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Corporation of the Township of McNab/Braeside

Municipal Asset
Management Plan

December 17, 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 approaching the end-of-useful-life for significant components of their infrastructure.

Current state of infrastructure

Infrastructure represents a major investment on the part of the Township of McNab/Braeside ("the Municipality"). 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.

While the amounts of the Municipality's reconstruction and replacement costs are significant, the real pressure from the perspective of its infrastructure comes from its current condition. Condition analysis was conducted as part of the asset management planning process and 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 Township should invest \$36 million over the next ten years to address its anticipated infrastructure needs.

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 \$3.6 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 maintenance needs, it does not allow for rehabilitation and replacement of its infrastructure. The lifecycle cost of these roads amount to an additional \$8.5 million, bringing the Municipality's total infrastructure financing requirement to \$12.1 million per year. In comparison, the Municipality is budgeted to make \$1.1 million in capital expenditures during 2013. Lifecycle costs represent an ideal where regular maintenance, rehabilitation and replacement is performed on the roads at set intervals. However, council will have to determine the appropriate spending based on funds available and the priority of the work to be performed. Clearly, the Municipality is unable to address the full spectrum of its infrastructure needs, both capital and maintenance, resulting in ongoing annual infrastructure deficits.

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 should consider the following measures intended to increase funding for capital requirements:

- Permanently protecting the current level of capital so as to provide a consistent stream of funding into the future. The 2013 budget includes \$1.1million for capital expenditures.
- Introducing a five year capital levy that would see the total levy increase by 5% each year, with the new revenue allocated to capital purposes (i.e. not for operations).
- Exploring the 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 13.8% over the same period. In the absence of major population growth, fewer people are available to fund the infrastructure requirement, increasing the overall cost to the individual taxpayer.

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 Township of McNab/Braeside

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	Other Infrastructure
<ul style="list-style-type: none"> • Roads • Streetlights • Storm sewers 	<ul style="list-style-type: none"> • Vehicles • Buildings • Machinery and equipment

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 13-16
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 17-22
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 25-28
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 29-30 Pages 34-35
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 31-32
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.	Page 37
7. A third set of financial projections was developed to reflect the Municipality's capacity to undertake the recommended asset management activities based on the assumption that some form of grants would be provided to assist with the required infrastructure reinvestment.	Pages 38-39

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 Township of McNab/Braeside. KPMG has not and will not perform management functions or make management decisions for the Township of McNab/Braeside.

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 Township of McNab/Braeside nor are we an insider or associate of the Township of McNab/Braeside or its management team. Accordingly, we believe we are independent of the Township of McNab/Braeside and are acting objectively.



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Asset Management Planning
for the Township of McNab/Braeside

Chapter II State of Local Infrastructure

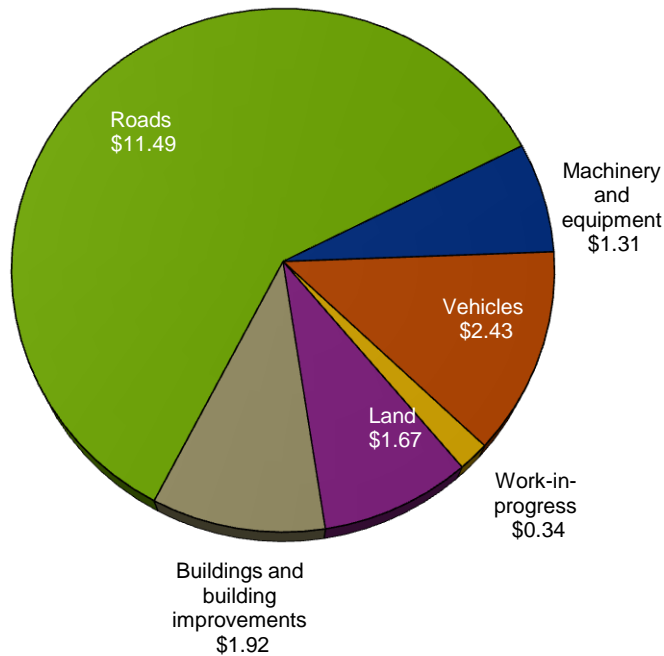


At December 31, 2012, the Municipality reported a total investment of \$19.16 million in tangible capital assets ('TCA') at historical cost. This equates to an average investment of \$6,794 per household, or \$2,599 per resident.

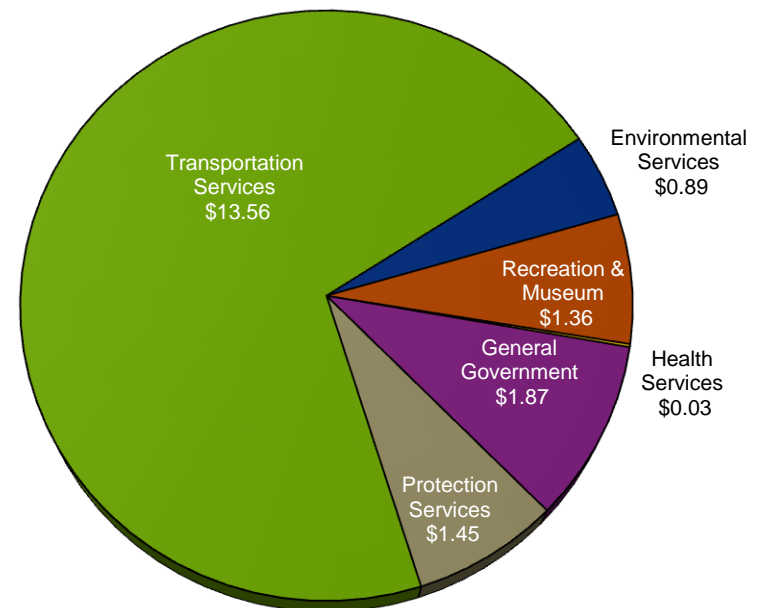
With a historical cost of \$11.49 million, linear assets, represent the single largest type of infrastructure and account for 60% of the Municipality's total infrastructure (at historical cost). Vehicles (\$2.43 million), land (\$1.67 million) and buildings and building improvements (\$1.92 million) represent the next largest asset types by historical cost.

From a functional perspective, the Municipality's road network represents the largest components of its infrastructure.

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



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



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:

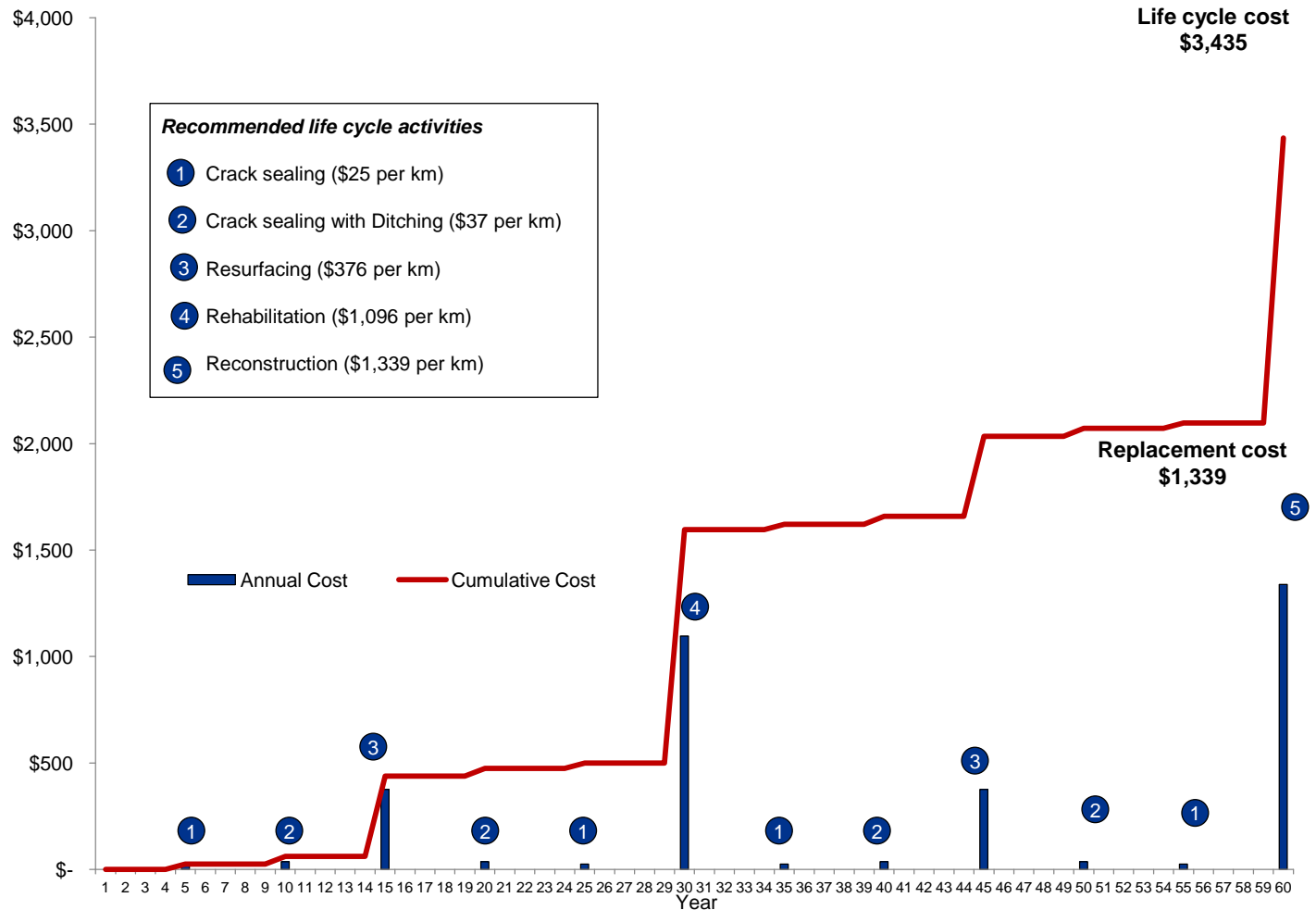
- The fact that certain components of the Municipality's infrastructure, such as roads, will not be fully replaced at the end of useful life but rather will be reconstructed; and
- Asset management activities that are required (by best practice) to be incurred prior to the end of the useful life of the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

Accordingly, for the purposes of the Municipality's asset management plan, we have considered 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)
 - 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.

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

The current replacement value of the Municipality's infrastructure (expressed in 2013 funds) is estimated to be in the order of \$218 million, the majority of which (\$209 million or 96%) relates to the municipal road network. Overall, the replacement value of the Municipality's infrastructure amounts to approximately \$29,572 per resident or \$77,296 per household.

The total life cycle cost associated with the Municipality's linear infrastructure (roads) is just over \$510 million. On average, the Municipality's life cycle costs for its linear infrastructure is \$69,217 per resident or \$180,921 per household.

Historical, replacement and life cycle costs by component

	Quantity	Useful Life	Historical Cost	Replacement Cost	Life Cycle Cost
Roads – paved and surface treated	129,620 m	60 years	\$9,056,688	\$165,067,797	\$409,675,183
Roads – gravel	69,980 m	75 years	\$2,434,620	\$44,373,543	\$100,521,959
Total linear infrastructure			\$11,491,308	\$209,441,340	\$510,197,142
Buildings	20	50 years	\$1,921,973	\$4,100,299	
Vehicles & Large Machinery	29	10-30 years	\$2,428,117	\$4,432,762	
Total in-scope infrastructure			\$15,841,398	\$217,974,401	
Land			\$1,666,284		
Machinery and equipment			\$1,305,852		
Work-in-progress			\$346,621		
Total tangible capital assets per financial statements			\$19,160,155		

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.

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

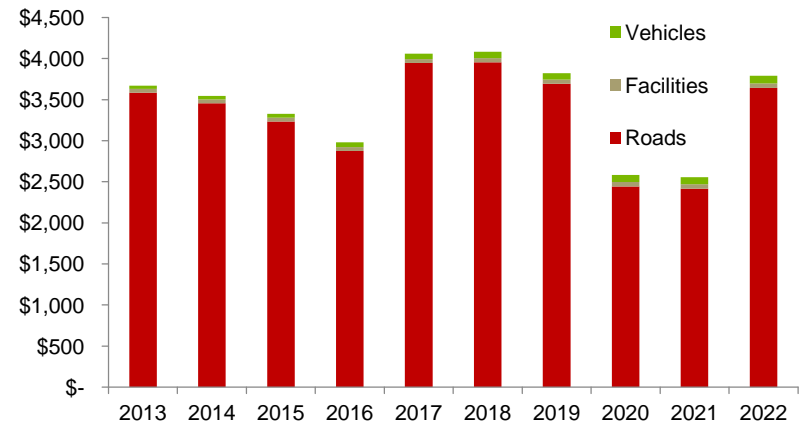
Details of the condition assessments for individual infrastructure components can be found in the infrastructure profiles in **Appendix A**.

Condition assessment results by infrastructure component

Infrastructure	Condition Assessment		
	Good	Fair	Poor
Roads – gravel	71%	25%	4%
Roads – paved and surface treated	24%	70%	7%

In addition to those infrastructure components rated as poor, more than 54% of the Municipality’s road network is assessed as being in fair condition. As the road network continues to deteriorate due to usage and weather conditions, the rating will eventually shift from fair to poor, placing a considerable financial burden on the Municipality (given that roads represent the largest component of its infrastructure replacement costs and life cycle costs). As a result of the ongoing deterioration of roads and other infrastructure currently ranked as fair, the future infrastructure reinvestment requirements are expected to increase significantly in the near to mid-term future, with a total recommended reinvestment of \$35.9million over the next ten years, \$34.7 million of which relates to roads.

Projected future infrastructure investment requirements (in thousands)



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

- 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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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	TO CONFIRM	2014
Vehicles	Operability	90%	TO CONFIRM	2014
Facilities	Compliance with Accessibility for Ontarians with Disability Act and Integrated Accessibility Standards	Full compliance	TO CONFIRM	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, two 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.

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.



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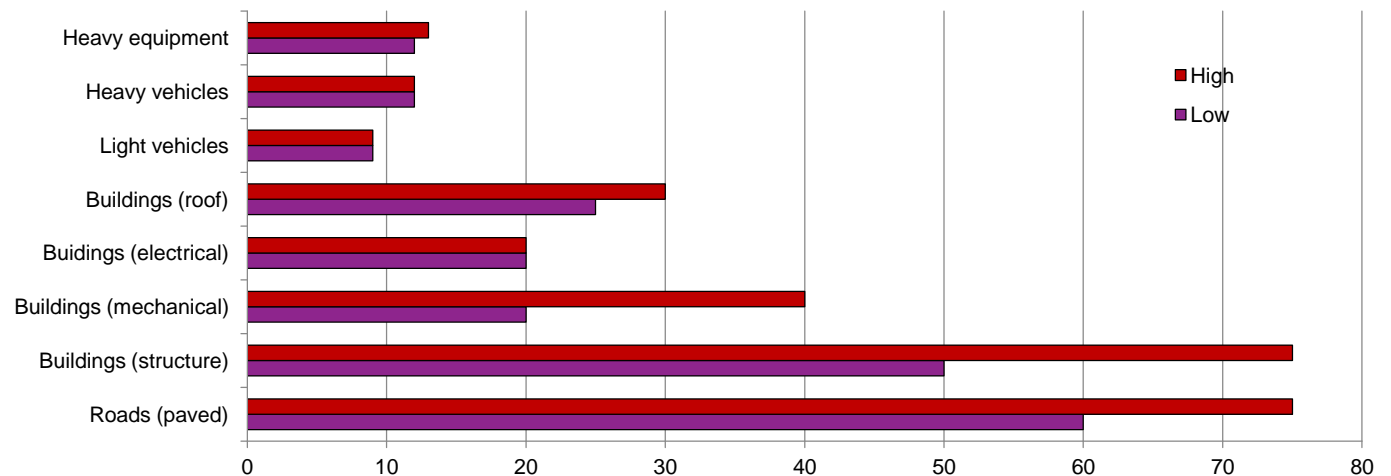
Chapter IV Asset Management Strategy



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

1. The typical 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.

Typical 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 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: 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 paved roads. These include buried assets in the utility corridor: 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 10 and is based on a visual survey conducted, where 10 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>

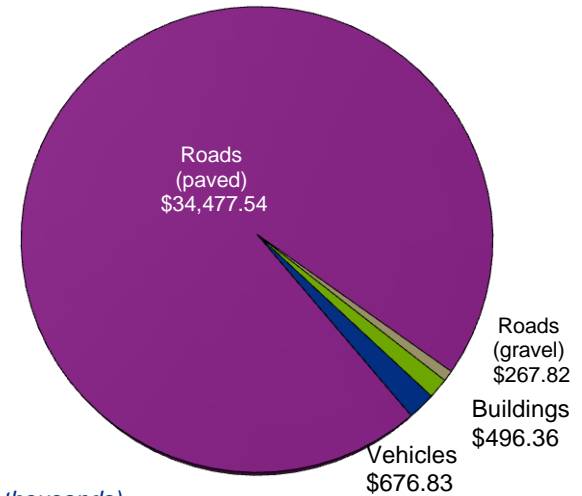
<p><i>Anticipated asset life cycle.</i></p>	<p>The Life Cycle ranges from 15 to 50 years. Examining individual elements, the expected service life of the roof system varies from 25 to 30 years. Hot boiler or carpeting replacement typically occurs every 15 years. Similarly, the building superstructure 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, and 20 years for graders.
<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.

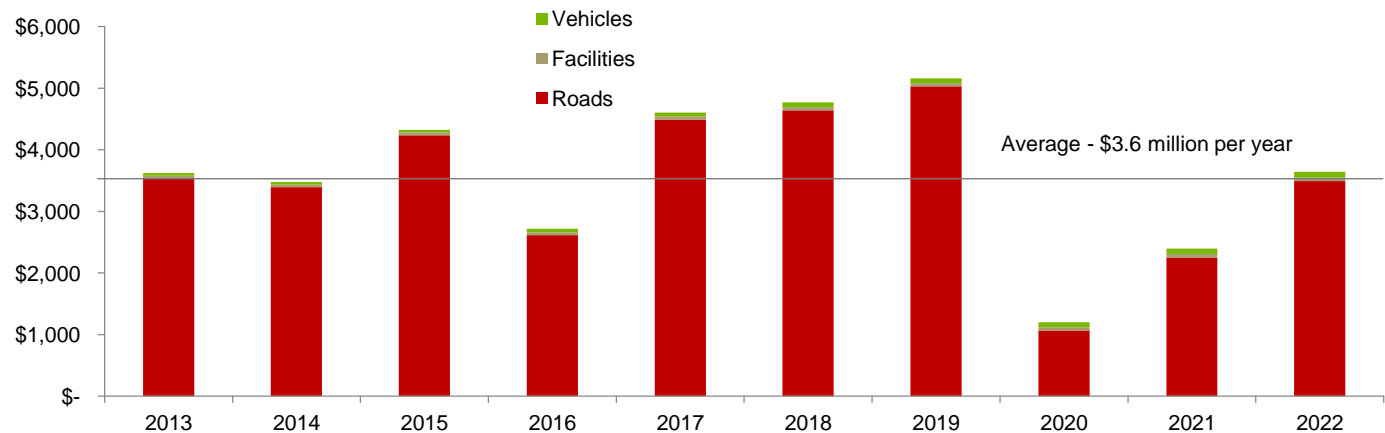
For asset management planning purposes, the financial requirement associated with the Municipality's infrastructure requirements can be divided into two categories:

- 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 \$35,918,549 in its infrastructure, the majority of which (\$34,745,361 or 97%) relates to the Municipal road network. On average, the Municipality's immediate infrastructure investment needs amount to approximately \$3,592,000 per year.

Immediate infrastructure needs (in thousands)



Projected future infrastructure investment requirements by year (in thousands)



- **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 \$8.5 million.

Estimated sustainable life cycle requirement

Asset Component	Basis of Determination	Total Costs Over Useful Life	Estimated Useful Life	Annual Requirement
Roads – paved	Life cycle	\$409,675,183	60 years	\$6,827,920
Roads – gravel	Life cycle	\$100,521,959	75 years	\$1,340,293
Buildings	Replacement	\$4,100,299	50 years	\$82,006
Vehicles	Replacement	\$3,986,846	15 years	\$265,790
Large Machinery & Equipment	Replacement	\$445,916	30 years	\$14,864
Total		\$518,730,203		\$8,530,872

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 \$12,122,727 as follows:

- Immediate infrastructure investment needs \$3,591,855
- Sustainable life cycle requirements \$8,530,872

In comparison, the Municipality's total revenues in 2013 are budgeted to be \$3,928,000, which supports \$1,099,316 in capital expenditures. 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:

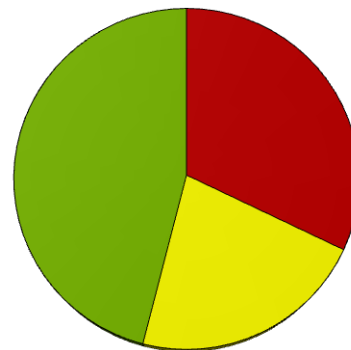
Category	Description
Priority 1	<ul style="list-style-type: none"> Assets with an investment requirement within the next five years, based on condition or useful life Co-located assets that may not require investment within the next five years but should be replaced as part of the integrated project. 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 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 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 B**.

Based on these criteria, the total infrastructure investment requirement for Priority 1 infrastructure (excluding sustainable life cycle requirements) is \$18,264,427, with Priority 2 infrastructure investment requirements amounting to \$16,480,933. As noted below, the most pressing infrastructure requirements for the Municipality are in the areas of roads (54% priority 1 and 2).

Roads



- Priority 1
- Priority 2
- Priority 3



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Asset Management Planning
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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:

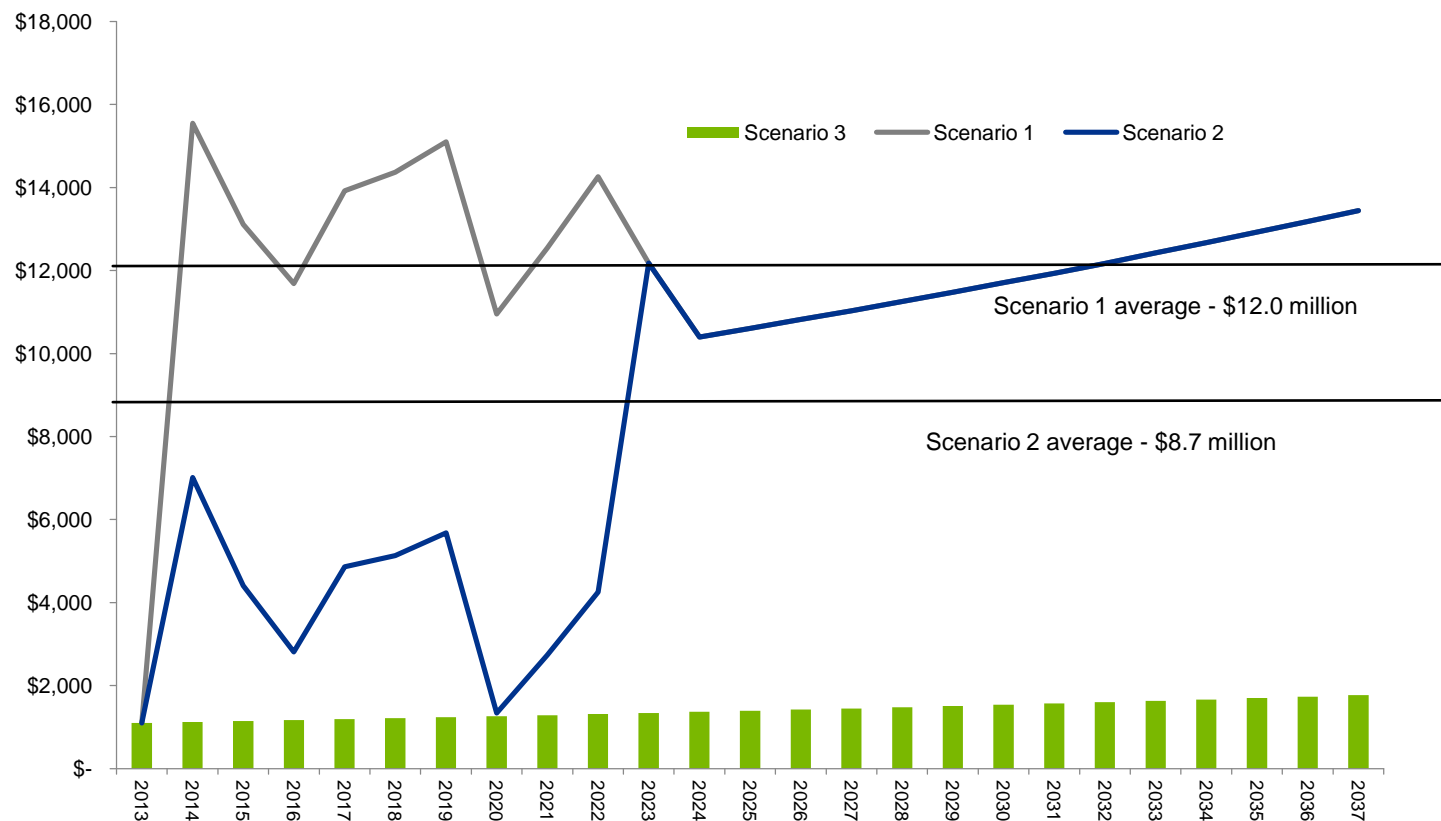
- **Scenario 1** – Representing the base case scenario, this scenario reflects the assumption that all identified asset management requirements (immediate and long-term contributions) will be incurred by the Municipality. This represents the worst case scenario as it involves the highest level of capital 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. \$3,591,855 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. \$8,530,872 per year).
- **Scenario 3** – Under this scenario, it is assumed that the Municipality will continue to make capital investments based on the amount of funding budgeted in 2013 for capital expenditures (i.e. \$1,099,316).

Financial projections for each of the scenarios are contained in the following appendices:

- Appendix C – Scenario 1
- Appendix D – Scenario 2
- Appendix E – Scenario 3

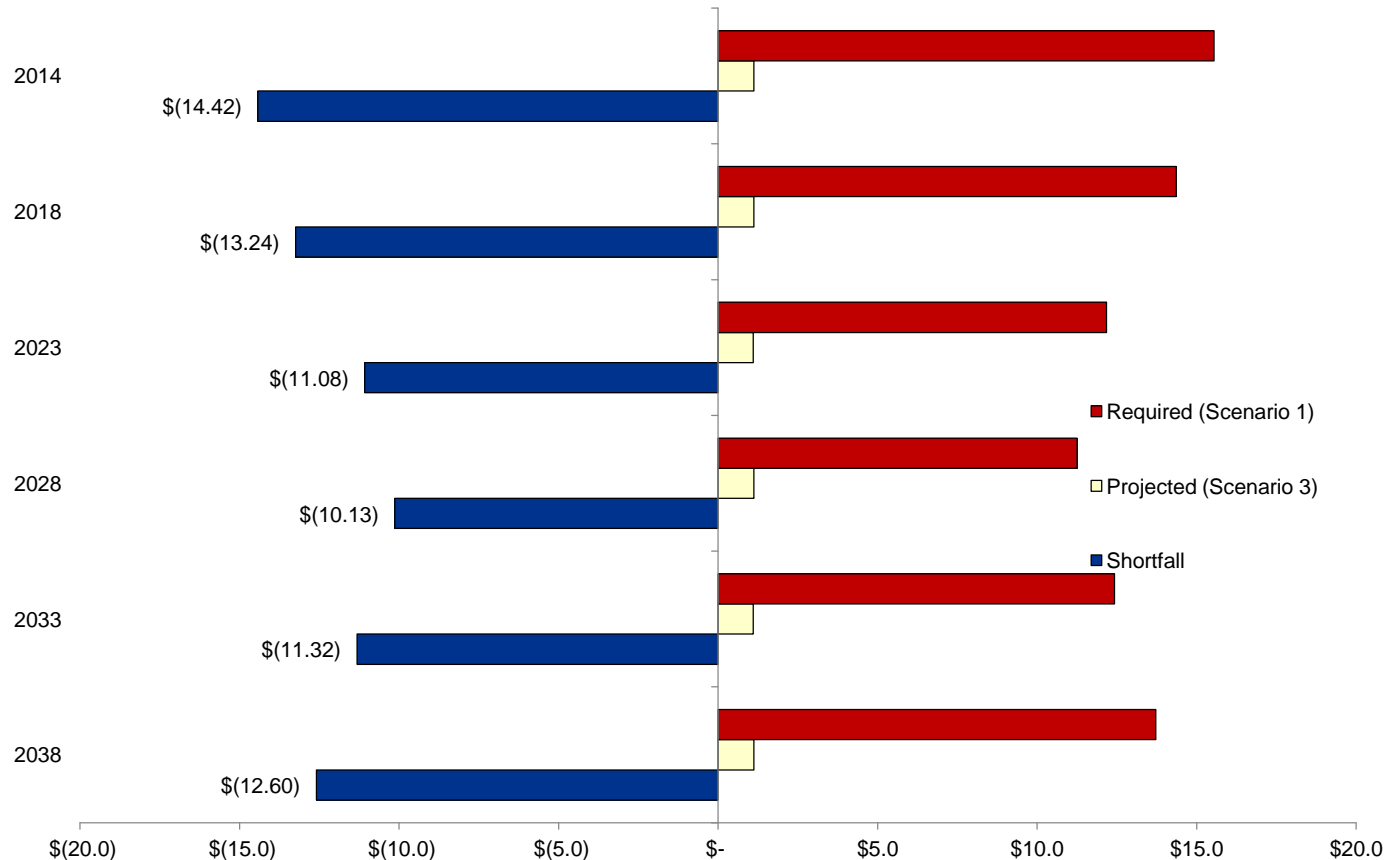
Financial projections developed in support of the asset management plan demonstrate both the magnitude and immediacy of the Municipality's identified capital requirements, with the required level of capital expenditures under Scenarios 1 and 2 significantly higher than the current level. At the same 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 thousands)



At the current level of capital expenditures, the Municipality is expected to experience a growing infrastructure deficit as its existing investments are 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 estimated to be approximately \$12.1 million per year.

Calculated annual infrastructure funding shortfalls (in millions)



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

- 2. Use of borrowing for infrastructure investments.** On an ongoing basis, the Municipality will consider the use of debt for additional infrastructure investments, conditionally 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.

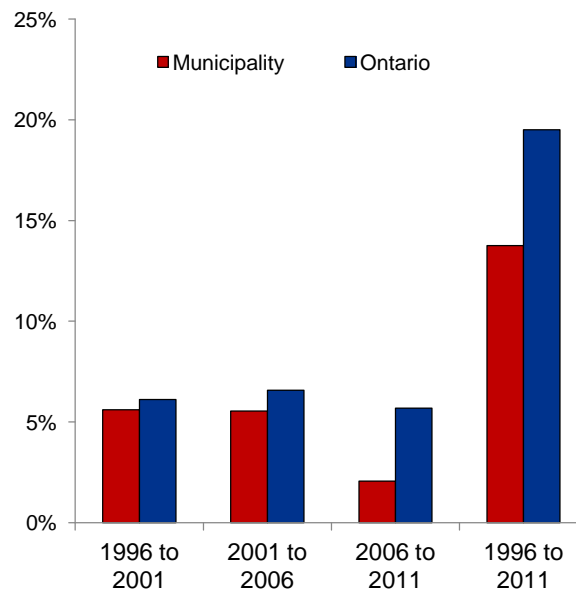
The use of debt financing is particularly helpful in addressing immediate capital investment requirements as it allows the Municipality to spread the cost of projects over the term of the loan, recognizing that future capital expenditures would be limited as the financing is directed towards debt servicing, not infrastructure investments.

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.

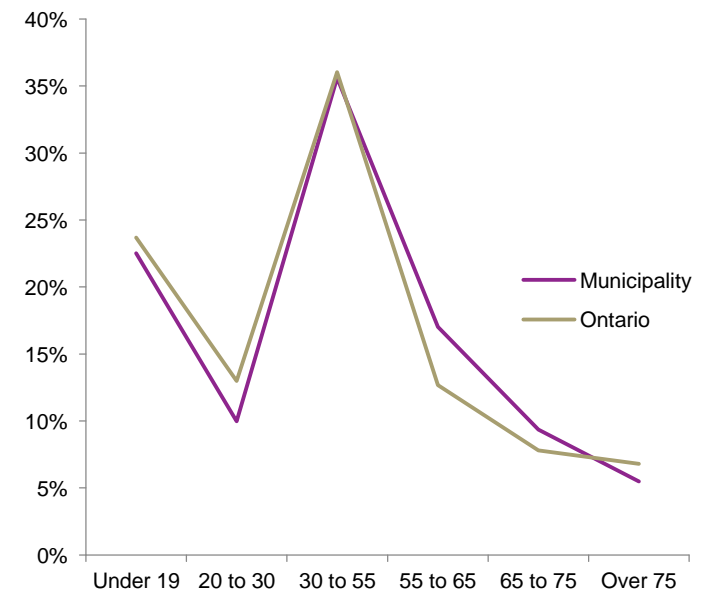
While it is expected that most, if not all, Ontario municipalities will be challenged to meet their financial requirements associated with infrastructure, the Province should give particular attention to the Municipality's limited ability to fund capital investments in comparison to other municipalities,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

- From 1996 to 2011, **the Municipality's total population has increased by 13.8%**, 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 45.3 years compared to the Provincial median age of 42.5 years.

Population changes – 1996 to 2011



Population distribution by age group (2011)



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:

- Replacing 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.



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Asset Management Planning
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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 2-5
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 	Pages 7-11
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. 	Pages 13-19

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 	Pages 21-22
<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. 	Pages 24-32
<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. 	Pages 34-39



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