

# ASSET MANAGEMENT PLAN

THE TOWNSHIP OF NORTH GLENGARRY

2014

**Ensuring Long-Term Financial Sustainability by  
Providing Essential Services that Meet Approved  
Standards at Minimum Cost**

*Township of*  
**NORTH GLENGARRY**

## TABLE OF CONTENTS

Executive Summary .....	i
1) Introduction .....	3
What is an Asset Management Plan? .....	3
Why Does the Township Want an Asset Management Plan? .....	3
Benefits of an Asset Management Plan .....	3
The Essential Components of an Asset Management Plan .....	4
a) Township of North Glengarry Strategic Plan .....	5
b) Asset Management Plans Impact on Planning and Financial Budgeting .....	6
c) Purpose of the Asset Management Plan .....	6
d) Township of North Glengarry Infrastructure Assets .....	6
e) Development of an Asset Management Plan .....	6
f) Implementation and Evaluation of Asset Management Plan .....	6
Implementation Schedule .....	6
2) State of Local Infrastructure .....	8
3) Desired Levels of Service .....	9
a) Level of Service .....	9
b) External Trends or Issues .....	9
c) Current Performance Relative to Target Performance .....	10
4) Asset Management Strategy .....	10
a) Planned Actions .....	10
b) Procurement Methods .....	10
c) Overview of Risks Associated with Strategy .....	11
d) Option Analysis .....	11
5) Financing Strategy .....	11
a) Expenditure Analysis .....	12
b) Revenue Analysis .....	13
c) Key Assumptions .....	14
d) Funding Shortfalls .....	15
Appendix - Asset Management Strategies .....	16

## EXECUTIVE SUMMARY

In response to the Ministry of Infrastructure's release of a ten-year infrastructure plan, "Building Together", which focuses on building a more standardized and consistent approach to municipal asset management planning, the Township of North Glengarry (the "Township") has taken a pro-active approach in preparing a detailed Asset Management Plan, "AMP", to seek provincial capital funding. As the Township's municipal assets continue to age, it becomes increasingly important to go through a formal process determining how a group of assets is to be managed over a period of time to help ensure safety standards, regulations and expected levels of service continue to be met given the Township's financing capabilities.

The Township's AMP is a strategic document stating the characteristics and condition of infrastructure assets, levels of service expected from them, planned actions to ensure the assets are providing the expected level of service and financing strategies to implement the planned actions. The overall intent of the AMP is to help the Township ensure investments are made at the right time, future repair and rehabilitation costs are minimized, and municipal assets are being appropriately maintained.

### State of Local Infrastructure

The Asset Management Plan breaks the Municipality's infrastructure into 9 categories: Roads, Bridges and Culverts, Facilities, Machinery and Equipment, Land, Land Improvements, Water, Sewer and Vehicles. The Township of North Glengarry has a good rating in most of these categories. There are four categories with a fair or poor rating which should be focuses of the Asset Management Plan. These categories are Roads, Bridges and Culverts, which would be highly integrated into the plan for Roads due to their interrelated natures, Water and Sewer.

The deficiency in capital infrastructure in the Water system has been addressed in the AMP through the Regional Water Supply Project. The remaining concern with the Regional Water Supply Project is the actual timing of the project to the multiple levels of government involved in the funding of the project due to the size and regional utilization of the project. The Township of North Glengarry may have to look at local stop-gap measures if the project becomes significantly delayed. This would not be a financially or operationally efficient method of addressing the water deficiency and should be avoided if at all possible.

The AMP addresses the Sewer capital deficiency through continued sewer line and manhole replacements and a project designated for 2016 to specifically address the under capacity inherent in the current system. This project is preceded by a new efficiency study in 2015. The under capacity in the sewer system is a current deficiency and it is also limiting the Municipality's ability to expand. The Township of North Glengarry has vacant land holdings which could possibility be sold to a developer which would generate funds from the sale and increased tax revenues. These lands couldn't be sold efficiently right now as the sewer system is currently over-capacity.

The deficiency in the Bridges and Culverts infrastructure was noted in the 2013 OSIM inspection report as related to guide rail and barrier systems. The AMP addresses the recommendations in the 2013 OSIM inspection report; however the issue will be what condition the Bridges and Culverts will be in 10 years from now, at the end of the current AMP. This expected deficiency has not been completely addressed by the AMP.

The 2011 Road Needs Study conducted for the Township of North Glengarry by McIntosh Perry indicated there was a deficiency in Roads infrastructure that was expected to grow over the next five years, the extent of the Road Needs Study. The AMP extends the intended plan into a 10 year forecast period but does not address the current an increasing deficiency in the Roads infrastructure. The overall average condition rating for gravel roads is satisfactory at a current and expected rating of 6.5 out of 10 according the Road Needs Study. Hard surface roads had a blended condition rating of 5.69 in 2011 which is below

a satisfactory rate of 7.0 to 7.5. The 2011 Road Needs Study indicated that by allocating approximately \$380,000 per year on Road capital project that the blended condition rating would decrease to 4.39. The AMP includes approximately \$375,000 per year for Road capital projects. This indicates that unless conditions or the plan changes the Roads infrastructure of the Township of North Glengarry will deteriorate over the next 10 years.

The 2011 Road Needs Study indicated that it would take approximately \$1,160,000 per year in Road capital projects to maintain the overall condition rating until 2016. Based upon the 2011 Road Needs Study there were approximately 121 kilometres of roads with a backlog of needs at that time. It would take some in depth calculations to estimate the current (2011) deficiency in the Roads infrastructure in terms of dollars. However, based upon the 2011 Road Needs Study and the AMP it would appear that the deficit is estimated to grow at approximately \$750,000 per year if nothing changes. Various factors will add to the final cost to eliminate this deficit in the future.

Inflation: these amounts are in 2011 dollars and thus a further deficit accumulated over the next 10 years will be significantly more in 2023 dollars than simply \$750,000 per year multiplied by 10 years. Cumulative factor: a current problem on a road may be fixable with resurfacing while if the problem is not addressed for many years it may require partial or full depth construction to rectify the problem. This may add to the cost to eliminate any deficiency that is allowed to accumulate for a long period of time.

## Financing Strategy

There are no funding shortfalls that cannot be eliminated by revising service levels, asset management, and/or financing strategies. All financing strategies will be considered to support a sustainable operating and capital program.

The AMP addresses the infrastructure deficiencies in Water and Sewer but the size and timing of the projects necessary to address these deficiencies require the borrowing of approximately \$8,000,000. The AMP does not project the Township of North Glengarry coming close to its annual debt repayment limit. It does, however, project that the outstanding debt balance at the end of 2022 will be almost the same as at the end of 2016 which is the end of the projected borrowing for the large Water and Sewer projects. The Township will have to consider financing strategies that reduce or minimize debt accumulation after the Water and Sewer projects have been financed to maintain a sustainable operating and capital program.

Council ultimately will need to balance the need to invest in local infrastructure based on priorities identified throughout the AMP while considering the short and long term financial implications to the Township. In addition to the projected reliance on debt financing discussed above, Council will need to aggressively pursue opportunities to obtain additional funding from other levels of government as Townships throughout the country compete for limited grant dollars. The AMP currently projects a 1% net annual reduction in grant funding to reflect the current environment. While both debt and grant financing present valid opportunities to minimize the burden on ratepayers due to the current low interest rate environment and introduction of new infrastructure programs, Council may still need to consider raising municipal taxes, user fees and service charges beyond current projected levels to address shortfalls currently not dealt with by the AMP. This would include eliminating the effect of the 2006 reduction in taxes that the ratepayers have enjoyed for the last 8 years.

## Overall

The AMP of the Township of North Glengarry addresses some of the capital deficiencies that the Township is currently facing but it does not address all of these deficiencies. The AMP does not create any funding shortfalls but it does highlight the need for the Township to consider all financing strategies, including but not limited to those listed above, even if these strategies may be unpopular amongst ratepayers, if the Township is going to have a sustainable operating and capital program.

# 1) INTRODUCTION

The Province of Ontario's Ministry of Infrastructure emphasizes that a municipality's infrastructure investment is vital to building a strong economy and community. Public infrastructure including roads, water and sewer systems, bridges, and buildings are central to a township's prosperity and quality of life. Without these core assets, the viability of a municipality, from an economic, health, and environmental perspective, would be in jeopardy.

## What is an Asset Management Plan?

Asset Management is the process of determining how to best build, operate, maintain, renew, replace and dispose of infrastructure assets. An Asset Management Plan ("AMP") is developed for the management of one or more infrastructure assets within the municipality that combines multi-disciplinary management practices, including both technical and financial practices, over the lifecycle of the asset(s) to a specified level of service in the most cost-effective manner. The intent of an AMP is to maximize benefits and reduce risks, while providing a satisfactory level of service to the community in a sustainable manner.

An AMP also incorporates the existing preventative maintenance and risk management programs to preclude risk of failure. The preventative maintenance component ensures that the day-to-day wear and tear on the asset is dealt with to ensure that the asset can reach its expected lifecycle and the risk management component ensures that risk is managed through due diligence.

In general the Asset Management Process defines:

- What we own - Inventory
- What is it worth - Valuation
- Where is it - Geographical Information System
- How we operate - Service Level
- What is its condition - Risk of Failure/Consequence of Failure
- What we need to do - Construct, Maintain or Replace
- How much will it cost and how will it be funded - Financial Plan

## Why Does the Township Want an Asset Management Plan?

Asset Management Plans enhance both the budgeting and planning processes by modeling future capital costs for the upcoming ten years. This will aid the Township in understanding future budget pressures and assist in providing options on closing any infrastructure gaps. As well, a fully implemented plan will provide real life Township specific data on maintenance and operations costs allowing staff to generate tools to develop lifecycle costing and long-term performance measures. The plan will also give direction on proactive preventative maintenance and rehabilitation which will ultimately lower overall costs.

## Benefits of an Asset Management Plan

Specific benefits associated with an AMP include:

- Better decision making regarding resource allocation;
- More effective communications with ratepayers, elected officials, financial rating organizations and regulatory agencies;
- Providing consistent levels of service to the public;
- Better risk management practices to the municipality;
- More effective financial planning;
- Reduced lifecycle costs;
- More efficient data management;
- Facilitates the establishment and subsequent implementation of policy objectives and the related measurement of performance;
- Avoids potential problems and crises;
- Results in positive institutional change.

## The Essential Components of an Asset Management Plan

In order for an AMP to fulfill the principles of asset management, the following essential components must be contained in the overall plan:

i. Asset Value:

All municipal infrastructure assets have a monetary value which has been determined by actual capital value or best estimate. This was completed through the Tangible Capital Asset processes using PSAB 3150 Guidelines.

ii. Lifecycle Management:

All assets have a limited life expectancy and to some degree the rate of deterioration can be estimated. A decision made at any point in time in the lifecycle of an asset has an effect on the remaining life and may have operational implications and related costs. The lifecycle for each asset as presented in this report is based on the United Counties Stormont Dundas & Glengarry Guidelines and Methodology for PSAB 3150 dated July 16, 2008.

iii. Sustainability:

In terms of asset management, sustainable development has been defined as “meeting the needs of the present generation without compromising the ability of the future generations to meet their own needs”. This definition has been extracted from the “National Guide to Sustainable Municipal Infrastructure”. The AMP needs to identify a financial plan over the long term to ensure that sufficient funds are available. These funds provide the resources required to operate, rehabilitate, dispose and ultimately replace the asset at the optimal time with the intention of achieving the lowest lifecycle cost.

iv. Integration of Technical and Financial Plans:

The technical plan must minimize lifecycle costs for the infrastructure while maintaining an adequate level of service at the lowest possible level of risk. The financial plan must identify the financial investment required per year for each asset over the long term, including any larger than normal expenditures to meet the requirements of the technical plan. Ideally, the two plans should be integrated so the relationship between the level of service and the cost can be quantified. The Asset Management Strategies attached to this report integrate the financial investment level required to the level of service. The technical and financial relationship may change from time to time depending on the outcome of asset condition assessments.

v. Risk Assessment:

Risk should be managed in any decision making process. The owner of the assets should analyze and document acceptable risk tolerance. In the Township’s case, the probability of failure is taken into account while the condition of the asset is being analyzed. The condition survey leads to determining the rate of failure and the consequences of such failure. Risk factors can include financial, environmental, regulatory/legal and public health and safety.

vi. Performance Measurement:

To optimize an AMP, performance of the assets and rehabilitation strategies should be monitored regularly and adjustments should be made at the appropriate stage in the asset lifecycle to achieve an acceptable balance between cost and the performance (level of service). The Township can take advantage of tools provided by various organizations including Ontario Good Roads Association (OGRA), Ontario Water Works Association (OWWA), and Ontario Recreation Facilities Association (ORFA) and will be able utilize performance measurements established as part of the Ontario Municipal Benchmarking Initiative (OMBI).

## A) Township of North Glengarry Strategic Plan

The Township of North Glengarry adopted a Strategic Plan in 2012 and is committed to ensuring that it will be used to guide their actions and decisions. The plan will help the Township chart a future course of action to ensure municipality's effectiveness in the long-run, provide a decision-making framework, and facilitate prioritizing limited resources and capital expenditures in an environment of competing interests. The plan outlines where efforts should be focused and indicates what needs to be done in order to start moving in the direction of the preferred future.

The Strategic Plan identifies eight Strategic Goals:

- 1) Address infrastructure maintenance and renewal in a cost effective and sustainable manner.
- 2) Improve drinking water quality and quantity for those communities in need in North Glengarry.
- 3) Ensure that the Township of North Glengarry is investment ready and addressing opportunities for economic development.
- 4) Maintain and enhance recreational and cultural assets that contribute to the quality of life in North Glengarry.
- 5) Ensure adequate long term financial planning and financial accountability for all ratepayers.
- 6) Consistently provide high levels of municipal service to the ratepayers across all departments.
- 7) Improve communications with ratepayers through a more proactive approach, providing relevant and timely information.
- 8) Ensure that the corporation is adequately equipped with the human, financial and equipment resources needed to deliver the quality of municipal services the public requires.

The majority of the Township of North Glengarry's goals outlined in the corporate strategic plan rely heavily on infrastructure. The Township has deemed the maintenance and planning for infrastructure to be critical to the survival and growth of the community as a whole and is a high priority as a result.

The Township of North Glengarry has natural assets to accommodate investment and economic development but without improved infrastructure that growth will remain unrealized. The Township is strategically located and reasonably well equipped with transportation infrastructure but is lacking appropriate water and sewer infrastructure. That lack of quality infrastructure is demonstrably inhibiting growth.

For example, addressing the critical need for drinking water infrastructure for under-served or un-served areas of the municipality is direly needed to reverse the trend of population decline evident in the Census data and economic decay. The Glengarry Regional Water Supply Project is designed to address both municipal strategic goals of providing safe and reliable drinking water to residents and addressing economic development. Numerous detailed studies have quantified the need for drinking water infrastructure for Maxville and Alexandria and the economic benefit that will result not only to those communities but the region as a whole.

In Alexandria, addressing infrastructure regarding sanitary sewage collection and treatment will accommodate pent up demand for residential and industrial growth that cannot proceed without improvements due to capacity and other infrastructure constraints. The municipality owns some 120 acres of residential and industrial zoned lands that cannot be adequately developed for job creation or investment given the current state of waste water infrastructure, in Alexandria.

Both water and sewer infrastructure is critical to maintaining the present quality of life of residents and to enhance the local economy and affordability of current levels of service in the years to come.

## B) Asset Management Plans Impact on Planning and Financial Budgeting

The AMP has a significant impact on the planning and financial budgeting process, which are dependent on each other. The AMP identifies the timing for asset renewal, asset maintenance, asset replacement, additions and/or disposals and the associated costs. This directly ties into the planning and financial budgeting by providing the knowledge of the timing and magnitude of future investments required to operate, maintain, renew and acquire assets. While the AMP clearly outlines the timing and costs to maintain infrastructure assets at a certain level and condition, the capital and operating budgets ensure the acquisition and management of assets is linked to council goals and strategies, community service expectations growth and demand projects, asset life-cycle management, and operating and maintenance programs. In addition, the AMP financial model and more specifically the Cash Flow Summary and the Capital Funding Summary will outline any funding shortfalls or additional funds required to be raised to maintain assets at desirable conditions.

## C) Purpose of the Asset Management Plan

The primary objective of an AMP is to maximize benefits, control risks, and provide a satisfactory level of service to the community in a sustainable manner. Infrastructure management ensures that the Township is capable of providing the desired level of service to support attaining our ultimate goals.

## D) Township of North Glengarry Infrastructure Assets

For the Township of North Glengarry, the infrastructure assets of particular significance include roads, bridges & culverts, facilities, machinery and equipment, land, land improvements, water and sewers, and vehicles. These infrastructure assets present particular challenges where financing can be large and timing for renewal can cause significant peaks and troughs in expenditures.

## E) Development of an Asset Management Plan

The Township hired an external third party to help assist in preparing the AMP. The AMP covers a ten year period and used the following resources:

- Municipal Capital Budgets
- Road Needs Study and Road Appraisals
- The United Counties of Stormont, Dundas and Glengarry - Tangible Asset Guidelines and Methodology
- Facility Reports
- PSAB Financial Detail Reports
- Sanitary and Sewer Collection Study
- OSIM Inspection Reports
- Audited Financial Statements
- Interviews with key managers and municipal department heads

## F) Implementation and Evaluation of Asset Management Plan

### Implementation Schedule

The following outlines the chronology of implementation to date and the status of areas of focus identified:



Goals/ Actions	Description	Planned Implementation Date	Current Status	Expected Implementation Date
Bridge Management	Maintaining the mandatory bridge assessment studies (half detailed every year) on two year rotating basis to identify current and future needs.	Completed in 2013	Annual bridge inspections and reporting being completed as legislated.	Completed in 2013
	Implementation of a formal bridge management strategy that manages current needs and provides future needs analysis.	Completed in 2013	Strategy development done in late 2013.	Ongoing on an Annual Basis
Roads Needs Analysis	Initiation of a complete roads condition assessment which will identify road maintenance/repair/ replacement needs.	2015	To be completed.	2016
Updated Sustainable Financial Plan - Water/Sewer	Complete a revised 10 Year Sustainable Financial Plan for Water/Sewer, for submission to Province of Ontario.	2017	Financial plan in place until Regional Water Supply Project completed. Environmental assessment for Alexandria lagoons to come in 2015.	2017
Upgrade Condition Assessment/Asset Management	Testing to determine the condition of underground infrastructure, such as sewers and water mains, in order to forecast their remaining useful life and determine the timing for replacement in the capital forecast.	2013	In progress	Ongoing on an annual basis with complete system examined every 5 years. Complete examination expected in 2017.
Fire Master Plan	Comprehensive plan for the review of fire services and needs including existing services and infrastructure. In addition, future needs and demands from intensification & development.	2018	The current fire status report done in 2013 will need an update to address growth in the community and will be completed as budgeted.	2018
Development Charges Update	Review current Development Charges Funding Program in light of revised Official Plan and modeled demand on infrastructure to determine required funding from Development Charges to support growth and intensification.	2017	To be completed.	2018
Improve Capital Project Tracking	Design and implement a simple Capital Project Tracking Method that incorporates all milestones and increased internal/external communications along with increased records management.	Fall 2014	Project tracking is disjointed where projects cover multiple years. Reporting is difficult. A streamlined approach is required	2015

for efficient and accurate reporting.

## 2) STATE OF LOCAL INFRASTRUCTURE

Asset Type	Quantity/ Extent	Financial Accounting Valuation (Fiscal Year 2012)	Replacement Cost Valuation	Asset Age (Average)	Asset Age as a Proportion of Useful Life	Overall Asset Condition
Roads	381 Kilometres	\$5,233,057	Road Needs Study amounts address replacement cost.	23 years	57.5%	Determined by Road Needs Study
Bridges & Culverts	59 structures	Bridges & Culverts have been grouped together \$2,758,849	Structure Inventory Inspection addresses replacement cost.	29.8 years	74%	
Facilities	26 Facilities	\$10,536,038	N/A	22.5 years	56%	
Machinery & Equipment	Various	\$2,369,834	Capital Budget based on Replacement Cost estimates.	Variable	Variable	
Land	643.69 Square kilometres	\$321,005	N/A	N/A	N/A	
Land Improvements	Various	\$280,260	Capital Budget based on Replacement Cost estimates.	N/A	N/A	
Water & Sewers	30.77 Kilometres of waterways	Water & Sewers have been categorized as Environmental Infrastructure \$15,611,840	Capital Budget based on Replacement Cost estimates.	18.4 years	18%	
	31 Kilometres of sewer system			42.1 years	48%	
Vehicles	49	\$2,219,092	Capital Budget based on Replacement Cost estimates.	8.75 years	Variable	

 Good  
 Fair  
 Poor

Annually, as part of their operations, Departments conduct a general assessment of the condition of their assets. This general assessment is used in development of priorities for the current year budget. More detailed and broad condition assessments (for example, Roads Needs Study) are completed on a cyclical

basis based on industry standards for the asset class. For the purpose of Asset Management planning, the asset condition information will be updated when the broad assessments are completed on an asset class.

### 3) DESIRED LEVELS OF SERVICE

#### A) Level of Service

Levels of Service within the Township of North Glengarry have been adopted through a number of documents, developed in the industry and internally, focusing primarily on technical requirements that meet generally expected levels of operation and safety:

- Municipal Performance Measurement Program (MPMP)
- Community Surveys
- Benchmarking Reports
- Provincial Minimum Maintenance Standards for infrastructure assets, including roads, bridges, buildings, etc.

The implementation of a formal Municipal Performance Measurement Program (MPMP) provides taxpayers with useful information based on service delivery and municipalities with a tool to improve services over time. The MPMP assesses how well the Township performs when providing goods and services and assists in identifying potential areas for improvement. The goal should be to find an optimal balance between efficiency and effectiveness in delivery of services. Going forward, this type of assessment not only provides a basis for resource and program management decisions, but also provides key financial information about the Township's level of service.

There is further effort required to address and formally define levels of service from a customer perspective. Historically, a significant portion of activities have been provided at a 'best we can do with what we have' basis. Through the development of strategic plans, in alignment with the United Counties of Stormont, Dundas & Glengarry's and the Township's Official Plan and the corporate strategic plan, the municipality is beginning to re-orientate service delivery, which is driven by service level expectation that incorporates climate change, growth, and regulatory changes as listed below:

- Corporate Strategic Plan (2012)
- The Township of North Glengarry Community Grant Program
- Policy 1-17 Standards - Accessibility Standards for Customer Service (May 2009)

#### B) External Trends or Issues

External trends that may affect the Expected Levels of Service or the Township's ability to meet them include:

- Climate change
- New accessibility standards (AODA regulations)
- Growth and requirement for additional/new services

## C) Current Performance Relative to Target Performance

Asset	Current Performance	Target Performance
Roads	Renewal/Rehabilitation is required.	Will be updated closer to next Road Need Study evaluations (2016).
Bridges & Culverts	Currently, some replacements required along with rehabilitation.	Assets require replacement along with maintenance and repair/rehabilitation to improve fair asset condition.
Facilities	Currently mainly renewal/rehabilitation required.	Facilities should only require maintenance and repair/rehabilitation. The Township is looking to expand its facilities in the next 10 years if expected growth occurs after Regional Water Supply Project is completed and sewer capacity backlog is rectified.
Machinery & Equipment	Replacement of inefficient equipment is required.	Minimal failures and repair costs not excessive compared to equipment costs. With growth of the Township, machinery & equipment costs will increase.
Land	No immediate expansion required.	Looking to sell some vacant land within the next 10 years.
Land Improvements	Currently, renewal/rehabilitation and expansion are required.	Expansion of system expected with growth of Township.
Water & Sewers	Currently, renewal/rehabilitation and expansion are required.	Regional Water Supply Project required ensuring adequate water supply in addition to regular maintenance/replacement of existing infrastructure. Addition sewer capacity is needed to handle current demand and to allow Township to grow.
Vehicles	Meeting and exceeding target. Vehicles life often extends beyond the estimated useful life.	Estimated useful life on average 7 years with regular maintenance.

## 4) ASSET MANAGEMENT STRATEGY

### A) Planned Actions

The Township will continue monitoring all activities relating to the various assets. Normal maintenance activities will continue to be performed and when this becomes cost prohibitive or there are concerns regarding safety or structural integrity, the best course of action, renewal/rehabilitation or replacement, will be considered. Typically a replaced asset will be disposed of either as a part of the purchase or through other disposal means. Any expansion required will be conducted in alignment with the Township's Corporate Strategic Plan.

### B) Procurement Methods

The Township will ensure best practices in the industry are used while protecting the interests of the Township and Vendors. This policy will be applied, as appropriate, for all asset and asset management related purchases.

During the project planning phase for an asset management project, the Department considers opportunities to partner with other municipalities or organizations and coordinates projects to minimize the disruption to residents and the assets.

## C) Overview of Risks Associated with Strategy

Understanding risks is important to the safety and functionality of the community as it relates to its infrastructure. Having assets perform at the expected level of service is important for the Township. If the assets have to shut down or are compromised, it becomes inconvenient for all.

Risk has been a primary driver of several programs including sidewalk inspections, road inspections, sign inspections, and street-lighting inspections. Assets, and customers that individual assets provide direct service to, identified as having elevated levels of risk have a lower tolerance to failure or reduced service levels. Those assets are expected to be renewed at lower thresholds of degradation and capacity. Assets are assigned a level of criticality from a number of perspectives.

- a. **Environmental** - the level of impact to the environment should the asset fail. This would include proximity to environmental features such as rivers, creeks, wetlands, or other environmental features.
- b. **Institutional** - the level of impact to institutional facility such as schools, senior's homes, day care centers, etc.
- c. **Health Care** - the level of impact to health care facilities such as hospitals, medical centers, dental offices, etc.
- d. **Industry** - the level of impact to large industrial or commercial businesses
- e. **Transportation** - the level of impact to significant transportation corridors such as major roads or rail lines.

Although not formally documented, the risk factors are key consideration in the development of asset management activities.

## D) Option Analysis

The options for expected level of service must be compared based on:

1. **Lifecycle cost** - total cost of constructing, maintaining, renewing, and operating an infrastructure asset throughout its service life;
2. **Future costs** - must be discounted and inflation must be incorporated;
3. **All other relevant direct/indirect costs and benefits associated with each option** - i.e. municipal wellbeing and health, amenity value, value of culturally or historically significant sites, municipal image.

The options for expected level of service have been captured in more detail in the Appendix section. Service levels will be adjusted as necessary, consistent with the Town's expected growth level. The growth related to service levels has been addressed in the Development Charges Background Study. A more comprehensive Option Analysis was not required and the expected service levels have been incorporated into the current financial forecast.

## 5) FINANCING STRATEGY

A financial plan is critical to an Asset Management Plan, as it demonstrates that an effort was made to integrate Asset Management Planning with financial planning and budgeting. It is important to recognize that based upon the AMP, the amount of funds available through the current ten-year Capital Budget process may not be sufficient to sustain the current level of service. Staff will continue to collectively work together to accommodate the financial and technical requirements of this plan, including taking advantage of any grant funding programs that may be available today or in the future.

### A) Expenditure Analysis

	Year	Non-Infrastructure Solutions	Maintenance Activities	Renewal/Rehabilitation Activities	Replacement Activities	Disposal Activities	Expansion Activities	Total Amount
Actual	2010	\$3,544,000	\$1,791,000	\$197,000	\$1,348,000		\$4,653,000	\$11,533,000
	2011	\$3,754,000	\$2,074,000	\$32,000	\$2,383,000		\$4,704,000	\$12,947,000
	2012	\$7,364,000	\$1,704,000	\$280,000	\$1,199,000	\$-	\$1,869,000	\$12,416,000
Budget	2013	\$9,577,000	\$1,803,000	\$1,341,000	\$684,000	\$-	\$514,000	\$13,919,000
Expenditure Forecasts	2014	\$8,492,000	\$1,888,000	\$1,037,000	\$732,000	\$-	\$316,000	\$12,465,000
	2015	\$8,753,000	\$1,926,000	\$754,000	\$1,181,000	\$-	\$33,288,000	\$45,902,000
	2016	\$9,034,000	\$1,966,000	\$580,000	\$1,172,000	\$-	\$35,783,000	\$48,535,000
	2017	\$9,325,000	\$2,031,000	\$647,000	\$1,031,000	\$-	\$-	\$13,034,000
	2018	\$9,627,000	\$2,065,000	\$1,105,000	\$603,000	\$-	\$-	\$13,400,000
	2019	\$9,940,000	\$2,126,000	\$811,000	\$1,314,000	\$-	\$885,000	\$15,076,000
	2020	\$10,264,000	\$2,156,000	\$786,000	\$1,055,000	\$-	\$29,000	\$14,290,000
	2021	\$10,601,000	\$2,218,000	\$759,000	\$1,840,000	\$-	\$-	\$15,418,000
	2022	\$10,950,000	\$2,255,000	\$1,239,000	\$629,000	\$-	\$-	\$15,073,000
	2023	\$11,312,000	\$2,352,000	\$1,120,000	\$938,000	\$-	\$-	\$15,722,000

## B) Revenue Analysis

	Year	Property Taxes	User Fees	Service Charges	Reserves/ Reserve Fund	Development Charges	Grants	Donations	Penalty/ Interest	Sale of Assets	Other Revenue	Total Amount
Actual	2010	\$3,626,000	\$5,390,000	-	-	\$4,360,000	\$130,000	-	-	\$399,000	\$13,905,000	
	2011	\$3,757,000	\$5,562,000	-	-	\$4,195,000	\$37,000	-	\$8,000	\$389,000	\$13,948,000	
	2012	\$3,966,000	\$5,464,000	-	-	\$4,369,000	\$38,000	-	\$74,000	\$391,000	\$14,302,000	
Budget	2013	\$4,136,000	\$5,446,000	\$996,000	-	\$2,626,000	\$2,000	\$364,000	\$42,000	\$307,000	\$13,919,000	
Revenue Forecasts	2014	\$4,281,000	\$5,538,000	\$-	\$-	\$2,783,000	\$2,000	\$371,000	\$43,000	\$312,000	\$13,330,000	
	2015	\$4,431,000	\$5,970,000	\$-	\$-	\$31,735,000	\$2,000	\$378,000	\$44,000	\$318,000	\$42,878,000	
	2016	\$4,586,000	\$6,090,000	\$-	\$-	\$32,292,000	\$2,000	\$385,000	\$44,000	\$325,000	\$43,724,000	
	2017	\$4,746,000	\$5,874,000	\$-	\$-	\$2,523,000	\$2,000	\$393,000	\$45,000	\$331,000	\$13,914,000	
	2018	\$4,913,000	\$5,992,000	\$-	\$-	\$2,498,000	\$2,000	\$401,000	\$46,000	\$338,000	\$14,190,000	
	2019	\$5,084,000	\$6,112,000	\$-	\$-	\$2,473,000	\$2,000	\$409,000	\$47,000	\$345,000	\$14,472,000	
	2020	\$5,262,000	\$6,234,000	\$-	\$-	\$2,448,000	\$2,000	\$417,000	\$48,000	\$351,000	\$14,762,000	
	2021	\$5,447,000	\$6,358,000	\$-	\$-	\$2,423,000	\$2,000	\$426,000	\$49,000	\$358,000	\$15,063,000	
	2022	\$5,637,000	\$6,486,000	\$-	\$-	\$2,399,000	\$2,000	\$434,000	\$50,000	\$366,000	\$15,374,000	
	2023	\$5,835,000	\$6,615,000	\$-	\$-	\$2,375,000	\$2,000	\$443,000	\$51,000	\$373,000	\$15,694,000	

**\*\*NOTE:** For 2013, the operating budget figures were used as the actual data was not yet available at the time of completion of the AMP.

## C) Key Assumptions

### Revenue and Expenses

1. Property tax assessments will increase each year 7% as provided by the Municipal Property Assessment Corporation ("MPAC").
2. Tax revenues will increase 3.5% between 2014 and 2023 based on MPAC property tax assessments.
3. Fees and service charges will increase each year at the rate of inflation.
4. Federal and provincial grants will decrease each year at 1%.
5. Investment income will remain the same each year.
6. Other revenue will remain the same each year.
7. Operating expenditures will increase each year at the rate of inflation.
8. Salaries, wages and benefits will increase each year at the wage-specific rate of inflation.
9. Annual operating surpluses will be applied to previous year deficit positions until they are eliminated.
10. Annual surpluses after deficit elimination will be transferred to working reserves at fiscal year-end.

### Capital Expenditures and Long-Term Debt

11. Capital expenditures under \$100,000 will be financed by transfers from operations except for road and bridge expenditures.
12. Capital expenditures over \$100,000 will be financed with long-term debt except for water and sewer capital expenditures.
13. Water and sewer capital expenditures except for the Regional Water Capital Project would be financed by user fees (\$550,000 included in budget).
14. The terms of long-term debt will be amortized over 10 years with an interest rate of 4.5%, unless otherwise noted.
15. Repayments of long-term debt will commence the following year after completion of capital projects.
16. Capital road and bridge expenditures are estimates from the Director of Public Works based upon road and bridge need studies provided by external consultants, allowing for cost reductions based upon recent experiences (including changes in applicable materials) and adjusted for inflation.
17. Capital road and bridge projects will be financed annually by the federal gas tax funds of \$326,228 with no adjustment for inflation.
18. The remaining portion of capital bridge and road expenditures will be financed by long-term debt.
19. The unused federal gas tax funds from 2013 will be utilized by 2014 - \$182,939.
20. Specific capital expenditures during 2013-2023 are based on estimates from discussions with administration and departmental managers. When no known specific capital expenditures were provided capital expenditures are based upon 2013 budget and adjusted for inflation.
21. The Regional Water project will proceed at a cost of \$62,500,000 over a two year period.
22. Regional Water project will be financed by 90% government grants, 1.0% by direct billings and 9.0% by long-term debt.
23. The terms of long-term debt for the Regional Water Project will be amortized over 25 years with an interest rate of 4.5%.
24. All capital expenditures will be capitalized as tangible capital expenditures.

### Cash Flow Summary

25. All operating surpluses will be allocated to cash on the Cash Flow Summary and be utilized to reduced borrowings in the next year.
26. 100% of additional outstanding taxes receivable is collected on an annual basis.
27. 100% of additional outstanding water and sewer taxes receivable with a 2011 base amount of \$200,000 is collected on an annual basis.
28. All grants will be received in the same year as earned.
29. There will be no change in accounts payable.



30. There will be no change in accrued interest and future employment benefits payable.
31. Accrued landfill closure and post closure cost liabilities will increase by \$47,000 each year between 2014 and 2023 adjusted for inflation.
32. Tile drain long-term debt will be reduced on the same rate as tile drain receipts from land owners.
33. There will be no additional tile drain long-term debt.
34. There will be no change in inventory or prepaid expenses.
35. Unfinanced capital outlay from 2013 will be financed in 2014 with long-term debt.
36. The Asset Management Plan will be updated on an annual basis

#### D) Funding Shortfalls

There are no funding shortfalls that cannot be eliminated by revising service levels, asset management, and/or financing strategies. Although not approved at the time, these and other financing strategies will be considered to support a sustainable operating and capital program.

## APPENDIX - ASSET MANAGEMENT STRATEGIES



# Roads

<b>ROADS</b>	
<b>INVENTORY: (AS OF JUNE 2011)</b>	Approximately 346.01 kilometres of road within the Township of North Glengarry.
<b>ANTICIPATED ASSET LIFE CYCLE: (AS OF DECEMBER 2012)</b>	<p>The useful life of transportation infrastructure ranges from 7 to 40 years. The useful life of roads is dependent on the type of surface and sub-surface conditions, climate conditions, drainage and level of service.</p> <ul style="list-style-type: none"> <li>• Asphalt Roads - 30 years</li> <li>• Surface Treated Road - 15 years</li> <li>• Gravel Roads - expected to be maintained on a regular basis - requires regular gravel resurfacing</li> </ul>
<b>INTEGRATED:</b>	Roads are integrated with other buried assets located in the utility corridor such as water, sewer, storm sewers, hydro, telephone, natural gas and cable. May also affect street lighting, traffic signals and sidewalks.
<b>REHABILITATION AND REPLACEMENT CRITERIA:</b>	<p>The Township's roads are classified by surface type as either earth roads, gravel roads, surface treated (low class bituminous) roads or hot mix paved (high class bituminous) roads.</p> <p>The average condition rating for each road type is determined by summing the product of length times condition rating and dividing by the total length of the road system. By combining the three surface types (gravel, asphalt, and surface treated) an overall condition rating can be calculated for the Total Municipality system.</p> <p>Note: the condition rating for each road type will decrease every year unless maintenance and/or rehabilitation are performed.</p> <p><b>Average Condition Rating</b></p> <ul style="list-style-type: none"> <li>• Less than 5 - Poor structural condition; substantial improvement needed throughout total road system</li> <li>• 5 to 7 - Average structural condition; some continued improvement may be needed</li> <li>• 8 to 10 - Good structural condition; some local improvements may be needed</li> </ul> <p>Roads with a condition rating of 5 or less are made top priority. If funds are available after addressing those road needs, they should be applied to the road improvements that would provide the best cost/benefit return.</p> <p>As per the 2011 Road Needs Study, the Township of North Glengarry's road network had a condition rating of 6.11.</p>
<b>REHABILITATION AND REPLACEMENT STRATEGY:</b>	An appropriate Maintenance Strategy, which indicates what type of action must be taken based on the current adequacy of the roads, is also assigned in relation to the condition rating. Rehabilitation and replacement strategy to try and improve hard surface road condition rating to 7.0 or higher over time.
<b>LIFE CYCLE CONSEQUENCES:</b>	Underfunding of road rehabilitation results in roads being deficient; this escalates construction costs. If road conditions and maintenance is not adequate level of service is affected and risks and liabilities are increased.

<b>INTEGRATED ASSET PRIORITIES:</b>	Paved road and unpaved road rehabilitation forecasts should be compared to underground utility and other road infrastructure forecasts. The integration of projects occurs internally and externally. In general a road rehabilitation project drives the replacement of underground water and sewer infrastructure if the infrastructure is near the end of its life cycle.
<b>CORPORATE/CONSULTING REPORTS ON SUBJECT:</b>	Township of North Glengarry Road Needs Study (McIntosh Perry Consulting Engineers Ltd., June 13, 2011).  Corporation of the Township of North Glengarry Financial Statements (December 31, 2012).
<b>ESTIMATED COST STRATEGY DESCRIBED:</b>	Total Estimated Capital Cost for Ten Years: <b>\$14,046,553</b> <b>Broken down by:</b> Renewal/Rehabilitation: \$4,262,487 Maintenance: \$9,784,066
<b>OTHER INFORMATION OR REFERENCE MATERIALS:</b>	N/A

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# Bridges & Culverts

BRIDGES & CULVERTS	
INVENTORY:	A total of thirty-six (36) bridges and culvert structures were appraised in 2013. Detailed visual inspections of twenty seven (27) structures, and enhanced visual inspections of nine (9) structures, in accordance with the Ontario Structural Inspection Manual (OSIM).
ANTICIPATED ASSET LIFE CYCLE:	The useful life of a bridge or culvert is 40 years. However, depending on construction practices and materials, bridges and culverts can have varying assumed lives. The life cycle can also be affected by traffic volumes and loads, climate and salt exposure.
INTEGRATED:	May be integrated with road resurfacing or road widening projects however generally not integrated with other infrastructure.
REHABILITATION AND REPLACEMENT CRITERIA:	Each bridge and culvert structure is visually inspected in accordance with the Ontario Structural Inspection Manual (OSIM).  Bi-annual visual inspections of bridges are completed and detailed bridge construction surveys are completed as required. The bridge/culvert components are evaluated and tested.
REHABILITATION AND REPLACEMENT STRATEGY:	Bridge/Culvert rehabilitation or replacement is based on the age, the bridge/culvert needs, the assumed life spans, and the functional needs.  It is recommended that the structures be re-appraised by a qualified structure engineer every two (2) years.
LIFE CYCLE CONSEQUENCES:	If bridge and culvert life cycles were reduced, the level of service is lowered and safety is compromised.
INTEGRATED ASSET PRIORITIES:	Bridge and culvert rehabilitation forecasts should be compared to underground utility and road infrastructure forecasts. The integration of projects occurs internally and externally. In general, a bridge or culvert rehabilitation project is not driven by the replacement of other transportation infrastructure.
CORPORATE/CONSULTING REPORTS ON SUBJECT:	Township of North Glengarry 2013 OSIM Inspection Report (The Greer Galloway Group Inc.)  Township of North Glengarry 2012 OSIM Inspection Report (The Greer Galloway Group Inc.)  Corporation of the Township of North Glengarry Financial Statements (December 31, 2012).
ESTIMATED COST PER YEAR FOR STRATEGY DESCRIBED:	Total Estimated Capital Cost for Ten Years: <b>\$4,597,661</b> <b>Broken Down By:</b> Renewal/Rehabilitation: \$1,903,492 Replacement: \$2,421,462 Maintenance: \$272,707
OTHER INFORMATION OR REFERENCE MATERIALS:	N/A



# Facilities

FACILITIES	
INVENTORY:	The Town has 26 facilities and buildings.
ANTICIPATED ASSET LIFE CYCLE:	Facilities have an assessed useful life of 40 years.
INTEGRATED:	Individual asset components are reviewed; projects are lumped together per asset to take advantage of the "economies of scale" principle. Consideration is given to minimize the disruption of operations to a given asset over time.
REHABILITATION AND REPLACEMENT CRITERIA:	Each facility is assessed based on its physical condition and its capacity condition. Physical condition should be ranked on a scale from very poor to very good. Capacity condition is dependent on the percentage of demand the facility, in its current condition, can support.
REHABILITATION AND REPLACEMENT STRATEGY:	The physical condition ranking helps identify the action that must be taken (renewal/rehabilitation, maintenance, replacement, etc.). The capacity condition ranking helps identify whether the asset is achieving its Expected Level of Service. Assets with a low condition ranking should be replaced or upgraded to meet life cycle, industry, technological and safety standards.
LIFE CYCLE CONSEQUENCES:	Increased deterioration of building and properties, health and safety concerns, inefficient operation, higher operating costs, accelerated depreciation of Town assets.
INTEGRATED ASSET PRIORITIES:	Replacement is based on actual condition, the point in time within its life cycle, and the availability of resources to complete the replacement with minimal disruption to the program/service delivery within the asset.
CORPORATE/CONSULTING REPORTS ON SUBJECT:	Corporation of the Township of North Glengarry Financial Statements (December 31, 2012).
ESTIMATED COST PER YEAR FOR STRATEGY DESCRIBED:	Total Estimated Capital Cost for Ten Years: <b>\$1,956,769</b> <b>Broken Down by:</b> Renewal/Rehabilitation: \$25,873 Expansion: \$258,725 Maintenance: \$1,581,702 Replacement: \$90,469
OTHER INFORMATION OR REFERENCE MATERIALS:	N/A





# Machinery & Equipment

MACHINERY & EQUIPMENT	
INVENTORY:	Equipment includes furniture and fixtures, generators, pumps, nozzles, hoses, air packs, specialty, water rescue, safety clothing, ladders, communications, technology, extrication and fuel powered for all departments. Equipment may be a fixed or movable tangible capital asset used for operations.
ANTICIPATED ASSET LIFE CYCLE:	The useful life of equipment ranges from 5 to 50 years. Some examples include: <ul style="list-style-type: none"> <li>• Road Equipment</li> <li>•</li> </ul>
INTEGRATED:	Individual assets are kept on a replacement schedule roughly matching the useful life ranges. They are replaced so as not to disrupt the operations.
REHABILITATION AND REPLACEMENT CRITERIA:	The only criterion above useful life is when the asset's productivity decreases.
REHABILITATION AND REPLACEMENT STRATEGY:	Review usage to warrant replacement, repair costs should not exceed normal levels for the type of equipment involved. Review lease, seasonal rental opportunities, refurbishing strategies and possibility of contracting services to third party.
LIFE CYCLE CONSEQUENCES:	Consequences include disruption of the operation and potential increased maintenance costs depending on the equipment involved.
INTEGRATED ASSET PRIORITIES:	Replacement is based on actual condition, the point in time within its life cycle, and the availability of resources to complete the replacement with minimal disruption to the program/service delivery within the asset.
CORPORATE/CONSULTING REPORTS ON SUBJECT:	Corporation of the Township of North Glengarry Financial Statements (December 31, 2012).
ESTIMATED COST PER YEAR FOR STRATEGY DESCRIBED:	Total Estimated Capital Cost for Ten Years: <b>\$6,196,813</b> <b>Broken down by:</b> Replacement: \$2,308,752 Expansion: \$395,436 Maintenance: \$3,492,625
OTHER INFORMATION OR REFERENCE MATERIALS:	N/A



# Land & Land Improvements

LAND & LAND IMPROVEMENTS	
INVENTORY:	The Township of North Glengarry covers 643.69 square kilometres of land, located in north-eastern region of the United Counties of Stormont, Dundas and Glengarry. The Township owns vacant land, for expansion or sale in addition to land associated with Municipal facilities and land maintained for environmental purposes (storm water ponds).
ANTICIPATED ASSET LIFE CYCLE:	<p>Land usually has an indefinite useful life that exceeds the useful lives of the buildings, roads or structures situated on the land. The cost of the acquired land is not amortized as land normally maintains its value over time.</p> <p>Land Improvements (such as parking lots, fencing, etc.) have a useful life of 10 years. Some examples include:</p> <ul style="list-style-type: none"> <li>• Parking Lots - 10 years</li> <li>• Fencing - 10 years</li> </ul>
INTEGRATED:	Land and land improvements are integrated with roads, buildings, bridges & culverts, as well as water & sewers.
REHABILITATION AND REPLACEMENT CRITERIA:	Based on life cycle and visual inspections.
REHABILITATION AND REPLACEMENT STRATEGY:	Assets are reviewed annually and maintenance, rehabilitation/renewal, and expansion activities scheduled as required in the 10 year plan.
LIFE CYCLE CONSEQUENCES:	Land has an indefinite life cycle. However, there is a potential increase in maintenance and rehabilitation costs depending on the improvements involved.
INTEGRATED ASSET PRIORITIES:	Land improvement rehabilitation forecasts should be compared to transportation infrastructure forecasts. The integration of projects occurs internally and externally.
CORPORATE/CONSULTING REPORTS ON SUBJECT:	Corporation of the Township of North Glengarry Financial Statements (December 31, 2012).
ESTIMATED COST PER YEAR FOR STRATEGY DESCRIBED:	<p>Total Estimated Capital Cost for Ten Years Land: <b>\$191,452 (All Maintenance)</b></p> <p>Total Estimated Capital Cost for Ten Years Land Improvements: <b>\$1,550,844</b></p> <p><b>Broken down by:</b></p> <p>Renewal/Rehabilitation: \$141,077</p> <p>Maintenance: \$1,409,767</p>
OTHER INFORMATION OR REFERENCE MATERIALS:	N/A



# Water & Sewers

WATER & SEWERS	
INVENTORY:	The Township of North Glengarry has 55 kilometres of waterways and 33 kilometres of sewer infrastructure.
ANTICIPATED ASSET LIFE CYCLE:	Water and sewer assets are categorized as environmental infrastructure assets. The assessed useful of environmental infrastructure ranges between 50 and 100 years. Examples include: <ul style="list-style-type: none"> <li>• Water main and Valves - 100 years</li> <li>• Hydrants - 50 years</li> <li>• Storm Sewer Mains - 75 years</li> <li>• Catch Basins - 75 years</li> </ul>
INTEGRATED:	May be integrated with road resurfacing or road widening projects or bridge and culvert infrastructures.
REHABILITATION AND REPLACEMENT CRITERIA:	Condition assessments are completed on an annual basis. This assessment will help identify optimal rehabilitation or replacement year. Complete examination of water and sewer system scheduled to be completed approximately every 5 years.
REHABILITATION AND REPLACEMENT STRATEGY:	Environmental infrastructure is reviewed annually and replacement, rehabilitation/renewal, and expansion activities scheduled as required in the 10 year plan.
LIFE CYCLE CONSEQUENCES:	If water and sewer life cycles were reduced, the level of service is lowered and safety may be compromised.
INTEGRATED ASSET PRIORITIES:	Water and sewer forecasts should be compared to transportation infrastructure (roads, bridges and culverts) forecasts. The integration of projects occurs internally and externally. In general a road rehabilitation project drives the replacement of underground water and sewer infrastructure if the infrastructure is near the end of its life cycle.
CORPORATE/CONSULTING REPORTS ON SUBJECT:	Corporation of the Township of North Glengarry Financial Statements (December 31, 2012).  Sanitary Collection System Study - Alexandria (McIntosh Perry Consulting Engineers Ltd. - January 14, 2009)
ESTIMATED COST PER YEAR FOR STRATEGY DESCRIBED:	Total Estimated Capital Cost for Ten Years: <b>\$77,171,154</b> <b>Broken down by:</b> Renewal/Rehabilitation: \$2,505,236 Replacement: \$1,694,745 Expansion: \$69,356,392 Maintenance: \$3,614,781
OTHER INFORMATION OR REFERENCE MATERIALS:	N/A



# Vehicles

VEHICLES	
INVENTORY:	The Township has approximately 49 vehicles and related pieces.
ANTICIPATED ASSET LIFE CYCLE:	<p>The useful life of a vehicle varies depending on the service area and vehicle type, size and cost. The assessed range is between 10 and 25 years.</p> <p>Examples include:</p> <ul style="list-style-type: none"> <li>• Pumper Tanker - 20 years</li> <li>• Trailer - 15 years</li> <li>• Pickup Trucks - 10 years</li> <li>• Heavy Trucks (Dump, Plow, Tandem) - 15 years</li> <li>• Tractors - 10 years</li> </ul>
INTEGRATED:	With technical advances and financial plans, environmental regulations, operational changes, service increases or decreases.
REHABILITATION AND REPLACEMENT CRITERIA:	Lifecycle cost analysis considering depreciation, fuel, repairs, insurance, downtime costs, etc. will identify optimal replacement year for vehicle classes.
REHABILITATION AND REPLACEMENT STRATEGY:	Review usage to warrant replacement, repair costs should not exceed normal levels for the type of vehicle involved. Review lease, seasonal rental opportunities, refurbishing strategies and possibility of contracting services to third party.
LIFE CYCLE CONSEQUENCES:	As cost per kilometre increases, increased downtime requiring more spare units or work schedules to be lengthened, increasing manpower costs, resulting in a loss of production.
INTEGRATED ASSET PRIORITIES:	Replacement is based on actual condition, the point in time within its life cycle, and the availability of resources to complete the replacement with minimal disruption to the program/service delivery within the asset.
CORPORATE/CONSULTING REPORTS ON SUBJECT:	Corporation of the Township of North Glengarry Financial Statements (December 31, 2012).
ESTIMATED COST PER YEAR FOR STRATEGY DESCRIBED:	<p>Total Estimated Capital Cost for Ten Years: <b>\$4,907,642</b></p> <p><b>Broken down by:</b></p> <p>Replacement: \$3,980,947</p> <p>Expansion: \$290,147</p> <p>Maintenance: \$636,548</p>
OTHER INFORMATION OR REFERENCE MATERIALS:	N/A