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Municipality of Central Manitoulin

Municipal Asset
Management Plan

December 31st, 2013



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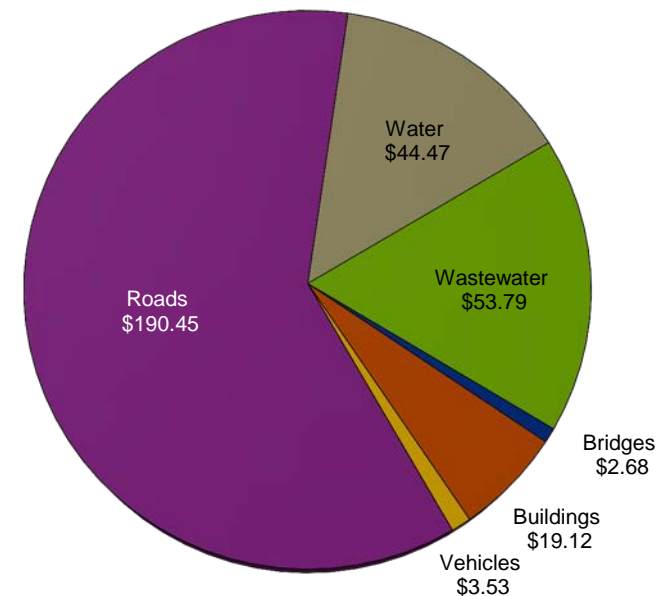
The development of an asset management plan has been identified as a pre-requisite for the receipt of funding from the Province of Ontario (the 'Province') under the Municipal Infrastructure Investment Initiative ('MIII') and as such, represents an important first step in obtaining financing for necessary infrastructure investments. That said, planning for capital reinvestment is essential with or without the incentive provided under MIII, particularly given that a number of municipalities are now approach end-of-useful-life for significant components of their infrastructure.

Current state of infrastructure

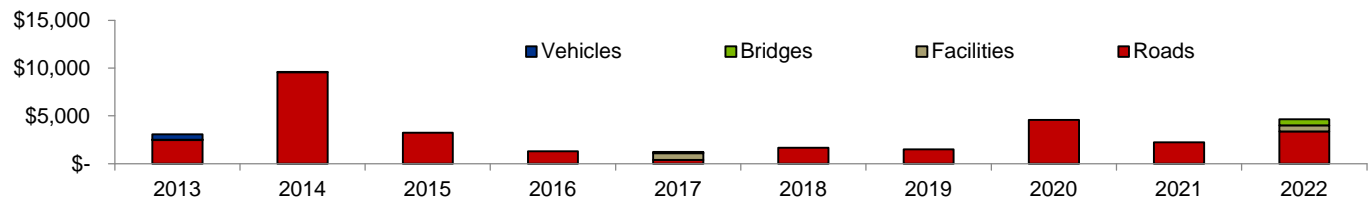
Infrastructure represents a major investment on the part of the Municipality of Central Manitoulin (the 'Municipality'), with the estimated replacement cost of its assets – roads, bridges, buildings, vehicles, equipment and pipes – amounting to \$314 million, or \$160,000 per resident. In addition to the cost of replacing its assets, the Municipality is also required to repair and rehabilitate its infrastructure over its entire useful life, with the cost of these life cycle activities for linear infrastructure (roads and pipes) amounting to \$579 million, or \$657,000 per household.

While the amounts of the Municipality's replacement and life cycle costs are significant, the real pressure from the perspective of its infrastructure comes from its current condition. Condition analysis conducted as part of the asset management planning process indicates that while the majority of the Municipality's infrastructure is considered to be in good condition, the ongoing aging and deterioration of its assets as well as the sheer size of its transportation network means that the Municipality should invest \$33 million over the next ten years to address its anticipated infrastructure needs.

Replacement value by type of asset (in millions)



Projected future infrastructure investment requirements by year (in millions)



Asset management strategies

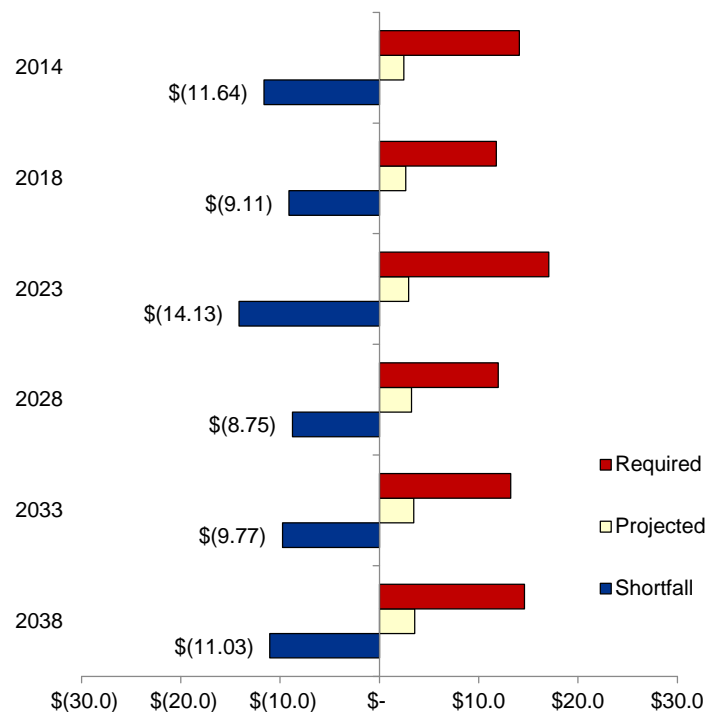
As required under MIII, this report identifies the required asset management strategies for the Municipality based on the types of infrastructure maintained as well as its current condition. As noted earlier, the Municipality would be required to spend an average of \$3.3 million per year over the next ten years in order to address the current issues identified with its infrastructure. While this would allow the Municipality to meet its immediate infrastructure investment needs, it does not allow for ongoing maintenance, rehabilitation and replacement of its infrastructure, the cost of which amounts to an additional \$9.7 million, bringing the Municipality's total infrastructure financing requirement to \$13 million per year. In comparison, the Municipality is budgeted to make \$2 million in capital expenditures during 2013. Clearly, it is unable to address the full spectre of its infrastructure needs, resulting in ongoing annual infrastructure deficits.

In light of the significant gap between its infrastructure financing requirement and its capacity to raise revenues for capital purposes, the Municipality will be required to prioritize its investments. For the purposes of the asset management plan, three different categories have been identified:

- **Priority 1** – consists of major infrastructure investments required within the next five years, investments that qualify for grants and immediate investment needs stemming from new legislation or regulation, public health or safety concerns or other issues
- **Priority 2** – includes infrastructure investments required within six to ten years and other lower priority infrastructure
- **Priority 3** – representing the lowest class of investment priority, this category includes infrastructure with no investment requirement identified within the next ten years, discontinued infrastructure and other lower priority infrastructure

For linear infrastructure, the primary driver of future capital investments will be the Municipality's road network as the age of its water and wastewater systems (installed in 1983) translates into no reinvestment needs in the short and mid-term future.

Calculated annual infrastructure funding shortfalls (in millions)



Financing strategy

While the Municipality is unable to unilaterally address its infrastructure-related financial requirement, it recognizes the need to begin to address the challenge. As part of its financing strategy, the Municipality is proposing the following measures intended to increase funding for capital requirements:

- Permanently protecting the current level of capital expenditures so as to provide a consistent stream of funding into the future;
- Introducing a five year capital levy that would see the total levy increase by 2%, with the new revenue allocated to capital purposes (i.e. not for operations). The capital levy would add approximately \$80,000 per year to existing capital funding (\$396,000 in total over the next five years), representing a 16% increase in capital spending;
- Adjusting water and wastewater rates to ensure sufficient financing for capital investment requirements, recognizing that not all residents of the Municipality currently receive water and wastewater services;
- Exploring the continued use of debt as a means of funding infrastructure requirements, including the adoption of a program whereby a fixed percentage of capital expenditures are financed through debt;
- Upon the repayment of existing indebtedness, redirecting debt servicing costs to capital expenditures, capital reserves or new debt for capital projects so as to preserve existing funding for capital purposes; and
- Continuing to pursue grant programs provided by senior levels of government.

The issue of affordability

When considering the Municipality's ability to fund its capital requirements and its entitlement for grants, there needs to be a recognition of the limited ability of the Municipality to finance its capital needs due to issues surrounding affordability. In addition to the affordability considerations developed by the Province under the revised OMPF model, it is also important to remember that:

- The Municipality's population has not grown at the same rate as other communities and the Province as a whole. While the Province's total population increased by 19.5% between 1996 and 2011, the Municipality's population only grew by 9.1% over the same period. In the absence of major population growth, fewer people are required to fund the infrastructure requirement, increasing the overall cost to the individual taxpayer.
- The Municipality's residents have a higher degree of reliance on pension income (i.e. fixed income) as opposed to other communities. Overall, 35% of total reported personal income in the Municipality is derived from pensions, as opposed to the Provincial average of 14%. The greater reliance on fixed-income pension reduces the ability of the Municipality to raise funds through taxation and user fees due to concerns over affordability..

About this plan

The Municipality's asset management plan has been developed based on the guidance provided by the Province in *Building Together – Guide for Municipal Asset Management Plans*, which has been tailored to reflect the small size of the Municipality and the nature of its operations and infrastructure. Preparation of the plan involved Municipal staff as well as external financial and engineering advisors paid for through the MIII.

In completing the asset management plan for the Municipality:

- Accepted industry best practices were used for the development of the plan components, including the condition assessments, identification of life cycle requirements and estimated costs;
- The asset management plan was reviewed by Municipal council prior to adoption;
- The asset management plan was compared to the requirements under MIII to ensure compliance; and
- Expressions of interest submitted to date have been based on the priorities identified in the asset management plan.

We would like to acknowledge the cooperation of Municipal staff in the preparation of this report.



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**Asset Management Planning
for the Municipality of Central Manitoulin**

Chapter I Introduction



Asset management planning defined

Asset management planning is the process of making the best possible decisions regarding the acquisition, operating, maintaining, renewing, replacing and disposing of infrastructure assets. The objective of an asset management plan is to maximize benefits, manage risk and provide satisfactory levels of service to the public in a sustainable manner. In order to be effective, an asset management plan needs to be based on a thorough understanding of the characteristics and condition of infrastructure assets, as well as the service levels expected from them. Recognizing that funding for infrastructure acquisition and maintenance is often limited, a key element of an asset management plan is the setting of strategic priorities to optimize decision-making as to when and how to proceed with investments. The ultimate success or failure of an asset management plan is dependent on the associated financing strategy, which will identify and secure the funds necessary for asset management activities and allow the Municipality to move from planning to execution.

The purpose of the asset management

The asset management plan outlines the Municipality's planned approach for the acquisition and maintenance of its infrastructure, which in turn allows the Municipality to meet its stated mission and mandate by supporting the delivery of services to its residents. In achieving this objective, the asset management plan:

- Provides elected officials, Municipal staff, funding agencies, community stakeholders and residents with an indication of the Municipality's investment in infrastructure and its current condition;
- Outlines the total financial requirement associated with the management of this infrastructure investment, based on recommended asset management practices that encompass the total life cycle of the assets;
- Prioritizes the Municipality's infrastructure needs, recognizing that the scope of the financial requirement is beyond the capabilities of the Municipality and that some form of prioritization is required; and
- Presents a financial strategy that outlines how the Municipality intends to meet its infrastructure requirements.

It is important to recognize that the asset management plan is just that – a plan. The asset management plan (which has been prepared for the purposes of meeting the requirements of the Municipal Infrastructure Investment Initiative) does not represent a formal, multi-year budget for the Municipality. The approval of operating and capital budgets is undertaken as part of the Municipality's overall annual budget process. Accordingly, the financial performance and priorities outlined in the asset management plan are subject to change based on future decisions of Council with respect to operating and capital costs, taxation levels and changes to regulatory requirements or the condition of the Municipality's infrastructure.

The asset management plan encompasses the following components of the Municipality's infrastructure:

Transportation Infrastructure	Water and Wastewater Infrastructure	Other Infrastructure
<ul style="list-style-type: none"> • Roads • Bridges and culverts • Streetlights • Storm sewers 	<ul style="list-style-type: none"> • Treatment facilities • Water distribution system • Wastewater collection system 	<ul style="list-style-type: none"> • Vehicles • Facilities

For the purposes of developing the asset management plan, a 25-year planning horizon was considered, although the analysis includes a discussion of required activities over the entire life cycle of the Municipality's infrastructure. It is expected that the Municipality will update its asset management plan every four years (to coincide with Council elections) or earlier in the event of a major change in circumstances, which could include:

- New funding programs for infrastructure
- Unforeseen failure of a significant infrastructure component
- Regulatory changes that have a significant impact on infrastructure requirements
- Changes to the Municipality's economic or demographic profile (positive or negative), which would impact on the nature and service level of its infrastructure

The development of the Municipality's asset management plan involved the following major worksteps.

Workstep	Report Section
1. Information concerning the Municipality's tangible capital assets was reviewed and summarized to provide a preliminary inventory of assets, acquisition year, remaining useful life and historical cost.	Pages 13 to 18 Appendices A to F
2. A condition assessment of the Municipality's infrastructure was developed based on a review of previously commissioned assessments, the age and estimated remaining useful life of the infrastructure and engineering inspections of certain components.	Pages 19 and 21 Appendices A to F
3. Asset management strategies for each component of the Municipality's infrastructure were developed to provide an indication as to the recommended course of action for infrastructure procurement, maintenance and replacement/rehabilitation over the estimated useful life of the infrastructure component. As part of the development of the asset management strategies, cost estimates were prepared for the recommended activities.	Pages 26 to 36 Appendices G and H
4. Based on the asset management strategies (which provide an indication as to the cost of the recommended activities) and the condition assessment (which provides an indication as to the timing of the recommended activities), an unencumbered financial projection was developed that outlined the overall cost of recommended asset management strategies assuming that the Municipality was to undertake all of the recommended activities when required (i.e. assuming sufficient funds were available for all required infrastructure maintenance and replacement). Consistent with the provisions of MIII, no grants were considered in the preparation of the unencumbered financial projection.	Pages 35 and 36 Pages 40 to 42 Appendix J Appendix K
5. Recognizing that the overall financial requirement associated with the recommended asset management strategies is unaffordable for the Municipality, the required asset management activities were prioritized based on the potential risk of failure (determined by the condition assessment), the potential impact on residents and other stakeholders and other considerations.	Pages 37 and 38 Appendix I
6. A second set of financial projections was developed based on the resources available to the Municipality to support its asset management activities, including funding from taxation and user fees. Consistent with the provisions of MIII, no grants were considered in the preparation of the financial projections.	Pages 40 to 42 Appendix L

The development of the asset management involved input from the following parties:

- Council and staff of the Municipality
- KPMG LLP, financial advisors to the Municipality
- exp Services Inc., engineering advisors to the Municipality

The asset management plan outlined in this report represents a forecast of the Municipality's infrastructure-related activities under a series of assumptions that are documented within the plan. The asset management plan does not represent a formal, multi-year budget for infrastructure acquisition and maintenance activities but rather a long-term strategy intended to guide future decisions of the Municipality and its elected officials and staff, recognizing that the approval of operating and capital budgets is undertaken as part of the Municipality's overall annual budgeting process.

In order to evaluate and improve the asset management plan, the Municipality plans to undertake the following actions:

Action Item	Frequency
1. Updating of infrastructure priorities based on: <ul style="list-style-type: none"> • Ongoing condition assessments (e.g. bi-annual bridge inspections) • Visual inspection by municipal personnel • Identified failures or unanticipated deterioration of infrastructure components • Analysis of performance indicators 	Annually
2. Adjustment of asset management plan for changes in financial resources, including new or discontinued grant programs, changes to capital component of municipal levy, etc.	Every four years
3. Comparison of actual service level indicators to planned service level indicators and identification of significant variances (positive or negative)	Annually
4. Updating of infrastructure data maintained in Municipal Data Works	Annually upon completion of the Municipality's financial statement audit

This report is based on information and documentation that was made available to KPMG at the date of this report. KPMG has not audited nor otherwise attempted to independently verify the information provided unless otherwise indicated. Should additional information be provided to KPMG after the issuance of this report, KPMG reserves the right (but will be under no obligation) to review this information and adjust its comments accordingly.

Pursuant to the terms of our engagement, it is understood and agreed that all decisions in connection with the implementation of advice and recommendations as provided by KPMG during the course of this engagement shall be the responsibility of, and made by, the Municipality of Central Manitoulin. KPMG has not and will not perform management functions or make management decisions for the Municipality of Central Manitoulin.

This report includes or makes reference to future oriented financial information. Readers are cautioned that since these financial projections are based on assumptions regarding future events, actual results will vary from the information presented even if the hypotheses occur, and the variations may be material.

Comments in this report are not intended, nor should they be interpreted to be, legal advice or opinion.

KPMG has no present or contemplated interest in the Municipality of Central Manitoulin nor are we an insider or associate of the Municipality of Central Manitoulin or its management team. KPMG does provide audit services to the Municipality of Central Manitoulin. Our fees for this engagement are not contingent upon our findings or any other event. Accordingly, we believe we are independent of the Municipality of Central Manitoulin and are acting objectively.



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**Asset Management Planning
for the Municipality of Central Manitoulin**

Chapter II State of Local Infrastructure

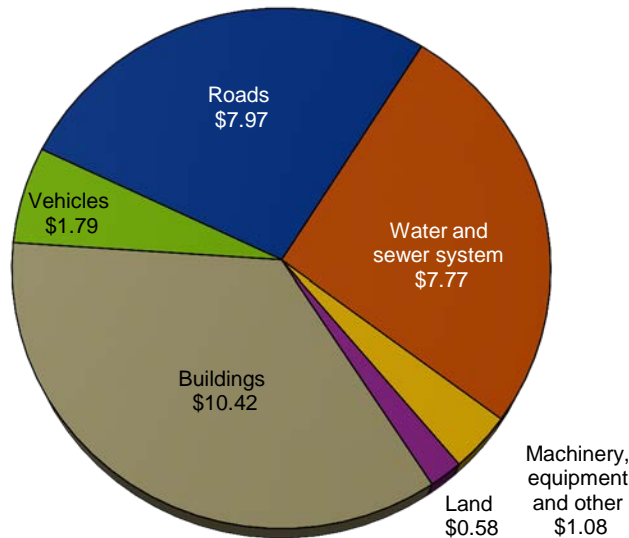


At December 31, 2012, the Municipality reported a total investment of \$29.6 million in tangible capital assets ('TCA') at historical cost. This equates to an average investment of \$33,600 per household, or \$15,100 per resident.

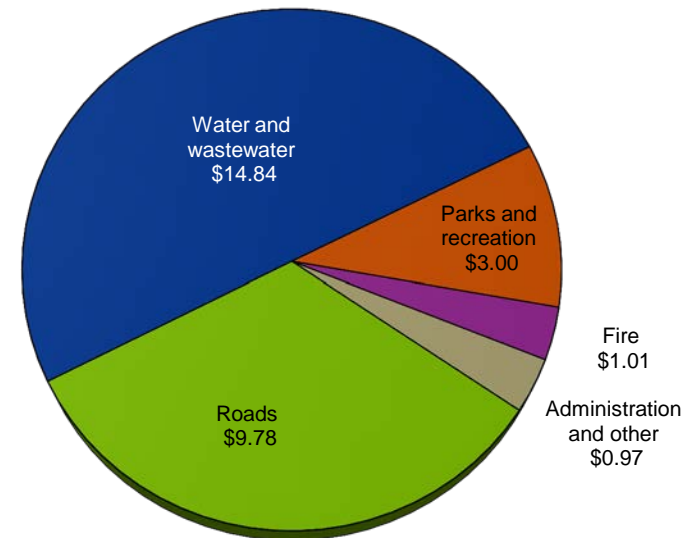
With a historical cost of \$10.5 million, buildings (including the Municipality's water and wastewater treatment facilities, parks and recreation buildings and administrative offices), represent the single largest type of infrastructure and account for 35% of the Municipality's total infrastructure (at historical cost). Roads (\$7.97 million) and water and wastewater piping (\$7.77 million) represent the next largest asset types by historical cost, with a portion of the Municipality's road network forming part of the Manitoulin Cycling Advocates trail system.

From a functional perspective, the Municipality's water and wastewater system (including treatment, distribution and collection) and road network represent the largest components of its infrastructure (\$14.8 million and \$9.8 million respectively), accounting for a combined total of 83% of the overall historical cost of the Municipality's infrastructure.

Tangible capital assets by type (historical cost, in millions)

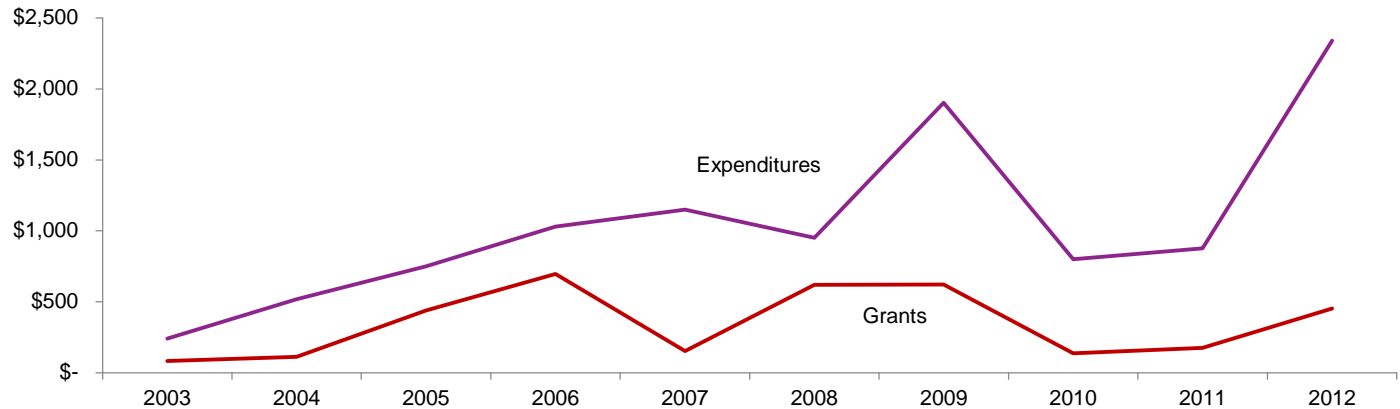


Tangible capital assets by use (historical cost, in millions)



Over the last 10 years, the Municipality's investment in its infrastructure has totaled just under \$11 million, with Federal and Provincial capital grants amounting to approximately \$3.5 million over the same period. As noted below, the Municipality's investment in infrastructure has traditionally been closely tied to grant revenues.

Capital expenditures and grants (in thousands)



Since 2003, transportation infrastructure (roads) has represented the largest area of investment for the Municipality, amounting to \$5.9 million or 56% of total capital spending. The next largest component of capital spending has been in the area of parks and recreation (\$2.5 million or 43%), particularly as a result of a major capital project undertaken on the Municipality's arena in 2009.

Capital expenditures by program

(in thousands of dollars)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Transportation	45	184	459	942	707	560	160	531	420	1,947	5,955
Environmental services	19	64	174	15	24	59	100	41	132	30	658
Parks and recreation	53	141	21	19	172	252	1,307	194	247	148	2,554
Fire	10	55	66	55	238	52	328	-	21	213	1,038
Administration and other	114	74	32	-	8	28	7	34	57	-	354
Total	241	518	752	1,031	1,149	951	1,902	800	877	2,338	10,559

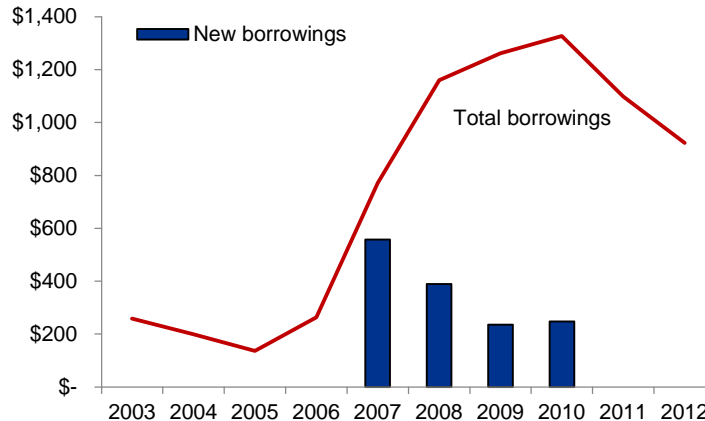
In order to fund its capital investments, the Municipality has relied on a combination of grants, long-term debt, contributions from reserves and reserve funds and taxation and user fee revenues, with grants funding 33% of capital expenditures and long-term debt funding 14% of capital expenditures over the last ten years.

Capital expenditures and funding

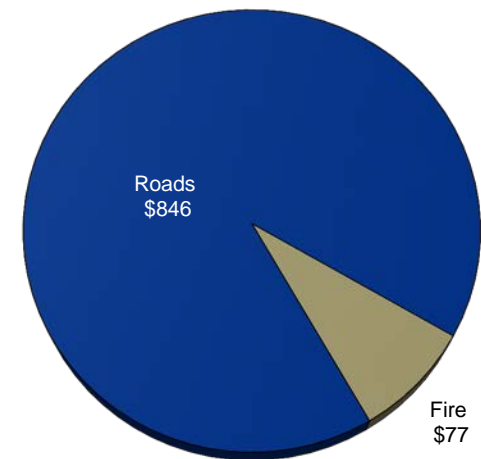
(in thousands of dollars)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Total capital expenditures	241	518	752	1,031	1,149	951	1,902	800	877	2,338	10,559
Grants received	84	112	440	697	154	620	624	139	176	456	3,502
Local financing requirement	157	406	312	334	995	331	1,278	661	701	1,882	7,057
Long-term debt issued	-	-	-	-	577	389	236	248	-	-	1,450
Taxation, user fee and reserve funding	157	406	312	334	418	(58)	1,042	413	701	1,882	5,607

The total amount of long-term debt outstanding at December 31, 2012 amounted to approximately \$923,000, the majority of which was incurred since 2007 and relates to the Municipality's road network.

Long-term debt issued and year-end outstanding borrowings (in thousands)



Long-term debt outstanding by function (in thousands)



For asset management purposes, the historical cost of the Municipality's infrastructure is arguably of limited value in that it reflects the cost at the date that the infrastructure investment was incurred, as opposed to what it would cost the Municipality to replace the infrastructure at the present time. While the use of replacement value is a more meaningful measure of the financial requirement associated with the Municipality's infrastructure (and is a required component for asset management plans under MIII), it is also of limited value in that it only considers the replacement cost at the end of the infrastructure's useful life and does not contemplate:

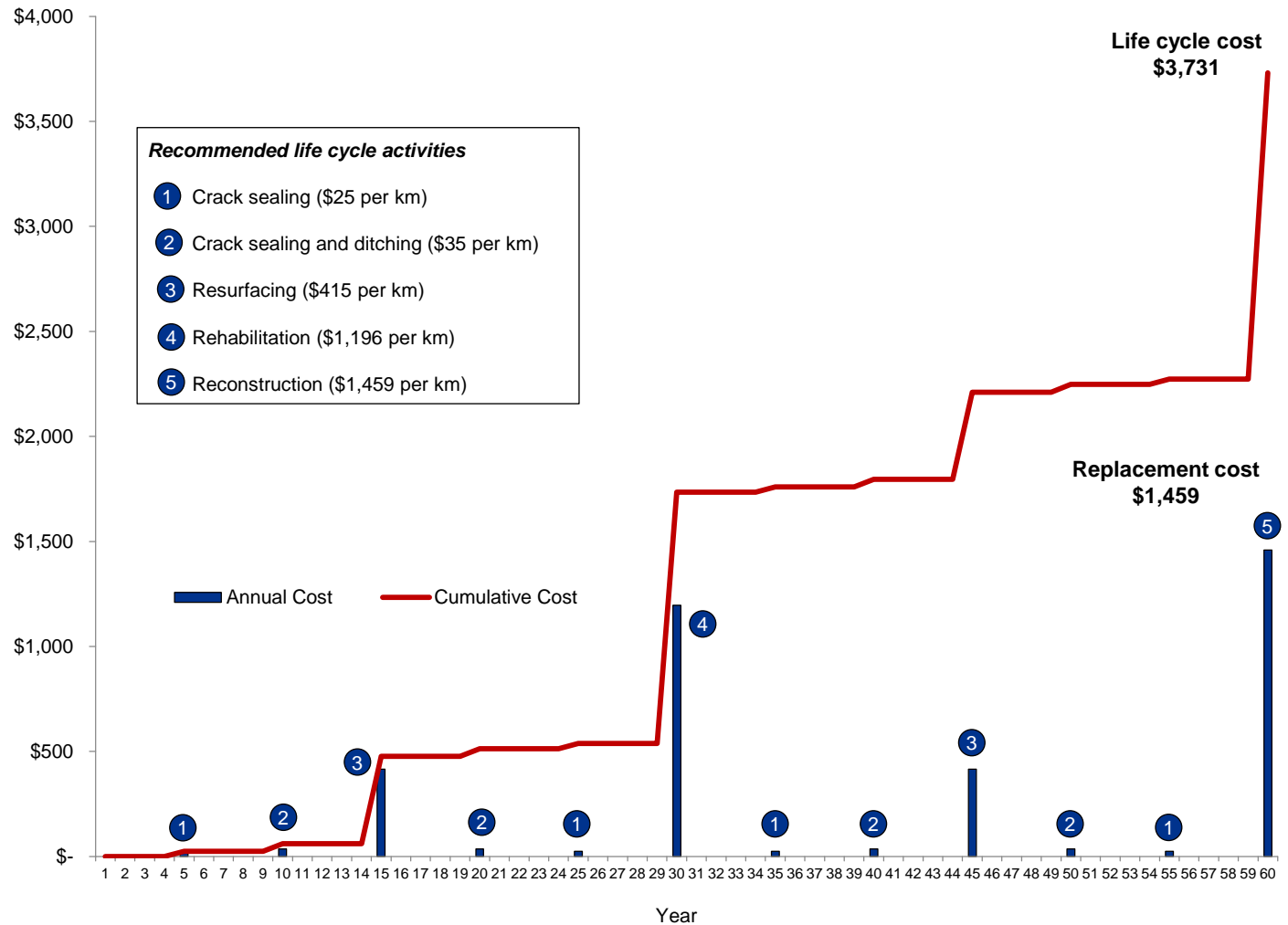
- The fact that certain components of the Municipality's infrastructure, such as roads, will not be fully replaced at the end of useful life but rather will be reconstructed; and
- Asset management activities that are required (by best practice) to be incurred prior to the end of the useful life of the Municipality's infrastructure.

Accordingly, for the purposes of the Municipality's asset management plan, we have provided the following for each component of the Municipality's infrastructure:

- **Historical cost**, based on the Municipality's TCA data as reported in its 2012 financial information return
- **Replacement cost**, based on cost estimates prepared by the Municipality's engineering advisors. For the purposes of the asset management plan, replacement cost is defined as follows:
 - Roads – road reconstruction costs at the end of useful life, including necessary curbs, sidewalks, drainage (as appropriate based on the type of road)
 - Bridges and culverts – estimated reconstruction cost
 - Water and wastewater pipes – replacement costs at the end of useful life, including hydrants, valves, road reinstatement and service to the property line
 - Vehicles – estimated purchase price
 - Buildings – estimated reconstruction cost
- **Life cycle costs**, based on cost estimates prepared by the Municipality's engineering advisors. Life cycle costs encompass the cost of all recommended maintenance activities associated with a component of the Municipality's infrastructure prior to the end of useful life. The nature of life cycle costs will vary depending on the type of infrastructure in question, with certain assets requiring little life cycle activities prior to the end of useful life while others require regularly scheduled maintenance activities. For the purpose of the Municipality's asset management plan, life cycle costs have been provided for linear infrastructure (roads, water and wastewater mains).

We have included on the following page a depiction of the life cycle requirements associated with one type of road, including the difference between replacement cost and life cycle cost.

Life cycle costing profile – paved rural collector road (7.0m lane) (in thousands)



Additional information concerning the Municipality's infrastructure can be found in the following appendices:

- **Appendix A** – Infrastructure profile – roads
- **Appendix B** – Infrastructure profile – water
- **Appendix C** – Infrastructure profile – wastewater
- **Appendix D** – Infrastructure profile – bridges and structures
- **Appendix E** – Infrastructure profile – buildings and facilities
- **Appendix F** – Infrastructure profile – vehicles
- **Appendix G** – Life cycle profiles for linear infrastructure, including recommended activities and costs
- **Appendix H** – Costing estimates for life cycle activities for linear infrastructure

The current replacement value of the Municipality's infrastructure (expressed in 2013 funds) is estimated to be in the order of \$314.0 million, 60% of which (\$190.4 million) relates to the municipal road network. Overall, the replacement value of the Municipality's infrastructure amounts to approximately \$160,000 per resident or \$356,000 per household, or 11 times the historical cost of infrastructure.

The total life cycle cost associated with the Municipality's linear infrastructure (roads, water and wastewater mains) is \$578.5 million, with roads representing the largest category of life cycle costs (\$444.4 million or 77% of total life cycle costs). On average, the Municipality's life cycle costs for its linear infrastructure is \$295,000 per resident or \$657,000 per household.

Historical, replacement and life cycle costs by component

	Quantity	Useful Life	Historical Cost	Replacement Cost	Life Cycle Cost
Roads	209,800 m	60 to 75 years	\$7,967,158	\$190,447,307	\$444,432,587
Water distribution network	7,872 m	80 years	\$7,769,171	\$44,466,037	\$59,397,741
Wastewater collection network	9,344 m	80 years		\$53,792,313	\$74,677,790
Total linear infrastructure			\$15,736,329	\$288,705,657	\$578,508,118
Bridges and culverts	11	50 years	<i>Included in roads</i>	\$2,683,908	
Buildings and facilities	25	20 to 75 years	\$11,461,694	\$19,120,000	
Vehicles and equipment	25	9 to 20 years	\$1,786,864	\$3,530,000	
Total in-scope infrastructure			\$28,984,887	\$314,039,565	
Land			\$580,450		
Assets under construction			\$14,221		
Total tangible capital assets per financial statements			\$29,579,558		

In order to assess the condition of the Municipality's infrastructure, which in turn determines the timing for asset management activities, different approaches were adopted depending on the type of infrastructure:

- **Roads** – condition assessments for roads (paved, surface treated and gravel) were determined based on a *Condition Rating* that ranked the Municipality's road network on a scale of 0.00 to 10.00 based on factors such as structural cracking, non-structural cracking, rutting and roughness.
- **Water and wastewater mains** – given the inability to directly observe underground infrastructure, condition assessments for water and wastewater mains were determined based on the estimated remaining useful life.
- **Bridges and large culverts** – condition assessments were based on the *Bridge Condition Index* as determined by the most recent bridge inspections conducted in accordance with the Ontario Structure Inspection Manual.
- **Facilities** – condition assessments for buildings were based on a *Facility Condition Index* that considered the level of required repairs to the various facility components (structure, mechanical, electrical and roof) as a percentage of its total replacement cost, based on a physical inspection of the Municipality's buildings and the estimated remaining useful life.
- **Vehicles** – condition assessments for the Municipality's fleet were determined based on the estimated remaining useful life of the individual vehicles.

In order to determine the allocation of the Municipality's infrastructure by condition category (good, fair, poor), the following benchmarks were utilized.

Condition assessment benchmarks

Infrastructure components	Basis of Assessment	Good	Fair	Poor
Roads	Condition rating	Greater than 6.00	4.00 to 6.00	Less than 4.00
Water and wastewater mains	Remaining useful life	Greater than 50%	10% to 50%	Less than 10%
Bridges and large culverts	Bridge condition index	Greater than 70	60 to 70	Less than 60
Facilities	Facility condition index	Less than 5%	5% to 10%	More than 10%
Vehicles	Remaining useful life	Greater than 50%	10% to 50%	Less than 10%

Details of the condition assessments for individual infrastructure components can be found in the infrastructure profiles in **Appendices A to F**.

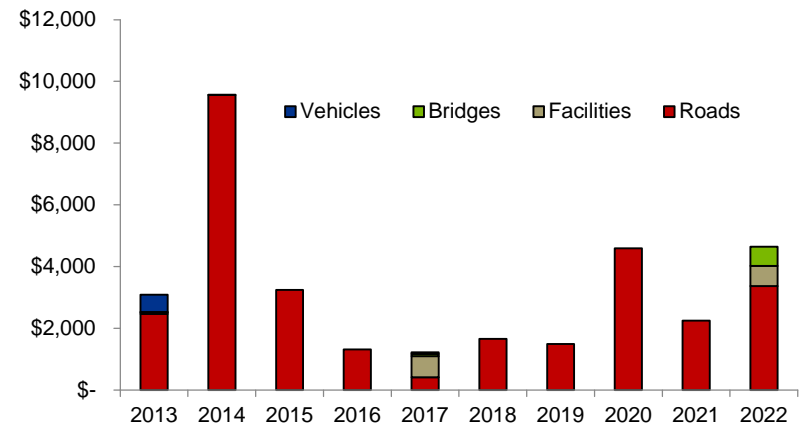
The results of the condition assessment indicate that the majority of the Municipality's linear infrastructure (roads, water and wastewater mains) are in good condition, which reflects the relative recentness of the Municipality's water and wastewater systems (1983). However, non-linear assets (buildings and vehicles), have a significantly higher portion classified as fair or poor, indicating the need for the Municipality to invest in these assets.

Condition assessment results by infrastructure component

Infrastructure	Condition Assessment		
	Good	Fair	Poor
Roads	61%	35%	4%
Water mains	100%	–	–
Wastewater mains	100%	–	–
Bridges and culverts	100%	–	–
Buildings	56%	16%	28%
Vehicles	36%	16%	48%

Notwithstanding its overall condition, the sheer size of the Municipality's road network translates into a significant investment requirement over the next ten years, estimated to be \$30.3 million. When other asset categories are included, the Municipality's total identified infrastructure requirement over the next ten years is estimated to be \$33.1 million.

Projected future infrastructure investment requirements (in millions)



On a go-forward basis, the following policies will govern the updating and verification of the condition assessment:

- Condition assessments for bridges will be conducted every two years in accordance with Provincial regulations, with the asset management plan updated accordingly
- Condition assessments for water and wastewater mains will be assessed every five years through the use of camera inspections
- Condition assessments for facilities will be assessed through an engineering/architectural inspection of the facilities every five years
- Condition assessments for other assets will be based on the percentage of remaining useful life in the absence of a third-party assessment of the assets. On an annual basis, the Town will review the useful lives and condition assessment criteria (good, fair, poor based on percentage of remaining life) and will adjust the asset management plan accordingly



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Asset Management Planning
for the Municipality of Central Manitoulin

Chapter III Desired Levels of Service



The Municipality's asset management strategy is intended to maintain its infrastructure at a certain capacity and in doing so, allow it to meet its overall objectives with respect to service levels for its residents. Highlighted below are the key performance measures and service level targets for the major components of the Municipality's infrastructure, as well as an assessment of its current performance and the anticipated date for achieving the service level target.

Infrastructure Component	Performance Measure	Targeted Performance	Current Performance	Achievement Date
Roads	Compliance with Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways	Full compliance		2014
Water	Days under boil water advisory	None		2014
	Response time for notices submitted in accordance with subsection 18(1) of SDWA	5 days		2014
	Number of water main breaks per km	0.5		2014
Wastewater	Infiltration rate	10%		2017
Vehicles	Operability	90%		2014
Facilities	Availability (percentage of planned operating hours)	99%		2014
	Compliance with Accessibility for Ontarians with Disability Act and Integrated Accessibility Standards	Full compliance		As per legislation

It is anticipated that the Municipality will monitor and report on its performance annually.

It is also important to recognize that in certain instances, a deviation from the Municipality's targeted service level may be the result of uncontrollable and unforeseen factors and any evaluation of the Municipality's performance should differentiate between controllable and uncontrollable events. For example, the availability of facilities (as a percentage of planned operating hours) could be impacted by weather conditions or power disruptions that may result in the closure of facilities but which are not caused by the Municipality or otherwise controllable. Absent some form of compensating strategy (such as standby power generators), these events may cause the Municipality to deviate from its targeted service levels.

From time to time, new legislation or regulations will be enacted that change minimum performance requirements for municipal infrastructure and by extension the performance measures outlined in the Municipality's asset management plan. At the present time, three major items of legislation and regulation have been identified as having the potential to impact on the Municipality's desired service levels and asset management plan:

- The *Accessibility for Ontarians with Disability Act* and the accompanying *Integration Accessibility Standards* may require the Municipality to alter components of its infrastructure to ensure accessibility for individuals with disabilities. The timeframe for compliance with the Act depends on both the nature of the requirement and the size of the municipality, with smaller communities generally provided with an extended period for compliance as compared to the Province or larger municipalities.
- The Province of Ontario has recently enacted revisions to *Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways*. While the majority of these changes deal with winter maintenance activities (which are not included in the scope of the asset management plan), revisions have been made to inspection requirements for certain components of a municipal road network, which will impact on the Municipality's asset management activities in the future.
- It is anticipated that the Province of Ontario will introduce new legislation relating to wastewater treatment activities that are expected to increase the minimum performance standards, which may in turn require the Municipality to amend its existing performance measurement targets and/or introduce new targets.

On an annual basis, the Municipality will evaluate the impact of enacted legislation or regulation on its desired levels of service and will adjust its performance measures accordingly.



cutting through complexity



**Asset Management Planning
for the Municipality of Central Manitoulin**

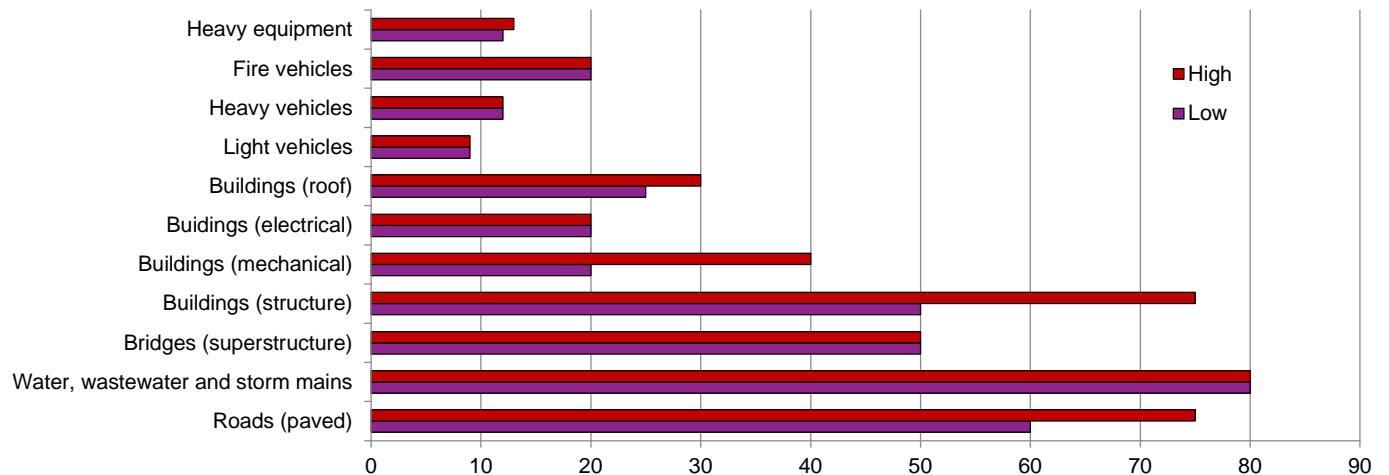
Chapter IV Asset Management Strategy



For each significant component of the Municipality's infrastructure, asset management strategies have been developed that outline:

1. The expected life cycle period for each asset, which defines the period that the Municipality will be required to maintain its infrastructure and secure the necessary financing for maintenance and replacement activities. As noted below, there is considerable variability in the estimated life cycle periods of the Municipality's infrastructure.

Life cycles for municipal infrastructure (in years)



2. The extent to which asset management activities can be integrated with other assets, most commonly the integration of above ground and below ground infrastructure (roads, water, wastewater and storm sewer). The integration of different infrastructure components is a critical element of the Municipality's asset management plan given the staggering of the end of useful life for major assets.
3. Criteria and strategies for the replacement and rehabilitation of the assets.
4. Consequences of not undertaking the necessary asset management activities, particularly the impact on useful lives and overall costs.
5. The determination of priorities when considering integrated assets (e.g. roads and pipes).

Asset management strategies for each component are presented on the following pages.

<p>Anticipated asset life cycle</p>	<p>The life cycle of newly constructed pavement systems are dependent on several factors including the pavement design, material and construction quality, traffic volume, traffic loading, and environmental conditions. The service life can be approximated by the category of road: 60 years for pavement with curb, 60 years for pavement with open ditch, and 10 years for surface treatments.</p>
<p>Integration opportunities</p>	<p>Various other elements may be considered as integrated with paved roads. These include buried assets in the corridor: water sewers, storm sewers, hydro, telephone, natural gas, and cable. Other possible affected elements include traffic signals, street lighting, and sidewalks.</p>
<p>Rehabilitation and replacement criteria</p>	<p>To assess paved roads the Pavement Condition Index (PCI) is used. PCI is a numerical index between 0 and 10 and is based on a visual survey conducted, where 10 represents a new pavement in excellent condition and 0 an impassible pavement. If the PCI ranks at 5, resurfacing should be considered, if PCI ranges from 3 to 5, rehabilitation should be considered. In the case that the PCI falls below 3, reconstruction is a more effective option.</p>
<p>Rehabilitation and replacement strategies</p>	<p>Several different rehabilitation strategies can be implemented. The selection of the strategy is dependent on the following criteria: PCI index, road classification (arterial, collector, local), urban or rural, ditched or curbed, benefit/cost ratio. These strategies include:</p> <ul style="list-style-type: none"> • Total reconstruction of pavement with 80mm to 120mm of hot mix asphalt (HMA) • Mill and resurface pavement with 50mm to 75mm of HMA • Strip and resurface pavement with 50mm to 75mm of HMA • Pulverize with underlying granular and surface with 50mm to 75mm of HMA • Mill and resurface patches of pavement with 50mm of HMA • Routing and crack sealing pavements
<p>Life cycle consequences</p>	<p>Failure to fund timely pavement rehabilitation will result in a reduction in the pavement PCI. Pavement PCI's below 5 result in exponential increases in pavement rehabilitation costs. It also increases significantly road maintenance costs. Pavements identified by a PCI below 3 typically reflect decreases in level of service and increasing associated degrees of risk and liability.</p>
<p>Integrated asset priorities</p>	<p>The schedule of pavement rehabilitation is often planned in conjunction with underground utility rehabilitation works. Most commonly it is the rehabilitation of pavement systems that prompts the replacement of underground sewer and water services in the infrastructure is also in deteriorating condition and approaching its useful service life. The incorporation of other infrastructure rehabilitation may be done alongside Engineering & Public Works Department internally or with natural gas, hydro, and telephone utilities externally.</p>

<p><i>Anticipated asset life cycle</i></p>	<p>The life cycle of newly placed gravel road systems are dependent on several factors including the material and construction quality, design, traffic volume, traffic loading, and environmental conditions. The service life can be approximated by the category of road: 60 years for earth with open ditch and 75 years for gravel with open ditch. Sufficient maintenance provided during the service life will help preserve conditions using such strategies as machine grading, ditching and brushing, and granular top up.</p>
<p><i>Integration opportunities</i></p>	<p>Various other elements may be considered as integrated with gravel roads. These include buried assets in the utility corridor: water sewers, storm sewers, hydro, telephone, natural gas, and cable.</p>
<p><i>Rehabilitation and replacement criteria</i></p>	<p>To assess gravel roads the Gravel Condition Index (GCI) is used. GCI is a numerical index between 0 and 100 and is based on a visual survey conducted, where 100 represents a newly constructed road in excellent condition and 0 an impassible roadway. If the GCI ranges from 3 to 5, rehabilitation should be considered. In the case that the GCI falls below 3, reconstruction is a more effective option.</p>
<p><i>Rehabilitation and replacement strategies</i></p>	<p>Several different rehabilitation strategies can be implemented. The selection of the strategy is dependent on the following criteria: GCI index, road classification (collector, local), urban or rural, benefit/cost ratio. In a rehabilitation scenario, the top 50 to 100 mm of gravel type “A” would be replaced. In the case of total reconstruction the work would include the replacement of the granular road base and the granular surface.</p>
<p><i>Life cycle consequences</i></p>	<p>The effects of gravel road rehabilitation that is insufficiently funded are reflected in the GCI index which as a result will typically fall below 6. The poor quality of the roadway will be reflected in rising reconstruction and maintenance costs. Roads which are identified by a GCI of 3 or lower typically show signs of a poor level of service increasing the associated degrees of risk and liability.</p>
<p><i>Integrated asset priorities</i></p>	<p>The schedule of road rehabilitation is often planned in conjunction with underground utility rehabilitation works. Most commonly it is the rehabilitation of gravel roads that prompts the replacement of underground utilities and sewer and water services if those services are deteriorating and approaching their useful service life.</p>

<p><i>Anticipated asset life cycle</i></p>	<p>The life cycle ranges from 30 to 100 years. Examining individual elements, the expected service life of a water plant or pump station varies from 30 to 50 years. Valve replacement typically occurs every 30 to 50 years. Similarly, the hydrant life cycle is predicted as 40 years and chambers as 50 years. For watermains the life cycle can be approximated between 50 and 100 years and 75 years for water storage. These values hold true under the assumption that the elements are properly maintained throughout their service lives.</p>
<p><i>Integration opportunities</i></p>	<p>The replacement of these components may either be implemented as part of other construction work or may be conducted as a standalone project. The replacement may be incorporated into resurfacing and road reconstruction work which could include the integration of other utilities (wastewater, telephone, hydro, cable, natural gas, etc). In the case that full road replacement is not intended, standalone replacement of watermains can be carried out using trench cut and repair.</p>
<p><i>Rehabilitation and replacement criteria</i></p>	<p>Several criteria used to evaluate and prioritize the watermain replacement schedules include: age, break history of the pipe, material type, size, surrounding soil conditions, pressure related issues, and hydrant spacing. In addition to these criteria other factors, such as the intent of future road rehabilitation, will modify the priority of the replacement schedule accordingly. Available historical data, which includes but is not limited to pipe failures and pipe break history, is used to aid in the replacement criteria. When a continued increase in maintenance costs reaches an uneconomical value, the replacement of the pipe is justified.</p>
<p><i>Rehabilitation and replacement strategies</i></p>	<p>The rehabilitation strategy is dependent on the current state of the pipe. It is difficult to assess the state of deterioration in buried services, as such, high pressure cleaning and videotaping of watermains may be instituted. Several different rehabilitation approaches can be taken and include full replacement, cleaning and relining, and potential pipe bursting. Cathodic protection, when used in conjunction with these strategies, prolongs the service life. The strategy is chosen based primarily on the available data including the age, size, material type, break history, and hydraulic requirements.</p>
<p><i>Life cycle consequences</i></p>	<p>The repercussions of unexpected failure will be disastrous. Due to unaccounted circumstances and unpredictable events, it is possible that some pipe materials with an expect service life of 100 years will require replacement earlier than expected, after only 30 years. In contrast, pipe materials with an expected life of 100 years may have the service life extended by an additional 50 years, with timely maintenance and rehabilitation.</p>
<p><i>Integrated asset priorities</i></p>	<p>Replacement of deteriorating watermains is carried out based on the associated level of risk. The sequence in which rehabilitation or replacement is carried out is reliant on the priority of the watermain and the impact of disruption to service. High priority watermains include those where fire protection, water quality, and service disruption will results in water loss and collateral damage. Typically the integration of road rehabilitation with watermain replacement will increase the priority of the project. The project may also incorporate utilities such as wastewater, hydro, telephone, cable and gas.</p>

<p><i>Anticipated asset life cycle</i></p>	<p>The life cycle ranges from 15 to 100 years. Wastewater plants and sewage pump stations vary from 30 to 50 years. Examining individual elements, the expected service life of wastewater plant equipment, pumps, blowers, and SCADA systems ranges from 15 to 50 years. A manhole life cycle is predicted to be between 30 to 75 years and wastewater trunks between 50 to 100 years. These values hold true under the assumption that the elements are properly maintained throughout their service lives.</p>
<p><i>Integration opportunities</i></p>	<p>The replacement of these components may either be implemented as part of other construction work or may be conducted as a standalone project. The replacement may be incorporated into resurfacing and road reconstruction work which could include the integration of other utilities (wastewater, telephone, hydro, cable, natural gas, etc). In the case that full road replacement is not intended, standalone replacement of sanitary trunk can be carried out using trench cut and repair.</p>
<p><i>Rehabilitation and replacement criteria</i></p>	<p>The assessment of the replacement schedule is determined primarily through conducting a CCTV inspection. The results of the inspection will be evaluated to estimate the degree of deterioration of the infrastructure. Included in the assessment are other criteria such as the material type, visible local collapses, upsizing requirements, and synchronization with roads rehabilitation programs.</p>
<p><i>Rehabilitation and replacement strategies</i></p>	<p>The rehabilitation strategy is dependent on the assessed condition rating of the infrastructure. The optimal rehabilitation method is determined by assigning and examining the condition rating of the pipe. Most commonly the selected strategy is replacement of collapsing and deteriorated pipe. For localized damage, other practices may be instituted which include: spot repair, joint sealing, and Cured in Place Pipe (CIPP).</p>
<p><i>Life cycle consequences</i></p>	<p>The process of degradation in sanitary sewers is similar to that of storm sewers. The repercussions of failure in sanitary sewers are considerably more substantial. Structural deterioration may lead to infiltration of ground water into the system which results in an increased volume of sewage directed to waste water treatment plants. These plants may not be designed to meet the growing demand result in increase in waste water flow. Infiltration of ground water can also result in the deposition of sediment and debris, significantly reducing the flow capacity for waste water. Continued maintenance and rehabilitation is essential for the performance and reliability of any type of buried infrastructure.</p>
<p><i>Integrated asset priorities</i></p>	<p>Replacement of deteriorating sanitary sewers is carried out based on the assessed condition. In the event that replacement is selected as the rehabilitation strategy, the project may expand to include other assets such as sidewalks, road trench cuts, or full pavement. Other utilities may also become included in the scope of work: hydro, telephone, cable, and natural gas. Typically the integration of road rehabilitation will increase the priority of the project.</p>

<p><i>Anticipated asset life cycle</i></p>	<p>A manhole life cycle is predicted to be between 30 to 75 years and stormwater trunks to be 50 to 100 years. These values hold true under the assumption that the elements are properly maintained throughout their service lives. A longterm maintenance plan is also necessary for SWM ponds and treatment structures as part of ongoing operational finances, in order to extend the structure replacement to between 30 to 75 years.</p>
<p><i>Integration opportunities</i></p>	<p>The replacement may be incorporated into resurfacing and road reconstruction work which could include the integration of other utilities (wastewater, telephone, hydro, cable, natural gas, etc). In the case that full road replacement is not intended, standalone replacement of sanitary trunk can be carried out using trench cut and repair.</p>
<p><i>Rehabilitation and replacement criteria</i></p>	<p>The development of the replacement schedule is determined primarily through conducting a CCTV inspection. The results of the inspection will be evaluated to estimate the degree of deterioration of the infrastructure. Included in the assessment are other criteria such as the material type, visible local collapses, upsizing requirements, and synchronization with roads rehabilitation programs. This investigation should be carried out every 20 years, rotating through the storm sewer systems, or when required, to examine system problems/failures. Additional stresses have been imposed on storm sewer systems with climate change and the increasing frequency and intensity of storms. Storm sewer systems are also strained and forced to expand with new land development.</p>
<p><i>Rehabilitation and replacement strategies</i></p>	<p>The rehabilitation strategy is dependent on the assessed condition rating of the infrastructure. The optimal rehabilitation method is determined upon assigning and examining the condition rating of the pipe. Most commonly the selected strategy is replacement of collapsing and deteriorated pipe.</p>
<p><i>Life cycle consequences</i></p>	<p>The process of degradation in storm sewers is similar to that of sanitary sewers however the repercussions of failure in storm sewers are considerably less substantial. Structural deterioration may lead to infiltration of ground water resulting in the deposition of sediment and debris, significantly reducing the flow of water. Continued maintenance and rehabilitation is essential for the durability of any type of buried infrastructure.</p>
<p><i>Integrated asset priorities</i></p>	<p>Replacement of deteriorating storm sewers is carried out based on the assessed condition. In the event that replacement is selected as the rehabilitation strategy, the project may expand to include other assets such as sidewalks, curb/gutter, road trench cuts, or full pavement. Other utilities may also become included in the scope of work: hydro, telephone, cable, and natural gas. Typically the integration of road rehabilitation will increase the priority of the project.</p>

<p><i>Anticipated asset life cycle</i></p>	<p>The life cycle of bridges and culverts is considerably variable and dependent on construction methodology and materials, traffic loading, traffic volume, and environmental exposure conditions (temperatures, chloride concentrations, etc). Bridges and concrete culverts constructed after 2000 have an expected life cycle of 75 years, whereas those constructed pre 2000 have an expected life of 50 years. The approximated service life of steel corrugated culverts is 40 years.</p>
<p><i>Integration opportunities</i></p>	<p>Typically it is not integrated with the other work other than potential road widening or resurfacing projects.</p>
<p><i>Rehabilitation and replacement criteria</i></p>	<p>The ranking of bridge and culvert work is based on several select criteria: safety, level of service, traffic volume and loading, and preservation of infrastructure. To assess the condition of the structures bi-annual visual inspections are conducted and if deemed necessary detailed bridge condition surveys are completed to better evaluate present conditions. In the inspections, bridge components are assessed individually recording the severity and degree of deterioration and the overall condition. Each bridge is assigned a Bridge Condition Index value between 100 and 0 where a value of 100 indicates excellent conditions and a value of 0 indicates poor deteriorating conditions.</p>
<p><i>Rehabilitation and replacement strategies</i></p>	<p>The specification of the bridge or culvert rehabilitation strategy is reliant on the structure's age, data and observations acquired through inspections and condition surveys, and the estimated remaining service life. The following strategies should be implemented at the specified age: at 15 years the asphalt deck should be resurfaced and at 30 years the concrete deck should be patched, waterproofed and the joints replaced; at 50 years replace entire concrete deck.</p>
<p><i>Life cycle consequences</i></p>	<p>The reduction of bridge and culvert service life endangers user safety and results in a decrease of level of service.</p>
<p><i>Integrated asset priorities</i></p>	<p>Typically it is not integrated with the other work other than potential road widening or resurfacing projects.</p>

<p><i>Anticipated asset life cycle.</i></p>	<p>The Life Cycle ranges from 15 to 50 years. Examining individual elements, the expected service life of the roof system varies from 25 to 30 years. Hot boiler or carpeting replacement typically occurs every 15 years. Similarly, the building superstructure life cycle is predicted as 50 or more years. These values hold true under the assumption that the elements are properly maintained throughout their service lives.</p>
<p><i>Integration opportunities</i></p>	<p>Assets are appraised separately. The projects however are assembled by asset to make use of the “economics of scale” principle. Special attention is given to ensure that the disruption of asset operations is minimized over its service life.</p>
<p><i>Rehabilitation and replacement criteria</i></p>	<p>To assess facilities the Facility Condition Index (FCI) is used. FCI is a ratio of total deferred maintenance, costs/ current replacement value of the facility. The index can be used to assess either individual assets or grouped assets. The FCI is currently accepted throughout North America.</p>
<p><i>Rehabilitation and replacement strategies</i></p>	<p>The replacement schedule will be dictated by the actual asset conditions at the time, the stage in its life cycle, and the FCI asset condition summaries. Replacement may also be undertaken to meet any changes in safety, industry or technological specifications and standards. The facility must also be maintained to meet the requirements of the Accessibility for Ontarians with Disabilities Act (AODA) and upgrade ingress/egress points as necessary. Critical components which should be given special attention with annual inspections include facility roof and HVAC systems. Any scheduled improvements should take into consideration the institution of economical energy efficient systems and equipment.</p>
<p><i>Life cycle consequences</i></p>	<p>Degradation of the building and its components are noticed, as well as increases in operational costs due to inefficiencies, health and safety concerns, and depreciation of Administration assets.</p>
<p><i>Integrated asset priorities</i></p>	<p>The schedule of replacement is dependent on the facility’s stage in its life cycle, the actual condition at the time, and the convenience of performing the replacement without disturbing the operations.</p>

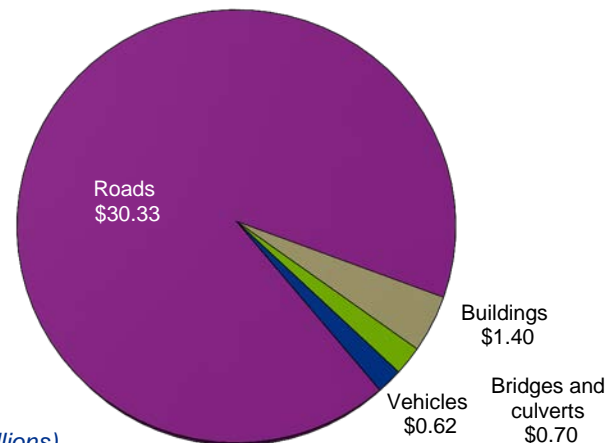
<i>Anticipated asset life cycle.</i>	Service life is dependent on the type or vehicle/equipment and service area. The expected life cycle of cars and pickup trucks is 8-10 years, 10 years for duty trucks, 12 years for ice resurfaces, 10-15 years for front loaders, backhoes and tractors, 20 years for graders, and 20-25 years for fire vehicles.
<i>Integration opportunities</i>	Integrated with operation adjustments, modifications in service levels, meeting environmental regulations, technological upgrades and financial plans.
<i>Rehabilitation and replacement criteria</i>	Replacement of fleet will be dictated by the results of lifecycle cost analysis considering the following variables: repairs, insurance, fuel, depreciation, and downtime costs.
<i>Rehabilitation and replacement strategies</i>	In the case that vehicular repairs exceed 40% of replacement costs, replacement is the optimal strategy. Other strategies include leasing opportunities, refurbishing, seasonal rentals, or tendering services to a third party.
<i>Life cycle consequences</i>	Vehicles that are not maintained, or as vehicles reach the end of the service lives the efficiency of vehicles decrease, seeing an increase in cost per km. In the event of service interruption, work force costs are increased due to extended work schedules and overall loss of production.
<i>Integrated asset priorities</i>	Not applicable.

For asset management planning purposes, the financial requirement associated with the Municipality's infrastructure requirements can be divided into two categories:

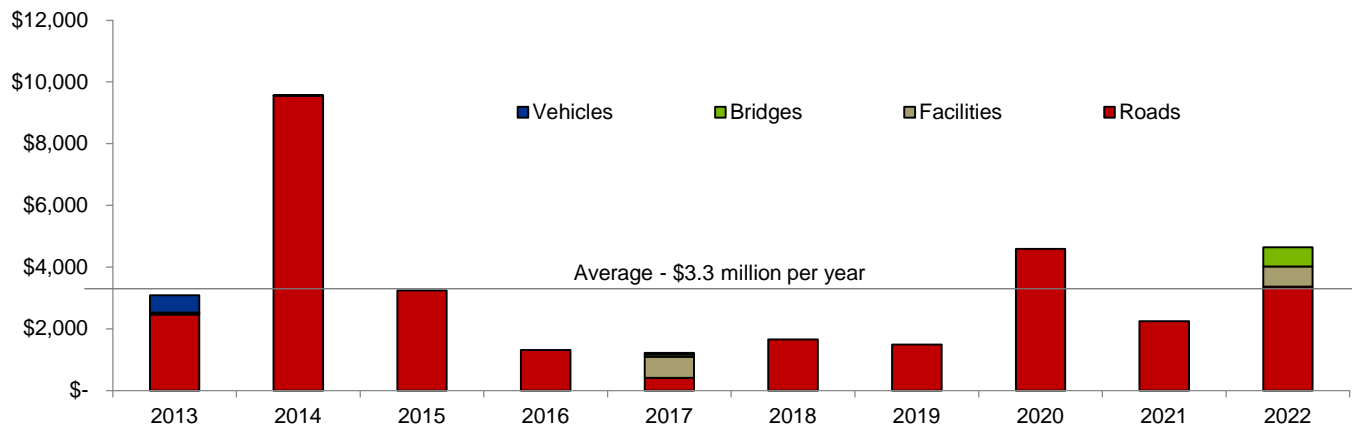
- Immediate infrastructure investment needs.** Based on the results of the condition assessment, an indication as to the types of asset management activities required over the next ten years, and their associated costs, has been developed. Overall, it is estimated that the Municipality would need to invest \$33.1 million in its infrastructure, the majority of which (\$30.3 million or 92%) relates to its road network.

On average, the Municipality's immediate infrastructure investment needs amount to approximately \$3.3 million per year, recognizing that approximately \$3.1 million should be incurred immediately with an additional \$9.6 million to be incurred in 2014.

Immediate infrastructure needs (in millions)



Projected future infrastructure investment requirements by year (in millions)



- **Sustainable life cycle requirements.** In addition to its immediate needs, the Municipality will also be required to fund the cost associated with all of its life cycle activities over the useful life of its infrastructure. As the Municipality has traditionally relied on grants to fund a major portion of its infrastructure, its historical levels of capital investment have fluctuated significantly. However, if the Municipality chose to fund its life cycle requirements evenly over the life of its assets, it would establish a regular and sustainable stream of funding for ongoing capital asset management that would be equal to either:
 - The total life cycle cost of the asset divided by its useful life. This approach is appropriate for linear assets that have significant life cycle requirements throughout their useful life.
 - The total replacement cost of the asset divided by its useful life, which is appropriate for assets with fewer life cycle requirements and where straight replacement of the asset is the more likely scenario.

Based on this approach, we have calculated the average annual contribution required to ensure a sustainable stream of funding for the Municipality's assets to be in the order of \$9.7 million.

Estimated sustainable life cycle requirement

Asset Component	Basis of Determination	Total Costs Over Useful Life	Estimated Useful Life	Annual Requirement
Roads	Life cycle	\$444,432,587	60 years	\$7,407,210
Water distribution network	Life cycle	\$59,397,741	75 years	\$791,970
Wastewater collection network	Life cycle	\$74,677,790	80 years	\$933,472
Bridges and culverts	Replacement	\$2,683,908	50 years	\$53,678
Buildings and facilities	Replacement	\$19,120,000	50 years	\$382,400
Vehicles and equipment	Replacement	\$3,530,000	20 years	\$176,500
Total		\$603,842,026		\$9,745,230

The overall infrastructure financing requirement for the Municipality, assuming that all life cycle activities are undertaken at the recommended intervals and that the Municipality funds overall life cycle and replacement costs evenly over the assets lives, is calculated to be in the order of \$12.5 million, as follows:

- Immediate infrastructure investment needs \$3.3 million
- Sustainable life cycle requirements \$9.7 million

In comparison, the Municipality budgeted a total of \$2.4 million in capital expenditures for 2013. Given the magnitude of the estimated infrastructure financing requirement, it is evident that ***the Municipality is unable to fully meet its ongoing infrastructure requirements without significant levels of support from senior levels of government*** on an ongoing (i.e. annual) basis. As such, the Municipality will be required to prioritize its capital investments and the application of its available funds.

For asset management purposes, the investment requirements associated with the Municipality's infrastructure are divided into three main categories, as follows:

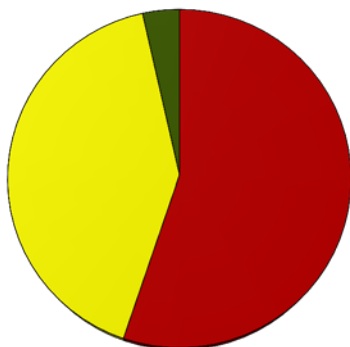
Category	Description
Priority 1	<ul style="list-style-type: none"> Assets with an investment requirement greater than \$50,000 within the next five years, based on condition or useful life Co-located assets that may not require investment within the next five years but should be replaced as part of the integrated project. For example, sewer and water pipes underneath a road may not be at the end of their useful life but could be replaced as part of a road reconstruction project if they are approaching the end of their useful life before the next road reconstruction. Assets that may qualify for specific grants, even if an immediate investment requirement has not been identified within the next five years Infrastructure investments required as a result of changing legislation, public health or safety concerns or strategic purposes (e.g. economic development)
Priority 2	<ul style="list-style-type: none"> Assets with an investment requirement within the next six to ten years greater than \$50,000 Assets that would otherwise be classed as Priority 1 but are considered to have reduced importance due to low utilization by the community (e.g. roads with low traffic volumes), compensating strategies in the event of failure (e.g. detours, reduced speed limits or load limits or limited impacts on public health or safety in the event of a failure)
Priority 3	<ul style="list-style-type: none"> Assets with no investment requirements greater than \$50,000 identified within the next ten years Assets to be discontinued or abandoned Assets that would otherwise be classified as Priority 1 or 2 but are considered to have reduced importance

As part of its ongoing asset management activities, the Municipality will review its prioritization criteria and asset rankings and, if considered necessary, make appropriate revisions.

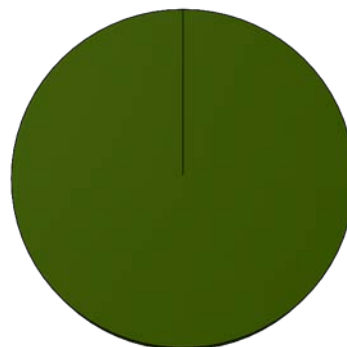
A detailed summary of infrastructure priorities by individual assets is included as **Appendix I**.

Based on these criteria, the total infrastructure investment requirement for Priority 1 infrastructure (excluding sustainable life cycle requirements) is \$18.9 million, or approximately 56% of the identified life cycle requirement over the next ten years. The estimated ten year infrastructure requirement by priority is outlined below.

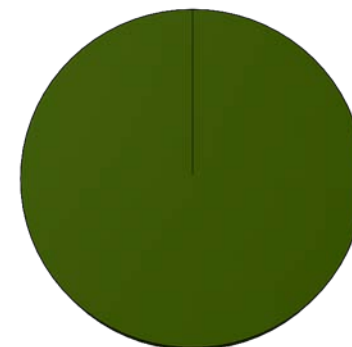
Roads



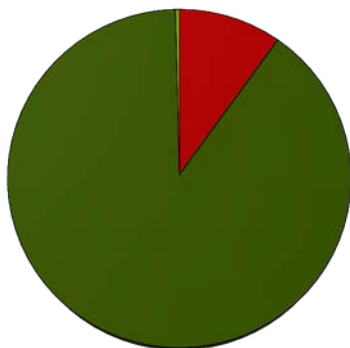
Water



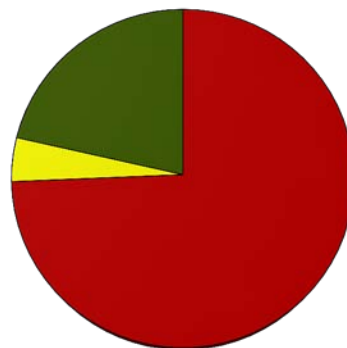
Wastewater



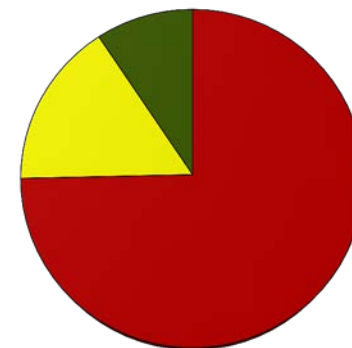
Bridges



Buildings



Fleet





cutting through complexity



Asset Management Planning
for the Municipality of Central Manitoulin

Chapter V Financing Strategy



The development of the Municipality's financing strategy for its asset management plan reflects the guidance outlined by the Province of Ontario in *Building Together – Guide for Municipal Asset Management Plans*. Specifically, the development of the financing strategy (and in particular the extent of the Municipality's financing shortfall) is based on the following parameters:

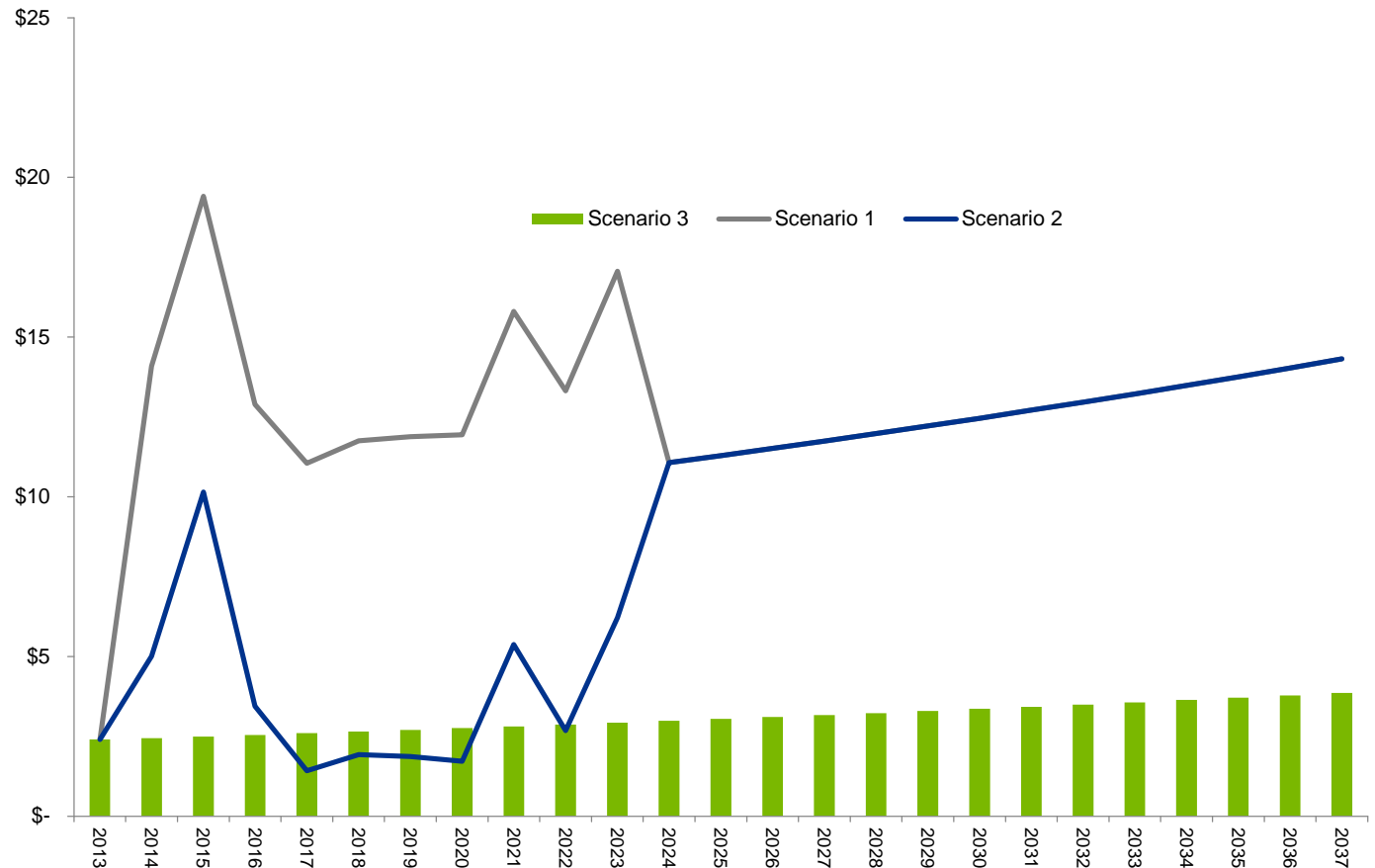
- Presents annual revenues and expenditures for the planning period (25 years), as well as comparative information;
- Does not consider grants from senior governments to be a confirmed source of revenue unless an agreement has been executed. Accordingly, only Federal Gas Tax and the Municipality's allocation for capacity funding under the Municipal Infrastructure Investment Initiative have been included in the projections; and
- Identifies the potential funding shortfall and how it will be managed.

In developing the financial strategy, three alternative scenarios were considered:

- **Scenario 1** – Representing the base case scenario, this scenario reflects the assumption that all identified asset management requirements (immediate and long-term contributions) will be incurred by the Municipality. This represents the worst case scenario as it involves the highest level of capital financing requirement and ultimately is not practical due to the increase in municipal revenues necessary to support the required level of capital investment.
- **Scenario 2** – Under this scenario, the Municipality's capital expenditures are projected to be as follows:
 - During the first 10 years of the projection period, the Municipality will make capital investments based on the identified priority infrastructure investment requirements (i.e. \$3.3 million per year).
 - During the remainder of the projection period, the Municipality will make capital investments equal to the amount of the sustainable life cycle contribution requirements (i.e. \$9.7 million per year).
- **Scenario 3** – Under this scenario, it is assumed that the Municipality will continue to make capital investments based on the 2012 level of capital expenditures (i.e. \$2.4 million per year).

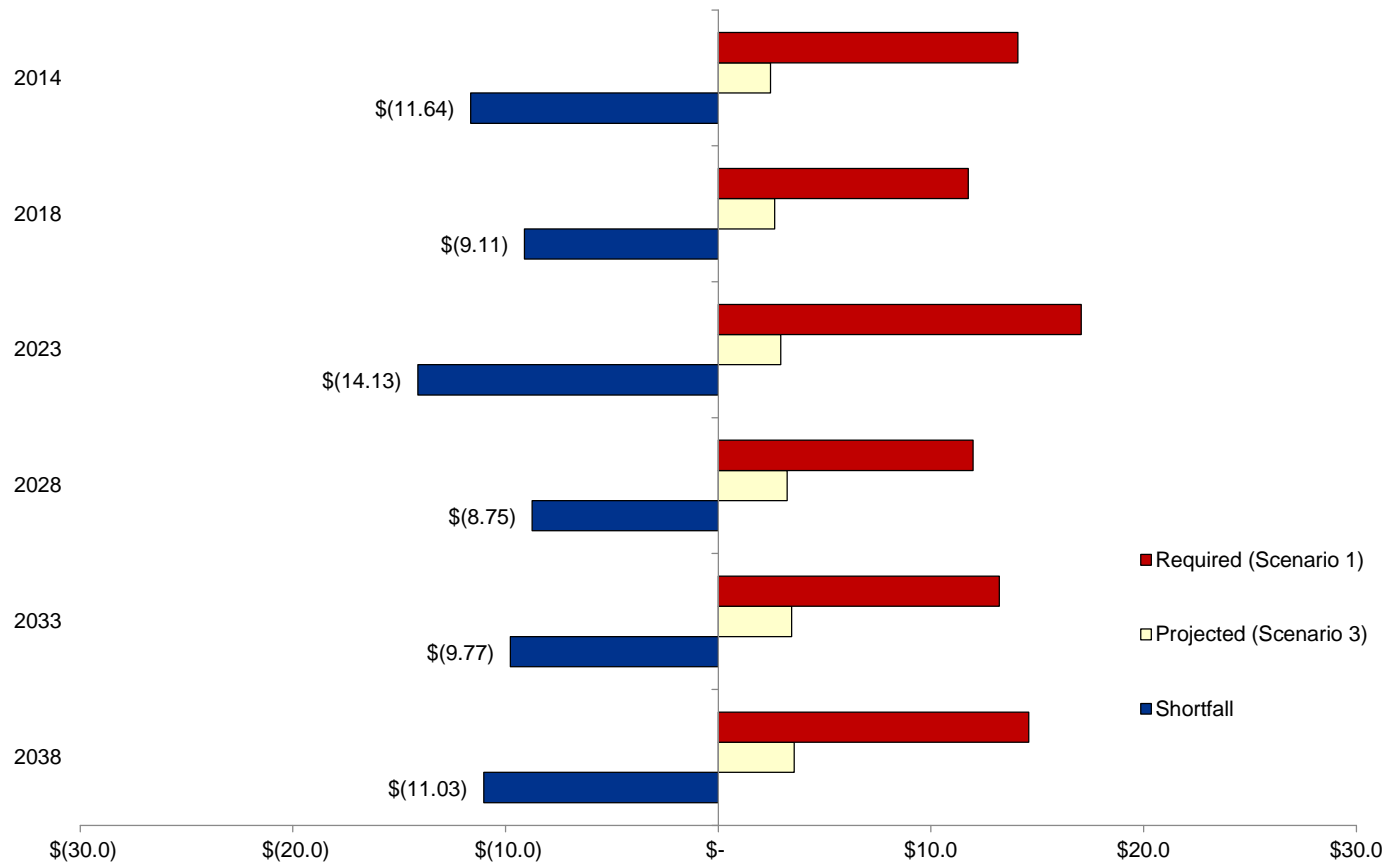
Financial projections developed in support of the asset management plan demonstrate both the magnitude and immediacy of the Municipality's identified capital requirements, with the required level of capital expenditures under Scenarios 1 and 2 significantly higher than the current level. At the same time, the average residential taxes per household is expected to increase accordingly if taxpayers are solely responsible for funding the capital requirements.

Projected capital expenditures (in millions)



At the current level of capital expenditures, the Municipality is expected to continue its existing annual infrastructure deficit as its level of capital expenditures will be insufficient to maintain its infrastructure in its present state, let alone address immediate and short-term infrastructure requirements. As noted below, the Municipality's current annual funding shortfall is expected to range between \$8 million and \$15 million annually.

Calculated annual infrastructure funding shortfalls (in millions)



A suggested five year capital financing policy is included as **Appendix J**.

In order to address the current and future shortfalls in capital funding, the Municipality has identified the following potential courses of action:

- 1. Five year capital levy.** In order to address the immediate and short-term infrastructure requirements, the Municipality is contemplating the introduction of a five year capital levy that would see the total municipal levy increase by 2% per year in order to fund capital expenditures. The proceeds from this capital levy would either be expended during the year, used to finance debt servicing costs for infrastructure related borrowings or placed in a reserve fund until such time as the funds are required (the Municipality adopts a similar approach for Federal Gas Tax, which is sometimes 'banked' until sufficient funds are accumulated to finance capital projects). As noted below, the introduction of a five year capital levy is expected to provide an additional \$400,000 for capital purposes, representing a 16% increase in capital expenditures over the next five years.

Impact of five year, 2% capital levy on taxation and capital spending (in thousands)

Year	Municipal Levy			Capital Expenditures		
	Prior Year's Levy	Capital Levy Increase	Current Year's Levy	Prior Year's Expenditures	New Funding	Current Year's Expenditures
2014	\$3,802	\$76	\$3,878	\$2,445	\$76	\$2,521
2015	\$3,878	\$78	\$3,956	\$2,521	\$78	\$2,599
2016	\$3,956	\$79	\$4,035	\$2,599	\$79	\$2,678
2017	\$4,035	\$81	\$4,116	\$2,678	\$81	\$2,759
2018	\$4,116	\$82	\$4,198	\$2,759	\$82	\$2,841
Average annual increase in municipal levy			2.0%	Increase in capital expenditures		16%

The adoption and annual renewal of a capital levy is subject to the Municipality's annual budget process. In order to assist with establishing the levy, we have included a suggested capital financing policy as Appendix J.

A suggested borrowing policy is included as **Appendix K**.

2. Use of borrowing for infrastructure investments. Historically, the Municipality has relied on borrowings as a means of funding infrastructure investments, with the Municipality currently having outstanding long-term debt in respect of its fire and roads infrastructure. On an ongoing basis, the Municipality may wish to consider the use of debt for additional infrastructure investments, conditional upon the following:

- The infrastructure investment will provide a stream of non-taxation revenues that can be used to fund some or all of the associated debt servicing costs; and/or
- The Municipality requires debt financing to fund its portion of infrastructure projects that are cost shared with senior government; and/or
- The infrastructure investment is unavoidable as a result of regulatory changes or concerns over public health and safety and cannot be funded through other means; and
- The associated debt servicing costs would not jeopardize the Municipality's financial sustainability or result in the Municipality exceeding its annual debt repayment limit.

The use of debt financing is particularly helpful in addressing immediate capital investment requirements as it allows the Municipality to spread the cost of projects over the term of the loan. For example, the amount of capital expenditures that could potentially be financed through the Municipality's proposed capital levy could amount to as much as \$6.1 million, recognizing that future capital expenditures would be limited as the financing is directed towards debt servicing, not infrastructure investments. Alternatively, the Municipality may wish to adopted a phased approach to debt financing, whereby a fixed percentage of capital expenditures would be financed through debentures during the capital levy period.

Potential debt financed through five year capital levy (in thousands)

Year	Capital Levy	10 Year Loan (3.09%)	20 Year Loan (3.90%)	25 Year Loan (4.11%)
2014	\$76	\$645	\$1,042	\$1,173
2015	\$78	\$662	\$1,070	\$1,204
2016	\$79	\$671	\$1,083	\$1,220
2017	\$81	\$688	\$1,111	\$1,251
2018	\$82	\$696	\$1,124	\$1,266
Total	\$1,088	\$3,362	\$5,430	\$6,114

In addition to the issuance of new debt, the Municipality can also redirect funds currently used to service existing debt towards capital expenditures once the debt is repaid. Currently, the Municipality has outstanding loans with annual repayment requirements of approximately \$192,000 annually, with the loans gradually repaid over the next 24 years. By reinvesting these funds in capital or using them to pay for new infrastructure loans (as opposed to reducing the municipal levy upon the repayment of the existing loans), the Municipality can further increase its funding for capital purposes.

3. **Water and wastewater rate increases.** The provision of water and wastewater services is not consistent across the Municipality, with only certain residents receiving water and wastewater services. As noted below, the Municipality currently recovers the full cost of water and wastewater services through user fees and other charges.

Water and wastewater budgeted revenues and expenditures (2013 budget)

	Water	Wastewater	Total
Revenues:			
• User fees	\$168,080	\$152,000	\$320,080
• Grants	\$19,900	–	\$19,900
• Reserve transfers and other revenues	–	\$37,300	\$37,300
Total revenue	\$187,980	\$189,300	\$377,280
Expenses:			
• OCWA contract costs	\$97,000	\$99,000	\$196,000
• Utilities	\$45,000	\$21,000	\$66,000
• Other operating costs and reserve transfers	\$32,580	\$17,800	\$50,380
• Contribution to capital	\$51,750	–	\$51,750
Total expenses	\$226,330	\$137,800	\$364,130
Excess (deficiency) of revenue over expenditure	(\$38,350)	\$51,500	\$13,150

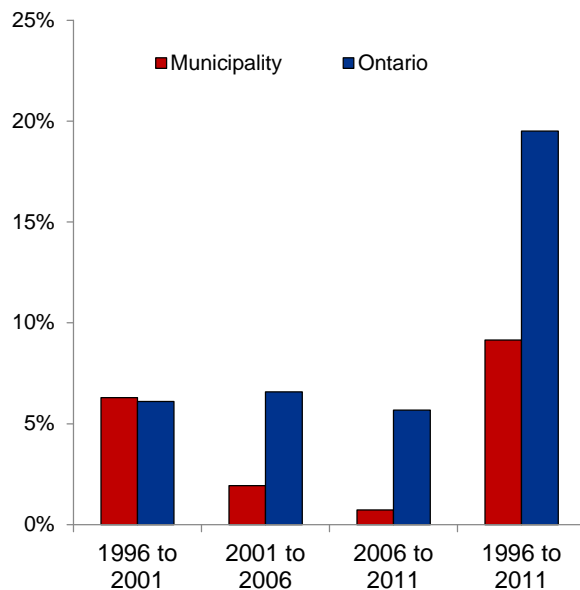
As noted above, the Municipality's current contribution to capital for water and wastewater infrastructure is \$51,750. While the results of the asset management plan have identified that the Municipality's water and wastewater infrastructure is in good condition with no specific capital investment requirements identified over the next ten years, the annual life cycle contribution for water and wastewater infrastructure (excluding facilities) is calculated to be \$791,970 and \$933,472, respectively, both of which are significantly higher than the current annual contributions. Accordingly, future rate setting for water and wastewater services will consider increases specifically intended to fund capital investment requirements so as to ensure fairness in the distribution of water and wastewater capital costs.

Despite the ability of the Municipality to increase the level of financing for infrastructure investments and other asset management activities, the magnitude of the financial requirement associated with its infrastructure precludes the Municipality from addressing its needs without some form of grants. In the absence of capital grants, the Municipality will be required to defer capital expenditures until such time as sufficient funding is available.

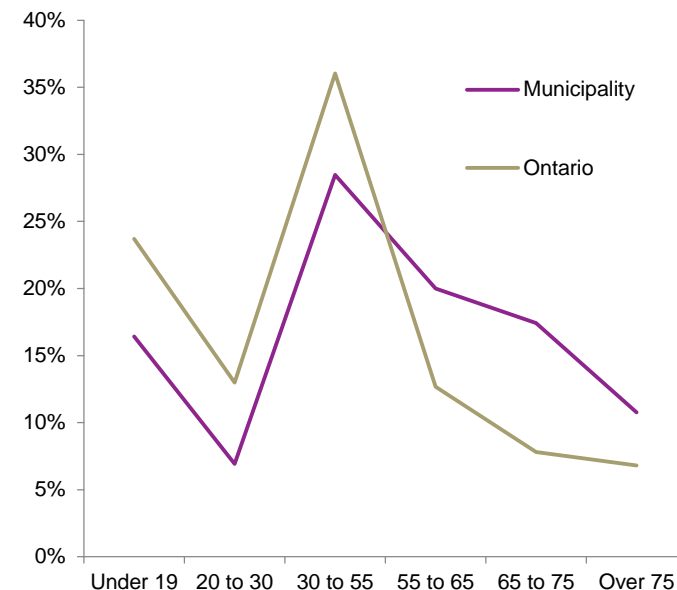
While it is expected that most, if not all, Ontario municipalities will be challenged to meet their financial requirements associated with infrastructure, the Province should give particular attention to the Municipality's limited ability to fund capital investments in comparison to other municipalities, based on the following:

- From 1996 to 2011, **the Municipality's total population has increased by only 9.1%**, compared to a 19.5% increase in the Province's population over the same period.
- At the same time, **the Municipality's population has aged faster than the Provincial average**, with the median age of the Municipality's residents amounting to 53.7 years compared to the Provincial median age of 42.5 years.

Population changes – 1996 to 2011

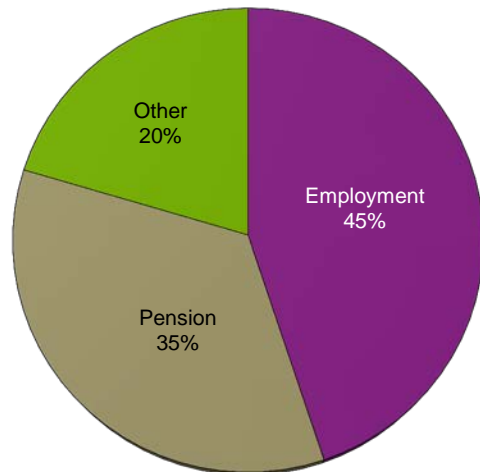


Population distribution by age group (2011)

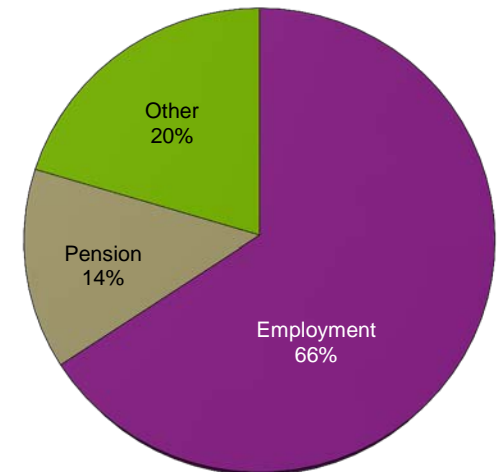


- Residents of the Municipality are more reliant on pension incomes** than the remainder of the Province, limiting their ability to afford ongoing property tax increases. Overall, more than one-third of personal income in the Municipality is generated from pensions, with only 45% of income generated from employment. In comparison, the Provincial averages for pension and employment income are 14% and 66%, respectively. As the Municipality's residents are more reliant on fixed sources of income, they have lesser flexibility and greater challenges from an affordability perspective with respect to the financing of infrastructure needs.

Reported personal income by source – Municipality residents (2009)



Reported personal income by source – Provincial residents (2009)



In addition to the challenges posed by the changing nature of its demographics, the Municipality is facing additional financial pressures from an operational perspective, including:

- The continuing impacts of inflation, including wage settlements and higher benefit costs, which increase the Municipality's operating expenditures
- Announced reductions in government funding programs, including planned reductions in OMPF funding and decreases in Federal Gas Tax funding

In light of its affordability constraints, the Municipality recognizes and appreciates the importance of programs such as the Municipal Infrastructure Investment Initiative and the Small, Rural and Northern Municipal Infrastructure Fund. That said, the current approach to allocating funding to municipalities is extremely problematic from a planning perspective:

- Unlike Federal Gas Tax, which is provided to municipalities as a recurring stream of known funding, the current Provincial infrastructure programs are based on applications with no guarantee of funding success. Accordingly, municipalities are unable to 'bank' Provincial infrastructure funding to finance larger capital projects, use proceeds as a source of funding for borrowing costs incurred in connection with infrastructure investments, or plan beyond the current funding submissions.
- The requirement for municipalities to apply for funding through the completion of expressions of interest can be a challenge, particularly for smaller municipalities with limited resources. In a number of instances, smaller municipalities are required to divert staff from other priorities or incur costs for outside consultants in order to complete the required expressions of interest, with no certainty that they will actually obtain funding.

As a means of maximizing the effectiveness of its capital financing programs, the Municipality requests that the Province consider the following:

- Supplement the current competitive, application based funding process with a committed stream of funding to eligible municipalities, thereby supporting long-term planning for infrastructure needs;
- Review the basis for allocating funding to communities, with increased emphasis placed on smaller communities that are challenged to meet their infrastructure needs due to limited assessment growth, higher than average population decreases and lower than average non-residential assessment, all of which pose challenges from an affordability perspective.
- Reinstating Connecting Link funding, the elimination of which has increased the financial pressures faced on municipalities from an infrastructure perspective.
- Extending the eligibility requirement for funding programs to include other components of municipal infrastructure that are critical to a community's success, including vehicles, recreational and cultural assets.



cutting through complexity



**Asset Management Planning
for the Municipality of Central Manitoulin**

Chapter VI Asset Management Plan Cross Reference



In this section of the report, the Municipality's asset management plan has been cross-referenced to the requirements outlined in *Building Together – Guide for Municipal Asset Management Plans* as a means of demonstrating that the Municipality has met the Province's expectations for asset management plans submitted under the Municipal Infrastructure Investment Initiative.

Required Section	Content	Location in Asset Management Plan
Executive summary		Pages 2 to 5
Introduction	<ul style="list-style-type: none"> explains how the goals of the municipality are dependent on Infrastructure clarifies the relationship of the asset management plan to municipal planning and financial documents describes to the public the purpose of the asset management plan states which infrastructure assets are included in the plan. Best practice is to develop a plan that covers all infrastructure assets for which the municipality is responsible. At a minimum, plans should cover roads, bridges, water and wastewater systems, and social housing identifies how many years the asset management plan covers and when it will be updated. At a minimum, plans must cover 10 years and be updated regularly. Best practice is for plans to cover the entire lifecycle of assets describes how the asset management plan was developed — who was involved, what resources were used, any limitations, etc. identifies how the plan will be evaluated and improved through clearly defined actions. Best practice is for actions to be short-term (less than three years) and include a timetable for implementation 	Chapter I Pages 7 to 11
State of local infrastructure	<ul style="list-style-type: none"> asset types (e.g. urban arterial road, rural arterial road, watermains) and quantity/extent (e.g. length in kilometres for linear assets). financial accounting valuation and replacement cost valuation. asset age distribution and asset age as a proportion of expected useful life. asset condition (e.g. proportion of assets in “good,” “fair” and “poor” condition). Asset condition must be assessed according to standard engineering practices. For bridge structures, condition is based on an analysis of bridge inspection reports. discusses how and when information regarding the characteristics, value, and condition of assets will be updated. 	Chapter II Pages 13 to 21 Appendices A to J

Required Section	Content	Location in Asset Management Plan
<i>Desired level of service</i>	<ul style="list-style-type: none"> • defines levels of service through performance measures, targets and timeframes to achieve the targets if they are not already being achieved. • discusses any external trends or issues that may affect expected levels of service or the municipality's ability to meet them • shows current performance relative to the targets set out 	Chapter III Pages 23 and 24
<i>Asset management strategy</i>	<ul style="list-style-type: none"> • non-infrastructure solutions – actions or policies that can lower costs or extend asset life (e.g., better integrated infrastructure planning and land use planning, demand management, insurance, process optimization, managed failures, etc.) • maintenance activities – including regularly scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events • renewal/rehabilitation activities – significant repairs designed to extend the life of the asset. For example, the lining of iron water mains can defer the need for replacement • replacement activities – activities that are expected to occur once an asset has reached the end of its useful life and renewal/ rehabilitation is no longer an option • disposal activities – the activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed by the municipality • expansion activities (if necessary) – planned activities required to extend services to previously unserved areas - or expand services to meet growth demands • discusses procurement methods • includes an overview of the risks associated with the strategy and any actions that will be taken in response. 	Chapter IV Pages 26 to 38 Appendix I
<i>Financial strategy</i>	<ul style="list-style-type: none"> • shows yearly expenditure forecasts broken down by: <ul style="list-style-type: none"> • Non-infrastructure solutions • Maintenance activities • Renewal/rehabilitation activities • Replacement activities • Disposal activities • Expansion activities (if necessary) • provides actual expenditures for these categories for comparison purposes. • gives a breakdown of yearly revenues by confirmed source • discusses key assumptions and alternative scenarios where appropriate. • identifies any funding shortfall relative to financial requirements that cannot be eliminated and discuss the impact of the shortfall and how the impact will be managed. 	Chapter V Pages 40 to 47 Appendices J to N



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Asset Management Planning
for the Municipality of Central Manitoulin

Appendix A Infrastructure Profile Roads



Municipality Of Central Manitoulin
 Asset Management Plan
 Road Management Plan

ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Classification	Replacement Cost per KM	Estimated Replacement Cost	Life Cycle Cost per KM	Estimated Life Cycle Cost
Fire Hall Road	Bush road on road allowance off of Highway 551	Bush road on road allowance off of Highway 551	Carnarvon	0.15	GR	Granular rural	\$ 847,503	\$ 127,125	\$ 1,915,265	\$ 287,290
Perivale Road East ***	From Dawson's Resort	to end	Campbell	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Bastien Road	From Dial Rd.	to end	Sandfield	0.1	GR	Granular rural	\$ 847,503	\$ 84,750	\$ 1,915,265	\$ 191,527
Homestead Road	From Myle'S Sideroad	to end (seasonal maintenance)	Sandfield	1	GR	Granular rural	\$ 847,503	\$ 847,503	\$ 1,915,265	\$ 1,915,265
Limberlost Lane	From Island View Trail	to Limberlost Lane corner	Carnarvon	0.3	GR	Granular rural	\$ 847,503	\$ 254,251	\$ 1,915,265	\$ 574,580
Limberlost Lane	From Maple Row Corner	to Ketchankookem Trail	Carnarvon	0.35	GR	Granular rural	\$ 847,503	\$ 296,626	\$ 1,915,265	\$ 670,343
Limberlost Lane	From the corner	to Will-Oh-Wisp Way	Carnarvon	0.15	GR	Granular rural	\$ 847,503	\$ 127,125	\$ 1,915,265	\$ 287,290
Limberlost Lane	From Will-Oh-Wisp Way	to Maple Row Corner	Carnarvon	0.35	GR	Granular rural	\$ 847,503	\$ 296,626	\$ 1,915,265	\$ 670,343
Pleasantview Terrace	From Island View Trail	to turnaround at the end	Carnarvon	0.3	GR	Granular rural	\$ 847,503	\$ 254,251	\$ 1,915,265	\$ 574,580
Pleasantview Terrace	From Kethancookem Trail	to Island View Trail	Carnarvon	0.13	GR	Granular rural	\$ 847,503	\$ 110,175	\$ 1,915,265	\$ 248,984
Rainbow Trail	From Walnut Lane	to Limberlost Lane	Carnarvon	0.13	GR	Granular rural	\$ 847,503	\$ 110,175	\$ 1,915,265	\$ 248,984
Rainbow Trail	From Will-Oh-Wisp Way	to Walnut Lane	Carnarvon	0.22	GR	Granular rural	\$ 847,503	\$ 186,451	\$ 1,915,265	\$ 421,358
Walnut Lane	From Will-Oh-Wisp Way	to Rainbow Trail	Carnarvon	0.27	GR	Granular rural	\$ 847,503	\$ 228,826	\$ 1,915,265	\$ 517,122
Beaver Road	from 1.0 km W	to Hartley Sideroad	Campbell	1	LCB	Surface treated rural	\$ 996,141	\$ 996,141	\$ 2,377,670	\$ 2,377,670
Beaver Road	from 1.1 km W	to Grimesthorpe Road	Campbell	0.9	LCB	Surface treated rural	\$ 996,141	\$ 896,527	\$ 2,377,670	\$ 2,139,903
Learmont Road ***	from 1.0 km east	to Hartley Sideroad	Carnarvon	0.6	LCB	Surface treated rural	\$ 996,141	\$ 597,685	\$ 2,377,670	\$ 1,426,602
Morrow Road	From Highway 551	to end	Carnarvon	0.4	LCB	Surface treated rural	\$ 996,141	\$ 398,456	\$ 2,377,670	\$ 951,068
Mutchmor Street	From River Street	to Mira St./Highway 551 corner	Carnarvon	0.13	LCB	Surface treated rural	\$ 996,141	\$ 129,498	\$ 2,377,670	\$ 309,097
Nixon Street	From corner of Anglin	to corner of Thome St.	Carnarvon	0.17	LCB	Surface treated rural	\$ 996,141	\$ 169,344	\$ 2,377,670	\$ 404,204
Nixon Street	From Duke	to Highway 542	Carnarvon	0.07	LCB	Surface treated rural	\$ 996,141	\$ 69,730	\$ 2,377,670	\$ 166,437
Nixon Street	From Thorne	to Duke	Carnarvon	0.11	LCB	Surface treated rural	\$ 996,141	\$ 109,576	\$ 2,377,670	\$ 261,544
Yonge Street ***	From Anglin	to Perry St.	Carnarvon	0.21	LCB	Surface treated rural	\$ 996,141	\$ 209,190	\$ 2,377,670	\$ 499,311
Yonge Street *** (2014 SRNMIF)	From Highway 542	to Duke St.	Carnarvon	0.075	LCB	Surface treated rural	\$ 996,141	\$ 74,711	\$ 2,377,670	\$ 178,235
Yonge Street *** (2014 SRNMIF)	From Duke	to Thome St.	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767
Yonge Street *** (2014 SRNMIF)	From Thorne	to Anglin St.	Carnarvon	0.16	LCB	Surface treated rural	\$ 996,141	\$ 159,383	\$ 2,377,670	\$ 380,427
Bay Street	From Margaret	to Perry	Carnarvon	0.2	LCB	Surface treated rural	\$ 996,141	\$ 199,228	\$ 2,377,670	\$ 475,534
Bay Street	From Perry	to Anglin	Carnarvon	0.2	LCB	Surface treated rural	\$ 996,141	\$ 199,228	\$ 2,377,670	\$ 475,534
Beaver Road	from 1.3 km W	to 2.0 km W	Campbell	1	LCB	Surface treated rural	\$ 996,141	\$ 996,141	\$ 2,377,670	\$ 2,377,670
Cedar Crescent	From Highway 551	to McDermid Drive	Carnarvon	0.085	LCB	Surface treated rural	\$ 996,141	\$ 84,672	\$ 2,377,670	\$ 202,102
Government Road	From 2km east	to crossing with Dewar'S Creek	Carnarvon	3	LCB	Surface treated rural	\$ 996,141	\$ 2,988,423	\$ 2,377,670	\$ 7,133,010
Government Road	From Dewar'S Creek crossing point	to Yonge Street	Carnarvon	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Government Road	From Highway 551	to 2km east	Carnarvon	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Government Road	From Young Street Westward	to Tehkummah Townline	Carnarvon	4.5	LCB	Surface treated rural	\$ 996,141	\$ 4,482,635	\$ 2,377,670	\$ 10,699,515
Grimesthorpe Road ***	From Sand Road	to Beaver Road	Campbell	0.5	LCB	Surface treated rural	\$ 996,141	\$ 498,071	\$ 2,377,670	\$ 1,188,835
Ketchankookem Trail	From Hill Road	to Yonge Street	Carnarvon	0.9	LCB	Surface treated rural	\$ 996,141	\$ 896,527	\$ 2,377,670	\$ 2,139,903
Ketchankookem Trail	From Wagg'S Lane	to Oak Lane	Carnarvon	1.1	LCB	Surface treated rural	\$ 996,141	\$ 1,095,755	\$ 2,377,670	\$ 2,615,437
Ketchankookem Trail	From Yonge Street	to Wagg'S Lane	Carnarvon	0.45	LCB	Surface treated rural	\$ 996,141	\$ 448,263	\$ 2,377,670	\$ 1,069,952
Old Hwy 551	from Kethancookem Trail	to Highway 551	Carnarvon	0.45	LCB	Surface treated rural	\$ 996,141	\$ 448,263	\$ 2,377,670	\$ 1,069,952
Perivale Road East	from 1.7 km east	to Twin Harbours Road	Campbell	2.9	LCB	Surface treated rural	\$ 996,141	\$ 2,888,809	\$ 2,377,670	\$ 6,895,243
Perivale Road East	From Highway 542	to Learmont Road	Campbell	2.2	LCB	Surface treated rural	\$ 996,141	\$ 2,191,510	\$ 2,377,670	\$ 5,230,874
Perivale Road East	From Twin Harbours Road	to Perivale East intersection	Campbell	2.4	LCB	Surface treated rural	\$ 996,141	\$ 2,390,738	\$ 2,377,670	\$ 5,706,408
Perivale Road West	From Highway 542	to Oriole Park	Campbell	3.2	LCB	Surface treated rural	\$ 996,141	\$ 3,187,651	\$ 2,377,670	\$ 7,608,544
Rockville Road	From Elliot road	to Gibraltar Road	Carnarvon	1.75	LCB	Surface treated rural	\$ 996,141	\$ 1,743,247	\$ 2,377,670	\$ 4,160,923
Rockville Road	From Highway 551	to 0.5 km east	Carnarvon	0.5	LCB	Surface treated rural	\$ 996,141	\$ 498,071	\$ 2,377,670	\$ 1,188,835
Sand Road ***	From private bush road	to Grimesthorpe Road	Campbell	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Silver Bay Road	From Johnston Road	to East Road	Sandfield	0.9	LCB	Surface treated rural	\$ 996,141	\$ 896,527	\$ 2,377,670	\$ 2,139,903
Union Road	From Highway 542	to Mills Township Line	Campbell	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Beaver Road	from 2.0 km W	to Gilchrist Sideroad	Campbell	2.5	LCB	Surface treated rural	\$ 996,141	\$ 2,490,353	\$ 2,377,670	\$ 5,944,175
East Road	from 2 km N	to Fox Run (seasonal maintenance section)		2.5	GR	Granular rural	\$ 847,503	\$ 2,118,758	\$ 1,915,265	\$ 4,788,163
Deer Foot Trail	From Tracy Road	to end	Carnarvon	1.6	LCB	Surface treated rural	\$ 996,141	\$ 1,593,826	\$ 2,377,670	\$ 3,804,272
Duke Street	From Nixon	to highway 551	Carnarvon	0.4	LCB	Surface treated rural	\$ 996,141	\$ 398,456	\$ 2,377,670	\$ 951,068
Garland Street	from Mary Jane Street	to Highway 551	Carnarvon	0.44	LCB	Surface treated rural	\$ 996,141	\$ 438,302	\$ 2,377,670	\$ 1,046,175
Gibraltar Road	from .07 km N	to Reggie Lane	Sandfield	0.7	LCB	Surface treated rural	\$ 996,141	\$ 697,299	\$ 2,377,670	\$ 1,664,369
Gibraltar Road	From Reggie Lane	to Rockville Road	Sandfield	2.9	LCB	Surface treated rural	\$ 996,141	\$ 2,888,809	\$ 2,377,670	\$ 6,895,243
Laurier Lane	From Duke	to Highway 542	Carnarvon	0.077	LCB	Surface treated rural	\$ 996,141	\$ 76,703	\$ 2,377,670	\$ 183,081
Margaret Street	From Bay Street	to Yonge Street	Carnarvon	0.13	LCB	Surface treated rural	\$ 996,141	\$ 129,498	\$ 2,377,670	\$ 309,097
Mary Street	From Garland Street	to McNevin Street	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767

**Municipality Of Central Manitoulin
Asset Management Plan
Road Management Plan**

ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Classification	Replacement Cost per KM	Estimated Replacement Cost	Life Cycle Cost per KM	Estimated Life Cycle Cost
Mary Street	From Highway 551	to Munro Street	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767
Mary Street	From McNevin Street	to Highway 551	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767
McNevin Street	From Mary Jane Street	to Highway 551	Carnarvon	0.44	LCB	Surface treated rural	\$ 996,141	\$ 438,302	\$ 2,377,670	\$ 1,046,175
Mira Street	From Highway 551/Mutchmor corner	to Munro Street	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767
Munro Street	From Eliza Jane Street	to Mary Jane Street	Carnarvon	0.23	LCB	Surface treated rural	\$ 996,141	\$ 229,112	\$ 2,377,670	\$ 546,864
Munro Street	From Mira Street	to Eliza Jane Street	Carnarvon	0.21	LCB	Surface treated rural	\$ 996,141	\$ 209,190	\$ 2,377,670	\$ 499,311
Munro Street	From River Street	to Mira Street	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767
Oriole Park Road	Private road off of Holmes Street	Private road off of Holmes Street	Campbell	2.8	LCB	Surface treated rural	\$ 996,141	\$ 2,789,195	\$ 2,377,670	\$ 6,657,476
Perry Street	From Bay Street	to Yonge Street	Carnarvon	0.13	LCB	Surface treated rural	\$ 996,141	\$ 129,498	\$ 2,377,670	\$ 309,097
River Road	From Cranston Road	to end	Carnarvon	0.6	LCB	Surface treated rural	\$ 996,141	\$ 597,685	\$ 2,377,670	\$ 1,426,602
Silver Bay Road	from Mill Road	to Johnston Road	Sandfield	0.9	LCB	Surface treated rural	\$ 996,141	\$ 896,527	\$ 2,377,670	\$ 2,139,903
Thorne Street	From Nixon	to Yonge St.	Carnarvon	0.4	LCB	Surface treated rural	\$ 996,141	\$ 398,456	\$ 2,377,670	\$ 951,068
Thorne Street	From Yonge St.	to Cranston St.	Carnarvon	0.4	LCB	Surface treated rural	\$ 996,141	\$ 398,456	\$ 2,377,670	\$ 951,068
Trails End Road	From 542	to 0.15 km south	Sandfield	0.15	LCB	Surface treated rural	\$ 996,141	\$ 149,421	\$ 2,377,670	\$ 356,651
Beaver Road	to Grimesthorpe Road	to 1.3km W	Campbell	0.7	LCB	Surface treated rural	\$ 996,141	\$ 697,299	\$ 2,377,670	\$ 1,664,369
Lake Huron Drive	From Sand Road	to Burke Street intersection	Campbell	1.6	LCB	Surface treated rural	\$ 996,141	\$ 1,593,826	\$ 2,377,670	\$ 3,804,272
McDermid subdivision	from Highway 551	to Cranston Road	Carnarvon	1.1	LCB	Surface treated rural	\$ 996,141	\$ 1,095,755	\$ 2,377,670	\$ 2,615,437
Monument Road	from 1.0 km north	to Learmont	Carnarvon	1.1	LCB	Surface treated rural	\$ 996,141	\$ 1,095,755	\$ 2,377,670	\$ 2,615,437
Rockville Road	From Gibraltar intersection east	to Camp Mary Anne Corner (shared with NEMI)	Carnarvon	0.75	LCB	Surface treated rural	\$ 996,141	\$ 747,106	\$ 2,377,670	\$ 1,783,253
Rockville Road	from 0.5 km east	to Elliot Road	Carnarvon	0.25	GR	Granular rural	\$ 847,503	\$ 211,876	\$ 1,915,265	\$ 478,816
White Church Road	from Earle'S Road corner	to Manitou Road	Campbell	1.65	GR	Granular rural	\$ 847,503	\$ 1,398,380	\$ 1,915,265	\$ 3,160,187
Camp MaryAnn Road	from Cox's Lane	.5 km S Joint maintained with NEMI	Sandfield	0.5	LCB	Surface treated rural	\$ 996,141	\$ 498,071	\$ 2,377,670	\$ 1,188,835
Big Lake Dump Road	From Highway 542	to end	Sandfield	0.5	GR	Granular rural	\$ 847,503	\$ 423,752	\$ 1,915,265	\$ 957,633
Islandview Trail	From Limberlost Lane	to Will-Oh-Wisp Way	Carnarvon	0.14	GR	Granular rural	\$ 847,503	\$ 118,650	\$ 1,915,265	\$ 268,137
Islandview Trail	From Pleasant View Terrace	to Limberlost Lane	Carnarvon	0.17	GR	Granular rural	\$ 847,503	\$ 144,076	\$ 1,915,265	\$ 325,595
Johnston Road	From Silver Bay Road	to end	Sandfield	0.8	GR	Granular rural	\$ 847,503	\$ 678,002	\$ 1,915,265	\$ 1,532,212
Kamp Kagawong Trail	From Perivale Road West	to Allan Township Line	Campbell	0.6	GR	Granular rural	\$ 847,503	\$ 508,502	\$ 1,915,265	\$ 1,149,159
Kirk Road/Campbell Line	From Tracy Road	to Learmont Road	Campbell	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
McAllister Road	From Highway 542	to end	Carnarvon	1	GR	Granular rural	\$ 847,503	\$ 847,503	\$ 1,915,265	\$ 1,915,265
Will-O-Wisp Way	From Limberlost Lane	to Rainbow Trail	Carnarvon	0.14	GR	Granular rural	\$ 847,503	\$ 118,650	\$ 1,915,265	\$ 268,137
Will-O-Wisp Way	From Rainbow Trail	to Ketchancookem Trail	Carnarvon	0.29	GR	Granular rural	\$ 847,503	\$ 245,776	\$ 1,915,265	\$ 555,427
Yonge Street ***	From Margaret	to Blue Road	Carnarvon	3.3	GR	Granular rural	\$ 847,503	\$ 2,796,760	\$ 1,915,265	\$ 6,320,375
Yonge Street	From Perry	to Margaret	Carnarvon	0.2	GR	Granular rural	\$ 847,503	\$ 169,501	\$ 1,915,265	\$ 383,053
Case Road	From Trail'S End Road	2.0 km S Of Hwy 542	Sandfield	1.8	GR	Granular rural	\$ 847,503	\$ 1,529,505	\$ 1,915,265	\$ 3,447,477
Cranston Road	from .2 km westward	to Highway 551	Carnarvon	0.5	LCB	Surface treated rural	\$ 996,141	\$ 498,071	\$ 2,377,670	\$ 1,188,835
Eliza Jane Street	From Highway 551	to Munro Street	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767
Forest Street	From Thorne	to Highway 542	Carnarvon	0.17	LCB	Surface treated rural	\$ 996,141	\$ 169,344	\$ 2,377,670	\$ 404,204
Monument Road	from 0.5 km north	to Tracy Road	Carnarvon	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Monument Road ***	From Cranston Road	to Blue Road	Carnarvon	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Case Road	from 2.0 km S Of Hwy 542	to Highway 542	Sandfield	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Gibraltar Road	From Highway 542	to 0.7 km N	Sandfield	0.7	LCB	Surface treated rural	\$ 996,141	\$ 697,299	\$ 2,377,670	\$ 1,664,369
Holmes Street	Off of Oriole Park 1km	Off of Oriole Park 1km	Campbell	1	LCB	Surface treated rural	\$ 996,141	\$ 996,141	\$ 2,377,670	\$ 2,377,670
Monument Road	From Tracy Road	to 1.0 km north	Carnarvon	2.1	LCB	Surface treated rural	\$ 996,141	\$ 2,091,896	\$ 2,377,670	\$ 4,993,107
Oriole Park	From Perivale west northward	From Perivale west northward	Campbell	1.1	LCB	Surface treated rural	\$ 996,141	\$ 1,095,755	\$ 2,377,670	\$ 2,615,437
Sand Road ***	From Highway 551	to private bush road	Campbell	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Silver Bay Road	to Highway 542	to Moody'S Lane	Sandfield	1.3	LCB	Surface treated rural	\$ 996,141	\$ 1,294,983	\$ 2,377,670	\$ 3,090,971
Watson Road	From Hwy 542	to Hwy 542	Carnarvon	0.15	LCB	Surface treated rural	\$ 996,141	\$ 149,421	\$ 2,377,670	\$ 356,651
Blue Road ***	From Yonge Street	to 1.4 km W	Carnarvon	1.4	GR	Granular rural	\$ 847,503	\$ 1,186,504	\$ 1,915,265	\$ 2,681,371
Dial Road	From White Lake Road	to dead end	Sandfield	3.7	GR	Granular rural	\$ 847,503	\$ 3,135,761	\$ 1,915,265	\$ 7,086,481
Digby'S Sideroad	From Highway 542	to 0.4km inward (year round maintain)	Sandfield	0.2	GR	Granular rural	\$ 847,503	\$ 169,501	\$ 1,915,265	\$ 383,053
Townline West	From White Lake Road	to end	Sandfield	0.75	GR	Granular rural	\$ 847,503	\$ 635,627	\$ 1,915,265	\$ 1,436,449
White Church Road	From Britainville Road	to Earle'S Road corner	Campbell	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Young Road	From Myle'S Sideroad	to end	Sandfield	0.7	GR	Granular rural	\$ 847,503	\$ 593,252	\$ 1,915,265	\$ 1,340,686
White Lake Road	From Townline Road West	to Dial Road	Sandfield	1.1	GR	Granular rural	\$ 847,503	\$ 932,253	\$ 1,915,265	\$ 2,106,792
Silver Bay Road	From East Road	to Paul'S Point Lane	Sandfield	0.9	LCB	Surface treated rural	\$ 996,141	\$ 896,527	\$ 2,377,670	\$ 2,139,903
Case Road	From the corner of White Lake Road	to Trail'S End Road	Sandfield	0.5	GR	Granular rural	\$ 847,503	\$ 423,752	\$ 1,915,265	\$ 957,633
Myles Sideroad	From Homestead Road	to end	Sandfield	0.5	GR	Granular rural	\$ 847,503	\$ 423,752	\$ 1,915,265	\$ 957,633

**Municipality Of Central Manitoulin
Asset Management Plan
Road Management Plan**

ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Classification	Replacement Cost per KM	Estimated Replacement Cost	Life Cycle Cost per KM	Estimated Life Cycle Cost
Oakcliffe Drive North	From Mill Road	to end	Sandfield	0.65	GR	Granular rural	\$ 847,503	\$ 550,877	\$ 1,915,265	\$ 1,244,922
Oakcliffe Drive South	From Mill Road	to end	Sandfield	0.65	GR	Granular rural	\$ 847,503	\$ 550,877	\$ 1,915,265	\$ 1,244,922
Stapleton Road	From Highway 542	to private section	Sandfield	0.4	GR	Granular rural	\$ 847,503	\$ 339,001	\$ 1,915,265	\$ 766,106
White Lake Road	From Dial Road	to Case Road	Sandfield	1.1	GR	Granular rural	\$ 847,503	\$ 932,253	\$ 1,915,265	\$ 2,106,792
Myles Sideroad	From Highway 542 Westward	to Homestead Road	Sandfield	1.4	GR	Granular rural	\$ 847,503	\$ 1,186,504	\$ 1,915,265	\$ 2,681,371
Grimesthorpe Road ***	From Beaver Road	to Highway 542	Campbell	2.1	LCB	Surface treated rural	\$ 996,141	\$ 2,091,896	\$ 2,377,670	\$ 4,993,107
Monument Road	From Tracy Road	to Learmont Road	Carnarvon	2.1	LCB	Surface treated rural	\$ 996,141	\$ 2,091,896	\$ 2,377,670	\$ 4,993,107
Dewar Lane	from lumberlost	to end	Carnarvon	0.2	GR	Granular rural	\$ 847,503	\$ 169,501	\$ 1,915,265	\$ 383,053
Maple Lane	From Silver Bay Road	to end	Sandfield	0.8	GR	Granular rural	\$ 847,503	\$ 678,002	\$ 1,915,265	\$ 1,532,212
Mill Road	From Silver Bay Road	to Oakcliffe Drive intersection	Sandfield	2.1	GR	Granular rural	\$ 847,503	\$ 1,779,756	\$ 1,915,265	\$ 4,022,057
Townline East	From Highway 542	to end	Sandfield	0.7	GR	Granular rural	\$ 847,503	\$ 593,252	\$ 1,915,265	\$ 1,340,686
Townline West	From Highway 542	to White Lake Road (Shared with Tehkummah)	Sandfield	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Trails End Road	from 0.15 km south	to Case Road	Sandfield	2.1	GR	Granular rural	\$ 847,503	\$ 1,779,756	\$ 1,915,265	\$ 4,022,057
Ketchanookem Trail	From Oak Lane	to corner of Lakeshore Road	Carnarvon	1.1	LCB	Surface treated rural	\$ 996,141	\$ 1,095,755	\$ 2,377,670	\$ 2,615,437
Learmont Road ***	From Perivale Road East	to 1.0 km east	Carnarvon	1	LCB	Surface treated rural	\$ 996,141	\$ 996,141	\$ 2,377,670	\$ 2,377,670
Monument Road	From Learmont	to Billings Town Line	Carnarvon	2.1	LCB	Surface treated rural	\$ 996,141	\$ 2,091,896	\$ 2,377,670	\$ 4,993,107
Silver Bay Road	Past Paul'S Point Lane	to end	Sandfield	0.2	LCB	Surface treated rural	\$ 996,141	\$ 199,228	\$ 2,377,670	\$ 475,534
Square Bay Road	From Beaver Road/ Gilchrist Sideroad intersection	to end	Campbell	1	LCB	Surface treated rural	\$ 996,141	\$ 996,141	\$ 2,377,670	\$ 2,377,670
Campbell Line Road	From Tracy Road	to Learmont Road	Campbell	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Perivale Road East ***	From Perivale intersection	to Dawson's Resort	Campbell	1	GR	Granular rural	\$ 847,503	\$ 847,503	\$ 1,915,265	\$ 1,915,265
East Road	From Fox Run (seasonal maintenance section)	to Silver Bay Road (year round maintenance)	Sandfield	2.5	GR	Granular rural	\$ 847,503	\$ 2,118,758	\$ 1,915,265	\$ 4,788,163
East Road	From Highway 542	to 2 km N	Sandfield	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Lyon'S Lane	Seasonal road off Highway 542 past East Road	Seasonal road off Highway 542 past East Road	Sandfield	0.5	GR	Granular rural	\$ 847,503	\$ 423,752	\$ 1,915,265	\$ 957,633
Nighswander Road	From Silver Bay Road	to private road	Sandfield	0.5	GR	Granular rural	\$ 847,503	\$ 423,752	\$ 1,915,265	\$ 957,633
Old Mill Road	From Britainville Road	to Highway 542	Campbell	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Tracy Road West	From Campbell Line Road	to Monument Road	Carnarvon	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Watson Bay Road	From Highway 542	to dead end	Sandfield	0.8	GR	Granular rural	\$ 847,503	\$ 678,002	\$ 1,915,265	\$ 1,532,212
Beaver Road	From Highway 542	to 1.0 km W	Campbell	1	LCB	Surface treated rural	\$ 996,141	\$ 996,141	\$ 2,377,670	\$ 2,377,670
Coventry Road	From Highway 542	to Highway 542	Sandfield	1.2	LCB	Surface treated rural	\$ 996,141	\$ 1,195,369	\$ 2,377,670	\$ 2,853,204
Douglas Drive	From Highway 542	to highway 551	Carnarvon	0.36	LCB	Surface treated rural	\$ 996,141	\$ 358,611	\$ 2,377,670	\$ 855,961
Learmont Road ***	From Campbell Line Road	to Monument Road	Carnarvon	1.8	LCB	Surface treated rural	\$ 996,141	\$ 1,793,054	\$ 2,377,670	\$ 4,279,806
Learmont Road ***	From Hartley Sideroad	to Cambell Line Road	Carnarvon	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340
Perivale Road East ***	From Learmont Road	Perivale Road East/West intersection	Campbell	3.2	LCB	Surface treated rural	\$ 996,141	\$ 3,187,651	\$ 2,377,670	\$ 7,608,544
Perivale Road East	Oriole Park Street	to 1.7 km east	Campbell	1.7	LCB	Surface treated rural	\$ 996,141	\$ 1,693,440	\$ 2,377,670	\$ 4,042,039
Blue Road	from 1.4 km W	to Cress Road	Carnarvon	1	GR	Granular rural	\$ 847,503	\$ 847,503	\$ 1,915,265	\$ 1,915,265
Britainville Road	From corner going north	to Old Mill Road	Campbell	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Britainville Road	From White Church Road in 2km	to western corner	Campbell	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Dominion Bay Road	Off of Manitou Road	Off of Manitou Road	Campbell	1.6	GR	Granular rural	\$ 847,503	\$ 1,356,005	\$ 1,915,265	\$ 3,064,424
Evergreen Drive	From Highway 542	to just past Lanktree Sideroad corner	Campbell	2.2	GR	Granular rural	\$ 847,503	\$ 1,864,507	\$ 1,915,265	\$ 4,213,583
Lanktree Side Road	From Highway 542	to Evergreen Drive	Campbell	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Manitou Road	From White Church Road	to Dominion Bay Road	Campbell	0.7	GR	Granular rural	\$ 847,503	\$ 593,252	\$ 1,915,265	\$ 1,340,686
Tracy Road East	From Monument Road	to Deer Foot Trail	Carnarvon	1	GR	Granular rural	\$ 847,503	\$ 847,503	\$ 1,915,265	\$ 1,915,265
Blue Road	From Cress Road	to Monument Road	Carnarvon	3.7	GR	Granular rural	\$ 847,503	\$ 3,135,761	\$ 1,915,265	\$ 7,086,481
Blue Road	From Monument Road	to Highway 551	Carnarvon	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Cooper Road	From Highway 542	to 0.8km inwards (year round maintenance)	Carnarvon	0.8	GR	Granular rural	\$ 847,503	\$ 678,002	\$ 1,915,265	\$ 1,532,212
Cranston Road ***	From Monument Road	to River Road	Carnarvon	0.8	GR	Granular rural	\$ 847,503	\$ 678,002	\$ 1,915,265	\$ 1,532,212
Cress Road	From McAllister Road	to Blue Road	Carnarvon	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Elliot Road	From Highway 542	to Hill Road	Carnarvon	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Elliot Road	From hill Road	to Rockville Road	Carnarvon	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Hill Road	From Highway 551	to Elliot Road	Carnarvon	2	GR	Granular rural	\$ 847,503	\$ 1,695,006	\$ 1,915,265	\$ 3,830,530
Lakeshore Road	From corner of Ketchanookem Trail	to Hare'S Lane	Carnarvon	0.8	GR	Granular rural	\$ 847,503	\$ 678,002	\$ 1,915,265	\$ 1,532,212
Anglin Street	From corner of Bay	to corner of Yonge St.	Carnarvon	0.13	LCB	Surface treated rural	\$ 996,141	\$ 129,498	\$ 2,377,670	\$ 309,097
Anglin Street	From Corner of Nixon	to corner of Bay St.	Carnarvon	0.28	LCB	Surface treated rural	\$ 996,141	\$ 278,919	\$ 2,377,670	\$ 665,748
Beaver Road	to corner of Bay St.	to 1.1 km W	Campbell	1.1	LCB	Surface treated rural	\$ 996,141	\$ 1,095,755	\$ 2,377,670	\$ 2,615,437
Cranston Road ***	from River Road	to .2 km westward	Carnarvon	0.2	LCB	Surface treated rural	\$ 996,141	\$ 199,228	\$ 2,377,670	\$ 475,534
Eliza Jane Street	From McNevin Street	to Highway 551	Carnarvon	0.1	LCB	Surface treated rural	\$ 996,141	\$ 99,614	\$ 2,377,670	\$ 237,767
Gilchrist Side Road	From Beaver Road	to Highway 542	Campbell	2	LCB	Surface treated rural	\$ 996,141	\$ 1,992,282	\$ 2,377,670	\$ 4,755,340

Municipality Of Central Manitoulin
 Asset Management Plan
 Road Management Plan

							1 - 5 YR Road Improvement Expenditures									
ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	2013		2014		2015		2016		2017	
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Fire Hall Road	Bush road on road allowance off of Highway 551	Bush road on road allowance off of Highway 551	Carnarvon	0.15	GR	Rehabilitation	2.50	\$42,742.37	7.50		7.25		7.00		6.75	
Perivale Road East ***	From Dawson's Resort	to end	Campbell	2	LCB	Resurfacing	3.50	\$499,640.00	10.00		9.50		9.00		8.50	
Bastien Road	From Dial Rd.	to end	Sandfield	0.1	GR	Resurfacing	4.00	\$28,494.92	7.50		7.25		7.00		6.75	
Homestead Road	From Myle'S Sideroad	to end (seasonal maintenance)	Sandfield	1	GR	Resurfacing	4.00	\$284,949.16	7.50		7.25		7.00		6.75	
Limberlost Lane	From Island View Trail	to Limberlost Lane corner	Carnarvon	0.3	GR	Resurfacing	4.00	\$85,484.75	7.50		7.25		7.00		6.75	
Limberlost Lane	From Maple Row Corner	to Ketchankookem Trail	Carnarvon	0.35	GR	Resurfacing	4.00	\$99,732.21	7.50		7.25		7.00		6.75	
Limberlost Lane	From the corner	to Will-Oh-Wisp Way	Carnarvon	0.15	GR	Resurfacing	4.00	\$42,742.37	7.50		7.25		7.00		6.75	
Limberlost Lane	From Will-Oh-Wisp Way	to Maple Row Corner	Carnarvon	0.35	GR	Resurfacing	4.00	\$99,732.21	7.50		7.25		7.00		6.75	
Pleasantview Terrace	From Island View Trail	to turnaround at the end	Carnarvon	0.3	GR	Resurfacing	4.00	\$85,484.75	7.50		7.25		7.00		6.75	
Pleasantview Terrace	From Kethancookem Trail	to Island View Trail	Carnarvon	0.13	GR	Resurfacing	4.00	\$37,043.39	7.50		7.25		7.00		6.75	
Rainbow Trail	From Walnut Lane	to Limberlost Lane	Carnarvon	0.13	GR	Resurfacing	4.00	\$37,043.39	7.50		7.25		7.00		6.75	
Rainbow Trail	From Will-Oh-Wisp Way	to Walnut Lane	Carnarvon	0.22	GR	Resurfacing	4.00	\$62,688.82	7.50		7.25		7.00		6.75	
Walnut Lane	From Will-Oh-Wisp Way	to Rainbow Trail	Carnarvon	0.27	GR	Resurfacing	4.00	\$76,936.27	7.50		7.25		7.00		6.75	
Beaver Road	from 1.0 km W	to Hartley Sideroad	Campbell	1	LCB	Resurfacing	4.50	\$249,820.00	10.00		9.50		9.00		8.50	
Beaver Road	from 1.1 km W	to Grimesthorpe Road	Campbell	0.9	LCB	Resurfacing	4.50	\$224,838.00	10.00		9.50		9.00		8.50	
Learnmont Road ***	from 1.0 km east	to Hartley Sideroad	Carnarvon	0.6	LCB	Resurfacing	4.50	\$149,892.00	10.00		9.50		9.00		8.50	
Morrow Road	From Highway 551	to end	Carnarvon	0.4	LCB	Resurfacing	4.50	\$99,928.00	10.00		9.50		9.00		8.50	
Mutchmor Street	From River Street	to Mira St./Highway 551 corner	Carnarvon	0.13	LCB	Resurfacing	4.50	\$32,476.60	10.00		9.50		9.00		8.50	
Nixon Street	From corner of Anglin	to corner of Thorne St.	Carnarvon	0.17	LCB	Resurfacing	4.50	\$42,469.40	10.00		9.50		9.00		8.50	
Nixon Street	From Duke	to Highway 542	Carnarvon	0.07	LCB	Resurfacing	4.50	\$17,487.40	10.00		9.50		9.00		8.50	
Nixon Street	From Thorne	to Duke	Carnarvon	0.11	LCB	Resurfacing	4.50	\$27,480.20	10.00		9.50		9.00		8.50	
Yonge Street ***	From Anglin	to Perry St.	Carnarvon	0.21	LCB	Resurfacing	4.50	\$52,462.20	10.00		9.50		9.00		8.50	
Yonge Street *** (2014 SRNMIF)	From Highway 542	to Duke St.	Carnarvon	0.075	LCB	Resurfacing	4.50	\$18,736.50	10.00		9.50		9.00		8.50	
Yonge Street *** (2014 SRNMIF)	From Duke	to Thorne St.	Carnarvon	0.1	LCB	Resurfacing	4.50	\$24,982.00	10.00		9.50		9.00		8.50	
Yonge Street *** (2014 SRNMIF)	From Thorne	to Anglin St.	Carnarvon	0.16	LCB	Resurfacing	4.50	\$39,971.20	10.00		9.50		9.00		8.50	
Bay Street	From Margaret	to Perry	Carnarvon	0.2	LCB	Resurfacing	5.00		4.50	\$49,964.00	10.00		9.50		9.00	
Bay Street	From Perry	to Anglin	Carnarvon	0.2	LCB	Resurfacing	5.00		4.50	\$49,964.00	10.00		9.50		9.00	
Beaver Road	from 1.3 km W	to 2.0 km W	Campbell	1	LCB	Resurfacing	5.00		4.50	\$249,820.00	10.00		9.50		9.00	
Cedar Crescent	From Highway 551	to McDermid Drive	Carnarvon	0.085	LCB	Resurfacing	5.00		4.50	\$21,234.70	10.00		9.50		9.00	
Government Road	From 2km east	to crossing with Dewar'S Creek	Carnarvon	3	LCB	Resurfacing	5.00		4.50	\$749,460.00	10.00		9.50		9.00	
Government Road	From Dewar'S Creek crossing point	to Yonge Street	Carnarvon	2	LCB	Resurfacing	5.00		4.50	\$499,640.00	10.00		9.50		9.00	
Government Road	From Highway 551	to 2km east	Carnarvon	2	LCB	Resurfacing	5.00		4.50	\$499,640.00	10.00		9.50		9.00	
Government Road	From Young Street Westward	to Tehkummah Townline	Carnarvon	4.5	LCB	Resurfacing	5.00		4.50	\$1,124,190.00	10.00		9.50		9.00	
Grimesthorpe Road ***	From Sand Road	to Beaver Road	Campbell	0.5	LCB	Resurfacing	5.00		4.50	\$124,910.00	10.00		9.50		9.00	
Ketchankookem Trail	From Hill Road	to Yonge Street	Carnarvon	0.9	LCB	Resurfacing	5.00		4.50	\$224,838.00	10.00		9.50		9.00	
Ketchankookem Trail	From Wagg'S Lane	to Oak Lane	Carnarvon	1.1	LCB	Resurfacing	5.00		4.50	\$274,802.00	10.00		9.50		9.00	
Ketchankookem Trail	From Yonge Street	to Wagg'S Lane	Carnarvon	0.45	LCB	Resurfacing	5.00		4.50	\$112,419.00	10.00		9.50		9.00	
Old Hwy 551	From Ketchankookem Trail	to Highway 551	Carnarvon	0.45	LCB	Resurfacing	5.00		4.50	\$112,419.00	10.00		9.50		9.00	
Perivale Road East	from 1.7 km east	to Twin Harbours Road	Campbell	2.9	LCB	Resurfacing	5.00		4.50	\$724,478.00	10.00		9.50		9.00	
Perivale Road East	From Highway 542	to Learnmont Road	Campbell	2.2	LCB	Resurfacing	5.00		4.50	\$549,604.00	10.00		9.50		9.00	
Perivale Road East	From Twin Harbours Road	to Perivale East intersection	Campbell	2.4	LCB	Resurfacing	5.00		4.50	\$599,568.00	10.00		9.50		9.00	
Perivale Road West	From Highway 542	to Oriole Park	Campbell	3.2	LCB	Resurfacing	5.00		4.50	\$799,424.00	10.00		9.50		9.00	
Rockville Road	From Elliot road	to Gibraltar Road	Carnarvon	1.75	LCB	Resurfacing	5.00		4.50	\$437,185.00	10.00		9.50		9.00	
Rockville Road	From Highway 551	to 0.5 km east	Carnarvon	0.5	LCB	Resurfacing	5.00		4.50	\$124,910.00	10.00		9.50		9.00	
Sand Road ***	From private bush road	to Grimesthorpe Road	Campbell	2	LCB	Resurfacing	5.00		4.50	\$499,640.00	10.00		9.50		9.00	
Silver Bay Road	From Johnston Road	to East Road	Sandfield	0.9	LCB	Resurfacing	5.00		4.50	\$224,838.00	10.00		9.50		9.00	
Union Road	From Highway 542	to Mills Township Line	Campbell	2	LCB	Resurfacing	5.00		4.50	\$499,640.00	10.00		9.50		9.00	
Beaver Road	from 2.0 km W	to Gilchrist Sideroad	Campbell	2.5	LCB	Resurfacing	5.10		4.60	\$624,550.00	10.00		9.50		9.00	
East Road	from 2 km N	to Fox Run (seasonal maintenance section)	Campbell	2.5	GR	Resurfacing	5.00		4.75	\$378,492.20	7.50		7.25		7.00	
Deer Foot Trail	From Tracy Road	to end	Carnarvon	1.6	LCB	Resurfacing	5.50		5.00		4.50		\$399,712.00	10.00		9.50
Duke Street	From Nixon	to highway 551	Carnarvon	0.4	LCB	Resurfacing	5.50		5.00		4.50		\$99,928.00	10.00		9.50
Garland Street	from Mary Jane Street	to Highway 551	Carnarvon	0.44	LCB	Resurfacing	5.50		5.00		4.50		\$109,920.80	10.00		9.50
Gibraltar Road	from .07 km N	to Reggie Lane	Sandfield	0.7	LCB	Resurfacing	5.50		5.00		4.50		\$174,874.00	10.00		9.50
Gibraltar Road	From Reggie Lane	to Rockville Road	Sandfield	2.9	LCB	Resurfacing	5.50		5.00		4.50		\$724,478.00	10.00		9.50
Laurier Lane	From Duke	to Highway 542	Carnarvon	0.077	LCB	Resurfacing	5.50		5.00		4.50		\$19,236.14	10.00		9.50
Margaret Street	From Bay Street	to Yonge Street	Carnarvon	0.133	LCB	Resurfacing	5.50		5.00		4.50		\$32,476.60	10.00		9.50
Mary Street	From Garland Street	to McNevin Street	Carnarvon	0.1	LCB	Resurfacing	5.50		5.00		4.50		\$24,982.00	10.00		9.50
Mary Street	From Highway 551	to Munro Street	Carnarvon	0.1	LCB	Resurfacing	5.50		5.00		4.50		\$24,982.00	10.00		9.50
Mary Street	From McNevin Street	to Highway 551	Carnarvon	0.1	LCB	Resurfacing	5.50		5.00		4.50		\$24,982.00	10.00		9.50
McNevin Street	From Mary Jane Street	to Highway 551	Carnarvon	0.44	LCB	Resurfacing	5.50		5.00		4.50		\$109,920.80	10.00		9.50
Mira Street	From Highway 551/Mutchmor corner	to Munro Street	Carnarvon	0.1	LCB	Resurfacing	5.50		5.00		4.50		\$24,982.00	10.00		9.50

Municipality Of Central Manitoulin
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							1 - 5 YR Road Improvement Expenditures									
ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	2013		2014		2015		2016		2017	
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Munro Street	From Eliza Jane Street	to Mary Jane Street	Carnarvon	0.23	LCB	Resurfacing	5.50		5.00		4.50	\$57,458.60	10.00		9.50	
Munro Street	From Mira Street	to Eliza Jane Street	Carnarvon	0.21	LCB	Resurfacing	5.50		5.00		4.50	\$24,462.20	10.00		9.50	
Munro Street	From River Street	to Mira Street	Carnarvon	0.1	LCB	Resurfacing	5.50		5.00		4.50	\$24,982.00	10.00		9.50	
Oriole Park Road	Private road off of Holmes Street	Private road off of Holmes Street	Campbell	2.8	LCB	Resurfacing	5.50		5.00		4.50	\$699,496.00	10.00		9.50	
Perry Street	From Bay Street	to Yonge Street	Carnarvon	0.13	LCB	Resurfacing	5.50		5.00		4.50	\$32,476.60	10.00		9.50	
River Road	From Cranston Road	to end	Carnarvon	0.6	LCB	Resurfacing	5.50		5.00		4.50	\$149,892.00	10.00		9.50	
Silver Bay Road	from Mill Road	to Johnston Road	Sandfield	0.9	LCB	Resurfacing	5.50		5.00		4.50	\$224,838.00	10.00		9.50	
Thorne Street	From Nixon	to Yonge St.	Carnarvon	0.4	LCB	Resurfacing	5.50		5.00		4.50	\$99,928.00	10.00		9.50	
Thorne Street	From Yonge St.	to Forest St.	Carnarvon	0.4	LCB	Resurfacing	5.50		5.00		4.50	\$99,928.00	10.00		9.50	
Trails End Road	From 542	to 0.15 km south	Sandfield	0.15	LCB	Resurfacing	5.80		5.30		4.80	\$37,473.00	10.00		9.50	
Beaver Road	to Grimesthorpe Road	to 1.3km W	Campbell	0.7	LCB	Resurfacing	6.00		5.50		5.00		4.50	\$174,874.00	10.00	
Lake Huron Drive	From Sand Road	to Burke Street intersection	Campbell	1.6	LCB	Resurfacing	6.00		5.50		5.00		4.50	\$399,712.00	10.00	
McDermid subdivision	from Highway 551	to Cranston Road	Carnarvon	1.1	LCB	Resurfacing	6.00		5.50		5.00		4.50	\$274,802.00	10.00	
Monument Road	from 1.0 km north	To Learmont	Carnarvon	1.1	LCB	Resurfacing	6.00		5.50		5.00		4.50	\$274,802.00	10.00	
Rockville Road	From Gibraltar intersection east	to Camp Mary Anne Corner (shared with NEMI)	Carnarvon	0.75	LCB	Resurfacing	6.00		5.50		5.00		4.50	\$187,365.00	10.00	
Rockville Road	from 0.5 km east	to Elliot Road	Carnarvon	0.25	GR	Resurfacing	5.80		5.55		5.30		5.05		4.80	\$37,849.22
White Church Road	from Earle'S Road corner	to Manitou Road	Campbell	1.65	GR	Resurfacing	5.80		5.55		5.30		5.05		4.80	\$249,804.85
Camp MaryAnn Road	from Cox's Lane	.5 km S Joint maintained with NEMI	Sandfield	0.5	LCB	Resurfacing	6.80		6.30		5.80		5.30		4.80	\$124,910.00
Big Lake Dump Road	From Highway 542	to end	Sandfield	0.5	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Islandview Trail	From Limberlost Lane	to Will-Oh-Wisp Way	Carnarvon	0.14	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Islandview Trail	From Pleasant View Terrace	to Limberlost Lane	Carnarvon	0.17	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Johnston Road	From Silver Bay Road	to end	Sandfield	0.8	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Kamp Kagawong Trail	From Perivale Road West	to Allan Township Line	Campbell	0.6	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Kirk Road/Campbell Line	From Tracy Road	to Learmont Road	Campbell	2	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
McAllister Road	From Highway 542	to end	Carnarvon	1	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Will-O-Wisp Way	From Limberlost Lane	to Rainbow Trail	Carnarvon	0.14	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Will-O-Wisp Way	From Rainbow Trail	to Ketchancookem Trail	Carnarvon	0.29	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Yonge Street ***	From Margaret	to Blue Road	Carnarvon	3.3	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Yonge Street	From Perry	From Margaret	Carnarvon	0.2	GR	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Case Road	From Trail'S End Road	2.0 km S Of Hwy 542	Sandfield	1.8	GR	Resurfacing	6.20		5.95		5.70		5.45		5.20	
Cranston Road	from .2 km westward	to Highway 551	Carnarvon	0.5	LCB	Resurfacing	7.50		7.00		6.50		6.00		5.50	
Eliza Jane Street	From Highway 551	to Munro Street	Carnarvon	0.1	LCB	Resurfacing	7.50		7.00		6.50		6.00		5.50	
Forest Street	From Thorne	to Highway 542	Carnarvon	0.17	LCB	Resurfacing	7.50		7.00		6.50		6.00		5.50	
Monument Road	from 0.5 km north	to Tracy Road	Carnarvon	2	LCB	Resurfacing	7.50		7.00		6.50		6.00		5.50	
Monument Road ***	From Cranston Road	to Blue Road	Carnarvon	2	LCB	Resurfacing	7.50		7.00		6.50		6.00		5.50	
Case Road	from 2.0 km S Of Hwy 542	to Highway 542	Sandfield	2	GR	Resurfacing	6.30		6.05		5.80		5.55		5.30	
Gibraltar Road	From Highway 542	to 0.7 km N	Sandfield	0.7	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Holmes Street	Off of Oriole Park 1km	Off of Oriole Park 1km	Campbell	1	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Monument Road	From Tracy Road	to 1.0 km north	Carnarvon	2.1	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Oriole Park	From Perivale west northward	From Perivale west northward	Campbell	1.1	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Sand Road ***	From Highway 551	to private bush road	Campbell	2	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Silver Bay Road	to Highway 542	to Moody'S Lane	Sandfield	1.3	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Watson Road	From Hwy 542	to Hwy 542	Carnarvon	0.15	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Blue Road ***	From Yonge Street	to 1.4 km W	Carnarvon	1.4	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Dial Road	From White Lake Road	to dead end	Sandfield	3.7	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Digby'S Sideroad	From Highway 542	to 0.4km inward (year round maintain)	Sandfield	0.2	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Townline West	From White Lake Road	to end	Sandfield	0.75	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
White Church Road	From Britainville Road	to Earle'S Road corner	Campbell	2	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Young Road	From Myle'S Sideroad	to end	Sandfield	0.7	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
White Lake Road	From Townline Road West	to Dial Road	Sandfield	1.1	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Silver Bay Road	From East Road	to Paul'S Point Lane	Sandfield	0.9	LCB	Resurfacing	8.30		7.80		7.30		6.80		6.30	
Case Road	From the corner of White Lake Road	to Trail'S End Road	Sandfield	0.5	GR	Resurfacing	6.70		6.45		6.20		5.95		5.70	
Myles Sideroad	From Homestead Road	to end	Sandfield	0.5	GR	Resurfacing	6.70		6.45		6.20		5.95		5.70	
Oakcliffe Drive North	From Mill Road	to end	Sandfield	0.65	GR	Resurfacing	6.70		6.45		6.20		5.95		5.70	
Oakcliffe Drive South	From Mill Road	to end	Sandfield	0.65	GR	Resurfacing	6.70		6.45		6.20		5.95		5.70	
Stapleton Road	From Highway 542	to private section	Sandfield	0.4	GR	Resurfacing	6.70		6.45		6.20		5.95		5.70	
White Lake Road	From Dial Road	to Case Road	Sandfield	1.1	GR	Resurfacing	6.70		6.45		6.20		5.95		5.70	
Myles Sideroad	From Highway 542 Westward	to Homestead Road	Sandfield	1.4	GR	Resurfacing	6.70		6.45		6.20		5.95		5.70	
Grimesthorpe Road ***	From Beaver Road	to Highway 542	Campbell	2.1	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Monument Road	From Tracy Road	to Learmont Road	Carnarvon	2.1	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Dewar Lane	from lumberlost	to end	Carnarvon	0.2	GR	Resurfacing	6.90		6.65		6.40		6.15		5.90	
Maple Lane	From Silver Bay Road	to end	Sandfield	0.8	GR	Resurfacing	6.90		6.65		6.40		6.15		5.90	

Municipality Of Central Manitoulin
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							1 - 5 YR Road Improvement Expenditures									
ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	2013		2014		2015		2016		2017	
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Mill Road	From Silver Bay Road	to Oakcliffe Drive intersection	Sandfield	2.1	GR	Resurfacing	6.90		6.65		6.40		6.15		5.90	
Townline East	From Highway 542	to end	Sandfield	0.7	GR	Resurfacing	6.90		6.65		6.40		6.15		5.90	
Townline West	From Highway 542	to White Lake Road (Shared with Tehkummah)	Sandfield	2	GR	Resurfacing	6.90		6.65		6.40		6.15		5.90	
Trails End Road	from 0.15 km south	to Case Road	Sandfield	2.1	GR	Resurfacing	6.90		6.65		6.40		6.15		5.90	
Ketchankookem Trail	From Oak Lane	to corner of Lakeshore Road	Camraron	1.1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Learmont Road ***	From Perivale Road East	to 1.0 km east	Camraron	1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Monument Road	From Learmont	to Billings Town Line	Camraron	2.1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Silver Bay Road	Past Paul'S Point Lane	to end	Sandfield	0.2	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Square Bay Road	From Beaver Road/ Gilchrist Sideroad intersection	to end	Campbell	1	LCB	Resurfacing	9.10		8.60		8.10		7.60		7.10	
Campbell Line Road	From Tracy Road	to Learmont Road	Campbell	2	GR	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Perivale Road East ***	From Perivale intersection	to Dawson's Resort	Campbell	1	GR	Resurfacing	7.00		6.75		6.50		6.25		6.00	
East Road	From Fox Run (seasonal maintenance section)	to Silver Bay Road (year round maintenance)	Sandfield	2.5	GR	Resurfacing	7.10		6.85		6.60		6.35		6.10	
East Road	From Highway 542	to 2 km N	Sandfield	2	GR	Resurfacing	7.10		6.85		6.60		6.35		6.10	
Lyon'S Lane	Seasonal road off Highway 542 past East Road	Seasonal road off Highway 542 past East Road	Sandfield	0.5	GR	Resurfacing	7.10		6.85		6.60		6.35		6.10	
Nighswander Road	From Silver Bay Road	to private road	Sandfield	0.5	GR	Resurfacing	7.10		6.85		6.60		6.35		6.10	
Old Mill Road	From Britainville Road	to Highway 542	Campbell	2	GR	Resurfacing	7.10		6.85		6.60		6.35		6.10	
Tracy Road West	From Campbell Line Road	to Monument Road	Camraron	2	GR	Resurfacing	7.10		6.85		6.60		6.35		6.10	
Watson Bay Road	From Highway 542	to dead end	Sandfield	0.8	GR	Resurfacing	7.20		6.95		6.70		6.45		6.20	
Beaver Road	From Highway 542	to 1.0 km W	Campbell	1	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Coventry Road	From Highway 542	to Highway 542	Sandfield	1.2	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Douglas Drive	From Highway 542	to highway 551	Camraron	0.36	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Learmont Road ***	From Campbell Line Road	to Monument Road	Camraron	1.8	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Learmont Road ***	From Hartley Sideroad	to Cambell Line Road	Camraron	2	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Perivale Road East ***	From Learmont Road	Perivale Road East/West intersection	Campbell	3.2	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Perivale Road East	Oriole Park Street	to 1.7 km east	Campbell	1.7	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Blue Road	from 1.4 km W	to Cress Road	Camraron	1	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Britainville Road	From corner going north	to Old Mill Road	Campbell	2	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Britainville Road	From White Church Road in 2km	to western corner	Campbell	2	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Dominion Bay Road	Off of Manitou Road	Off of Manitou Road	Campbell	1.6	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Evergreen Drive	From Highway 542	to just past Lanktree Sideroad corner	Campbell	2.2	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Lanktree Side Road	From Highway 542	to Evergreen Drive	Campbell	2	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Manitou Road	From White Church Road	to Dominion Bay Road	Campbell	0.7	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Tracy Road East	From Monument Road	to Deer Foot Trail	Camraron	1	GR	Resurfacing	7.30		7.05		6.80		6.55		6.30	
Blue Road	From Cress Road	to Monument Road	Camraron	3.7	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Blue Road	From Monument Road	to Highway 551	Camraron	2	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Cooper Road	From Highway 542	to 0.8km inwards (year round maintenance)	Camraron	0.8	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Cranston Road ***	From Monument Road	to River Road	Camraron	0.8	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Cress Road	From McAllister Road	to Blue Road	Camraron	2	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Elliot Road	From Highway 542	to Hill Road	Camraron	2	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Elliot Road	From hill Road	to Rockville Road	Camraron	2	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Hill Road	From Highway 551	to Elliot Road	Camraron	2	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Lakeshore Road	From corner of Ketchancookem Trail	to Hare'S Lane	Camraron	0.8	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Anglin Street	From corner of Bay	to corner of Yonge St.	Camraron	0.13	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Anglin Street	From Corner of Nixon	to corner of Bay St.	Camraron	0.28	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Beaver Road	to corner of Bay St.	to 1.1 km W	Campbell	1.1	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Cranston Road ***	from River Road	to 2 km westward	Camraron	0.2	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Eliza Jane Street	From McNevin Street	to Highway 551	Camraron	0.1	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Gilchrist Side Road	From Beaver Road	to Highway 542	Campbell	2	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Monument Road	From Blue Road	to Highway 542	Camraron	2	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Monument Road	From Highway 542	to 0.5 km north	Camraron	2	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Silver Bay Road	From Franks Road	to Mill Road	Sandfield	1.2	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Silver Bay Road	from Moody'S Lane	to Frank'S Road	Sandfield	1.7	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Yonge Street	From Blue Road	To Government		4	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Fox Run	From East Road	to end	Sandfield	0.5	GR	Resurfacing	9.20		8.95		8.70		8.45		8.20	
Lakeshore Road	From Hare'S Lane	to Highway 542	Camraron	1.4	GR	Resurfacing	9.30		9.05		8.80		8.55		8.30	
Burke Street	From Lake Huron Drive	to end	Campbell	0.8	GR	Resurfacing	10.00		9.75		9.50		9.25		9.00	
Frank'S Road	From Silver Bay Road	to Frank'S Road intersection	Sandfield	2.3	GR	Resurfacing	10.00		9.75		9.50		9.25		9.00	
Frank'S Road East	From Frank'S Road intersection	to end	Sandfield	0.5	GR	Resurfacing	10.00		9.75		9.50		9.25		9.00	
Frank'S Road West	From Frank'S Road intersection	to end	Sandfield	0.8	GR	Resurfacing	10.00		9.75		9.50		9.25		9.00	
Hutchinson Road	From Highway 542	to end	Sandfield	0.1	GR	Resurfacing	10.00		9.75		9.50		9.25		9.00	
Lake Huron Drive	From Burke Street	to end at Loughheed Bay	Campbell	2.2	GR	Resurfacing	10.00		9.75		9.50		9.25		9.00	
Average Condition Rating by Year							6.60		6.90		7.27		7.60		7.37	

**Municipality Of Central Manitoulin
Asset Management Plan
Road Management Plan**

ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	1 - 5 YR Road Improvement Expenditures													
							2013		2014		2015		2016		2017					
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$				
							\$2,463,258.10	\$9,555,629.90	\$3,249,408.74	\$1,311,555.00	\$412,564.07									

NOTES
 *** Road segment includes a portion of the Manitouline Island Cycling Advocates trail system
 (2014 SRNMIF) Application to: Small, Rural and Northern Municipal Infrastructure Fund to be submitted in 2014

Municipality Of Central Manitoulin
 Asset Management Plan
 Road Management Plan

							6 -10 YR Road Improvement Expenditures									
ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	2018		2019		2020		2021		2022	
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Fire Hall Road	Bush road on road allowance off of Highway 551	Bush road on road allowance off of Highway 551	Carnarvon	0.15	GR	Rehabilitation	6.50									
Perivale Road East ***	From Dawson's Resort	to end	Campbell	2	LCB	Resurfacing	8.00		6.25		7.00		6.50		6.00	
Bastien Road	From Dial Rd.	to end	Sandfield	0.1	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Homestead Road	From Myle'S Sideroad	to end (seasonal maintenance)	Sandfield	1	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Limberlost Lane	From Island View Trail	to Limberlost Lane corner	Carnarvon	0.3	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Limberlost Lane	From Maple Row Corner	to Ketchankookem Trail	Carnarvon	0.35	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Limberlost Lane	From the corner	to Will-Oh-Wisp Way	Carnarvon	0.15	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Limberlost Lane	From Will-Oh-Wisp Way	to Maple Row Corner	Carnarvon	0.35	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Pleasantview Terrace	From Island View Trail	to turnaround at the end	Carnarvon	0.3	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Pleasantview Terrace	From Kethancockem Trail	to Island View Trail	Carnarvon	0.13	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Rainbow Trail	From Walnut Lane	to Limberlost Lane	Carnarvon	0.13	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Rainbow Trail	From Will-Oh-Wisp Way	to Walnut Lane	Carnarvon	0.22	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Walnut Lane	From Will-Oh-Wisp Way	to Rainbow Trail	Carnarvon	0.27	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Beaver Road	from 1.0 km W	to Hartley Sideroad	Campbell	1	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Beaver Road	from 1.1 km W	to Grimesthorpe Road	Campbell	0.9	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Learmont Road ***	from 1.0 km east	to Hartley Sideroad	Carnarvon	0.6	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Morrow Road	From Highway 551	to end	Carnarvon	0.4	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Mutchmor Street	From River Street	to Mira St./Highway 551 corner	Carnarvon	0.13	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Nixon Street	From corner of Anglin	to corner of Thorne St.	Carnarvon	0.17	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Nixon Street	From Duke	to Highway 542	Carnarvon	0.07	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Nixon Street	From Thorne	to Duke	Carnarvon	0.11	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Yonge Street ***	From Anglin	to Perry St.	Carnarvon	0.21	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Yonge Street *** (2014 SRNMIF)	From Highway 542	to Duke St.	Carnarvon	0.075	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Yonge Street *** (2014 SRNMIF)	From Duke	to Thorne St.	Carnarvon	0.1	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Yonge Street *** (2014 SRNMIF)	From Thorne	to Anglin St.	Carnarvon	0.16	LCB	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Bay Street	From Margaret	to Perry	Carnarvon	0.2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Bay Street	From Perry	to Anglin	Carnarvon	0.2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Beaver Road	from 1.3 km W	to 2.0 km W	Campbell	1	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Cedar Crescent	From Highway 551	to McDermid Drive	Carnarvon	0.085	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Government Road	From 2km east	to crossing with Dewar'S Creek	Carnarvon	3	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Government Road	From Dewar'S Creek crossing point	to Yonge Street	Carnarvon	2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Government Road	From Highway 551	to 2km east	Carnarvon	2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Government Road	From Young Street Westward	to Tehkummah Townline	Carnarvon	4.5	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Grimesthorpe Road ***	From Sand Road	to Beaver Road	Campbell	0.5	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Ketchankookem Trail	From Hill Road	to Yonge Street	Carnarvon	0.9	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Ketchankookem Trail	From Wagg'S Lane	to Oak Lane	Carnarvon	1.1	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Ketchankookem Trail	From Yonge Street	to Wagg'S Lane	Carnarvon	0.45	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Old Hwy 551	From Ketchankookem Trail	to Highway 551	Carnarvon	0.45	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Perivale Road East	from 1.7 km east	to Twin Harbours Road	Campbell	2.9	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Perivale Road East	From Highway 542	to Learmont Road	Campbell	2.2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Perivale Road East	From Twin Harbours Road	to Perivale East intersection	Campbell	2.4	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Perivale Road West	From Highway 542	to Oriole Park	Campbell	3.2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Rockville Road	From Elliot road	to Gibraltar Road	Carnarvon	1.75	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Rockville Road	From Highway 551	to 0.5 km east	Carnarvon	0.5	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Sand Road ***	From private bush road	to Grimesthorpe Road	Campbell	2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Silver Bay Road	From Johnston Road	to East Road	Sandfield	0.9	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Union Road	From Highway 542	to Mills Township Line	Campbell	2	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
Beaver Road	from 2.0 km W	to Gilchrist Sideroad	Campbell	2.5	LCB	Resurfacing	8.50		8.00		7.50		7.00		6.50	
East Road	from 2 km N	to Fox Run (seasonal maintenance section)		2.5	GR	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Deer Foot Trail	From Tracy Road	to end	Carnarvon	1.6	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Duke Street	From Nixon	to highway 551	Carnarvon	0.4	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Garland Street	from Mary Jane Street	to Highway 551	Carnarvon	0.44	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Gibraltar Road	from .07 km N	to Reggie Lane	Sandfield	0.7	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Gibraltar Road	From Reggie Lane	to Rockville Road	Sandfield	2.9	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Laurier Lane	From Duke	to Highway 542	Carnarvon	0.077	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Margaret Street	From Bay Street	to Yonge Street	Carnarvon	0.13	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Mary Street	From Garland Street	to McNevin Street	Carnarvon	0.1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Mary Street	From Highway 551	to Munro Street	Carnarvon	0.1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Mary Street	From McNevin Street	to Highway 551	Carnarvon	0.1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
McNevin Street	From Mary Jane Street	to Highway 551	Carnarvon	0.44	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Mira Street	From Highway 551/Mutchmor corner	to Munro Street	Carnarvon	0.1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	

Municipality Of Central Manitoulin
 Asset Management Plan
 Road Management Plan

							6 -10 YR Road Improvement Expenditures									
ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	2018		2019		2020		2021		2022	
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Munro Street	From Eliza Jane Street	to Mary Jane Street	Carnarvon	0.23	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Munro Street	From Mira Street	to Eliza Jane Street	Carnarvon	0.21	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Munro Street	From River Street	to Mira Street	Carnarvon	0.1	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Oriole Park Road	Private road off of Holmes Street	Private road off of Holmes Street	Campbell	2.8	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Perry Street	From Bay Street	to Yonge Street	Carnarvon	0.13	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
River Road	From Cranston Road	to end	Carnarvon	0.6	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Silver Bay Road	from Mill Road	to Johnston Road	Sandfield	0.9	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Thorne Street	From Nixon	to Yonge St.	Carnarvon	0.4	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Thorne Street	From Yonge St.	to Forest St.	Carnarvon	0.4	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Trails End Road	From 542	to 0.15 km south	Sandfield	0.15	LCB	Resurfacing	9.00		8.50		8.00		7.50		7.00	
Beaver Road	to Grimesthorpe Road	to 1.3km W	Campbell	0.7	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Lake Huron Drive	From Sand Road	to Burke Street intersection	Campbell	1.6	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
McDermid subdivision	from Highway 551	to Cranston Road	Carnarvon	1.1	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Monument Road	from 1.0 km north	To Learmont	Carnarvon	1.1	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Rockville Road	From Gibraltar intersection east	to Camp Mary Anne Corner (shared with NEMI)	Carnarvon	0.75	LCB	Resurfacing	9.50		9.00		8.50		8.00		7.50	
Rockville Road	from 0.5 km east	to Elliot Road	Carnarvon	0.25	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
White Church Road	from Earle'S Road corner	to Manitou Road	Campbell	1.65	GR	Resurfacing	7.50		7.25		7.00		6.75		6.50	
Camp MaryAnn Road	from Cox's Lane	.5 km S Joint maintained with NEMI	Sandfield	0.5	LCB	Resurfacing	10.00		9.50		9.00		8.50		8.00	
Big Lake Dump Road	From Highway 542	to end	Sandfield	0.5	GR	Resurfacing	4.75	\$75,698.44	7.50		7.25		7.00		6.75	
Islandview Trail	From Limberlost Lane	to Will-Oh-Wisp Way	Carnarvon	0.14	GR	Resurfacing	4.75	\$21,195.56	7.50		7.25		7.00		6.75	
Islandview Trail	From Pleasant View Terrace	to Limberlost Lane	Carnarvon	0.17	GR	Resurfacing	4.75	\$25,737.47	7.50		7.25		7.00		6.75	
Johnston Road	From Silver Bay Road	to end	Sandfield	0.8	GR	Resurfacing	4.75	\$121,117.50	7.50		7.25		7.00		6.75	
Kamp Kagawong Trail	From Pervale Road West	to Allan Township Line	Campbell	0.6	GR	Resurfacing	4.75	\$90,838.13	7.50		7.25		7.00		6.75	
Kirk Road/Campbell Line	From Tracy Road	to Learmont Road	Campbell	2	GR	Resurfacing	4.75	\$302,793.76	7.50		7.25		7.00		6.75	
McAllister Road	From Highway 542	to end	Carnarvon	1	GR	Resurfacing	4.75	\$151,396.88	7.50		7.25		7.00		6.75	
Will-O-Wisp Way	From Limberlost Lane	to Rainbow Trail	Carnarvon	0.14	GR	Resurfacing	4.75	\$21,195.56	7.50		7.25		7.00		6.75	
Will-O-Wisp Way	From Rainbow Trail	to Ketchanookern Trail	Carnarvon	0.29	GR	Resurfacing	4.75	\$43,905.10	7.50		7.25		7.00		6.75	
Yonge Street ***	From Margaret	to Blue Road	Carnarvon	3.3	GR	Resurfacing	4.75	\$499,609.70	7.50		7.25		7.00		6.75	
Yonge Street	From Perry	From Margaret	Carnarvon	0.2	GR	Resurfacing	4.75	\$30,279.38	7.50		7.25		7.00		6.75	
Case Road	From Trail'S End Road	2.0 km S Of Hwy 542	Sandfield	1.8	GR	Resurfacing	4.95	\$272,514.38	7.50		7.25		7.00		6.75	
Cranston Road	from 2 km westward	to Highway 551	Carnarvon	0.5	LCB	Resurfacing	5.00		4.50	\$124,910.00	10.00		9.50		9.00	
Eliza Jane Street	From Highway 551	to Munro Street	Carnarvon	0.1	LCB	Resurfacing	5.00		4.50	\$24,982.00	10.00		9.50		9.00	
Forest Street	From Thorne	to Highway 542	Carnarvon	0.17	LCB	Resurfacing	5.00		4.50	\$42,469.40	10.00		9.50		9.00	
Monument Road	from 0.5 km north	to Tracy Road	Carnarvon	2	LCB	Resurfacing	5.00		4.50	\$499,640.00	10.00		9.50		9.00	
Monument Road ***	From Cranston Road	to Blue Road	Carnarvon	2	LCB	Resurfacing	5.00		4.50	\$499,640.00	10.00		9.50		9.00	
Case Road	from 2.0 km S Of Hwy 542	to Highway 542	Sandfield	2	GR	Resurfacing	5.05		4.80	\$302,793.76	7.50		7.25		7.00	
Gibraltar Road	From Highway 542	to 0.7 km N	Sandfield	0.7	LCB	Resurfacing	5.50		5.00	\$174,874.00	10.00		9.50		9.00	
Holmes Street	Off of Oriole Park 1km	Off of Oriole Park 1km	Campbell	1	LCB	Resurfacing	5.50		5.00	\$249,820.00	10.00		9.50		9.00	
Monument Road	From Tracy Road	to 1.0 km north	Carnarvon	2.1	LCB	Resurfacing	5.50		5.00	\$524,622.00	10.00		9.50		9.00	
Oriole Park	From Pervale west northward	From Pervale west northward	Campbell	1.1	LCB	Resurfacing	5.50		5.00	\$274,802.00	10.00		9.50		9.00	
Sand Road ***	From Highway 551	to private bush road	Campbell	2	LCB	Resurfacing	5.50		5.00	\$499,640.00	10.00		9.50		9.00	
Silver Bay Road	to Highway 542	to Moody'S Lane	Sandfield	1.3	LCB	Resurfacing	5.50		5.00	\$324,766.00	10.00		9.50		9.00	
Watson Road	From Hwy 542	to Hwy 542	Carnarvon	0.15	LCB	Resurfacing	5.50		5.00	\$37,473.00	10.00		9.50		9.00	
Blue Road ***	From Yonge Street	to 1.4 km W	Carnarvon	1.4	GR	Resurfacing	5.25		5.00	\$211,955.63	7.50		7.25		7.00	
Dial Road	From White Lake Road	to dead end	Sandfield	3.7	GR	Resurfacing	5.25		5.00	\$560,168.46	7.50		7.25		7.00	
Digby'S Sideroad	From Highway 542	to 0.4km inward (year round maintain)	Sandfield	0.2	GR	Resurfacing	5.25		5.00	\$30,279.38	7.50		7.25		7.00	
Townline West	From White Lake Road	to end	Sandfield	0.75	GR	Resurfacing	5.25		5.00	\$113,547.66	7.50		7.25		7.00	
White Church Road	From Britainville Road	to Earle'S Road corner	Campbell	2	GR	Resurfacing	5.25		5.00	\$302,793.76	7.50		7.25		7.00	
Young Road	From Myle'S Sideroad	to end	Sandfield	0.7	GR	Resurfacing	5.25		5.00	\$105,977.82	7.50		7.25		7.00	
White Lake Road	From Townline Road West	to Dial Road	Sandfield	1.1	GR	Resurfacing	5.25		5.00	\$166,536.57	7.50		7.25		7.00	
Silver Bay Road	From East Road	to Paul'S Point Lane	Sandfield	0.9	LCB	Resurfacing	5.80		5.30	\$224,838.00	10.00		9.50		9.00	
Case Road	From the corner of White Lake Road	to Trail'S End Road	Sandfield	0.5	GR	Resurfacing	5.45		5.20	\$75,698.44	7.50		7.25		7.00	
Myles Sideroad	From Homestead Road	to end	Sandfield	0.5	GR	Resurfacing	5.45		5.20	\$75,698.44	7.50		7.25		7.00	
Oakcliffe Drive North	From Mill Road	to end	Sandfield	0.65	GR	Resurfacing	5.45		5.20	\$98,407.97	7.50		7.25		7.00	
Oakcliffe Drive South	From Mill Road	to end	Sandfield	0.65	GR	Resurfacing	5.45		5.20	\$98,407.97	7.50		7.25		7.00	
Stapleton Road	From Highway 542	to private section	Sandfield	0.4	GR	Resurfacing	5.45		5.20	\$60,558.75	7.50		7.25		7.00	
White Lake Road	From Dial Road	to Case Road	Sandfield	1.1	GR	Resurfacing	5.45		5.20	\$166,536.57	7.50		7.25		7.00	
Myles Sideroad	From Highway 542 Westward	to Homestead Road	Sandfield	1.4	GR	Resurfacing	5.45		5.20	\$211,955.63	7.50		7.25		7.00	
Grimesthorpe Road ***	From Beaver Road	to Highway 542	Campbell	2.1	LCB	Resurfacing	6.00		5.50	5.00		4.50	\$524,622.00	10.00		
Monument Road	From Tracy Road	to Learmont Road	Carnarvon	2.1	LCB	Resurfacing	6.00		5.50	5.00		4.50	\$524,622.00	10.00		
Dewar Lane	from lumberlost	to end	Carnarvon	0.2	GR	Resurfacing	5.65		5.40	5.15		4.90	\$30,279.38	7.50		
Maple Lane	From Silver Bay Road	to end	Sandfield	0.8	GR	Resurfacing	5.65		5.40	5.15		4.90	\$121,117.50	7.50		

Municipality Of Central Manitoulin
 Asset Management Plan
 Road Management Plan

ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	6 -10 YR Road Improvement Expenditures									
							2018		2019		2020		2021		2022	
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Mill Road	From Silver Bay Road	to Oakcliffe Drive intersection	Sandfield	2.1	GR	Resurfacing	5.65	5.40	5.15	4.90	\$317,933.45	7.50				
Townline East	From Highway 542	to end	Sandfield	0.7	GR	Resurfacing	5.65	5.40	5.15	4.90	\$105,977.82	7.50				
Townline West	From Highway 542	to White Lake Road (Shared with Tehkummah)	Sandfield	2	GR	Resurfacing	5.65	5.40	5.15	4.90	\$302,793.76	7.50				
Trails End Road	from 0.15 km south	to Case Road	Sandfield	2.1	GR	Resurfacing	5.65	5.40	5.15	4.90	\$317,933.45	7.50				
Ketchankookem Trail	From Oak Lane	to corner of Lakeshore Road	Carnarvon	1.1	LCB	Resurfacing	6.50	6.00	5.50	5.00		4.50	\$274,802.00			
Learmont Road ***	From Perivale Road East	to 1.0 km east	Carnarvon	1	LCB	Resurfacing	6.50	6.00	5.50	5.00		4.50	\$249,820.00			
Monument Road	From Learmont	to Billings Town Line	Carnarvon	2.1	LCB	Resurfacing	6.50	6.00	5.50	5.00		4.50	\$524,622.00			
Silver Bay Road	Past Paul'S Point Lane	to end	Sandfield	0.2	LCB	Resurfacing	6.50	6.00	5.50	5.00		4.50	\$49,964.00			
Square Bay Road	From Beaver Road/ Gilchrist Sideroad intersection	to end	Campbell	1	LCB	Resurfacing	6.60	6.10	5.60	5.10		4.60	\$249,820.00			
Campbell Line Road	From Tracy Road	to Learmont Road	Campbell	2	GR	Resurfacing	5.75	5.50	5.25	5.00		4.75	\$302,793.76			
Perivale Road East ***	From Perivale intersection	to Dawson's Resort	Campbell	1	GR	Resurfacing	5.75	5.50	5.25	5.00		4.75	\$151,396.88			
East Road	From Fox Run (seasonal maintenance section)	to Silver Bay Road (year round maintenance)	Sandfield	2.5	GR	Resurfacing	5.85	5.60	5.35	5.10		4.85	\$378,492.20			
East Road	From Highway 542	to 2 km N	Sandfield	2	GR	Resurfacing	5.85	5.60	5.35	5.10		4.85	\$302,793.76			
Lyon'S Lane	Seasonal road off Highway 542 past East Road	Seasonal road off Highway 542 past East Road	Sandfield	0.5	GR	Resurfacing	5.85	5.60	5.35	5.10		4.85	\$75,698.44			
Nighswander Road	From Silver Bay Road	to private road	Sandfield	0.5	GR	Resurfacing	5.85	5.60	5.35	5.10		4.85	\$75,698.44			
Old Mill Road	From Britainville Road	to Highway 542	Campbell	2	GR	Resurfacing	5.85	5.60	5.35	5.10		4.85	\$302,793.76			
Tracy Road West	From Campbell Line Road	to Monument Road	Carnarvon	2	GR	Resurfacing	5.85	5.60	5.35	5.10		4.85	\$302,793.76			
Watson Bay Road	From Highway 542	to dead end	Sandfield	0.8	GR	Resurfacing	5.95	5.70	5.45	5.20		4.95	\$121,117.50			
Beaver Road	From Highway 542	to 1.0 km W	Campbell	1	LCB		7.00	6.50	6.00	5.50		5.00				
Coventry Road	From Highway 542	to Highway 542	Sandfield	1.2	LCB		7.00	6.50	6.00	5.50		5.00				
Douglas Drive	From Highway 542	to highway 551	Carnarvon	0.36	LCB		7.00	6.50	6.00	5.50		5.00				
Learmont Road ***	From Campbell Line Road	to Monument Road	Carnarvon	1.8	LCB		7.00	6.50	6.00	5.50		5.00				
Learmont Road ***	From Hartley Sideroad	to Cambell Line Road	Carnarvon	2	LCB		7.00	6.50	6.00	5.50		5.00				
Perivale Road East ***	From Learmont Road	Perivale Road East/West intersection	Campbell	3.2	LCB		7.00	6.50	6.00	5.50		5.00				
Perivale Road East	Oriole Park Street	to 1.7 km east	Campbell	1.7	LCB		7.00	6.50	6.00	5.50		5.00				
Blue Road	from 1.4 km W	to Cress Road	Carnarvon	1	GR		6.05	5.80	5.55	5.30		5.05				
Britainville Road	From corner going north	to Old Mill Road	Campbell	2	GR		6.05	5.80	5.55	5.30		5.05				
Britainville Road	From White Church Road in 2km	to western corner	Campbell	2	GR		6.05	5.80	5.55	5.30		5.05				
Dominion Bay Road	Off of Manitou Road	Off of Manitou Road	Campbell	1.6	GR		6.05	5.80	5.55	5.30		5.05				
Evergreen Drive	From Highway 542	to just past Lanktree Sideroad corner	Campbell	2.2	GR		6.05	5.80	5.55	5.30		5.05				
Lanktree Side Road	From Highway 542	to Evergreen Drive	Campbell	2	GR		6.05	5.80	5.55	5.30		5.05				
Manitou Road	From White Church Road	to Dominion Bay Road	Campbell	0.7	GR		6.05	5.80	5.55	5.30		5.05				
Tracy Road East	From Monument Road	to Deer Foot Trail	Carnarvon	1	GR		6.05	5.80	5.55	5.30		5.05				
Blue Road	From Cress Road	to Monument Road	Carnarvon	3.7	GR		6.25	6.00	5.75	5.50		5.25				
Blue Road	From Monument Road	to Highway 551	Carnarvon	2	GR		6.25	6.00	5.75	5.50		5.25				
Cooper Road	From Highway 542	to 0.8km inwards (year round maintenance)	Carnarvon	0.8	GR		6.25	6.00	5.75	5.50		5.25				
Cranston Road ***	From Monument Road	to River Road	Carnarvon	0.8	GR		6.25	6.00	5.75	5.50		5.25				
Cress Road	From McAllister Road	to Blue Road	Carnarvon	2	GR		6.25	6.00	5.75	5.50		5.25				
Elliot Road	From Highway 542	to Hill Road	Carnarvon	2	GR		6.25	6.00	5.75	5.50		5.25				
Elliot Road	From hill Road	to Rockville Road	Carnarvon	2	GR		6.25	6.00	5.75	5.50		5.25				
Hill Road	From Highway 551	to Elliot Road	Carnarvon	2	GR		6.25	6.00	5.75	5.50		5.25				
Lakeshore Road	From corner of Ketchancookem Trail	to Hare'S Lane	Carnarvon	0.8	GR		6.25	6.00	5.75	5.50		5.25				
Anglin Street	From corner of Bay	to corner of Yonge St.	Carnarvon	0.13	LCB		7.50	7.00	6.50	6.00		5.50				
Anglin Street	From Corner of Nixon	to corner of Bay St.	Carnarvon	0.28	LCB		7.50	7.00	6.50	6.00		5.50				
Beaver Road	to corner of Bay St.	to 1.1 km W	Campbell	1.1	LCB		7.50	7.00	6.50	6.00		5.50				
Cranston Road ***	from River Road	to 2 km westward	Carnarvon	0.2	LCB		7.50	7.00	6.50	6.00		5.50				
Eliza Jane Street	From McNevin Street	to Highway 551	Carnarvon	0.1	LCB		7.50	7.00	6.50	6.00		5.50				
Gilchrist Side Road	From Beaver Road	to Highway 542	Campbell	2	LCB		7.50	7.00	6.50	6.00		5.50				
Monument Road	From Blue Road	to Highway 542	Carnarvon	2	LCB		7.50	7.00	6.50	6.00		5.50				
Monument Road	From Highway 542	to 0.5 km north	Carnarvon	2	LCB		7.50	7.00	6.50	6.00		5.50				
Silver Bay Road	From Franks Road	to Mill Road	Sandfield	1.2	LCB		7.50	7.00	6.50	6.00		5.50				
Silver Bay Road	from Moody'S Lane	to Frank'S Road	Sandfield	1.7	LCB		7.50	7.00	6.50	6.00		5.50				
Yonge Street	From Blue Road	To Government		4	LCB		7.50	7.00	6.50	6.00		5.50				
Fox Run	From East Road	to end	Sandfield	0.5	GR		7.95	7.70	7.45	7.20		6.95				
Lakeshore Road	From Hare'S Lane	to Highway 542	Carnarvon	1.4	GR		8.05	7.80	7.55	7.30		7.05				
Burke Street	From Lake Huron Drive	to end	Campbell	0.8	GR		8.75	8.50	8.25	8.00		7.75				
Frank'S Road	From Silver Bay Road	to Frank'S Road intersection	Sandfield	2.3	GR		8.75	8.50	8.25	8.00		7.75				
Frank'S Road East	From Frank'S Road intersection	to end	Sandfield	0.5	GR		8.75	8.50	8.25	8.00		7.75				
Frank'S Road West	From Frank'S Road intersection	to end	Sandfield	0.8	GR		8.75	8.50	8.25	8.00		7.75				
Hutchinson Road	From Highway 542	to end	Sandfield	0.1	GR		8.75	8.50	8.25	8.00		7.75				
Lake Huron Drive	From Burke Street	to end at Loughheed Bay	Campbell	2.2	GR		8.75	8.50	8.25	8.00		7.75				
Average Condition Rating by Year							7.05	6.85	6.64	6.74	6.51					

**Municipality Of Central Manitoulin
 Asset Management Plan
 Road Management Plan**

ROAD	Road Description/Name	Road Description/Name	Township	Length (km)	Surface Type	Road Improvement Type	6 -10 YR Road Improvement Expenditures									
							2018		2019		2020		2021		2022	
							C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$

NOTES

*** Road segment includes a portion of the Manitouline Island Cycling Advocates trail system
 (2014 SRNMIF) Application to: Small, Rural and Northern Municipal Infrastructure Fund to be submitted in 2014

\$1,656,281.87 \$1,494,435.16 \$4,589,358.04 \$2,245,279.35 \$3,362,606.50



cutting through complexity



Asset Management Planning
for the Municipality of Central Manitoulin

Appendix B Infrastructure Profile Water



Municipality Of Central Manitoulin
Asset Management Plan
Water Network - Mains

Watermain	Description - Section	Location	Length In Meters	Diameter	Date Installed	Years Of Service	Life Cycle Cost (80 Years)*	Date To Replace	Replacement Cost 2013
5	V-A2 --- H-A3	Ketchankookem Trail	7	250	1986	27	\$6,105.41	2066	\$4,550.14
6	H-A3 --- V-A3	Ketchankookem Trail	46	250	1986	27	\$40,121.29	2066	\$29,900.92
7	V-A3---H-B1	Hwy 551	95	250	1986	27	\$82,859.19	2066	\$61,751.90
8	H-B1 --- H-B2	Hwy 551	144	250	1986	27	\$125,597.09	2066	\$93,602.88
9	H-B2 --- V-B1	Hwy 551	86	250	1986	27	\$75,009.37	2066	\$55,901.72
10	V-B1 --- H-B3	Hwy 551	66	250	1986	27	\$57,565.33	2066	\$42,901.32
11	H-B3 --- H-B4	Hwy 551	136	250	1986	27	\$118,619.47	2066	\$88,402.72
12	H-B4 --- V-B2	Hwy 551	98	250	1986	27	\$85,475.80	2066	\$63,701.96
13	V-B2 --- H-B5	Hwy 551	63	250	1986	27	\$54,948.73	2066	\$40,951.26
14	H-B5 --- H-B6	Hwy 551	132	250	1986	27	\$115,130.66	2066	\$85,802.64
15	H-B6 --- V-B3	Hwy 551	105	250	1986	27	\$91,581.21	2066	\$68,252.10
16	V-B3 --- 250X150mm TEE	Hwy 551	10	250	1986	27	\$8,722.02	2066	\$6,500.20
17	250X150mm TEE --- V-B4	Hwy 551	85	250	1986	27	\$74,137.17	2066	\$55,251.70
18	V-B4 --- 250x200mm CROSS/TEE	Hwy 551/Yonge Street	15.5	250	1986	27	\$13,519.13	2066	\$10,075.31
19	250x200 CROSS/TEE --- 250X200mm REDUCER	Yonge Street	6.5	200	1986	27	\$5,182.92	2071	\$3,789.11
20	250x200mm REDUCER --- V-B5	Yonge Street	85	200	1986	27	\$67,776.62	2071	\$49,549.90
21	V-B5 --- 200x150mm TEE	Yonge Street	11	200	1986	27	\$8,771.09	2071	\$6,412.34
22	200x150mm TEE --- H-B7	Yonge Street	8	200	1986	27	\$6,378.98	2071	\$4,663.52
23	H-B7 --- 200x150mm CROSS/TEE	Yonge Street	92	200	1986	27	\$73,358.22	2071	\$53,630.48
24	200x150mm CROSS/TEE --- V-B6	Yonge Street	8	200	1986	27	\$6,378.98	2071	\$4,663.52
25	V-B6 --- H-B8	Yonge Street	87	200	1986	27	\$69,371.36	2071	\$50,715.78
26	H-B8 --- 200x150mm TEE	Yonge Street	66	200	1986	27	\$52,626.55	2071	\$38,474.04
27	200x150mm TEE --- V-B7	Yonge Street	10	200	1986	27	\$7,973.72	2071	\$5,829.40
28	V-B7 --- H-B9	Yonge Street	70	200	1986	27	\$55,816.04	2071	\$40,805.80
29	H-B9 --- V-B8	Yonge Street	132	200	1986	27	\$105,253.10	2071	\$76,948.08
30	V-B8 --- H-B10	Yonge Street	10.5	200	1986	27	\$8,372.41	2071	\$6,120.87
31	H-B10 --- H-B11	Yonge Street	145.5	200	1986	27	\$116,017.63	2071	\$84,817.77
32	H-B11 --- 200x150mm TEE	Yonge Street	23	200	1986	27	\$18,339.56	2071	\$13,407.62
33	200x150mm TEE --- 200mm PLUG	Yonge Street	1.5	200	1986	27	\$1,196.06	2071	\$874.41
34	150x250mm TEE --- V-C1	Douglas Street	14	150	1986	27	\$9,919.59	2076	\$7,166.04
35	V-C1 --- H-C1	Douglas Street	47	150	1986	27	\$33,301.47	2076	\$24,057.42
36	H-C1 --- H-C2	Douglas Street	137	150	1986	27	\$97,070.25	2076	\$70,124.82
37	H-C2 --- 90 DEGREE BEND	Douglas Street	50	150	1986	27	\$35,427.10	2076	\$25,593.00
38	90 DEGREE BEND ---- V-C2	Douglas Street	88	150	1986	27	\$62,351.70	2076	\$45,043.68
39	V-C2 --- 150-200mm TEE	Douglas Street - Hwy 542	11	150	1986	27	\$7,793.96	2076	\$5,630.46
40	PLUG --- H-D1	Hwy 542	2	200	1986	27	\$1,594.74	2071	\$1,165.88
41	H-D1 --- V-D1	Hwy 542	120	200	1986	27	\$95,684.64	2071	\$69,952.80
42	V-D1 --- H-D2	Hwy 542	46	200	1986	27	\$36,679.11	2071	\$26,815.24
43	H-D2 --- H-D3	Hwy 542	116	200	1986	27	\$92,495.15	2071	\$67,621.04
44	H-D3 --- V-D2	Hwy 542	138	200	1986	27	\$110,037.34	2071	\$80,445.72
45	V-D2 --- H-D4	Hwy 542	12	200	1986	27	\$9,568.46	2071	\$6,995.28
46	H-D4 --- H-D5	Hwy 542	150	200	1986	27	\$119,605.80	2071	\$87,441.00
47	H-D5 --- V-D3	Hwy 542	138	200	1986	27	\$110,037.34	2071	\$80,445.72
48	V-D3 --- H-D6	Hwy 542	12	200	1986	27	\$9,568.46	2071	\$6,995.28
49	H-D6 --- H-D7	Hwy 542	144	200	1986	27	\$114,821.57	2071	\$83,943.36
50	H-D7 --- 200x150mm TEE	Hwy 542	138	200	1986	27	\$110,037.34	2071	\$80,445.72
51	200x150mm TEE --- V-D4	Hwy 542	8	200	1986	27	\$6,378.98	2071	\$4,663.52
52	V-D4 --- H-D9	Hwy 542	145	200	1986	27	\$115,618.94	2071	\$84,526.30
53	H-D9 --- 200x150mm TEE	Hwy 542	2	200	1986	27	\$1,594.74	2071	\$1,165.88
54	200x150mm TEE --- 200X150mm TEE	Hwy 542	5	200	1986	27	\$3,986.86	2071	\$2,914.70
55	200x150mm TEE --- V-D5	Hwy 542	6	200	1986	27	\$4,784.23	2071	\$3,497.64
56	V-D5 --- H-D10	Hwy 542	140	200	1986	27	\$111,632.08	2071	\$81,611.60
57	H-D10 --- V-D6	Hwy 542	84	200	1986	27	\$66,979.25	2071	\$48,966.96
58	V-D6 --- 200x250mm CROSS/TEE	Hwy 542	12	200	1986	27	\$9,568.46	2071	\$6,995.28
59	200x250mm CROSS/TEE --- V-D7	King Street	10	200	1986	27	\$7,973.72	2071	\$5,829.40
60	V-D7 --- H-D19	King Street	30	200	1986	27	\$23,921.16	2071	\$17,488.20
61	H-D19 --- H-D11	King Street	144	200	1986	27	\$114,821.57	2071	\$83,943.36
62	H-D11 --- V-D8	King Street	28	200	1986	27	\$22,326.42	2071	\$16,322.32
63	V-D8 --- H-D12	King Street	98	200	1986	27	\$78,142.46	2071	\$57,128.12
64	H-D12 --- 200x150mm TEE	King Street	95	200	1986	27	\$75,750.34	2071	\$55,379.30
65	200x150mm TEE --- V-D9	King Street	8	200	1986	27	\$6,378.98	2071	\$4,663.52
66	V-D9 --- H-D13	King Street	60	200	1986	27	\$47,842.32	2071	\$34,976.40
67	H-D13 --- H-D14	Hwy 542	135	200	1986	27	\$107,645.22	2071	\$78,696.90
68	H-D14 --- V-D10	Hwy 542	105	200	1986	27	\$83,724.06	2071	\$61,208.70
69	V-D10 --- H-D15	Hwy 542	52	200	1986	27	\$41,463.34	2071	\$30,312.88
70	H-D15 --- H-D16	Hwy 542	144	200	1986	27	\$114,821.57	2071	\$83,943.36
71	H-D16 --- V-D11	Hwy 542	102	200	1986	27	\$81,331.94	2071	\$59,459.88
72	V-D11 --- H-D17	Hwy 542	54	200	1986	27	\$43,058.09	2071	\$31,478.76
73	H-D17 --- H-D18	Hwy 542	140	200	1986	27	\$111,632.08	2071	\$81,611.60
74	H-D18 --- H-D20	Hwy 542	102	200	1986	27	\$81,331.94	2071	\$59,459.88
75	H-D20 - PLUG	Hwy 542	2	200	1986	27	\$1,594.74	2071	\$1,165.88
76	200x150mm TEE --- V-K1	Nixon Street	7	150	1986	27	\$4,959.79	2076	\$3,583.02
77	V-K1 --- H-D8	Nixon Street	18	150	1986	27	\$12,753.76	2076	\$9,213.48
78	H-D8 --- 150x150mm TEE	Nixon Street	73	150	1986	27	\$51,723.57	2076	\$37,365.78
79	150x150mm TEE --- V-K2	Nixon Street	4	150	1986	27	\$2,834.17	2076	\$2,047.44
80	V-K2 --- H-F1	Nixon Street	39	150	1986	27	\$27,633.14	2076	\$19,962.54
81	H-F1 --- 150x150mm TEE	Nixon Street	55	150	1986	27	\$38,969.81	2076	\$28,152.30
82	150x150mm TEE --- V-K3	Nixon Street	9	150	1986	27	\$6,376.88	2076	\$4,606.74
83	V-K3--- H-H4	Nixon Street	69	150	1986	27	\$48,889.40	2076	\$35,318.34

**Municipality Of Central Manitoulin
Asset Management Plan
Water Network - Mains**

Watermain	Description - Section	Location	Length In Meters	Diameter	Date Installed	Years Of Service	Life Cycle Cost (80 Years)*	Date To Replace	Replacement Cost 2013
84	H-H4 --- 90 DEGREE BEND	Nixon Street	90	150	1986	27	\$63,768.78	2076	\$46,067.40
85	90 DEGREE BEND --- V-H1	Anglin Street	4	150	1986	27	\$2,834.17	2076	\$2,047.44
86	V-H1 --- H-H1	Anglin Street	67	150	1986	27	\$47,472.31	2076	\$34,294.62
87	H-H1 --- H-H2	Anglin Street	126	150	1986	27	\$89,276.29	2076	\$64,494.36
88	H-H2 --- V-H2	Anglin Street	79	150	1986	27	\$55,974.82	2076	\$40,436.94
89	V-H2 --- 150x150mm TEE	Anglin Street	10.5	150	1986	27	\$7,439.69	2076	\$5,374.53
90	150x150mm TEE --- H-H3	Anglin Street	55	150	1986	27	\$38,969.81	2076	\$28,152.30
91	H-H3 --- V-H3	Anglin Street	58	150	1986	27	\$41,095.44	2076	\$29,687.88
92	V-H3 ---150x200mm TEE	Anglin Street	10.5	150	1986	27	\$7,439.69	2076	\$5,374.53
93	150x150mm TEE --- V-F1	Duke Street	9	150	1986	27	\$6,376.88	2076	\$4,606.74
94	V-F1 --- H-F2	Duke Street	82	150	1986	27	\$58,100.44	2076	\$41,972.52
95	H-F2 --- 150x150mm TEE	Duke Street	75	150	1986	27	\$53,140.65	2076	\$38,389.50
96	150x150mm TEE --- V-F2	Duke Street	4	150	1986	27	\$2,834.17	2076	\$2,047.44
97	V-F2 --- H-F3	Duke Street	74	150	1986	27	\$52,432.11	2076	\$37,877.64
98	H-F3 --- V-F3	Duke Street	155	150	1986	27	\$109,824.01	2076	\$79,338.30
99	V-F3 --- 150x200mm TEE	Duke Street	11	150	1986	27	\$7,793.96	2076	\$5,630.46
100	200x150mm TEE --- V-L1	Laurier Lane	7.5	150	1986	27	\$5,314.07	2076	\$3,838.95
101	V-L1 --- V-L2	Laurier Lane	81	150	1986	27	\$57,391.90	2076	\$41,460.66
102	V-L2 --- 150x150mm TEE	Laurier Lane	12	150	1986	27	\$8,502.50	2076	\$6,142.32
103	150x150mm TEE --- V-G1	Thorne Street	9	150	1986	27	\$6,376.88	2076	\$4,606.74
104	V-G1 --- H-G1	Thorne Street	65	150	1986	27	\$46,055.23	2076	\$33,270.90
105	H-G1 --- V-G2	Thorne Street	137	150	1986	27	\$97,070.25	2076	\$70,124.82
106	V-G2 --- H-G2	Thorne Street	22	150	1986	27	\$15,587.92	2076	\$11,260.92
107	H-G2 --- H-G3	Thorne Street	141	150	1986	27	\$99,904.42	2076	\$72,172.26
108	H-G3 --- V-G3	Thorne Street	27	150	1986	27	\$19,130.63	2076	\$13,820.22
109	V-G3 --- 250x150mm CROSS/TEE	Thorne Street	10	150	1986	27	\$7,085.42	2076	\$5,118.60
110	250x150mm CROSS/TEE --- V-G4	Thorne Street	10	150	1986	27	\$7,085.42	2076	\$5,118.60
111	V-G4 --- H-G4	Thorne Street	102	150	1986	27	\$72,271.28	2076	\$52,209.72
112	H-G4 --- H-G5	Thorne Street	150	150	1986	27	\$106,281.30	2076	\$76,779.00
113	H-G5 --- V-G5	Thorne Street	45	150	1986	27	\$31,884.39	2076	\$23,033.70
114	V-G5 --- 90 DEGREE BEND	Thorne Street	100	150	1986	27	\$70,854.20	2076	\$51,186.00
115	90 degree bend --- H-E2	Forest Street (Thorne St. E)	5	150	1986	27	\$3,542.71	2076	\$2,559.30
116	H-E2 --- H-E1	Forest Street (Thorne St. E)	150	150	1986	27	\$106,281.30	2076	\$76,779.00
117	H-E1 --- V-E1	Forest Street (Thorne St. E)	37	150	1986	27	\$26,216.05	2076	\$18,938.82
118	V-E1 --- 200x150mm TEE	Forest Street (Thorne St. E)	7.5	150	1986	27	\$5,314.07	2076	\$3,838.95
119	150x150mm TEE --- V-I1	Bay Street	9	150	1986	27	\$6,376.88	2076	\$4,606.74
120	V-I1 --- H-I1	Bay Street	65	150	1986	27	\$46,055.23	2076	\$33,270.90
121	H-I1 --- 150x50mm TEE	Bay Street	130	150	1986	27	\$92,110.46	2076	\$66,541.80
122	150x50mm TEE --- V-I2	Bay Street	9	150	1986	27	\$6,376.88	2076	\$4,606.74
123	V-I2 --- H-I2	Bay Street	6	150	1986	27	\$4,251.25	2076	\$3,071.16
124	H-I2 --- H-I3	Bay Street	150	150	1986	27	\$106,281.30	2076	\$76,779.00
125	H-I3 --- V-I3	Bay Street	26.5	150	1986	27	\$18,776.36	2076	\$13,564.29
126	V-I3 --- 150x150mm CROSS	Bay Street	10.5	150	1986	27	\$7,439.69	2076	\$5,374.53
127	150x150mm CROSS --- PLUG	Bay Street - Margaret St.	6.5	150	1986	27	\$4,605.52	2076	\$3,327.09
128	150x50mm TEE --- PLUG	Perry Street	72	150	1986	27	\$51,015.02	2076	\$36,853.92
129	PLUG --- 150x150mm CROSS/TEE	Margaret Street	42.5	150	1986	27	\$30,113.04	2076	\$21,754.05
130	150x150mm CROSS/TEE --- V-J1	Margaret Street	8	150	1986	27	\$5,668.34	2076	\$4,094.88
131	V-J1 --- H-J1	Margaret Street	35.5	150	1986	27	\$25,153.24	2076	\$18,171.03
132	H-J1 --- V-J2	Margaret Street	69	150	1986	27	\$48,889.40	2076	\$35,318.34
133	V-J2- 200x150mm TEE	Margaret Street	11.5	150	1986	27	\$8,148.23	2076	\$5,886.39

Summary of Asset Replacement & Cost by Year	
Total Reconstruction Cost 2066	\$707,546.77
Total Reconstruction Cost 2071	\$2,030,380.02
Total Reconstruction Cost 2076	\$1,689,138.00

Total	\$6,064,827.15	\$4,427,064.79
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Asset Management Planning
for the Municipality of Central Manitoulin

Appendix C Infrastructure Profile Wastewater



**Municipality Of Central Manitoulin
Asset Management Plan
Sanitary Sewer Network - Pipes**

Section I.D.	Description	Location	Length In Meters	Diameter	Date Installed	Years Of Service	Life Cycle Cost (80 Years)	Date to Replace	Reconstruction Cost 2013
70	MH62A-MH63A	Hwy 551	121.2	375	1986	27	\$183,359.29	2046	\$132,118.91
71	MH63A-MH64A	Hwy 551	115.2	375	1986	27	\$174,282.09	2046	\$125,578.37
72	MH64A-MH65A	Hwy 551	123.1	375	1986	27	\$186,233.73	2046	\$134,190.08
73	MH65A-MH66A	Hwy 551	119.8	375	1986	27	\$181,241.27	2046	\$130,592.78
74	MH66A-MH67A	Hwy 551	113	375	1986	27	\$170,953.79	2046	\$123,180.17
75	MH67A-Pump. Stat.	Ketchankookem Trail	56.3	375	1986	27	\$85,174.32	2046	\$61,372.07
62	MH19A-MH55A	Hwy 551	105.6	300	1986	27	\$159,758.59	2051	\$115,113.50
67	MH55A-MH60A	Hwy 551	106.3	300	1986	27	\$160,817.59	2051	\$115,876.57
68	MH60A-MH61A	Hwy 551	107.2	300	1986	27	\$162,179.17	2051	\$116,857.65
69	MH61A-MH62A	Hwy 551	119.9	300	1986	27	\$181,392.56	2051	\$130,701.79
58	MH29A-MH32A	Hwy 542 (King St)	93.2	250	1986	27	\$140,999.06	2056	\$101,596.39
59	MH32A-MH33A	Hwy 542 (King St)	92.9	250	1986	27	\$140,545.20	2056	\$101,269.36
60	MH33A-MH34A	Hwy 542 (King St)	98.7	250	1986	27	\$149,319.81	2056	\$107,591.88
61	MH34A-MH19A	Hwy 542 (King St)	120.6	250	1986	27	\$182,451.57	2056	\$131,464.85
1	MH1B-MH3B	Margaret Street	40.8	200	1986	27	\$61,724.91	2061	\$44,475.67
2	MH2B-MH3B	Margaret Street	83.1	200	1986	27	\$125,719.11	2061	\$90,586.48
3	MH3B-MH35A	Bay Street	32.5	200	1986	27	\$49,168.13	2061	\$35,427.93
4	MH35A-MH36A	Bay Street	84.2	200	1986	27	\$127,383.27	2061	\$91,785.58
5	MH36A-MH37A	Bay Street	84.6	200	1986	27	\$127,988.41	2061	\$92,221.61
6	MH38A-MA37A	Perry Street	74.3	200	1986	27	\$112,405.90	2061	\$80,993.69
7	MH37A-MA39A	Bay Street	101.6	200	1986	27	\$153,707.12	2061	\$110,753.14
8	MH39A-MH40A	Bay Street	100.5	200	1986	27	\$152,042.97	2061	\$109,554.05
9	MH41B-MH41A	Anglin Street	69.7	200	1986	27	\$105,446.72	2061	\$75,979.27
10	MH41A-MH42A	Anglin Street	111	200	1986	27	\$167,928.06	2061	\$120,999.99
11	MH42A-MH40A	Anglin Street	110.6	200	1986	27	\$167,322.91	2061	\$120,563.95
12	MH40A-MH43A	Anglin Street	62.9	200	1986	27	\$95,159.23	2061	\$68,566.66
13	MH43A-MH44A	Anglin Street	63.6	200	1986	27	\$96,218.24	2061	\$69,329.72
14	MH41C-MH41B	Nixon Street	110.6	200	1986	27	\$167,322.91	2061	\$120,563.95
15	MH49A-MH50A	Nixon Street	69.9	200	1986	27	\$105,749.29	2061	\$76,197.29
16	MH50A-MH51A	Thorne Street	120.3	200	1986	27	\$181,997.71	2061	\$131,137.83
17	MH51A-MH52A	Thorne Street	99	200	1986	27	\$149,773.67	2061	\$107,918.91
18	MH52A-MH53A	Thorne Street	97.4	200	1986	27	\$147,353.09	2061	\$106,174.77
19	MH53A-MH46A	Thorne Street	93.8	200	1986	27	\$141,906.77	2061	\$102,250.44
20	MH47B-MH-47A	Thorne Street	119.5	200	1986	27	\$180,787.42	2061	\$130,265.76
21	MH47A-MH48A	Thorne Street	89.7	200	1986	27	\$135,704.03	2061	\$97,781.07
22	MH48A-MH46A	Thorne Street	99.4	200	1986	27	\$150,378.82	2061	\$108,354.95
23	MH30A-MH31A	Thorne Street	99.9	200	1986	27	\$151,135.25	2061	\$108,899.99
24	MH31A-MH28A	Thorne Street	88.5	200	1986	27	\$133,888.59	2061	\$96,472.97
25	MH15A-MH16A	Duke Street	88.7	200	1986	27	\$134,191.16	2061	\$96,690.98
26	MH16A-MH14A	Duke Street	64.8	200	1986	27	\$98,033.68	2061	\$70,637.83
27	MH12A-MH13A	Duke Street	70.4	200	1986	27	\$106,505.72	2061	\$76,742.34
28	MH13A-MH14A	Duke Street	109.6	200	1986	27	\$165,810.05	2061	\$119,473.86
29	MH14A-MH11A	Laurier Lane	96.5	200	1986	27	\$145,991.51	2061	\$105,193.69
30	MH4B-MH5B	Yonge Street	105.1	200	1986	27	\$159,002.15	2061	\$114,568.46
31	MH5B-MH6B	Yonge Street	99.6	200	1986	27	\$150,681.39	2061	\$108,572.96
32	MH6B-MH44A	Yonge Street	102.1	200	1986	27	\$154,463.56	2061	\$111,298.19
33	MH44A-MH45A	Yonge Street	82.5	200	1986	27	\$124,811.40	2061	\$89,932.43
34	MH45A-MH46A	Yonge Street	80.7	200	1986	27	\$122,088.24	2061	\$87,970.26
35	MH46A-MH54A	Yonge Street	100.6	200	1986	27	\$152,194.26	2061	\$109,663.05
36	MH54A-MH19A	Yonge Street	98.6	200	1986	27	\$149,168.53	2061	\$107,482.87
37	MH1A-MH2A	Hwy 542	88.2	200	1986	27	\$133,434.73	2061	\$96,145.94
38	MH2A-MH3A	Hwy 542	120	200	1986	27	\$181,543.85	2061	\$130,810.80
39	MH3A-MH4A	Hwy 542	120	200	1986	27	\$181,543.85	2061	\$130,810.80
40	MH4A-MH5A	Hwy 542	119.3	200	1986	27	\$180,484.84	2061	\$130,047.74
41	MH5A-MH6A	Hwy 542	120.3	200	1986	27	\$181,997.71	2061	\$131,137.83
42	MH6A-MH7A	Hwy 542	120.2	200	1986	27	\$181,846.42	2061	\$131,028.82
43	MH7A-MH8A	Hwy 542	119.6	200	1986	27	\$180,938.70	2061	\$130,374.76
44	MH8A-MH9A	Hwy 542	120.3	200	1986	27	\$181,997.71	2061	\$131,137.83
45	MH9A-MH10A	Hwy 542	121.7	200	1986	27	\$184,115.72	2061	\$132,663.95
46	MH10A-MH11A	Hwy 542	119.2	200	1986	27	\$180,333.56	2061	\$129,938.73
47	MH11A-MH17A	Hwy 542	94.6	200	1986	27	\$143,117.07	2061	\$103,122.51
48	MH17A-MH18A	Hwy 542	54.8	200	1986	27	\$82,905.02	2061	\$59,736.93
49	MH18A-MH19A	Hwy 542	91.9	200	1986	27	\$139,032.33	2061	\$100,179.27
50	MH21A-MH22A	Hwy 542	84.4	200	1986	27	\$127,685.84	2061	\$92,003.60
51	MH22A-MH23A	Hwy 542	95.2	200	1986	27	\$144,024.79	2061	\$103,776.57
52	MH23A-MH24A	Hwy 542	121.1	200	1986	27	\$183,208.00	2061	\$132,009.90
53	MH24A-MH25A	Hwy 542	119.6	200	1986	27	\$180,938.70	2061	\$130,374.76
54	MH25A-MH26A	Hwy 542	120	200	1986	27	\$181,543.85	2061	\$130,810.80
55	MH26A-MH27A	Hwy 542	120	200	1986	27	\$181,543.85	2061	\$130,810.80
56	MH27A-MH28A	Hwy 542	119.85	200	1986	27	\$181,316.92	2061	\$130,647.29
57	MH28A-MH29A	Hwy 542	119.3	200	1986	27	\$180,484.84	2061	\$130,047.74
63	MH56A-MH57A	Douglas Drive	37.9	200	1986	27	\$57,337.60	2061	\$41,314.41
64	MH57A-MH58A	Douglas Drive	70.4	200	1986	27	\$106,505.72	2061	\$76,742.34
65	MH58A-MH59A	Douglas Drive	89.2	200	1986	27	\$134,947.59	2061	\$97,236.03
66	MH59A-MH55A	Douglas Drive	83.7	200	1986	27	\$126,626.83	2061	\$91,240.53

Summary of Asset Replacement & Cost by Year	
Total Reconstruction Cost 2046	\$707,032.37
Total Reconstruction Cost 2051	\$478,549.51
Total Reconstruction Cost 2056	\$441,922.49
Total Reconstruction Cost 2061	\$6,319,633.26

Total	\$11,029,318.27	\$7,947,137.63
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cutting through complexity



Asset Management Planning
for the Municipality of Central Manitoulin

Appendix D Infrastructure Profile Bridges and Structures



MUNICIPALITY OF CENTRAL MANITOULIN

BRIDGE ASSET SUMMARY

#	General Bridge Information						Remaining Service Life (Years)			BCI (2012)	Replacement Cost	Associated Costs			
	Structure Name	Superstructure/Deck Type	Substructure	Year Built	Rehab	Est. Age	Substructure	Superstructure	Deck			Life Cycle Costs			
												Immediate	Within 1 Year	1-5 Years	6-10 Years
1	Union Road Bridge	Timber Stringer, Timber Deck	Timber Piles	1966	-	47	3	6	6	88	\$144,100.60	\$0.00	\$4,000.00	\$0.00	\$144,100.00
2	Beaver Road (West) Bridge	Timber Stringer, Timber Deck	Timber Crib	1957	-	56	10	10	10	86	\$123,541.40	\$1,000.00	\$0.00	\$500.00	\$123,500.00
3	Beaver Road (East) Bridge	Timber Stringer, Timber Deck	Timber Crib	1957	-	56	10	10	10	86	\$115,151.60	\$1,000.00	\$1,000.00	\$0.00	\$115,150.00
4	Learmont Road Culvert	SP CSP Arch Pipe	-	1961	-	52	-	-	-	91	\$93,500.00	\$0.00	\$100.00	\$250.00	\$93,500.00
5	Monument Road Bridge	Concrete Rigid Frame	Concrete	2006	-	7	63	63	63	100	\$460,234.91	\$0.00	\$0.00	\$0.00	\$0.00
6	Blue Road Bridge	Steel Girder, Concrete Deck	Concrete	2005	-	8	62	62	42	100	\$463,041.81	\$0.00	\$250.00	\$0.00	\$0.00
7	Cranston Road Bridge	SP CSP Arch Pipe	-	1958	-	55	-	-	-	92	\$146,550.00	\$0.00	\$250.00	\$0.00	\$146,550.00
8	Ketchancookem Trail Bridge	Precast Voided Slab	Concrete	2007	-	6	64	64	64	100	\$827,985.63	\$0.00	\$0.00	\$2,000.00	\$0.00
9	Case Road Bridge	Steel Girder, Timber Deck	Concrete	1974	2010	39	17	67	47	100	\$170,114.60	\$0.00	\$500.00	\$0.00	\$0.00
10	Town Line Road Bridge*	Steel Girder, Timber Deck	Concrete	1970	-	43	12	4	14	79	\$139,687.00	\$0.00	\$0.00	\$69,843.50	\$0.00
11	McAllister (Grimesthorpe) Road Bridge	Concrete Precast Arches	Concrete	2012	-	1	69	69	69	100	\$792,486.94	\$0.00	\$0.00	\$0.00	\$0.00
											\$2,683,907.55	\$2,000.00	\$6,100.00	\$72,593.50	\$622,800.00

Bridge Condition Index (BCI)	
Good	100 - 70
Fair	70 - 60
Poor	< 60

NOTES:

* Central Manitoulin only has 50% ownership of Town Line Road Bridge, therefore only 50% of calculated lifecycle costs are shown.



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**Asset Management Planning
for the Municipality of Central Manitoulin**

Appendix E Infrastructure Profile Buildings and Facilities



MUNICIPALITY OF CENTRAL MANITOULIN

BUILDING ASSET SUMMARY

	Building Name	General Building Information				Remaining Service Life				Condition Index	Replacement Cost	Associated Costs			
		Use	Year of Construction	Age (Yrs)	Size (ft ²)	Structure	Mechanical	Electrical	Roof			Life Cycle Costs			
												Immediate	0-5 Years	5-10 Years	Total
1	Spring Bay Community Hall	Recreation	1964	49	1,600	16	7	8	28	4.2%	\$ 240,000	\$ -	\$ -	\$ 10,017	\$ 10,017
2	Spring Bay Fire Hall	Fire	1989	24	2,480	45	6	7	8	10.4%	\$ 362,500	\$ 300	\$ -	\$ 37,565	\$ 37,865
3	Mindemoya Arena	Recreation	1945	68	12,425	7	4	14	24	29.8%	\$ 1,744,000	\$ -	\$ 190,000	\$ 329,500	\$ 519,500
4	Mindemoya Old School	General	1940	73	16,000	21	14	8	19	2.5%	\$ 1,700,000	\$ 5,000	\$ -	\$ 37,500	\$ 42,500
5	Mindemoya Community Hall	Recreation	1950	63	2,400	21	8	25	7	4.2%	\$ 567,500	\$ -	\$ -	\$ 23,602	\$ 23,602
6	Mindemoya Municipal Garage	Roads	1972	41	3,000	37	23	16	9	8.1%	\$ 359,000	\$ -	\$ -	\$ 29,250	\$ 29,250
7	Mindemoya Municipal Complex	General	1991	22	2,400	35	10	7	28	1.2%	\$ 342,500	\$ -	\$ -	\$ 4,000	\$ 4,000
8	Mindemoya Fire Hall	Fire	1960	53	2,400	0	8	7	0	44.6%	\$ 358,000	\$ 25,000	\$ 90,000	\$ 44,500	\$ 159,500
9	Providence Bay Arena	Recreation	1945	68	10,956	24	4	6	34	2.0%	\$ 1,522,500	\$ -	\$ 20,000	\$ 10,000	\$ 30,000
10	Providence Bay Fire Hall	Fire	1977	36	1,200	18	20	7	9	2.4%	\$ 258,000	\$ -	\$ -	\$ 6,124	\$ 6,124
11	Sandfield Community Centre	Recreation	2010	3	1,850	59	34	21	28	0.0%	\$ 410,000	\$ -	\$ -	\$ -	\$ -
12	Sandfield Fire Hall	Fire	1988	25	2,000	31	6	7	4	12.7%	\$ 266,500	\$ -	\$ 19,500	\$ 14,385	\$ 33,885
13	Sandfield Municipal Garage	Roads	1988	25	1,800	63	6	7	6	14.5%	\$ 227,000	\$ -	\$ -	\$ 32,935	\$ 32,935
14	Big Lake Community Centre	Recreation	1926	87	1,200	21	11	7	4	5.6%	\$ 245,000	\$ -	\$ 11,700	\$ 2,000	\$ 13,700
15	Mindemoya Lake Pavillion	Recreation	1977	36	NA	43	5	7	36	12.1%	\$ 110,000	\$ -	\$ 11,335	\$ 2,000	\$ 13,335
16	Mindemoya Park - Playground Pavillion	Recreation	2010	3	NA	71	21	21	28	0.0%	\$ 160,000	\$ -	\$ -	\$ -	\$ -
17	Government Road Storage Building	Storage	1998	15	1,200	19	NA	6	19	1.4%	\$ 70,000	\$ -	\$ -	\$ 1,000	\$ 1,000
18	Providence Bay Centennial Hall / Library	Recreation	1965	48	6,000	9	21	7	9	8.5%	\$ 686,500	\$ -	\$ -	\$ 58,620	\$ 58,620
19	Providence Bay Harbour View Interpretive Center	Recreation	1989	24	4,800	45	9	7	14	2.3%	\$ 531,000	\$ 3,000	\$ -	\$ 9,140	\$ 12,140
20	Monument Road Cenotaph Washroom	Historical	1991	22	430	35	7	7	4	15.6%	\$ 60,000	\$ -	\$ 6,000	\$ 3,335	\$ 9,335
21	Mindemoya Welcome Centre	Recreation	2008	5	2,320	56	19	19	25	0.0%	\$ 650,000	\$ -	\$ -	\$ -	\$ -
22	Pioneer Museum	Historical	1994	19	NA	NA	NA	NA	NA	0.0%	\$ 500,000	\$ -	\$ -	\$ -	\$ -
23	Mindemoya Sewage Treatment Plant	Water	1996	17	NA	54	11	11	16	6.1%	\$ 4,500,000	\$ 3,000	\$ 266,500	\$ 4,000	\$ 273,500
24	Mindemoya Water Treatment Plant	Water	1995	18	NA	53	15	11	15	2.9%	\$ 3,000,000	\$ 21,500	\$ 64,000	\$ -	\$ 85,500
25	Sewage Pump Station	Water	1996	17	NA	NA	16	NA	NA	0.0%	\$ 250,000	\$ -	\$ -	\$ -	\$ -
											\$ 19,120,000	\$ 57,800	\$ 679,035	\$ 659,473	\$ 1,396,308

Facility Condition Index (FCI)	
Good	< 5%
Fair	5% - 10 %
Poor	> 10%

NOTES:

Family Resource Centre (Haven House) not maintained by Central Manitoulin.

Pioneer Museum includes the following structures: Log House, Wooden Pedestrian Bridge, Blacksmith's Cabin, Pole Barn, Beam Barn.



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Asset Management Planning
for the Municipality of Central Manitoulin

Appendix F Infrastructure Profile Vehicles



**Municipality of Central Manitoulin
Asset Management Plan
Fleet**



10 Year Summary (2013 - 2022)

Asset ID	Asset Name	Purchase Year	Replacement Year	Replacement Cost
F5	Ford Fire Van	1987	2013	\$80,000
F10	International Dump/ Plow	1992	2013	\$180,000
F18	John Deere 450 Bulldozer	1996	2013	\$185,000
F19	Brush Chipper	1982	2013	\$55,000
F8	Chev Silverado	2005	2019	\$60,000

Total Fleet Replacement Cost 2013 \$560,000

Total Fleet Replacement Cost 2019 \$60,000



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**Asset Management Planning
for the Municipality of Central Manitoulin**

Appendix G Life Cycle Profiles for Linear Infrastructure



MUNICIPAL ROADS - LIFECYCLE COSTING

URBAN ROADS

PAVED URBAN COLLECTOR (10.0m Lane)

Service Year	5th Year	10th Year	15th Year	20th Year	25th Year	30th Year	35th Year	40th Year	45th Year	50th Year	55th Year	60th Year	TOTAL LIFECYCLE COST
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	
Operation Cost / km	\$15,000	\$15,000	\$356,046	\$15,000	\$15,000	\$1,802,920	\$15,000	\$15,000	\$356,046	\$15,000	\$15,000	\$2,189,923	\$4,824,936

Asset Operational Item	Cost / m	Cost / km
Crack Sealing	\$15.00	\$15,000.00
Resurfacing	\$356.05	\$356,046.48
Rehabilitation	\$1,802.92	\$1,802,919.85
Reconstruction	\$2,189.92	\$2,189,923.36

Road Structure

300mm Granular B
150mm Granular A
50mm HL8
40mm HL3

PAVED URBAN ARTERIAL (11.0m Lane)

Service Year	5th Year	10th Year	15th Year	20th Year	25th Year	30th Year	35th Year	40th Year	45th Year	50th Year	55th Year	60th Year	TOTAL LIFECYCLE COST
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	
Operation Cost / km	\$25,000	\$25,000	\$653,869	\$25,000	\$25,000	\$2,508,572	\$25,000	\$25,000	\$653,869	\$25,000	\$25,000	\$3,046,435	\$7,062,745

Asset Operational Item	Cost / m	Cost / km
Crack Sealing	\$25.00	\$25,000.00
Resurfacing	\$653.87	\$653,869.24
Rehabilitation	\$2,508.57	\$2,508,572.09
Reconstruction	\$3,046.43	\$3,046,434.51

Road Structure

450mm Granular B
150mm Granular A
2 x 50mm HL8
40mm HL3

MUNICIPAL ROADS - LIFECYCLE COSTING

RURAL ROADS

GRANULAR RURAL (6.5m Lane)

Service Year	13th Year	25th Year	38th Year	50th Year	63th Year	75th Year	
Operational Items	Granular Top Up	Resurfacing	Granular Top Up	Rehabilitation	Granular Top Up	Reconstruction	TOTAL LIFECYCLE COST
	Ditching	Ditching	Ditching	Ditching	Ditching	Ditching	
	Brushing	Brushing	Brushing	Brushing	Brushing	Brushing	
Operation Cost / km	\$74,000	\$175,289	\$74,000	\$670,473	\$74,000	\$847,503	\$1,915,265

Asset Operational Item	Cost / m	Cost / km
100mm Granular Top Up	\$45.00	\$45,000.00
Ditching	\$11.50	\$11,500.00
Brushing	\$17.50	\$17,500.00
Resurfacing	\$175.29	\$175,289.00
Rehabilitation	\$670.47	\$670,473.00
Reconstruction	\$847.50	\$847,503.00

Road Structure
300mm Granular B
150mm Granular A

SURFACE TREATED RURAL MINOR (6.5m Lane)

Service Year	3rd Year	10th Year	13th Year	20th Year	23th Year	30th Year	
Operational Items	2 nd Application	Resurfacing	2 nd Application	Rehabilitation	2 nd Application	Reconstruction	TOTAL LIFECYCLE COST
Operation Cost / km	\$52,500	\$470,445	\$52,500	\$753,585	\$52,500	\$996,141	

Asset Operational Item	Cost / m	Cost / km
2 nd Application of Surface	\$52.50	\$52,500.00
Ditching	\$11.50	\$11,500.00
Brushing	\$17.50	\$17,500.00
Resurfacing	\$470.45	\$470,445.25
Rehabilitation	\$753.58	\$753,584.50
Reconstruction	\$996.14	\$996,140.50

Road Structure
300mm Granular B
150mm Granular A
25mm First Surface Treatment
25mm Second Surface Treatment

PAVED RURAL COLLECTOR (7.0m Lane)

Service Year	5th Year	10th Year	15th Year	20th Year	25th Year	30th Year	35th Year	40th Year	45th Year	50th Year	55th Year	60th Year	
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	TOTAL LIFECYCLE COST
		Ditching		Ditching				Ditching		Ditching			
Operation Cost / km	\$25,000	\$36,500	\$415,245	\$36,500	\$25,000	\$1,195,847	\$25,000	\$36,500	\$415,245	\$36,500	\$25,000	\$1,459,023	

Asset Operational Item	Cost / m	Cost / km
Crack Sealing	\$25.00	\$25,000.00
Ditching	\$11.50	\$11,500.00
Resurfacing	\$415.25	\$415,245.00
Rehabilitation	\$1,195.85	\$1,195,847.00
Reconstruction	\$1,459.02	\$1,459,023.00

Road Structure
300mm Granular B
150mm Granular A
50mm HL8
40mm HL3

PAVED RURAL ARTERIAL (7.5m Lane)

Service Year	5th Year	10th Year	15th Year	20th Year	25th Year	30th Year	35th Year	40th Year	45th Year	50th Year	55th Year	60th Year	
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	TOTAL LIFECYCLE COST
		Ditching		Ditching				Ditching		Ditching			
Operation Cost / km	\$30,000	\$41,500	\$555,575	\$41,500	\$30,000	\$1,507,090	\$30,000	\$41,500	\$555,575	\$41,500	\$30,000	\$1,933,493	

Asset Operational Item	Cost / m	Cost / km
Crack Sealing	\$30.00	\$30,000.00
Ditching	\$11.50	\$11,500.00
Resurfacing	\$555.58	\$555,575.00
Rehabilitation	\$1,507.09	\$1,507,089.50
Reconstruction	\$1,933.49	\$1,933,493.00

Road Structure
450mm Granular B
150mm Granular A
2 x 50mm HL8
40mm HL3

WATER SUPPLY LIFECYCLE COSTING

URBAN DISTRIBUTION WATERMAINS

URBAN DISTRIBUTION (150mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$175,364	\$55,000	\$671,110	\$956,474

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$15.00	\$15,000.00	
Appurtenance Replacement	\$160.36	\$160,364.00	
Complete Main Replacement	\$671.11	\$671,110.00	

URBAN DISTRIBUTION (300mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$75,000	\$209,364	\$75,000	\$938,910	\$1,298,274

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$35.00	\$35,000.00	
Appurtenance Replacement	\$174.36	\$174,364.00	
Complete Main Replacement	\$938.91	\$938,910.00	

RURAL DISTRIBUTION WATERMAINS

RURAL DISTRIBUTION (150mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$91,682	\$55,000	\$506,860	\$708,542

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$15.00	\$15,000.00	
Appurtenance Replacement	\$76.68	\$76,682.00	
Complete Main Replacement	\$506.86	\$506,860.00	

RURAL DISTRIBUTION (200mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$104,432	\$55,000	\$582,940	\$797,372

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$15.00	\$15,000.00	
Appurtenance Replacement	\$89.43	\$89,432.00	
Complete Main Replacement	\$582.94	\$582,940.00	

RURAL DISTRIBUTION (250mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$108,182	\$55,000	\$650,020	\$868,202

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$15.00	\$15,000.00	
Appurtenance Replacement	\$93.18	\$93,182.00	
Complete Main Replacement	\$650.02	\$650,020.00	

RURAL DISTRIBUTION (300mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$75,000	\$167,937	\$75,000	\$873,085	\$1,191,022

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$35.00	\$35,000.00	
Appurtenance Replacement	\$132.94	\$132,937.00	
Complete Main Replacement	\$873.09	\$873,085.00	

RURAL DISTRIBUTION (325mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$144,437	\$55,000	\$900,245	\$1,154,682

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$15.00	\$15,000.00	
Appurtenance Replacement	\$129.44	\$129,437.00	
Complete Main Replacement	\$900.25	\$900,245.00	

RURAL DISTRIBUTION (375mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$149,437	\$55,000	\$968,575	\$1,228,012

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$15.00	\$15,000.00	
Appurtenance Replacement	\$134.44	\$134,437.00	
Complete Main Replacement	\$968.58	\$968,575.00	

TRANSMISSION WATERMAINS

TRANSMISSION (450mm ø Pressure Pipe)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$145,000	\$308,564	\$145,000	\$1,050,910	\$1,649,474

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$4.00	\$4,000.00	Annually
Swabbing/Chlorination	\$65.00	\$65,000.00	
Appurtenance Replacement	\$243.56	\$243,564.00	
Complete Main Replacement	\$1,050.91	\$1,050,910.00	

TRANSMISSION (600mm ø Pressure Pipe)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$235,000	\$414,874	\$235,000	\$1,460,685	\$2,345,559

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	\$6.00	\$6,000.00	Annually
Swabbing/Chlorination	\$115.00	\$115,000.00	
Appurtenance Replacement	\$299.87	\$299,874.00	
Complete Main Replacement	\$1,460.69	\$1,460,685.00	

SANITARY SEWER LIFECYCLE COSTING

SANITARY SEWER

SANITARY COLLECTION SEWER (150 - 450mm ø)

Service Year	20th Year	40th Year	50th Year	60th Year	80th Year	
Operational Items	Camera Cleaning/Flushing Structure Inspection	Camera Inspections Cleaning/Flushing Structure Inspections	60% Structure Replacement	Camera Inspections Cleaning/Flushing Structure Inspections	Complete Replacement	TOTAL LIFECYCLE COST \$1,512,865
Operation Cost / km	\$86,000	\$86,000	\$164,780	\$86,000	\$1,090,085	

Asset Operational Item	Cost / m	Cost / km	Notes
Camera Inspection	\$25.00	\$25,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$55.00	\$55,000.00	
Structure Replacement	\$274.63	\$274,634.00	
Complete Replacement	\$1,090.09	\$1,090,085.00	

SANITARY TRUNK SEWER (600 - 900mm ø)

Service Year	20th Year	40th Year	50th Year	60th Year	80th Year	
Operational Items	Camera Cleaning/Flushing Structure Inspection	Camera Inspections Cleaning/Flushing Structure Inspections	60% Structure Replacement	Camera Inspections Cleaning/Flushing Structure Inspections	Complete Replacement	TOTAL LIFECYCLE COST \$2,599,631
Operation Cost / km	\$126,000	\$126,000	\$248,851	\$126,000	\$1,972,780	

Asset Operational Item	Cost / m	Cost / km	Notes
Camera Inspection	\$35.00	\$35,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$85.00	\$85,000.00	
Structure Replacement	\$414.75	\$414,752.00	
Complete Replacement	\$1,972.78	\$1,972,780.00	



cutting through complexity



**Asset Management Planning
for the Municipality of Central Manitoulin**

Appendix H Costing Estimates for Life Cycle Activities



ROAD CONSTRUCTION COSTING
ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

User Data Input Cells
 End of Sheet Section

ROAD CONSTRUCTION UNIT RATES

Item	\$ / tonne	\$ / m ³	Conv.	Notes
Excavation & Disposal	\$18.92	\$35.00	1.85	Haul length, and unit conversion should be considered
Earth Cut	\$5.41	\$10.00	1.85	Haul length, and unit conversion should be considered
Digouts		\$65.00		Includes replacement granulars
Rock Excavation		\$75.00	2.70	Haul length, and unit conversion should be considered
Imported Earth Fill	\$17.95	\$35.00	1.95	Haul length, and unit conversion should be considered
Engineered Fill	\$25.00	\$50.00	2.10	Haul length, engineering requirements for fill and unit conversion should be considered
Granular C	\$12.00	\$24.00	2.00	Haul Length should be considered
Granular B	\$14.00	\$28.00	2.00	Haul Length should be considered
Granular B Type II	\$7.00	\$15.40	2.20	Haul Length should be considered
Granular A	\$8.52	\$20.45	2.40	Haul Length should be considered
HL3 Asphalt	\$170.00	\$416.50	2.45	Haul Length should be considered
HL4 Asphalt	\$165.00	\$404.25	2.45	Haul Length should be considered
HL8 Asphalt	\$150.00	\$367.50	2.45	Haul Length should be considered

	\$ / m ²	Notes
Single Surface Treatment	\$2.39	Availability, haul length should be considered
Double Surface Treatment	\$4.78	Availability, haul length should be considered
Pulverize	\$2.25	
Mill Wear Surface	\$3.50	
Prep Surface for Asphalt	\$1.25	

	\$ / m	Notes
Curb & Gutter	\$145.00	
Sidewalk	\$125.00	
Brushing	\$17.50	
Ditching	\$11.50	
Crack Sealing	\$15.00	

General Notes

Contract size should always be considered, the rates notes above are an average of many executed project tenders

ROAD CONSTRUCTION COSTING
ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

RURAL SECTIONS								
RURAL - RECONSTRUCTION								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
Granular - 3.25m lane								
450mm Excavation & Disposal	1,000	4.650	0.45		2092.5	\$35.00	\$73,238	\$73.24
300mm Granular B	1,000	4.350	0.3		1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15		585	\$20.45	\$11,962	\$11.96
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$10,000	\$10.00
						Total (3.25m lane)	\$263,490	\$263.49
						Total (6.50m road)	\$526,979	\$526.98
Rural Light SST - 3.25m lane								
475mm Excavation & Disposal	1,000	4.650	0.475		2208.75	\$35.00	\$77,306	\$77.31
300mm Granular B	1,000	4.350	0.3		1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15		585	\$20.45	\$11,962	\$11.96
Single Surface Treatment	1,000	3.250		3250		\$2.39	\$7,768	\$7.77
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
						Total (3.25m lane)	\$290,326	\$290.33
						Total (6.50m road)	\$580,652	\$580.65
Rural Light DST - 3.25m lane								
475mm Excavation & Disposal	1,000	4.650	0.475		2208.75	\$35.00	\$77,306	\$77.31
300mm Granular B	1,000	4.350	0.3	4350	1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15	3900	585	\$20.45	\$11,962	\$11.96
Double Surface Treatment	1,000	3.250		3250		\$4.78	\$15,535	\$15.54
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
						Total (3.25m lane)	\$298,093	\$298.09
						Total (6.50m road)	\$596,187	\$596.19
Rural Light Paved - 3.25m lane								
500mm Excavation & Disposal	1,000	4.650	0.455		2115.75	\$35.00	\$74,051	\$74.05
300mm Granular B	1,000	4.350	0.3	4350	1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15	3900	585	\$20.45	\$11,962	\$11.96
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$45,000	\$45.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$35,000	\$35.00
						Total (3.25m lane)	\$369,022	\$369.02
						Total (6.50m road)	\$738,044	\$738.04
Rural Medium Paved - 3.5m lane (Collector)								
540mm Excavation & Disposal	1,000	4.900	0.54		2646	\$35.00	\$92,610	\$92.61
300mm Granular B	1,000	4.600	0.3	4600	1380	\$28.00	\$38,640	\$38.64
150mm Granular A	1,000	4.150	0.15	4150	622.5	\$20.45	\$12,729	\$12.73
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Digouts	150	6.000	1		900	\$65.00	\$58,500	\$58.50
Drainage / Culverts							\$150,000	\$150.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$45,000	\$45.00
						Total (3.50m lane)	\$578,101	\$578.10
						Total (7.0m road)	\$1,156,203	\$1,156.20
Rural Heavy Paved - 3.75m lane (Arterial)								
740mm Excavation & Disposal	1,000	5.450	0.74		4033	\$35.00	\$141,155	\$141.16
450mm Granular B	1,000	5.000	0.45	5000	2250	\$28.00	\$63,000	\$63.00
150mm Granular A	1,000	4.400	0.15	4400	660	\$20.45	\$13,496	\$13.50
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Digouts	150	6.000	1		900	\$65.00	\$58,500	\$58.50
Drainage / Culverts							\$225,000	\$225.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$55,000	\$55.00
						Total (3.75m lane)	\$814,438	\$814.44
						Total (7.5m road)	\$1,628,876	\$1,628.88

ROAD CONSTRUCTION COSTING
ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

RURAL - REHABILITATION								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
Granular - 3.25m lane								
150mm Excavation & Disposal	1,000	4.050	0.15		607.5	\$35.00	\$21,263	\$21.26
150mm Granular A	1,000	3.900	0.15	3900	585	\$20.45	\$11,962	\$11.96
Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$10,000	\$10.00
Total (3.25m lane)							\$142,475	\$142.47
Total (6.50m road)							\$284,949	\$284.95
Rural Light SST - 3.25m lane								
75mm Excavation & Disposal	1,000	3.850	0.075		288.75	\$35.00	\$10,106	\$10.11
50mm Granular A	1,000	3.800	0.05	3800	190	\$20.45	\$3,885	\$3.89
Single Surface Treatment	1,000	3.250		3250		\$2.39	\$7,768	\$7.77
Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
Total (3.25m lane)							\$146,009	\$146.01
Total (6.50m road)							\$292,018	\$292.02
Rural Light DST - 3.25m lane								
75mm Excavation & Disposal	1,000	3.850	0.075		288.75	\$35.00	\$10,106	\$10.11
50mm Granular A	1,000	3.800	0.05	3800	190	\$20.45	\$3,885	\$3.89
Double Surface Treatment	1,000	3.250		3250		\$4.78	\$15,535	\$15.54
Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
Total (3.25m lane)							\$153,776	\$153.78
Total (6.50m road)							\$307,553	\$307.55
Rural Light Paved - 3.25m lane								
100mm Excavation & Disposal	1,000	3.850	0.1		385	\$35.00	\$13,475	\$13.48
50mm Granular A	1,000	3.800	0.05	3800	190	\$20.45	\$3,885	\$3.89
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$45,000	\$45.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$35,000	\$35.00
Total (3.25m lane)							\$231,329	\$231.33
Total (6.50m road)							\$462,658	\$462.66
Rural Medium Paved - 3.5m lane (Collector)								
140mm Excavation & Disposal	1,000	3.850	0.14		539	\$35.00	\$18,865	\$18.87
50mm Granular A	1,000	3.800	0.05	3800	190	\$20.45	\$3,885	\$3.89
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Digouts	50	6.000	1		300	\$65.00	\$19,500	\$19.50
Drainage / Culverts							\$150,000	\$150.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$45,000	\$45.00
Total (3.50m lane)							\$417,873	\$417.87
Total (7.0m road)							\$835,745	\$835.75
Rural Heavy Paved - 3.75m lane (Arterial)								
190mm Excavation & Disposal	1,000	3.850	0.19		731.5	\$35.00	\$25,603	\$25.60
50mm Granular A	1,000	3.800	0.05	3800	190	\$20.45	\$3,885	\$3.89
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Digouts	50	6.000	1		300	\$65.00	\$19,500	\$19.50
Drainage / Culverts							\$225,000	\$225.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$55,000	\$55.00
Total (3.75m lane)							\$573,494	\$573.49
Total (7.5m road)							\$1,146,988	\$1,146.99

ROAD CONSTRUCTION COSTING
ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

RURAL - RESURFACING								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
Granular - 3.25m lane								
150mm Granular A	1,000	3.325	0.15	3325	498.75	\$20.45	\$10,198	\$10.20
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$7,500	\$7.50
Total (3.25m lane)							\$75,698	\$75.70
Total (6.50m road)							\$151,397	\$151.40
Rural Light SST - 3.25m lane								
Pulverize Existing	1,000	3.250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
Single Surface Treatment	1,000	3.250		3250		\$2.39	\$7,768	\$7.77
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$15,000	\$15.00
Total (3.25m lane)							\$117,143	\$117.14
Total (6.50m road)							\$234,285	\$234.29
Rural Light DST - 3.25m lane								
Pulverize Existing	1,000	3.250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
Double Surface Treatment	1,000	3.250		3250		\$4.78	\$15,535	\$15.54
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$15,000	\$15.00
Total (3.25m lane)							\$124,910	\$124.91
Total (6.50m road)							\$249,820	\$249.82
Rural Light Paved - 3.25m lane								
Pulverize Existing	1,000	3.250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Drainage / Culverts							\$35,000	\$35.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$15,000	\$15.00
Total (3.25m lane)							\$179,094	\$179.09
Total (6.50m road)							\$358,188	\$358.19
Rural Medium Paved - 3.5m lane (Collector)								
Mill Wear Surface	1,000	3.500		3500		\$3.50	\$12,250	\$12.25
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Drainage / Culverts							\$50,000	\$50.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
Total (3.50m lane)							\$207,623	\$207.62
Total (7.0m road)							\$415,245	\$415.25
Rural Heavy Paved - 3.75m lane (Arterial)								
Mill Wear Surface	1,000	3.750		3750		\$3.50	\$13,125	\$13.13
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Drainage / Culverts							\$50,000	\$50.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$35,000	\$35.00
Total (3.75m lane)							\$277,788	\$277.79
Total (7.5m road)							\$555,575	\$555.58

ROAD CONSTRUCTION COSTING
ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

URBAN SECTIONS

URBAN - RECONSTRUCTION

Type/Description	Length (m)	Width (m)	Depth (m)	Area (m2)	Volume (m3)	Unit Rate	Cost / lane km	Cost / lane m
Urban Light Paved - 3.25m lane								
500mm Excavation & Disposal	1,000	4.650	0.5		2325	\$35.00	\$81,375	\$81.38
300mm Granular B	1,000	4.350	0.3	4350	1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15	3900	585	\$20.45	\$11,962	\$11.96
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$45,000	\$45.00
Total (3.25m lane)							\$649,596	\$649.60
Total (6.50m road)							\$1,299,192	\$1,299.19
Urban Medium Paved - 3.50m lane (Collector)								
540mm Excavation & Disposal	1,000	4.900	0.54		2646	\$35.00	\$92,610	\$92.61
300mm Granular B	1,000	4.600	0.3	4600	1380	\$28.00	\$38,640	\$38.64
150mm Granular A	1,000	4.150	0.15	4150	622.5	\$20.45	\$12,729	\$12.73
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$70,000	\$70.00
Total (3.50m lane)							\$751,601	\$751.60
Total (7.0m road)							\$1,503,203	\$1,503.20
Total (10.0m road)							\$2,147,325	\$2,147.33
Urban Heavy Paved - 3.75m lane (Arterial)								
740mm Excavation & Disposal	1,000	5.200	0.74		3848	\$35.00	\$134,680	\$134.68
450mm Granular B	1,000	4.750	0.45	4750	2137.5	\$28.00	\$59,850	\$59.85
150mm Granular A	1,000	4.150	0.15	4150	622.5	\$20.45	\$12,729	\$12.73
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (both sides)	2,000					\$125.00	\$250,000	\$250.00
Contingency for Minor Contract Items							\$90,000	\$90.00
Total (3.75m lane)							\$1,023,765	\$1,023.77
Total (7.5m road)							\$2,047,530	\$2,047.53
Total (11.0m road)							\$3,002,703	\$3,002.70

URBAN - REHABILITATION

Type/Description	Length (m)	Width (m)	Depth (m)	Area (m2)	Volume (m3)	Unit Rate	Cost / lane km	Cost / lane m
Urban Light Paved - 3.25m lane								
155mm Excavation & Disposal	1,000	3.850	0.155		596.75	\$35.00	\$20,886	\$20.89
50mm Granular A	1,000	3.800	0.05	3800	190	\$20.45	\$3,885	\$3.89
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.25m lane)							\$549,490	\$549.49
Total (6.50m road)							\$1,098,980	\$1,098.98
Urban Medium Paved - 3.50m lane (Collector)								
240mm Excavation & Disposal	1,000	4.100	0.24		984	\$35.00	\$34,440	\$34.44
50mm Granular A	1,000	4.050	0.05	4050	202.5	\$20.45	\$4,141	\$4.14
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.50m lane)							\$626,203	\$626.20
Total (7.0m road)							\$1,252,406	\$1,252.41
Total (10.0m road)							\$1,789,063	\$1,789.06
Urban Heavy Paved - 3.75m lane (Arterial)								
290mm Excavation & Disposal	1,000	4.350	0.29	4350	1261.5	\$35.00	\$44,153	\$44.15
50mm Granular A	1,000	4.300	0.05	4300	215	\$20.45	\$4,396	\$4.40
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (both sides)	2,000					\$125.00	\$250,000	\$250.00
Contingency for Minor Contract Items							\$75,000	\$75.00
Total (3.75m lane)							\$850,055	\$850.06
Total (7.5m road)							\$1,700,110	\$1,700.11
Total (11.0m road)							\$2,493,467	\$2,493.47

ROAD CONSTRUCTION COSTING
ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

URBAN - RESURFACING								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
Urban Light Paved - 3.25m lane								
Pulverize Existing	1,000	3,250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3,250		3250		\$1.25	\$4,063	\$4.06
50mm HL8	1,000	3,250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.25m lane)							\$121,094	\$121.09
Total (6.50m road)							\$242,188	\$242
Urban Medium Paved - 3.50m lane (Collector)								
Mill Wear Surface	1,000	3,500		3500		\$3.50	\$12,250	\$12.25
Prepare Surface	1,000	3,250		3250		\$1.25	\$4,063	\$4.06
40mm HL3	1,000	3,500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.50m lane)							\$124,623	\$124.62
Total (7.0m road)							\$249,245	\$249
Total (10.0m road)							\$356,046	\$356.05
Urban Heavy Paved - 3.75m lane (Arterial)								
Mill Wear Surface	1,000	3,750		3750		\$3.50	\$13,125	\$13.13
Mill Wear Surface (Binder)	1,000	3,750		3750		\$3.50	\$13,125	\$13.13
Prepare Surface	1,000	3,250		3250		\$1.25	\$4,063	\$4.06
50mm HL8	1,000	3,750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3,750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Contingency for Minor Contract Items							\$75,000	\$75.00
Total (3.75m lane)							\$222,913	\$222.91
Total (7.5m road)							\$445,825	\$445.83
Total (11.0m road)							\$653,869	\$654

WATER SUPPLY COSTING

WATER SUPPLY SERVICING - CONSTRUCTION UNIT RATES

ITEMS	\$ / m	each	Notes
Watermain Pipe			
150mm PVC Watermain	\$175.00		Includes minor fittings, granulars
200mm PVC Watermain	\$238.33		Includes minor fittings, granulars
250mm PVC Watermain	\$301.66		Includes minor fittings, granulars
300mm PVC Watermain	\$365.00		Includes minor fittings, granulars
325mm PVC Watermain	\$396.66		Includes minor fittings, granulars
375mm PVC Watermain	\$459.99		Includes minor fittings, granulars
450mm Pressure Pipe Watermain	\$555.00		Includes minor fittings, granulars
600mm Pressure Pipe Watermain	\$765.00		Includes minor fittings, granulars
Watermain Appurtenances			
150mm - 450mm Connection to Existing		\$8,000.00	
600mm - 1200mm Connection to Existing		\$18,000.00	
150mm Hydrants		\$4,500.00	
150mm Valves		\$2,500.00	
200mm Hydrants		\$5,500.00	
200mm Valves		\$3,250.00	
250mm Hydrants		\$6,000.00	
250mm Valves		\$4,000.00	
300mm Hydrants		\$6,500.00	
300mm Valves		\$5,000.00	
325mm Vavles		\$5,500.00	
375mm Vavles		\$6,500.00	
450mm Valve Chamber		\$21,000.00	
450mm Valves		\$8,000.00	
600mm Valve Chamber		\$28,000.00	
600mm Valves		\$9,500.00	
450mm Connection to distribution		\$20,000.00	
600mm Connection to distribution		\$30,000.00	
Watermain Services			
19mm Residential	\$165.00		Includes valve box at property line
25mm Residential	\$195.00		Includes valve box at property line
32mm Commercial	\$235.00		Includes valve box at property line
40mm Commercial/Industrial	\$275.00		Includes valve box at property line
100mm Industrial	\$375.00		Includes valve box at property line

General Notes

Contract size should always be considered, the rates notes above are an average of many executed project tenders

URBAN SECTIONS

URBAN - DISTRIBUTION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
150mm PVC					
150mm Watermain	1,000		\$175.00	\$175,000	\$175.00
Hydrants		10	\$4,500.00	\$45,000	\$45.00
Valves		6	\$2,500.00	\$15,000	\$15.00
Residential Services to Property Line	1,000	100	\$165.00	\$165,000	\$165.00
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Connection to Existing System`		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$15,000	\$15.00
Total Cost				\$671,110	\$671.11
Appurtenances Replacement Only (+40% Contingency & Road Reinstatement)				\$160,364	\$160.36

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
200mm PVC					
200mm Watermain	1,000		\$238.33	\$238,330	\$238.33
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$3,250.00	\$19,500	\$19.50
Residential Services to Property Line	1,000	100	\$165.00	\$165,000	\$165.00
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$743,940	\$743.94
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$125,682	\$125.68

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
250mm PVC					
250mm Watermain	1,000		\$301.66	\$301,660	\$301.66
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$4,000.00	\$24,000	\$24.00
Residential Services to Property Line	1,000	100	\$165.00	\$165,000	\$165.00
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$811,770	\$811.77
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$130,182	\$130.18

300mm PVC					
300mm Watermain	1,000		\$365.00	\$365,000	\$365.00
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$5,000.00	\$30,000	\$30.00
Residential Services to Property Line	400	40	\$165.00	\$66,000	\$66.00
Commercial Services to Property Line	400	40	\$235.00	\$94,000	\$94.00
Industrial Services to Property Line	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$25,000	\$25.00
Total Cost				\$953,910	\$953.91
Appurtenances Replacement Only (+40% Contingency & Road Reinstatement)				\$189,364	\$189.36

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
325mm PVC					
325mm Watermain	1,000		\$396.66	\$396,660	\$396.66
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$5,500.00	\$33,000	\$33.00
Residential Services to Property Line	400	40	\$165.00	\$66,000	\$66.00
Commercial Services to Property Line	400	40	\$235.00	\$94,000	\$94.00
Industrial Services to Property Line	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$973,570	\$973.57
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$139,182	\$139.18

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
375mm PVC					
375mm Watermain	1,000		\$459.99	\$459,990	\$459.99
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$6,500.00	\$39,000	\$39.00
Residential Services to Property Line	400	40	\$165.00	\$66,000	\$66.00
Commercial Services to Property Line	400	40	\$235.00	\$94,000	\$94.00
Industrial Services to Property Line	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$1,042,900	\$1,042.90
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$145,182	\$145.18

URBAN - TRANSMISSION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
450mm Concrete Pressure Pipe					
450mm Watermain	1,000		\$555.00	\$555,000	\$555.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valve Chamber		4	\$21,000.00	\$84,000	\$84.00
Valves		4	\$8,000.00	\$32,000	\$32.00
Connection to Existing System`		1	\$8,000.00	\$8,000	\$8.00
Connections to Distribution System		4	\$20,000.00	\$80,000	\$80.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$38,000	\$38.00
Total Cost				\$1,054,910	\$1,054.91
Appurtenances Replacement Only (+40% Contingency & Road Reinstatement)				\$247,564	\$247.56

600mm Concrete Pressure Pipe

600 Watermain	1,000		\$765.00	\$765,000	\$765.00
Valve Chambers		4	\$28,000.00	\$112,000	\$112.00
Valves		4	\$9,500.00	\$38,000	\$38.00
Connection to Existing System		1	\$18,000.00	\$18,000	\$18.00
Connections to Distribution System		4	\$30,000.00	\$120,000	\$120.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$50,000	\$50.00
Total Cost				\$1,482,685	\$1,482.69
Appurtenances Replacement Only (+40% Contingency & Road Reinstatement)				\$321,874	\$321.87

RURAL SECTIONS

RURAL - DISTRIBUTION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
150mm PVC					
150mm Watermain	1,000		\$175.00	\$175,000	\$175.00
Hydrants		4	\$4,500.00	\$18,000	\$18.00
Valves		5	\$2,500.00	\$12,500	\$12.50
Residential Services to Property Line	150	15	\$165.00	\$24,750	\$24.75
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	40	4	\$375.00	\$15,000	\$15.00
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$511,860	\$511.86
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$81,682	\$81.68

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
200mm PVC					
200mm Watermain	1,000		\$238.33	\$238,330	\$238.33
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$3,250.00	\$16,250	\$16.25
Residential Services to Property Line	150	15	\$165.00	\$24,750	\$24.75
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	40	4	\$375.00	\$15,000	\$15.00
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$582,940	\$582.94
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$89,432	\$89.43

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
250mm PVC					
250mm Watermain	1,000		\$301.66	\$301,660	\$301.66
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$4,000.00	\$20,000	\$20.00
Residential Services to Property Line	150	15	\$165.00	\$24,750	\$24.75
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	40	4	\$375.00	\$15,000	\$15.00
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$650,020	\$650.02
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$93,182	\$93.18

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
300mm PVC					
300mm Watermain	1,000		\$365.00	\$365,000	\$365.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$5,000.00	\$25,000	\$25.00
Residential Services to Property Line	100	10	\$165.00	\$16,500	\$16.50
Commercial Services to Property Line	40	4	\$235.00	\$9,400	\$9.40
Industrial Services to Property Line	60	6	\$375.00	\$22,500	\$22.50
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$25,000	\$25.00
Total Cost				\$873,085	\$873.09
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$132,937	\$132.94

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
325mm PVC					
325mm Watermain	1,000		\$396.66	\$396,660	\$396.66
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$5,500.00	\$27,500	\$27.50
Residential Services to Property Line	100	15	\$165.00	\$16,500	\$16.50
Commercial Services to Property Line	40	2	\$235.00	\$9,400	\$9.40
Industrial Services to Property Line	60	4	\$375.00	\$22,500	\$22.50
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$900,245	\$900.25
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$129,437	\$129.44

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
375mm PVC					
375mm Watermain	1,000		\$459.99	\$459,990	\$459.99
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$6,500.00	\$32,500	\$32.50
Residential Services to Property Line	100	15	\$165.00	\$16,500	\$16.50
Commercial Services to Property Line	40	2	\$235.00	\$9,400	\$9.40
Industrial Services to Property Line	60	4	\$375.00	\$22,500	\$22.50
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$968,575	\$968.58
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$134,437	\$134.44

RURAL - TRANSMISSION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
450mm Concrete Pressure Pipe					
450mm Watermain	1,000		\$555.00	\$555,000	\$555.00
Hydrants		2	\$5,500.00	\$11,000	\$11.00
Valve Chamber		2	\$21,000.00	\$42,000	\$42.00
Valves		2	\$8,000.00	\$16,000	\$16.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Connections to Distribution System		4	\$20,000.00	\$80,000	\$80.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$45,000	\$45.00
Total Cost				\$992,910	\$992.91
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$134,182	\$134.18

600mm Concrete Pressure Pipe					
600 Watermain	1,000		\$765.00	\$765,000	\$765.00
Valve Chambers		2	\$28,000.00	\$56,000	\$56.00
Valves		2	\$9,500.00	\$19,000	\$19.00
Connection to Existing System		1	\$18,000.00	\$18,000	\$18.00
Connections to Distribution System		4	\$30,000.00	\$120,000	\$120.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$65,000	\$65.00
Total Cost				\$1,422,685	\$1,422.69
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$176,937	\$176.94

SANITARY SEWER COSTING

SANITARY SEWER SERVICING - CONSTRUCTION UNIT RATES

ITEMS	\$ / m	each	Notes
PVC Sanitary Sewer			
150mm PVC Pipe	\$215.00		
300mm PVC Pipe	\$285.00		
450mm PVC Pipe	\$365.00		
Concrete Sanitary Sewer			
600mm Concrete Pipe	\$580.00		
825mm Concrete Pipe	\$950.00		
975mm Concrete Pipe	\$1,050.00		
Sanitary Sewer Replacement (Cost)			
1200mm Manhole		\$3,500.00	
1500mm Manhole		\$4,100.00	
1800mm Manhole		\$5,500.00	
Sanitary Sewer Replacement (Cost)			
1200mm Manhole			
1500mm Manhole			
1800mm Manhole			
Sanitary Services			
100mm Residential	\$155.00		
150mm Residential	\$215.00		
150mm Commercial	\$255.00		
200mm Commercial/Industrial	\$295.00		
300mm Industrial	\$395.00		

URBAN & RURAL SECTIONS

SANITARY COLLECTION SYSTEMS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
Sanitary Collection Sewer (150mm - 450mmϕ)					
150mm PVC Pipe	300		\$215.00	\$64,500	\$64.50
300mm PVC Pipe	400		\$285.00	\$114,000	\$114.00
450mm PVC Pipe	300		\$365.00	\$109,500	\$109.50
1200mm Manholes		10	\$3,500.00	\$35,000	\$35.00
Residential Services	1,000	100	\$155.00	\$155,000	\$155.00
Commercial Services	20	2	\$255.00	\$5,100	\$5.10
Industrial Services to Property	20	2	\$395.00	\$7,900	\$7.90
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
Total cost per km				\$1,090,085	\$1,090.09
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$274,634	\$275
Sanitary Trunk Sewer (600mm - 975mmϕ)					
600mm Concrete Pipe	300		\$580.00	\$174,000	\$174.00
825mm Concrete Pipe	400		\$950.00	\$380,000	\$380.00
975mm Concrete Pipe	300		\$1,050.00	\$315,000	\$315.00
1200mm Manholes		3	\$3,500.00	\$10,500	\$10.50
1500mm Manholes		4	\$4,100.00	\$16,400	\$16.40
1800mm Manholes		3	\$5,500.00	\$16,500	\$16.50
Residential Services	600	60	\$155.00	\$93,000	\$93.00
Commercial Services	60	6	\$255.00	\$15,300	\$15.30
Industrial Services	60	6	\$395.00	\$23,700	\$23.70
Road Reinstatement	1,000		\$873.38	\$873,380	\$873.38
Contingency for Minor Contract Items				\$55,000	\$55.00
Total cost per km				\$1,972,780	\$1,972.78
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$414,752	\$415

*Reduce residential services cost by 60%; commercial services by 20% and industrial services by 80% for rural sections.



cutting through complexity



Asset Management Planning
for the Municipality of Central Manitoulin

Appendix I Infrastructure Priority Classifications



MUNICIPALITY OF CENTRAL MANITOULIN

Asset Management Plan
Infrastructure Requirements by Priority Category

Infrastructure Component	Asset Description	Length in km	From	To	Category	Ten Year Investment Requirement		
						Priority 1	Priority 2	Priority 3
Roads	Fire Hall Road	3.40	Bush road on road allowance off of Highway 551	Bush road on road allowance off of Highway 551	Priority 1	968,827	-	-
	Perivale Road East	2.00	From Dawson's Resort	to end	Priority 1	499,640	-	-
	Bastien Road	0.10	From Dial Rd.	to end	Priority 3	-	-	28,495
	Homestead Road	1.00	From Myle'S Sideroad	to end (seasonal maintenance)	Priority 1	284,949	-	-
	Limberlost Lane	0.30	From Island View Trail	to Limberlost Lane corner	Priority 1	85,485	-	-
	Limberlost Lane	0.35	From Maple Row Corner	to Ketchankookem Trail	Priority 1	99,732	-	-
	Limberlost Lane	0.15	From the corner	to Will-Oh-Wisp Way	Priority 3	-	-	42,742
	Limberlost Lane	0.35	From Will-Oh-Wisp Way	to Maple Row Corner	Priority 1	99,732	-	-
	Pleasantview Terrace	0.30	From Island View Trail	to turnaround at the end	Priority 1	85,485	-	-
	Pleasantview Terrace	0.13	From Kethancockem Trail	to Island View Trail	Priority 3	-	-	37,043
	Rainbow Trail	0.13	From Walnut Lane	to Limberlost Lane	Priority 3	-	-	37,043
	Rainbow Trail	0.22	From Will-Oh-Wisp Way	to Walnut Lane	Priority 1	62,689	-	-
	Walnut Lane	0.27	From Will-Oh-Wisp Way	to Rainbow Trail	Priority 1	76,936	-	-
	Beaver Road	1.00	from 1.0 km W	Hartley Sideroad	Priority 1	249,820	-	-
	Beaver Road	0.90	from 1.1 km W	to Grimesthorpe Road	Priority 1	224,838	-	-
	Learmont Road	0.60	from 1.0 km east	to Hartley Sideroad	Priority 1	149,892	-	-
	Morrow Road	0.40	From Highway 551	to end	Priority 1	99,928	-	-
	Mutchmor Street	0.13	From River Street	to Mira St./Highway 551 corner	Priority 3	-	-	32,477
	Nixon Street	0.17	From corner of Anglin	to corner of Thorne St.	Priority 3	-	-	42,469
	Nixon Street	0.07	From Duke	to Highway 542	Priority 3	-	-	17,487
	Nixon Street	0.11	From Thorne	to Duke	Priority 3	-	-	27,480
	Yonge Street	0.21	From Anglin	to Perry St.	Priority 1	52,462	-	-
	Yonge Street	0.10	From Duke	to Thorne St.	Priority 3	-	-	24,982
	Yonge Street	0.08	From Highway 542	to Duke St.	Priority 3	-	-	18,737
	Yonge Street	0.16	From Thorne	to Anglin St.	Priority 3	-	-	39,971
	Bay Street	0.20	From Margaret	to Perry	Priority 3	-	-	49,964
	Bay Street	0.20	From Perry	to Anglin	Priority 3	-	-	49,964
	Beaver Road	1.00	from 1.3 km W	to 2.0 km W	Priority 1	249,820	-	-
	Cedar Crescent	0.09	From Highway 551	to McDermid Drive	Priority 3	-	-	21,235
	Government Road	3.00	From 2km east	to crossing with Dewar'S Creek	Priority 1	749,460	-	-
	Government Road	2.00	From Dewar'S Creek crossing point	to Yonge Street	Priority 1	499,640	-	-
	Government Road	2.00	From Highway 551	to 2km east	Priority 1	499,640	-	-
	Government Road	4.50	From Young Street Westward	to Tehkummah Townline	Priority 1	1,124,190	-	-
	Grimesthorpe Road	0.50	From Sand Road	to Beaver Road	Priority 1	124,910	-	-
	Ketchankookem Trail	0.90	From Hill Road	to Yonge Street	Priority 1	224,838	-	-
	Ketchankookem Trail	1.10	From Wagg'S Lane	to Oak Lane	Priority 1	274,802	-	-
	Ketchankookem Trail	0.45	From Yonge Street	to Wagg'S Lane	Priority 1	112,419	-	-
	Old Hwy 551	0.45	From Kethancockem Trail	to Highway 551	Priority 1	112,419	-	-
	Perivale Road East	2.90	from 1.7 km east	to Twin Harbours Road	Priority 1	724,478	-	-
	Perivale Road East	2.20	From Highway 542	to Learmont Road	Priority 1	549,604	-	-
	Perivale Road East	2.40	From Twin Harbours Road	to Perivale East intersection	Priority 1	599,568	-	-
	Perivale Road West	3.20	From Highway 542	to Oriole Park	Priority 1	799,424	-	-
	Rockville Road	1.75	From Elliot road	to Gibraltar Road	Priority 1	437,185	-	-
	Rockville Road	0.50	From Highway 551	to 0.5 km east	Priority 1	124,910	-	-
	Sand Road	2.00	From private bush road	to Grimesthorpe Road	Priority 1	499,640	-	-
	Silver Bay Road	0.90	From Johnston Road	to East Road	Priority 1	224,838	-	-
	Union Road	2.00	From Highway 542	to Mills Township Line	Priority 1	499,640	-	-
	East Road	2.50	from 2 km N	to Fox Run (seasonal maintenance section)	Priority 1	378,492	-	-
	Frawley'S Lane	1.30	Public Road but, unopened	to end	Priority 1	196,816	-	-
	Beaver Road	2.50	from 2.0 km W	to Gilchrist Sideroad	Priority 1	624,550	-	-
	Deer Foot Trail	1.60	From Tracy Road	to end	Priority 1	399,712	-	-
	Duke Street	0.40	From Nixon	to highway 551	Priority 1	99,928	-	-
	Garland Street	0.44	from Mary Jane Street	to Highway 551	Priority 1	109,921	-	-
	Gibraltar Road	0.70	from .07 km N	to Reggie Lane	Priority 1	174,874	-	-
	Gibraltar Road	2.90	From Reggie Lane	to Rockville Road	Priority 1	724,478	-	-
	Laurier Lane	0.08	From Duke	to Highway 542	Priority 3	-	-	19,236
	Margaret Street	0.13	From Bay Street	to Yonge Street	Priority 3	-	-	32,477
	Mary Street	0.10	From Garland Street	to McNevin Street	Priority 3	-	-	24,982

MUNICIPALITY OF CENTRAL MANITOULIN

Asset Management Plan
Infrastructure Requirements by Priority Category

Infrastructure Component	Asset Description	Length in km	From	To	Category	Ten Year Investment Requirement		
						Priority 1	Priority 2	Priority 3
	Mary Street	0.10	From Highway 551	to Munro Street	Priority 3	-	-	24,982
	Mary Street	0.10	From McNevin Street	to Highway 551	Priority 3	-	-	24,982
	McNevin Street	0.44	From Mary Jane Street	to Highway 551	Priority 1	109,921	-	-
	Mira Street	0.10	From Highway 551/Mutchmor corner	to Munro Street	Priority 3	-	-	24,982
	Munro Street	0.23	From Eliza Jane Street	to Mary Jane Street	Priority 1	57,459	-	-
	Munro Street	0.21	From Mira Street	to Eliza Jane Street	Priority 1	52,462	-	-
	Munro Street	0.10	From River Street	to Mira Street	Priority 3	-	-	24,982
	Oriole Park Road	2.80	Private road off of Holmes Street	Private road off of Holmes Street	Priority 1	699,496	-	-
	Perry Street	0.13	From Bay Street	to Yonge Street	Priority 3	-	-	32,477
	River Road	0.60	From Cranston Road	to end	Priority 1	149,892	-	-
	Silver Bay Road	0.90	from Mill Road	to Johnston Road	Priority 1	224,838	-	-
	Thorne Street	0.40	From Nixon	to Yonge St.	Priority 1	99,928	-	-
	Thorne Street	0.40	From Yonge St.	to Forest St.	Priority 1	99,928	-	-
	Trails End Road	0.15	From 542	to 0.15 km south	Priority 3	-	-	37,473
	Rockville Road	0.25	from 0.5 km east	to Elliot Road	Priority 3	-	-	37,849
	White Church Road	1.65	from Earle'S Road corner	to Manitou Road	Priority 1	249,805	-	-
	Big Lake Dump Road	0.50	From Highway 542	to end	Priority 2	-	75,698	-
	Islandview Trail	0.14	From Limberlost Lane	to Will-Oh-Wisp Way	Priority 3	-	-	21,196
	Islandview Trail	0.17	From Pleasant View Terrace	to Limberlost Lane	Priority 3	-	-	25,737
	Johnston Road	0.80	From Silver Bay Road	to end	Priority 2	-	121,118	-
	Kamp Kagawong Trail	0.60	From Perivale Road West	to Allan Township Line	Priority 2	-	90,838	-
	Kirk Road/Campbell Line	2.00	From Tracy Road	to Learmont Road	Priority 2	-	302,794	-
	McAllister Road	1.00	From Highway 542	to end	Priority 2	-	151,397	-
	Will-O-Wisp Way	0.14	From Limberlost Lane	to Rainbow Trail	Priority 3	-	-	21,196
	Will-O-Wisp Way	0.29	From Rainbow Trail	to Ketchanookem Trail	Priority 3	-	-	43,905
	Beaver Road	0.70	to Grimesthorpe Road	to 1.3km W	Priority 1	174,874	-	-
	Lake Huron Drive	1.60	From Sand Road	to Burke Street intersection	Priority 1	399,712	-	-
	McDermid subdivision	1.10	from Highway 551	to Cranston Road	Priority 1	274,802	-	-
	Monument Road	1.10	from 1.0 km north	To Learmont	Priority 1	274,802	-	-
	Rockville Road	0.75	From Gilbralter intersection east	to Camp Mary Anne Corner (shared with NEMI)	Priority 1	187,365	-	-
	Yonge Street	3.30	From Margaret	to Blue Road	Priority 2	-	499,610	-
	Yonge Street	0.20	From Perry	From Margaret	Priority 3	-	-	30,279
	Case Road	1.80	From Trail'S End Road	2.0 km S Of Hwy 542	Priority 2	-	272,514	-
	Case Road	2.00	from 2.0 km S Of Hwy 542	to Highway 542	Priority 2	-	302,794	-
	Blue Road	1.40	From Yonge Street	to 1.4 km W	Priority 2	-	211,956	-
	Dial Road	3.70	From White Lake Road	to dead end	Priority 2	-	560,168	-
	Digby'S Sideroad	0.20	From Highway 542	to 0.4km inward (year round maintain)	Priority 3	-	-	30,279
	Townline West	0.75	From White Lake Road	to end	Priority 2	-	113,548	-
	White Church Road	2.00	From Britainville Road	to Earle'S Road corner	Priority 2	-	302,794	-
	Young Road	0.70	From Myle'S Sideroad	to end	Priority 2	-	105,978	-
	White Lake Road	1.10	From Townline Road West	to Dial Road	Priority 2	-	166,537	-
	Case Road	0.50	From the corner of White Lake Road	to Trail'S End Road	Priority 2	-	75,698	-
	Myles Sideroad	0.50	From Homestead Road	to end	Priority 2	-	75,698	-
	Oakcliffe Drive North	0.65	From Mill Road	to end	Priority 2	-	98,408	-
	Oakcliffe Drive South	0.65	From Mill Road	to end	Priority 2	-	98,408	-
	Stapleton Road	0.40	From Highway 542	to private section	Priority 2	-	60,559	-
	White Lake Road	1.10	From Dial Road	to Case Road	Priority 2	-	166,537	-
	Myles Sideroad	1.40	From Highway 542 Westward	to Homestead Road	Priority 2	-	211,956	-
	Camp MaryAnn Road	0.50	from Cox's Lane	.5 km S Joint maintained with NEMI	Priority 1	124,910	-	-
	Dewar Lane	0.20	from lumberlost	to end	Priority 3	-	-	30,279
	Maple Lane	0.80	From Silver Bay Road	to end	Priority 2	-	121,118	-
	Mill Road	2.10	From Silver Bay Road	to Oakcliffe Drive intersection	Priority 2	-	317,933	-
	Townline East	0.70	From Highway 542	to end	Priority 2	-	105,978	-
	Townline West	2.00	From Highway 542	to White Lake Road (Shared with Tehkummah)	Priority 2	-	302,794	-
	Trails End Road	2.10	from 0.15 km south	to Case Road	Priority 2	-	317,933	-
	Campbell Line Road	2.00	From Tracy Road	to Learmont Road	Priority 2	-	302,794	-
	Perivale Road East	1.00	From Perivale intersection	to Dawson's Resort	Priority 2	-	151,397	-
	East Road	2.50	From Fox Run (seasonal maintenance section)	to Silver Bay Road (year round maintenance)	Priority 2	-	378,492	-

MUNICIPALITY OF CENTRAL MANITOULIN

Asset Management Plan
Infrastructure Requirements by Priority Category

Infrastructure Component	Asset Description	Length in km	From	To	Category	Ten Year Investment Requirement		
						Priority 1	Priority 2	Priority 3
	East Road	2.00	From Highway 542	to 2 km N	Priority 2	-	302,794	-
	Lyon'S Lane	0.50	Seasonal road off Highway 542 past East Road	Seasonal road off Highway 542 past East Road	Priority 2	-	75,698	-
	Nighswander Road	0.50	From Silver Bay Road	to private road	Priority 2	-	75,698	-
	Old Mill Road	2.00	From Britainville Road	to Highway 542	Priority 2	-	302,794	-
	Tracy Road West	2.00	From Campbell Line Road	to Monument Road	Priority 2	-	302,794	-
	Watson Bay Road	0.80	From Highway 542	to dead end	Priority 2	-	121,118	-
	Blue Road	1.00	from 1.4 km W	to Cress Road	Priority 3	-	-	-
	Britainville Road	2.00	From corner going north	to Old Mill Road	Priority 3	-	-	-
	Britainville Road	2.00	From White Church Road in 2km	to western corner	Priority 3	-	-	-
	Dominion Bay Road	1.60	Off of Manitou Road	Off of Manitou Road	Priority 3	-	-	-
	Evergreen Drive	2.20	From Highway 542	to just past Lanktree Sideroad corner	Priority 3	-	-	-
	Lanktree Side Road	2.00	From Highway 542	to Evergreen Drive	Priority 3	-	-	-
	Manitou Road	0.70	From White Church Road	to Dominion Bay Road	Priority 3	-	-	-
	Tracy Road East	1.00	From Monument Road	to Deer Foot Trail	Priority 3	-	-	-
	Cranston Road	0.50	from .2 km westward	to Highway 551	Priority 2	-	124,910	-
	Eliza Jane Street	0.10	From Highway 551	to Munro Street	Priority 3	-	-	24,982
	Forest Street	0.17	From Thorne	to Highway 542	Priority 3	-	-	42,469
	Monument Road	2.00	from 0.5 km north	to Tracy Road	Priority 2	-	499,640	-
	Monument Road	2.00	From Cranston Road	to Blue Road	Priority 2	-	499,640	-
	Blue Road	3.70	From Cress Road	to Monument Road	Priority 3	-	-	-
	Blue Road	2.00	From Monument Road	to Highway 551	Priority 3	-	-	-
	Cooper Road	0.80	From Highway 542	to 0.8km inwards (year round maintenance)	Priority 3	-	-	-
	Cranston Road	0.80	From Monument Road	to River Road	Priority 3	-	-	-
	Cress Road	2.00	From McAllister Road	to Blue Road	Priority 3	-	-	-
	Elliot Road	2.00	From Highway 542	to Hill Road	Priority 3	-	-	-
	Elliot Road	2.00	From hill Road	to Rockville Road	Priority 3	-	-	-
	Hill Road	2.00	From Highway 551	to Elliot Road	Priority 3	-	-	-
	Lakeshore Road	0.80	From corner of Ketchanookem Trail	to Hare'S Lane	Priority 3	-	-	-
	Gibraltar Road	0.70	From Highway 542	to 0.7 km N	Priority 2	-	174,874	-
	Holmes Street	1.00	Off of Oriole Park 1km	Off of Oriole Park 1km	Priority 2	-	249,820	-
	Monument Road	2.10	From Tracy Road	to 1.0 km north	Priority 2	-	524,622	-
	Oriole Park	1.10	From Perivale west northward	From Perivale west northward	Priority 2	-	274,802	-
	Sand Road	2.00	From Highway 551	to private bush road	Priority 2	-	499,640	-
	Silver Bay Road	1.30	to Highway 542	to Moody'S Lane	Priority 2	-	324,766	-
	Watson Road	0.15	From Hwy 542	to Hwy 542	Priority 3	-	-	37,473
	Silver Bay Road	0.90	From East Road	to Paul'S Point Lane	Priority 2	-	224,838	-
	Grimesthorpe Road	2.10	From Beaver Road	to Highway 542	Priority 2	-	524,622	-
	Monument Road	2.10	From Tracy Road	to Learmont Road	Priority 2	-	524,622	-
	Ketchanookem Trail	1.10	From Oak Lane	to corner of Lakeshore Road	Priority 2	-	274,802	-
	Learmont Road	1.00	From Perivale Road East	to 1.0 km east	Priority 2	-	249,820	-
	Monument Road	2.10	From Learmont	to Billings Town Line	Priority 2	-	524,622	-
	Silver Bay Road	0.20	Past Paul'S Point Lane	to end	Priority 3	-	-	49,964
	Square Bay Road	1.00	From Beaver Road/ Gilchrist Sideroad intersection	to end	Priority 2	-	249,820	-
	Fox Run	0.50	From East Road	to end	Priority 3	-	-	-
	Lakeshore Road	1.40	From Hare'S Lane	to Highway 542	Priority 3	-	-	-
	Beaver Road	1.00	From Highway 542	to 1.0 km W	Priority 3	-	-	-
	Coventry Road	1.20	From Highway 542	to Highway 542	Priority 3	-	-	-
	Douglas Drive	0.36	From Highway 542	to highway 551	Priority 3	-	-	-
	Learmont Road	1.80	From Campbell Line Road	to Monument Road	Priority 3	-	-	-
	Learmont Road	2.00	From Hartley Sideroad	to Cambell Line Road	Priority 3	-	-	-
	Perivale Road East	3.20	From Learmont Road	Perivale Road East/West intersection	Priority 3	-	-	-
	Perivale Road East	1.70	Oriole Park Street	to 1.7 km east	Priority 3	-	-	-
	Anglin Street	0.13	From corner of Bay	to corner of Yonge St.	Priority 3	-	-	-
	Anglin Street	0.28	From Corner of Nixon	to corner of Bay St.	Priority 3	-	-	-
	Beaver Road	1.10	to corner of Bay St.	to 1.1 km W	Priority 3	-	-	-
	Cranston Road	0.20	from River Road	to .2 km westward	Priority 3	-	-	-
	Eliza Jane Street	0.10	From McNevin Street	to Highway 551	Priority 3	-	-	-
	Gilchrist Side Road	2.00	From Beaver Road	to Highway 542	Priority 3	-	-	-

MUNICIPALITY OF CENTRAL MANITOULIN

Asset Management Plan
Infrastructure Requirements by Priority Category

Infrastructure Component	Asset Description	Length in km	From	To	Category	Ten Year Investment Requirement		
						Priority 1	Priority 2	Priority 3
	Monument Road	2.00	From Blue Road	to Highway 542	Priority 3	-	-	-
	Monument Road	2.00	From Highway 542	to 0.5 km north	Priority 3	-	-	-
	Silver Bay Road	1.20	From Franks Road	to Mill Road	Priority 3	-	-	-
	Silver Bay Road	1.70	from Moody'S Lane	to Frank'S Road	Priority 3	-	-	-
	Yonge Street	4.00	From Blue Road	To Government	Priority 3	-	-	-
	Burke Street	0.80	From Lake Huron Drive	to end	Priority 3	-	-	-
	Frank'S Road	2.30	From Silver Bay Road	to Frank'S Road intersection	Priority 3	-	-	-
	Frank'S Road East	0.50	From Frank'S Road intersection	to end	Priority 3	-	-	-
	Frank'S Road West	0.80	From Frank'S Road intersection	to end	Priority 3	-	-	-
	Hutchinson Road	0.10	From Highway 542	to end	Priority 3	-	-	-
	Lake Huron Drive	2.20	From Burke Street	to end at Loughheed Bay	Priority 3	-	-	-
						17,360,805	12,990,201	1,112,272
Bridges	Union Road Bridge				Priority 2	-	148,100	-
	Beaver Road (West) Bridge				Priority 2	-	125,000	-
	Beaver Road (East) Bridge				Priority 2	-	117,150	-
	Learmont Road Culvert				Priority 2	-	93,850	-
	Monument Road Bridge				Priority 3	-	-	-
	Blue Road Bridge				Priority 3	-	-	250
	Cranston Road Bridge				Priority 2	-	146,800	-
	Ketchanookem Trail Bridge				Priority 3	-	-	2,000
	Case Road Bridge				Priority 3	-	-	500
	Town Line Road Bridge*				Priority 1	69,844	-	-
	McAllister (Grimesthorpe) Road Bridge				Priority 3	-	-	-
						69,844	630,900	2,750
Buildings	Spring Bay Community Hall				Priority 3	-	-	10,017
	Spring Bay Fire Hall				Priority 3	-	-	37,865
	Mindemoya Arena				Priority 1	519,500	-	-
	Mindemoya Old School				Priority 3	-	-	42,500
	Mindemoya Community Hall				Priority 3	-	-	23,602
	Mindemoya Municipal Garage				Priority 3	-	-	29,250
	Mindemoya Municipal Complex				Priority 3	-	-	4,000
	Mindemoya Fire Hall				Priority 1	159,500	-	-
	Providence Bay Arena				Priority 3	-	-	30,000
	Providence Bay Fire Hall				Priority 3	-	-	6,124
	Sandfield Community Centre				Priority 3	-	-	-
	Sandfield Fire Hall				Priority 3	-	-	33,885
	Sandfield Municipal Garage				Priority 3	-	-	32,935
	Big Lake Community Centre				Priority 3	-	-	13,700
	Mindemoya Lake Pavillion				Priority 3	-	-	13,335
	Mindemoya Park - Playground Pavillion				Priority 3	-	-	-
	Government Road Storage Building				Priority 3	-	-	1,000
	Providence Bay Centennial Hall / Library				Priority 2	-	58,620	-
	Providence Bay Harbour View Interpretive Center				Priority 3	-	-	12,140
	Monument Road Cenotaph Washroom				Priority 3	-	-	9,335
	Mindemoya Welcome Centre				Priority 3	-	-	-
	Pioneer Museum				Priority 3	-	-	-
	Mindemoya Sewage Treatment Plant				Priority 1	273,500	-	-
	Mindemoya Water Treatment Plant				Priority 1	85,500	-	-
	Sewage Pump Station				Priority 3	-	-	-
						1,038,000	58,620	299,688
Vehicles	1987 Ford Fire Van				Priority 1	80,000	-	-
	1992 International Dump/ Plow				Priority 1	180,000	-	-
	1996 John Deere 450 Bulldozer				Priority 1	185,000	-	-
	1982 Brush Chipper				Priority 3	55,000	-	-
	2005 Chev Silverado				Priority 3	-	60,000	-

MUNICIPALITY OF CENTRAL MANITOULIN

Asset Management Plan
Infrastructure Requirements by Priority Category

Infrastructure Component	Asset Description	Length in km	From	To	Category	Ten Year Investment Requirement		
						Priority 1	Priority 2	Priority 3
						500,000	60,000	-
						18,968,648	13,739,721	1,414,710



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**Asset Management Planning
for the Municipality of Central Manitoulin**

Appendix J Suggested Capital Financing Policy



PURPOSE

The goal of the Municipality's capital financing policy shall be to set out the guiding principles for the financing of future capital expenditures in a manner that considers the infrastructure investment requirements of the Municipality as well as affordability issues for taxpayers.

GLOSSARY

Capital Levy – The amount of money raised through taxation that is transferred to the capital fund or reserves to be used to help pay for the cost of capital projects.

Debt – Any obligation for the payment of money. The Municipality considers debt to consist of debentures, cash loans from financial institutions, capital leases, debenture financing approved through bylaw for which no debt has yet been issued, debenture financing approved through the capital budget for which no bylaw has yet been established, outstanding financial commitments, loan guarantees and any debt issue by, or on behalf of the Municipality, including mortgages, debentures or demand loans.

Long-term Debt – Any Debt for which the repayment of any portion of the principal is due beyond one year.

Municipal Levy – The amount of money raised through taxation by the Municipality for the purposes of funding operating costs as well as the Capital Levy.

POLICY STATEMENTS

1. The Municipality shall increase the Municipal Levy by a minimum of 2% per year for each of the next five years (2014 to 2018 inclusive), with the 2% increase being added to the Capital Levy.
2. The increase in the Capital Levy shall only be used for the following purposes:
 - a. To fund capital expenditures;
 - b. To increase reserve balances in order to finance future capital expenditures; or
 - c. To finance the annual costs associated with Long-term Debt issued in connection with capital projects.
3. Subsequent to the five year phase-in period for increases to the Municipal Levy, the Municipality shall increase the Capital Levy by at least the Consumer Price Index, as published by Statistics Canada.



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Asset Management Planning
for the Municipality of Central Manitoulin

Appendix K Suggested Borrowing Policy



PURPOSE

The goal of the Municipality's debt policy shall be to set out the guiding principles for the approval, issuance and administration of any Municipality debt, which shall adhere to all statutory requirements.

GLOSSARY

Debt – Any obligation for the payment of money. The Municipality considers debt to consist of debentures, cash loans from financial institutions, capital leases, debenture financing approved through bylaw for which no debt has yet been issued, debenture financing approved through the capital budget for which no bylaw has yet been established, outstanding financial commitments, loan guarantees and any debt issue by, or on behalf of the Municipality, including mortgages, debentures or demand loans.

Debt and Financial Obligation Limit – The maximum amount of annual debt servicing costs that a municipality can undertake or guarantee without seeking the approval of the Ontario Municipal Board. The Debt and Financial Obligation Limit is calculated pursuant to *Ontario Regulation 403/02 – Debt and Financial Obligation Limits*.

Lease Financial Agreements – A financial agreement, in accordance with *Ontario Regulation 653/05 – Debt Related Financial Instruments and Financial Agreements*, that a municipality may enter into for the purpose of obtaining long-term financing of a capital undertaking of the municipality.

Long-term Debt – Any Debt for which the repayment of any portion of the principal is due beyond one year.

Material Impact – Under *Ontario Regulation 653/05 – Debt Related Financial Instruments and Financial Agreements*, a Lease Financing Agreement has a material impact on a municipality if the costs or risks associated with the agreement significantly affect the municipality's Debt and Financial Obligation Limit, or would reasonably be expected to have a significant effect on that limit.

POLICY STATEMENTS

1. The Municipality shall only enter into Long-term Debt, including Lease Financing Agreements, where the following conditions are met:
 - a. The Long-term Debt will be managed in a manner consistent with other long-term planning, financial and management objectives.
 - b. Consideration will be given to the impact on future taxpayers.
 - c. Long-term Debt will be managed in a manner to limit financial risk exposure.
 - d. The timing, type and term of Long-term Debt will be determined with a view of minimizing long-term cost to the extent possible.

- e. The term of Long-term Debt will not exceed the useful life of the particular asset.
 - f. The issuance of Long-term Debt will not result in the Municipality exceeding its Debt and Financial Obligation Limit.
 - g. A category of Lease Financing Agreements may be relied upon for non-material or operational leases where the agreements will not, in the opinion of the Treasurer as delegated by Council through this policy, result in a Material Impact for the Municipality.
2. All Debt shall be issued in Canadian dollars.
 3. It shall be the general practice to issue Debt where the interest rates will be fixed over its term. The Municipality may issue Debt in which the interest rate will vary where, in the opinion of the Treasurer, it is in the Municipality's best interest to allow the rate to float provided such Debt, in addition to any other Debt, does not exceed fifteen percent (15%) of the total outstanding Debt of the Municipality in accordance with *Ontario Regulation 276/02 – Bank Loans*.
 4. Upon the repayment of Long-term Debt, the amounts previously committed to annual debt servicing shall not be removed from the Municipality's budget but rather will be reallocated towards:
 - a. Debt servicing costs for new Debt issued by the Municipality; and/or
 - b. Contributions to reserves for capital purposes.
 5. The awarding of any contract under this Policy, unless otherwise authorized by Council, shall follow the requirements as set out in the Municipality's procurement policy.
 6. Council, in conjunction with staff, shall review the Municipality's outstanding Debt in conjunction with the annual budget process.

RELEVANT LEGISLATION

- Municipal Act, 2001
- Ontario Regulation 247/01 – Variable Interest Rate Debentures and Foreign Currency Borrowing
- Ontario Regulation 276/02 – Bank Loans
- Ontario Regulation 278/02 – Construction Financing
- Ontario Regulation 403/02 – Debt and Financial Obligation Limits
- Ontario Regulation 653/05 – Debt Related Financial Instruments and Financial Agreements



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