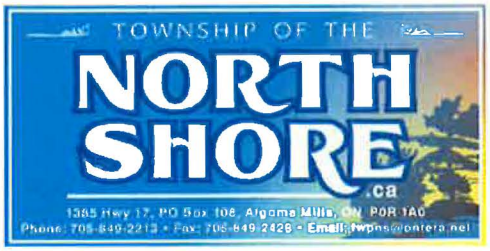

TOWNSHIP OF THE NORTH SHORE

ASSET MANAGEMENT PLAN

DECEMBER 2013

PREPARED BY

TULLOCH
ENGINEERING

PROJECT No. 13-2043

TULLOCH
ENGINEERING

200 Main Street
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13-2042
March 11, 2014

Township of the North Shore
Box 108, 1385 Highway 17
Algoma Mill's, ON
P0R 1A0

Attention: Brenda Green, Clerk-Treasurer

Dear Brenda:

Re: Asset Management Plan

Please find enclosed the Township's Asset Management Plan which consists of the text report, coupled with the Capital Asset Summary Spreadsheet, which is also enclosed.

This plan is intended to be a living document, updated on a suggested biennial basis to project future costs and expenditures on a planning basis only. This plan is not intended to establish annual budgets but rather act a guide to identify the priority projects, historical funding amounts and projected funding shortfalls. All cost projections presented in this report must be verified through detailed cost estimation at time of consideration for the works and subsequent budgeting.

In addition, please note the following:

i) The project priority listing has not referenced specific years so that the plan can be used for funding applications without need for "immediate" update, although biennial update of the report is recommended.
ii) Within the report there are several recommendations relating to inspection frequency and tracking of service levels that should be implemented.
iii) Appendices and the reference documents have been removed from the report to minimize document size and allow easier upload of the text document to the Township's website as required. The reference documents (inventory and inspection forms) will be provided under separate cover and do not need to be posted on the website.
iv) The document has a substantial amount of repetitive text, which was necessary to achieve the required formatting specified in the *Guide to Completing Municipal Asset Management Plans.*

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In addition, a Record of Revisions table has been prepared and is attached for reference. Pending approval by Council of the Asset Management Plan, we will bind and submit an "ORIGINAL" copy of the report with the Record of Revisions included.

We would like to thank the Township for the opportunity to assist with the preparation of this Asset Management Plan and trust that it is satisfactory for your purposes at this time. Should you have any questions or concerns please do not hesitate to contact me.

Yours truly,

Chris L. Kirby, P.Eng.
TULLOCH ENGINEERING INC.

CONTINUING RECORD OF REVISIONS MADE

TO THE

TOWNSHIP OF THE NORTH SHORE ASSET MANAGEMENT PLAN

This page should be retained permanently in this page sequence in the asset management plan. All revised material should be inserted as soon as approved and the relevant entries made by hand in the spaced provided below to show who incorporated the Revision and the date it was completed.

Revision		Entered By	Date
No.	Dated		

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

As with most Municipalities across Ontario, The Township of North Shore has undertaken the development of an Asset Management Plan in response to the Ontario Government's provincial capital funding requirements. The purpose of this Asset Management Plan is to assist with prioritizing needs over wants to ensure that infrastructure funding, whether generated through local or senior levels of government, be applied to projects with the higher needs. This Asset Management Plan has been structured to adhere to the requirement described in the Ontario Ministry of Infrastructure's Building Together, Guide for Municipal Asset Management Plans.

As the following Asset Management Plan will outline, the Township's existing infrastructure is aging and deteriorating while demand grows for better infrastructure facilities. This demand is in response to higher standards of safety, accessibility, health, sustainability, environmental protection, and regulations. The solution to this issue is to examine the way the Township plans, designs and manages infrastructure to meet changing demands. This Asset Management Plan is expected to assist:

- Council in making service level and investment decisions;
- Staff with the planning and management of the assets;
- Taxpayers by sustaining value for the services provided.

As presented in this Asset Management Plan, the total replacement cost of the Township's assets was calculated to be approximately $12.7 million (2013 Dollars), for assets providing water, sewer, drainage, transportation, recycling, waste disposal, and recreation. The Township is not required to budget for the full replacement value of all these assets simultaneously, as portions of assets only require an initial investment followed by further re-investment to maintain acceptable levels of service.

With that in mind, it was calculated that the annual reinvestment should be an average of $ 200,000 per year into various assets as they reach their maximum potential useful lives, in order to sustain existing services at an appropriate level of service. A further reserve investment of $ 287,000 per year is recommended to save for long-term replacement of assets. The actual investment value will vary from year to year depending on the scope and size of the planned capital works. Projects will need to be shuffled from year to year based on the availability of funding.

This plan addresses the replacement and planned expansion priorities of the Township, however it is imperative that current maintenance activities be continued and expanded as recommended. The ability for the Township to leverage its knowledge of infrastructure and by applying the best Asset

Management practices at the time will result in very positive improvements in infrastructure. A brief summary of the sections contained within this report is presented as follows.

Section Two of the Township's Asset Management Plan provides an introduction to the assets included in the plan as well as how the plan was developed and the goals of the Asset Management Plan. The Third section summarizes the asset types and quantities as well as their characteristics, condition and replacement values which were quantified by the Township's current asset inventory and for some assets, supplemented with visual inspections.

Section Four outlines the expected levels of service for each asset, and provides an indication of the minimum acceptable standards for an asset. Service levels were developed through consideration of industry standards, generally accepted levels of operation and safety, as well as evaluating the risk associated with achieving the targets levels established. Additionally, policy recommendations for condition rating updates for each asset are presented.

The asset management strategy for each asset type is presented in Section Five along with potential procurement methods to finance the strategy. The strategy and scheduling of asset renewal activities has been laid out by establishing planned actions through options analysis and risk assessment to maximize lifespan and minimize cost in a sustainable way. In addition, the priority assets for each category are presented within this section.

The final section of the plan consists of the financial plan required to support the asset management strategy by summarizing the cost per year, per asset to ensure sustainability of the asset. Comparisons are made to past expenditures and funding sources to identify the funding gaps in the proposed plan.

Although this comprehensive Asset Management Plan has been created beginning in 2014, it is expected to be a living document that is updated regularly as priority's shift or as work is completed. In addition, improvements to the methodologies of data collection for developing more accurate inventory information and evaluation will only serve to bolster the content of the plan. An Asset Management Plan that is not adhered to or not updated will quickly become obsolete and be of absolutely no benefit to the Township.

2.0 INTRODUCTION

This Asset Management Plan (AMP) was prepared by Tulloch Engineering Inc. (Tulloch) in cooperation with the Township of North Shore (Township) to meet the requirements of a Municipal Asset Management Plan as presented by the Ontario Ministry of Infrastructure in their publication "Building Together – Guide for Municipal Asset Management Plans" (2012)

The Intention of the AMP is to provide answers and guidelines to the following questions.

1) What do you have and where is it?
2) What is it worth? (Current and Estimated Replacement Costs)
3) What is its condition and expected remaining service life?
4) What is the level of service expectation?
5) When do you need to do it?
6) How do you ensure long-term affordability?

Asset management planning is meant to aid municipalities is making cost effective decisions with regards to operating, maintaining, renewing, replacing and disposing of their infrastructure assets. The decisions and directions laid out in the asset management planning process are intended to ensure that the Township will be capable of providing the levels of service needed to meet their desired plans, goals and objectives.

The assets considered within this AMP are the following municipal assets:

- Roads;
- Bridge;
- Water Treatment and Distribution;
- Wastewater Treatment and Collection;
- Storm Sewers;
- Buildings;
- Vehicles;
- Equipment, Infrastructure, and Planning;
- Land
- Landfill

Each asset was divided into its respective category based type and was assessed for current state, financial accounting valuation and replacement cost valuation. The condition of each of the assets was assessed using sound and accepted methods.

This AMP has been developed to cover a ten (10) year window but is intended to be updated on a regular basis as operating conditions and municipal goals change. A key aspect of this plan is the ongoing evaluation of asset performance and value that will be required in future years. The

development of this plan involved continued communication between Tulloch and Municipal Staff. The policies and strategies presented are based upon discussions with Municipal representatives and accepted practices for the management of infrastructure assets.

This Asset Management Plan is a tool to help ensure that measures are taken to maintain an acceptable performance level for years to come. The quality and condition of infrastructure assets are of great Importance as they help to support economic activity and improve general quality of life. This plan is not intended to change the Townships existing processes and procedures with regards to their infrastructure assets but rather improve the decision making process by using long range vision to dictate resource allocation and use performance based analyses to determine if desired goals and objectives are being met.

The Township's Capital Asset Summary information presents the inventory, current and projected condition ratings, as well as known or projected replacement/rehabilitation costs on a per asset type basis in a digital format.

This Asset Management Plan is based on capital improvements and does not account for maintenance activities that are currently undertaken by the Township. The plan is not intended to replace maintenance procedures and any reports prepared or practices undertaken should be continued to be followed.

3.0 STATE OF LOCAL INFRASTRUCTURE

This Section of the report outlines the quantity and quality of assets owned and managed by the Township. In addition, the current age, condition, financial valuation and replacement cost valuation of the assets included is presented.

The two following figures provide a comparison of the Township's capital assets based on 2013 Public Sector Accounting Board (PSAB) values and 2013 replacement values. The PSAB values are based on currently accepted historical costs and depreciation values, which were extracted from the current Municipal inventory presented as the Tangible Capital Asset Continuity Schedule (PSAB Inventory). The 2013 replacement values were generated based on the assets physical characteristics and benchmark costs established from recent construction projects. The benchmark costs per asset type are presented in the corresponding asset management spreadsheets in the Capital Asset Summary.

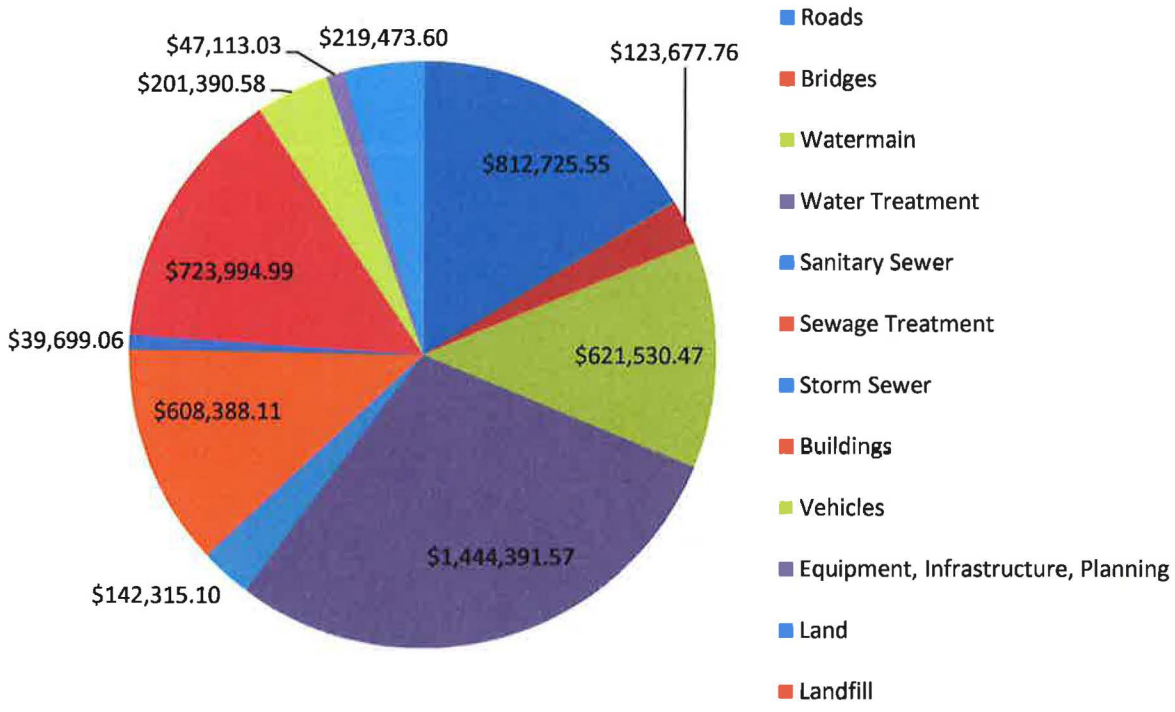

Figure 1 – Capital Asset PSAB 2013 Values ($ 4.99 M)

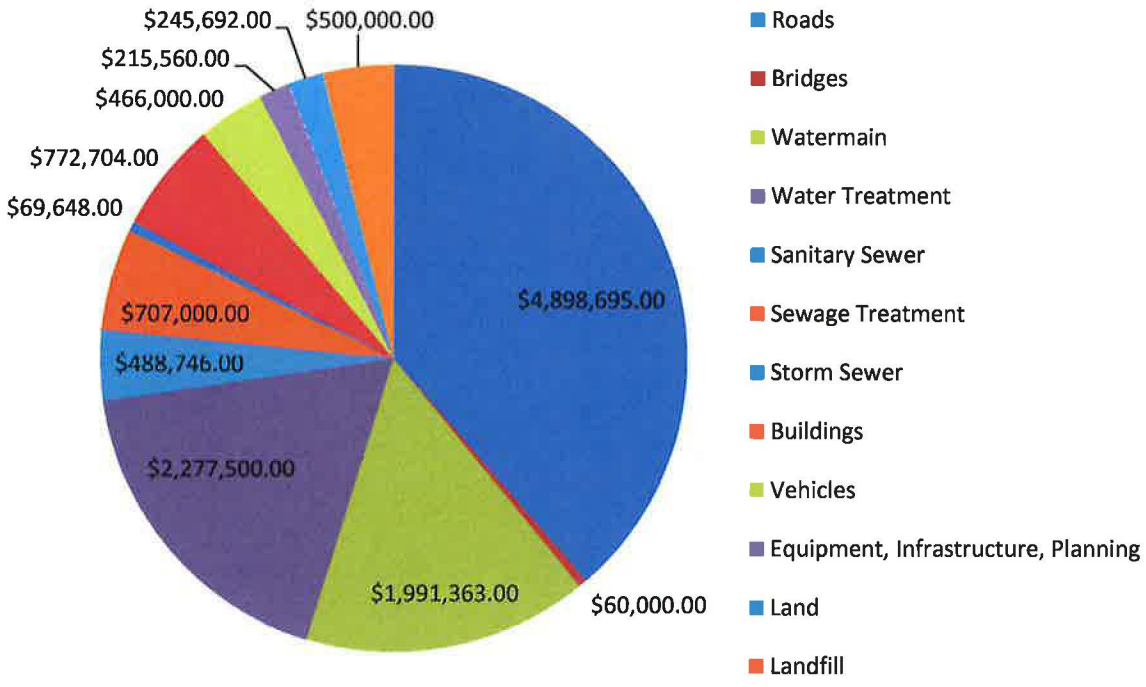

Figure 2 – 2013 Asset Replacement Costs ($ 12.7 M)

3.1 ROADS

The Township's road network consists of approximately 15.03 km roads. The roadway inventory and condition ratings were based on an extension of the road appraisals completed by Tulloch Engineering Inc. in the summer of 2013. The chart below provides a breakdown of the total replacement cost of road infrastructure.

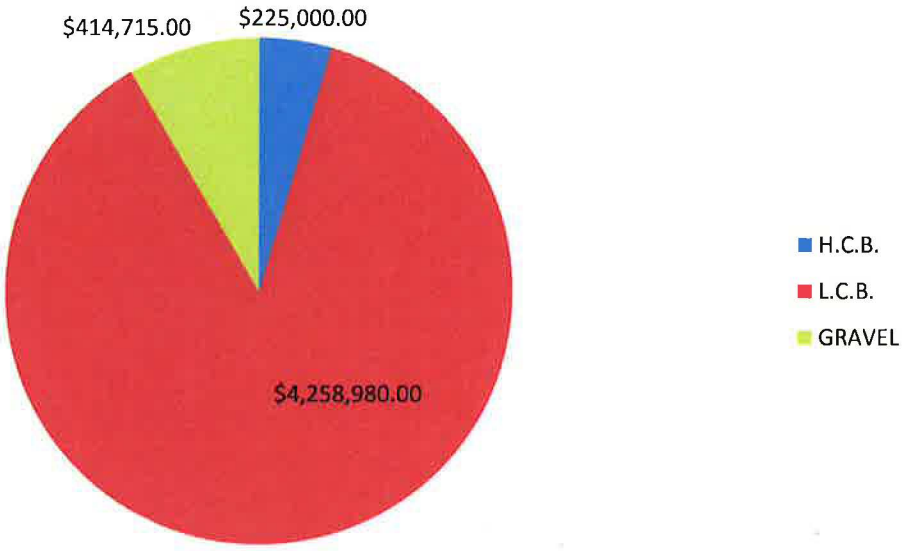

Figure 3 – Road Infrastructure Replacement Costs (2013 Dollars)

3.1.1 METHOD OF CONDITION EVALUATION

Appraisal of the Township's local road system was carried out in the summer of 2013, in accordance with procedures outlined in the MTO Methods and Inventory Manual. The system was divided into 24 road sections and a standard MTO Road Appraisal Sheet was completed for each section. Each road section was identified and assigned a number, and then its location, length, geometrics, roadside environment, and surface type were noted. Traffic volumes were also estimated. The condition of each road section was assessed and improvement needs and associated costs were then identified.

Each road section was been given a subjective condition rating from 1 to 10 based on current surface condition, surface type and drainage conditions. Condition ratings greater than 5 are considered acceptable and are expected to require only normal maintenance. A condition rating less than 5 is considered unacceptable and a road improvement is to be evaluated for cost. The road condition for each section is projected over ten years to allow review of road deterioration and forecasting of

required future work. This method of evaluating road surface deterioration relies on estimating the life cycle of various road surfaces.

For the purposes of this study, the following assumptions were made for road deterioration rates:

- *Loose Top Roads → Condition rating stays constant with regular maintenance*
- *Low Class Bituminous Roads → Condition rating reduced by 0.5 per year until it drops to 5.0*
- *High Class Bituminous Roads → Condition rating reduced by 0.25 per year until it drops to 5.0*

The following is a measure of the condition of the existing road system as outlined in the Methods and Inventory Manual:

Condition Rating	System Condition
8 to 10	good structural condition; some local improvement may be needed
5 to 7	average structural condition; continued improvement needed
Less than 5	poor structural condition; substantial improvement needed throughout total road system

3.1.2 INVENTORY

A summary of the Township's road system inventory is presented in the following figures and is based on the Township's Tangible Capital Asset Summary, supplemented with road appraisal information. The complete inventory is presented in the Capital Asset Summary, including all assumptions used to arise at the given ratings and projected costs. A weighted condition rating per surface type based on length was generated to accurately reflect the average condition of the respective surface type.

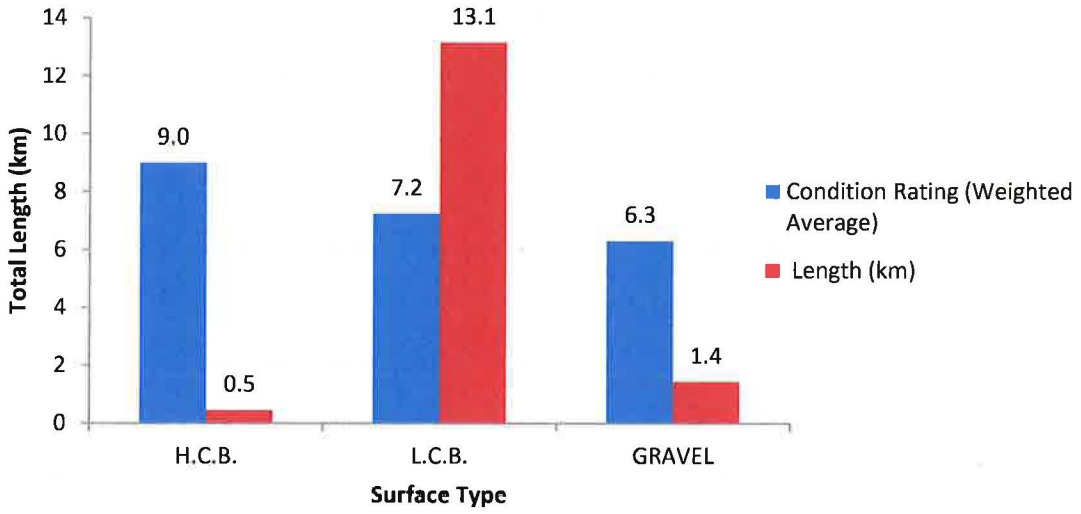

Figure 4 – Road Length by Surface Type

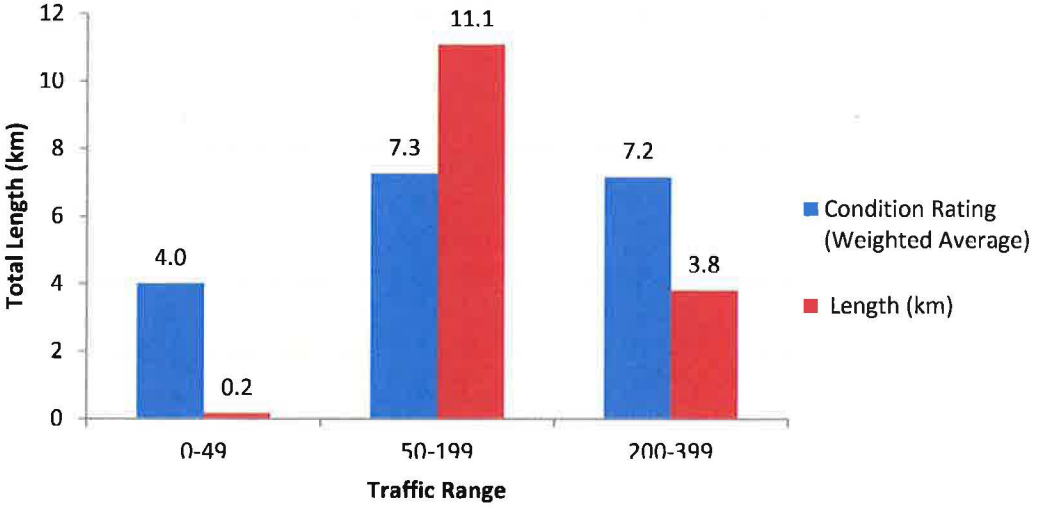

Figure 5 – Road Length by Traffic Volume

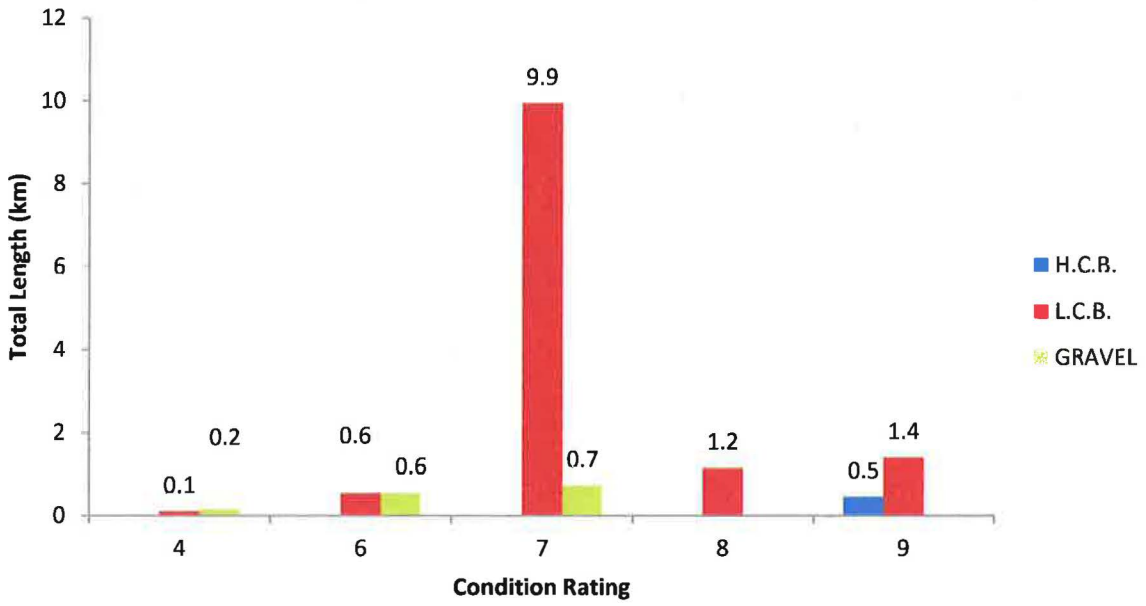

Figure 6 – Condition Rating Summary by Surface Type

3.1.3 POLICIES

In accordance with the Guide, it is recommended that a data verification policy and condition assessment policy be established to outline when and how the Road Asset state of infrastructure be updated. It is recommended that an annual cycle be established to update condition ratings and cost projections in accordance with the procedures outlined in the MTO Methods and Inventory Manual.

3.2 STRUCTURES

The Township's structure inventory consists of one bridge, which is currently closed. There are no plans to replace the bridge, however a cost to remove the bridge is estimated to be approximately $60,000.00.

3.3 WATER TREATMENT & SUPPLY

The Township provides drinking water treatment and distribution services to the Pronto East Subdivision, and Serpent River. The system consists of two treatment facilities, pumps and a watermain network approximately 3.7km in length. The water treatment and distribution network is managed and maintained by Township Staff and the Ontario Clean Water Agency (OCWA). The charts below provide a breakdown of the total replacement cost of the Township's water supply infrastructure.

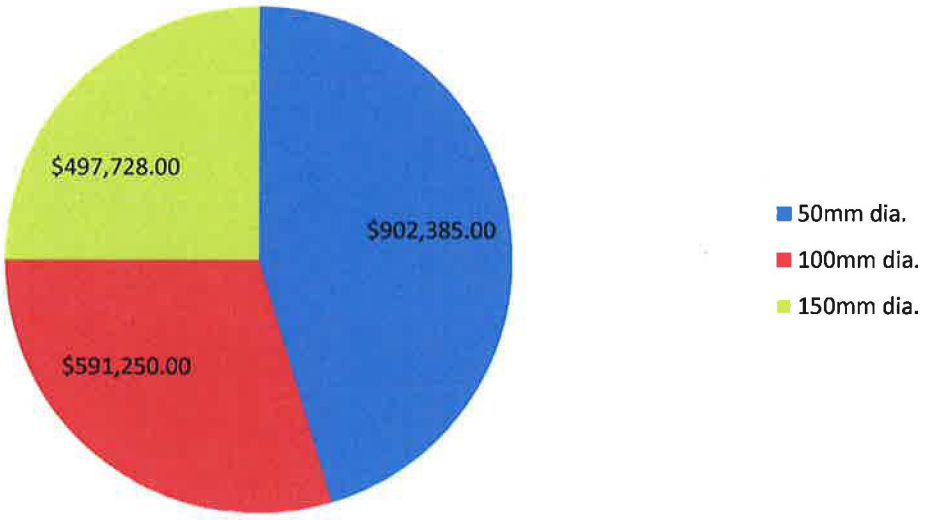

Figure 7 – Watermain Infrastructure Replacement Costs (2013 Dollars)

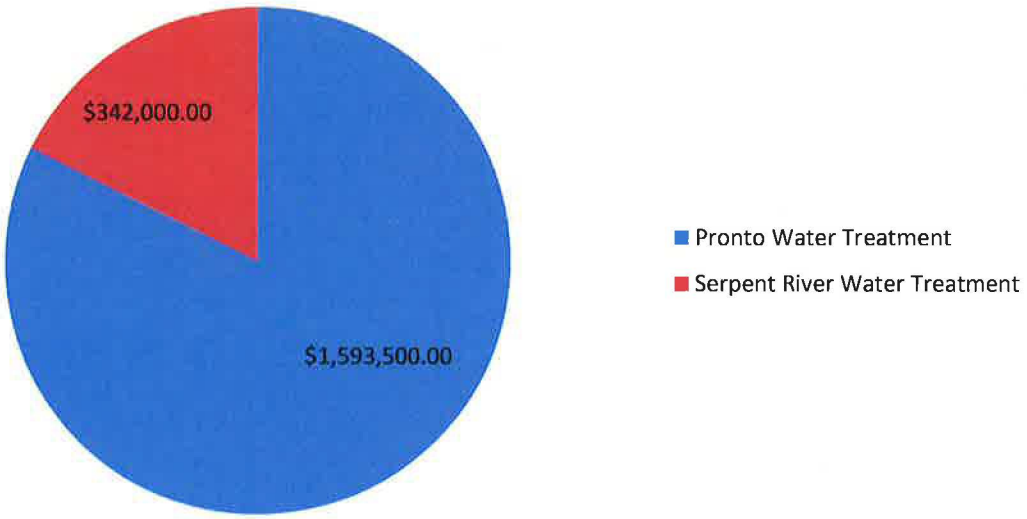

Figure 8 – Water Treatment Infrastructure Replacement Costs (2013 Dollars)

3.3.1 METHOD OF CONDITION EVALUATION

The water distribution and treatment system was evaluated based on the inventory and information provided by the Township. The system was divided into 25 watermain sections with each section being assigned an identification number, and then its location, length, diameter and year of construction were noted.

For the purpose of forecasting, each water main segment was given a subjective rating of Excellent, Good, Fair or Poor, based on the current condition of the asset. A condition rating less than Poor is considered unacceptable and an improvement or replacement is to be evaluated for cost. Watermain assets were assigned life expectancy based on construction material. Water pump stations, and treatment facilities were all assigned a life expectancy of 50 years. An estimated condition rating assigned to all assets based on age as follows:

Rating	Age
Excellent	Less than 5 years old
Good	Between 5 years old and 50% of its life expectancy
Fair	Between 50% and 75% of its life expectancy
Poor	Between 75% and 100% of its life expectancy
Replace	Beyond its life expectancy

3.3.2 INVENTORY

A summary of the Town's water supply inventory is presented in the following figures outlining the age and overall condition ratings. The complete inventory is presented in the Capital Asset Summary, including all water supply components and assumptions used to arise at the given ratings and projected costs.

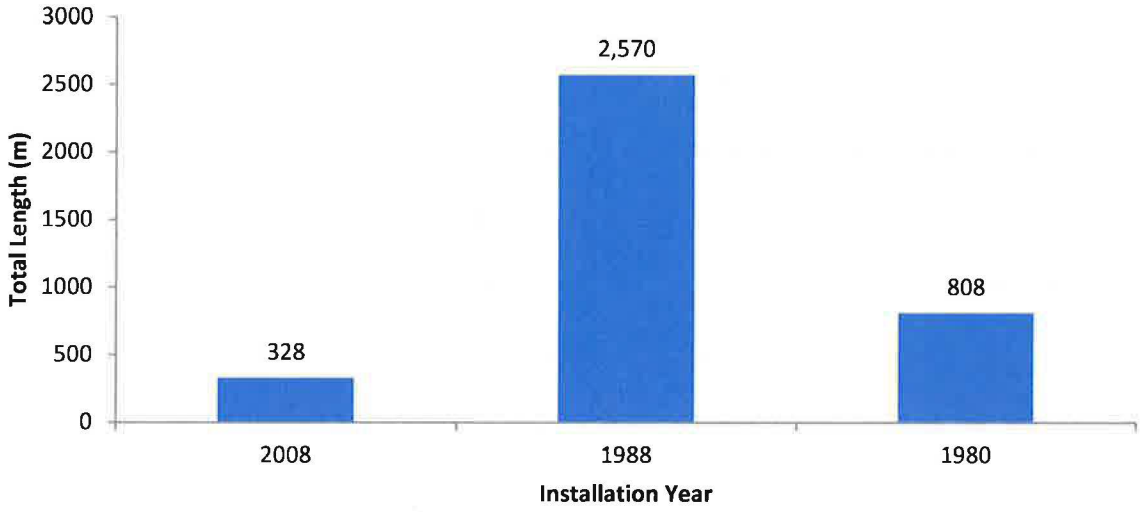

Figure 9 – Watermain Age Summary

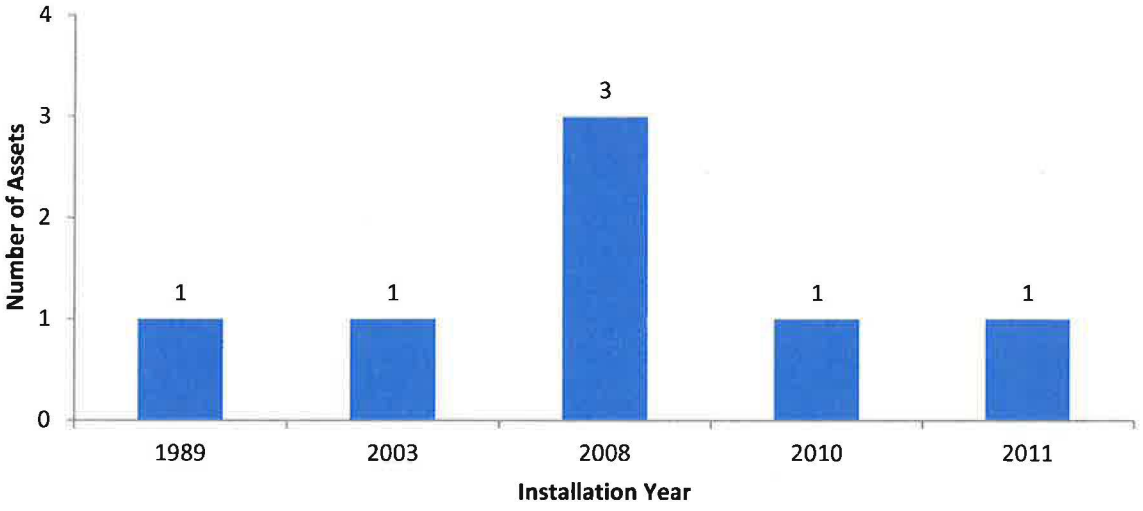

Figure 10 – Treatment Infrastructure Age Summary

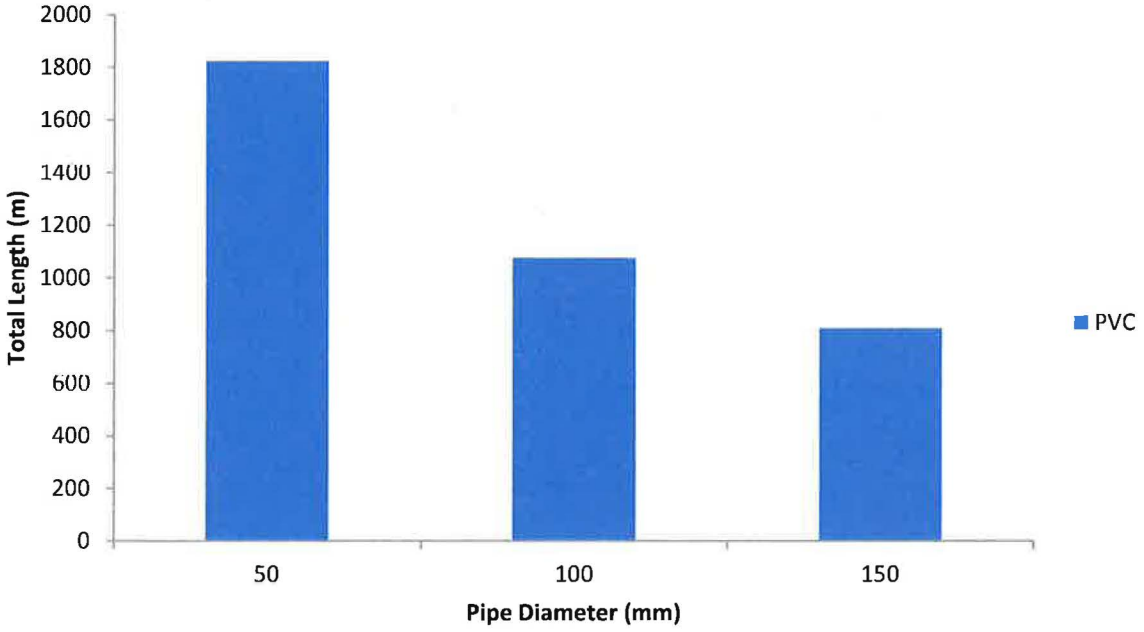

Figure 11 – Watermain Length Material Summary

3.3.3 POLICIES

In accordance with the Guide, it is recommended that a data verification policy and condition assessment policy be established to outline when and how the watermain infrastructure information is updated. It is recommended that the watermain inventory is updated to reflect new construction and improvements on an annual basis.

3.4 WASTEWATER COLLECTION & TREATMENT

The Township provides sanitary sewer collection and treatment services to the Serpent River area through a combined gravity and force main system discharging to a wastewater treatment facility. The sanitary sewage collection system is managed and maintained by Township Staff and the Ontario Clean Water Agency (OCWA).

The Town's sanitary sewer collection and treatment system was evaluated based on the existing inventory of wastewater infrastructure provided by the Township. The system consists of approximately 684m of sewer mains, 1 pump station, and 1 treatment facility. The chart below provides a breakdown of the total replacement cost of the Township's wastewater infrastructure.

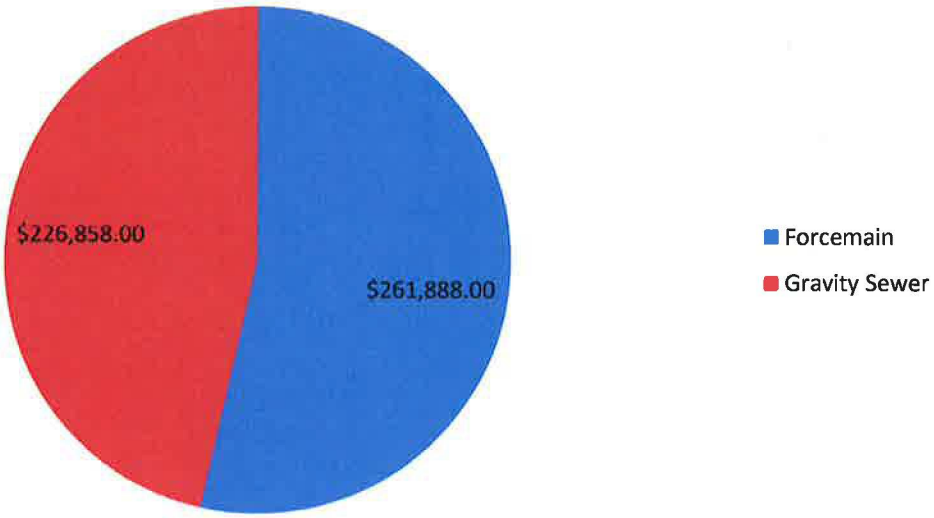

Figure 12 – Sewer Replacement Costs (2013 Dollars)

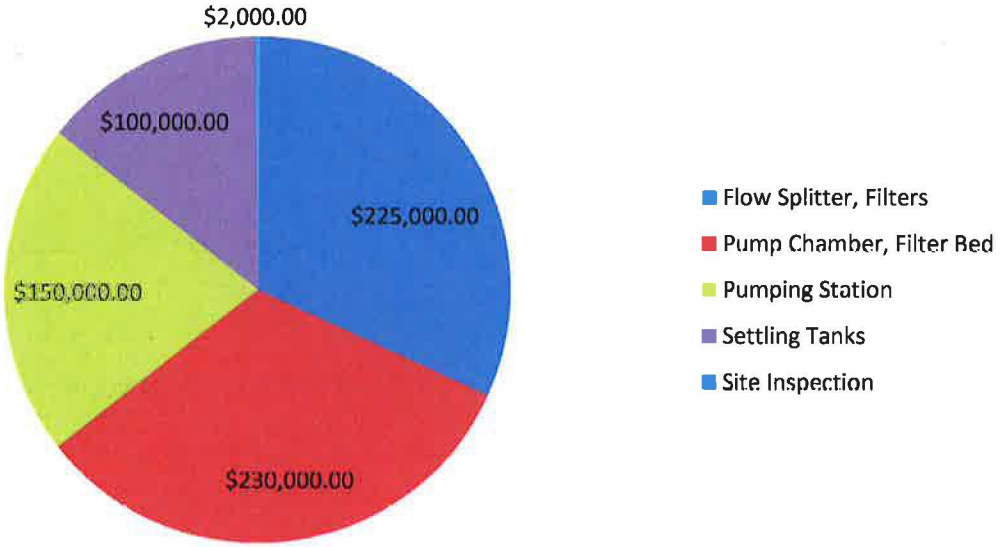

Figure 13 – Wastewater Treatment Infrastructure Replacement Costs (2013 Dollars)

3.4.1 METHOD OF CONDITION EVALUATION

For the purpose of forecasting, each sewer asset was given a subjective rating of Excellent, Good, Fair or Poor, based on the current overall condition of the asset. A condition rating greater than Poor is considered acceptable and is expected to require continued maintenance. A condition rating less than Poor is considered unacceptable and an improvement or replacement is to be evaluated for cost. Sewer assets assigned life expectancy based on construction material. Pump stations and treatment facilities were assigned a life expectance of 40 years and 50 years respectively. An estimated condition rating assigned to all assets based on age as follows:

Rating	Age
Excellent	Less than 5 years old
Good	Between 5 years old and 50% of its life expectancy
Fair	Between 50% and 75% of its life expectancy
Poor	Between 75% and 100% of its life expectancy
Replace	Beyond its life expectancy

3.4.2 INVENTORY

A summary of the sewer inventory is presented in the following figures outlining the age and overall condition ratings. The complete inventory is presented in the Capital Asset Summary, including all sewer components and assumptions used to arise at the given ratings and projected costs.

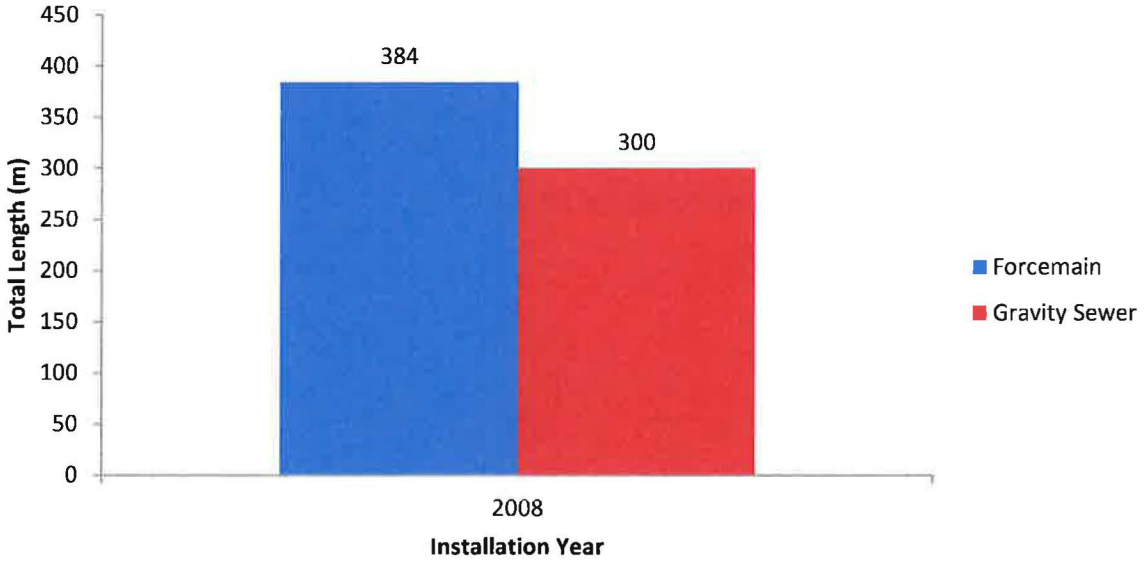

Figure 14 – Sewer Infrastructure Age Summary

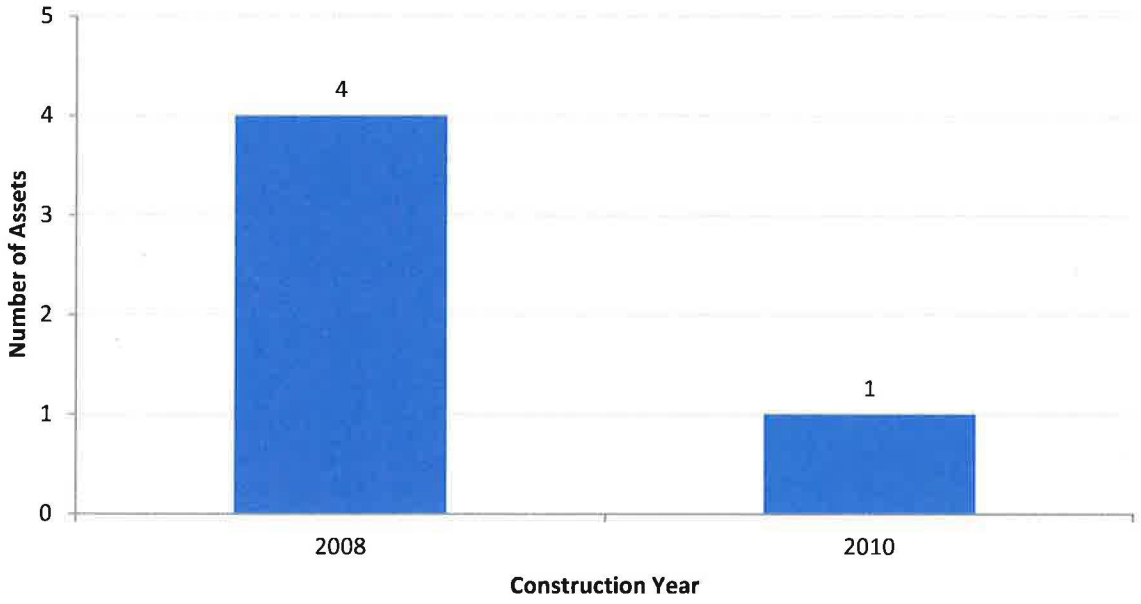

Figure 15 – Sewer Infrastructure Age Summary

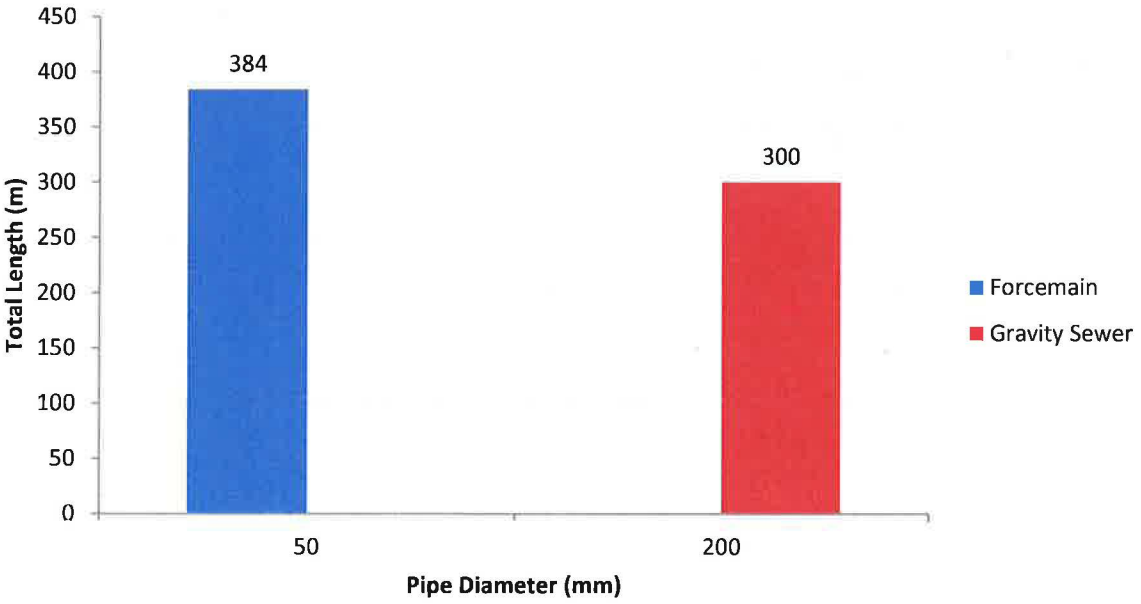

Figure 16 – Wastewater Sewer Length Material Summary

3.4.3 POLICIES

In accordance with the Guide, it is recommended that a data verification policy and condition assessment policy be established to outline when and how the sanitary sewer infrastructure information is updated. As there is currently no up to date information available on the condition of the sanitary sewer collection assets, it is recommended that a camera inspection program be initiated to provide more accurate condition ratings and anticipated lifespan. Depending on maintenance budget available, it would be beneficial to initiate a cycle of inspections such that each section of pipe is visually reviewed every ten years.

3.5 STORM SEWERS

The Township provides storm sewer collection services to the Pronto East subdivision through a subsurface gravity system. The chart below provides a breakdown of the total replacement cost of the Township's storm water infrastructure.

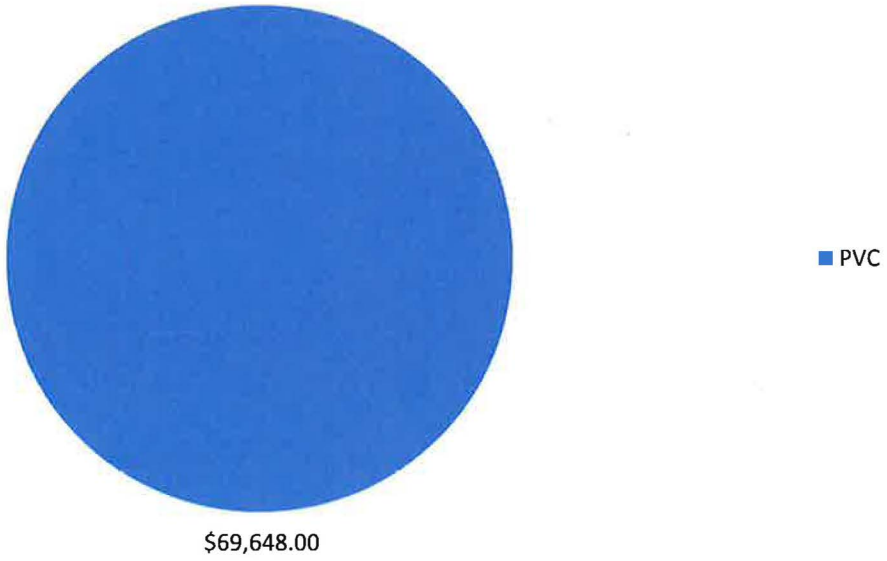

Figure 17 – Storm Drainage Infrastructure Replacement Costs (2013 Dollars)

3.5.1 METHOD OF CONDITION EVALUATION

The Township's storm sewer collection system was evaluated based on the inventory and information provided by the Township. The system was divided into two gravity storm sewer sections with each section being assigned an identification number, and then its location, length, diameter and year of construction were noted. The information available outlines that the whole of the storm sewer system was installed in 2008.

Each storm sewer asset was given a subjective rating of Excellent, Good, Fair or Poor, based on the current overall condition of the asset. A condition rating greater than Poor is considered acceptable and is expected to require continued maintenance. A condition rating less than Poor is considered unacceptable and an improvement or replacement is to be evaluated for cost. For the purposes of forecasting, all PVC sewer assets were estimated to have a lifespan of 75 years with an average condition rating assigned based on age as follows:

Rating	Age
Excellent	Less than 5 years old
Good	Between 5 years old and 50% of its life expectancy
Fair	Between 50% and 75% of its life expectancy
Poor	Between 75% and 100% of its life expectancy
Replace	Beyond its life expectancy

3.5.2 INVENTORY

A summary of the Township's storm sewer inventory is presented in the following figures outlining a summary of the diameter and material of each segment.

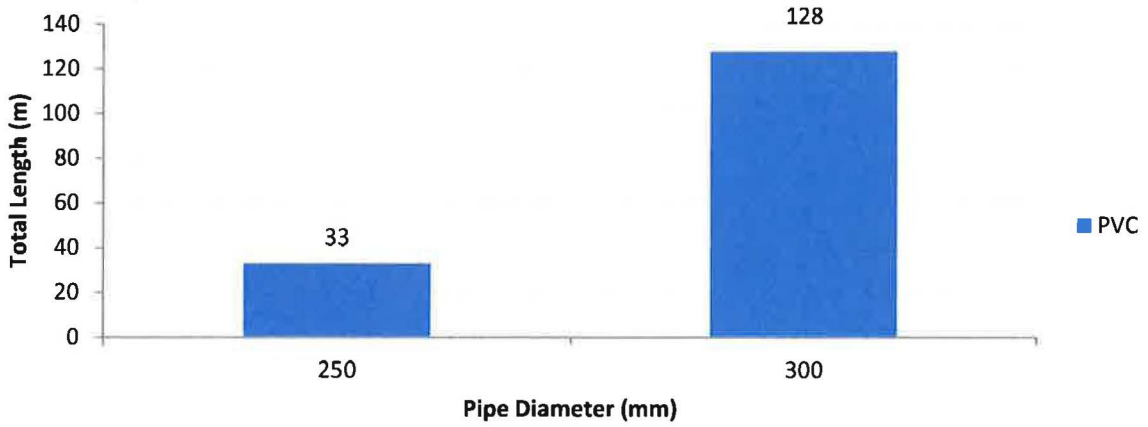

Figure 18 – Storm Sewer Length by Diameter

3.5.3 POLICIES

In accordance with the Guide, it is recommended that a data verification policy and condition assessment policy is established to outline when and how the storm sewer infrastructure information is updated. As there is currently no up to date information available on the condition of the storm sewer collection assets, it is recommended that a camera inspection program be initiated to provide more accurate condition ratings and anticipated lifespan. Depending on maintenance budget available, it would be beneficial to initiate a cycle of inspections such that each section of pipe is visually reviewed every ten years.

3.6 BUILDINGS

The Township owns and operates a total of twenty buildings located throughout the Township which serve a variety of purposes. The table below provides a summary of the replacement costs.

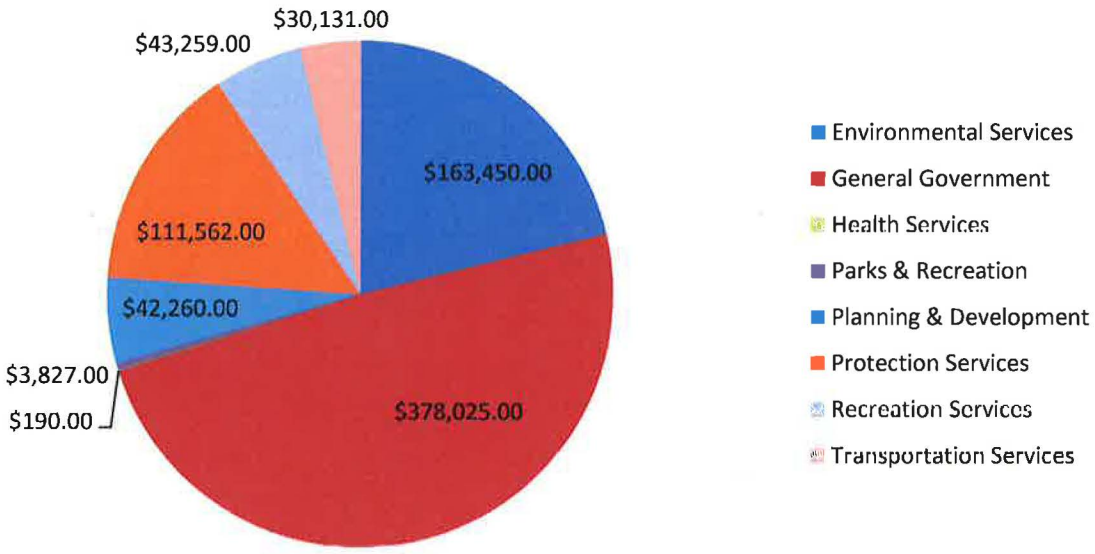

Figure 19 – Building Infrastructure Replacement Cost (2013 Dollars)

Building Description	Replacement Cost (2013 Dollars)
108 Garage	$ 11,651.00
A. M. Firehall	$ 48,935.00
Ballfield Concession Stand	$ 2,077.00
Ballfield Storage	$ 711.00
Ballfield Washrooms	$ 1,039.00
Causeway Pavillion	$ 10,000.00
Cemetery Storage Shed	$ 190.00
Deertrail	$ 42,260.00
Lauzon Beach Change Room	$ 2,721.00
Lauzon Beach Washrooms	$ 6,400.00
Lauzon Beach Gazebo	$ 2,268.00
Municipal Office	$ 364,000.00
Municipal Workshop	$ 20,280.00
Municipal Garage	$ 13,150.00
Old Hydro Road Garage	$ 18,480.00
5 Portable Toilets	$ 1,590.00
Radio Equipment Shed 108	$ 277.00
S.R. Firehall	$ 62,350.00
Serpent River Water Plant	$ 163,450.00
Storage	$ 875.00
Grand Total	**$ 772,704.00**

3.6.1 METHOD OF CONDITION EVALUATION

The Township's buildings were evaluated based on the existing inventory and information provided by the Township. Each of the twenty buildings were assigned an identification number, along with location, dimensions and year of construction being noted. In addition, the buildings were divided into the representative components with the dimensions and general condition of each component

identified. For components in need of improvement, the needs and associated timing were also reported.

Each building asset was given a subjective rating of Excellent, Good, Fair or Poor, based on the current overall condition of the asset. A condition rating greater than Poor is considered acceptable and is expected to require continued maintenance. A condition rating less than Poor is considered unacceptable and an improvement or replacement is to be evaluated for cost. For the purpose of forecasting, all building assets were estimated to have an overall lifespan of 75 years with an average condition rating assigned based on age as follows.

Individual building components were subject to varying lifespans which can be reviewed in detail as presented in the Capital Asset Summary.

Rating	Age
Excellent	Less than 5 years old
Good	Between 5 years old and 50% of its life expectancy
Fair	Between 50% and 75% of its life expectancy
Poor	Between 75% and 100% of its life expectancy
Replace	Beyond its life expectancy

3.6.2 INVENTORY

A summary of the Township's building inventory is presented in the following figures outlining year of construction and condition ratings. The complete inventory is presented in the Capital Asset Summary, including all building components as well as assumptions used to arise at the given ratings and projected costs.

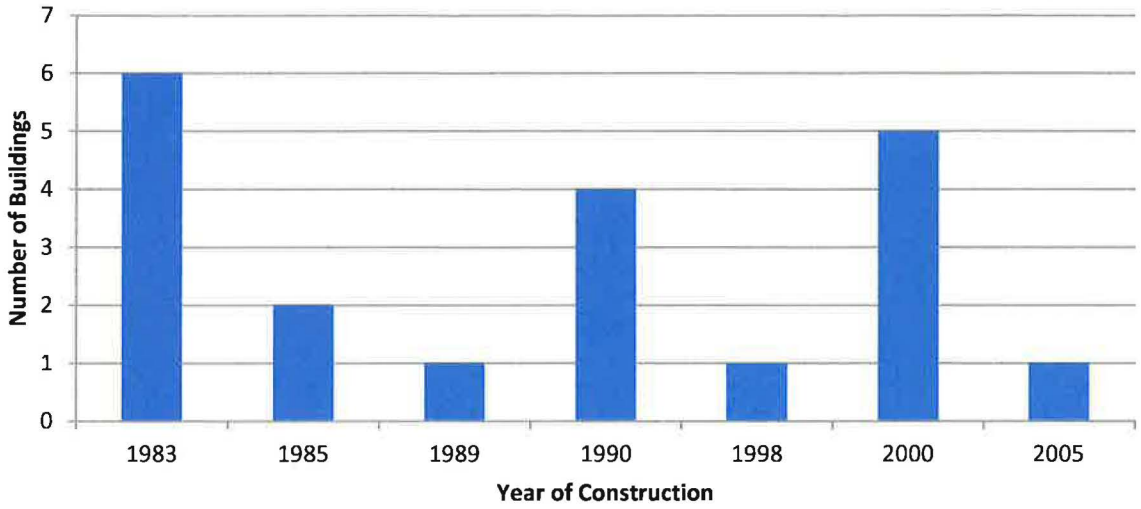

Figure 20 – Building Count by Year of Construction

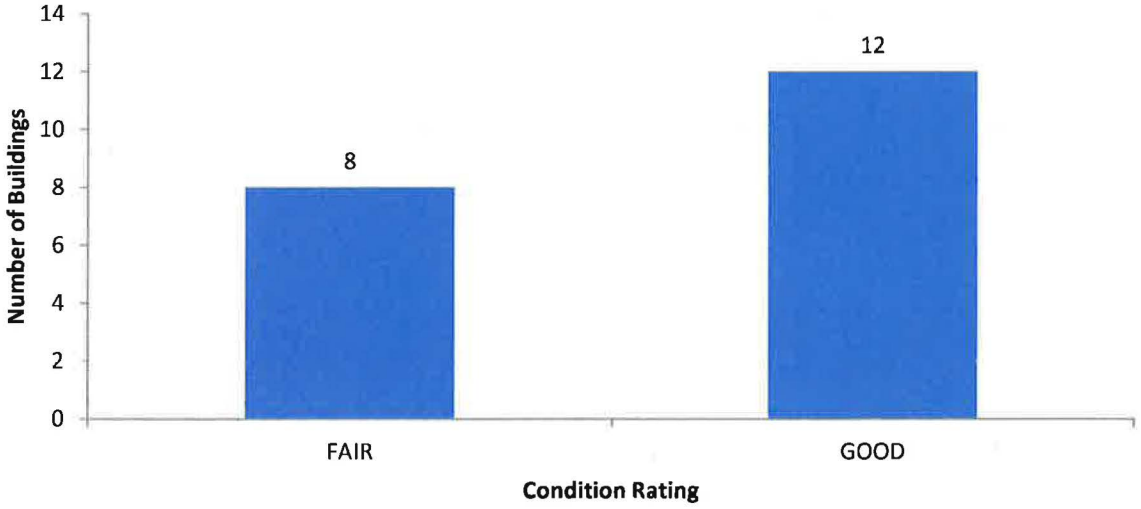

Figure 21 – Building Count by Condition Rating

3.6.3 POLICIES

In accordance with the Guide, it is recommended that a data verification policy and condition assessment policy be established to outline when and how the building infrastructure be updated. It is recommended that a 2 year cycle be established to update condition ratings and cost projections, as well as to recommend further investigations where warranted. Problematic buildings or those over 50 years in age should be reviewed on a more frequent basis.

3.7 VEHICLES

The Township's vehicle assets are comprised of eight vehicles allocated to two departments and are located throughout the Township to serve a variety of purposes. The chart below summarizes the total cost of all municipally owned vehicles by department.

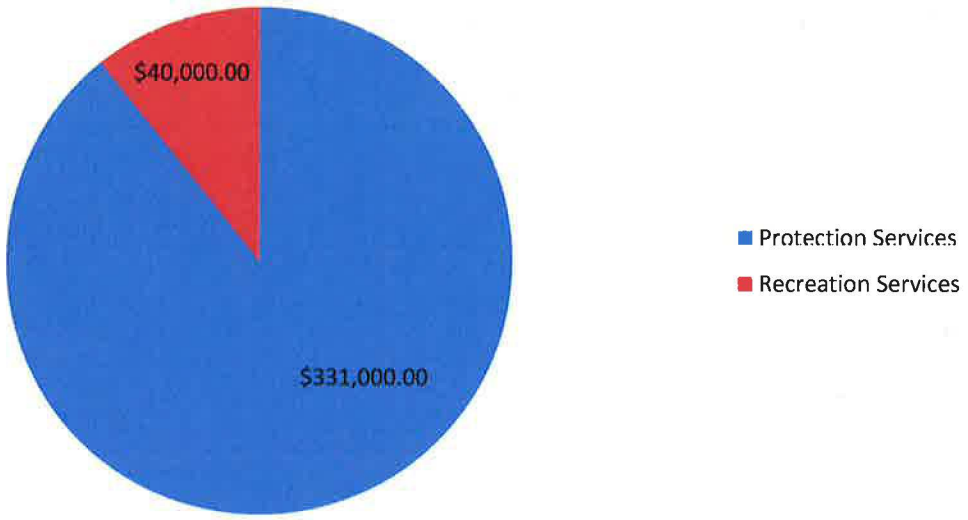

Figure 22 – Vehicle Replacement Costs (2013 Dollars)

3.7.1 METHOD OF CONDITION EVALUATION

The Township's vehicle assets were evaluated based on the inventory and information provided by the Township. Each of the assets were assigned an identification number, along with department, use and year of purchase being noted.

Each asset has been given a subjective rating of Excellent, Good, Fair or Poor, based on the lifespan of the asset. A condition rating greater than Poor is considered acceptable and is expected to require continued maintenance. A condition rating less than Poor is considered unacceptable and an improvement or replacement is to be evaluated for cost. Assets were subject to varying lifespans which can be reviewed in detail as presented in the Capital Asset Summary.

Rating	Age
Excellent	Less than 5 years old
Good	Between 5 years old and 50% of its life expectancy
Fair	Between 50% and 75% of its life expectancy
Poor	Between 75% and 100% of its life expectancy
Replace	Beyond its life expectancy

3.7.2 INVENTORY

A summary of the Township's vehicle inventory is presented in the following figures outlining a summary of the count and conditions of vehicles by department. The complete inventory is presented in the Capital Asset Summary, including all assumptions used to arise at the given ratings and projected costs.

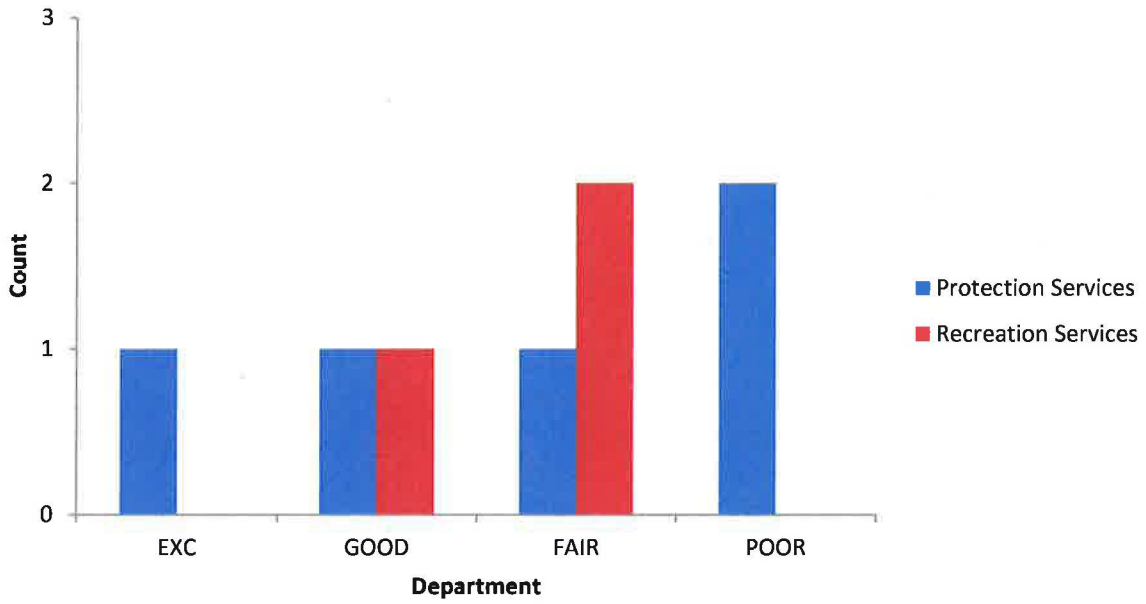

Figure 23 – Vehicle Summary by Department

3.7.3 Policies

In accordance with the Guide, it is recommended that a data verification policy and condition assessment policy be established to outline when and how the vehicle information is updated. For the vehicle assets, it is recommended that a 2 year cycle is established to update condition ratings and cost projections in accordance with MTO vehicular safety standards.

3.8 Equipment, Infrastructure & Planning

The Township's equipment, infrastructure & planning are comprised of seven primary assets allocated to three classes and are located throughout the Township to serve a variety of purposes. The chart below provides a summary of the replacement value of all municipally owned equipment, infrastructure & planning.

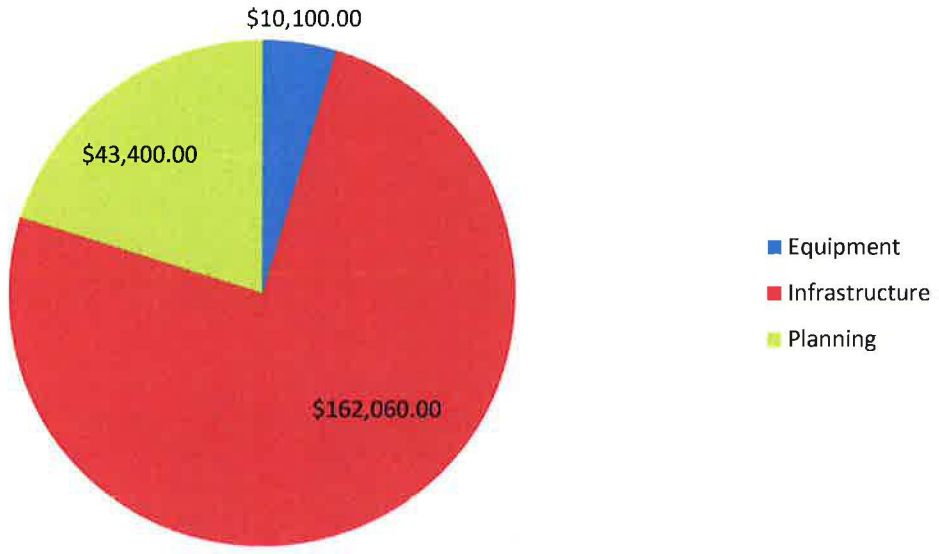

Figure 24 – Equipment, infrastructure & planning Replacement Costs (2013 Dollars)

3.8.1 Method of Condition Evaluation

The Township's equipment, infrastructure & planning were evaluated based on the inventory and information provided by the Township. Each of the assets was assigned an identification number, along with location, use and year of construction/acquisition being noted.

Each asset was given a subjective rating of Excellent, Good, Fair or Poor, based on the lifespan of the asset. A condition rating greater than Poor is considered acceptable and is expected to require continued maintenance. A condition rating less than Poor is considered unacceptable and an

improvement or replacement is to be evaluated for cost. Assets were subject to varying lifespans which can be reviewed in detail as presented in the Capital Asset Summary.

Rating	Age
Excellent	Less than 5 years old
Good	Between 5 years old and 50% of its life expectancy
Fair	Between 50% and 75% of its life expectancy
Poor	Between 75% and 100% of its life expectancy
Replace	Beyond its life expectancy

3.8.2 INVENTORY

A summary of the Township's equipment, infrastructure & planning inventory is presented in the following figures outlining a summary of the count by class. The complete inventory is presented in the Capital Asset Summary, including all assumptions used to arise at the given ratings and projected costs.

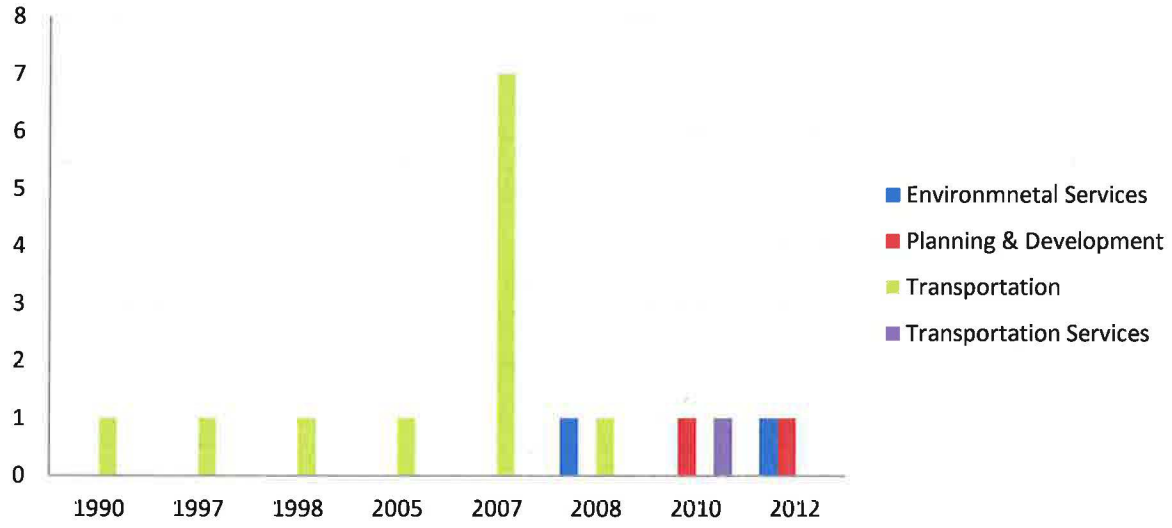

Figure 25 – Asset Summary by Class

3.8.3 POLICIES

In accordance with the Guide, it is recommended that a data verification policy and condition assessment policy is established to outline when and how the equipment, infrastructure & planning information is updated. For each of the assets, it is recommended that an annual cycle is established to update condition ratings and cost projections in accordance with applicable safety standards.

3.9 LAND

The Municipality's land asset category is comprised of seven following categories:

- Environmental
- General Government
- Health
- Planning
- Protection Services
- Recreation
- Transportation

The table below provides a summary of the land value.

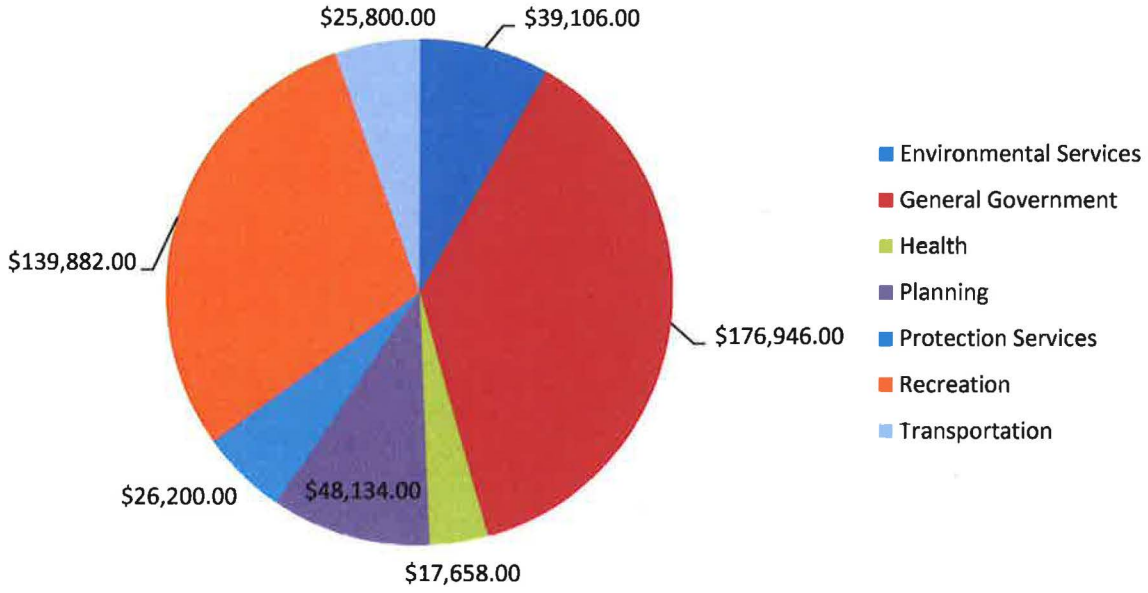

Figure 26 – Land Value (2013 Dollars - $ 473,726.00)

3.10 LANDFILL

The Municipality's landfill is currently at maximum capacity.

3.10.1 METHOD OF CONDITION EVALUATION

The Municipality's landfill is evaluated through operation plans completed on a regular basis to determine remaining capacity and identify operation and maintenance deficiencies.

3.10.2 INVENTORY

It is estimated that expansion of the landfill site is approximately $ 500,000.00.

4.0 EXPECTED LEVELS OF SERVICE

Levels of Service are statements of performance criteria which provide an indication of the minimum acceptable standard for an asset.

Desired levels of service within the Township were developed in consultation with the Municipal staff and through consideration of a number of documents and industry recognized standards to meet generally accepted levels of operation and safety. The target levels of service should be reviewed on a regular basis to determine if they are appropriate, and achievable. Consideration should be given to risk, and cost in the development of target levels of service.

4.1 RISK ASSESSMENT

All assets carry a level of risk for their users. Generally when conducting a risk assessment, two key factors that come into consideration are frequency of use and cost of improvement. Acceptable levels of risk may vary depending on the frequency of use. For example, if a rarely used asset and a frequently used asset do not meet today's minimum standards, the risk is higher for the frequently used asset and therefore, rehabilitation of this asset should be prioritized ahead of a rarely used substandard asset.

It is desirable to limit risk by replacing/improving the condition of all assets to meet today's minimum standards; however, the cost of doing so is not always feasible. The Township attempts to achieve a manageable level of risk by completion of condition reviews and prioritization of replacement/improvement projects.

4.2 PERFORMANCE MEASUREMENT

To optimize an Asset Management Plan and ensure target levels of service are appropriate, performance measures or indicators are established and should be reviewed on a regular basis. Performance measurement of the assets will provide an indication as to whether the rehabilitation and replacement strategies are effective or whether changes need to be made. Performance benchmarks for the various asset groups are described in the following sections.

4.3 ROADS

The Township has established a target level of service for roads by classifying road segments based on their surface type and estimated traffic volume. The Township road network has been evaluated by Tulloch through completion of the 2013 road appraisals. In this plan, all road segments have been rated using the MTO Road Appraisal forms. The rating system utilized consists of a number 1 through 10

(where 10 represents a road in excellent or new condition, and a rating of 5 or less corresponding to poor condition).

The desired level of service for Township roads is to maintain an average weighted condition rating of 7.0 for the entire road network. The goal of this level of service is to develop and maintain uniformity for users of the road network and to ensure that roads meet the minimum standards across the Township.

The following strategies have been adopted from to achieve the target, however, as a general rule, when a roadway reaches a condition rating of 5 or less it is scheduled for improvement.

1. Improvements to Poor condition roads (condition rating of 5 or less) with AADT of 50 vehicles per day or more;
2. Hard-top surfacing of loose-top rural high traffic volume roads and of loose-top roads in urban and semi-urban environments;
3. Widening of critically substandard width roads;
4. Improvements to roads with other critical needs (eg. Grade raise of road in flood plain);
5. Remaining improvements generally prioritized on the basis of condition rating;

These improvements and repairs are incorporated into the road condition inventory spreadsheets which project the condition of road segments over the next 10 years. The performance of the road network should be evaluated by completing condition assessments on an annual basis; the actual condition ratings collected in 2018 should be compared to the projected ratings to determine whether or not the target level of service is being achieved. Adjustments to the plan should be made as necessary either by increasing the annual budget for road improvements, or by revising the target level of service.

4.4 STRUCTURES

There is one bridge located in the Township of North Shore. The bridge has been identified for removal however a date for the work has not been confirmed.

4.5 WATER TREATMENT & SUPPLY

Levels of service for the drinking water supply systems are defined through the use of various performance measures that have been established as part of this comprehensive asset management plan.

The primary focus of the Township is to maintain an adequate level of service for existing system. This will be accomplished by continually monitoring the performance of the system using measures such as recording the number of watermain breaks, and boil water advisories over a specified period of time. The desired target is to have no water main breaks or boil water advisories– indicating that the system is operating and being maintained effectively. This however is not a reasonable target due to the current condition of aging infrastructure.

The Township does currently keep records of the number of water main breaks and boil water advisories. The target performance level for water treatment and supply is to limit breaks to an average of 1 per year with zero boil water advisories. Confirming achievement of this level of service will require the Township review records on an annual basis as a minimum.

Meeting the desired level of service for drinking water treatment and supply is achieved by regular maintenance of the systems, and replacement of damaged or failing infrastructure. These repairs and replacements shall be completed in accordance with the MOE Guidelines for Drinking Water works.

4.6 WASTEWATER COLLECTION & TREATMENT

Levels of service for the wastewater collection systems are defined through the use of various performance measures that have been established as part of this comprehensive asset management plan.

The primary focus of the Township is to maintain an adequate level of service for existing system. This will be accomplished by continually monitoring the performance of the system using measures such as recording the number of sewage back-ups and/or pipe failures over a specified period of time. The desired target is to have no sewage back-ups or pipe failures – indicating that the system is operating and being maintained effectively.

The Township does not currently keep records of the number of back-ups however a policy should be implemented as part of the new asset management strategy. Confirming achievement of this level of service will require the Township to keep records and review them on an annual basis as a minimum.

Meeting the desired level of service for wastewater collection is achieved by regular maintenance of the systems, and replacement of damaged or failing infrastructure. These repairs and replacements shall be completed in accordance with the MOE Guidelines for Sewage Works.

Currently there are no plans to replace, and/or rehabilitate sections of the wastewater collection system.

4.7 Storm Sewers

The desired level of service for storm sewers is to provide adequate drainage of the intended catchment areas. Achievement of the levels of service for the storm sewers is easily determined by reviewing the performance of the existing infrastructure (is the sewer serving its intended purpose of providing adequate drainage for the catchment area).

The performance of storms sewers can be linked to controllable factors such as frequency of proper maintenance, and timely replacement of failing pipes; however its performance can also be linked to the frequency and severity of precipitation events.

The primary focus of the Township is to maintain an adequate level of service for existing systems. Meeting the desired level of service for storm sewers is achieved by regular maintenance of the systems, and replacement of damaged or failing infrastructure.

The storm sewer system in the limits of Serpent River is primarily constructed of PVC pipes. The lifespan of PVC pipes is relatively long, at 75 years. As a result it is not anticipated that the storm sewer system will require any major repairs over the next 10-years.

The primary focus of the Township is to maintain an adequate level of service for existing system. This will be accomplished by continually monitoring the performance of the system using measures such as recording the number of storm sewer back-ups throughout the year. The desired target is to have no flooding – indicating that the systems are operating and being maintained effectively.

The Township does not currently keep records of the number of back-ups however a policy should be implemented as part of the new asset management strategy. Confirming achievement of this level of service will require the Township to keep records and review them on an annual basis as a minimum.

4.8 BUILDINGS

The overall condition of a building is evaluated by completing visual inspections which provide detailed condition ratings of all the components of each structure. The condition of the various components is described by one of four rating as being Excellent, Good, Fair or Poor.

In general, components of a building are recommended for rehabilitation or repair once a large percentage reaches a condition of 'Poor'. If a number of components are rated poor, the structure is typically recommended for a major rehabilitation or replacement.

The target level of service for Municipal buildings is to maintain all buildings such that they do not restrict access or intended use. This should be achieved by continuing to complete rehabilitation and repair recommendations outlined in during inspections within the suggested timeframes.

Achievement of the levels of service for the buildings can easily be determined by reviewing the performance of the existing infrastructure, i.e. is the building serving its intended purpose without restrictions? The Township does not currently keep records of the number of building service interruptions; however a policy should be implemented as part of the new asset management strategy. Confirming achievement of this level of service will require the Township to keep records and review them on a biennial basis as a minimum.

4.9 VEHICLES

The overall condition of a vehicle is based on its age and useful lifespan and was described by one of five rating as being Excellent, Good, Fair, Poor or Replace as defined below.

- Excellent → Component age is less than 5 years old;
- Good → Component age is less than half of its life expectancy;
- Fair → Component age is greater than ½ of its life expectancy;
- Poor → Component age is greater than ¾ of its life expectancy;
- Replace → Component age is beyond its life expectancy;

The target level of service for Municipal vehicles is to maintain all vehicles such that they are in good repair with few breakdowns. This should be achieved by continuing to complete regular maintenance and repair recommendations as may be outlined during regular inspections completed during maintenance servicing. All vehicles with recommended maintenance schedules as part of the manufacturer's warranty service should follow the schedules as described.

Achievement of the levels of service for vehicles can easily be determined by reviewing the performance of the existing vehicle, i.e. is the vehicle operating for its intended purpose without interruption? The Township does not currently keep records of the amount of down time for vehicles, however a policy should be implemented to do so including recording the scheduled maintenance intervals as part of the new asset management strategy. Confirming achievement of this level of service will require the Township to keep records and review them on an annual basis as a minimum.

4.10 EQUIPMENT, INFRASTRUCTURE, & PLANNING

The overall condition of equipment, infrastructure & planning assets is based on its age and useful lifespan and was described by one of five rating as being Excellent, Good, Fair, Poor or Replace as defined below.

- Excellent → Component age is less than 5 years old;
- Good → Component age is less than half of its life expectancy;
- Fair → Component age is greater than ½ of its life expectancy;
- Poor → Component age is greater than ¾ of its life expectancy;
- Replace → Component age is beyond its life expectancy;

The target level of service for these assets is to maintain all assets such that they are in good repair with minimal breakdowns or service interruptions. This should be achieved by continuing to complete regular maintenance and repair recommendations as may be outlined during regular inspections completed during maintenance servicing. All assets with recommended maintenance schedules as part of the manufacturer's warranty service should follow the schedules as described.

Achievement of the levels of service for these assets can be determined by reviewing the performance of the asset, i.e. is the asset operating for its intended purpose without interruption? The Township does not currently keep records of the amount of down time for these assets, however a policy should be implemented to do so including recording the scheduled maintenance intervals as part of the new asset management strategy. Confirming achievement of this level of service will require the Township to keep records and review them on an annual basis as a minimum.

4.11 LAND

Municipal land supports the recreational and leisure needs of both the residents of the Township and the large volume of tourists and seasonal residents. The desired level of service for the Township land includes having a clean, safe space for all residents to make use of.

The most appropriate method of confirming the adequacy and user satisfaction/dissatisfaction with these facilities is through regular inspections. The inspections could be supplemented by user surveys for the residents of the Township on an annual basis. Results of the surveys can be reviewed and considered for future planning purposes. Alternatively, the number of complaints received could be monitored with a target set for the maximum permissible.

Achievement of the desired levels of service for the land can easily be determined by reviewing the performance of the existing infrastructure, (i.e. is the land serving its intended purpose without major interruptions in service?)

4.12 LANDFILL

The target level of service for this asset is to maintain adequate capacity for the users, as well as maintain the area in accordance with the Ministry of Environment rules and regulations.

5.0 ASSET MANAGEMENT STRATEGY

5.1 PLANNED ACTIONS & OPTION ANALYSIS

As referenced in the Guide, *"the asset strategy is the set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way."* 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 following sections will summarize the planned actions and option analysis for each asset type to maximize lifespan and minimize costs, in a sustainable way.

5.1.1 ROADS

Roads require regular roadside maintenance activities such as ditching and brushing to ensure adequate drainage of the road subgrade. Poor subgrade drainage will lead to premature deterioration of the road base which will directly impact the deterioration of the surface.

Maintenance of an asphalt road surface is typically completed through activities such as crack sealing or application of a slurry seal. These maintenance activities are generally not carried out in smaller Municipalities as they can be quite costly and require a large "volume" of work to make the activities economical to undertake. Surface treatment roads would receive an application of single course surface treatment overlay to extend its life, however if the road surface is uneven, the overlay will also be uneven. As such, these maintenance costs which may be possible depending on actual conditions at the time of rehabilitation or replacement were not evaluated at great length.

The following maintenance practices should be employed on a regular basis to help prolong the lifespan of roadway assets. The quantities provided are intended to be used as guideline:

- Right-of-way brushing;
- 1500m of Ditch Cleanout annually;
- Culvert cleanout/flushing;

Two methods of surface rehabilitation have been considered for cost evaluation and projection in the current strategy:

- Poor Road Cross Section → Full pulverizing of the road top, sub-excavation of 'soft spots', addition of granular 'B' and 'A' and resurfacing;
- Fair Road Cross Section → Placement of surface treatment overlay;

Integrated infrastructure planning was considered, however the Township of North Shore buried infrastructure is in a very limited area of the road network and does not require replacement in the near future. Typically integrated infrastructure planning involves reviewing the condition of buried infrastructure along with the roadway to ensure that all failing infrastructure is replaced through the same project.

5.1.2 Structures

There are no plans to construct or rehabilitate existing bridges at this time. Removal of the structure is the only option being considered.

5.1.3 Water Treatment & Supply

Watermains require regular maintenance activities to limit the likelihood of breaks and failures. Rehabilitation options for watermains are limited to relining. On occasion, water main rehabilitation can be more cost effective than a full replacement however this strategy must be reviewed on a case by case basis. The strategy employed in this plan takes into account the full cost of replacement.

In addition, the following maintenance practices should be employed on a regular basis to help prolong the lifespan of buried assets.

- Flushing of hydrants;
- Operation testing of valves;

Integrated infrastructure planning was also considered, as the watermain will exceed the road surface life cycles it is not reflected in the current schedule presented. Completing the storm sewer replacement concurrently with the sanitary sewer and road resurfacing would result in overall costs being less than replacing separately.

5.1.4 Wastewater Collection & Treatment

Sanitary sewers require regular maintenance activities such as frequent flushing to ensure unimpeded flows, reducing the likelihood of backups and failures. Rehabilitation options for sanitary sewers are limited to relining. On occasion, sewer rehabilitation can be more cost effective than a full replacement

however this strategy must be reviewed on a case by case basis. The strategy employed in this plan takes into account the full cost of replacement.

In addition, the following maintenance practices should be employed on a regular basis to help prolong the lifespan of buried assets.

- Suggested annual flushing of 684 metres of sanitary sewer mains;
- Suggested biennial camera inspection of 684 metres of sanitary sewer mains;

Camera Inspection of the sewers would assist in accurately detailing the condition of the asset and subsequent schedule for replacement. Integrated infrastructure planning was also considered, as the sewer will exceed the road surface life cycles it is not reflected in the current schedule presented. Completing the sewer replacement concurrently with the storm sewer, water main, and road resurfacing would result in overall costs being less than replacing separately.

5.1.5 STORM SEWER

Storm sewers, like sanitary sewers require regular maintenance activities such as frequent flushing to ensure unimpeded flows, reducing the likelihood of backups and failures. Rehabilitation options for storm sewers are limited to relining. On occasion, sewer rehabilitation can be more cost effective than a full replacement however this strategy must be reviewed on a case by case basis. The strategy employed in this plan takes into account the full cost of replacement.

In addition, the following maintenance practices should be employed on a regular basis to help prolong the lifespan of buried assets.

- Suggested annual flushing of 161 metres of storm sewer mains and leads;
- Suggested annual cleaning of associated storm sewer structures, catch basins, ditch inlets, and manholes;
- Suggested biennial camera inspection of 161 metres of storm sewer mains and leads;

Camera inspection of the storm sewers would assist in accurately detailing the condition of the asset and subsequent schedule for replacement. Integrated infrastructure planning was also considered, as the sewer will exceed the road surface life cycles it is not reflected in the current schedule presented. Completing the storm sewer replacement concurrently with the sanitary sewer and road resurfacing would result in overall costs being less than replacing separately.

5.1.6 BUILDINGS

As with all assets, buildings require regular maintenance activities such as cleaning and landscaping to maintain proper functioning of the asset. Renewal and rehabilitation activities of buildings should be carried out in accordance with the inspection recommendations. These activities were evaluated against options and longevity such as brick facing against vinyl siding, or steel roofing against shingles.

Replacement activities are generally considered once maintenance, renewal and rehabilitation activities are no longer feasible or economical to undertake. As can be seen in the Capital Asset Summary, when replacement is considered, the replacement asset does not need to be identical to the existing asset, such as replacing windows and doors with more energy efficient ones. Increase in level of service should always be considered at time of replacement.

In addition, integrated infrastructure planning was considered, as reflected in the Capital Asset Summary. The replacement of windows and doors was scheduled for the same time, or in advance of the siding replacement which would result in cost savings and greater flexibility in the assets selected for replacement.

5.1.7 VEHICLES

Vehicles require regular maintenance activities such as engine, transmission and break system servicing in accordance with the manufactures operating manuals to minimize potential for breakdowns. In addition, failing to complete these maintenance intervals could void the manufacturer warranty in the event there is a concern.

Major rehabilitation of most vehicles will not significantly extend the useful life. Due to the nature of the Township operations associated with the vehicles, the asset is treated similar to a rolling stock that is disposed of at the end of its useful lifecycle and replaced with a new asset. The replacement asset selected would likely be an upgrade to disposed asset as over the course of the disposed assets lifecycle, improvements in technology and efficiency would have been made.

5.1.8 EQUIPMENT, INFRASTRUCTURE & PLANNING

Equipment, Infrastructure, & Planning, also require regular maintenance activities such as servicing and updating in accordance with the manufactures operating manuals to minimize potential for breakdowns. In addition, failing to complete these maintenance intervals could void the manufacturer warranty in the event there is a concern.

Major rehabilitation of Equipment, Infrastructure, & Planning will not significantly extend the useful life. Due to the nature of the Municipal operations associated with these assets, the asset is treated similar to a rolling stock that is disposed of at the end of its useful lifecycle and replaced with a new asset. The replacement asset selected would likely be an upgrade to disposed asset as over the course of the disposed assets lifecycle, improvements in technology and efficiency would have been made.

5.1.9 LAND

Land, like all other assets require regular maintenance activities such as trimming, cleaning and landscaping to maintain proper functioning of the asset. Replacement activities are generally not completed on land assets, however major improvements to upgrade the land are considered as capital projects. No works are planned for land assets at this time.

5.1.10 LANDFILL

Operation and maintenance strategy will continue in accordance with the MOE rules and regulations.

5.2 Risk Assessment

All assets carry a level of risk for the Township. The options above were not only evaluated based on the lifecycle costs and benefits, but also on the potential risks. Due to the uncertainty in assigning a reasonable estimate of probability and cost associated with a risk event, a qualitative approach was applied to the management plan of the assets.

The scheduling of asset improvements took into consideration the risk associated with the volume of use that the assets received. Acceptable levels of risk will vary depending on their frequency of use.

5.3 Procurement Methods

The Township currently has procurement by-laws in place for use when considering various projects; however, additional investigations and discussions could be undertaken to pool resources with neighboring municipalities. The creation of an amalgamated tender would allow for a higher volume of service by a supplier, which would reduce the overall cost per Township. This approach would be applicable to road resurfacing projects which are short duration and easily divisible by Township.

5.4 Schedule of Priorities

This Asset Management Plan identifies the schedule of projects based on asset type for the next ten years. Options were considered for each type of asset as outlined above, with the options being evaluated for risk and lifecycle costs.

The following is a schedule of priorities by asset type as presented in the Capital Asset Summary.

5.4.1 Roads

Asset ID	Asset Name
105	Air Service Road
110	Holiday Lane
120	Miranda Boulevard
215	Whalen Lane
115	Lauzon Avenue
125	Vivian Boulevard
130	Lauzon Village Road
135	Sunview Drive
140	Long Street

Asset ID	Asset Name
160	Pronto Road
175	Old Hydro Road
190	Wagoosh Lake Road
200, 204	Riverview Road
210	Handy Spot Road

5.4.7 VEHICLES

Asset ID	Asset Name
001	'83 Rescue Van
002	'92 Tanker
008	'98 Rescue Van
009	Suzuki ATV
010	Utility Trailer

5.4.8 EQUIPMENT, INFRASTRUCTURE & PLANS

Asset ID	Asset Name
013	Street Lights

5.4.10 LANDFILL

Asset ID	Asset Name
001	Landfill Expansion

6.0 FINANCING STRATEGY

Establishment of a financial plan is critical to the successful implementation of an asset management plan. The following section summarizes the Municipal expenditures over the past three years and will detail the financial commitment required in order to keep the Municipal infrastructure at acceptable levels of service.

In conjunction with developing the Asset Management Plan, the replacement cost of all the Township's assets was estimated. Replacement costs for linear assets were generated through use of local competitive bid construction costs for projects of similar scope and size. Replacement costs for non-linear assets such as buildings, bridges, parks, vehicles, and equipment were estimated using recent purchase prices and construction costs for major components (buildings and bridges).

As presented previously (Figure 2), the total replacement cost of the Township's assets was calculated to be approximately 12.7 million dollars (2013 Dollars). The Township is not required to budget for the full replacement value of all its assets, as portions of assets only require an initial investment followed by further re-investment to maintain acceptable levels of service.

It was also calculated that the annual reinvestment should be an average of $ 200,000.00 per year into various assets as they reach their maximum potential useful lives, in order to sustain existing services at an appropriate level of service. It is recommended that an additional $ 287,100.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has invested approximately $ 1.05 million into capital projects. The table presented below describes the budgets over the past three years and details the source of the monies allocated to each.

Source	2010	2011	2012	2013	Projected
Tax Base	$ 41,224.47	$ 7,242.02	$ 149,228.26	$ 60,735.54	$ 64,607.57
Reserves	$ 80,674.08	$ -	$ 73,319.01	$ -	$ 39,998.27
User Fee's	$ 134,479.99	$ 28,378.48	$ -	$ -	$ 40,714.62
Loans	$ -	$ -	$ -	$ -	$ -
Debentures	$ -	$ -	$ -	$ -	$ -
SUBTOTAL	**$ 262,378.54**	**$ 35,620.50**	**$ 222,547.27**	**$ 60,735.54**	**$ 145,320.46**
Government Grants	$ 502,025.23	$ 8,048.08	$ 23,913.62	$ 53,131.49	$ 146,779.61
TOTAL	**$ 764,403.77**	**$ 43,668.58**	**$ 246,460.89**	**$113,867.03**	**$ 292,100.07**

Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into municipal infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for all infrastructures included in this plan.

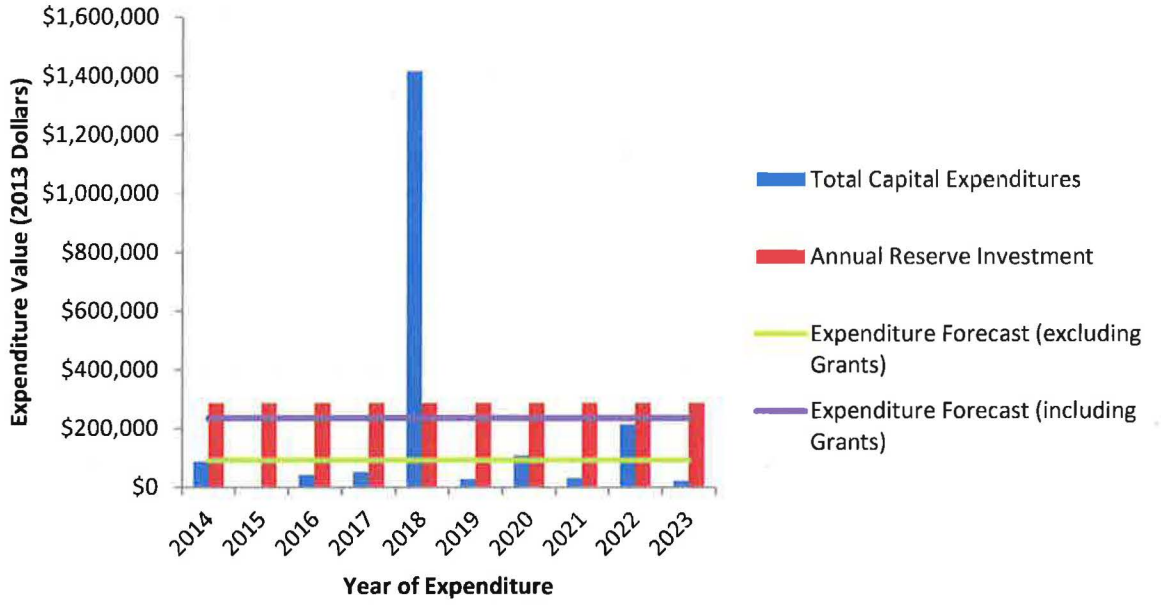

Figure 27 - Municipal Assets – 10 Year Capital Expenditures & Reserve Contributions

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 91,882.00 / year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 234,370.00 / year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 287,133.00 / year
- Expected Shortfall (2014) → $ 195,311.00 / year

The intention of this section of the report is to highlight the recommended expenditures, as well as suggested methods of lessening the shortfall. Suggested ways of decreasing the magnitude of the annual shortfall are listed below, however whether they are implemented or not is a decision to be made by Council.

- Increasing municipal taxes;
- Implementing or increasing user fees;
- Financing projects; or
- Accepting decreased levels of service;

The expected funding shortfall is quite significant; however, the magnitude of this shortfall is exaggerated by the inclusion of the recommended reserve savings. Saving into a reserve fund is one method of financial planning however many Township's take the strategy of debentures and financing projects over their useful life. The actual finance strategy will not only vary from year to year but may vary from one asset project to another.

It should be noted that the values presented in this section of the report does not account for inflation rate over the next 10 years. The following sections present a more detailed breakdown of the required reinvestment for each of the asset groups included in this comprehensive asset management plan.

6.1 ROADS

Reinvestment in the Township's roads is a required expenditure to maintain an acceptable average condition rating for the entire road network. Required reinvestment levels were calculated to be an average of $ 118,000.00 per year to resurface and reconstruct road infrastructure. It is recommended that an additional $ 133,780.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has invested approximately $ 54,508.00 into capital roads projects. The table presented below describes the budgets over the past three years and details the source of the monies allocated to each.

Source	2010	2011	2012	2013	Projected
Tax Base	$ 4,223.67	$ -	$ -	$ -	$ 1,055.92
Reserves	$ -	$ -	$ -	$ -	$ -
User Fee's	$ -	$ -	$ -	$ -	$ -
Loans	$ -	$ -	$ -	$ -	$ -
Debentures	$ -	$ -	$ -	$ -	$ -
SUBTOTAL	**$ 4,223.67**	**$ -**	**$ -**	**$ -**	**$ 1,055.92**
Government Grants	$ 26,371.00	$ -	$ 23,913.62	$ 49,775.95	$ 25,015.14
TOTAL	**$ 30,594.67**	**$ -**	**$ 23,913.62**	**$ 49,775.95**	**$ 26,071.06**

Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into road infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

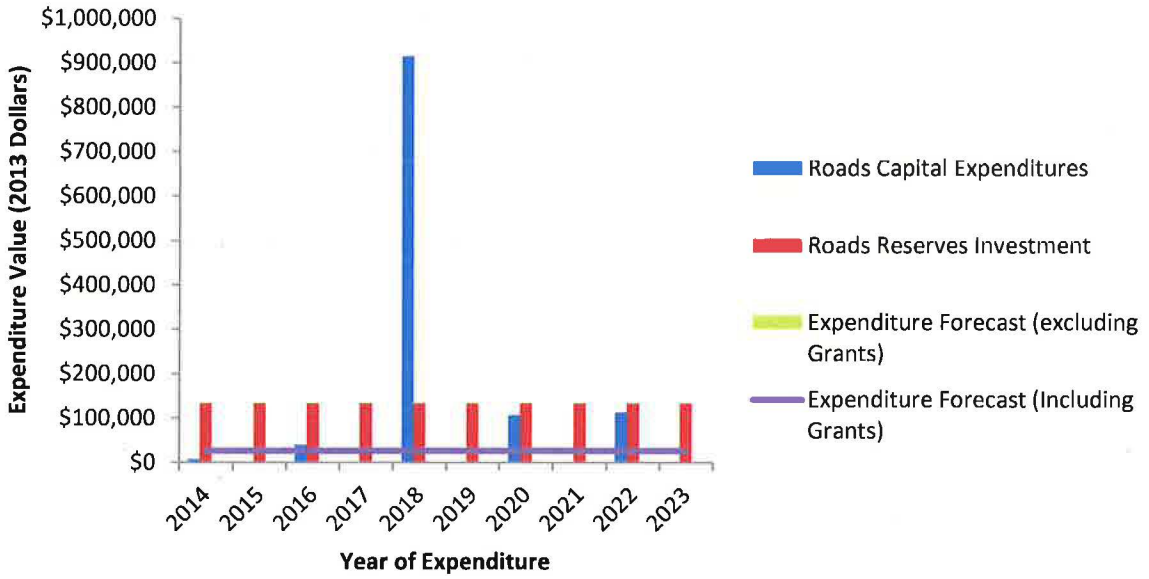

Figure 28 – Road Infrastructure 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 1,055.00/year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 26,071.00 Million/year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 141,255.00/year
- Expected Shortfall (2014) → $ 140,200.00/year

A commitment by the Township to contribute the required reinvestment into road infrastructure projects will ensure that the road network remains at the established level of service. Failure to make an annual contribution will result in the road network quickly deteriorating below the acceptable level of service. In the unlikely event that the Township contributed no funds towards roadway capital projects, it would take only five years for the condition of the road network to deteriorate to an average condition of less than 5.0 (poor).

6.2 STRUCTURES

The only bridge in the Township of North Shore has been permanently closed. As a result, no financial information is provided.

6.3 WATER TREATMENT & SUPPLY

Reinvestment in the Township's drinking water treatment and distribution system is a required expenditure to maintain the services for connected properties. It is recommended that $ 72,101.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has invested approximately $ 516,682.00 into capital water infrastructure projects. The table below details the source and value of all funds contributing to these capital projects.

Source	2010	2011	2012	2013	Projected
Tax Base	$ -	$ 1,099.01	$ -	$ 2,282.61	$ 845.41
Reserves	$ -	$ -	$ -	$ -	$ -
User Fee's	$ 134,479.99	$ 28,378.48	$ -	$ -	$ 40,714.62
Loans	$ -	$ -	$ -	$ -	$ -
Debentures	$ -	$ -	$ -	$ -	$ -
SUBTOTAL	**$ 134,479.99**	**$ 29,477.49**	**$ -**	**$ 2,282.61**	**$ 41,560.02**
Government Grants	$ 344,677.16	$ 8,048.08	$ -	$ -	$ 88,181.31
TOTAL	**$ 479,157.15**	**$ 37,525.57**	**$ -**	**$ 2,282.61**	**$ 129,741.33**

Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into wastewater collection and treatment infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

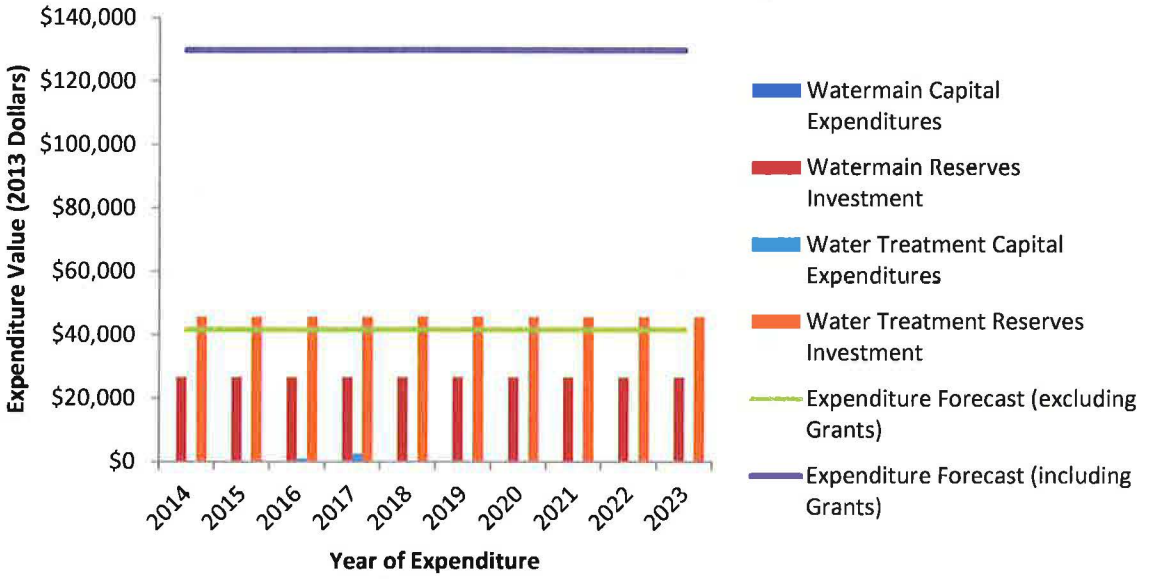

Figure 29 – Water Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 41,560.00/year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014) → $ 129,741.00/year*
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 72,101.12 / year
- Expected Shortfall (2014) → None

6.4 WASTEWATER COLLECTION & TREATMENT

Reinvestment in the Township's sewage collection and treatment system is a required expenditure to maintain the services for connected properties. It is recommended that $ 18,500.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has not invested into capital wastewater infrastructure projects. Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into wastewater collection and treatment infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

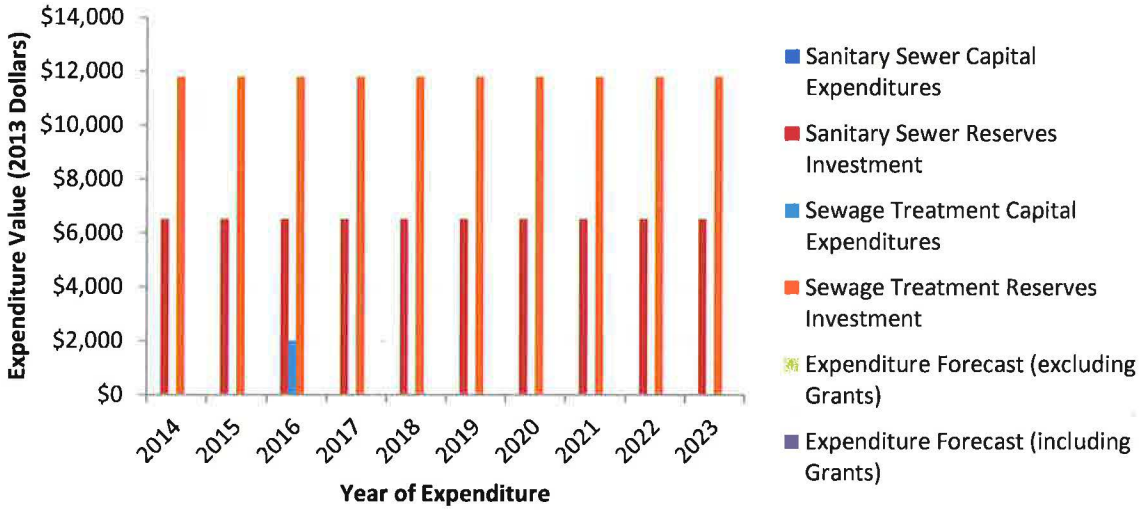

Figure 30 – Wastewater Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 0.00 /year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014) → $ 0.00/year*
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 18,500.00 / year
- Expected Shortfall (2014) → $ 18,500.00 / year

6.5 STORM SEWERS

Reinvestment in the Township's storm sewer infrastructure is a required expenditure to maintain operation integrity for the future. It is recommended that $ 1,000.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has not invested into capital storm sewer infrastructure projects. Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into storm water collection infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

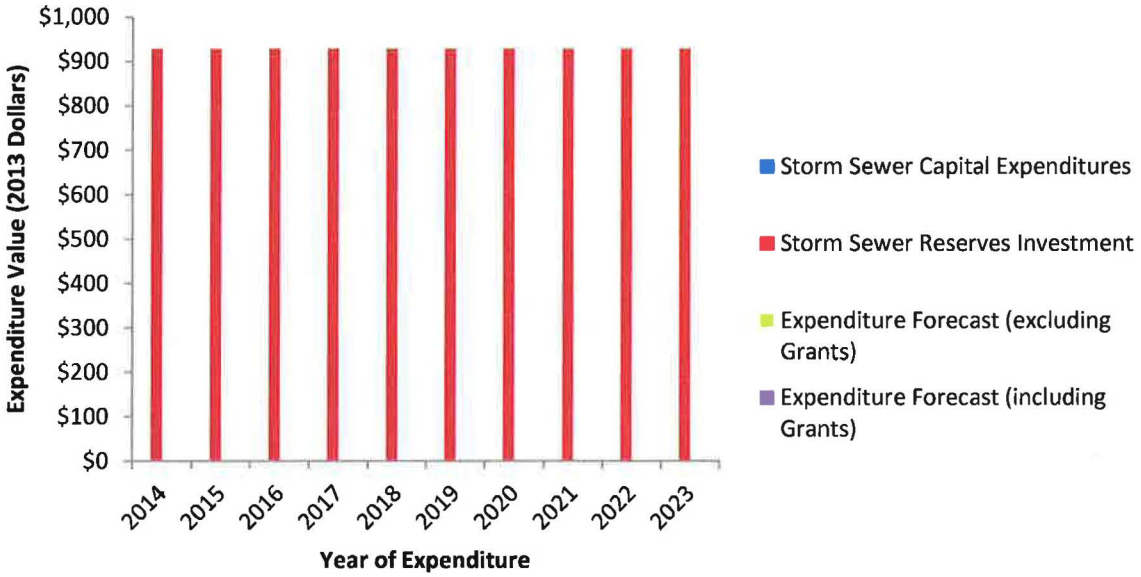

Figure 31 – Storm Sewer Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 0.00 /year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014) → $ 0.00 /year*
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 1,000.00 /year
- Expected Shortfall (2014) → $ 1,000.00 /year

6.6 BUILDINGS

Reinvestment in the Township's buildings is a required expenditure to maintain their structural integrity for the future as well as ensure the comfort of their users. Building assets support services such as recreation and culture, protection (fire) and also support many administrative functions that are required to provide all services the Township provides. It is recommended that $ 15,500.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has invested $ 180,096.00 into capital projects related to building infrastructure. The table below details the source of all funds contributing to these projects.

Source	2010	2011	2012	2013	Projected
Tax Base	$ 14,690.00	$ -	$ -	$ 6,334.00	$ 5,256.00
Reserves	$ 48,240.00	$ -	$ -	$ -	$ 12,060.00
User Fee's	$ -	$ -	$ -	$ -	$ -
Loans	$ -	$ -	$ -	$ -	$ -
Debentures	$ -	$ -	$ -	$ -	$ -
SUBTOTAL	**$ 62,930.00**	**$ -**	**$ -**	**$ 6,334.00**	**$ 17,316.00**
Government Grants	$ 117,166.00	$ -	$ -	$ -	$ 29,291.50
TOTAL	**$ 180,096.00**	**$ -**	**$ -**	**$ 6,334.00**	**$ 46,607.50**

Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into Building infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

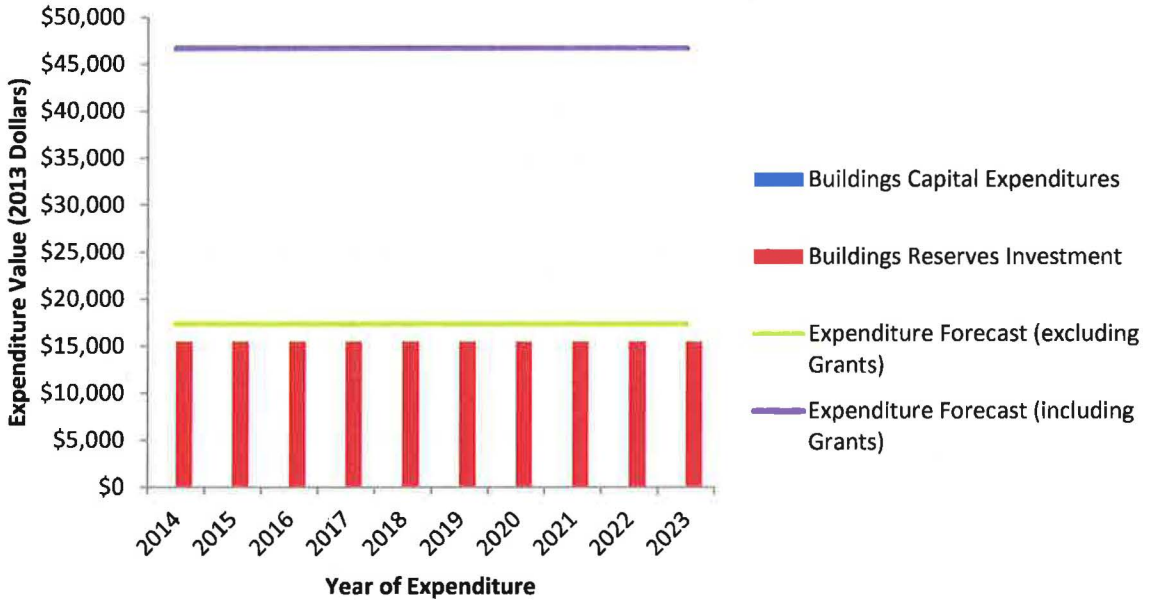

Figure 32 – Building Infrastructure 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 17,316.00 /year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014) → $ 46,607.00 /year*
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 15,454.00 /year
- Expected Shortfall (2014) → $ 0.00

6.7 MUNICIPAL VEHICLES

Reinvestment in the Township's fleet of vehicles is required to maintain an acceptable fleet average age. It was calculated that the Township should be reinvesting an average of $11,000.00 per year to repair, and replace fleet vehicles. It is recommended that an additional $ 24,900.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has invested $ 80,902.00 into municipal fleet vehicles. The table below details the source of all funds contributing to these purchases.

Source	2010	2011	2012	2013	Projected
Tax Base	$ -	$ -	$ 22,468.31	$ -	$ 5,617.08
Reserves	$ 38,434.08	$ -	$ 20,000.00	$ -	$ 14,608.52
User Fee's	$ -	$ -	$ -	$ -	$ -
Loans	$ -	$ -	$ -	$ -	$ -
Debentures	$ -	$ -	$ -	$ -	$ -
SUBTOTAL	**$ 38,434.08**	**$ -**	**$ 42,468.31**	**$ -**	**$ 20,225.60**
Government Grants	$ -	$ -	$ -	$ -	$ -
TOTAL	**$ 38,434.08**	**$ -**	**$ 42,468.31**	**$ -**	**$ 20,225.60**

Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into fleet vehicles for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

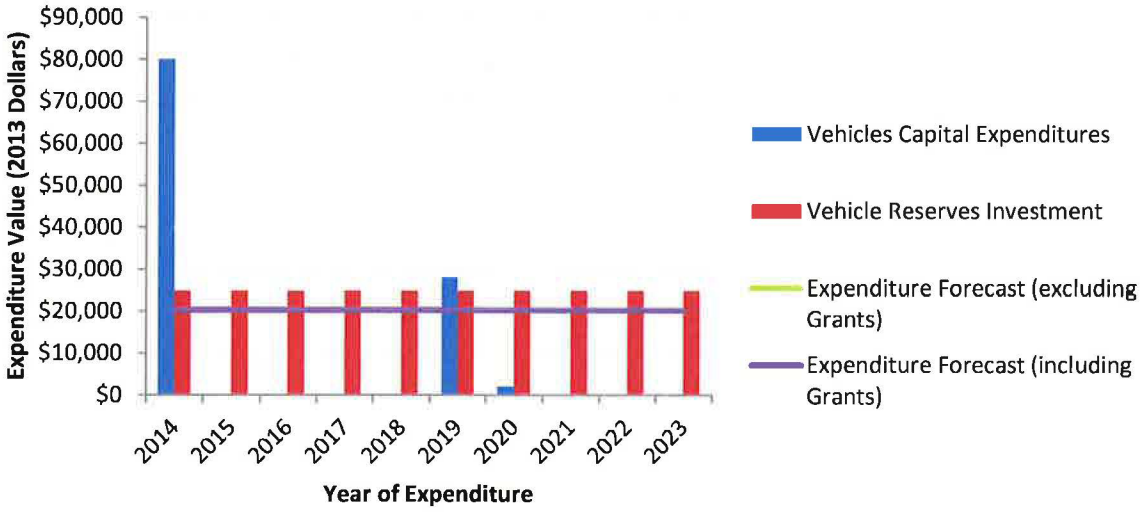

Figure 33 –Fleet Vehicles 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 20,255.00 / year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014) → $ 20,255.00 / year*
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 104,853.00 / year
- Expected Shortfall (2014) → $ 84,598.00 / year

A commitment by the Township to contribute the required reinvestment into existing fleet of vehicles will ensure that the average age of the fleet remains above the established level of service. Failure to make an annual contribution will result in the condition of the fleet deteriorating, ultimately requiring expensive repairs and increased vehicle downtime.

6.8 MACHINERY, EQUIPMENT, PLANNING

Reinvestment in the Township's fleet of machinery, equipment, and planning assets is required to maintain an acceptable service level. It was calculated that the Township should be reinvesting an average of $ 20,350.00 per year to repair, replace and/or update various assets. It is recommended that an additional $ 10,515.12 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Over the past three years, the Township has invested $ 28,315.00 into machinery, equipment, furniture and fixtures. The table below details the source of all funds contributing to these purchases.

Source	2010	2011	2012	2013	Projected
Tax Base	$ 8,499.73	$ 6,143.01	$ 13,672.94	$ 18,582.42	$ 11,724.53
Reserves	$ -	$ -	$ -	$ -	$ -
User Fee's	$ -	$ -	$ -	$ -	$ -
Loans	$ -	$	$	$ -	$ -
Debentures	$ -	$ -	$ -	$ -	$ -
SUBTOTAL	**$ 8,499.73**	**$ 6,143.01**	**$ 13,672.94**	**$ 18,582.42**	**$ 11,724.53**
Government Grants	$ -	$ -	$ -	$ -	$ -
TOTAL	**$ 8,499.73**	**$ 6,143.01**	**$ 13,672.94**	**$ 18,582.42**	**$ 11,724.53**

Using the historic data as a base model for future financial planning purposes, the table below outlines a forecast of the required annual expenditures into machinery, equipment, and planning for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

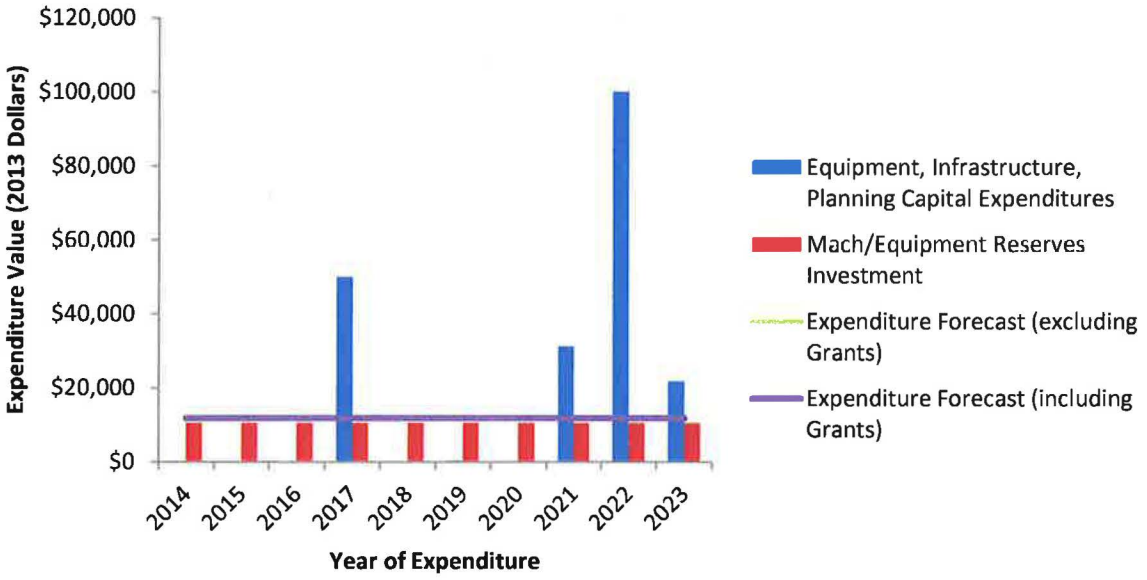

Figure 34 –Machinery, Equipment, and Planning 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 11,724.00 / year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014) → $ 11,724.00 / year*
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 10,515.00 / year
- Expected Shortfall (2014) → $ 0.00

6.9 LAND

There is no requirement to reinvest in land assets as they are a one-time purchase with no annual capital investment requirement.

6.10 LANDfill

The Township landfill is at capacity. In the near future, the Township may need to make a large capital investment into the design and construction of a landfill expansion. At this time, the costs are unknown.

7.0 CLOSURE

This comprehensive asset management plan will require on-going updates, and improvements to the methodologies of data collection for developing more accurate inventory information. The ability for the Township to leverage its knowledge of infrastructure and by applying the best Asset Management practices at the time will result in very positive improvements in municipal infrastructure. This document will also provide the means to effectively apply for external funding opportunities as they may become available.

The implementation of this plan will require the Township to find additional funds from various sources. Continued contribution of municipal funds, as well as contributions from Government grants into capital projects will help ensure the sustainability of the Township's infrastructure assets for years to come.

QUALIFICATIONS

This comprehensive asset management plan has been prepared for the exclusive use of the Township of North Shore by Tulloch Engineering Inc. This plan is intended to be a living document, updated on an annual basis to project future costs and expenditures on a planning basis only. This plan is not intended to establish annual budgets but rather act a guide to identify the priority projects. All cost projections presented in this report must be verified through detailed cost estimation at time of consideration for the works and subsequent budgeting.

ACKNOWLEDGEMENT OF SUPPORT

The Township of North Shore acknowledges the financial support of the Ontario Ministry of Agriculture, Food and Rural Affairs in the preparation of this comprehensive asset management plan. The views expressed in this plan are the views of the Township of North Shore and do not necessarily reflect those of Ontario Ministry of Agriculture, Food and Rural Affairs.

8.0 DEFINITIONS

AMP – Asset Management Plan

AADT – Average Annual Daily Traffic Count

Expenditure Forecast – Average Annual Historic Expenditure projected over 10 years with inflation;

Guide – Ministry of Infrastructure – *Building Together – Guide for Municipal Asset Management Plans*

HCB – High Class Bituminous Surface (Hot Mix Asphalt)

Historic Expenditure – Average of expenditures made over the past three years

LCB – Low Class Bituminous Surface (Surface Treatment)

OSIM – Ontario Structure Inspection Manual Bridge Inspections