culverts appear to be at the end of their service life and therefore, a Poor condition rating was generated. Corrugated PVC and corrugated HDP culverts have been assigned an Ideal Service Life of 50 years.

Culvert replacement is typically undertaken during road improvement projects or when they are showing signs of failure or have failed. The Township should continue to follow this practice but monitor their performance as part of regular Public Works and Roads operations and maintenance programs. Special attention should be placed on monitoring the condition of larger storm culverts.

**Exhibit 22 – Percentage of Installed Pipe Material**

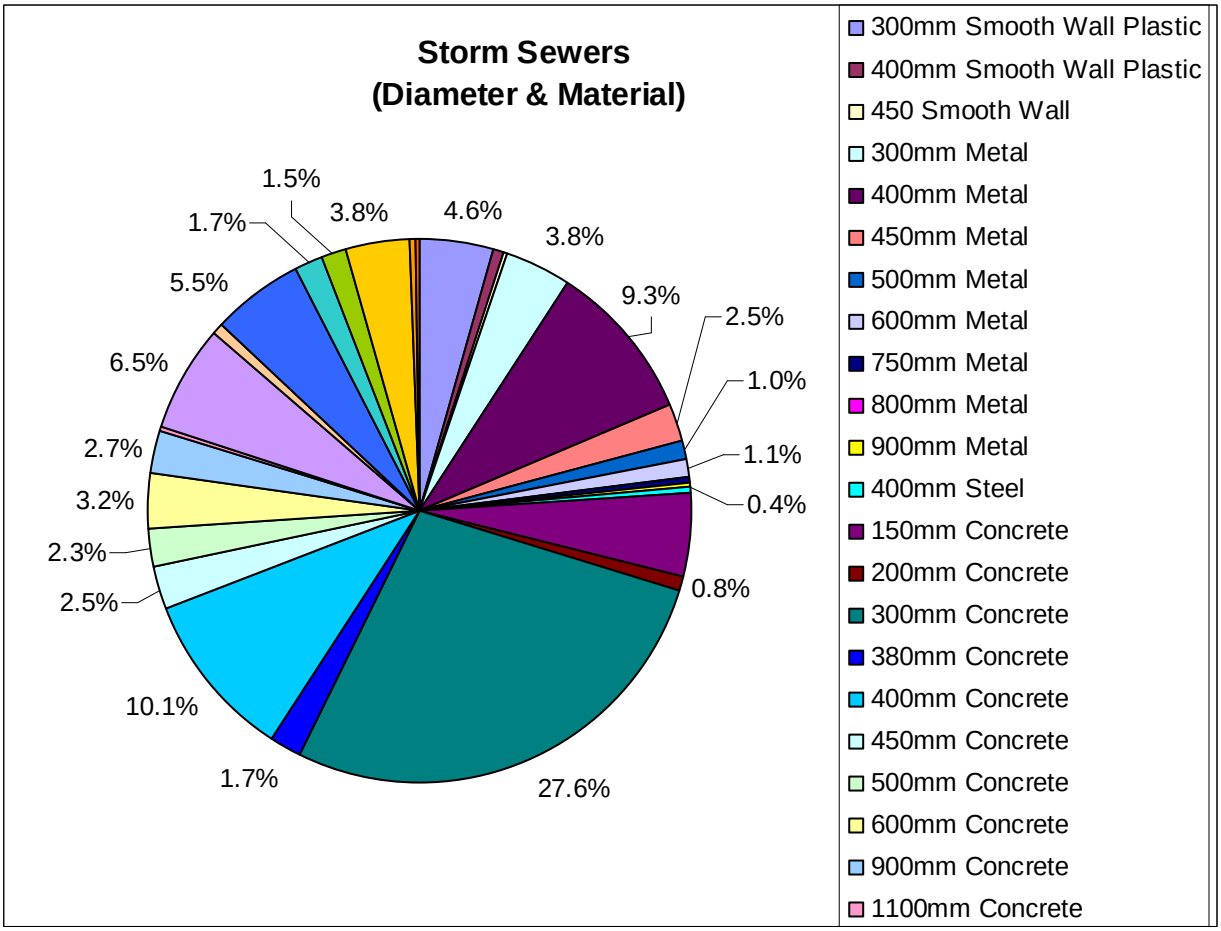


**Exhibit 23 – Current and Replacement Valuation of Storm Sewer System**

| Asset | Current Valuation Total | Replacement Valuation Total |
|---|---|---|
| Storm Sewers | $483,821.00 | $3,445,622.30 |
| Storm Maintenance Holes (1200 mm dia.) | $130,117.00 | $2,238,020.00 |
| Catch Basins | $ 173,849.00 | $ 837,090.00 |
| Urban Culverts | $ 16,423.00* | $ 413,977.00 |
| Driveway Culverts (300 mm dia.) | $0.00* | $ 426,240.00 |
| Rural Culverts (500 mm dia.) | $0.00* | $1,645,770.00 |
| **TOTAL** | **$804,210.00** | **$9,006,719.30** |

***** Based on incomplete data, see Section 4.3 - Storm System Report Card

**Exhibit 24 – Asset Unit Rates Use for Calculation of Replacement Valuation**

| Asset | Unit Rate |
|---|---|
| Storm Sewers | (see below) |
| Storm Maintenance Holes (1200 mm dia.) | $3,530.00/ea |
| Catch Basins | $2,130.00/ea |
| Urban Culverts | (see below) |
| Driveway Culverts (300 mm dia.) | $ 120.00/m |
| Rural Culverts (500 mm dia.) | $ 170.00/m |

| STORM SEWER | |
|---|---|
| **Material** | **Unit Rate** |
| 300 mm Smooth Wall Plastic | $190.00/m |
| 400 mm Smooth Wall Plastic | $240.00/m |
| 450 mm Smooth Wall | $290.00/m |
| 300 mm Metal | $120.00/m |
| 400 mm Metal | $170.00/m |
| 450 mm Metal | $170.00/m |
| 500 mm Metal | $160.00/m |
| 600 mm Metal | $190.00/m |
| 750 mm Metal | $240.00/m |
| 800 mm Metal | $300.00/m |
| 900 mm Metal | $300.00/m |

| STORM SEWER | |
|---|---|
| **Material** | **Unit Rate** |
| 400 mm Steel | $170.00/m |
| 150 mm Concrete | $110.00/m |
| 200 mm Concrete | $220.00/m |
| 300 mm Concrete | $230.00/m |
| 380 mm Concrete | $240.00/m |
| 400 mm Concrete | $320.00/m |
| 450 mm Concrete | $320.00/m |
| 500 mm Concrete | $350.00/m |
| 600 mm Concrete | $380.00/m |
| 900 mm Concrete | $550.00/m |
| 1100 mm Concrete | $700.00/m |
| 300 mm PVC | $190.00/m |
| 375 mm PVC | $240.00/m |
| 400 mm PVC | $290.00/m |
| 450 mm PVC | $290.00/m |
| 500 mm PVC | $290.00/m |
| 600 mm PVC | $340.00/m |
| 700 mm PVC | $460.00/m |
| 750 mm PVC | $460.00/m |

| Urban Culverts | |
|---|---|
| **Material** | **Unit Rate** |
| 300 mm Corrugated Metal | $120.00 |
| 350 mm Corrugated Metal | $170.00 |
| 400 mm Corrugated Metal | $170.00 |
| 450 mm Corrugated Metal | $170.00 |
| 500 mm Corrugated Metal | $160.00 |
| 600 mm Corrugated Metal | $190.00 |
| 800 mm Corrugated Metal | $300.00 |
| 900 mm Corrugated Metal | $300.00 |
| 1000 mm Corrugated Metal | $330.00 |
| 1200 mm Corrugated Metal | $340.00 |
| 300 mm Corrugated PVC | $190.00 |
| 400 mm Corrugated HDP | $180.00 |
| 500 mm HDPVC, Green | $210.00 |
| 600 mm Corrugated PVC | $340.00 |
| 700 mm Corrugated PVC | $400.00 |
| 1000 mm Corrugated PVC | $500.00 |

Recommendations

J.L. Richards & Associates Limited has significant corporate knowledge of the Township's water and sanitary sewer collection system. This experience has been gained by cooperatively working with staff on a variety of large and small water and wastewater projects over the previous several years. The same cannot be said for the storm sewer system. It is

recommended that a number of projects on the storm sewer system be completed to gain a better understanding of its overall condition and hydraulic capacity.

The Township should implement a CCTV condition assessment program for the entire storm sewer system to validate pipe condition. This work program should be completed over a 5-year period beginning in 2014. Maintenance holes should be included in this assignment as it proceeds. Collection of this data will allow staff to make correct decisions with respect to priority replacement or rehabilitation of storm sewers. History of breaks and interviews with Public Works staff to determine operational issues will also constitute a component of this exercise. History of breaks and operational issues should be entered into the Municipal GIS so that it can be used as a decision support tool for capital planning. Break records should include the location, time of year, pipe size, pipe material, observed soil conditions and cause of failure. Trenchless technologies for storm sewer rehabilitation may also be investigated as opposed to more expensive open cut sewer replacement. Opportunities to coordinate storm sewer rehabilitation with road construction, sanitary sewer replacement, and other related capital projects should be examined.

A summary of recommended storm sewer Capital Projects (repairs, rehabilitation or replacement) for the next 10 years is provided in Exhibit 25 below.

**Exhibit 25 – Summary of Storm Sewer Capital Projects over a 10-Year Horizon**

| Description of Activity | Annual Expenditure | Priority Repairs in 2013/2014 | Cumulative Expenditures Over Next 5 Years | Cumulative Expenditures Over Next 10 Years |
|---|---|---|---|---|
| GIS Inventory & Maintenance | $5,000 | $10,000 | $ 25,000 | $ 50,000 |
| Condition Assessment | N/A | $60,000 | $ 80,000 | $ 80,000 |
| Capacity Assessment | N/A | N/A | N/A | $ 40,000 |
| Operations & Maintenance | TBD | TBD | TBD | TBD |
| Repairs Based on Condition Assessment CCTV | TBD | TBD | TBD | TBD |
| Special Projects & Other | TBD | TBD | TBD | TBD |
| **Total Cost** | **$5,000** | **$70,000** | **$105,000** | **$170,000** |

## 4.4 Arena and Community Centre Report

The Eganville Arena and Community Centre is in Fair Condition overall. In August, 2012, a review of the Eganville Arena and Community Centre roof membrane system was undertaken to provide an opinion of probable cost for its replacement. The estimate of its condition was determined to be Poor and two (2) options for its replacement or renewal were provided. Option 1 was a complete roof replacement at an estimated cost of $580,000, plus applicable taxes. Option 2 was a retrofit of the existing roof system at an estimated cost of $450,000, plus applicable taxes.

A Type II Condition Audit Report of the Eganville Arena and Community Centre was also undertaken in July, 2013. This included an Ontario Fire Code Review. The Ontario Fire Code Review triggered supplemental Township Fire Prevention Inspections which were completed by the Bonnechere Valley Fire Department in August, 2013. This resulted in a number of recommended priority repairs for 2013/2014 which total $150,000. A detailed listing of this report, broken down by the various supporting building systems, is provided as Table No. 20 – Arena Community Centre located in Appendix "D". Note that the roof replacement option is identified as "Roof Membrane System" under "Architectural Systems" in Table No. 20 at an average estimated cost of $500,000.

A summary of recommended Capital Projects (repairs, rehabilitation or replacement) for the next 20 years is provided in Exhibit 26 below.

**Exhibit 26 – Summary of Capital Projects over a 20 Year Horizon**

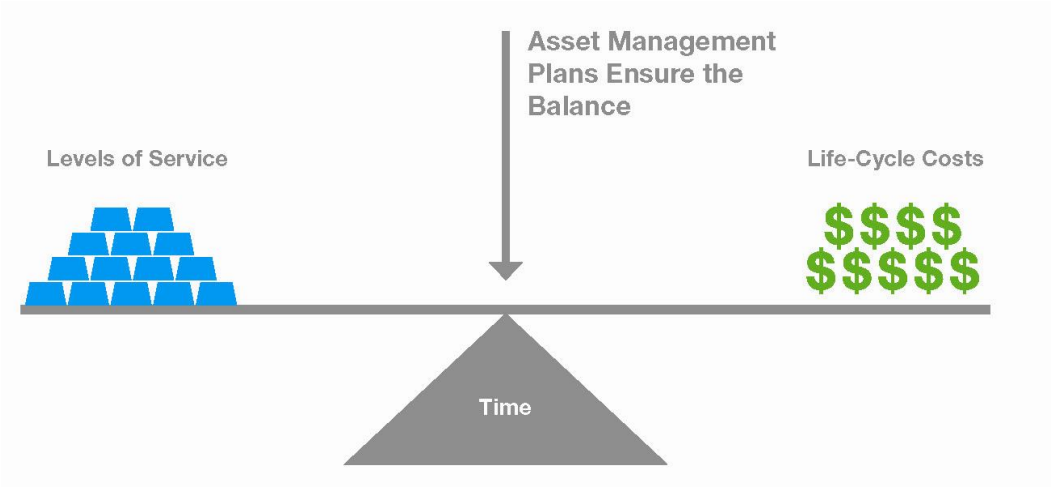
| Arena/Community Centre | Priority Repairs in 2013/2014 | Cumulative Expenditures Over Next 5 Years | Cumulative Expenditures Over Next 10 Years | Cumulative Expenditures Over Next 20 Years |
|---|---|---|---|---|
| Mechanical Systems | $33,000 | $564,100 | $727,600 | $995,300 |
| Electrical Systems | $26,100 | $75,100 | $75,100 | $75,100 |
| Structural Systems | $26,000 | $30,000 | $31,000 | $31,000 |
| Architectural Systems | $557,650 | $923,150 | $967,000 | $967,000 |
| Ontario Fire Code Review and Township Fire Prevention Inspection | $150,000 | $150,000 | $150,000 | $150,000 |
| **Total Cost** | **$792,750** | **$1,742,350** | **$1,950,700** | **$2,218,400** |

## 5.0 DESIRED LEVELS OF SERVICE

### 5.1 Levels of Service - General

Levels of service are fundamental to asset management and can cover a number of parameters within asset management best practices. Some of these parameters have a greater influence than others on strategic objectives and have a greater correlation to costs. Levels of service parameters may include safety, customer satisfaction, quality, quantity, capacity, efficiency, sustainability, reliability, responsiveness and environmental compliance and acceptability.

The choice of the level of a particular service is influenced by affordability as well as community needs and desires. With reference to the Township's Strategic Plan and mission, levels of service are a reflection of corporate and community goals. These levels of service have been established based on the direction provided by municipal administration and Council, the needs and wants of the community as well as legislative and regulatory requirements.




There is almost always a financial burden associated with levels of service which needs to be balanced against the benefit provided. In many instances, levels of service are also dictated by user's willingness to pay. The exception to this rule would be a regulatory requirement that legally obligates the community to provide a certain minimum level of service (i.e., specific minimum water and wastewater treatment standards).

## 5.2 What Is the Status Quo?

Discussing, communicating, consulting and defining levels of service can be a rigorous and exhaustive process depending on the Municipality's desire to record and measure this information. The Township has chosen a more practical holistic approach to defining service levels. So what are the current "status quo" service levels being delivered by the Township? In the Strategic Plan, some of these service commitments are identified as "overarching goals". They include:

- To meet or exceed the applicable provincial standards for water and wastewater performance under current legislation – reference Section 3.13, Example No. 3;
- To maintain in good working order, a WTP, distribution system and associated works within the Village of Eganville;
- To maintain in good working order, a STP, collection system and associated works within the Village of Eganville;
- To maintain in good working order, fire protection services within the Village of Eganville related to fire flows;
- To make our community an affordable, efficient place where people choose to live, work, visit and participate in a culture that fosters communication, rural lifestyle, personal growth, and healthy commerce;
- To know and manage our assets effectively and efficiently;
- To deliver excellence in quality customer service;
- To regularly evaluate services and how they are delivered;
- To maintain effective communication among all departments, Council and the Public;
- To recognize that we serve a community with a variety of ages and disabilities;
- To recognize that we are the first line of contact with the Public;

- To recognize that what we do has a direct effect on health and safety of the Public and Township staff; and
- To serve the Public's need for quality of life.

*Council has endorsed the levels of service described as being within its financial capability and aligned with the strategic vision of the Township.*

Based on this commitment, Appendix "E", Table No. 21 - Strategic and Operational Levels of Service has been developed to clearly define levels of service, including performance measures, targets, time frames and hierarchy. *This information is not intended to be an exhaustive or prescriptive list but rather a documented guide for maintaining the "status quo" service levels into the future.* The overarching concept is that levels of service reflect the unique nature of each municipality and the specific outcomes that the Township is seeking to achieve.

## 5.3 Cost of Service

Cost of Service is the annual expenditure required to continue to provide the service at the current level. Cost of service is an accumulation of all elements of the asset life cycle, including operations, maintenance, depreciation and overhead. Costs of current services are well understood by the Township and reviewed on an annual basis.

Costs associated with municipal service delivery are increasing due to inflation, legislative requirements and public expectations. Trends clearly indicate that historic and traditional methods of funding municipal infrastructure are inadequate. As such, when the Township makes decisions about improving or adding new levels of service, they should carefully consider the long-term viability of providing a service at that level. If the Township adds services or provides a service at a higher level, the costs to provide the service increases and so does the price that the Township will have to charge its customers. Careful and informed consideration for the ratepayers and public's ability to pay for upgraded service levels needs to be examined before decisions are made.

*Simply put, any contemplated modifications to the Townships current levels of service should consider both the immediate and long-term costs and consequences so that informed decisions can be made.*

## 5.4 Risk Assessment and Levels of Service

It is important to identify and monitor the costs required to deliver a specific level of service. In some instances, the financial resources needed to meet expected levels of service may not be available. Even small shortfalls in funding may represent large dollar amounts over the long term. Risk tolerance is community/municipality dependent and needs to be understood when decisions on levels of service are made. Finances or the lack of funding may require a compromise that could affect or defer improvements or maintenance on core services such as potable water systems, treatment facilities, transportation systems and community/recreational facilities. Lack of action or advance planning (reserve funds) may expose the Township to increased risk and potential legal liabilities.

Reducing a specific level of service is a legitimate but often overlooked solution to an identified funding shortfall or imbalance; however, reducing a service level may introduce increased risk

such as safety, quality of life, health and increased future asset rehabilitation costs. It is essential that the inherent risks associated with decreasing levels of service or deferring maintenance be fully understood by Council, municipal staff and the Public. The Township must be aware of this exposure to risk and determine its level of comfort and willingness to accept that risk.

## 5.5 Performance Measurement and Monitoring

Regularly measuring and evaluating an asset's performance is key to strategic asset management. The *performance* of an asset is the ability to provide the required level of service to customers. An asset can be considered to have "failed" when it no longer achieves the required level of service or when it is no longer providing the most cost-effective means of providing that service (i.e., it is more cost-effective to replace than to continue to maintain).

Performance of the Township's assets should be monitored regularly and adjustments made at the appropriate stage in their asset life cycle to achieve an acceptable balance between cost, level of service (i.e., performance) and risk. A performance measurement program should include agreed upon *performance indicators* and a commitment to measure, compare and report on the results of a monitoring program. Performance indicators commonly relate to technical and non-technical measurements, including statutory limits, safety, responsiveness, cost, comfort, condition, reliability, availability, efficiency, capacity, environmental protection and customer satisfaction.

The Township of Bonnechere Valley is participating in a basic performance measurement program. For example, reporting related to provincial regulations and legislation for both the Water and Sewage Treatment Plants are definite performance indicators. In addition, the Township has completed hydraulic capacity models of both the water and sanitary sewer systems. This exercise is also a measurement of an important facet of each system's performance. Similarly, the Condition Rating System described in Section 3.7 of this AMP, which has been applied to the various asset types, is an indication of an asset's overall performance.

Monitoring asset performance usually involves data collection to establish a baseline monitoring assessment against which future monitoring results can be evaluated. Typical performance questions to be considered when preparing a monitoring process are:

- What service levels have been set for the asset type?
- What technical performance indicators will be used to manage asset performance?
- Is the asset performing and meeting user requirements?
- What limitations (if any) exist with regards to safety, capacity, and the regulatory and environmental requirements?
- What is the ranking of its condition assessment?
- What is the asset's current capacity compared with service demands?

The Township should also be tracking technical performance indicators with information on:

- The types of asset failures;
- The number of breaks (watermains, sanitary and storm sewer pipes)

- The number of customers affected;
- The number of customer complaints;
- The duration of the service interruption;
- The response time by municipal staff; and
- The severity of the asset failure

An analysis of trends in performance indicators over several years will allow the Township to determine whether its asset performance is improving, maintaining the status quo or decreasing. This, in turn, should provide the following asset management benefits to the Township:

- Assist in strategic decision-making;
- Improve asset management practices overall;
- Help ensure consistent, ongoing success in terms of asset finances and sustainability;
- Assess the effectiveness of the operational, maintenance and capital works program; and
- Allow for the review and refinement of maintenance and rehabilitation strategies and standards

Perhaps the most important overall consideration for performance measurement is keeping good records and reporting. Although Table No. 21 - Strategic and Operational Levels of Service includes a “measurement” column, it is recommended that the Township re-examine its current performance measurement program and update this table to have consideration for the points discussed.

## 5.6 External Trends

Aside from existing funding issues, the Township is facing new pressures and an increased complexity of decision-making as a result of various trends over the last decade or more. In some instances, the Township is bound to provide levels of service which are beyond its control. For example, the Township is legally obligated to meet a certain minimum level of service with respect to the WTP, distribution system and associated works based on provincial legislation and regulatory requirements. Some of these external trends are:

- Concern for aging populations and ease of access to services;
- Concern for aging infrastructure;
- Delegation of responsibility for several services formerly managed by provincial authorities to municipalities, while funding support has not increased in proportion to infrastructure needs;
- Heightened public awareness of Public Health and Safety issues; with specific emphasis on potable water and emergency services;
- Concern for the natural environment; and
- Concern for climate change – mitigation measures and adaptation needs.

These trends reinforce the importance of asset management best practices, strategic planning, annual user fee reviews and the building of reserve funds. One of these best practices should

include the exploration of all available avenues with respect to alternative funding mechanisms. Other potential infrastructure funding sources for the Township might include:

- Special Levies;
- Development Fees/Charges;
- Utility Models;
- Private or Corporate Sponsorship;
- Local Government Service Partnerships;
- Funding Partnerships;
- Community Based Volunteer Fundraising; and
- Strategic Budget Allocations.

## 6.0 ASSET MANAGEMENT STRATEGY

The Township's Asset Management Plan is a comprehensive process that follows best practices, not the least of which is the National Guide to Sustainable Municipal Infrastructure. The Township's chosen asset management planning framework highlights a top down (strategic) approach, and a bottom up (operational) approach to effectively manage assets over the short, medium and long term. The graphic below depicts the key elements of the Township's Asset Management Strategy.


## 6.1 Asset Management Planning Framework

### Strategic Planning

The intent of the County of Renfrew Official Plan is to promote orderly and efficient development in a manner which is consistent with the desired life style and needs for growth and prosperity, as envisioned by the local communities and Councils. This includes the desired goals and guidelines for development within the Township of Bonnechere Valley and the community of Eganville.

As described in Section 2.3, the Township of Bonnechere Valley completed a Strategic Plan in 2004. Council has distilled key strengths and opportunities into one statement which, when used as a day-to day reference point, will always guide the way to good decision making. The Mission of the Township of Bonnechere Valley is:

*"To make our community an affordable, efficient place where people choose to live, work, visit and participate in a culture that fosters communication, rural lifestyle, personal growth, and healthy commerce."*

Through the use of Critical Success Factors (CSF's) and overarching goals defined in the Strategic Plan, the Township has established levels of service. These levels of service cover all departments, including administration, public works, recreation and culture, sewage and water, waste management and the fire department.

The Township is also considering the need to supplement these strategic documents with a Water & Wastewater Master Servicing Plan for the Village of Eganville. This item is in the early stages of discussion with no clear timeline for approval or implementation; however, it has been budgeted for in this AMP.

**Asset Management Policy**

An asset management policy articulates a Council's commitment to affordable stewardship of assets and provides a clear statement to guide staff in carrying out the Municipality's business strategies, plans and activities. An Asset Management Policy is considered a best practice for asset management. Information gathered, reviewed and incorporated has greatly assisted Council and staff in the development of a straightforward Asset Management Policy for the Township of Bonnechere Valley. It is as follows:

Council Asset Management Policy Statements

Asset management is a broad strategic framework that encompasses many disciplines and involves the entire organization. The term asset management, as used in this-document, is defined as "the application of sound technical, social and economic principles that considers present and future needs of users, and the service from the asset". To guide the organization, the following policy statements have been developed:

1. Management will maintain and manage infrastructure assets at defined levels to support public safety, community well-being and community goals;
2. Management will monitor standards and service levels to ensure that they meet/support community and Council goals and objectives;
3. Management will develop and maintain asset inventories of all its infrastructure;
4. Management will establish infrastructure replacement strategies through the use of full life cycle costing principles;
5. Management will plan financially for the appropriate level of maintenance of assets to deliver service levels and extend the useful life of assets;

6. Council will plan for and provide stable long term funding to replace and/or renew and or decommission infrastructure assets;
7. Where appropriate, Council will consider and incorporate asset management in its other corporate plans;
8. Management will report to citizens regularly on the status of performance of work related to the implementation of this asset management policy.

The Township's Asset Management Policy applies to all physical assets of the Township, such as roads, bridges, watermains, sewers, pumping stations, treatment plants, landfills, fleet, municipal buildings, parks and sidewalks. A copy of Policy AMP-001 has been included in this AMP as Appendix "F".

**Medium Range Financial Plan**

A critical component of this AMP is the analysis of funding needs for asset renewal over a ten (10) year period. This "medium range" financial plan has been developed for Water, Wastewater and Stormwater assets as well as one municipal building – the Eganville Arena and Community Centre. To fully understand the funding requirements for asset renewal over this time frame, it is important to review and document the following:

- 2011 – 2013 Expenditures and Revenues (Statement of Operations);
- 2013 Statement of Financial Position (surplus or debt);
- 2011 – 2013 yearly expenditures for maintenance activities (regular, more significant, unplanned);
- Planned renewal/rehabilitation activities through 2023;
- Planned replacement activities through 2023;
- Disposal activities through 2023; and
- Expansion activities through 2023.

Information contained in Section 7.0 – Financial Strategy will provide Council and staff with the information necessary to adopt effective strategies for sustainable funding for asset renewal.

**Asset Management Plan - Updating**

The research and development of this AMP has resulted in the creation of significant new derived asset information. This new data will allow the Township to improve its asset management practices and "fine tune" its short, medium and long-range infrastructure renewal models for each asset class. These renewal plans project replacement of assets at a detailed level using useful life and current replacement cost estimates.

Actual timing and costs of renewal can vary due to many factors. Some of these factors include; early failure of an asset, current condition assessment information that may indicate that an asset can provide service beyond the initial useful life estimate, inflation and other considerations. It is intended that the AMP be reviewed and updated annually to incorporate condition assessment data, annual financial budget numbers and actual

maintenance/rehabilitation/renewal costs from the previous year. This "constant improvement" approach will allow the Township to develop more precise timing and costs of ongoing and projected infrastructure renewal.

**Knowledge Management**

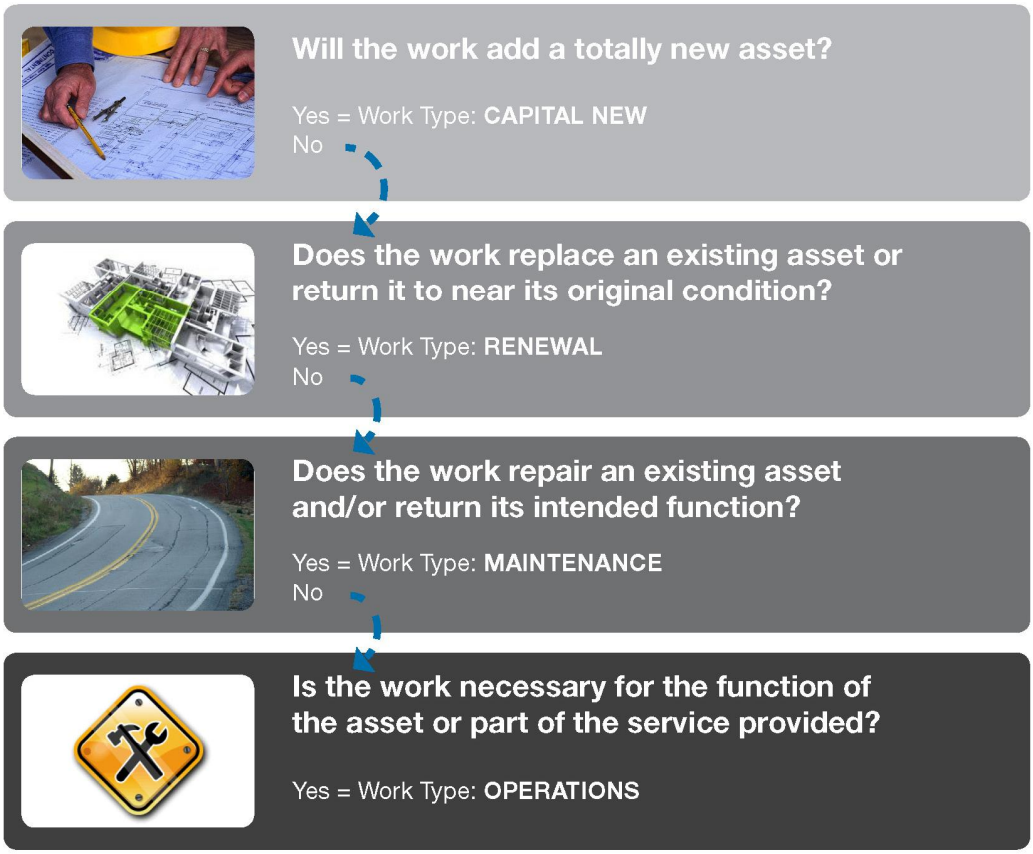
The Township's asset information is maintained in a variety of ways including:

- Municipal Geographic Information System (GIS);
- Maintenance Management System (Cartegraph);
- Financial system (Vadim);
- Departmental maintained documents;
- Consultant reports; and
- Knowledgeable staff

The GIS, Vadim and Cartegraph MMS are linked and share information across departments. Succession planning is a topic which needs to be addressed given that there are a number of key staff members who are nearing retirement. Their wealth of knowledge needs to be captured and transferred; especially with respect to existing buried infrastructure. The Vadim and Cartegraph systems are maintained and updated by municipal staff. The GIS has been traditionally updated by a consultant; however, it has not been updated in some time. It is recommended that a more structured GIS updating progress be developed by the Township. This GIS updating process should occur semi-annually and be aligned with the Cartegraph MMS updating process to ensure both data sets are the same. Ideally, both the GIS and Cartegraph MMS should be accessing the same asset database.

## 6.2 Planned Actions

Operations and maintenance activities typically do not receive as much attention from the public as new construction; however, they are key to the reliable and safe delivery of water and sewer services. To a lesser degree, this also includes public facilities like the Township's arena and community hall.




The Township has adopted a proactive strategic approach to planned operations and management of its assets so that they fully comprehend budgetary implications for delivery of these essential services. The Village of Eganville Water and Sewage Systems Infrastructure Condition Assessment Report (2009) and the Village of Eganville Water and Sewage Systems Infrastructure Management Strategy (2010-2013), are two examples of this “planned action” approach to asset management.

These reports include detailed condition assessment and a comprehensive infrastructure management strategy which includes annual maintenance, renewal, rehabilitation and replacement activities. This information is reviewed and updated annually to reflect:

- Inflation;
- Projects completed;
- Collected condition assessment data;
- Revised priority items based on collected condition assessment data;
- Planned activities;
- New unplanned activities; and
- Wish items.

At this time, there are no planned actions related to Disposal Activities – the activities associated with disposing of an asset once it has reached the end of its useful life.

The Township is considering the need to supplement its strategic planning documents with a Water & Wastewater Master Servicing Plan for the Village of Eganville. The purpose of this exercise would be to examine how increased growth and development in the Village of Eganville would impact available service capacity of the existing water and wastewater system. An important component of this infrastructure master planning exercise would include a policy gap analysis in consultation with the Township to determine key policies that might be affected by the findings of a Master Plan. A properly executed Infrastructure/Servicing Master Plan would be prepared to ensure sustainability of the water and wastewater networks over the short and long terms.

Reference Appendix "G", Table Nos. 22, 23 and 24, for a summary of planned actions for the water and sewage systems. These planned actions include Inventory, Condition Assessment, Capacity Assessment, Operations, Maintenance, Documentation Control and Special Projects categories and cover a 10-year horizon from 2013 through 2023. Although recommendations and budgetary costs for planned actions related to the arena and community centre have been documented in this AMP (reference Appendix "D" – Table No. 20), no time frame for implementation is included. These recommended planned actions and costs are still being reviewed by staff and Council.

### 6.3 Options/Risk Analysis and Renewal Planning

Risk assessment and analysis is embedded throughout the Township's asset management process; however, it is important to understand and identify assets which are more critical to the continuity of service and operations than others. The Township has completed a high level qualitative analysis of significant potential risk analysis events. This information has been developed based on interviews with Township staff, review of historical inspection and maintenance records, emergency procedures in place and existing infrastructure management strategies and reports. Township Risk Analysis Events which have scored the highest (9 or 10 out of a possible 15 points) include:

- Forcemain/Watermain Break;
- Sanitary Sewer Break;
- Sanitary Sewer Forcemain Break;
- Storm Sewer Main Break; and
- Arena/Community Centre Roof System Collapse (partial or catastrophic).

Please reference Appendix "H", Table 25 – Township of Bonnechere Valley Risk Analysis Matrix and supporting Table 26 – Risk Analysis Rating System.

Combined with the risk analysis completed, the following abstract format breakdown is an overview of the interconnection between the renewal planning and options/risk analysis process for strategic asset management. The asset management strategy described is similar to most municipalities but has been tailored to the Township of Bonnechere Valley. Opportunities to save resources by coordinating solutions to multiple problems must also be explored. As a whole, this information is key to the decision-making process when planning for repair, renewal/rehabilitation or replacement of infrastructure assets and building reserve funds.

## Water System

| ASSET: | WATER SYSTEM |
|---|---|
| Inventory: | One (1) Water Treatment Plant, one (1) Water Standpipe, one (1) chamber, 13 km of watermain, 60 hydrants, 670 valves, 300 m of hydrant leads, 5.5 km of water laterals, 524 water meters. |
| Ideal Service Life: | Life cycles can vary from 15 -75 years. Water Treatment Plant from 30-60 years. Water standpipe and underground chamber is estimated at 60 years. Watermains have a service life of approximately 75 years depending on material and soil conditions. Valves and hydrants also have a life cycle of approximately 75 years. Water laterals are estimated to have a life cycle of 60 years. Lifecycle of a water meter is estimated at 15 years. These life cycles assume regular maintenance is performed throughout the course of the asset's life. |
| Integrated: | May be integrated with road resurfacing, road construction work and other utilities such as wastewater, hydro, telephone and cable. May also be a standalone replacement/repair. WTP works are typically standalone in nature; however, opportunities to consolidate/coordinate plant upgrade projects should be explored to achieve cost savings. |
| Rehabilitation & Replacement Criteria: | Preliminary assessment criteria for prioritizing rehab/replacement is history of breaks, age of pipe, pipe material, size of pipe, soil conditions, impaired water quality, reduced hydraulic capacity, hydrant spacing and high leakage rates. These symptoms may require a more detailed investigation. The Township's GIS should be populated with condition assessment data, history of breaks, etc., as it is collected so that it may be used as an analysis and decision support tool for establishing priorities and reviewing areas of concern. A road rehab project may bump up the rehab/replacement of a pipe segment(s) if replacement is scheduled in the near future. Studying history of breaks and failure trends can determine when maintenance costs are increasing at a rate such that rehab/replacement makes the most sense economically. WTP upgrade projects are generally dictated by provincial regulations/reporting and aging infrastructure. |
| Rehabilitation & Replacement Strategies: | Watermain rehab/replacement is based on current condition; however, watermains are buried and it can be difficult and cost prohibitive to complete detailed investigations (even using new and emerging technologies). For this reason, rehab/replacement strategies rely mainly on break history, age, size, material and hydraulic requirements. There are numerous methods for rehabilitation of watermains, including replacement, cleaning and relining, Cured-In-Place-Pipe (CIPP), horizontal drilling and pipe bursting. Cathodic Protection can help to prolong life expectancy of the pipe. There are limitations to each of these technologies. Consideration for the project appropriate technology is assumed. |
| Life Cycle Consequences/Risk Assessment: | Pipe failure is typically catastrophic occurring at undetermined and unexpected times. Some pipe materials with a theoretical 70-100 year life cycle may require replacement much sooner (30+ years), whereas some of these pipes can simply be maintained or rehabilitated to gain many additional years of service life. WTP failures have far reaching consequences including quality, quantity, operational and risk to Public health. |
| Integrated Asset Priorities: | A deteriorated watermain is either rehabilitated or replaced based on a number of factors associated with priorities, cost and risk – Township's willingness to accept various risk factors in prioritizing asset management is a reality. Some problem areas may be less of a risk and disruption of service is tolerable. Replacement is a higher priority where fire protection, water quality and disrupted service can result in water loss and collateral damage. Other utilities such as wastewater, hydro, telephone and cable may be integrated into the work plan. Road rehab |

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| | projects may assist in accelerating the project priority. |
| Corporate/Consulting Reports: | Village of Eganville Water & Sewage Systems Infrastructure Management Strategy, Village of Eganville Water & Sewage Systems Infrastructure Condition Assessment, Road Needs Study. |
| Table Reference: | Appendix "A", Tables 1-6, Appendix "E", Table 21, Appendix "G", Table 22, Appendix "H", Table 25 |

**Wastewater Treatment and Collection System**

| **Asset:** | **WASTEWATER TREATMENT AND COLLECTION SYSTEM** |
|---|---|
| Inventory: | One (1) Sewage Treatment Plant, one (1) Chemical System Building, one (1) Biosolids Dewatering Facility, four (4) Pumping Stations, 11 km sanitary sewers, 1 km Forcemain, 184 sanitary manholes, 5 km of sewer service connections. |
| Ideal Service Life: | Life cycles can vary from 15-100 years. Sewage Treatment Plant, Chemical System Building and pumping stations from 30-60 years. Sewage Treatment Plant machinery & equipment, pumps, treatment trains, instrumentation & controls, etc., from 15-60 years. Maintenance hole life cycles are estimated at 75 years, sanitary service laterals are estimated at 60 years and sanitary sewers and forcemains have a life cycle of between 50-100 years. These ideal service life cycles assume regular maintenance is provided throughout the course of the asset's life. |
| Integrated: | May be integrated with road resurfacing, road construction work and other utilities such as wastewater, hydro, telephone and cable. May also be a standalone replacement/repair. STP works are typically standalone in nature; however, opportunities to consolidate/coordinate plant upgrade projects should be explored to achieve cost savings. |
| Rehabilitation & Replacement Criteria: | Criterion for prioritizing a rehab/replacement/renewal schedule for sanitary sewers is based on a condition assessment through a CCTV inspection. The camera work and associated standardized rating system (typically WRc) will allow staff/consultants to rate the condition of the infrastructure. Other factors affecting the criteria will include localized collapses, material type, upsizing requirements, new development as well as coordination with the roads replacement and improvement program. Additional condition evaluation programs may include flow monitoring, and Inflow & Infiltration (I&I) source identification. The Township's GIS should be populated with condition assessment data as it is collected so that it may be used as an analysis and decision support tool for establishing priorities and reviewing areas of concern. STP upgrade projects are generally dictated by provincial regulations/reporting and aging infrastructure. |
| Rehabilitation & Replacement Strategies: | Sanitary sewer rehab/replacement will be based on the condition rating of the infrastructure. In most cases, once the pipe has been inspected and assigned a condition rating, staff can determine the best method for rehabilitation. Replacement will be the most common method for collapsed or heavily deteriorated pipe. Other methods include re-lining, Cured-In-Place-Pipe (CIPP), spot repairs and joint sealing. Trenchless technologies should be explored as valid pipe rehabilitation alternatives as opposed to traditional open cut methods. |
| Life Cycle Consequences/Risk Assessment: | Structural deterioration can result in infiltration of groundwater into the sewer that results in a loss of pipe bedding which promotes further deterioration. It can also result in the accumulation of debris and sediment at sag points in the sewer, calcite build-up at the cracks and joints which promotes root migration into the sewer. These factors lessen the amount of wastewater that can flow unimpeded and can further deteriorate the sewer resulting in potential basement flooding. |

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|---|---|
| | Groundwater infiltration can also add additional volume of sewage to be treated at the Sewage Treatment Plant which results in extra cost. Preventative maintenance (i.e., flushing and CCTV) and rehabilitation is key to maximizing the piped networks life cycle. These programs are currently budgeted for. STP failures may have significant consequences including environmental and Public health risks. |
| Integrated Asset Priorities: | A deteriorated sanitary sewer is replaced or rehabilitated based on the condition. Timing and coordination of associated works such as curb, gutter, sidewalks, road trench cuts or pavement should be evaluated if sewer replacement or rehabilitation is planned to maximize "economies of scale". Other utilities such as telephone, hydro and cable may be integrated into the work plan as well. Road rehabilitation projects may help dictate project priority. |
| Corporate/Consulting Reports: | Village of Eganville Water & Sewage Systems Infrastructure Management Strategy, Village of Eganville Water & Sewage Systems Infrastructure Condition Assessment, Road Needs Study. |
| Table Reference: | Appendix "B", Tables 7-13, Appendix "E", Table 21, Appendix "G", Table 23, Appendix "H", Table 25 |

**Storm Sewer System**

| **Asset:** | **STORM SEWER SYSTEM** |
|---|---|
| Inventory: | 13 km of storm sewers, 634 storm maintenance holes, 393 catch basins, 2 km of urban culverts, 1383 rural culverts and 592 driveway culverts. |
| Ideal Service Life: | Life cycles can vary from 25-80 years. |
| Integrated: | May be integrated with road resurfacing, sanitary and watermain replacement, road reconstruction and other utilities such as hydro, telephone and cable. It may also be a standalone replacement. |
| Rehabilitation & Replacement Criteria: | The criteria for prioritizing the replacement schedule for storm sewers are based on a condition assessment through a CCTV inspection. The camera work and associated standardized rating system (typically WRc) will allow staff/consultants to rate the condition of the infrastructure. Other factors affecting the criteria will include localized collapses, surcharging records, flooding records, material type, upsizing requirements as well as coordination with a roads improvement program. |
| Rehabilitation & Replacement Strategies: | Storm sewer rehabilitation will be based on the condition rating of the infrastructure. In most cases, once pipes have been inspected and assigned a condition rating, staff/consultants can determine the best rehabilitation method. Replacement will be the most common method for collapsed or heavily deteriorated pipes. Other methods include re-lining, Cured-In-Place-Pipe (CIPP), spot repairs and joint sealing. Trenchless technologies should be explored as valid pipe rehabilitation alternatives as opposed to traditional open cut methods. |
| Life Cycle Consequences/Risk Assessment: | Storm sewers will deteriorate in much the same manner as sanitary sewers although consequences of failure for storm sewers are not usually as significant as those of sanitary sewers. Structural deterioration can result in infiltration of groundwater into the sewer which results in a loss of pipe bedding which promotes further deterioration. It can also result in the accumulation of debris and sediment at sag points in the sewer, calcite build-up at the cracks and joints which promotes root migration into the sewer. These factors lessen the amount of wastewater that can flow unimpeded, thereby promoting additional build-up in the pipe. Preventative maintenance (i.e., flushing and CCTV) and rehabilitation |

| | |
|---|---|
| | is key to maximizing the piped networks life cycle. These programs are currently budgeted for as part of this AMP. |
| Integrated Asset Priorities: | A deteriorated storm sewer and associated maintenance holes, etc. is replaced or rehabilitated depending on the condition. Timing and coordination of associated works such as curb, gutter, sidewalks, road trench cuts or pavement should be evaluated if sewer replacement or rehabilitation is planned to maximize "economies of scale". Other utilities such as telephone, hydro and cable may be integrated into the work plan as well. Road rehabilitation projects may help dictate project priority. |
| Corporate/Consulting Reports: | Village of Eganville Water & Sewage Systems Infrastructure Management Strategy, Village of Eganville Water & Sewage Systems Infrastructure Condition Assessment, Road Needs Study. |
| Table Reference: | Appendix "C", Tables 14-19, Appendix "E", Table 21, Appendix "G", Table 24, Appendix "H", Table 25 |

**Eganville Arena and Community Centre**

| **Asset:** | **EGANVILLE ARENA & COMMUNITY CENTRE** |
|---|---|
| Inventory: | One (1) Arena Building and attached two-storey Community Centre |
| Ideal Service Life: | Depending on major components, life cycles can vary from 15-50 years, roof in the 25-30 year range, building superstructure in the 50-year range, ice plant in the 30-year range. |
| Integrated: | Individual asset components are reviewed, projects are lumped together per asset to take advantage of the "economies of scale" principle. For example, since the arena/community centre requires either a retrofit or new roof system, first determine the overall condition of the balance of the building before proceeding with any significant rehabilitation investment. Consideration should also be given to minimizing the disruption of operations/services to a given asset over time. |
| Rehabilitation & Replacement Criteria: | The priority for rehabilitation or replacement of the various components of these two (2) public facilities is based on a comprehensive building condition assessment, including an Ontario Fire Code review (2012-2013). |
| Rehabilitation & Replacement Strategies: | Under review by Township staff and Council. |
| Life Cycle Consequences/Risk Assessment: | Increased deterioration of building/roof system, health and safety concerns, inefficient operation, higher operating costs, accelerated depreciation of this significant Township and community asset. |
| Integrated Asset Priorities: | Replacement is based on actual condition, the point in time within its life cycle, the availability to complete the replacement with minimal disruption to arena and community centre programs. |
| Corporate/Consulting Reports: | Letter Report on Arena/Community Centre Structural Investigation of Roof System, Type II Condition Audit Report, Ontario Fire Code Review Report. |
| Table Reference: | Appendix "D", Table 20, Appendix "E", Table 21, Appendix "H", Table 25 |

## 6.4 Public Input, Accountability and Feedback

Township residents and the Public at large enjoy a wealth of infrastructure services, each providing a specific service level. These service levels are discussed in the AMP and Strategic Plan and for the most part have remained unchanged in recent history. A key step in an asset management program is a public engagement process to involve Council, staff, citizen groups,

ratepayers and the public at large. Although Council can set service levels without public input, they may want to consider re-visiting user expectations for different Township services. Given the Townships diverse and growing population, Council may choose to engage the public to educate them on strategic asset management and solicit their input regarding service level expectations and overall satisfaction.

Public input can be acquired via mail-out or telephone questionnaires, on-line surveys, public meetings, focus groups, social media, etc. Results of this Public engagement process will allow Council and staff to quickly gain insight into what the public deems is important and what needs improvement. It is recommended that Council and staff hold a public meeting to discuss the AMP and educate ratepayers regarding current levels of service, strategic asset management and funding required.

Section 5.5 of the AMP discusses the importance of monitoring and measuring an assets performance. Out of this best practice comes AMP accountability and feedback. Accountability includes following through with developed plans. If not currently practiced, the Township should prepare an annual report on the delivery of services and progress made in achieving the AMP's targets. This report will provide the necessary feedback for staff, Council and the Public and identify whether or not services have been delivered on time, on budget or at a level which meets user expectations. A succinct service delivery report, utilizing the same annual performance measures, will provide meaningful feedback should there be a problem which requires staff or Council to make adjustments to corporate policies, service delivery or select alternate technical, financial or funding alternatives.

## 6.5 Procurement

*"It is unwise to pay too much. But it is worse to pay too little. When you pay too little, you sometimes lose everything because the thing you bought was incapable of doing the thing you bought it to do"*

*John Ruskin (1819-1900)*

In May, 2005, the Council of the Township of Bonnechere Valley passed By-law No. 2005-13 which is a by-law to adopt policies and procedures governing the procurement of goods and services. This by-law allows for the consideration of various delivery mechanisms, is reviewed periodically and is attached to the AMP as Appendix "I".

The procurement of goods and services in the municipal sector is most often obtained through a public tendering process. The product or service is described in detail (i.e., building construction with detailed engineering plans) in a Tender Document and sealed bids are invited. The lowest bid normally receives the contract. On a project specific basis, the Township utilizes a number of procurement methods, including, but not limited to, Public Tenders, Qualifications-based Selection (QBS), Request for Qualifications/Expression of Interest (RFQ), Request for Proposals (RFP), Two-Envelope Method, Sole Sourcing, Standing Offer, etc.

For its consultants and contractors, the Township typically prefers to develop and build working relationships such that the consultant/contractor becomes an extension of staff, is a trusted advisor and shares the objective of achieving best outcomes. It is important, however, that the Township regularly evaluate consultant/contractor performance. A consultant's/contractor's

past performance is a good predictor of future performance and provides valuable insight into how they undertake their responsibilities, quality of workmanship and response to client needs.

## 7.0 FINANCING STRATEGY

This portion of the Asset Management Plan was prepared by Allan Chartered Accountant Professional Corporation, who were retained directly by the Township of Bonnechere Valley. Allan Chartered Accountants have their office in Perth, Ontario and were established in 1979.

### 7.1 Water and Sewer Infrastructure

In 2012, the Township undertook a five year financial plan for water and sewer as part of a "best practices" approach to addressing the future capital requirements of this facet of its infrastructure. The forecasted plan indicates water and sewer rates will increase 46% over a five year period. In practical terms this means that the average household monthly bill will increase from $78 to $115 over this time frame. This "user based" source of financing supports the principle of allocating infrastructure costs to those who benefit directly from it, a financial strategy recommended in the current provincial "Guide for Municipal Asset Management Plans".

Clearly, this plan is the foundation step for moving forward with forecasts for the replacement and rehabilitation activities associated with water and sewer infrastructure in the Township.

The attached financial models (Appendix "J", Table No. 27 and 28) explore a long range plan for maintaining the most cost effective approach for delivering services at acceptable levels, assuming the lowest risk possible. A proactive approach including condition assessment studies will provide meaningful management information for decision making. In this manner, repair and replacement work can be assessed and completed on a timely basis to avoid the possibility of system failure.

Table No. 28 sets out the capital expenditures by department over a fifteen year period. The information is based on capital expenditures included in Appendix "G". Table No. 27 includes the capital expenditures identified in Table No. 28 and the funding sources available. Funding sources include funds from reserves, proceeds of long term debt and government grants. As long term debt creates an obligation on future revenues, the repayment of long term debt is considered a commitment of future resources. The annual funding shortfall is calculated as the difference between required expenditures and the available sources of funding.

The long term capital plan has been extended beyond a 10 year horizon to identify the requirements on future funding for life cycle costing of the water and sewer network. It is not expected that the full distribution and collection system will require replacement in 2028. The projected expenditures are included to assist with decisions regarding full life cycle costing.

The continuity of reserves included in Table No. 27 is included to add clarification to funding sources available. The financial plan includes funds allocated for capital projects to accumulate within the reserve. As funds are required for capital expenditures and debt repayment, they are withdrawn from the reserve.

The assumptions, both general and specific, for the financial models are included in the following table:

| **Risk Factors** | **Considerations** |
|---|---|
| Interest Rate | Debt repayment on existing debt is calculated at 3% (based on floating prime rate) Annual updates to this plan, which is a "living" document would include a review of the borrowing rates. Interest on reserves has been calculated at 2% (prime less 1%) |
| Inflation | No inflation factor has been included in the model for Years 2014-2018 as costs are broad estimates and could be incurred within as short a time frame as 3 years. For midrange expenditures (5-10 year period) inflation has been estimated at 2% per year based on simple interest. The costs and scope of the projects beyond 10 years include inflation at a compounded rate of 2% annually. The risk for costs estimates increases in longer term projections. |
| Discounting to present value | The future value of replacement costs are calculated at 2% compounding inflation rate. The risk in the inflation estimate is the potential for increased service standards and the inflation indices for construction outpacing standard inflation.<br><br>To determine the present value investment of funds required interest rates are estimated at 2%. |

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|---|---|
| Allocation to Reserves | The annual allocation to reserves is based on the 5 year financial plan. The allocation is calculated as revenues less operating costs (excluding amortization and finance charges.)<br><br>Beyond the 5 year forecast, 2017, as debt payments expire, the additional funds are allocated to reserves.<br><br>Interest income is allocated to reserves based on the opening reserve balance.<br><br>Subsequent to 2017 transfers to reserves would increase equivalent to the percentage rate increase. |
| Capitalization Threshold | Planned projects for the water system, sanitary sewage collection system and storm sewer system are summarized in Tables No. 22 - 24. Amounts less than $5,000 are considered operational and not included as capital expenditures. |
| Disposals | Disposals do not provide for any significant source of funding as the equipment would be obsolete at the time of replacement. The costs to remove infrastructure are included in the reconstruction costs. Existing facilities will be rehabilitated. |

**Funding Requirements**

The majority of the water and sewer infrastructure systems are, on average, midway through their life cycle.

Future short term projections include increased preventative maintenance such as sewer flushing and video inspection of the collection system. A flushing program will improve efficiency and video inspection will identify areas of the system which require rehabilitation in order to prevent system failures. Other short term expenditures include condition assessment studies. As the intent of the asset management plan is to be a “living” document, the results of video inspections and condition assessment reports could impact the annual review.

As the lifespan of equipment is shorter than the lifespan of buildings and linear assets, replacement and maintenance expenditures include repairs to the water standpipe and the instrumentation and control system for the sewage treatment plant.

The majority of expenditures in the mid range forecast (15 years) are facility related. The underground infrastructure has approximately one third of its remaining useful life (Exhibit 3). Current value replacement for all systems within the water and sewer service area total $16.8 million (Exhibits 15, 19 and 23). The projected future cost of replacement is $27.7 million dollars (Table No. 27). Based on the estimated time line for replacement the reserve balance is projected to be $2.7 million. The difference is a funding shortfall of $25 million.

**Sources of Funding**

*Development Charges*

The Township may consider the implementation of development charges which are intended to fund infrastructure related to new growth. Funds collected may be restricted in replacing current infrastructure. Given the historical growth rate of approximately 1% for residential development it is not likely that such charges would provide a significant source of funding.

*User Charges*

User charges will fund contributions to reserves and debt repayment. Reserves and debt issuance are an integral part of the financing solution. The current system services 524 connections. Even with the planned user charge increase of 46% over five years to meet the projected funding shortfall of $25 million in 2027 would require an annual deposit of $1,339,000 or $2555 per service connection. This equates to an additional $211 per month per service connection for user fees.

*Government Grants*

The costs to replace the system cannot be sustained solely on user charges. The Township will need to rely on government infrastructure funding to replace the system. The financial model illustrates the potential shortfall and the necessity for the prioritization of projects to optimize infrastructure funding as it becomes available.

It is imperative the Township be ready to move forward with specific detailed project requirements in order to satisfy the terms and conditions of possible funding opportunities.

This asset management plan is a foundation block for the implementation of an ongoing strategy to address emerging municipal infrastructure needs. Productive discussion regarding permanent funding solutions will be enhanced by the continued review and updating of the current model.

## 7.2 Eganville Arena and Community Centre

The four year history of the revenues and expenditure for the Eganville Arena and Community Centre is included in Appendix “J”, Table No. 32. Potential funding sources include:

- increased user fees
- increased taxation

- long term debt

The risk to increases within the fee structure for the facility is the loss of user groups. The current user fees are competitive with surrounding facilities. The majority of the user groups are youth groups for ice rental. If the fees are too high the groups will search for more competitive rates in other local facilities or reduce usage. The sensitivity to rate increases has increased the reliance on the municipal tax base. Currently, six per cent of the tax levy supports the operations of the arena. For perspective, a 1% tax rate increase raises approximately $27,000. The issuance of debt will create the need to increase user fees or taxation to repay the debt.

A proactive approach, including a condition assessment study, was undertaken to provide meaningful management information for decision making. In this manner, repair and replacement work can be assessed and completed on a timely basis to avoid the possibility of system failure.

The attached financial models (Appendix "J", Table No. 30 &31) explore a long range plan for maintaining the most cost effective approach for delivering services at acceptable levels, assuming the lowest risk possible.

Table No. 31 sets out the capital expenditures over a fifteen year period based on the expenditures included in Table No. 20. Table No. 30 includes the capital expenditures identified in Table No. 31 and the funding sources available. Funding sources include funds from reserves, proceeds of long term debt and government grants. As long term debt creates an obligation on future revenues, the repayment of long term debt is considered a commitment of future resources. The annual funding shortfall is calculated as the difference between required expenditures and the available sources of funding.

The continuity of reserves is included to add clarification to funding sources available. The financial plan includes funds allocated for capital projects to accumulate within the reserve and as funds are required for capital expenditures and debt repayment they are withdrawn from the reserve.

The assumptions, both general and specific, for the financial models are included in the following table:

| **Risk Factors** | **Considerations** |
|---|---|
| Interest Rate | Debt repayment on existing debt is calculated at 3% (based on floating prime rate) Annual updates to this plan, which is a "living" document would include a review of the borrowing rates. Interest on reserves has been calculated at 2% (prime less 1%) |

| | |
|---|---|
| Inflation | No inflation factor has been included in the model for Years 2014-2018 as costs are broad estimates and could be incurred within as short a time frame as 3 years. For mid range expenditures (5-10 year period), inflation has been estimated at 2% per year based on simple interest. The costs and scope of the projects beyond 10 years include inflation at a compounded rate of 2% annually. The risk for cost estimates increases in longer term projections. |
| Discounting to present value | The future value of replacement costs are calculated at 2% compounded inflation rate. The risk in the inflation estimate is the potential for increased service standards and the inflation indices for construction outpacing standard inflation.<br><br>To determine the present value investment of funds required, interest rates are estimated at 2%. |
| Allocation to Reserves | The 2014 annual allocation to reserves is based on a one time 5% increase to user rates including ice rental, hall rental and non resident user fees. Thereafter the annual rate will be adjusted for inflation, which is estimated at 2%.<br><br>Interest income is allocated to reserves based on the opening reserve balance. |
| Capitalization Threshold | Planned projects for the facility are summarized in Table No. 20. As the facility relies on the property tax base for sustainability, the Township is vulnerable to tax rate increases.<br><br>The expenditures include preventative maintenance as well as rehabilitation and replacement. |
| Disposals | Disposals do not provide any significant source of funding as the equipment would be obsolete at the time of replacement. As there is no expectation to remove the facility, demolition costs are not included in the forecast. |

**Funding Requirements**

Four major replacements are within the short term projection. The projects include the safety issues identified under the Ontario Fire Code Review, the replacement of the roof membrane system, the replacement of the exterior siding (cladding) and the replacement of the concrete slab with ice service piping. The projects total approximately $1.35 million dollars. Confirmed funding includes $100,000 from a Trillium grant.

The cumulative projected infrastructure deficit for 15 years is $1.4 million dollars.

**Sources of Funding**

*Taxation*

To adequately fund future capital costs and future debt payments the Township would have to set aside an additional $79,359 annually. This would equate to an additional 2.83% tax levy increase.

*Development Charges*

The Township may consider the implementation of development charges which are intended to fund infrastructure related to new growth. Funds collected may be restricted in replacing current infrastructure. Given the historical growth rate of approximately 1% for residential development it is not likely that such charges would provide a significant source of funding.

*Government Grants*

If government funding were available for the short term projects, the requirement to issue debt could be eliminated or significantly reduced. The elimination of debt payments would allow the Township to accumulate reserves to meet future life cycle costing. (Appendix “J” Table No. 33)

*Shared Services/Cost Sharing*

The arena user fees include funds from the neighboring municipality which are considered non resident user fees. The fees represent approximately 15% of the user fees. The Municipality may consider calculating actual usage by non residents and negotiating a cost sharing agreement based on usage.

**Impact of the Shortfall**

The costs to rehabilitate the facility cannot be sustained solely on taxation and user charges. The Township will need to rely on government infrastructure funding to rehabilitate the facility. Reserves and debt issuance are an integral part of the financing solution. The financial model illustrates the potential shortfall and the necessity for the prioritization of projects to optimize infrastructure funding as it becomes available.

It is imperative the Township be ready to move forward with specific detailed project requirements in order to satisfy the terms and conditions of possible funding opportunities.

This asset management plan is a foundation block for the implementation of an ongoing strategy to address emerging municipal infrastructure needs. Productive discussion regarding permanent funding solutions will be enhanced by the continued review and updating of the current model.

## 8.0 SUMMARY OF RECOMMENDATIONS

The following is a summary of recommendations contained in this Asset Management Plan.

- This AMP is a living document and should be reviewed and updated annually prior to the Township's annual budgeting process in order that information presented, including financial data, is current and relevant.

- The Township should hold a Public Meeting to present and discuss this AMP including current and desired levels of service, strategic asset management and funding required.

- The Township should post the AMP on its website for Public access.

- The Township should be annually reviewing its history of watermain breaks and continuing to compile new records of watermain breaks and any operational problems. This data should be entered into the Municipal GIS so that it can be analyzed for break patterns. Break records should include the location, time of year, pipe size, pipe material, observed soil conditions and failure cause. Careful examination of these records will allow Township staff to make better informed decisions with respect to watermain renewal or replacement activities. Trenchless technologies for watermain rehabilitation may also be investigated as opposed to more expensive open cut watermain replacement. Opportunities to coordinate watermain rehabilitation with road reconstruction and other related capital projects should be examined.

- The Township should implement a Closed Circuit Television (CCTV) condition assessment program for its entire sanitary and storm sewer system to validate pipe condition. This work program should be completed over a 5-year period beginning in 2014. Maintenance holes should be included in this assignment as it proceeds. Collection of this data will allow staff to make correct decisions with respect to priority replacement or rehabilitation of sanitary sewers. History of breaks and interviews with Public Works staff to determine operational issues should also constitute a component of this exercise. History of breaks and operational issues should be entered into the Municipal GIS so that it can be used as a decision support tool for capital planning. Break records should include the location, time of year, pipe size, pipe material, observed soil conditions and failure cause. Trenchless technologies for sanitary sewer rehabilitation may also be investigated as opposed to more expensive open cut watermain replacement. Opportunities to coordinate sanitary sewer rehabilitation with road reconstruction and other related capital projects should be examined.

- A summary of recommended Capital Projects for the Eganville Arena and Community Centre have been provided in Section 4.4 – Figure 16 and in Appendix "D" – Table No. 20.

- It is recommended that the Township re-examine and update its current performance measurement program based on the contents of this AMP.

- It is recommended that a more structured GIS updating progress be developed by the Township. This GIS updating process should occur semi-annually and be aligned with the Cartegraph MMS updating process to ensure both data sets are the same. Ideally, both the GIS and Cartegraph MMS should be accessing the same asset database.

- The Townships remaining assets (e.g., roads, municipal buildings, sidewalks, streetlights, etc.) should be incorporated into this AMP to make it comprehensive in nature.

- If not currently practiced, the Township should prepare an annual report on the delivery of services and progress made in achieving the AMP's targets. This report would provide the necessary feedback for staff, Council and the Public and identify whether or not services are delivered on time, on budget or at a level which meets user expectations.

- It is imperative that the Township be ready to move forward with specific detailed project requirements in order to satisfy the terms and conditions of possible funding opportunities.

## 9.0 SOURCE OF MATERIAL STATEMENT

In preparing this Asset Management Plan, the following background information provided by the Township, various publications, reports and best practice guides for asset management, has been referenced:

- *Township of Bonnechere Valley Strategic Plan 2004 – The Delfi Group*
- *Ontario Good Roads Association – A Guide for Road and Bridge Asset Management Plan Development, June 2011*
- *Canadian Infrastructure Report Card 2012*
- *Asset Management Centre 2011, FRAME – Fundamental Resources for Asset Management Excellence*
- *An Asset Management Governance Framework for Canada – February 2009 National Asset Management Working Group (NAMWG)*
- *Levels of Service Guidelines for Asset Management Planning, February 2012 – Tertiary Education Commission*

- *Developing Levels of Service – A Best Practice by the National Guide to Sustainable Municipal Infrastructure, April 2003*
- *Alternative Funding Mechanisms - A Best Practice by the National Guide to Sustainable Municipal Infrastructure, April 2003*
- *Selecting a Professional Consultant - A Best Practice by the National Guide to Sustainable Municipal Infrastructure, June 2006*
- *Deterioration and Inspection of Water Distribution Systems - A Best Practice by the National Guide to Sustainable Municipal Infrastructure, April 2003*
- *Selection of Technologies for the Rehabilitation or Replacement of Sections of a Water Distribution System - A Best Practice by the National Guide to Sustainable Municipal Infrastructure, March 2003*
- *Assessment and Evaluation of Storm and Wastewater Collection Systems - A Best Practice by the National Guide to Sustainable Municipal Infrastructure, July 2004*
- *City of Hamilton State of the Infrastructure (SOTI) Report 2005*
- *MFOA/OGRA Asset Management Webinar Series 2013*
- *Ontario Municipal Benchmarking Initiative – 2011 Performance Measurement Report*

## 10.0 ACRONYMS

The following is a list of acronyms referenced in this Asset Management Plan.

AMP – Asset Management Plan
Guide – "Building Together: Guide for Municipal Asset Management Plans"
JLR – J.L. Richards & Associates Limited
GIS – Geographic Information System
MMS – Maintenance Management System
WTP – Water Treatment Plant
STP – Sewage Treatment Plant
PV.C. – Polyvinyl Chloride
MOE – Ministry of the Environment
SOTI – State of the Infrastructure
PCI – Pavement Condition Index
CCTV – Closed Circuit Television
WRc – Water Research Centre
N/A – Either Not Available or Not Applicable
A.C. – Asbestos Concrete
TCA – Tangible Capital Assets
PTTW – Permit to Take Water

DWQMS – Drinking Water Quality Management Standard
DWWP – Drinking Water works Permit
EPA – Environmental Protection Act
OWRA – Ontario Water Resources Act
ECA – Environmental Compliance Approval
WSER – Wastewater Systems Effluent Regulations
MOE – Ministry of the Environment
CSF – Critical Success Factors
QBS – Qualifications-based Selection
RFQ – Request for Qualifications
RFP – Request for Proposals