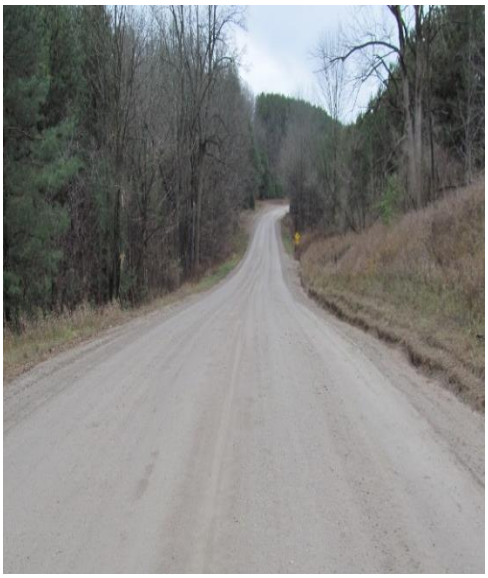
TOWNSHIP OF ADJALA-TOSORONTIO

ASSET MANAGEMENT PLAN 2017 UPDATE



TOWNSHIP OF ADJALA-TOSORONTIO

ASSET MANAGEMENT PLAN

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TOWNSHIP OF ADJALA-TOSORONTIO

ASSET MANAGEMENT PLAN

1.0 EXECUTIVE SUMMARY

The Township of Adjala-Tosorontio has undertaken an Asset Management Plan (AMP) as a tool to help manage its key assets in a sustainable manner.

As a prerequisite to future provincial funding, this Plan fulfills the requirements outlined within the *Building Together Guide for Municipal Asset Management Plans* released by the Ontario Ministry of Infrastructure.

Well-managed public infrastructure is crucial to the prosperity and quality of life in our community. Reliable and well-maintained infrastructure assets are essential for the delivery of critical core services for the residents of the municipality and surrounding areas.

The Plan identifies and rates the Township's infrastructure by asset class, then assesses each asset's replacement value and determines the capital needs to maintain that asset class. The shortfall between the asset's replacement value and available resources is identified as the *"Infrastructure Gap*".

Measured in 2017 dollars, the replacement value of the seven major asset categories analyzed totals approximately $128 million.

Overall, the Township's assets are in a good state of repair or better.

An asset management strategy within this document identifies funding tools and recommends fourteen steps to helping ensure sustainability of the Township's assets by closing the infrastructure gap. Key to such sustainability is continued grant funding from the Province for critical assets such as bridges, the promotion of growth and development to help provide a rate base sufficient to carry the costs of services, and the need to build reserves for asset replacement.

2.0 INTRODUCTION

The Province has initiated new funding and grant programs which make asset management practices a precondition to funding approval. To be eligible for such funding, the Township is required to demonstrate that it has developed a current formal asset management plan. This Plan meets such a requirement.

2.1 DEFINITION OF AN ASSET MANAGEMENT PLAN

An AMP is a strategic document that directs how a group of assets should be managed over a set time period. This Plan (or AMP) describes the characteristics and condition of the Township's largest assets, their expected levels of service, and the recommended actions to keep the assets effective and efficient.

2.2 THE ROLE OF INFRASTRUCTURE

The Township's delivery of core services depends upon the reliable and continuous use of physical assets which together serve as a coordinated system of infrastructure to help deliver these services in a cost-effective manner. These assets range from physical structures such as roads and bridges to playgrounds, buildings, and rolling stock such as fire trucks and heavy construction equipment. The Township's role of service delivery therefore cannot continue without the use of its infrastructure.

2.3 RELATIONSHIP OF ASSET MANAGEMENT TO PLANNING

Most of our physical assets integrate with each other in one way or another, and therefore require a multi-disciplinary approach to plan each asset's maintenance and replacement. By planning for the management of each asset in a coordinated manner, greater efficiency can be derived, thereby helping improve asset lifespan, reduce replacement and maintenance costs, and ensure better service delivery.

2.4 PURPOSE OF THE ASSET MANAGEMENT PLAN

To better coordinate the wise management of our assets in a holistic approach, the Township has prepared an Asset Management Plan. This Plan helps to prepare for future asset needs by forecasting which assets will require replacement, at what time, and what cost, in an effort to ensure sustainability of those assets.

The Plan recommends proactive, preventative maintenance and rehabilitation measures, designed specifically to help reduce costs over the lifespan of the asset.

The Plan also incorporates the tools for life cycle costing, long term performance measurement, and reviews of level of service.

The Plan also recommends that financial resources be made available to ensure the continued operation, maintenance, and ultimate replacement of Township assets at the optimal time with the intention of ensuring the lowest life-cycle cost for each asset.

The purpose of the Plan, therefore, is to provide a method to manage all of the Township's assets in a holistic manner over the lifecycle of the assets, using financial and technical analysis, to meet a specified level of service in a cost-effective manner.

To be more succinct, the objective of the Township's Plan is to meet our current needs without compromising the potential of our future.

> ***Asset Management Objective:***
> *"To meet our current needs without compromising the potential of our future."*

2.5 ASSETS INCLUDED IN THE ASSET MANAGEMENT PLAN

The Plan has been structured as a living document, to be refined and updated on a regular basis to ensure continuing relevance and direction.

Although most of the Township's assets are operated cohesively, they will be separated for analysis within this Plan.

Currently, the Plan covers the following municipal assets:

- Roads (Paved, Gravel and Surface treated)
- Bridges
- Water Treatment and Distribution
- Wastewater Collection and Treatment
- Vehicles
- Public Works Equipment
- Buildings

These asset classes were reviewed at a very high level due to the nature of data and information available. Further updates to the Plan will refine the process to include additional asset valuations as further detailed condition assessments are developed.

2.6 LIMITATIONS TO SHORT-TERM PLANNING CAPACITY

The Asset Management Plan is intended as a long-term financial tool to help set financial goals and guide decisions over a multi-year term. It is not intended to necessarily direct the annual capital budget process in the short term or to restrict future decisions of Council in the annual budget process. Such decisions require further, more comprehensive input not fully considered within this Plan.

2.7 PLANNING PERIOD

All assets have a limited lifespan, and each of our assets has a known age and condition. By weighing each asset's age and condition against an expected lifespan, we can determine an expected rate of deterioration and its effects on future costs.

The lifecycle for each asset has been determined previously according to tangible capital asset accounting guidelines (PSAB 3150) established by the Public Sector Accounting Board.

The Planning period for the Asset Management Plan had been chosen to be 10 years, now from 2017 to the year 2026. Despite the relatively short 10 year Planning period, all assets have been measured against a full life-cycle costing.

It was decided that implementing a planning period greater than 10 years would be too speculative and less accurate than to implement a plan which uses a shorter planning horizon with a regular review and update.

2.8 HOW THE ASSET MANAGEMENT PLAN WAS DEVELOPED

The Plan was developed as a three-stage process, beginning with a technical infrastructure assessment. The technical assessment was then weighed against financial resources and funding requirements to arrive at a plan which incorporates policy and direction.

2.8.1 Infrastructure Assessment:

The infrastructure assessment began with an asset listing according to PSAB 3150 recording guidelines. This inventory identified Township assets, their age, year of construction, and current value.

Assets were assigned a condition rating, which measured the age and the condition of each asset. Assets were then grouped into management compartments.

The desired level of service was reviewed for each management compartment, with the level of service being weighed against the Township' strategic directions.

2.8.2 Financial Resources and Requirements:

The current value of assets was weighed against the depreciated value of assets, revenues currently set aside for their replacement, and what would be required to bring them up to full value as of today's date. The difference in values is called the "Infrastructure Gap".

2.8.3 Asset Management Plan:

The Plan was then generated by comparing the infrastructure assessment to our financial resources and requirements. The Plan incorporates a recommended strategy which

directs the creation of efficiencies, funding programs, taxes, fees, and how to leverage all of this to build efficiency.

2.9 EVALUATION AND IMPROVEMENT

As a planning document, the Asset Management Plan assumes a set of variables for depreciation, replacement, and asset value that may fluctuate over time. It is therefore necessary to ensure regular annual evaluation to ensure accuracy and improvement. A computerized database has been utilized to facilitate updates, and these updates will be incorporated into the regular review process. Regular reviews have been conducted annually since 2013.

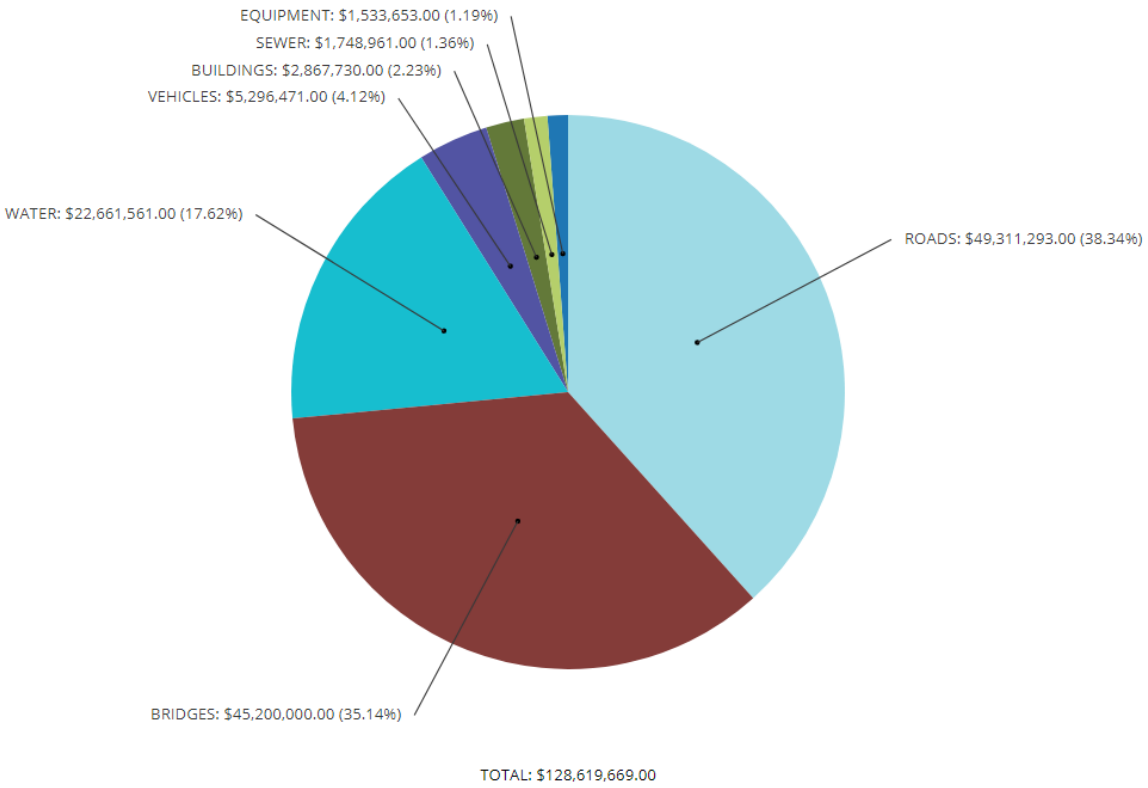
3.0 STATE OF LOCAL INFRASTRUCTURE

The Township's assets have been documented within the Township's asset registry according to PSAB 3150 reporting requirements. The 2017 replacement cost for the Township's assets, currently detailed within the Plan is estimated to be $128 million.

Figure 1 summarizes the replacement cost of each major asset category.

FIGURE 1

Replacement Cost by Asset Category in 2017 Dollars



3.1 ASSET CONDITION

For the purposes of this Plan, all assets have been ranked into a standardized ranking system of “Very Good”, “Good”, “Fair”, “Poor”, or “Very Poor”, using the overall condition rating as shown in Appendix A. (breakdown information for Bridge, Vehicle, & Public Works Heavy Equipment condition)

Overall, the Township’s assets are in a state of good repair or better, with 28% of assets (by quantity) assessed as being in “Very Good” condition, 33% of assets assessed as being in “Good” condition, 23% of assets assessed as being in “Fair” condition, 11% of assets assessed as being in “Poor” condition, and only 5% of assets assessed as being in “Very Poor” condition. (See Appendix A for Bridges, Vehicles and Heavy Equipment asset conditions).

Figure 2 provides an overall summary of the Township’s asset conditions on a cumulative basis.

FIGURE 2

Overall Asset Condition

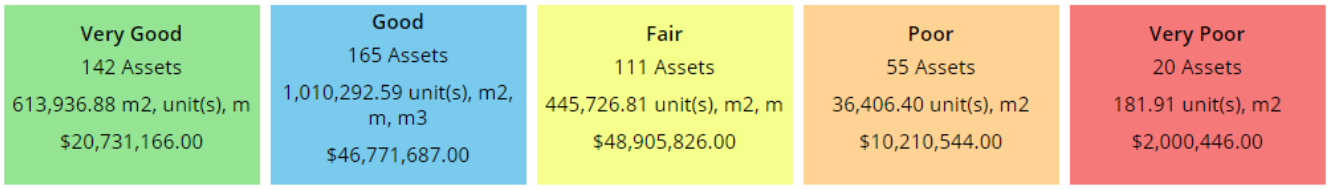
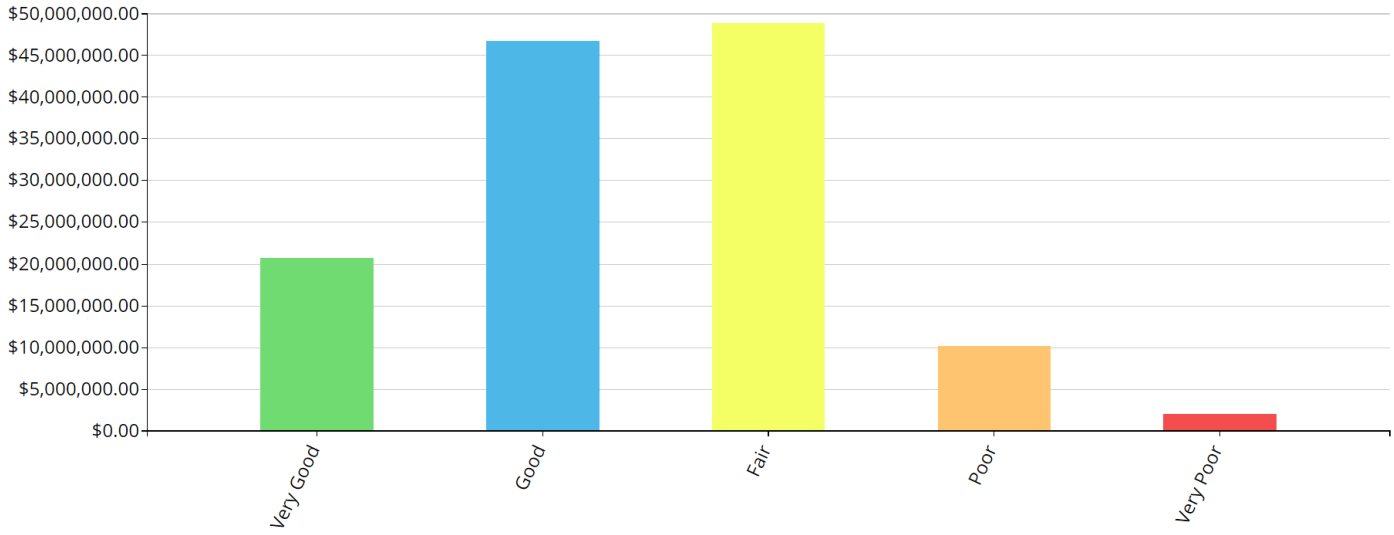


Figure 3 summarizes the Township’s overall assets by condition rating and current asset value.

FIGURE 3

Overall Asset Value by Condition Rating



3.2 ASSET DESCRIPTION

The Township's assets have been further assessed by asset category. A brief description and summary of each asset class is as follows.

3.2.1 Road Infrastructure

The Township currently owns and maintains approximately 610 lane kilometres of gravel and hard surfaced road, of which about 75.5% or 461 kilometres is hard surfaced. The total historical cost of the road network is $30.6 million ($49 million replacement cost) for all paved, gravel and surface treated elements of this asset class.

Over the past three years, road asset values have changed such that paved infrastructure value has increased and surface treated infrastructure value has decreased. This reflects an evolution from surface treated to paved road surfaces.

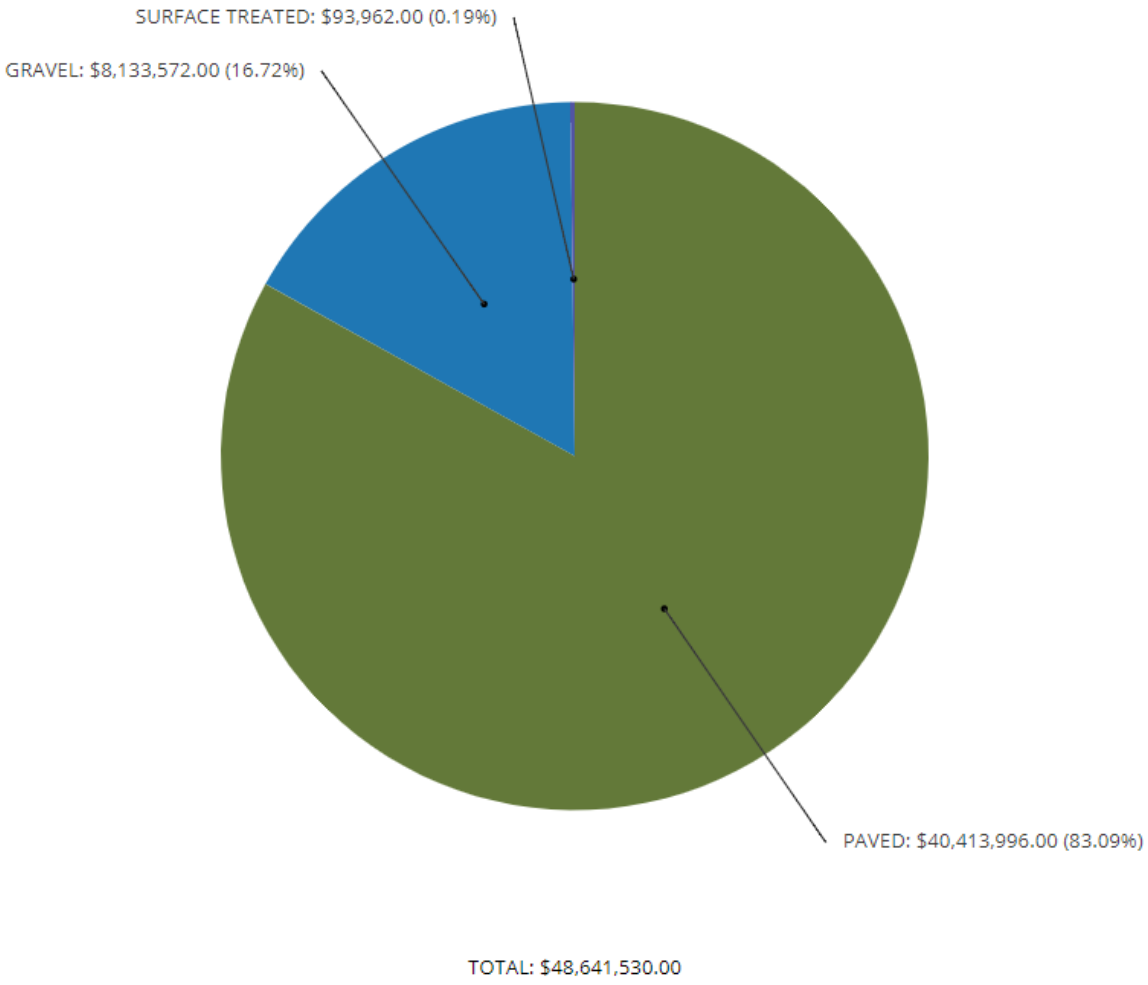
In 2016 Ontario Community Infrastructure Funding (OCIF) was used to assist in the rebasing and paving of a portion of Concession Road 3 in Tosorontio. The majority of the road was in good repair but the portion that was repaired was in poor condition and is now in very good condition.

As Roads represent the greatest replacement cost of all asset categories, Township Staff are looking into the available options for carrying out road condition assessments in order to inform capital planning.

Figure 4 summarizes the replacement cost of the Township's total road network by its sub-category.

FIGURE 4

Road Asset Value by Sub-Category



Once inventoried by sub-category, each road section was given a condition rating using a recognized set of numerical surface and risk rating criteria, then converted to a rating within the Plan's standardized rating system as outlined earlier.

Note however, this condition rating does not account for the progression of physical deterioration / distress manifestations over the life of a road surface. As each road will have a different rate of deterioration due to its age and design, it is critical to track the condition of each road segment using field data.

Looking forward to 2018, the Township plans to investigate options for collecting additional data to support the overall condition ratings assigned to our Roads.

Figure 5 quantifies the Township's road network by the current 2017 condition rating.

FIGURE 5

Road Network Condition Rating

Very Good	Good	Fair	Poor	Very Poor
93 Assets	100 Assets	30 Assets	6 Assets	0 Assets
607,151.00 m2	993,073.00 m2	428,950.00 m2	35,710.00 m2	-
$12,795,706.00	$22,920,593.00	$12,110,061.00	$815,170.00	$0.00

Figure 6 provides a summary of road value by condition rating and replacement value in 2017.

FIGURE 6

Road Value by Condition Rating

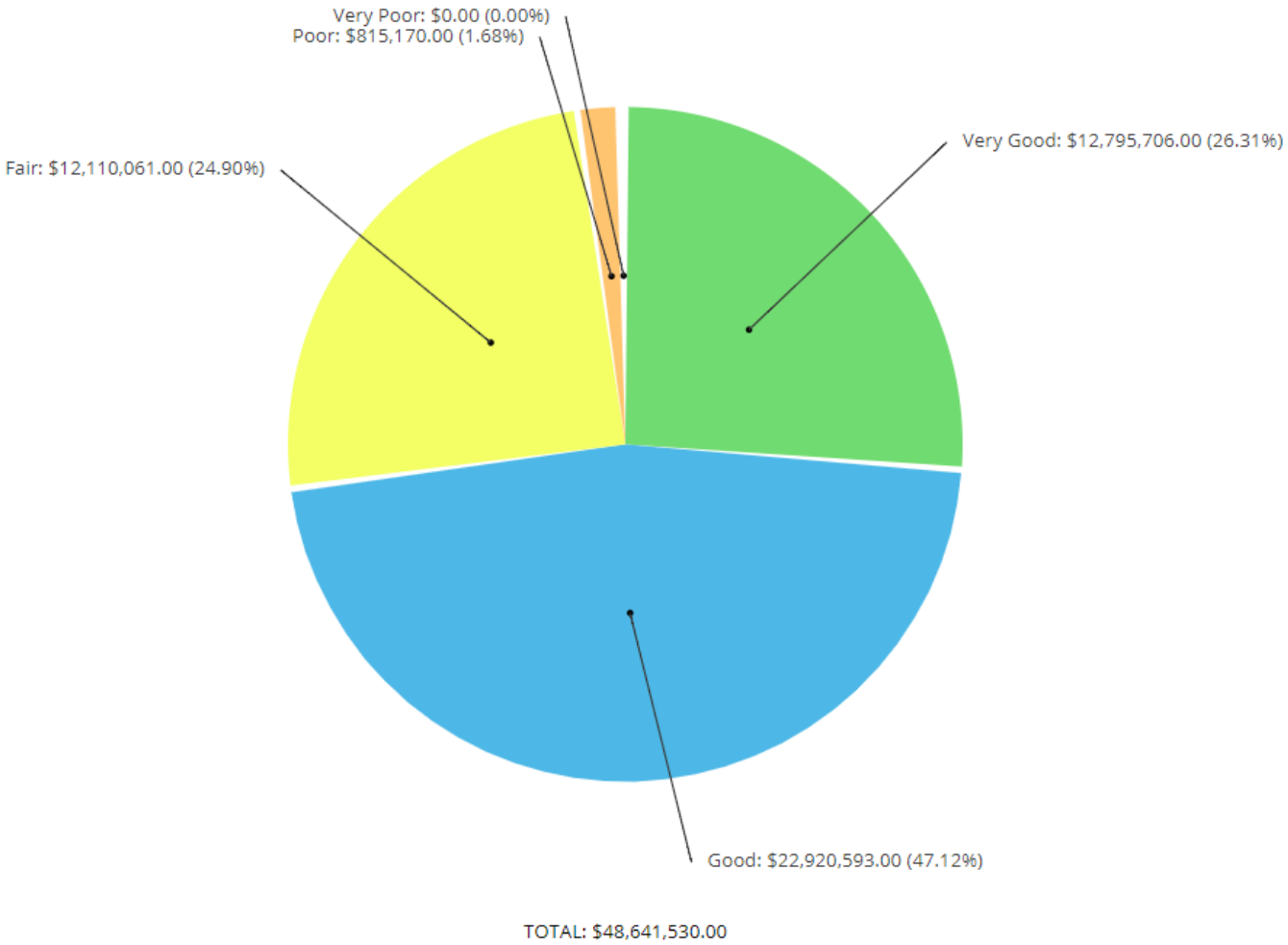


Figure 7 summarizes the road network by condition rating, length, and percentage breakdown.

FIGURE 7

Summary of Road Network and Conditions

Rank	*Kilometres (Lane)*	*$ Value*	*Percentage of Network by value*
Very Good	180	12,795,706	26.3%
Good	294	22,920,593	47.1%
Fair	126	12,110,061	24.9%
Poor	10	815,170	1.7%
Very Poor	-	-	-

3.2.2. Bridge and Culvert Infrastructure

The Township has an inventory of 57 major bridge and culvert structures with a total historical value of approximately $ 7.55 million with a current replacement cost of $45.2 million in 2017 dollars.

Structure assessments were conducted by qualified engineering consultants, using the standard *Bridge Condition Index*. Assessments were then converted to the Plan's standardized condition rating system.

Figure 8 summarizes the Township's bridge and culvert inventory by quantity and condition rating. A rating of Very Poor is generally related to a bridge that has insufficient load capacity (ie. 7 tons) to carry a school bus. A rating of Poor is typically a bridge with a rated capacity of less than 15 tons. A rating of Fair for a bridge would have restricted capacity of greater than 15 tons. A rating of Good and Very Good allow for full load capacities.

FIGURE 8

Bridge Condition Rating

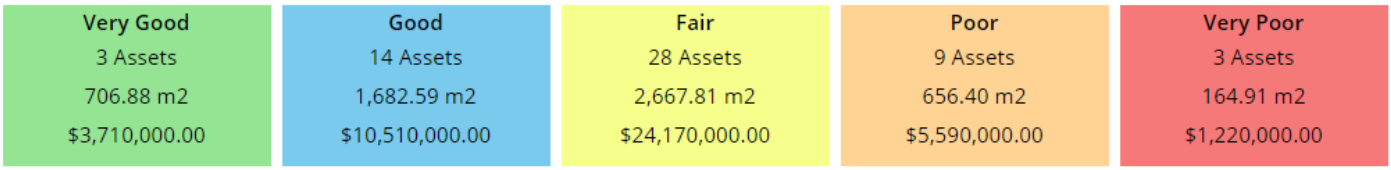


Figure 9 summarizes bridge and culvert asset conditions by percentage and value.

FIGURE 9

Bridge Value by Condition Rating

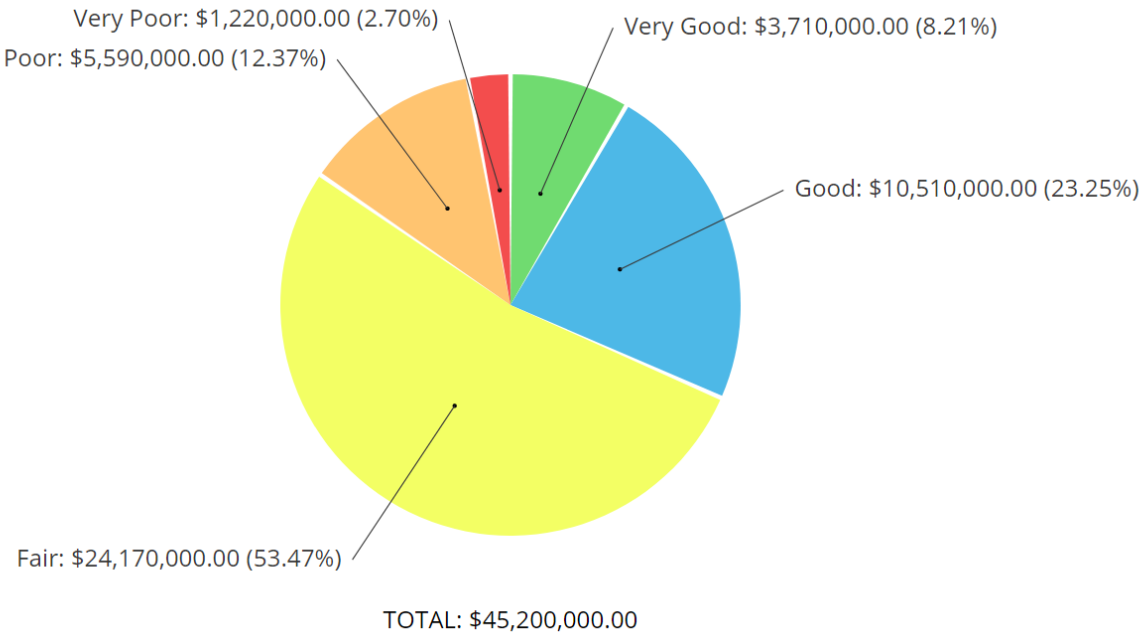


Figure 10 summarizes major bridge and culvert conditions by volume, current asset value, and their percentage of network by value. This network requires bi-annual reassessment to update the overall bridge inventory condition.

FIGURE 10

Summary of Bridge Conditions

Rank	*# of Structures*	*$ Value*	*Percentage of Network by value*
Very Good	3	3,710,000	8.2%
Good	14	10,510,000	23.3%
Fair	28	24,170,000	53.5%
Poor	9	5,590,000	12.4%
Very Poor	3	1,220,000	2.6%

3.2.3. Water Treatment and Distribution

Municipal water is provided to the following settlement areas via seven water systems; Lisle, Everett, Rosemont, Loretto, Weca, Hockley, and Colgan. Although physically operated as separate systems due to spatial separation and separate water sources, they are operated as one cohesive unit administratively. Currently, the Township contracts the daily operations and maintenance activities to the Ontario Clean Water Agency on our behalf. The Township currently owns at historical costs approximately $10.8 million ($22.6 million current replacement value worth of water treatment and distribution and building infrastructure.) There were no major changes since the last valuation in this area. Looking ahead though there is a need to join the Loretto Heights and Weca water systems to improve system efficiency and reliability. We used our some of our 2017 OCIF funding for this project and will be looking to use some of the 2018 OCIF funding as well.

Figure 11 summarizes the total number of water treatment and distribution assets by condition rating.

FIGURE 11

Water Asset Value by Asset Condition

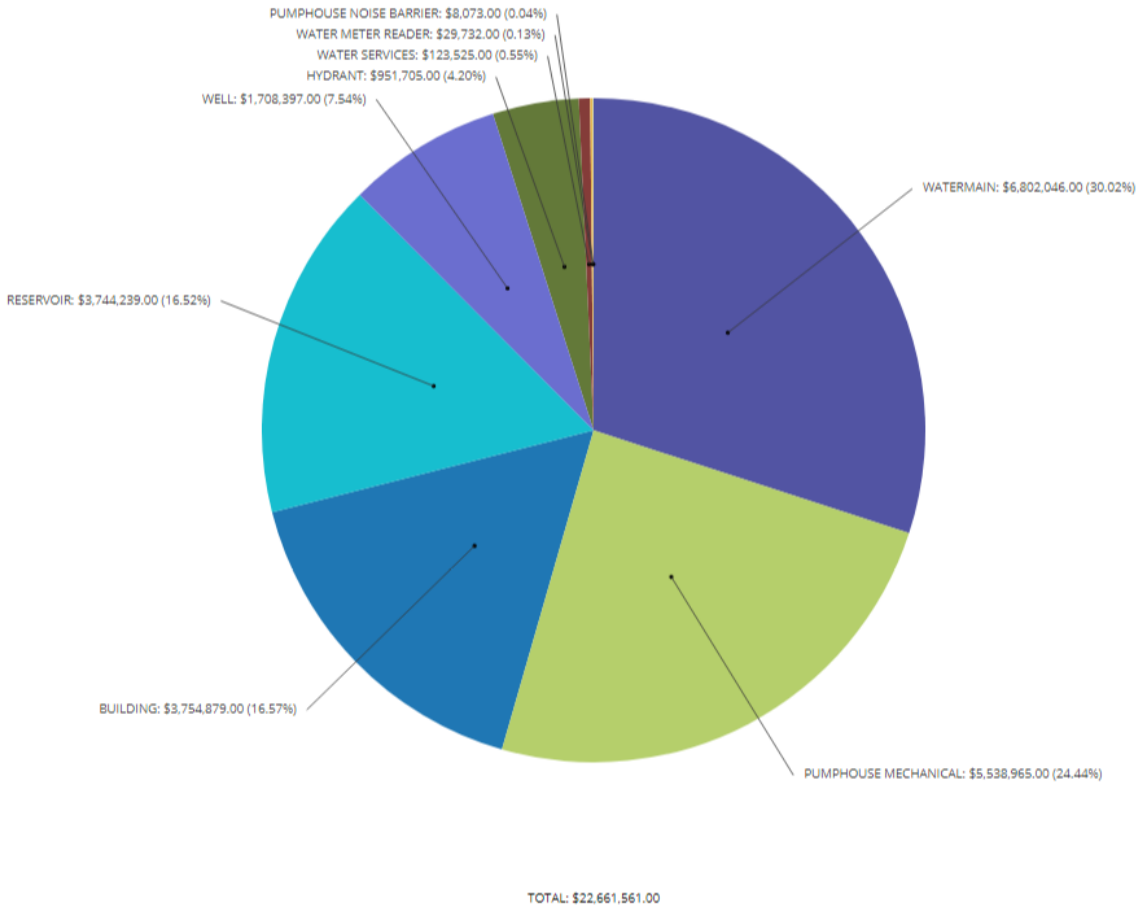


Figure 12 summarizes water treatment and distribution assets by sub-category, asset value, and percentage by value.

FIGURE 12

Water Value by Asset Sub-Category

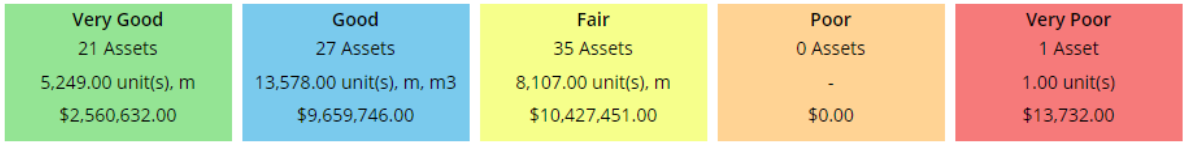


Figure 13 summarizes the Township's water assets by condition, quantity, value, and percentage by value.

FIGURE 13

Water Assets by Condition Rating

Rank	*Quantity*	*$ Value*	*Percentage of Network by Value*
Very Good	21	2,560,632	11.3%
Good	27	9,659,746	42.6%
Fair	35	10,427,451	46.0%
Poor	0	-	-
Very Poor	1	13,372	0.1%

Figure 14 summarizes water system assets by sub-category, quantity, value, and percentage.

FIGURE 14

Water System Assets by Type

Asset	*Quantity*	*$ Value*	*Percentage of Network by Value*
Water mains	25,158 m.	6,802,046	30%
P.H. Mechanical/Noise	19	5,547,038	24.4%
Hydrants	126	951,705	4.2%
Water Services	1,007	123,525	0.6%
Meter Readers	2	29,732	0.1%
Reservoirs	4	3,744,239	16.5%
Well	14	1,708,397	7.6%
Buildings	11	3,754,879	16.6%

3.2.4 Wastewater (Sewer) Collection and Treatment

The Township operates one wastewater collection and treatment system, located in Everett. Currently serving 100 homes, the system consists of 3.1 km of sanitary sewer, two pumping stations, a treatment plant, and wastewater disposal beds. The system has a current total historical value of $1.5 million including buildings.

Figure 15 summarizes the wastewater system's current $1.7 million replacement value by asset sub-category and condition rating.

FIGURE 15

Wastewater Asset Value by Condition Rating

Very Good	Good	Fair	Poor	Very Poor
3 Assets	6 Assets	2 Assets	0 Assets	0 Assets
4.00 unit(s)	1,941.00 m2, unit(s)	5,986.00 unit(s), m2	-	-
$23,082.00	$1,383,141.00	$342,738.00	$0.00	$0.00

Figure 16 further summarizes the wastewater system by sub-category, value, condition, and percentage.

FIGURE 16

Wastewater Value by Asset Sub-Category

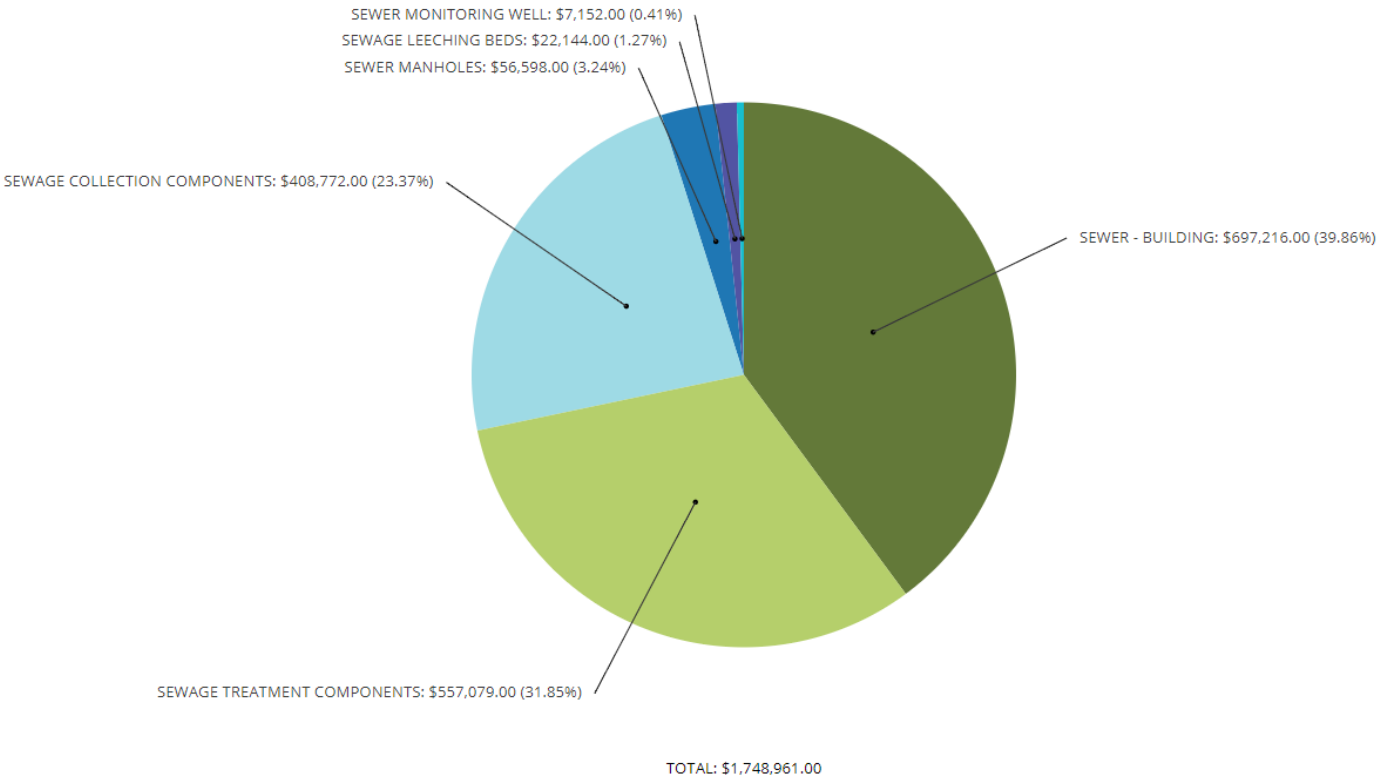


Figure 17 breaks down the asset sub-category by condition rating, quantity, value, and percentage of the sub-category within the system's total value. Plans are underway to make improvements to the wastewater system to improve system efficiency and reliability.

FIGURE 17

Wastewater Assets by Condition Rating

Rank	*Quantity*	*$ Value*	*Percentage of Network by Value*
Very Good	3	23,082	1.3%
Good	6	1,383,141	79.1%
Fair	2	342,738	19.6%
Poor	-	-	-
Very Poor	-	-	-

3.2.5 Vehicles

Essential to maintaining infrastructure and providing essential services, the Township operates a set of licensed vehicles including Public Works pickup trucks, dump trucks and Fire Services pumpers, tankers and vans.

Heavy equipment (unlicensed) and other miscellaneous equipment has been included in this evaluation process under its own separate section.

The Township's vehicle inventory has a current historical value of $4.2 million ($4.9 million replacement value 2017). Essential to municipal operations, it is the single asset with the greatest rate of depreciation, regardless of use. Vehicle assets have been assessed as to condition and estimated value.

Figure 18 categorizes the Public Works and Fire Departments' vehicle inventory by condition rating.

Figure 18

Vehicle Asset Value by Condition Rating

Very Good	Good	Fair	Poor	Very Poor
8 Assets	8 Assets	2 Assets	10 Assets	5 Assets
4.00 unit(s)	8.00 unit(s)	2.00 unit(s)	10.00 unit(s)	5.00 unit(s)
$1,117,000.00	$1,312,618.00	$440,000.00	$2,107,000.00	$319,853.00

Figure 19 summarizes the vehicle inventory by asset sub-category, value, and percentage of fleet.

Figure 19

Vehicle Value by Asset Sub-Category

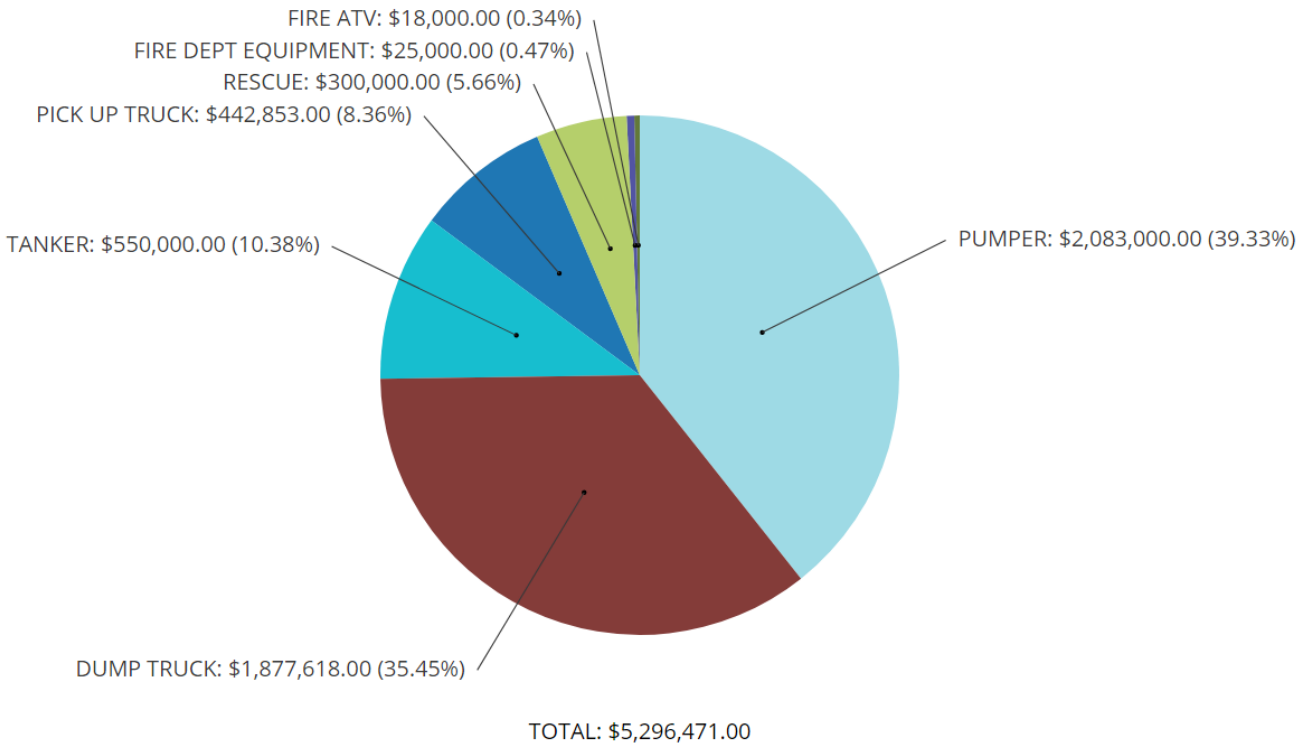


Figure 20 quantifies vehicles by condition, value, and percentage of fleet by value.

Figure 20

Vehicle Assets

Rank	*Number*	*$ Value*	*Percentage of Fleet by Value*
Very Good	8	$ 315,000	21.1%
Good	8	$ 1,312,618	24.8%
Fair	2	$ 440,000	8.3%
Poor	10	$ 2,507,000	39.8%
Very Poor	5	$ 319,853	6.0%

3.2.6 Public Works Heavy Equipment

The Township's heavy equipment inventory has a current historical value of $975,000 with a $1.3 million current replacement value.

Figure 21 categorizes the Public Works equipment inventory by condition rating.

Figure 21

Public Works Heavy Equipment Asset Value by Condition Rating

Very Good	Good	Fair	Poor	Very Poor
0 Assets	1 Asset	4 Assets	4 Assets	1 Asset
-	1.00 unit(s)	4.00 unit(s)	4.00 unit(s)	1.00 unit(s)
$0.00	$20,000.00	$560,763.00	$610,000.00	$150,000.00

Figure 22 summarizes the equipment inventory by asset condition rating and replacement value.

Figure 22

Public Works Heavy Equipment Asset Value by Condition Rating

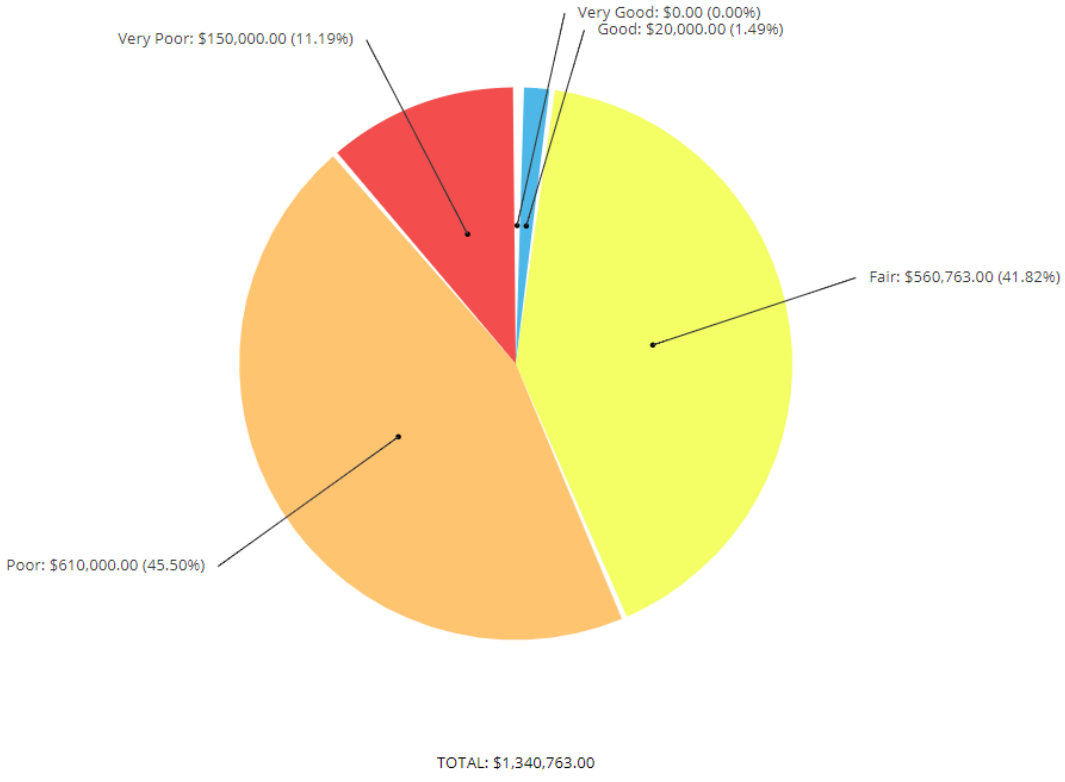


Figure 23 quantifies equipment by condition, value, and percentage of equipment by value.

Figure 23

P.W. Heavy Equipment Assets

Rank	*Number*	*$ Value*	*Percentage of Fleet by Value*
Very Good	0	$ 0	0%
Good	1	$ 40,763	3%
Fair	4	$ 520,000	39%
Poor	3	$ 630,000	47%
Very Poor	3	$ 150,000	11%

3.2.7 Buildings

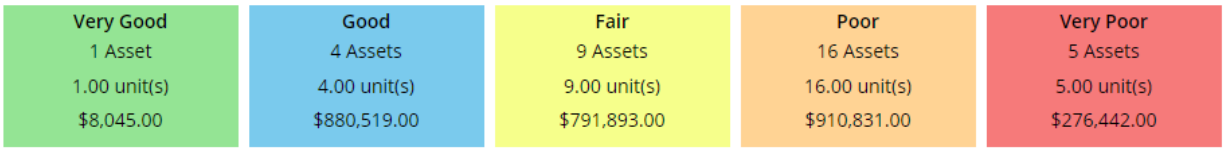
In 2016 the Township had a number of building assessments completed in order to bring these assets into our AMP. These included assessments on the Administration Building, the Fire Halls and the Public Works Buildings. The Water and Sewer buildings as well as Concession stands in the parks were not assessed at this time. According to the building assessments completed this year the replacement values for the buildings would be as follows:

Loretto Fire Hall	$2,136,000
Everett Fire Hall	$1,535,500
North Works Garage	$ 555,000
South Works Garage	$1,402,000
Municipal Office	$4,250,000
2016 Total:	$9,878,500
2017 Inflated Total:	$10,076,070

Figure 24 categorizes the Township's Building inventory by condition rating and historical cost. The historical cost of the buildings is $2,867,730.

Figure 24

Building Components Asset Value by Condition Rating



3.3 Inventory Database and Financial Valuations

The inventory database was created using *CityWide Asset Manager* software. The database enables asset listing, depreciation, lifecycle planning, condition assessment, levels of service, and project prioritization based on asset condition.

3.4 Condition and Priority Assessment

To ensure a consistent approach in measuring asset condition, the Township has used standardized condition rating criteria for road assets, factored by a risk rating based on traffic volume. Road conditions were appraised using the Pavement Condition Index (PCI) and bridge conditions were assessed using the Bridge Condition Index (BCI).

Water and wastewater assets were assessed based on age and frequency of failure, factored by a risk rating based on severity of consequence and population. All conditions were then converted to a standardized asset condition of “Very Good”, “Good”, “Fair”, “Poor”, and “Very Poor”.

To assign priority to asset replacement, a risk management approach was utilized, which weighed the probability of asset failure against the consequence of asset failure.

4.0 Levels of Service

4.1 Performance Measures, Targets and Timelines

Having been refined over several years, the Township currently has an established set of service levels. Service levels were established and refined to match the greatest effectiveness with the greatest efficiency in a sustainable manner. Influences upon how this goal was achieved included statutory requirements, industry standards, resident expectations, and financial considerations.

Historically, asset improvements were made in response to priorities established by each department, without a formal multi-year plan, dependent upon funding availability.

For the past several years, direction has been given to maintain the current level of service operationally. Concurrently, annual funding has been made available for capital

asset repair, replacement, and improvement. Asset improvements have ranged from major projects such as bridge replacement and new municipal water supply to minor (compounded) assets such as the replacement of personal protective equipment.

The following key indicators have been established to formalize a set of target service levels for asset management purposes:

1. That the fire department's primary tankers and pumpers meet industry standards for front-line fire-fighting equipment;
2. That the number of water main breaks in any municipal system be two (2) breaks per year or less;
3. That the number of winter events where the response meets or exceeds the response criteria set by the Township be 100 %;
4. That the amount of wastewater which is estimated to bypass treatment be 0%;
5. That water loss after treatment in any given municipal water system be 15 % or less;
6. That the amount of hard surfaced lane kilometres where the service level is rated as "good" be greater than 70 %;
7. The meeting of all regulatory requirements.

Target service levels will continue to be implemented through the use of annual budgets, operational policies, Master Servicing Plans, official Plans, and other related studies.

Staff will continue to monitor and adjust service level criteria to meet community and legislative needs.

Figure 25 outlines the seven target service areas, the desired level of service, and their corresponding current performance level.

Figure 25

Current Performance Levels by Target Service Area

Service Area:	*Level of Service:*	*Current Performance:*
Tankers/Pumpers	Meets Industry Standard	Meets Industry Standard
Watermain Breaks	2 per year	0
Winter Storm Events	100 % response	100 % response
Wastewater Bypasses	0 % Bypass	0 % Bypass
Water Loss	Less than 15 % loss	16.5 % loss
Hard surface Roads	Rating as "Good"	Average excellent to good
Regulatory Requirements	Meets Requirements	Meets Requirements

The asset inventory database provides further detail as to expected performance levels.

4.2 EXTERNAL TRENDS AND INFLUENCES

In addition to target service levels, the Township is impacted by external trends and influences. For example, new accessibility standards will impact building and facility design; growth within the GTA and changing demographics will change expectations for service; funding sources from higher levels of government will change infrastructure investment patterns locally;

Trends and influences such as these should be accommodated through regular policy creation and review, the development of new standards, and attention to decisions and directions being made by higher levels of governments.

5.0 INFRASTRUCTURE GAP

To fully implement sustainable asset management practices, it is necessary to determine the funding shortfall between annual budgeting and depreciation amounts for each asset class. By determining this infrastructure gap, the Township can assess the most appropriate funding protocol to best meet its projected needs and available resources for future asset replacement.

For purposes of this Plan, grant funding is not considered as an “available resource” due to its variability in availability and reliability within the budgeting process.

5.1 INFRASTRUCTURE GAP FOR ROADS, BRIDGES, EQUIPMENT AND VEHICLES

Figure 26 illustrates by asset category (Roads, Bridges, Vehicles & P.W Equipment), the average annual asset investment requirements, current funding positions and funding increases required to achieve full funding on assets traditionally funded by taxes and reserves.

Figure 26

Current Infrastructure Gap for Roads, Bridges, Equipment and Vehicles

Summary of Infrastructure Requirements & Current Funding Available						
Asset Category	Average Annual Investment Required	2017 Annual Funding Available				Annual Deficit
		Taxes	Grants	Other Reserves	Total	
ROADS	737,903	0	274,604	81,870	356,474	381,429
BRIDGES	751,247	0	0	43,501	43,501	707,746
VEHICLES	399,645	383,360	0	261,009	644,369	-244,724
BUILDINGS	78,787	0	0	0	0	78,787
P.W. HEAVY EQUIPMENT	86,705	0	0	0	0	86,705
Total	2,054,287	383,360	274,604	386,380	1,044,344	1,009,943

The annual deficit forms the infrastructure gap for the asset category. Historically, much of the infrastructure gap had been met through the use of funding grants from senior levels of government.

Recently, the Township has witnessed a significant reduction in grant funding, which continued to decline in 2017. Without alternative funding provisions to make up for the reduction in grant funding, the Township has experienced increases to the annual budget deficit, which is currently being recovered through reserves and reserve funds.

Most of the Township's capital asset funding has been invested in expansion and improvements to the existing infrastructure.

The Township has a large number of bridge and culvert structures, many of which are reaching their expected lifespan. These structures comprise about 35% of the Township's total asset replacement costs.

The Township has been successful in meeting most of its bridge and culvert asset replacement needs by leveraging reserves and reserve funds with funding grants from senior levels of government.

Road infrastructure has received large amounts of investment annually over the last two decades. Such investments have created greater efficiencies and lower costs in maintenance, which in return allows additional infrastructure investment. Whenever opportunities arise, funding grants from senior levels of government are used to supplement road asset investment and help close the infrastructure gap.

Reserves are set aside each year for vehicle/equipment replacement. Currently, for 2017 $275,000 is set aside annually for public works vehicles and $150,000 for the fire department. Operational surpluses for the fire department are sent to reserves annually if available and for 2017 there was no surplus. Further detailed analysis will likely conclude that a higher annual reserve contribution is required.

5.2 INFRASTRUCTURE GAP FOR WATER AND WASTEWATER

Figure 27 illustrates by asset category (Water and Wastewater), the average annual asset investment requirements, current funding positions and funding increases required to achieve full funding on assets (infrastructure gap) traditionally funded by utility rates and connection charges in addition to what is currently collected through water and wastewater rate charges.

Figure 27

Summary of Water & Wastewater Requirements & Current Funding Available

Summary of Water & Wastewater Requirements & Current Funding Available						
Asset Category	Average Annual Investment Required	2017 Annual Funding Available				Annual Deficit (Surplus)
		Rates	Less: Allocated to Operations	Other funding	Total	
WASTEWATER	55,011	131,331	-131,331	0	0	**55,011**
WATER	515,714	791,254	-791,254	58,557	58,557	**457,157**
TOTAL	570,725	922,585	-922,585	58,557	58,557	**512,168**

Figure 28 illustrates the additional asset replacement costs which must be generated for full capital asset replacement for the Township's water and wastewater assets.

Figure 28

Summary of Annual Asset Replacement Cost Requirement per Household

Overview of Revenue Increases Required for Full Funding	
Asset Category	Changes Required for Full Funding
WASTEWATER	$550
WATER	$457

Prior to new operating requirements set by the Clean Water Act, the Township had established substantial reserves for its 7 water systems. Upgrades to the water systems necessitated by the Clean Water Act had brought all systems to good or excellent condition but depleted the reserves. Further operational changes had lessened the Township's ability to rebuild reserves because all funds were required to cover greater operating expenses.

The Township has raised water utility rates such that operational costs are now fully funded. However, additional revenue is needed to build reserves. A water/wastewater study commissioned by the Township in 2014 had forecasted the use of additional development as a revenue source to build reserves and to provide the critical mass required to effect greater operational efficiencies with lower rates. Currently the water connection charge is $10,000 per lot and no wastewater connection charges have been set. A Development Charges Background Study was completed in 2016, recommending that new water and wastewater connection charges be set through authority of the Municipal Act. An updated water/wastewater rate study is being undertaken to review water and wastewater connection charges.

5.3 SUMMARY OF FUNDING SHORTFALLS: ALL ASSETS

Figure 29 summarizes the Infrastructure Gap for each asset class and the total annual requirements annually for the planning period. Grants from senior levels of government are not included as an available funding resource within the summary.

Figure 29

Summary of Infrastructure Gap

Annual Requirements for Infrastructure Gap

	2017
Bridges	751,247
Buildings	78,787
Public Works Equipment	86,705
Roads	737,903
Sewers	55,011
Vehicles	399,645
Water	515,714
Total Annual Shortfall Requirement	2,625,012

6.0 AVAILABLE FUNDING TOOLS

As a key component to the asset management strategy, the following tools should be used in a balanced approach to help fund capital expenditures.

6.1 Property Taxation

The use of the property taxation levy to fund municipal services is the most sustainable and secure funding source for the Township. Taxation represents approximately 48% of revenues in the 2017 tax supported budget. Property levies should be used most extensively for assets which provide a value to the population as a whole.

6.2 User fees

User rates have been adjusted for on-demand services such as water and wastewater. In order to facilitate future water and wastewater needs, the Township had incorporated a five (5) year rate study into the 2014 operating budget. This study was completed in 2016, with a final determination by Council to hold current user fees pending future growth. A full consolidated user fee schedule had been prepared in 2013 and revised in 2016. Other user fees are collected to fund costs specific to special uses or services within the Township. User fees should reflect the actual cost of service delivery, including infrastructure replacement and depreciation.

6.3 Federal and Provincial Grants

The Township has utilized various grants such as the Federal Gas Tax Fund, OCIF Funding and the Ontario Municipal Partnership Fund to assist with the financing of major capital projects. The Township should continue to seek financial assistance from higher levels of government to fund non-development related capital projects.

6.4 Reserves and Reserve Funds

Historically, the Township has used reserve and reserve fund revenue to help invest in capital assets while helping to stabilize the annual tax impact to our residents. The Township should continue to build our reserve contributions in order to plan for future capital requirements. When possible, reserves should be used to leverage the Township's contribution toward grant-funded projects. Operational surpluses should be directed to the Department's reserves for asset replacement.

6.5 Development Charges

The Township uses development charge funds to finance capital costs that are in direct relation to growth related infrastructure. Currently, the limited amount of growth and development within the Township has minimized the amount of DC revenue being generated for the last several years. A full review of the Township's DC Bylaw was undertaken in 2016. The Township should maximize the amount of development charges that can be paid to ensure that new infrastructure is adequately funded.

6.6 Utility Connection Fees

Water and wastewater infrastructure costs are not recognized within the Development Charges Bylaw. Water system connection charges are currently set at $10,000 per connection. Wastewater connection charges are yet to be established. Connection charges should be established and reviewed to ensure that development contributes toward earlier municipal infrastructure investments.

6.7 Debt

The Township does not traditionally use debt as a means of financing capital improvements although it remains as a funding alternative. Currently, debt is used as a final option when all other options have been exhausted, and the Township should continue to ensure that debt is used only when warranted.

7.0 Asset Management Strategy

Although not previously recognized as a cohesive strategy, the Township has historically utilized a series of actions which formed the basis of a formal asset management plan.

Such actions included the use of Official Plans, Master Servicing Plans, Community Plans, departmental reserves and reserve funds, development plans, and partnerships with others to build efficiencies. Direction to reduce maintenance costs through regular asset investments, and maximizing alternative funding models such as through grants and via partnerships were continually fostered.

By formalizing its earlier actions into a more cohesive and succinct management structure, the Township can better generate and share its vision as to the Township's asset management objectives.

The Township's strategy for asset management should be to establish a set of planned actions that will ensure the continuous, effective, and efficient delivery of municipal services in a sustainable way. Furthermore, this strategy should aim to manage risk and to ensure the lowest lifecycle costs through preventative actions.

> ***Asset Management Strategy:***
> *"To establish a set of planned actions that will ensure the continuous, effective, and efficient delivery of municipal services in a coordinated and sustainable way."*

This strategy should be accomplished through the following steps:

7.1 NON-INFRASTRUCTURE SOLUTIONS

Whenever possible, major investments in infrastructure should not be undertaken unless funds are available without incurring debt. Reserves should be built during periods of growth to provide for future capital replacement and to stabilize tax and utility rates.

Reserves should be used in conjunction with grants from senior levels of government to create additional financial efficiency whenever possible. To help qualify for such funding, capital projects should be prepared to be "shovel ready" in anticipation of funding assistance where feasible.

7.2 MAINTENANCE ACTIVITIES

Maintenance should be scheduled to help reduce repair costs and to provide better forecasting of repair/replacement activities, with the ultimate goal of eliminating unforeseen events.

Policies should be continued, amended, or adopted with the intent of lowering asset management costs, or extending asset lifespans. For example, engineering design standards will require the use of LED streetlights that will reduce energy costs, decrease maintenance costs, and increase asset lifespan.

7.3 RENEWAL AND REHABILITATION

Through proper planning, efficiencies should be generated with a coordinated approach to asset rehabilitation.

The need for replacement of assets can sometimes be deferred through rehabilitation or refurbishment. Such work can often lengthen the effective lifespan of the asset to reduce its lifecycle cost.

At times, it may make economic sense to consider renewal of assets which are strategically located together. For instance, the resurfacing of a road should be timed to the renewal of a sanitary or storm sewer in an integrated planning approach.

7.4 REPLACEMENT

Replacement of assets should be timed to provide the lowest lifecycle cost while still retrieving the greatest effectiveness from the asset. Assets should therefore be replaced before repair costs or reliability become an issue. Financial forecasting should prepare for the asset's replacement to eliminate the need to search for funding in support of the asset's replacement. Repair and replacement of capital works should be forecasted and prioritized within annual budgets.

7.5 DISPOSAL

The Township should develop a policy for the disposal of assets which have a residual value at the time of their replacement. Revenue generated from their disposal should be used to help offset further departmental expenditures.

7.6 ASSET OPTIMIZATION

The Township should implement a range of engineering approaches to extend the useful life of current assets. Examples include the use of cathodic protection, CCTV inspections, and substituting retrofitting and rehabilitation work for more costly full replacement.

7.7 GROWTH DEMANDS AND ASSET EXPANSION

The accurate and timely forecasting of demands for asset expansion due to growth should be coordinated with the replacement or refurbishment of existing assets. Expansion activities should be forecasted to enable coordination with existing asset plans.

Growth should be promoted where advantageous to the Township to create a rate base sufficient to carry the costs of providing services.

7.8 PROCUREMENT

The Township has a procurement policy which helps ensure the fair and efficient acquisition of assets. The policy should maintain a fair and open procurement procedure while allowing versatility to seek and negotiate the best value.

7.9 PARTNERING

Strategic alliances or partnerships should be fostered to generate innovative funding models. For example, partnerships should be established to pool resources between municipalities or other levels of government for services such as recreation and winter road maintenance. Further opportunities exist for joint tendering programs, and for the construction of major infrastructure through front-ending or cost-sharing agreements. Opportunities for design-build, and public-private partnerships should also be explored and promoted.

Major infrastructure projects carry a large financial burden, and this cost should be shared with benefactors whenever possible

Partnering should be promoted where possible to share the risk and financial burden of a project.

7.10 RISKS AND RISK MANAGEMENT

Every action involves some element of risk. Asset management activities should be structured to minimize risk and to provide alternatives if a plan fails to provide expected results. If the risk is unacceptable, then an alternative plan should be developed. Risk should be assessed by weighing the probability of the event against the cost associated with the event.

As a part of the asset management strategy, risk should be assessed when allocating financial resources within both an inter and intra department context. For example, the budget process should provide sufficient detail to allow Council to decide whether to postpone a project needed to meet service objectives (with low risk) in favour of another project which may harbor higher risk and or cost to the Township if the project were not to be undertaken.

7.11 DIRECT BENEFITS AND COSTS

As an integral part of the asset management strategy, decisions should be based on the following direct improvement benefits:

- the creation of greater efficiencies or reduction of operating costs;
- the efficient scheduling of investments, replacement, and asset expansion;
- public/employee safety and risk mitigation
- environmental impacts
- vulnerability to outside influences

7.12 INDIRECT BENEFITS AND COSTS

Options should also consider the indirect benefits and costs related to amenity values, cultural significance, municipal image, and municipal well-being.

7.13 COMMUNICATIONS

The Plan was developed through a working group of Council and various departments of Staff. Most aspects of the Plan were discussed with the public through public meetings for Secondary Plans, Master Servicing Plans, Environmental Assessments, the budget process, a Strategic Planning Workshop, and regular feedback from the public.

7.14 MULTI-YEAR CAPITAL BUDGETS

To help improve the financial planning process and to better coordinate between projects, capital budgets should forecast proposed works for up to 5 years in advance of the current year.

8.0 CONCLUSION

Historically, the Township has utilized a conservative fiscal approach toward its infrastructure, centered upon the “pay as you go” ideology. Further, the Township has been able to maintain its assets by ensuring that capital is invested in assets which could be sustained and maintained once built.

To help ensure the sustainability of the Township’s infrastructure, it is important that due regard be given to the infrastructure gap identified within this Plan, and to (continue to) implement the fourteen key strategic elements outlined within the Plan.

More specifically, the Township should continue to leverage the use of reserves and reserve funds through the use of funding grants from senior levels of government, to continue to build reserves to help fund capital asset replacement, and to promote growth and development where appropriate to help build a sufficient rate base to ensure operating efficiency and the sustainability of key assets.

Finally, this Plan was generated as a living document, to be updated and reviewed on a regular basis to provide important funding decisions for Council and Staff as we plan for the future.

Appendix A – Asset Condition Charts

Bridge Condition Chart:

VERY GOOD CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
#21 MAC BRIDGE	12/15/2009	88.09 – Very Good
#9 PINE RIVER BRIDGE	11/30/2014	96.47 – Very Good
#10 CON RD 2 TOS	12/1/2010	88.18 – Very Good
GOOD CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
#15 ISLAND BRIDGE (CON3) - TOS	12/27/2007	82.51 - Good
#1 - GLENCAIRN BRIDGE - TOS	7/1/1955	71.31 - Good
#3 MAD RIVER BRIDGE - TOS	7/1/1965	71.31 - Good
#6 CON RD 2 (CTY RD 12) BRIDGE - TOS	7/1/1975	74.80 - Good
#7 14TH S.R. (CON 7) BRIDGE - TOS	7/1/1965	74.80 - Good
#44 CATHERINE ST – ADJ	7/1/2011	84.72 – Good
#8 CON RD 4 (CTY RD 5) - TOS	12/11/2007	79.50 – Good
#32 SIMON DR CULVERT - ADJ	7/1/1975	73.78 - Good
#37 ROWLEY BRIDGE – ADJ	7/1/1940	73.21 - Good
#39 MILLER CULVERT – ADJ	7/1/1975	73.17 - Good
#27 CON RD 3 (20TH SR) - ADJ	7/1/1950	70.06 - Good
#51 CON RD 4 ADJALA	12/31/1965	70.06 - Good
#50 CON RD 4 ADJALA	12/31/1957	71.25 - Good
#16 CON RD 4 (5TH SR) – TOS	7/1/1960	70.17 - Good
FAIR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
#2 MUD CREEK BRIDGE - TOS	7/1/1960	65.19 - Fair
#4 32ND S.R. BRIDGE – TOS	7/1/1950	69.53 - Fair
#20 CON RD 7 (5TH SR) – TOS	7/1/1980	69.42 - Fair
#23 CON RD 4 (25TH SR) – ADJ	7/1/1965	68.43 - Fair
#29 LANGLEY BRIDGE – ADJ	7/1/1965	69.85 - Fair
#48 5 SIDEROAD TOSORONTIO	12/31/1965	69.74 - Fair
#49 CON RD 2 TOSORONTIO	12/31/1960	68.10 - Fair
#13 5TH S.R. (CON 2) – TOS	7/1/1950	65.79 - Fair
#17 BENNETT BRIDGE – TOS	7/1/1940	64.94 - Fair
#18 CON RD 6 (5TH SR) – TOS	7/1/1925	63.07 - Fair
#22 CON RD 5 (25TH SR) – ADJ	7/1/1930	58.87 - Fair
#24 CON RD 3 (25TH SR) – ADJ	7/1/1950	65.07 - Fair
#26 CON RD 2 (20TH SR) – ADJ	7/1/1975	65.57 - Fair

Appendix A – Asset Condition Charts

#31 CON RD 3 (CTY RD 1) – ADJ	7/1/1980	67.08 - Fair
#34 IRWIN BRIDGE – ADJ	7/1/1950	69.20 - Fair
#35 CON RD 4 (CTY RD 14) - ADJ	7/1/1950	67.65 - Fair
#38 CON RD 2 (HWY 9) – ADJ	7/1/1960	67.65 - Fair
#52 25TH SIDEROAD ADJALA	12/31/1965	67.87 - Fair
#53 25TH SIDEROAD ADJALA	12/31/1960	61.90 - Fair
#54 CON RD 5 ADJALA	12/31/1955	67.53 - Fair
#28 20TH S.R. (CON 3) – ADJ	7/1/1950	59.02 - Fair
#30 RAINBOW BRIDGE – ADJ	7/1/1934	56.05 - Fair
#33 KEENANSVILLE BRIDGE - ADJ	7/1/1950	55.28 - Fair
#36 MONO-ADJ TLINE – ADJ	7/1/1950	58.15 - Fair
#1E CON RD 3 TOS	7/1/1988	69.74 - Fair
#41 FILBY BRIDGE ADJ	7/1/1960	67.76 - Fair
#42 CON RD 4 (5TH SR) – ADJ	7/1/1960	66.03 - Fair
#47 5 SIDEROAD TOSORONTIO	12/31/1957	67.65 - Fair
POOR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
#46 CON RD 3 TOSORONTIO	12/31/1957	49.01 - Poor
#45 QUEEN ST. LISLE	12/31/1955	46.48 - Poor
#5 QUEEN ST BRIDGE – TOS	7/1/1925	42.05 - Poor
#11 MULMUR-TOS TLINE BRIDGE - TOS	7/1/1925	43.16 - Poor
#2E CON RD 3 TOSORONTIO	07-01-1980	49.16 - Poor
#55 CON RD 5 ADJALA	12/31/1950	48.60 - Poor
#19 GAGINS CREEK BRIDGE - TOS	7/1/1920	45.68 - Poor
#25 25TH S.R. (CON 2) - ADJ	7/1/1965	45.47 - Poor
BRIDGE #12 (CON RD 2 & 5 S.R.)	9/1/2011 (3 -5 yr. fix)	39.48 - Poor
VERY POOR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
#40 CON RD 4 (HWY 9) - ADJ	7/1/1975	28.22 – Very Poor
#43 QUEEN ST CTY RD 12 - TOS	7/1/1920	26.29 – Very Poor
#14 CON RD 3 (5TH SR) - TOS	7/1/1920	12.05 - Very Poor

Appendix A – Asset Condition Charts

Vehicle Condition Chart:

VERY GOOD CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2013 WESTERN STAR TANDEM TRUCK	5/31/2012	8 - Very Good
2014 WESTERN STAR TANDEM TRUCK	6/18/2013	8 - Very Good
2016 WESTERN STAR TANDEM TRUCK	3/30/2016	9 – Very Good
2017 FORD F-350 1 TON	9/30/2016	9 – Very Good
2017 FORD F-250 XL	11/4/2016	9 – Very Good
2017 WESTERN STAR TANDEM TRUCK	2/09/2017	10 – Very Good
2017 FORD F-150 XL (2 DOOR)	6/13/2017	9 – Very Good
2017 FORD F-150 XL (4 DOOR)	6/13/2017	9 – Very Good
2017 FORD F-250 SUPER DUTY	6/13/2017	10 – Very Good
PUMP 11	10/3/2017	10 – Very Good
GOOD CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2011 POLARIS ATV	12/1/2010	7 - Good
2009 SPARTAN METRO PUMPER #12	5/1/2011	7 - Good
2009 SPARTAN METRO PUMPER #21	5/1/2011	7 - Good
2013 CHEVROLET SILVERADO PICK UP	12/20/2012	7 - Good
2015 CHEVROLET SILVERADO	2/17/2015	7 - Good
FAIR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2008 FORD MINI-PUMPER	12/31/2007	5 - Fair
2006 STER PUMPER 22	2/12/2007	5 - Fair
2006 STER TANKER 14	5/17/2005	5 - Fair
2007 DODGE 1 TON	1/23/2007	5 - Fair
2007 FREIGHTLINER DUMP/PLOW	3/1/2008	4 - Fair
POOR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2000 FORD VAN R16	6/27/2000	2 - Poor
2000 FORD VAN R24	6/27/2000	2 - Poor
2000 INT TANKER 23	1/1/2003	3 - Poor
2003 INT S2500 DUMP/PLOW	10/24/2002	3 - Poor
2006 STERLING DUMP/PLOW	6/25/2005	3 - Poor
FORD E350 UTILITY VAN	3/31/2013	3 - Poor
2008 CHEVROLET 1500 PICK-UP	8/26/2009	3 - Poor

Appendix A – Asset Condition Charts

VERY POOR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2002 DODGE 1500 PICK UP	10/16/2002	0 – Very Poor
2003 INT S2500 DUMP/PLOW	10/24/2002	1 – Very Poor
1999 VOLVO WCN DUMP/PLOW	8/24/1999	1 – Very Poor
2003 DODGE 1500 PICK UP	11/15/2005	0 – Very Poor
2006 DODGE 1500 PICK UP	11/21/2006	0 – Very Poor
1999 FORD 1 TON	2/15/1999	0 - Very Poor

Public Works Heavy Equipment Condition Chart:

GOOD CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2007 SWEEPSTER	6/26/2007	70 - Good
FAIR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2007 VOLVO GRADER G960	8/14/2007	51 - Fair
2006 JD TRACTOR/MOWER 7220	9/6/2006	53 - Fair
2010 JOHN DEERE 544K LOADER	4/9/2010	53 - Fair
BRUSHER (TREE FLAIL)	4/29/2014	50 - Fair
POOR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2000 CAT BACKHOE	11/29/2000	37 - Poor
1996 CHAMPION GRADER	7/1/1996	30 - Poor
1999 CASE BACKHOE	2/15/2005	32 - Poor
1993 VERM WOOD CHIP	7/1/1993	30 - Poor
VERY POOR CONDITION:		
Asset Name	**In-Service Date**	**Overall Condition Rating**
2000 CAT LOADER	11/8/2000	23 - Poor