arena is approximately 20,000 ft^2 in area with a 5,000 ft^2, two-storey community centre (Eagles Nest) addition constructed in the 1980s.

Since then, there has been regular maintenance, numerous upgrades and additions made to various parts of the building, including the community hall, change rooms, lobby, front entrance, ice plant, ice surface, lighting, flooring, chair lift and ice resurfacer. Facility and property maintenance and improvements have been funded over the years by Township revenues, community fundraising committees, local businesses and Provincial grants.

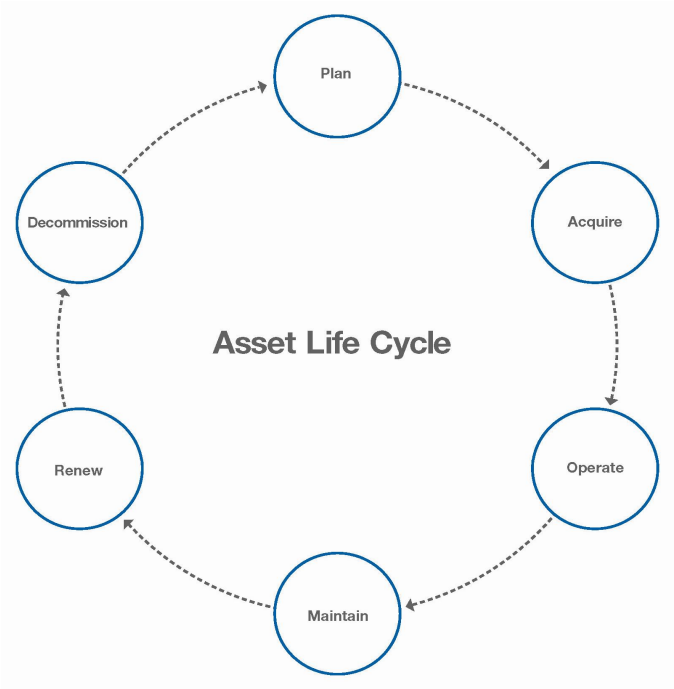
In July 2006, a comprehensive energy audit of the arena/community centre complex was completed. In August 2012, a condition assessment of the arena and community centre roof was also undertaken. A comprehensive condition assessment of the remaining building (structural, architectural, electrical and mechanical, including the ice plant systems) was completed in September 2013. A further Ontario Fire Code Review was completed in July 2013. The Ontario Fire Code Review resulted in supplemental Township Fire Prevention Inspections completed by the Bonnechere Valley Fire Department in August, 2013. A summary of these reports and inspection orders has been incorporated into this AMP. Please reference Appendix D, Table No. 20 for a comprehensive listing of major components which make up the arena/community centre complex, including their respective estimated condition.

For a more detailed breakdown of this facility's condition assessment and priorities for repair, restoration or replacement, reference the Type II Condition Audit Report prepared in September, 2013 (separate document).

3.5 Asset Life-Cycle

Asset management is a structured program to minimize the life-cycle costs of asset ownership while maintaining required service levels and sustaining the infrastructure. The principle of *Life-Cycle Costing* is expressed in financial terms to include the total cost of an asset throughout its entire life. This should encompass all the activities associated with acquisition, installation, operation, maintenance, periodic refurbishments and disposal of that asset as shown in Exhibit 1 below.

Exhibit 1 – Typical Asset Life Cycle

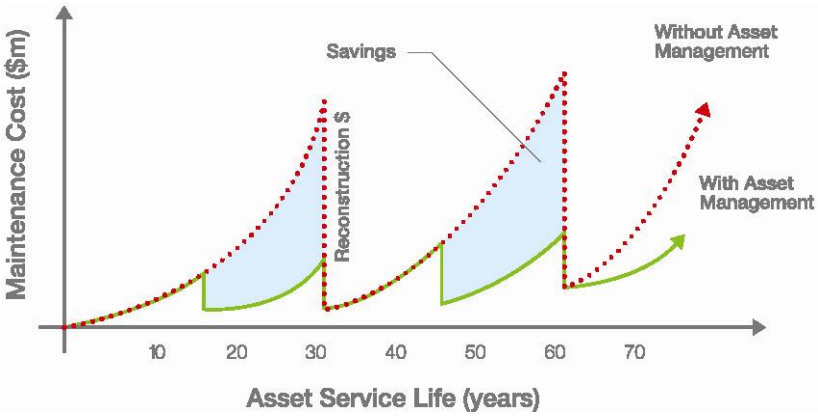


In this AMP, supporting tables reference the column headings “Ideal Service Life” and “Remaining Service Life” in years. Ideal Service Life is a reference to the assets ideal life cycle assuming regular maintenance and monitoring is completed over the life span of the asset. It is noted that Ideal Service Life is based on the Canadian Infrastructure Report Card (2012) where infrastructure service lives were adapted from the City of Hamilton State of the Infrastructure (SOTI) Report (2005). As indicated in the City of Hamilton SOTI Report, “It is recognized that asset life is influenced by many variables such as material, soil conditions, uneven manufacturing quality, installation practices, local weather conditions, etc. “ For these reasons, both of these Reports summarize a range of “Typical Useful Life” in years for each asset.

In the interest of generating a conservative condition assessment, however, the lower bound service life for each asset was selected as its “Ideal Service Life” and used in the supporting condition assessment tables which form part of this AMP.

“Remaining Service Life” has simply been calculated by subtracting the assets current age from “Ideal Service Life”.

Exhibit 2 – Asset Management Extends Service Life and Reduces Maintenance Costs

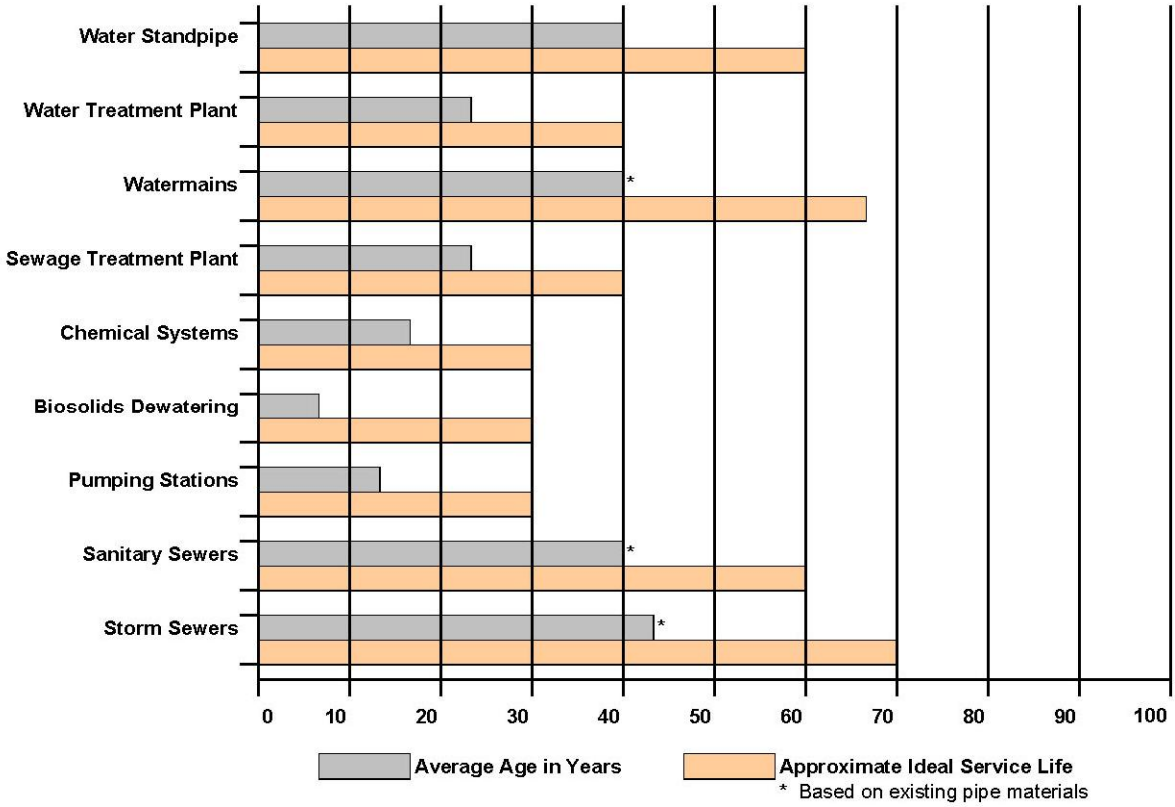


3.5.1 Major Township Infrastructure - Average Age and Ideal Service Life

Currently, much of the Township's infrastructure is approximately halfway through its ideal service life. As these assets age, *preventative* maintenance will extend their useful life. Annual maintenance costs will, however, gradually increase over time as these assets approach their end-of-life cycle. The Township must be proactive in monitoring these annual maintenance costs so that staff and Council can make informed decisions with respect to the timing of various inevitable capital projects for rehabilitation or replacement of problem infrastructure.

Exhibit 3 below illustrates the Township's water and sewer infrastructure Average Age versus Ideal Service Life.

Exhibit 3 – Average Age and Ideal Service Life



3.6 Asset Condition

Depending on the asset class (e.g., roads, sewers, watermains, buildings, etc.), a municipality should collect asset condition data to determine the need and timing for some preventative or remedial action to prevent loss or interruption of service or economic loss.

Asset condition reflects the physical state of the asset, which may or may not affect its performance. The performance of the asset is the ability to provide the required level of service to customers. Generally, this can be measured in terms of reliability, availability, capacity, and meeting customer demands and needs. All of this is critical information for determining the remaining service life of an asset, and more importantly, the timing for possible intervention steps to bring levels of service back to the desired standard.

Aside from the physical condition of an asset, there are other “intangible” factors that also need to be considered to determine overall condition and remaining service life. These factors could include:

- Technical advances which might make the asset obsolete.
- Compliance – to what extent does the asset meet design and operational requirements?

- Functionality – does the asset have the ability/capacity to meet community expectations/growth/service levels?
- Economic life – the cost of continuing to operate/maintain/repair/rehabilitate the asset versus its full replacement.

It is critical that the Township have a clear understanding of the condition of their assets and how they are performing. All management decisions regarding maintenance, rehabilitation and renewal revolve around these two aspects.

3.7 Asset Condition Rating System

One widely recognized approach for condition assessments focuses on collecting performance data in order to manage risks associated with critical assets. Once an asset's baseline performance data has been established, it is periodically monitored to determine how that asset is operating. Using this approach, condition grading standards can be relatively simple (e.g., good, average, fair, poor). The Township has chosen to adopt a similar holistic Asset Condition Rating System which applies to all assets and is straightforward in its interpretation for municipal staff and Council.

The Townships AMP uses a rating system based on the information contained in Section 3.6. This includes both the *physical* condition and *intangible* factors described. The Asset Condition Rating System also incorporates any existing condition assessment reports which are based on standard engineering practices and recognized rating systems (i.e. Roads Needs Studies - Pavement Condition Index (PCI), Bridge Inspection Reports and Sewer System CCTV Inspections (WRc).

Due to the lack of available buried pipe condition assessment data, a significant emphasis has been placed on pipe "material", "diameter" and "age" to determine overall condition. It has also been determined that there are some data gaps in the tables generated. Missing data has been identified as "N/A" (not available) in the tables presented in the appendices. The Asset Condition Rating System described in Exhibit 4 below is self-explanatory and has been used to determine priority asset improvements contained in this AMP.

Exhibit 4 – Asset Condition Rating System

Average Rating	Condition	Description
8-10	**Good**	Asset is physically and structurally sound, performing its function as originally intended. Required maintenance costs are within standards. Some small local improvements may be needed. Asset is relatively new or recently rehabilitated and in the early stage of its expected useful life.
6-7	**Average**	Asset is physically and structurally sound, performing its function as originally intended. Required maintenance costs are currently within standards but increasing. Some continued improvement will be needed. Asset has been used for sometime but within the mid-stage of its expected useful life.
3-5	**Fair**	Asset is showing signs of deterioration, performing at a lower level than originally intended. Some components are becoming physically deficient and substantial improvement is needed. Maintenance costs are approaching maximum acceptable standards. Asset has been in service for a long time and is within the later stage of its expected useful life.
1-2	**Poor**	Asset is showing signs of significant deterioration, performing to a much lower level than originally intended. A major portion of the asset is physically deficient. Maintenance costs significantly exceed acceptable standards. Asset is approaching or at the end of its life expectancy and there is a high probability of failure.

3.8 Water Distribution System Condition

A detailed breakdown of the water system has been completed which includes linear infrastructure and appurtenances, as well as supporting above-ground structures (i.e., WTP, Standpipe) and auxiliary equipment. This information is a combination of Tangible Capital Asset (TCA) data, Cartegraph MMS data, background reports, GIS data and other life cycle and condition rating information.

3.8.1 Linear Infrastructure and Appurtenances

The water distribution system linear infrastructure and appurtenances include watermains, hydrants, valves, water services and water meters. Each detailed information table contains Asset IDs, Originally Installed Date, Diameter and Material, Location, Age, Ideal Service Life, % of Service Life Remaining, Remaining Service Life, Condition Rating, Condition Estimate, Current Valuation and Replacement Valuation. Please reference the following Tables in Appendix “A”:

- Environmental Services Table No. 1 – Water Distribution System (Watermains)
- Environmental Services Table No. 2 – Water Distribution System (Hydrants)
- Environmental Services Table No. 3 – Water Distribution System (Water Valves)

- Environmental Services Table No. 4 – Water Distribution System (Water Services)
- Environmental Services Table No. 5 – Water Distribution System (Water Meters)

3.8.2 Water Treatment Plant, Standpipe and Other Auxiliary Systems

For asset condition, the Water Treatment Plant spreadsheet has been subdivided into various supporting sub-systems, including civil, process mechanical, building mechanical, electrical, structural/architectural, and instrumentation and controls. The water standpipe has been subdivided in a similar fashion. The detailed information table contains Quantity, Class Type, Originally Installed Date, Last Improvements, Age, Ideal Service Life, % of Service Life Remaining, Remaining Service Life, Condition Rating, Condition Estimate, Current Valuation, and Replacement Valuation. Please reference the following Table in Appendix "A":

- Environmental Services Table No. 6 – Water Distribution System (WTP and Standpipe)

3.8.3 Water Distribution System Condition Summary

Environmental Services Table Nos. 1 through 5 have been summarized below in Exhibit 5 to reflect Average Condition Rating and Average Condition Estimate.

Exhibit 5 - Water Distribution System Linear Infrastructure Condition Summary

Asset	Average Condition Rating	Average Condition Estimate
Watermains	4	Fair
Hydrants	5	Fair
Water Valves	5	Fair
Water Services	3	Fair
Water Meters	9	Good

Exhibit 6 below is a summary of Ideal Service Life for water distribution system linear infrastructure, appurtenances and materials. As described in Section 3.5, these service life numbers have been a key factor in determining overall condition of the water distribution system.

Exhibit 6 - Water Distribution System Ideal Service Life Summary

Asset	Ideal Service Life (Years)
Watermains	(varies, see below)
Hydrants	75
Valves	75
Water Services (19mm copper)	60
Water Meters	15

WATERMAINS	
Material	**Ideal Service Life (Years)**
250 mm PVC.	75
200 mm PVC.	75
150 mm PVC.	75
100 mm PVC.	75
50 mm PVC.	75
150 mm A.C.	70
200 mm A.C.	70
150 mm Ductile Iron	50
200 mm Ductile Iron	50
37 mm Copper	60
250 mm SERIES 125 HDPE BUTT FUSED	75
250 mm cement lined steel	50
200 mm steel	50

Exhibit 7 below is a summary of Table No. 6 which indicates Average Condition Rating and Average Condition Estimate for the Water Treatment Plant and Standpipe.

Exhibit 7 - Water Treatment Plant and Standpipe Condition Summary

Asset	Average Condition Rating	Average Condition Estimate
Standpipe		
Water Standpipe and Auxiliary Systems	8	Good
Water Treatment Plant		
Civil	6	Average
Process Mechanical	8	Good
Building Mechanical	8	Good
Electrical	8	Good
Structural/Architectural	6	Average
Instrumentation and Controls	10	Good

3.9 Sanitary Sewer Collection System Condition

A detailed breakdown of the sanitary sewer system has been completed which includes linear infrastructure, appurtenances, pumping stations as well as supporting above-ground structures (i.e., STP, Chemical Systems Building, Biosolids Dewatering Facility). This information is a combination of Tangible Capital Asset (TCA) data, Cartegraph MMS data, background reports, GIS data and other life cycle and condition rating information.

3.9.1 Linear Infrastructure and Appurtenances

Sanitary sewer collection system linear infrastructure and appurtenances includes sanitary sewers, sanitary maintenance holes and sanitary services. Each detailed information table contains Asset IDs, Originally Installed Date, Diameter and Material, Location, Age, Ideal Service Life, % of Service Life Remaining, Remaining Service Life, Condition Rating, Condition Estimate, 2011 Valuation, 2012 Valuation and Replacement Cost Valuation. Please reference the following Tables in Appendix “B”:

- Environmental Services Table No. 7 – Sanitary Sewer Collection System (Sanitary Sewers)
- Environmental Services Table No. 8 – Sanitary Sewer Collection System (Sanitary Maintenance Holes)
- Environmental Services Table No. 9 – Sanitary Sewer Collection System (Sanitary Services)

3.9.2 Pumping Stations, Sewage Treatment Plant, Chemical Systems Building, Biosolids Dewatering Facility

For asset condition, the Sewage Treatment Plant (Main Control Building), Chemical Systems Building and Biosolids Dewatering Facility spreadsheets have been divided into their various supporting sub-systems, including but not limited to, civil, process mechanical, building mechanical, electrical, structural/architectural and instrumentation and controls. The Pumping Stations have been approached in a similar fashion. The detailed information table contains Quantity, Class Type, Originally Installed Date, Last Improvements, Age, Ideal Service Life, % of Service Life Remaining, Remaining Service Life, Condition Rating, Condition Estimate, Current Valuation and Replacement Valuation. Please reference the following Tables in Appendix “B”:

- Environmental Services Table No. 10 – Sanitary Sewer Collection Systems (Pump Stations)
- Environmental Services Table No. 11 – Sanitary Sewer Collection System (Sewage Treatment Plant)
- Environmental Services Table No. 12 – Sanitary Sewer Collection System (Chemical Systems Building)
- Environmental Services Table No. 13 – Sanitary Sewer Collection System (Biosolids Dewatering Facility)

3.9.3 Sanitary Sewer Collection System Condition Summary

Environmental Services Table Nos. 7, 8 and 9 have been summarized below in Exhibit 8 to reflect Average Condition Rating and Average Condition Estimate.

Exhibit 8 – Sanitary Sewer Collection System Linear Infrastructure Condition Summary

Asset	Average Condition Rating	Average Condition Estimate
Sanitary Sewers	5	Fair
Sanitary Maintenance Holes (1200 mm dia.)	5	Fair
Sanitary Services	3	Fair

Exhibit 9 below is a summary of Ideal Service Life for the sanitary sewer collection system linear infrastructure, appurtenances and materials. As described in Section 3.5, these service life numbers have been a key factor in determining overall condition of the sanitary sewer collection system.

Exhibit 9 – Sanitary Sewer Collection System Ideal Service Life Summary

Asset	Ideal Service Life (Years)
Sanitary Sewers	(varies, see below)
Sanitary Maintenance Holes (1200 mm dia.)	75
Sanitary Services	60

SANITARY SEWER	
Diameter / Material	**Service Life (Years)**
200 mm A.C CL. 3300	70
200 mm A.C CL. 2400	70
250 mm A.C CL. 2400	70
250 mm A.C CL. 3300	70
300 mm A.C CL. 2400	70
400 mm A.C CL. 3300	70
75 mm Polyethylene Dupont Series I.P 80	100
150 mm PVC	100
200 mm PVC	100
250 mm PVC	100
200 mm Conc.	100
100 mm Ductile Iron	50
150 mm Ductile Iron	50
200 mm Ductile Iron	50

Exhibit 10 below is a summary of Table Nos. 10 through 13 which indicates the Average Condition Rating and Average Condition Estimate for the Pumping Stations, Sewage Treatment Plant (Main Control Building), Chemical Systems Building and Biosolids Dewatering Facility.

Exhibit 10 - Sewage Treatment Plant and Related Infrastructure Condition Summary

Asset	Average Condition Rating	Average Condition Estimate
Pumping Stations		
South Side Pumping Station	9	Good
North Side Pumping Station	8	Good
Raglan Street Pumping Station	9	Good
Mill Street Pumping Station	9	Good
Sewage Treatment Plant		
Civil	7	Average
Process Mechanical	7	Average
Building Mechanical	6	Average
Electrical	6	Average
Structural/Architectural	7	Average
Instrumentation and Controls	5	Fair
Chemical Systems Building		
Process Mechanical	10	Good
Building Mechanical	10	Good
Electrical	9	Good
Structural/Architectural	7	Average
Instrumentation and Controls	9	Good
Biosolids Dewatering Facility		
Civil	8	Good
Process Mechanical	8	Good
Building Mechanical	8	Good
Electrical	8	Good
Structural/Architectural	8	Good
Instrumentation and Controls	8	Good

3.10 Storm Sewer System Condition

A detailed breakdown of the storm sewer system has been completed that includes linear infrastructure and appurtenances. This information is a combination of Tangible Capital Asset (TCA) data, Cartegraph MMS data, background reports, GIS data and other life cycle and condition rating information.

3.10.1 Linear Infrastructure and Appurtenances

Storm sewer system linear infrastructure and appurtenances include storm sewers, storm maintenance holes, catch basins and culverts. Each detailed information table contains Asset IDs, Originally Installed Date, Diameter and Material, Location, Age, Ideal Service Life, % of Service Life Remaining, Remaining Service Life, Condition Rating, Condition Estimate, Current Valuation and Replacement Valuation. Please reference the following Tables in Appendix "C":

- Environmental Services Table No. 14 – Storm Sewer System (Storm Sewers)
- Environmental Services Table No. 15 – Storm Sewer System (Storm Maintenance Holes)
- Environmental Services Table No. 16 – Storm Sewer System (Catch Basins)
- Environmental Services Table No. 17 – Storm Sewer System (Urban Culverts)
- Environmental Services Table No. 18 – Storm Sewer System (Driveway Culverts)
- Environmental Services Table No. 19 – Storm Sewer System (Rural Culverts)

3.10.2 Storm Sewer System Condition Summary

Environmental Services Table Nos. 14 through 19 have been summarized below in Exhibit 11 to reflect Average Condition Rating and Average Condition Estimate.

Exhibit 11 – Storm Sewer System Linear Infrastructure Condition Summary

Asset	Average Condition Rating	Average Condition Estimate
Storm Sewers	5	Fair
Storm Maintenance Holes	5	Fair
Catch Basins	3	Fair
Urban Culverts	0*	Poor
Driveway Culverts	0*	Poor
Rural Culverts	0*	Poor

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

Exhibit 12 below is a summary of Ideal Service Life for the storm sewer system linear infrastructure, appurtenances and materials. As described in Section 3.5, these service life numbers have been a key factor in determining overall condition of the storm sewer collection system.

Exhibit 12 – Storm Sewer System Ideal Service Life Summary

Asset	Ideal Service Life (Years)
Storm Sewers	(varies, see below)
Storm Maintenance Holes	75
Catch Basins	60
Urban Culverts	25
Driveway Culverts	25
Rural Culverts	25

STORM SEWER	
Material	**Service Life**
300 mm Smooth Wall Plastic	80
400 mm Smooth Wall Plastic	80
450 mm Smooth Wall	80
300 mm Metal	50
400 mm Metal	50
450 mm Metal	50
500 mm Metal	50
600 mm Metal	50
750 mm Metal	50
800 mm Metal	50
900 mm Metal	50
400 mm Steel	50
150 mm Concrete	80
200 mm Concrete	80
300 mm Concrete	80
380 mm Concrete	80
400 mm Concrete	80
450 mm Concrete	80
500 mm Concrete	80
600 mm Concrete	80
900 mm Concrete	80
1100 mm Concrete	80
300 mm PVC	80
375 mm PVC	80

STORM SEWER	
Material	**Service Life**
400 mm PVC	80
450 mm PVC	80
500 mm PVC	80
600 mm PVC	80
70 mm PVC	80
750 mm PVC	80

3.11 Arena and Community Centre Condition Summary

In August, 2012, a review of the Eganville Arena and Community Centre (Eagles Nest) roof membrane system was undertaken to provide an opinion of probable cost for its replacement. A follow-up Type II Building Condition Audit Report was also undertaken in July, 2013 which incorporated an Ontario Fire Code Review and subsequent Township Fire Prevention Inspections. The results of these studies have been consolidated in Appendix "D", Table No. 20.

Exhibit 13 below is a summary of the Overall Condition of the Arena and Eagles Nest Community Centre.

Exhibit 13 – Arena and Community Centre Condition Summary

ASSET	Overall Condition Estimate
Mechanical Systems	Fair
Electrical Systems	Fair
Structural Systems	Fair
Architectural Systems	Fair to Poor
Ontario Fire Code Review	Fair to Poor

3.12 Management of Asset Inventory

The Township's Water and Sewage Systems Infrastructure Management Strategy Report contains detailed information on the Water Treatment Plant, water distribution system and standpipe, and the Sewage Treatment Plant, sewage collection system and sewage pumping stations. The ultimate objective of this Management Strategy is to ensure that the Township is aware of the potential needs of the infrastructure over the short (0-5 years), medium (5-10 years) and long terms (over 10 years) so that components of it are properly maintained to be in good working condition, renewed at appropriate times, and that sufficient capacity is available for potential future development. This document is updated regularly by the Township and is part of annual budget reviews.

Hardcopy reports are further supplemented by graphical and attribute data contained in the Municipal GIS. The Township has been actively building and maintaining its piped infrastructure GIS since 2008. The GIS is a significant resource and decision support tool with respect to planning, engineering and asset management. The Township also maintains a significant asset management database in its Cartegraph MMS software which is linked to both the Vadim accounting software and GIS. This includes all Township assets and infrastructure subject to depreciation. Characteristics and condition of piped infrastructure and appurtenances contained in both the Cartegraph database and Municipal GIS are updated on an annual basis so that they reflect the latest maintenance, rehabilitation or development information.

3.13 Data Verification and Condition Assessment Policy

The Township does not have an "official" data verification and condition assessment policy. The adopted approach to data verification is simply to update and populate the Cartegraph MMS and Municipal GIS as required. These updates occur in the form of maintenance records, site observed conditions gathered through repairs and planned condition assessments and special projects. The updating and verification process is shared by municipal staff and its engineering and GIS consultant. The following are three (3) examples which demonstrate the Township's commitment to continuously improving its asset information through data verification, planned condition assessments and meeting or exceeding provincial legislation requirements.

Example No. 1

The Township completed a comprehensive Water and Sewage Systems Infrastructure Condition Assessment Report in May, 2009. This report includes detailed condition assessment information on all major components of the water distribution and sewage collection systems. The report also contains asset specific summary tables which outline proposed improvements, condition assessment activities, time frames and budgetary considerations. Information collected through completion of these planned activities provides the Township with the opportunity to compare "existing" asset data against "actual" data collected in the field. Newer and more accurate information is updated in the GIS and Cartegraph MMS as required. A sample table extracted from this report is provided below for reference purposes.

Example - Summary of Sewer Collection System Activities

ACTIVITY	TIME FRAME	BUDGET ALLOWANCE
1. Undertake a video inspection of the system	0-5 years	$60,000
2. Implement repairs where required	0-5 years	Budget annually
3. Update hydraulic model as information becomes available	Ongoing	On an as-needed basis
4. Update GIS as additional information becomes available	Ongoing	On an as-needed basis

Example No. 2

In the spring of 2008, the Township invested in detailed topographic mapping and orthophoto imagery covering the built-up and future development areas of the Village of Eganville. This highly accurate geo-referenced data was used to spatially adjust its piped infrastructure networks in the GIS environment, including water and sewer pipe segments as well as all related above-ground appurtenances (i.e., fire hydrants, manholes, catch basins, etc.). Physical characteristics gleaned from reviewing hard copy record drawings were subsequently added to the pipes and structures in the GIS as linked tabular data.

Previous to this exercise, the water supply/distribution and sewage collection systems were older AutoCAD drawings which were not geo-referenced and mainly schematic in nature with no tabular data attributes. The updated and improved piped infrastructure networks in the GIS have been instrumental in developing hydraulic capacity models for both of these infrastructure networks. These models provide the Township with tools to assess existing system capacity limitations and the impact of new development prior to approval.

Example No. 3

With respect to the WTP, distribution system and associated works, Provincial legislative requirements are generally governed by the Safe Drinking Water Act and associated regulations and standards made under the Act. This includes Ontario Regulation 170 - Drinking Water Systems; the Drinking Water Quality Standards; and the Municipal Drinking Water Licensing Program which requires a waterworks Owner to have a Drinking Water Works Permit (DWWP), a Permit to Take Water (PTTW). an accepted Operational Plan based on the Drinking Water Quality Management Standard (DWQMS), an accredited Operating Authority and a Financial Plan under the Financial Plans Regulation.

Condition assessment, ongoing maintenance and management of system components as well as data collection and reporting are generally completed in accordance with the Municipality's in place DWQMS and associated licensing requirements as may be updated from time to time by the Municipality and/or the Province.

Similarly, and with reference to the STP, collection system and associated works, provincial legislative requirements are generally governed by the Environmental Protection Act (EPA) and the Ontario Water Resources Act (OWRA) and their associated regulations and standards made under the Acts. This includes the main instrument of environmental approval - the Environmental Compliance Approval (ECA) associated with the system. ECA’s replace the previous C of A (Certificate of Approval) for a system although the terms and conditions associated with an existing C of A continue to apply as if they were an ECA. In addition to the above-noted provincial legislation, the federally mandated Wastewater Systems Effluent Regulations (WSER) outlines additional criterion, and data collection and reporting requirements for a municipal sewage system that discharges to the environment.

3.14 Limitations and Assumptions

The information and tables developed for Section 3.0 of the AMP are based on discussions and interviews with municipal staff, GIS and Cartegraph MMS data and a review of available documentation (e.g., drawings, manuals, past reports, financial records, etc.), as well as previous experience with these assets and other similar related facilities and infrastructure. No condition assessment, testing or specialty inspections were carried out as part of the investigative work related to preparation of this AMP.

In developing the AMP, and specifically the State of Local Infrastructure tables, a number of data fields require a description of their limitations and assumptions. These fields include references to financial valuation, condition estimate, overall performance, ideal service life and remaining service life.

Development of the data contained in these fields can be somewhat subjective (i.e., Exhibit 4, Asset Condition Rating System) due to the number of combinations and permutations of systems, factors, unit costs and probabilities involved and the requirement that the "bottom line" information be presented in a readable and useable format. Some of the specific assumptions that have been made are noted below:

- *The estimated life expectancy of an individual system and its components are based, in general, on materials, the manufacturer's published data and perceived industry standards. This accounts for wear and tear, deterioration, average life expectancy, obsolescence, etc., and does not preclude that systems can remain functional for longer periods of time. Soil conditions have not been factored into estimated life expectancy for underground piped infrastructure and can have a bearing on actual service life.*

- *The assessment of the remaining life of a system or components is not exact. It is based on limited information and, in many instances, influenced by factors that may occur at some future date. Even the urgency of replacement may be determined by factors that cannot be predicted. For example, retroactive rulings by regulatory agencies may necessitate unanticipated replacement or updating of equipment within a short time frame. By contrast, items such as painting and miscellaneous interior finishes might be delayed for an extended period of time, at the discretion of the Township subject to financial and other considerations. The actual year of replacement will be dictated by the physical condition of the system at the time of replacement. Also, certain replacements may be advanced or deferred by the Township, subject to other conditions (e.g., financial, coordination with related work, incorporation of wider scope upgrades, etc.).*

- *Items identified as N/A in the various supporting tables and appendices indicate that this information was either <u>not available</u> or <u>not applicable</u> at the time that this AMP was prepared.*

- *Current Valuation and Replacement Valuation costs noted for the various assets are <u>order of magnitude only</u> and are based on Tangible Capital Asset data. Unit costs used to generate Replacement Valuation include the cost of construction and are based on current prices in the construction industry and/or experience.*

- *Current and Replacement Valuation costs are expressed in 2013 dollars, therefore, if these costs are to be used for long-range cash flow projections, the implications for potential future trends of inflation and interest must be applied accordingly. It is recommended that the AMP be reviewed annually in order that information presented, including financial data, be kept current and relevant.*

- *It has been assumed that existing Asbestos Concrete, ductile iron and steel pipes will be replaced with PVC pipe, therefore, replacement costs for Asbestos Concrete pipe has been based on unit rates for PVC pipe.*

- *Current MOE design guidelines indicate that the minimum diameter for sewers is 200 mm. therefore, any existing sewer less than 200 mm in diameter are assumed to be replaced with a 200 mm diameter sewer. As such, these unit rates have been applied to calculate replacement value.*

- *Unless this information has been provided, maintenance holes are assumed to be 1200 mm in diameter.*

- *Unless this information has been provided, driveway culverts are assumed to be 300 mm in diameter*

- *Unless this information has been provided, rural culverts are assumed to be 450-500 mm in diameter.*

4.0 INFRASTRUCTURE REPORT CARD

An analysis of the Township's communal water and sewage system infrastructure, and arena/community centre information has been completed based on the asset "Condition Estimate", remaining "Ideal Service Life" data, and various intangible factors discussed in Section 3.6. What follows are a series of individual "report cards" for the major assets contained in this AMP.

Recommendations for capital and operating plans and budgetary costs have been developed based on each asset's report card. Current and replacement valuations for each system's infrastructure are included. The unit costs used to generate replacement costs have also been documented, including assumptions. This information in turn, has been incorporated in Section 7.0 – Financing Strategy.

4.1 Water System Analysis Report

The Water Treatment Plant and Standpipe are in Average to Good condition overall. The water distribution system and appurtenances are in Fair condition overall. Replacement of appurtenances should coincide, where possible, with watermain rehabilitation. Drawing No. 4 shows the location of all watermains with a condition rating of Poor (1-2), Fair (3-5), Average (6-7) and Good (8-10). It is important to note that 54% of the 150 mm watermains are constructed from Asbestos Concrete. Similarly, 10% of the 200 mm watermains are constructed from