)	(\$14,353)	(\$14,640)	(\$14,933)	(\$15,232)	(\$15,536)
Other Non-User Rate Revenues	(\$11,000)	(\$11,220)	(\$11,444)	(\$11,673)	(\$11,907)	(\$12,145)	(\$12,388)	(\$12,636)	(\$12,888)	(\$13,146)
Sub-Total Non-Rate Revenues	(\$24,000)	(\$24,480)	(\$24,970)	(\$25,469)	(\$25,978)	(\$26,498)	(\$27,028)	(\$27,568)	(\$28,120)	(\$28,682)
Net Rate Funding Need	\$3,297,566	\$3,467,012	\$3,651,460	\$3,905,071	\$4,097,167	\$4,225,671	\$4,551,084	\$4,793,143	\$4,742,608	\$5,338,357

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
User Rates										
Fixed Monthly										
Charge Per Equivalent Residential Unit	\$9.81	\$10.14	\$10.51	\$11.06	\$11.41	\$11.58	\$12.31	\$12.79	\$12.50	\$13.88
Number of Equivalent Units	7,004	7,121	7,239	7,359	7,481	7,603	7,704	7,805	7,907	8,012
Total Annual Fixed Monthly Revenue	\$824,511	\$866,483	\$912,983	\$976,686	\$1,024,299	\$1,056,513	\$1,138,035	\$1,197,911	\$1,186,050	\$1,334,479
Consumption Charge										
Funding Requirement	\$2,473,055	\$2,600,529	\$2,738,477	\$2,928,385	\$3,072,868	\$3,169,158	\$3,413,049	\$3,595,232	\$3,556,558	\$4,003,878
Total Annual Billed Consumption (m ³)	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079	1,989,079
Tier 1: Sewer Demand	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805	913,805
Tier 2: Sewer Demand	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816	397,816
Tier 3: Sewer Demand	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459	677,459
Charge Per Cubic Metre										
Tier 1: 0- 10m3	\$1.22	\$1.29	\$1.36	\$1.45	\$1.53	\$1.61	\$1.69	\$1.78	\$1.88	\$1.98
Tier 2: 10- 30m3	\$1.34	\$1.42	\$1.50	\$1.60	\$1.68	\$1.77	\$1.86	\$1.96	\$2.07	\$2.18
Tier 3: >30m3	\$1.22	\$1.29	\$1.36	\$1.45	\$1.53	\$1.61	\$1.69	\$1.78	\$1.88	\$1.98
Charge Per Typical House (200m³/year)										
Fixed Charge	\$117.72	\$121.68	\$126.12	\$132.72	\$136.92	\$138.96	\$147.72	\$153.48	\$150.00	\$166.56
Consumption: Tier 1	\$146.40	\$154.80	\$163.20	\$174.00	\$183.60	\$193.20	\$202.80	\$213.60	\$225.60	\$237.60
Consumption: Tier 2	\$107.20	\$113.52	\$119.68	\$127.60	\$134.64	\$141.68	\$148.72	\$156.64	\$165.44	\$174.24
Consumption: Tier 3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Per Typical Household - Sewer Service	\$371.32	\$390.00	\$409.00	\$434.32	\$455.16	\$473.84	\$499.24	\$523.72	\$541.04	\$578.40

