West Nipissing Ouest

MUNICIPALITY OF WEST NIPISSING

ASSET MANAGEMENT PLAN

DECEMBER 2013

PREPARED BY

TULLOCH ENGINEERING

PROJECT No. 13-4022

CONTINUING RECORD OF REVISIONS MADE

TO THE

MUNICIPALITY OF WEST NIPISSING 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**		

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1.0 EXECUTIVE SUMMARY

The Municipality of West Nipissing 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 a greater priority. 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 Municipality'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, environmental protection, and regulations. The solution to this issue is to examine the way the Municipality 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 Municipality's assets was calculated to be approximately $280.3 million dollars (2013 Dollars), for assets providing transportation, administration, tourism, and recreation. The Municipality 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 $3.5 million into municipally owned 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 $ 4.0 million is recommended to plan 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 will address the replacement and planned expansion priorities of the Municipality, however it is imperative that current maintenance activities be continued and expanded as recommended. The ability for the Municipality 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 Municipality'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 Municipality'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. Consideration of the risk associated with achieving the established targets levels was given. 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 little to no benefit to the Municipality.

2.0 INTRODUCTION

This Asset Management Plan (AMP) was prepared by Tulloch Engineering Inc. (Tulloch) in cooperation with the Municipality of West Nipissing (Municipality) 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 Municipality 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;
- Bridges;
- Water Distribution & Treatment;
- Wastewater Collection & Treatment;
- Storm Sewers;

Each municipal asset was divided into its respective category based on type and was assessed for current condition, financial accounting valuation and replacement cost valuation. The condition of each of the assets was assessed using sound and accepted methods – which are outlined in the following sections of the report.

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 representative 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 municipalities 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 Municipality's Capital Asset Summary information as found in Appendix A, 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.

3.0 STATE OF LOCAL INFRASTRUCTURE

This Section of the report outlines the quantity and quality of assets owned and managed by the Municipality. 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 Municipality'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 provided by the Municipality presented as the 'Capital Asset Summary' tab in Appendix A. 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 Appendix A.

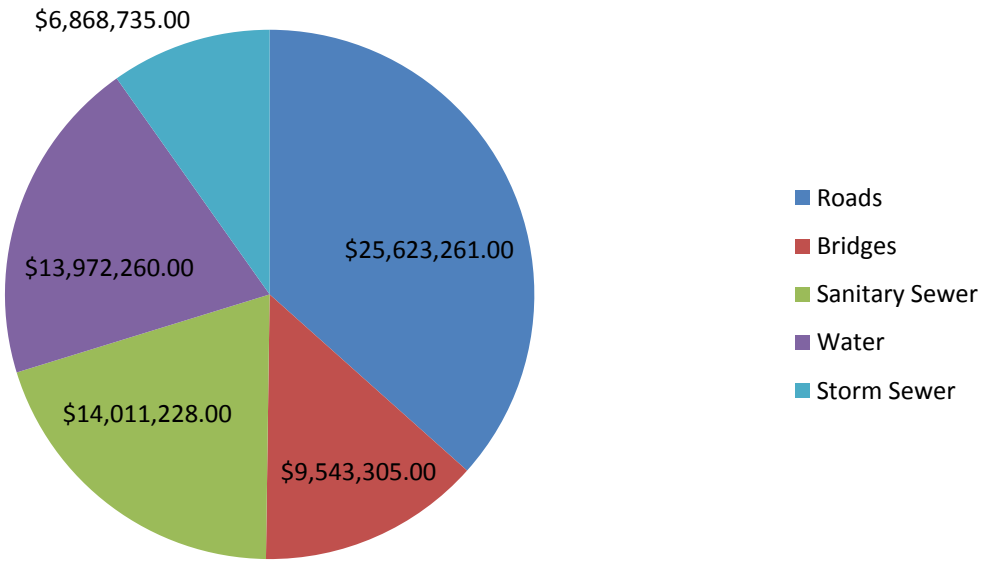
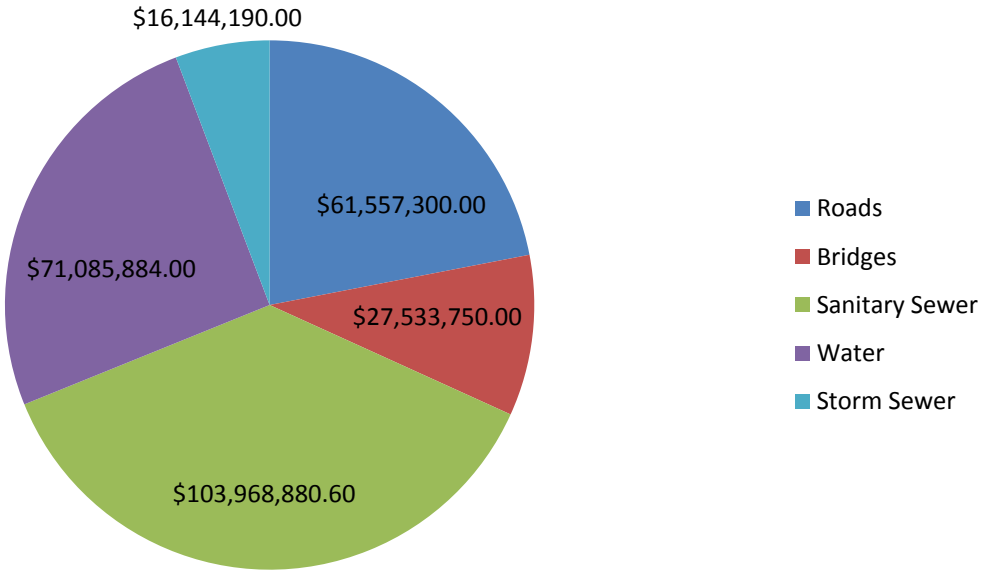


Figure 1 – Capital Asset PSAB 2013 Values ($ 70.0M)



- NOTE: Replacement Costs are presented in 2013 Dollars

Figure 2 – 2013 Asset Replacement Costs ($280.3M)

3.1 ROADS

The Municipality's road network consists of approximately 527.15 km of roads. The roadway inventory and condition ratings were based on an extension of the 2011 Roads Management Plan completed by Exp. Services Inc. and presented in Appendix B.

3.1.1 METHOD OF CONDITION EVALUATION

Appraisal of the Municipality's local road system was carried out in the spring of 2011, in accordance with procedures outlined in the MTO Methods and Inventory Manual. The system was divided into 364 road sections (intersection to intersection, or change in surface type) 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 has 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 of 5 or less has

been established to be 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 → Maintains surface condition rating;
- Low Class Bituminous Roads → Condition rating reduced by 0.7 per year until it drops to 5.0;
- High Class Bituminous Roads → Condition rating reduced by 0.5 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 segment

The following table describes the current state of the roads.

	TOTAL LENGTH (km)	2012 Weighted Average Condition
EARTH	**2.60**	**2.17**
GRAVEL	**427.40**	**6.39**
L.C.B.	**40.05**	**6.30**
H.C.B.	**63.55**	**6.43**
Grand Total	**533.6**	**6.36**

Figure 3 – Road Infrastructure Structural Condition

Further detail on how the future ratings are achieved can be found in the 2012 Roads Management Plan – located in Appendix B of this report.

3.1.2 INVENTORY

A summary of the Municipality's road system is presented in the following figures and is based on the Municipality's 2011 Roads Management Plan information. The complete inventory is presented in the Roads Management Plan in Appendix B, including all assumptions used to arise at the given ratings and projected costs. It should be noted that L.C.B. denotes low class bituminous (surface treatment) and H.C.B. denotes high class bituminous (asphalt surface).

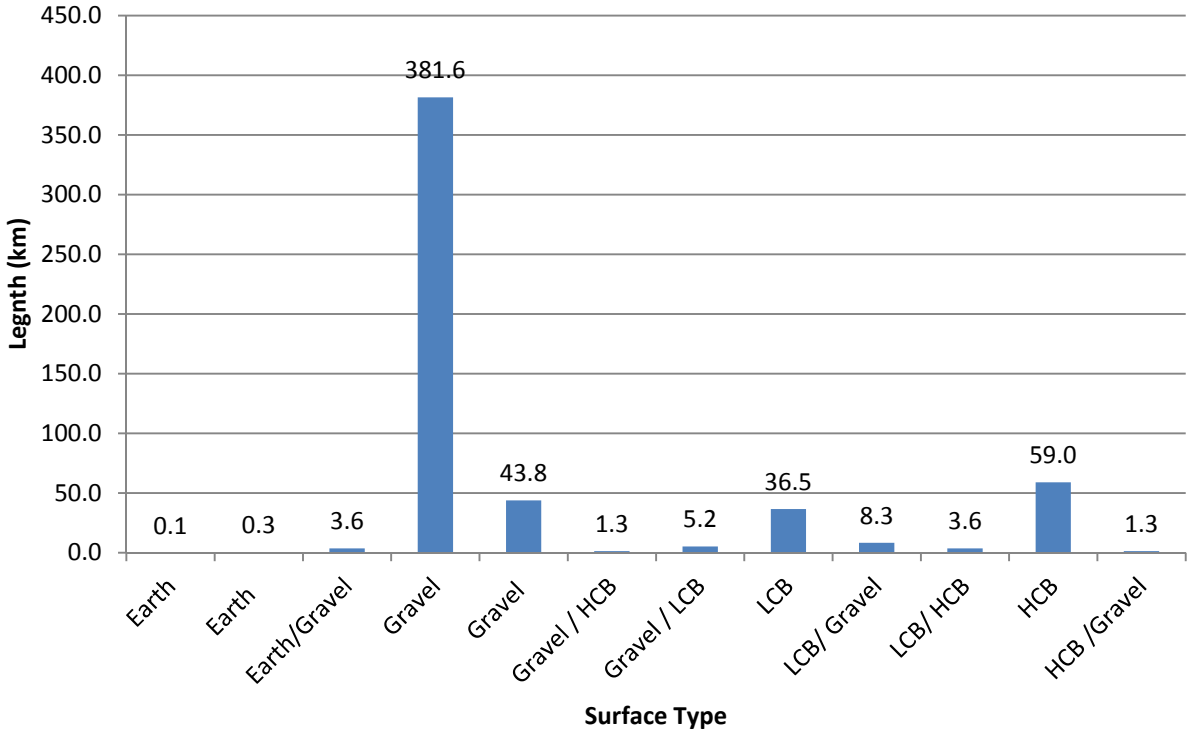


Figure 4 – Road Length by Surface Type

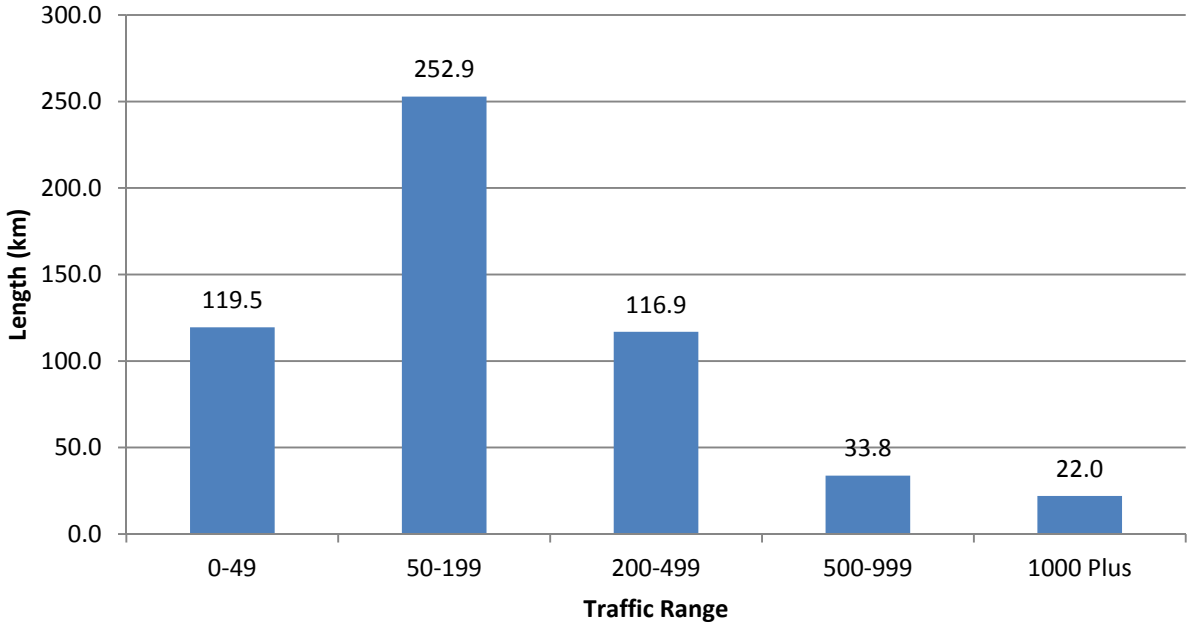


Figure 5 – Road Length by Traffic Volume

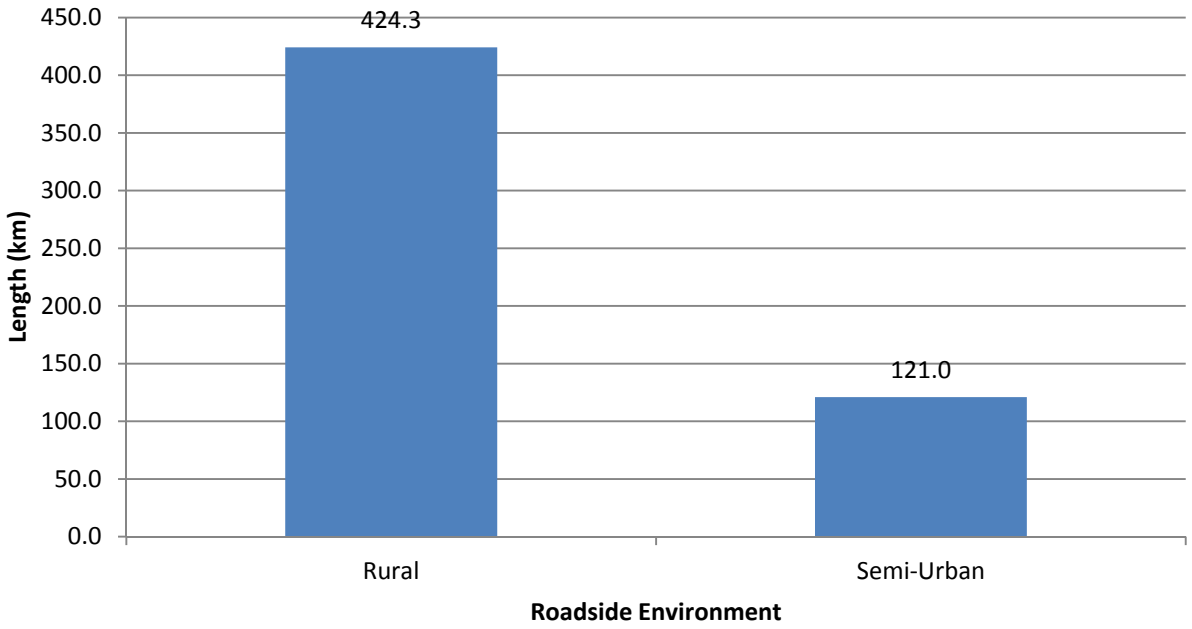


Figure 6 – Road Length by Roadside Environment

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 infrastructure information is 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 Municipality's structure inventory currently consists of 30 bridges, and 9 structural culverts. The structure inventory and condition ratings are based on the Ontario Structure Inspection Manual (OSIM) inspections completed by Exp. Services Inc. in 2011/2012 – the OSIM reports are presented in Appendix C. The chart below provides a breakdown of the total replacement cost of bridge and culvert infrastructure.

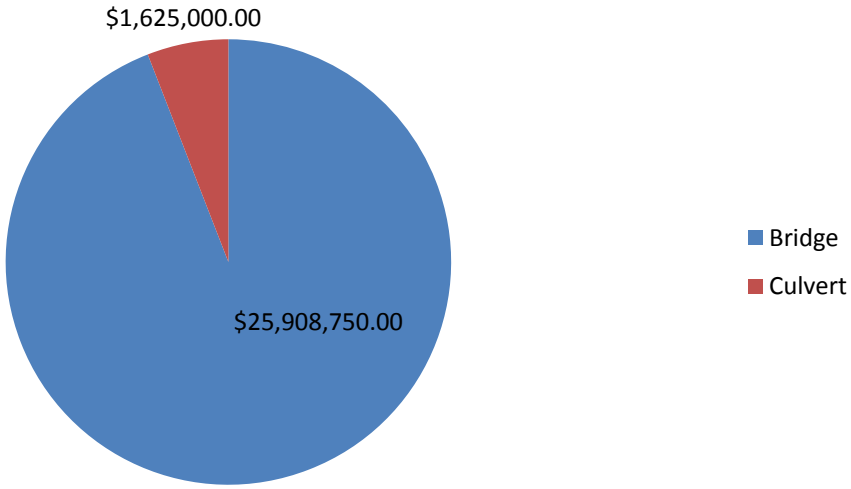


Figure 7 – Structure Replacement Costs (2013 Dollars)

3.2.1 METHOD OF CONDITION EVALUATION

Appraisal of the Municipality's Structures was carried out in 2011-2012, in accordance with procedures outlined in the Ontario Structure Inspection Manual. In general, the structures were divided into the primary structural elements with the dimensions and general condition of each component identified. For components in need of improvement, the needs and associated timing were also reported.

For the purpose of forecasting, each structure has been given a subjective rating of Excellent, Good, Fair or Poor, based on the current condition of the structure. More detailed evaluation notes are included in the OSIM reports provided in Appendix C and must supersede the forecasted ratings. A condition rating greater than Poor is considered acceptable and is expected to require only normal maintenance, with the exception of specific element improvements as may be identified. A condition rating of Poor is considered unacceptable and an improvement or replacement is to be evaluated for cost. Bridge structures were estimated to have a lifespan of 75 years, and culvert structures were estimated to have a lifespan of 50 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

3.2.2 INVENTORY

A summary of the Municipality's structure inventory is presented in the following figures outlining the age and overall condition ratings. The inventory is based on the database provided by the Municipality, supplemented by detail asset information evaluated through the completion of the OSIM inspections. The complete inventory is presented in Appendix A, including all structure elements and assumptions used to arise at the giving ratings and projected costs over the ten year range.

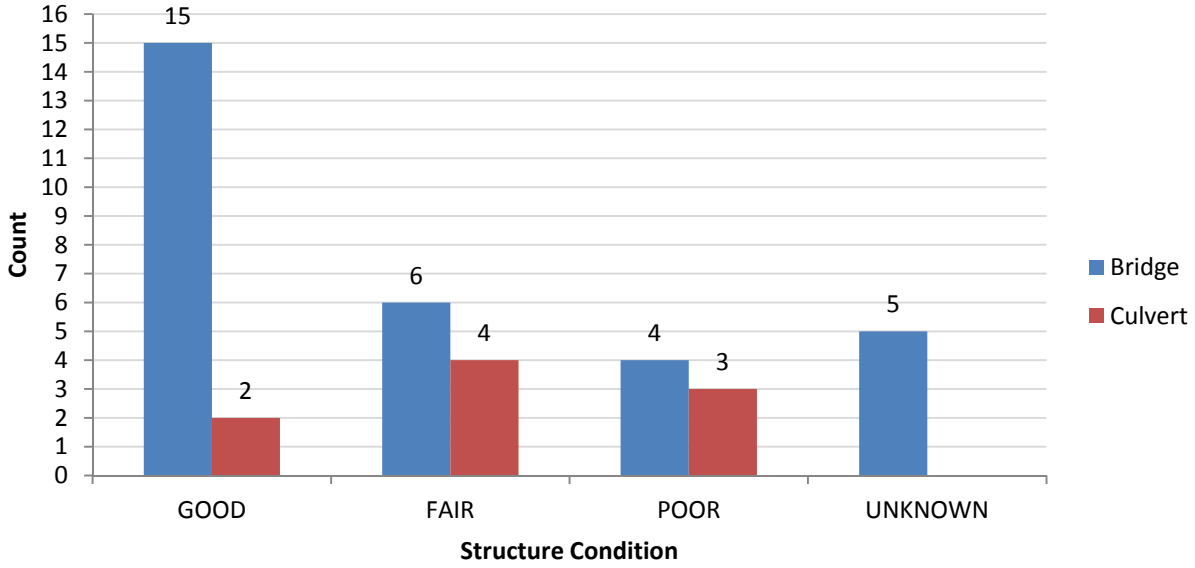


Figure 8 – Condition Rating Summary by Structure Type

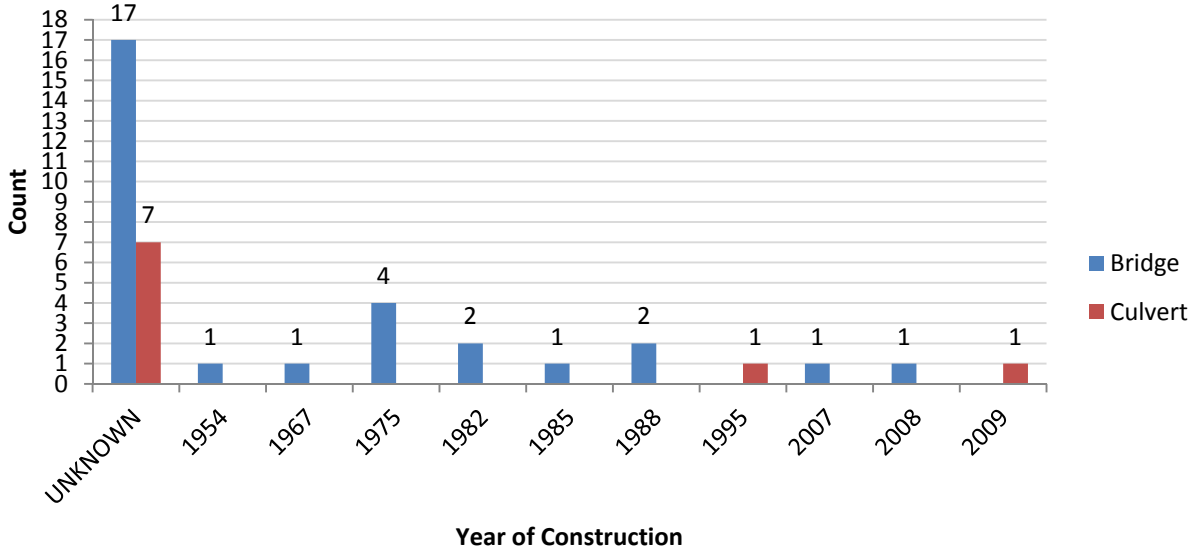


Figure 9 – Year of Construction by Structure Type

3.2.3 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 bridge and culvert infrastructure information is updated. As the OSIM Inspection frequency is currently legislated as once every two calendar years, it is recommended that the legislated frequency, as may be amended, be followed. In addition, it is recommended that the inspections be completed with the currently utilized OSIM Inspection Forms to permit equal comparison of subsequent inspection reports.

3.3 WASTEWATER COLLECTION & TREATMENT

The Municipality provides sanitary sewer collection and treatment services to the Town of Sturgeon Fall's, the Town of Verner, and the community of Field through a combined gravity and force main system discharging to a wastewater treatment plant and sewage lagoons. The sanitary sewage collection system is managed and maintained by Municipal Staff. The chart below provides a breakdown of the total replacement cost of the Municipality's wastewater infrastructure.

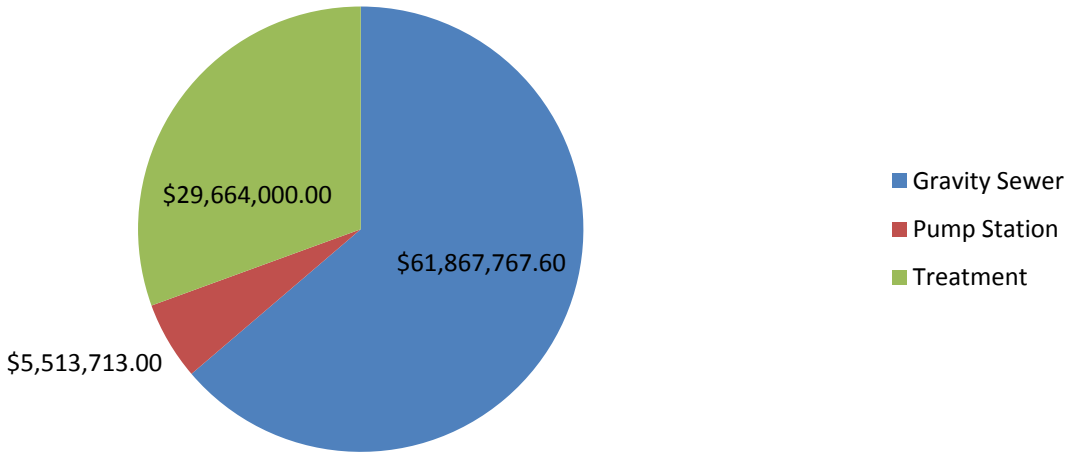


Figure 10 – Wastewater Infrastructure Replacement Costs (2013 Dollars)

3.3.1 METHOD OF CONDITION EVALUATION

The Municipality's sanitary sewer collection and treatment system was evaluated based on the 2012 Water & Sewer capital plan prepared by the Municipality. The system consists of approximately 70km of sewer mains, 26 pump stations, 2 treatment plants, and a lagoon.

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

3.3.2 INVENTORY

A summary of the Municipality's sewer inventory is presented in the following figures outlining the age and overall condition ratings. The inventory is based on the Municipality's records, and supplemented by the Water and Sewer Capital plan which are presented in Appendix E. The complete inventory is presented in Appendix A, including all sewer components and assumptions used to arise at the given ratings and projected costs.

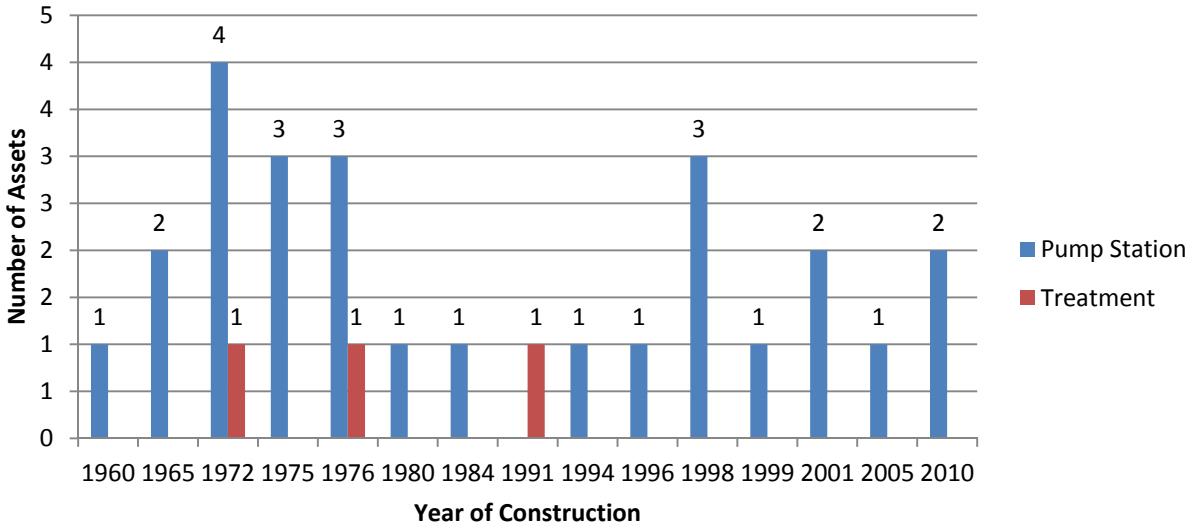


Figure 11 – Wastewater Infrastructure Age Summary

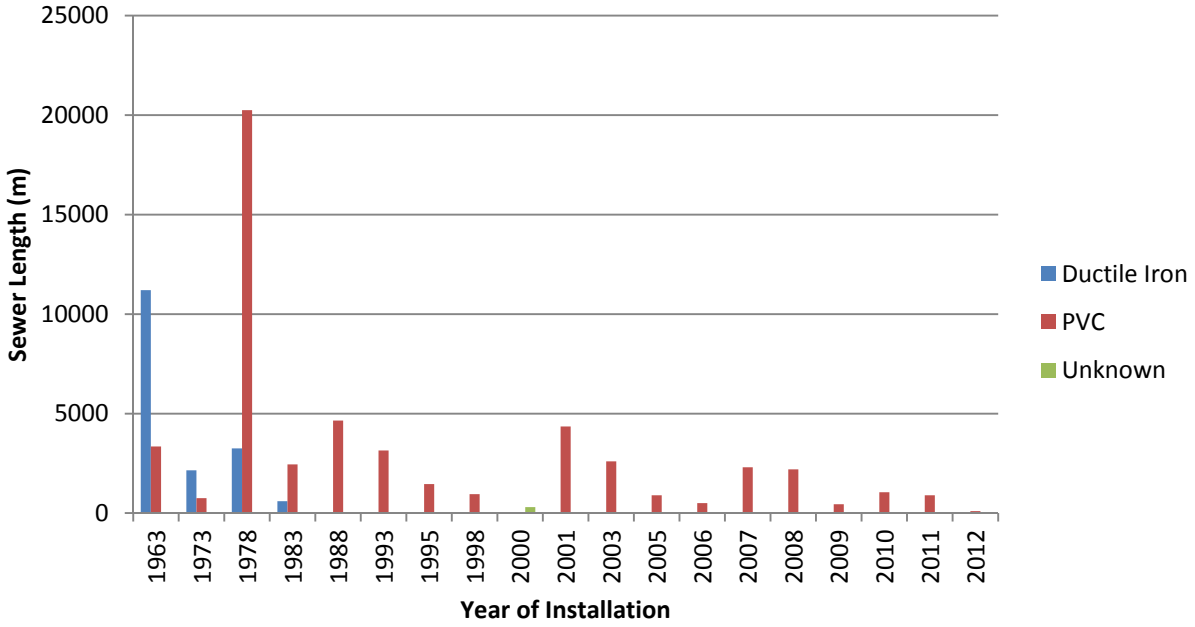


Figure 12 – Sewer Age Summary

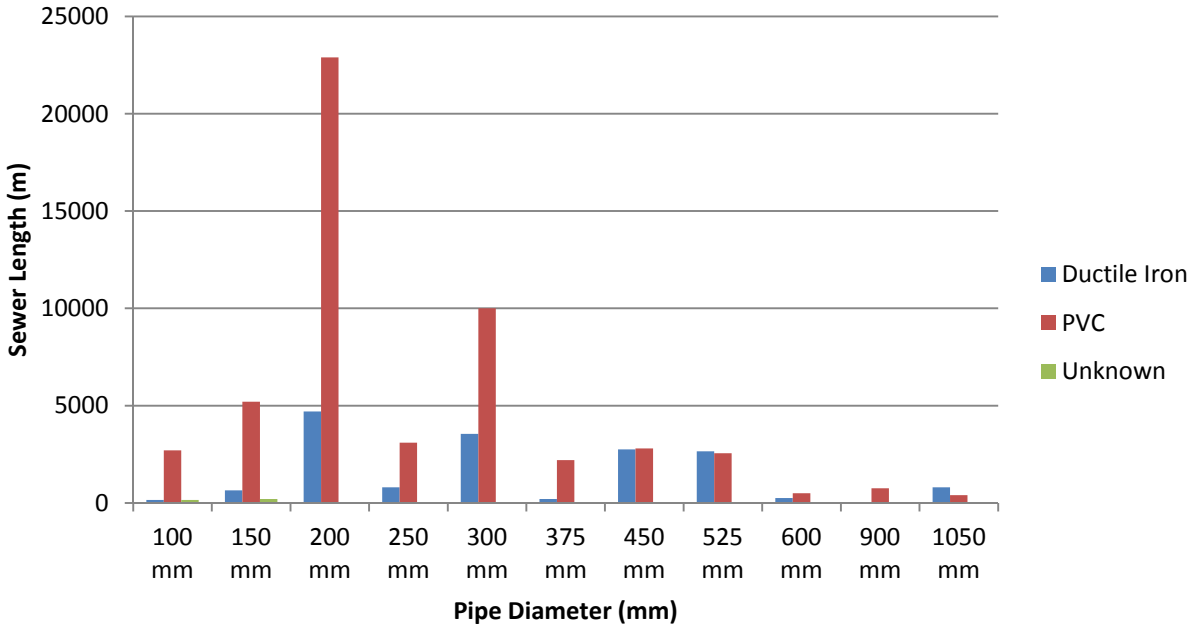


Figure 13 – Sanitary Sewer Length Material Summary

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 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.

3.4 STORM SEWERS

The Municipality provides storm sewer collection services to the Town of Sturgeon Fall's and Verner through a subsurface gravity sewer system, roadside catch basins, as well as surface flow management through open ditches and cross culverts. The system is managed and maintained by Municipal Staff. The chart below provides a breakdown of the total replacement cost of the Municipality's storm sewer infrastructure.

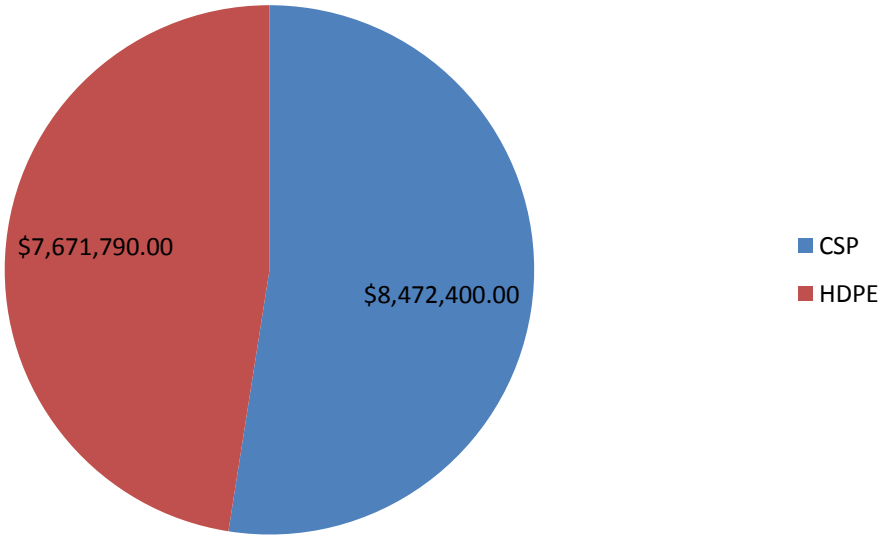


Figure 14 – Storm water Infrastructure Replacement Costs (2013 Dollars)

3.4.1 METHOD OF CONDITION EVALUATION

The storm sewer collection and conveyance system was evaluated based on the inventory and information provided by the Municipality. The system was divided into 114 gravity storm sewer 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 storm sewer asset was given a subjective rating of Excellent, Good, Fair or Poor, based on the current 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 were assigned life expectancy based on construction material. 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 Municipality's storm sewer inventory is presented in the following figures outlining a summary of the quantity of each. The inventory is based on the Municipality's existing inventory and supplemented with the Sewer Maps. The complete inventory is presented in Appendix A, including all sewer components as well as assumptions used to arise at the given ratings and projected costs.

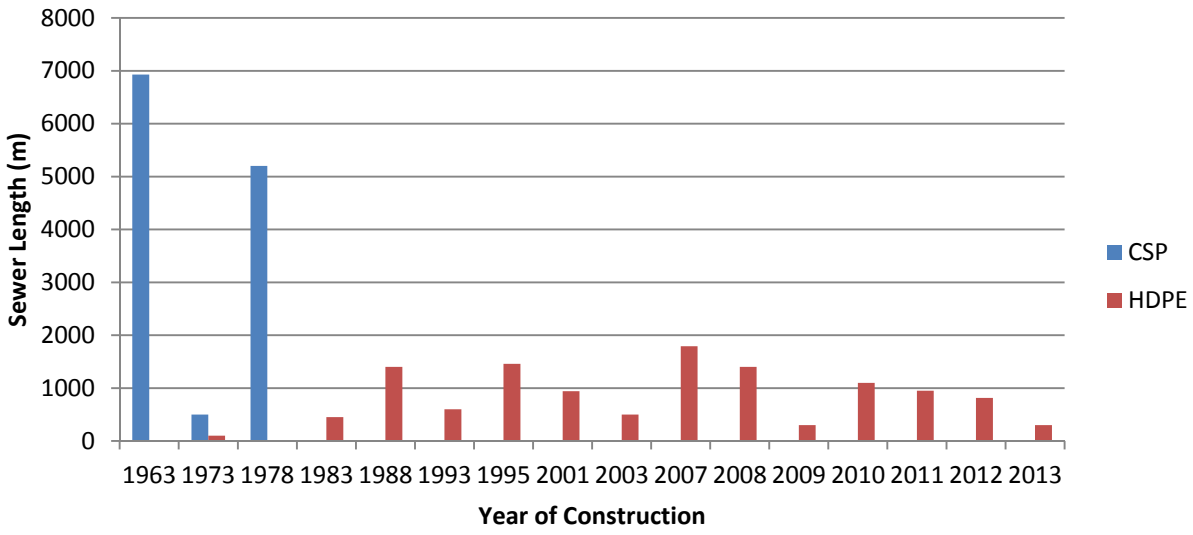


Figure 15 – Storm Sewer Age Summary

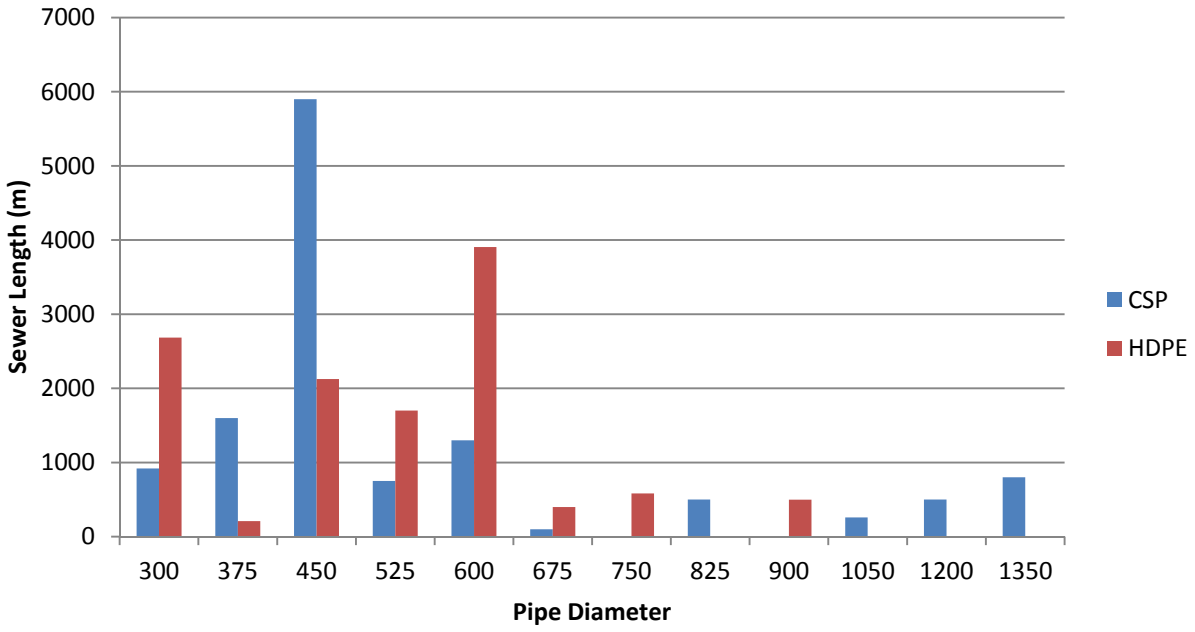


Figure 16 – Storm Sewer Length Material Summary

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 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 flushing and 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 WATER TREATMENT & SUPPLY

The Municipality provides drinking water treatment and distribution services to the Town of Sturgeon Fall's and Verner. The system consists of two treatment facilities, two water storage towers and a water main network approximately 73.5km in length. The water treatment and distribution network is managed and maintained by Municipal Staff. The chart below provides a breakdown of the total replacement cost of the Municipality's water supply infrastructure.

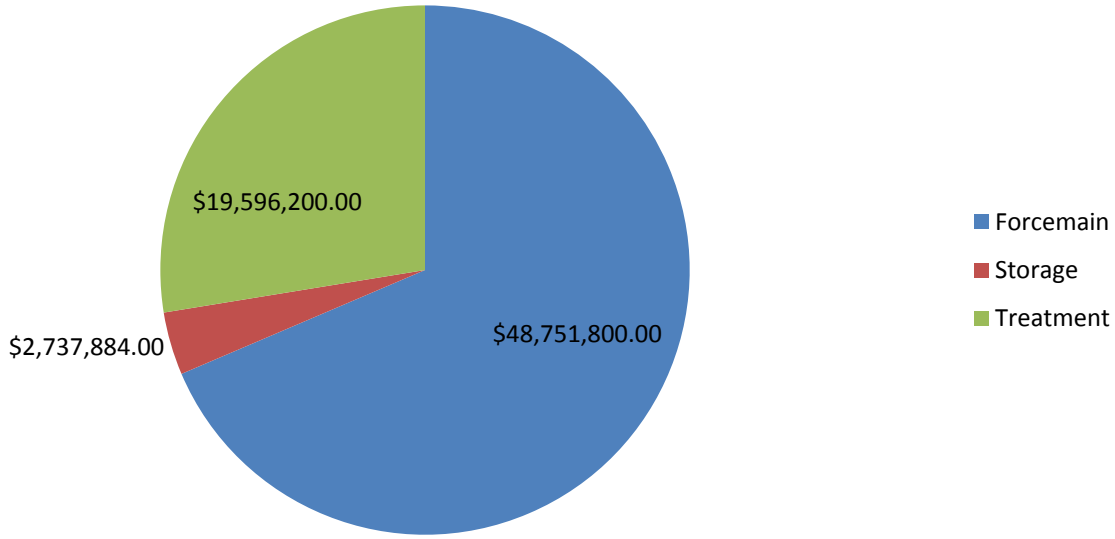


Figure 17 – Water Supply Infrastructure Replacement Costs (2013 Dollars)

3.5.1 METHOD OF CONDITION EVALUATION

The water distribution and treatment system was evaluated based on the inventory and information provided by the Municipality. The system was divided into 217 water main 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. Water main assets were assigned life expectancy based on construction material. Water towers and treatment facilities were all assigned a life expectance 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

3.5.2 INVENTORY

A summary of the Municipality's water supply inventory is presented in the following figures outlining the age and overall condition ratings. The inventory is based on the mapping information provided by the Municipality, and supplemented by the Sewer and Water capital plan, which are presented in Appendix F. The complete inventory is presented in Appendix A, including all water supply components and assumptions used to arise at the given ratings and projected costs.

Figure 18 – Water Supply Infrastructure Age Summary

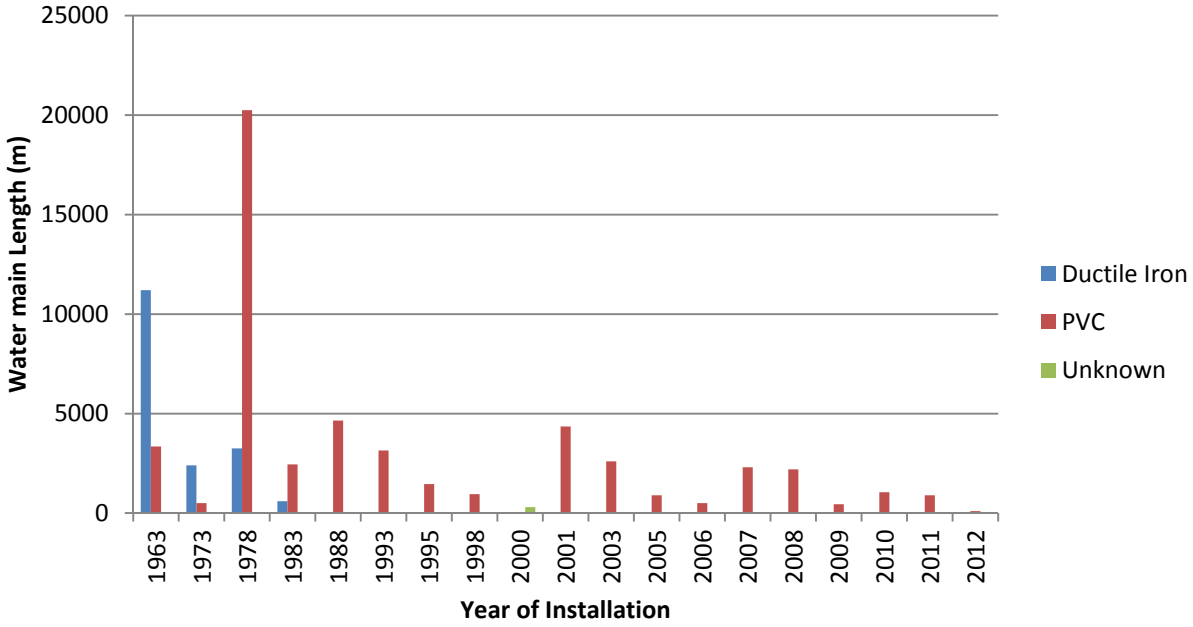


Figure 19 – Water main Age Summary

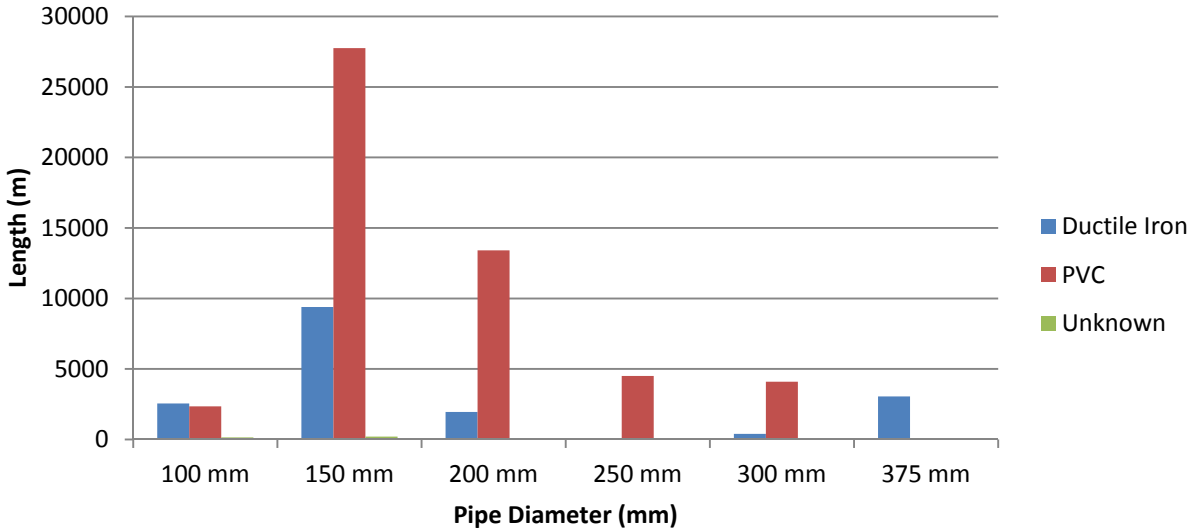


Figure 20 – Water main Length Material Summary

3.5.3 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 water main infrastructure information is updated. It is recommended that the water main inventory is updated to reflect new construction and improvements on an annual basis.

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 Municipality 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.

4.1.1 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 Municipality attempts to achieve a manageable level of risk by completion of condition reviews and prioritization of replacement/improvement projects.

4.1.2 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.

4.2 ROADS

The Municipality has established a target level of service for roads by classifying road segments based on their surface type and estimated traffic volume. The municipal road network has been evaluated by Exp Services Inc. through completion of the 2011 Road Management Plan. 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 (for all surface types), and a rating of 5 or less corresponding to poor condition).

The desired level of service for Municipal roads is to maintain an average condition rating of 6 - 7 for the gravel surfaced roads and 7 – 7.5 for hard surfaced roads. 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 municipality.

The following strategies have been selected 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 the following year.

1. Higher traffic volume roads are given priority over lower traffic volume roads;
2. For surface treated roads: Roads requiring partial depth reconstruction are given priority over full depth reconstruction, since this provides the best value with limited funds available;
3. For asphalt roads, overlay projects provide the best value for dollars spend, followed by partial depth reconstruction, then lastly full depth reconstruction.
4. The municipality has historically applied 10,000 cubic meters of maintenance gravel annually. It was recommended that this volume be increase incrementally over time. With 80% of the Municipality's road assets being gravel roads, the need to maintain and increase the level of service is fundamental.
5. Remaining improvements generally prioritized on the basis of condition rating;

These improvements and repairs were incorporated into the Road Management Plan which project the condition of road segments over the next 10 years. The condition of a road will degrade with time; the rate of degradation is a function of the adequacy of the roads design, the quality of construction, the traffic volume it serves, the maintenance effort it receives and its surface type.

The performance of the road network should be evaluated by completing condition assessments on an annual basis; the actual condition ratings collected year to year 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.

4.3 STRUCTURES

Bridges and structural culverts consist of many different components with varying life expectancies. The overall condition of a bridge is evaluated by completing mandatory biennial (every 2 years) OSIM 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 ratings:

- Excellent;
- Good;
- Fair; and
- Poor;

In general, components of a bridge 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 within a specified timeframe.

The desired level of service for municipal bridges has been established through review of the current OSIM inspection data. The target level of service for Municipal bridges is to maintain all bridges such that they do not require a load limit posting, and that the structure capacity is sufficiently serving the associated road traffic volume. This should be achieved by continuing to complete rehabilitation and repair recommendations outlined in the OSIM inspection within the suggested timeframes. Additionally, the performance measures can be cross checked against the effectiveness measure used in the Financial Information Returns for Adequacy of Bridges and Culverts.

Condition ratings over the next ten (10) years have been forecasted by making the following assumptions;

- 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;

It should be noted that the results of the biennial inspections should be compared with the forecasted condition of the structure and should supersede the forecasted condition in all cases. Currently, several structures require repair and a total of four are scheduled for full replacement in the next five years. All rehabilitations and repairs shall be completed in accordance with the current Canadian Highway Bridge Design Code.

4.4 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.

At this time, the Municipal wastewater collection system services the immediate areas of Sturgeon Fall's, Cache Bay, and Verner. The Municipality will continue to maintain the system with the allowance of connecting to the existing system from vacant properties. Due to the low population density outside the limits of these areas, there are no plans in the immediate future to expand the system.

The primary focus of the Municipality 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 sewer collapse over a specified period of time. The desired target is to have no sewage back-ups and no pipe failures– indicating that the system is operating and being maintained effectively. This is currently the process applied in in the Financial Information Returns for Adequacy of Wastewater System as well.

The municipality does currently keep records of the number of back-ups. The target performance level for sanitary sewers is to limit pipe failures to an average of 6 per year. Confirming achievement of this level of service will require the Municipality to compare 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.

4.5 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 or ditch 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 Municipality 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 systems are constructed of a variety of different pipe materials. The lifespan of older corrugated steel pipes is relatively short, in comparison to plastic. As a result it is anticipated that the older portions of the storm sewer system will require major repairs over the next 10-years in order to maintain the desired level of service. These repairs and replacements shall be completed in accordance with the MOE Guidelines for Sewage Works.

The primary focus of the Municipality 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 pipe failures, and drainage problems. The desired target is to have no failures or floods – indicating that the systems are operating and being maintained effectively.

The municipality does currently keep records of the number of failures and floods. The target performance level for storm sewers is to limit pipe failures to an average of 6 per year. Confirming achievement of this level of service will require the Municipality to compare records and review them on an annual basis as a minimum.

4.6 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.

At this time, the Municipal drinking water treatment and supply system services the immediate areas of Sturgeon Fall's, Cache Bay, and Verner. The Municipality will continue to maintain the system with the allowance of connecting to the existing system from vacant properties. Due to the low population density outside the limits of these areas, there are no plans in the immediate future to expand the system.

The primary focus of the Municipality 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 water main 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 municipality 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 6 per year with zero boil water advisories. Confirming achievement of this level of service will require the Municipality 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.

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 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.

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:

- Crack Sealing of HCB Roads;
- Right-of-way brushing;
- Ditch Cleanout;
- Culvert cleanout/flushing;

The completion of capital projects will continue to follow the existing Roads Management Plan.

Integrated infrastructure planning was considered, as reflected in the prioritizing of projects shown in the later sections of this report. The condition of the infrastructure beneath the road surface (sewers and water mains) was reviewed to ensure that a road was not resurfaced, without prior completion of any required improvements to the corresponding subsurface infrastructure.

5.1.2 STRUCTURES

As with all assets, bridges and structural culverts require regular maintenance activities such as sweeping and pressure washing to clear winter sand buildup, painting, as well as debris removal to ensure proper flow hydraulics to minimize erosion and scouring potential.

Renewal and rehabilitation activities of bridge and structural culverts are carried out in accordance with the OSIM Inspections Forms, completed by or under the direction of a Professional Engineer on a biennial basis. These activities are typically evaluated by the Professional Engineer at the time to ensure the costs are economical.

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

- Annual spring bridge cleaning (deck, deck drains, curbs, bearings);
- Monthly removal of debris from waterway;
- Removal of corrosion from exposed steel surfaces;
- Priming/painting/coating of steel;

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 – Appendix A, when replacement is considered, the replacement asset does not need to be identical to the existing asset, such as replacing a single lane concrete bridge with a double lane structural culvert. An increase in level of service should always be considered at the time of replacement.

5.1.3 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 7000 metres of sanitary sewer mains;

- Suggested annual camera inspection of 7000 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 reflected in the Capital Asset Summary with the subsurface assets being scheduled for replacement prior to road resurfacing. Completing the sewer replacement concurrently with the storm sewer, water main, and road resurfacing would result in overall costs being less than replacing separately.

5.1.4 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 2400 metres of storm sewer mains and leads;
- Suggested annual cleaning of associated storm sewer structures, catch basins, ditch inlets, and manholes;
- Suggested annual camera inspection of 2400 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 reflected in the Capital Asset Summary with the subsurface assets being scheduled for replacement prior to road resurfacing. Completing the storm sewer replacement concurrently with the sanitary sewer and road resurfacing would result in overall costs being less than replacing separately.

5.1.5 WATER TREATMENT & SUPPLY

Water mains require regular maintenance activities to limit the likelihood of breaks and failures. Rehabilitation options for water mains 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 reflected in the Capital Asset Summary with the subsurface assets being scheduled for replacement prior to road resurfacing. Completing the storm sewer replacement concurrently with the sanitary sewer and road resurfacing would result in overall costs being less than replacing separately.

5.2 RISK ASSESSMENT

All assets carry a level of risk for the Municipality. 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 Municipality 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 municipality. This approach would be applicable to road resurfacing projects which are short duration and easily divisible by municipality.

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 found in Appendix A.

5.4.1 ROADS

Road priorities have been outlined according to the Roads Management Plan completed in 2011 by Exp. Services. The following are the major road projects to be undertaken in conjunction with other integrated infrastructure (sanitary, storm, water).

Year	Asset ID	Asset Name
2014	1382	Holditch Street (William to John)
	1382	Holditch Street (Front to William)
	N/A	Front Street (Coursol to Michaud)
	N/A	Front Street (Holditch to West of Ottawa)
2017	1390	Michaud Street (Bourgault to John)
2018	1383	King Street (Market to Ethel)
	1383	King Street (Front to Market)
2019	1395	Queen Street (River to Holditch)
	1395	River Street (Queen to John)
2020	13106	Ethel Street (King to Nipissing)
	1384	Main Street (Market to Ethel)
2021	1322	Salter Street (Nipissing to Levesque)
	1375	Montreal Street (Abitibi to Birdge)
	1371	Abitibi Street (Ottawa to Montreal)
2022	13146	Belanger Street (Third to Salter)
2023	1387	Nipissing Street (Front to Ethel)

** Note – The availability of funding will determine the extent of the reconstruction on these roads.

5.4.2 STRUCTURES

Structure priorities have been outlined according to the recommendations provided in the OSIM inspections completed in 2011/12. In addition to the projects highlighted below, regular maintenance and small rehabilitation projects will take place on several structures.

Year	Asset ID	Asset Name
2014	WN – BR – 009	Old Highway 17 Bridge
2015	WN – BR – 002	Duck Creek Road Bridge
	WN – BR – 025	Pine Poultry Road Bridge
2016	WN – CVT – 104	Millrand Road Culvert
	WN – BR – 018	Millrand Road Bridge

5.4.3 WASTEWATER COLLECTION & TREATMENT

Wastewater collection and treatment priorities have been outlined according to the water and sewer capital plan prepared by the Municipality.

Year	Asset ID	Asset Name
2014	1379	Holditch Street (Front to John)
	WN – WW – 236	Field Sewage Treatment Plant
2015	WN – WW – 235	Verner Lagoon Expansion
2017	WN – WW – 087	Michaud Street (Bourgault to John)
2018	WN – WW – 096	King Street (Market to Ethel)
	WN – WW – 097	King Street (Front to Market)
2019	WN – WW – 075	Queen Street (River to Holditch)
	WN – WW – 102	River Street (Queen to John)
2020	WN – WW – 062	Ethel Street (King to Nipissing)
	WN – WW – 094	Main Street (Market to Ethel)
2021	WN – WW – 139	Salter Street (Nipissing to Levesque)
	WN – WW – 113	Montreal Street (Abitibi to Bridge)
	WN – WW – 119	Abitibi Street (Ottawa to Montreal)
2022	WN – WW – 018	Belanger Street (Third to Salter)
2023	WN – WW – 140	Nipissing Street (Front to Ethel)

5.4.4 STORM SEWER

Year	Asset ID	Asset Name
2014	WN – ST – 061	Holditch Street (William to John)
	WN – ST – 062	Holditch Street (Front to William)
2017	WN – ST – 052	Michaud Street (Bourgault to John)
2019	WN – ST – 045	Queen Street (River to Holditch)
2020	WN – ST – 036	Ethel Street (King to Nipissing)
	WN – ST – 059	Main Street (Market to Ethel)
2021	WN – ST – 082	Salter Street (Nipissing to Levesque)
2022	WN – ST – 017	Belanger Street (Third to Salter)

5.4.5 WATER TREATMENT & SUPPLY

Water treatment and supply priorities have been outlined according to the water and sewer capital plan prepared by the Municipality.

Year	Asset ID	Asset Name
2014	WN – WAT – 110	Holditch Street (William to John)
	WN – WAT – 111	Holditch Street (Front to William)
2017	WN – WAT – 097	Michaud Street (Bourgault to John)
2018	WN – WAT – 106	King Street (Market to Ethel)
	WN – WAT – 107	King Street (Front to Market)
2019	WN – WAT – 085	Queen Street (River to Holditch)
	WN – WAT – 112	River Street (Queen to John)
2020	WN – WAT – 070	Ethel Street (King to Nipissing)
	WN – WAT – 104	Main Street (Market to Ethel)
2021	WN – WAT – 121	Montreal Street (Abitibi to Bridge)
	WN – WAT – 125	Abitibi Street (Ottawa to Montreal)

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 details 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 Municipality'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, and facilities were estimated using recent purchase prices and construction costs for major components (buildings, and bridges).

The total replacement cost of the Municipality's assets was calculated to be approximately $ 280.3 million dollars (2013 Dollars). A breakdown of the total replacement costs is provided in the schematic below.

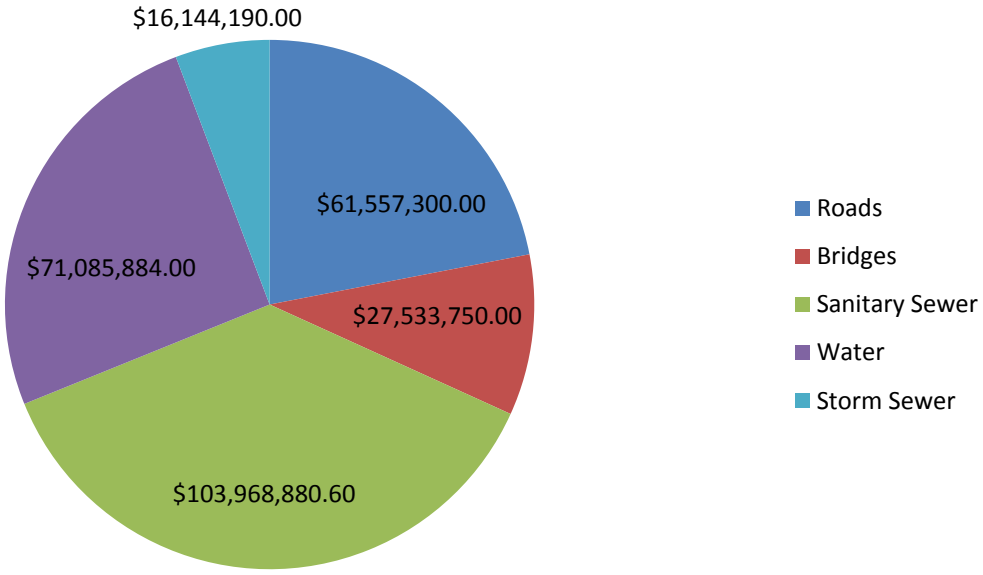


Figure 21 – 2013 Asset Replacement Costs ($ 280.3 M)

The Municipality 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.

Required reinvestment levels were calculated to be an average of $ 3.5 million per year over the next ten years into improvement projects as assets reach their maximum potential useful lives. It is recommended that an additional $ 5.0 million per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Historically, the Municipality has been investing approximately $ 3.3 million per year into the renewal and replacement of infrastructure. 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	Now	Future
Municipal Funds	$ 361,447.00	$ 1,002,880.00	$ 721,052.00	$ 844,540.00	$ 825,000.00
Grants	$ 2,798,780.00	$ 1,939,687.00	$ 1,856,118.00	$ 1,245,868.00	$ 2,144,800.00
User Fee's	-	$ 664,073.00	$ 442,697.00	$ 608,592.00	$ 905,000.00
Debentures	$ 162,500.00	-	-	-	-
TOTAL	**$ 3,322,736.00**	**$ 3,606,640**	**$ 3,019,867.00**	**$ 2,699,000.00**	**$ 3,874,800.00**

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.

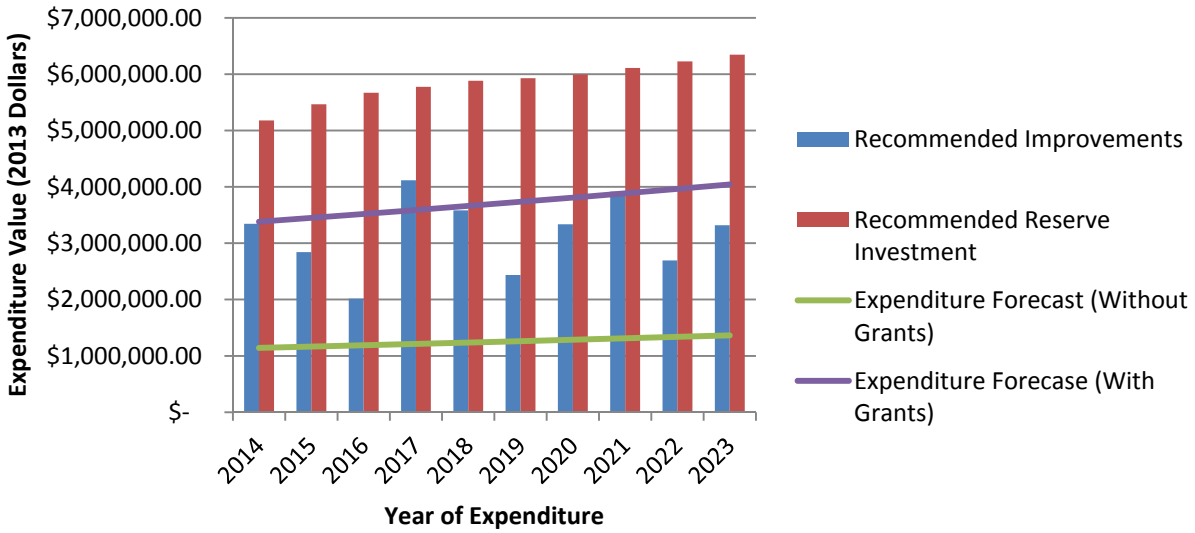


Figure 22 – Municipal Assets – 10 Year Capital Expenditures & Reserve Contributions

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 1.14 Million/year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 3.38 Million/year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 8.52 Million/year
- Expected Shortfall (2014) → $ 5.14 Million/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 Municipality'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 account for an assumed inflation rate of 2% 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 municipality'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 $ 1.77 million per year to resurface and reconstruct road infrastructure. It is recommended that an additional $ 1.54 million per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan.

Historically, the Municipality has been investing approximately $ 2.34 million annually into the renewal and replacement of infrastructure. 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	Now	Future
Municipal Funds	$ 319,894.00	$ 969,145.00	$ 509,634.00	$ 767,040.00	$ 744,000.00
Grants	$ 1,812,474.00	$ 1,828,540.00	$ 1,585,122.00	$ 1,185,753.00	$ 835,000.00
User Fee's	-	-	-	-	-
Debentures	-	-	-	-	-
TOTAL	**$ 2,132,368.00**	**$ 2,797,685.00**	**$ 2,094,756.00**	**$ 1,952,793.00**	**$ 1,579,000.00**

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.

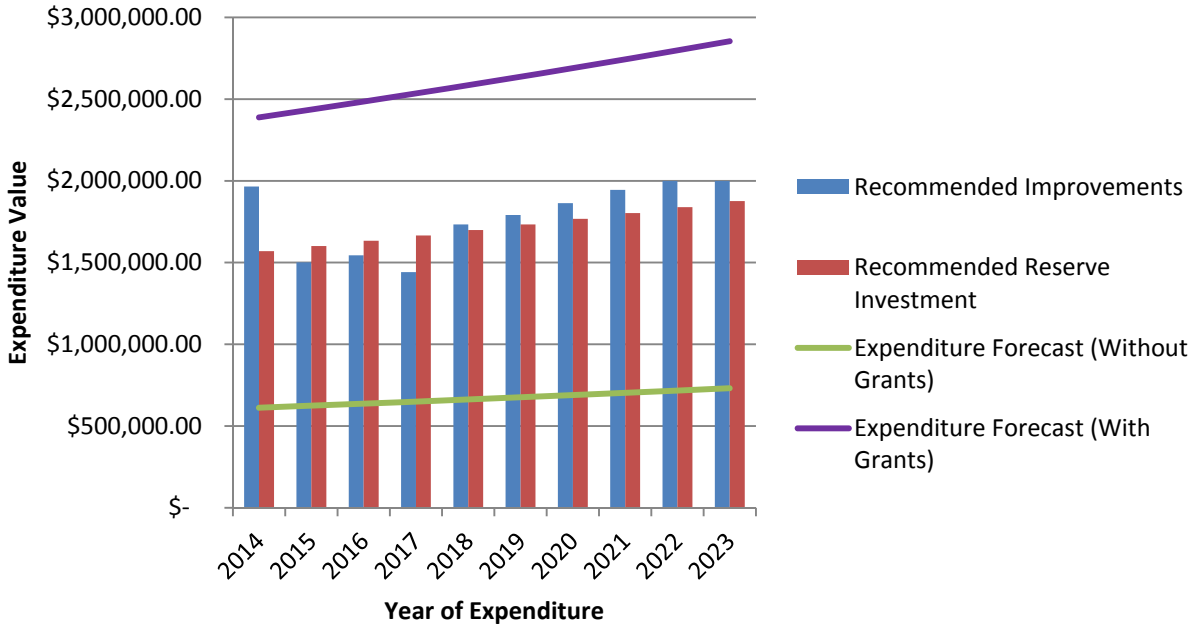


Figure 23– Road Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 611,500.00/year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 2.34 Million/year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 3.53 Million/year
- Expected Shortfall (2014) → $ 1.19 Million/year

A commitment by the Municipality 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 Municipality 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

Reinvestment in the municipality's bridges and culverts is a required expenditure to maintain their structural integrity for the future. It was determined that several large capital projects need to take place over the next ten years to replace bridge and culvert assets reach their maximum potential useful lives. Required reinvestment levels for scheduled improvements were calculated to be an average of $ 210,000.00 per year. It is recommended that an additional $ 377,000.00 per year be put aside into a reserve fund for long term planning purposes, beyond the 10-year plan. It is also recommended that an annual maintenance budget of approximately $ 60,000.00 be established for municipal staff to complete minor works to prolong the life of the structures.

Over the past three years, the Municipality has invested approximately $ 283,468.00 annually into capital bridge and culvert projects. The table below details the source and value of all funds contributing to these capital projects.

Source					
	2010	2011	2012	Now	Future
Municipal Funds	$ 34,927.00	$ 33,735.00	$ 211,418.00	$ 77,500.00	$ 81,000.00
Grants	$ 188,181.00	$ 111,147.00	$ 270,996.00	-	-
User Fee's	-	-	-	-	-
Debentures	-	-	-	-	-
TOTAL	**$ 223,108.00**	**$ 144,882.00**	**$ 482,414.00**	**$ 77,500.00**	**$ 81,000.00**

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 bridge and culvert infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

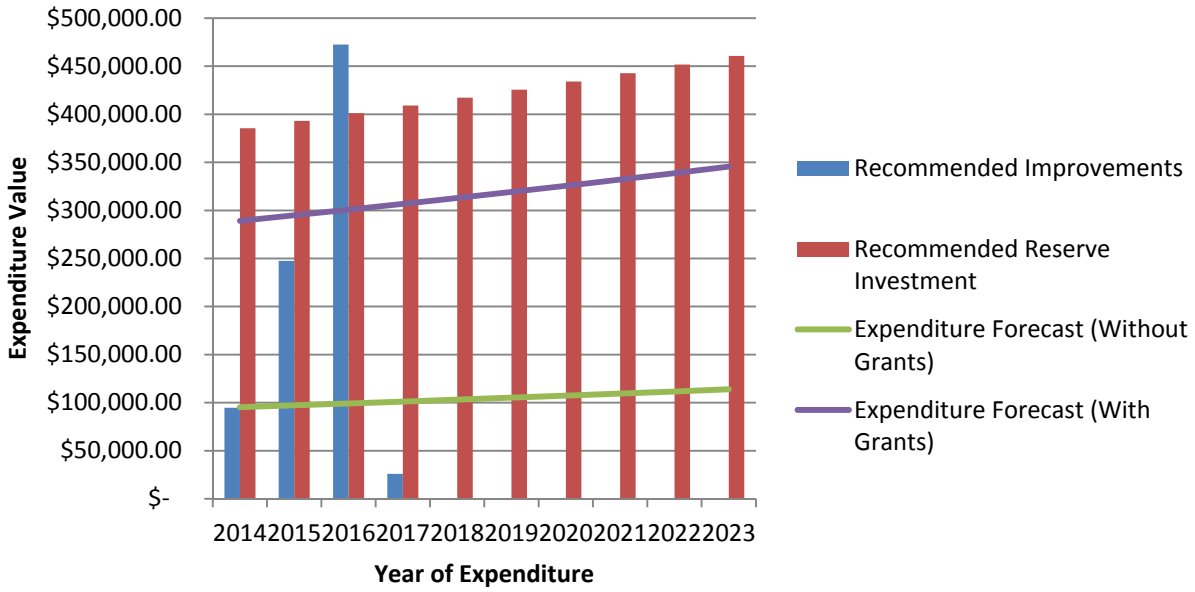


Figure 24 – Bridge and Culvert Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 95,227.00/year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 289,137.36/year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 480,000.00/year
- Expected Shortfall (2014) → $ 191,000.00/year

6.3 WASTEWATER COLLECTION & TREATMENT

Reinvestment in the municipality's wastewater collection and treatment infrastructure is a required expenditure to maintain operation integrity for the future. It was determined that several large capital projects need to take place over the next ten years to replace and upgrade aging infrastructure assets. Required reinvestment levels for scheduled improvements were calculated to be an average of $ 210,000.00 per year. It is recommended that an additional $ 1.5 million 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 Municipality has invested approximately $ 336,000.00 annually into capital wastewater infrastructure projects. The table below details the source and value of all funds contributing to these capital projects.

Source					
	2010	2011	2012	Now	Future
Municipal Funds	-	-	-	-	-
Grants	$ 421,596.00	-	-	-	$ 1,144,800.00
User Fee's	-	$ 249,068.00	$ 175,278.00	$ 256,720.00	$ 657,500.00
Debentures	$ 162,500.00	-	-	-	-
TOTAL	**$ 584,096.00**	**$ 249,068.00**	**$ 175,278.00**	**$ 256,720.00**	**$ 1,802,300.00**

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.

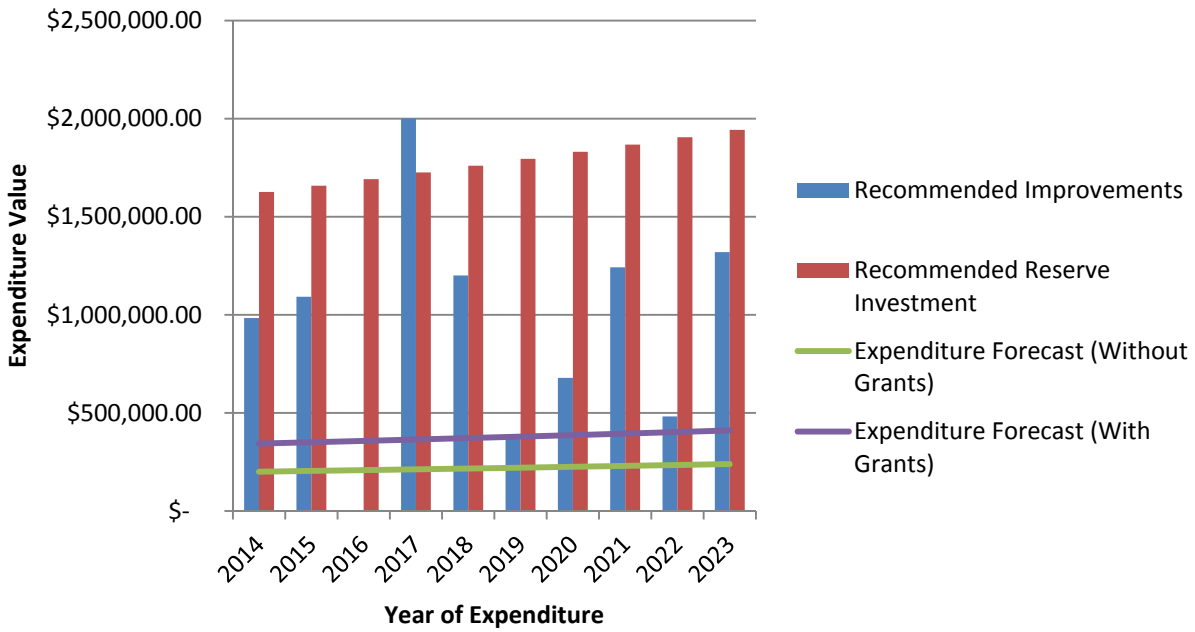


Figure 25 – Wastewater Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 199,527.00/year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 342,869.00/year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 2.61 Million/year
- Expected Shortfall (2014) → $ 2.27 Million/year

6.4 STORM SEWERS

Reinvestment in the municipality's storm sewer infrastructure is a required expenditure to maintain operation integrity for the future. It was determined that several large capital projects need to take place over the next ten years to replace and upgrade aging infrastructure assets. Required reinvestment levels for scheduled improvements were calculated to be an average of $ 170,173.00 per year. It is recommended that an additional $ 450,000.00 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 Municipality has invested approximately $ 34,192.00 into capital storm sewer infrastructure projects. The table below details the source and value of all funds contributing to these capital projects.

Source					
	2010	2011	2012	Now	Future
Municipal Funds	$ 6,626.00	-	-	-	-
Grants	$ 95,952.00	-	-	$ 60,115.00	$ 165,000.00
User Fee's		-	-	-	-
Debentures		-	-	-	-
TOTAL	**$ 102,578.00**	**-**	**-**	**$ 60,115.00**	**$ 165,000.00**

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.

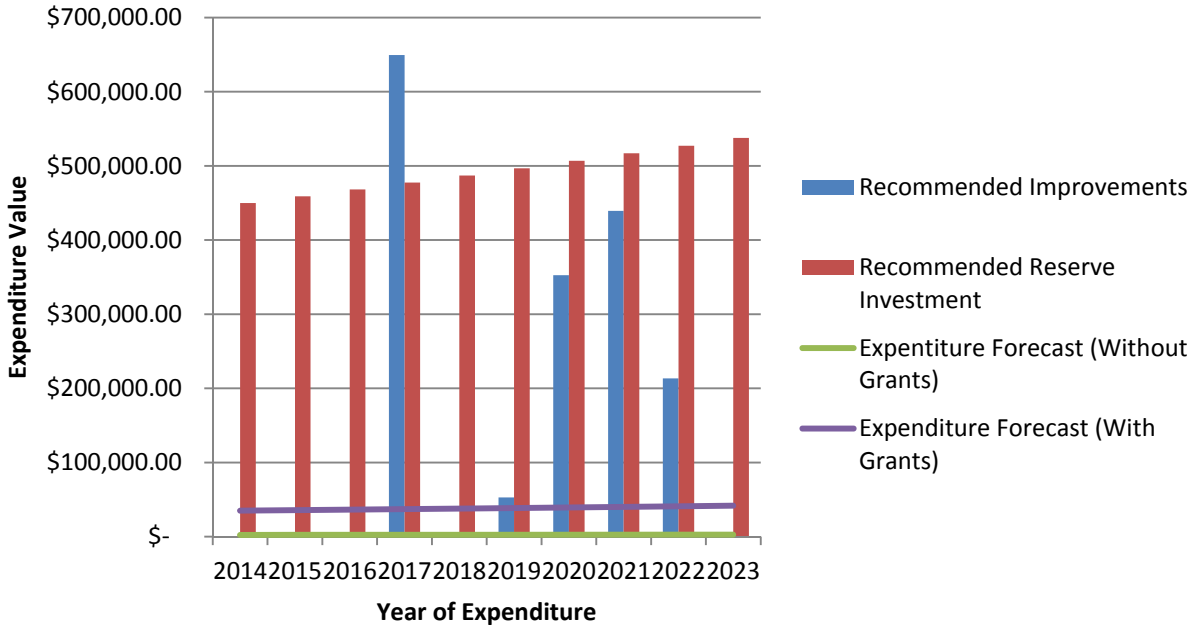


Figure 26 – Storm Sewer Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 2,250.00 /year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 34,875.00 /year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 450,000.00 /year
- Expected Shortfall (2014) → $ 415,000.00 /year

6.5 WATER TREATMENT & SUPPLY

Reinvestment in the municipality's water infrastructure is a required expenditure to maintain operation integrity for the future. It was determined that several large capital projects need to take place over the next ten years to replace and upgrade aging infrastructure assets. Required reinvestment levels for scheduled improvements were calculated to be an average of $ 189,348.00 per year. It is recommended that an additional $ 1.08 million 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 Municipality has invested approximately $ 321,000.00 into capital water treatment and supply infrastructure projects. The table below details the source and value of all funds contributing to these capital projects.

Source					
	2010	2011	2012	Now	Future
Municipal Funds	-				
Grants	$ 280,586.00				
User Fee's	-	$ 415,005.00	$ 267,419.00	$ 351,872.00	$ 247,500.00
Debentures	-				
TOTAL	**$ 280,586.00**	**$ 415,005.00**	**$ 267,419.00**	**$ 351,872.00**	**$ 247,500.00**

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 water treatment and supply infrastructure for the 10-year period of 2014 through 2023 as well as the anticipated shortfall in required spending for this asset type.

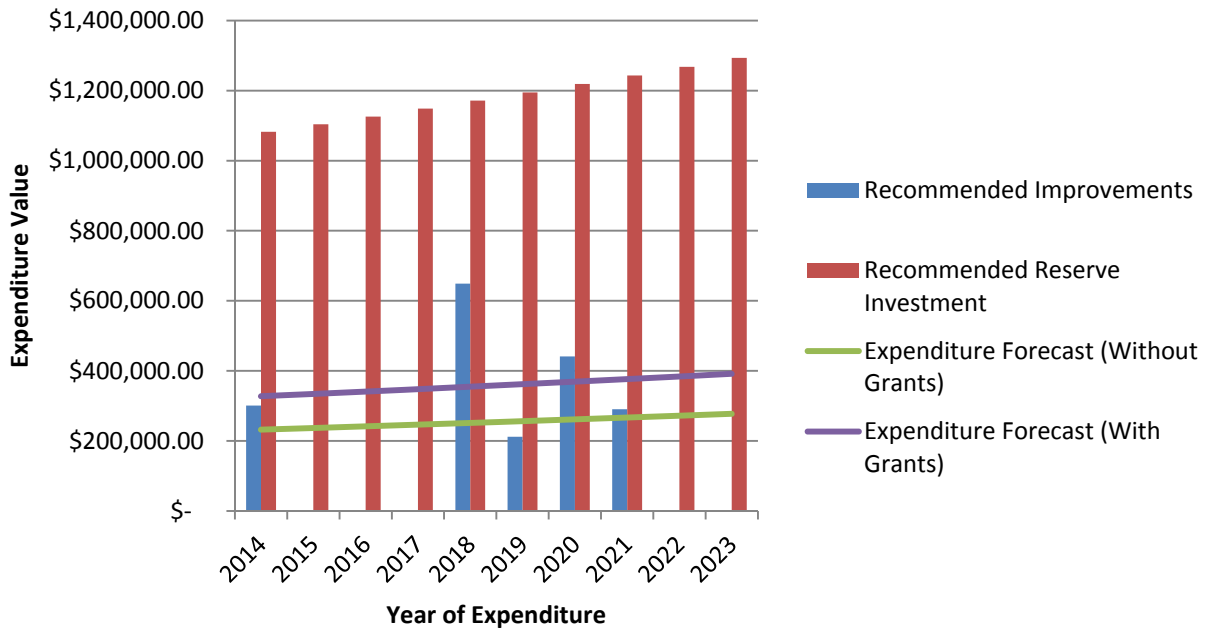


Figure 27 – Water Treatment & Supply Infrastructure – 10 Year Capital Expenditures

The figure above can be described as:

- *Expenditure Forecast Without Grants (2014) → $ 232,023.00 /year*
  Projection of the average spent over the past three years, without accounting for government grants.
- *Expenditure Forecast With Grants (2014)* → $ 327,423.00 /year
  Projection of the average spent over the past three years, including government grants.
- Total Recommended Investment (2014) → $ 1.27 Million /year
- Expected Shortfall (2014) → $ 944,311.00 /year

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 Municipality 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 Municipality to find additional funds from various sources however overall the outlook for municipal infrastructure is promising. The municipality has maintained infrastructure in a manner that has controlled the backlog of projects to a minimum. Continued contribution of municipal funds, as well as contributions from Government grants into capital projects will help ensure the sustainability of the Municipality's infrastructure assets for years to come.

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