

Asset Management Plan 2017 Update

Loyalist Township

Loyalist Township is dedicated to promoting the quality of life and prosperity of community for present and future generations.

Asset Management Plan

Executive Summary

Loyalist Township's Asset Management Plan has been updated as of 2017. The total replacement cost is now \$581 million. This represents \$94,000 per household. Of the \$581 million in assets, just over half, or \$320 million, are in very good condition. Approximately \$30 million, or 5%, are in very poor condition.

This document outlines the condition and risk related to all Township asset classes, which is the basis for setting priorities for asset replacement. The engineering group also undertook a comprehensive review of linear assets to align useful lives and defer complete reconstruction of assets where possible. Staff are focused on optimizing the use of linear assets, keeping roads in good condition and the safe drinking water system in good condition, to ensure levels of service are met, while protecting the environment through sanitary and storm sewer design and maintenance.

Common among municipalities across Ontario, Loyalist Township faces a significant infrastructure deficit for general rate capital and utilities capital. The systematic and comprehensive approach taken to review, analyze, update and monitor asset data, as was undertaken with this updated plan, will help staff to leverage assets and mitigate risk to the Township. The asset inventory is the basis for annual capital budgets and will be reviewed, updated and analyzed on a regular basis. As the accuracy and timeliness of the asset data improves, staff will continue to work on financing options and strategies.

During the annual capital budgeting process under Council direction, staff will defer asset replacement and/or new capital projects where appropriate and likely incur additional debt to be able to fully fund the Township capital program. Staff will seek out any grants or other sources of funding. All asset management and financing strategies must be considered and leveraged to be able to fund the annual capital requirements and to try to close the infrastructure deficit.

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1 Introduction

This asset management plan meets all the provincial requirements as outlined in the Ontario Building Together Guide for Municipal Asset Management Plans. This asset management plan is intended to ensure investments are made at the right time to minimize future repair and rehabilitation costs and maintain municipal assets. The Guide also explains the municipal infrastructure strategy:

- Municipalities are the stewards of the infrastructure they own. The provincial and federal governments have an obligation to help municipalities address infrastructure challenges.
- Comprehensive asset management plans should guide investment decisions.
- Those who benefit directly from municipal infrastructure should pay for the service, whenever feasible.
- Opportunities should be pursued to provide infrastructure more efficiently, by forging partnerships with other communities or consolidating services, where possible.
- Maintaining roads, bridges, water, wastewater and social housing should be a top priority.
- Some communities face unique challenges that require tailored solutions.
- Infrastructure Ontario and the private sector can help address municipal infrastructure challenges.

The province has stated that any municipality seeking provincial infrastructure funding must demonstrate how the proposed project fits within a detailed asset management plan. This will help ensure that limited resources are directed to the most critical needs. As a condition of future provincial infrastructure funding, municipalities will be required to demonstrate that a full range of available financing and revenue generation tools have been explored.

Per the Guide, Asset Management is:

Asset management planning is the process of making the best possible decisions regarding the building, operating, maintaining, renewing, replacing, and disposing of infrastructure assets. The objective is to maximize benefits, manage risk, and provide satisfactory levels of service to the public in a sustainable manner. Asset management requires a thorough understanding of the characteristics and condition of infrastructure assets, as well as the service levels expected from them. It also involves setting strategic priorities to optimize decision making about when and how to proceed with investments. Finally, it requires the development of a financial plan, which is the most critical step in putting the plan into action.

The Loyalist Township Asset Management Plan (AMP) covers the following asset classes:

- Fleet
- Machinery and Equipment
- Facilities and Buildings
- Sanitary Sewer
- Water Infrastructure
- Roads
- Bridges and Culverts
- Storm Water
- Land Improvements

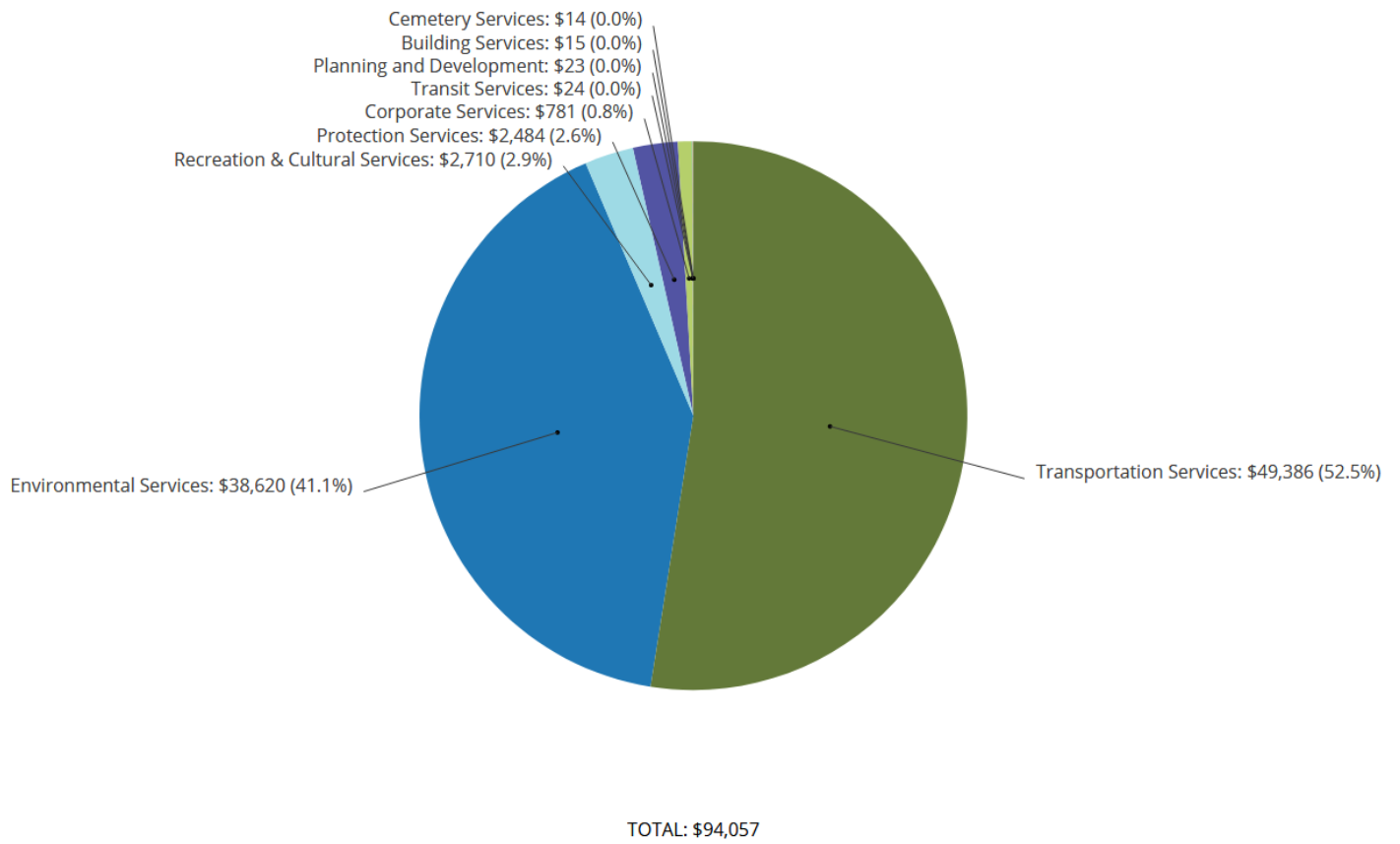
The asset management plan is a key strategic tool for the municipality to manage its long-term capital budget and funding requirements. Municipalities deliver many services that are critical to residents and these services rely on well-planned, well-built and well-maintained infrastructure.

Loyalist Township completed an initial AMP in 2013. This plan updates the 2013 plan and covers generally all municipal assets. Staff have reviewed, assessed and updated the capital inventory records. The plan covers a ten year period, and will be updated on a regular basis to ensure its relevance and accuracy. In 2013, the total replacement cost of the assets included in the plan was almost \$300 million. This updated plan includes recreation services, emergency services and all facilities' assets. The 2017 total replacement cost, including all assets, is now \$581 million.

Asset Category	2013 Asset Management Plan	2017 Asset Management Plan
Storm Sewer	\$24,720,000	\$34,055,000
Sanitary Sewer	\$68,811,000	\$93,212,000
Water Infrastructure	\$86,424,000	\$142,831,000
Roads	\$106,147,000	\$246,804,000
Bridges and Culverts	\$11,671,500	\$12,706,000
Facilities and Buildings		\$30,541,000
Fleet		\$9,089,000
Machinery and Equipment		\$5,193,000
Land Improvements		\$5,026,000
Furniture, Fixtures, Office Equipment and Information Technology		\$1,568,000
Transit		\$115,000
TOTAL	\$297,773,000	\$581,140,000

This document is a plan and therefore subject to change. Operational requirements, funding and other unforeseen circumstances can and will affect this plan and result in changes being made. The plan will continue to evolve and staff will update the asset inventory on a regular basis as new or better information becomes available.

Replacement Cost per Household (as of 2017)



Total replacement cost per household was \$58,376 in the 2013 AMP

2 Asset Management Strategy

The asset management strategy is the set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk at the lowest lifecycle cost. This is basically a balancing act between managing available funding, while managing potential risks to the Township.

The review, analysis and assessment of the asset's condition, consequence of failure and associated risk, determine which assets are critical and require replacement, as well as their priority.

There are two approaches to managing infrastructure assets:

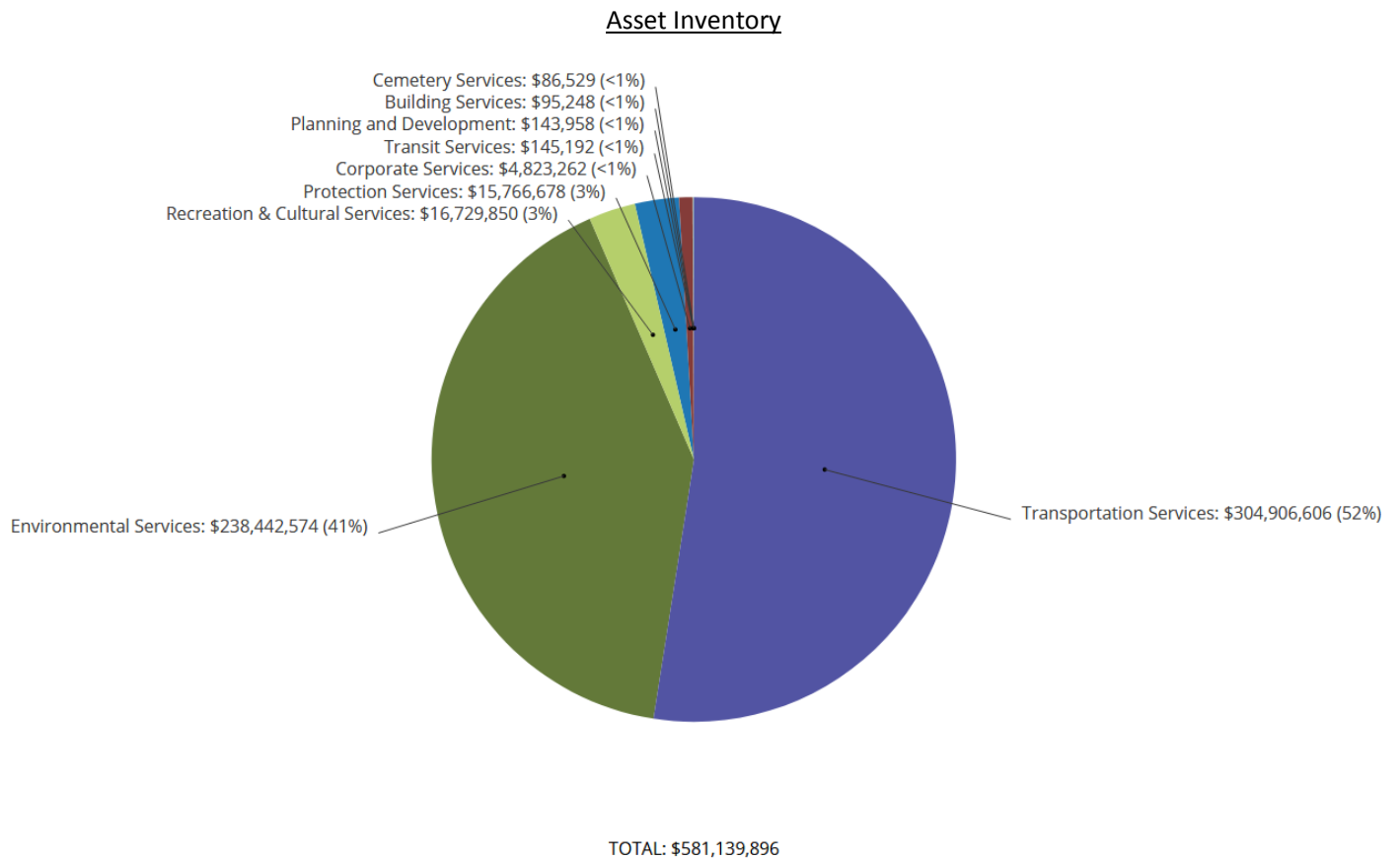
1. Manage lifecycle costs – determine the total of all recurring and one-time costs over the full lifespan of the asset, including the purchase price, installation costs, operating costs, maintenance and upgrade costs, and remaining value at the end of its useful life. Using the lifecycle costs, staff can make informed decisions about leveraging the available funding for the assets that are most appropriate to invest in. For example, using lifecycle cost analysis, staff can determine if it makes sense to undertake significant repairs to extend the life of the asset or to replace it. The following assets are managed using this approach:
 - Linear infrastructure such as roads, water, sewer and storm pipes
 - Fleet
 - Facilities
2. Annual inspection/maintenance – to prolong life and run to failure. In this case, the assets are maintained and used until they fail, then they are replaced. The following assets are managed using this approach:
 - Parks
 - Sidewalks
 - Gravel roads
 - Streetlights

Machinery and equipment are managed using a combination of both approaches.

Engineering staff have spent a significant amount of time reviewing the expected replacement dates for the Township's linear assets. A plan was implemented to, where possible, schedule work that will extend the life of some assets so that major replacement of linear assets can be coordinated and replaced at the same time. For example, resurfacing roads can extend the useful life so that it matches the end of life for the linear assets under the road. Alternatively, staff can reline a watermain to greatly extend its useful life if the related sections of road do not require replacement or only the road surface requires replacement.

3 State of the Infrastructure

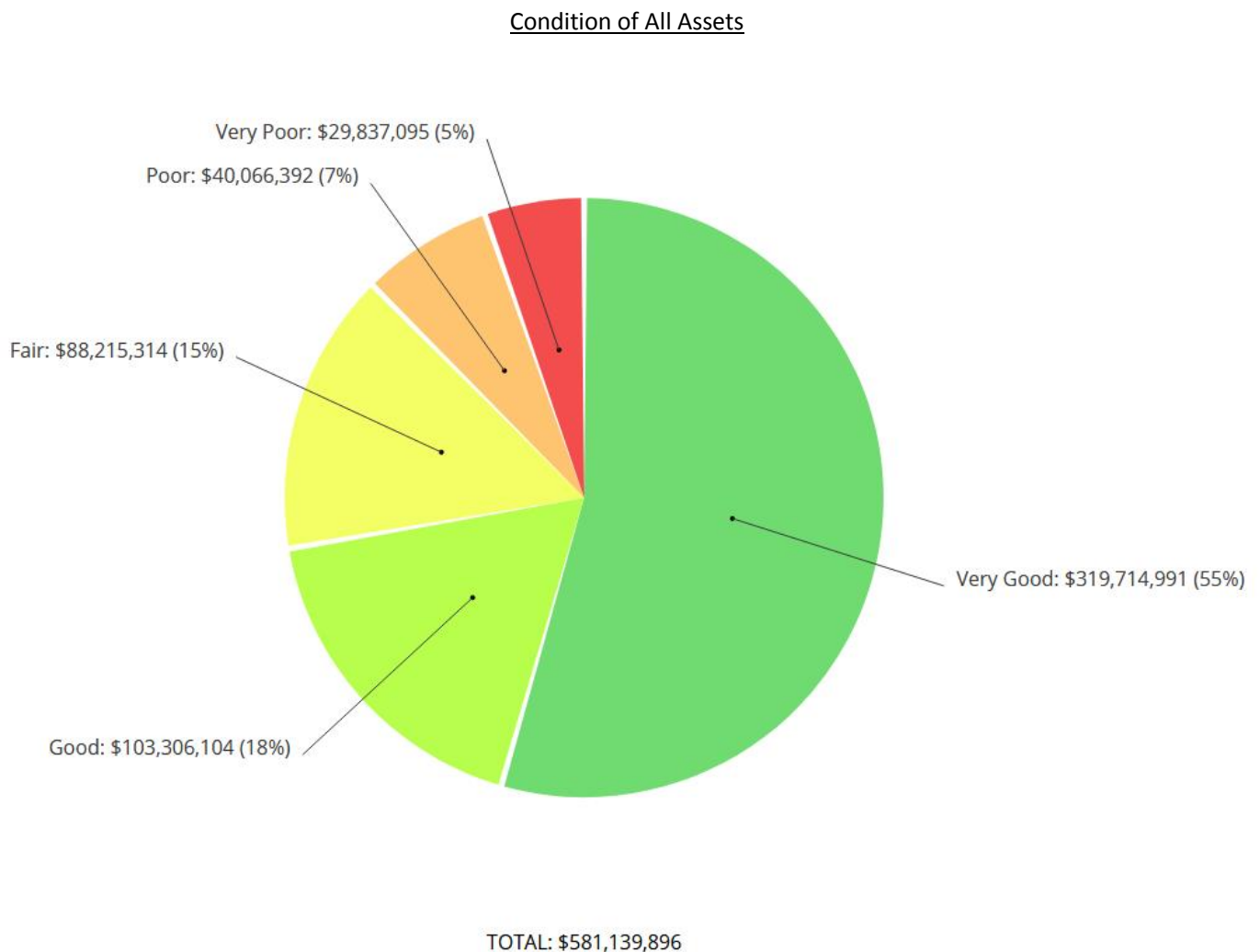
This section provides the asset inventory and condition information for each asset class. The total replacement cost for all Township assets, including Utilities and Transit, is \$581 million.



Of the \$581 million in assets, just over half, or \$320 million, are in very good condition. Approximately \$30 million, or 5%, are in very poor condition, as described in more detail below.

In order to maintain the *very good* and *good* condition ratings we currently have for these assets, and to continue to deliver the level of services as outlined in this report, annual asset replacement needs to occur as scheduled. Failing to adequately replace the current infrastructure will result in asset failure and/or decreases in levels of service.

Generally, assets that are in very poor condition and at highest risk are the highest priority to replace. There may be assets in very poor condition that are not replaced right away because they pose a lower risk.



3.1 Fleet

In evaluating the condition and risk related to Township Fleet, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based on a combination of usage and age. The probability of failure is based on the amount of maintenance costs, combined with the usage condition. The consequence of failure is determined by the financial, safety/health and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Safety / Health (H)	Service Delivery (S)	Score (F+H+S)	COF
5	Significant > \$100,000	Significant Impact Minimum Maintenance Standards	Significant Interruptions Grader No Redundancy	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Major Impact Minimum Maintenance Standards	Major Interruptions Big Plow Trucks Partial Redundancy	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Moderate Impact Level of Service	Moderate Interruptions Small Plow Trucks, Sweeper, Backhoe, Loader, Tractors, Gradall Partial Redundancy	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Minor Impact Level of Service	Minor Interruptions Trailers	5 - 7	Minor
1	Insignificant < \$10,000	No Impact	No Interruptions Small Trucks Full Redundancy	3 - 4	Insignificant

The risk rating is the probability of failure multiplied by the consequence of failure.

Risk rating = probability of failure (POF) X consequence of failure (COF)

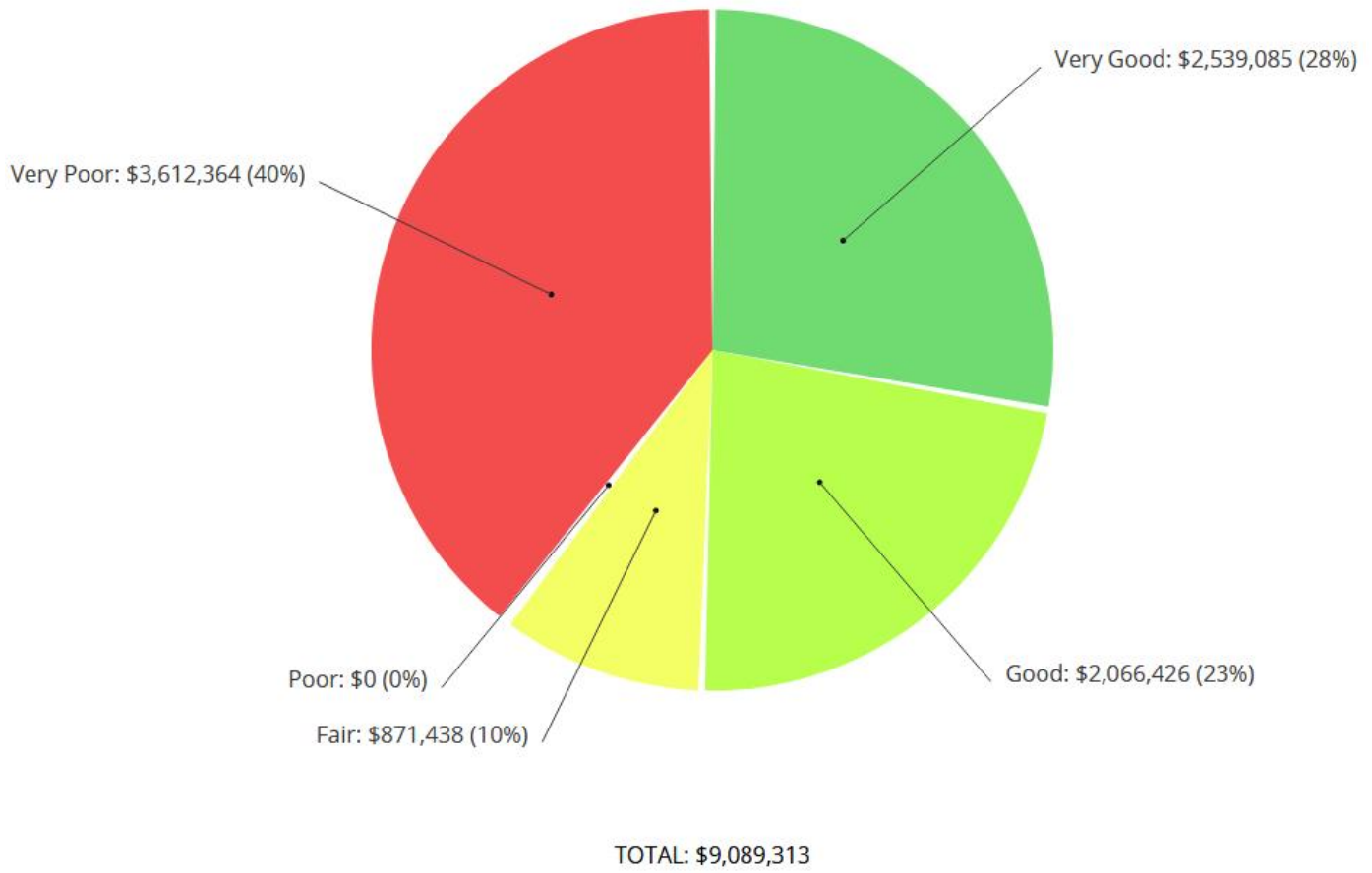
The risk report for Fleet is:

Consequence	5	1 Assets 1.00 unit(s) \$275,000.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	1 Assets - unit(s) \$850,000.00
	4	5 Assets 4.00 unit(s) \$1,105,570.00	5 Assets 5.00 unit(s) \$1,488,316.00	3 Assets 3.00 unit(s) \$810,000.00	0 Assets - \$0.00	0 Assets - \$0.00
	3	8 Assets 8.00 unit(s) \$2,596,438.00	3 Assets 3.00 unit(s) \$519,710.00	0 Assets - \$0.00	0 Assets - \$0.00	1 Assets 1.00 unit(s) \$33,000.00
	2	1 Assets 1.00 unit(s) \$51,511.00	2 Assets 2.00 unit(s) \$92,323.00	1 Assets - unit(s) \$20,165.00	1 Assets 1.00 unit(s) \$165,538.00	0 Assets - \$0.00
	1	19 Assets 19.00 unit(s) \$643,449.00	9 Assets 9.00 unit(s) \$284,511.00	4 Assets 4.00 unit(s) \$125,155.00	1 Assets 1.00 unit(s) \$28,627.00	0 Assets - \$0.00
		1	2	3	4	5
		Probability				

The total replacement cost for the Township's Fleet, including Utilities, is \$9 million. Of this, \$3.6 million is in very poor condition, however, this includes a new pumper for Emergency Services (\$850,000), which is being purchased in 2017 and is funded by development charges. Also included in the very poor condition ranking are the following vehicles:

- Three pumpers for Emergency Services, totaling \$1.1 million, scheduled to be replaced in 2018, 2019 and 2020, respectively.
- Three plows totaling \$810,000, one being replaced in 2017 and the other two scheduled to be replaced in 2018.
- An Emergency Services rescue vehicle for \$312,000, scheduled to be replaced in 2023.

Fleet Condition



3.2 Machinery and Equipment

In evaluating the condition and risk for Machinery and Equipment, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based on a combination of usage (mileage or hours) and age. The probability of failure is based on the amount of maintenance costs, combined with the usage condition. The consequence of failure is determined by the financial, safety/health and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Safety / Health (H)	Service Delivery (S)	Score (F+H+S)	COF
5	Significant > \$100,000	Significant Impact Minimum Maintenance Standards	Significant Interruptions Grader No Redundancy	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Major Impact Minimum Maintenance Standards	Major Interruptions Big Plow Trucks Partial Redundancy	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Moderate Impact Level of Service	Moderate Interruptions Small Plow Trucks, Sweeper, Backhoe, Loader, Tractors, Gradall Partial Redundancy	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Minor Impact Level of Service	Minor Interruptions Trailers	5 - 7	Minor
1	Insignificant < \$10,000	No Impact	No Interruptions Small Trucks Full Redundancy	3 - 4	Insignificant

The risk rating is the probability of failure multiplied by the consequence of failure.

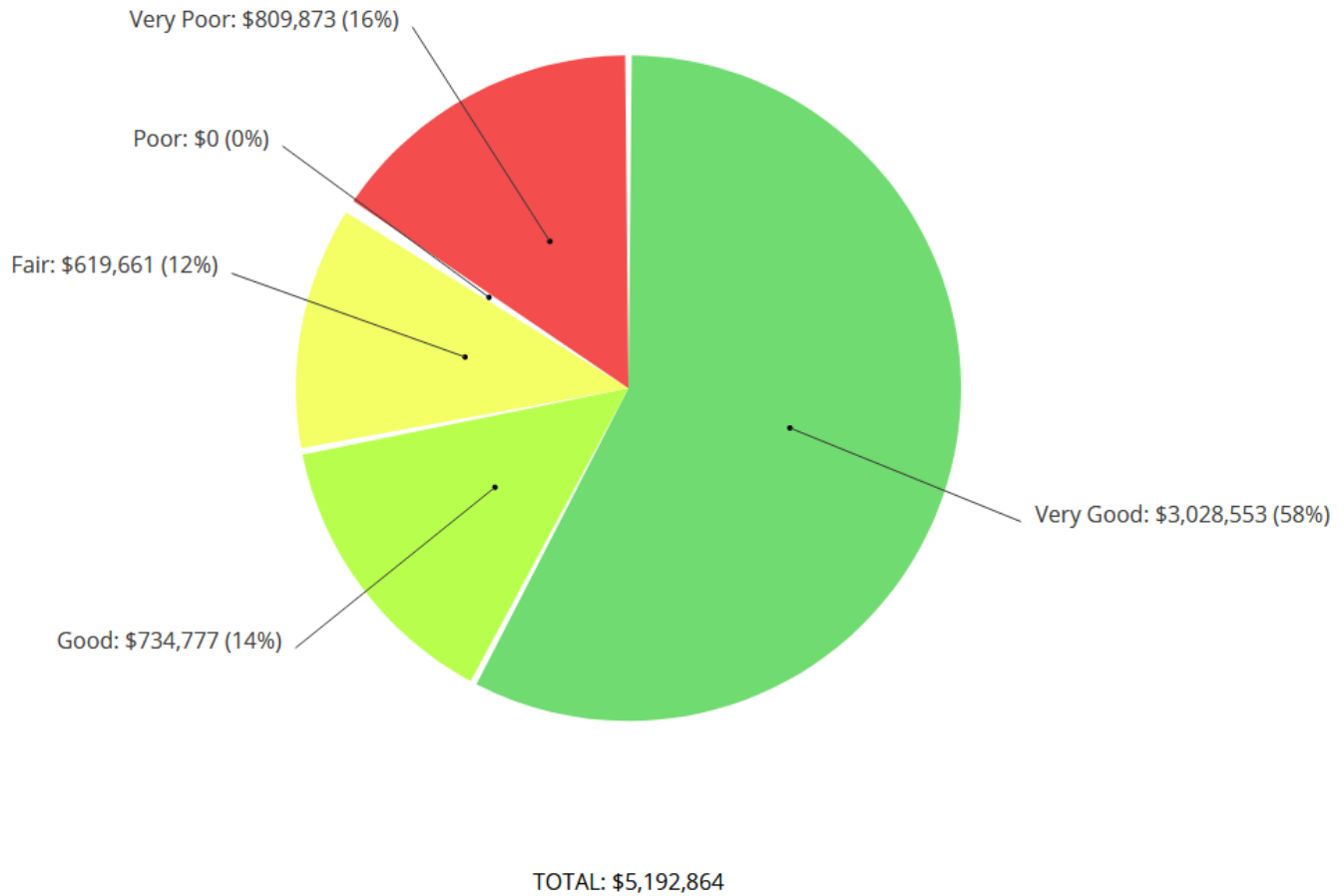
Risk rating = probability of failure (POF) X consequence of failure (COF)

The risk report for Machinery and Equipment is:

Consequence	5	2 Assets 1.00 unit(s) \$410,516.00	1 Assets 1.00 unit(s) \$369,438.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	5 Assets 4.00 unit(s) \$443,555.00	1 Assets 1.00 unit(s) \$134,913.00	1 Assets 1.00 unit(s) \$64,383.00	1 Assets 1.00 unit(s) \$160,000.00	0 Assets - \$0.00
	3	14 Assets 13.00 unit(s) \$1,822,577.00	3 Assets 3.00 unit(s) \$274,647.00	1 Assets 1.00 unit(s) \$514,630.00	0 Assets - \$0.00	3 Assets 2.00 unit(s) \$88,605.00
	2	15 Assets 13.00 unit(s) \$301,908.00	4 Assets 4.00 unit(s) \$80,821.00	4 Assets 4.00 unit(s) \$178,402.00	0 Assets - \$0.00	4 Assets 3.00 unit(s) \$83,568.00
	1	23 Assets 22.00 unit(s) \$201,670.00	2 Assets 2.00 unit(s) \$15,607.00	5 Assets 5.00 unit(s) \$38,985.00	0 Assets - \$0.00	2 Assets 2.00 unit(s) \$8,639.00
		1	2	3	4	5
		Probability				

The total replacement cost for the Township's Machinery and Equipment, including Utilities, is \$5 million. Of this, \$810,000 (16%) is in very poor condition. This is mainly contributable to \$515,000 for a 2003 Gradall Excavator, which is scheduled to be replaced in 2018.

Machinery and Equipment Condition



3.3 Facilities and Buildings

In evaluating the condition and risk related to Township Facilities and Buildings, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based on inspected condition and age condition. The consequence of failure is determined by the financial, safety/health and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Safety / Health	Service Delivery (S)	Score (F+H+S)	COF
5	Significant > \$100,000	Significant Impact Public Safety Compliance Impacted	Significant Interruptions (1 day pool /arena closure) No Redundancy	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Major Impact Indirect Compliance Impact	Major Interruptions (> than 4hours pool /arena closure) Partial Redundancy	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Moderate Impact	Moderate Interruptions (schedule interruptions <4hours) Partial Redundancy	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Minor Impact	Minor Interruptions	5 - 7	Minor
1	Insignificant < \$10,000	No Impact	No Interruptions Full Redundancy	3 - 4	Insignificant

The risk rating is the probability of failure multiplied by the consequence of failure.

Risk rating = probability of failure (POF) X consequence of failure (COF)

The risk report for Facilities and Buildings is:

Consequence	5	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	1 Assets 1.00 unit(s) \$228,452.00	2 Assets 1.00 unit(s) \$650,000.00
	4	10 Assets 15.00 unit(s) \$2,700,091.00	5 Assets 6.00 unit(s) \$1,547,975.00	9 Assets 9.00 unit(s) \$3,229,452.00	0 Assets - \$0.00	0 Assets - \$0.00
	3	25 Assets 35.00 unit(s) \$6,220,453.00	21 Assets 32.00 unit(s) \$5,756,434.00	15 Assets 16.00 unit(s) \$2,433,384.00	2 Assets 2.00 unit(s) \$226,000.00	1 Assets - unit(s) \$30,000.00
	2	23 Assets 28.00 unit(s) \$3,331,711.00	20 Assets 23.00 unit(s) \$919,207.00	11 Assets 15.00 unit(s) \$1,515,353.00	5 Assets 5.00 unit(s) \$332,427.00	5 Assets 4.00 unit(s) \$830,000.00
	1	17 Assets 12.00 unit(s) \$118,174.00	15 Assets 15.00 unit(s) \$174,026.00	14 Assets 12.00 unit(s) \$166,093.00	5 Assets 8.00 unit(s) \$98,455.00	4 Assets 3.00 unit(s) \$33,500.00
		1	2	3	4	5
		Probability				

The total replacement cost for the Township's Facilities and Buildings, including Utilities, is \$30 million. Of this, approximately 11% or \$3 million is in very poor condition. This is comprised of several smaller assets as well as the following:

- Renovations to the Amherst Island Fire Hall in the amount of \$800,000, originally scheduled in 2017, now planned for 2018.
- Arena chiller in the amount of \$100,000 scheduled to be replaced in 2018.
- Pool plumbing in the amount of \$100,000 scheduled to be replaced in 2023.
- HVAC and heaters at the County Road 6 Garage in the amount of \$140,000 to be replaced in 2018.
- Arena plumbing in the amount of \$145,000 to be replaced in 2023.
- Arena maintenance garage expansion in the amount of \$150,000 to be completed in 2023.
- Lobby and arena flooring in the amount of \$220,000 to be replaced in 2023.
- Pool flat roof in the amount of \$276,000 to be replaced in 2023.
- Lobby and arena lighting, alarm system and fire panel in the amount of \$371,000 schedule currently appears in backlog. Some of this work has been completed, which needs to be updated in our asset inventory. The remaining work will be deferred to 2023.
- New municipal building in the amount of \$500,000 for preliminary work to be completed in 2017.

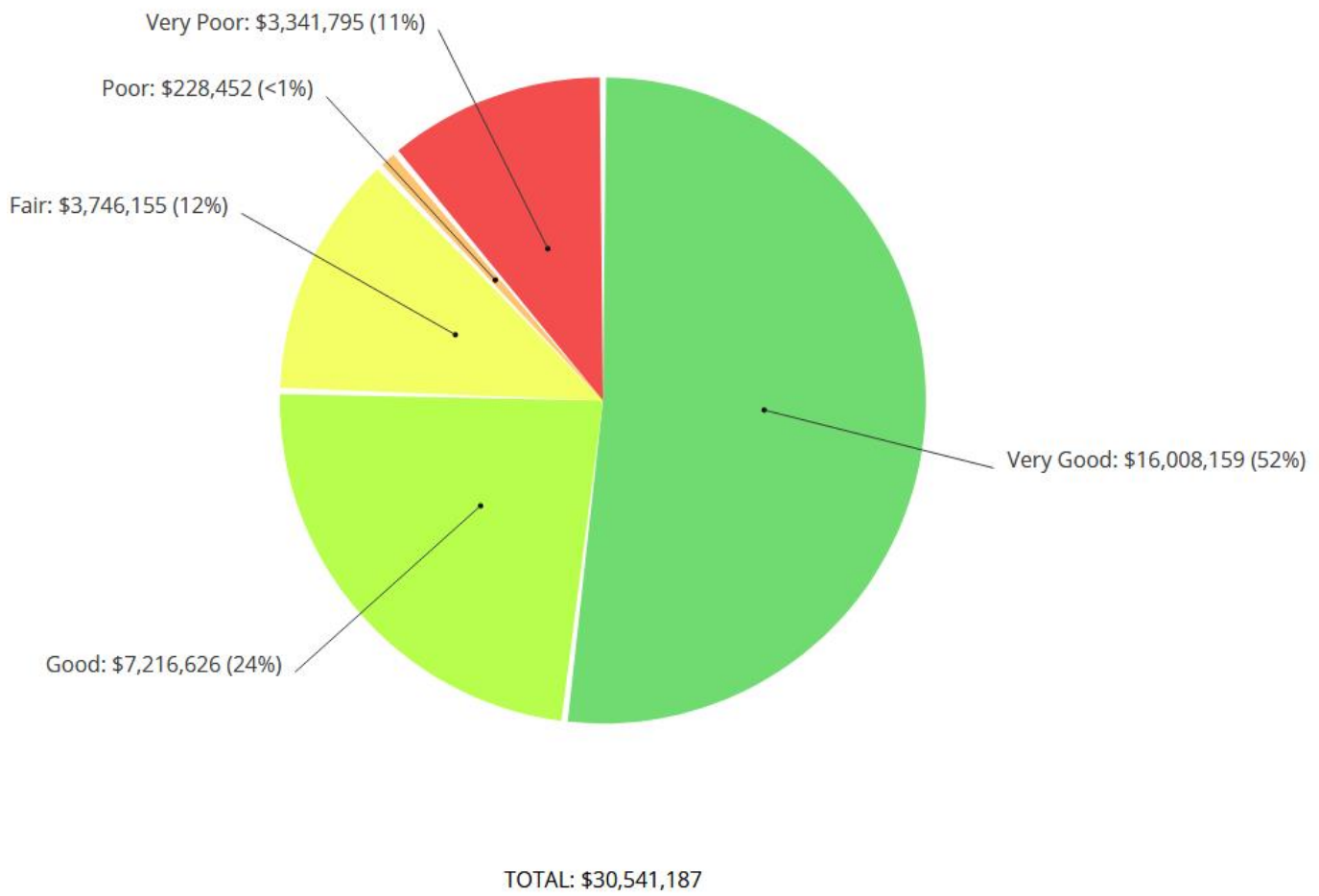
In addition to the above list, staff have identified two other capital requirements related to storage for staff.

The proposed redevelopment on the former Odessa Sewage Treatment Plant site of the new storm water management facility for Odessa West Neighbourhood, will result in the Township losing a modern three-bay garage that has been used by both the Utilities Department and, more recently, by the Facilities Maintenance staff, as a workshop. The Facilities group had to vacate the Recreation Centre, due to Health and Safety Concerns and moved to the Odessa Sewage Treatment Plant site. Utilities staff moved out of the Odessa Sewage Treatment Plant site and are now using sea containers for storage, but the level of storage and workspace is inadequate.

Staff feel that the appropriate solution is to add workspace for Facilities Maintenance as part of the County Road 6 garage expansion project, which was outlined in past development charge studies. With the advancing development of the Odessa West project, staff are proposing to initiate design and site plan work in 2018 and construction in 2019.

Similarly, Utilities will need to evaluate the best location for a storage facility and workshop.

Facilities and Buildings Condition



3.4 Sanitary Sewer

In evaluating the condition and risk related to the sanitary sewer infrastructure, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based on event condition and age condition. The consequence of failure is determined by the financial, regulatory/environmental and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Regulatory / Environmental (E)	Service Delivery (S)	Score (F+E+S)	COF
5	Significant > \$100,000	Long - term Impact - Permanent n/a	Significant Interruptions Pumping Station Force mains as well as Sanitary Sewer Pipes (525mm - 750mm)	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Long - term Impact - Fixable Compliance Impacted	Major Interruptions Sanitary Sewer Pipes (400mm - 450mm) Electrical / Mechanical Equipment	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Medium - term Impact Pumping Station bypass	Moderate Interruptions Sanitary Sewer Pipes (300mm - 375mm) Building Mechanical / Electrical	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Short - term Impact Indirect Compliance Impact	Minor Interruptions Sanitary Sewer Pipes (200mm - 250mm) Tankage / Site Services	5 - 7	Minor
1	Insignificant < \$10,000	No Impact	No Interruptions Sanitary Sewer Pipes (50mm - 150mm) All other Categories	3 - 4	Insignificant

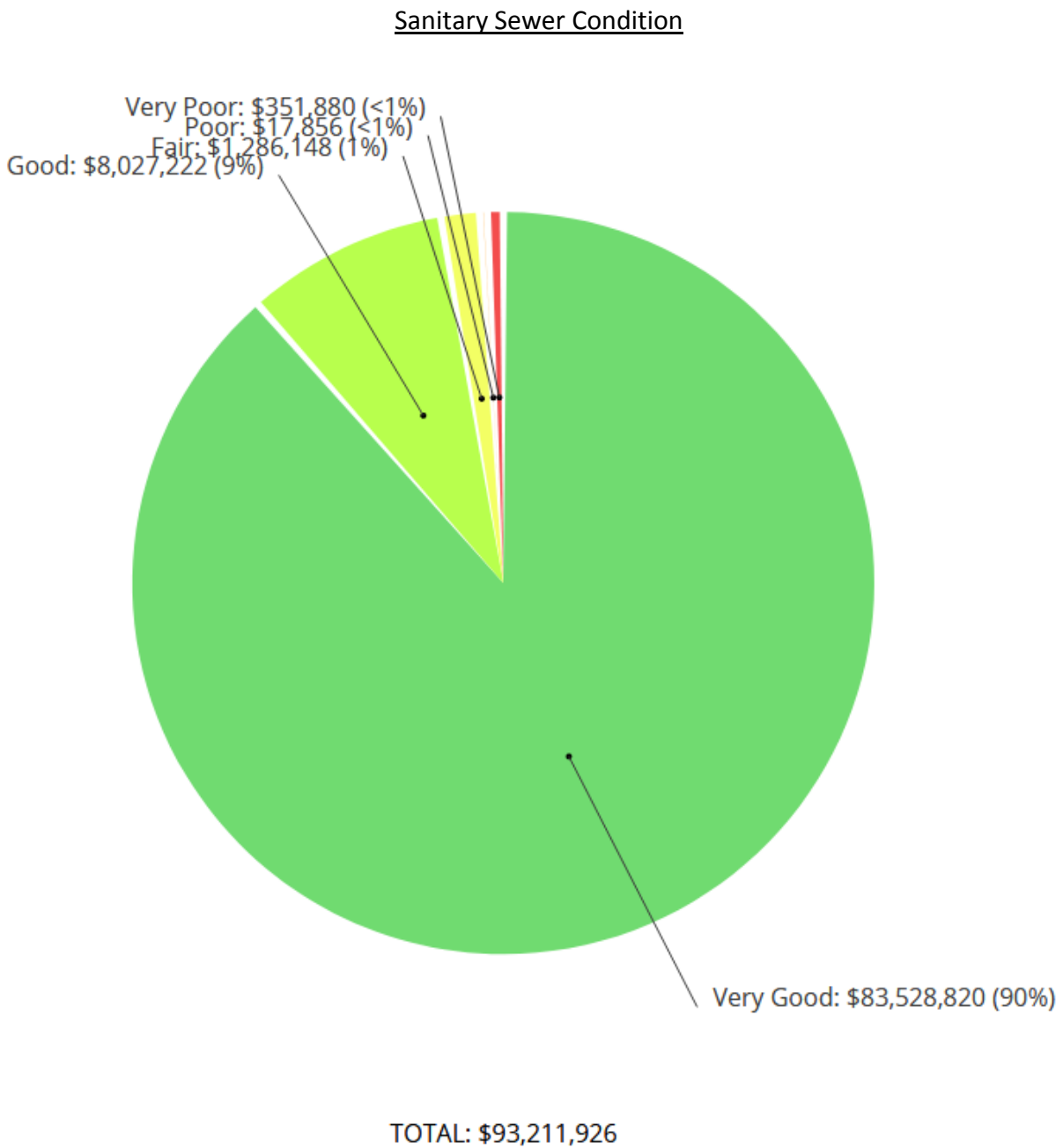
The risk rating is the probability of failure multiplied by the consequence of failure.

Risk rating = probability of failure (POF) X consequence of failure (COF)

The risk report for Sanitary Sewer infrastructure is:

Consequence	5	5 Assets 9.00 unit(s) \$962,600.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	29 Assets 11,888.50 unit(s) \$13,448,188.00	10 Assets 880.20 unit(s) \$2,279,471.00	1 Assets 1.00 unit(s) \$350,000.00	0 Assets - \$0.00	0 Assets - \$0.00
	3	148 Assets 7,266.60 unit(s) \$32,966,726.00	10 Assets 50.00 unit(s) \$3,731,547.00	5 Assets 5.00 unit(s) \$465,715.00	1 Assets 1.00 unit(s) \$17,856.00	6 Assets 5.00 unit(s) \$247,076.00
	2	703 Assets 45,845.70 unit(s) \$35,446,809.00	23 Assets 1,315.50 unit(s) \$1,813,268.00	4 Assets 4.00 unit(s) \$102,448.00	0 Assets - \$0.00	4 Assets 4.00 unit(s) \$79,067.00
	1	77 Assets 867.20 unit(s) \$842,739.00	7 Assets 29.00 unit(s) \$64,694.00	1 Assets 1.00 unit(s) \$16,809.00	0 Assets - \$0.00	2 Assets 2.00 unit(s) \$25,737.00
		1	2	3	4	5
		Probability				

The total replacement cost for Sanitary Sewer infrastructure is \$93 million. Of this, \$352,000 or less than 1% is in very poor condition. This is comprised of several smaller projects.



3.5 Water Infrastructure

In evaluating the condition and risk related to the Water infrastructure, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based on static pressure and age condition. The consequence of failure is determined by the financial, regulatory/environmental and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Social / Health (H)	Service Delivery (S)	Score (F+H+S)	COF
5	Significant > \$100,000	Significant Impact A - QMS Risk Numbers >= 16	Significant Interruptions ((PS+WB)/2) Pipe Size 400 mm => 5 watermain breaks Hydrant Rated Colour - N/A Plant Equipment - NO Water Production Storage Permanently Unavailable	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Major Impact B - QMS Risk Numbers - Minimum Critical Control Points	Major Interruptions ((PS+WB)/2) Pipe Size 300 mm 3 - 4 watermain breaks Hydrant Rated Colour - Blue Plant Equipment - Significantly Limited Water Product Storage Temporarily Unavailable	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Moderate Impact C - QMS Risk Numbers 10 to <16	Moderate Interruptions ((PS+WB)/2) Pipe Size 200 - 250 mm 2 watermain breaks Hydrant Rated Colour - Green Plant Equipment - Atleast 50% Production Storage significantly Reduced	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Minor Impact D - QMS Risk Numbers 6 to <10	Minor Interruptions ((PS+WB)/2) Pipe Size 100 - 150 mm 1 watermain break Hydrant Rated Colour - Orange Plant Equipment - Partial Redundant Equipment Storage - Partial Redundant Equipment	5 - 7	Minor
1	Insignificant < \$10,000	No Impact E - QMS Risk Numbers < 6	No Interruptions ((PS+WB)/2) Pipe Size 25 - 50 mm No watermain breaks Hydrant Rated Colour - Red Plant Equipment - Fully Redundant No Impact on Water Production Storage - Fully Redundant No Impact on Storage	3 - 4	Insignificant

The risk rating is the probability of failure multiplied by the consequence of failure.

$$\text{Risk rating} = \text{probability of failure (POF)} \times \text{consequence of failure (COF)}$$

The risk report for Water infrastructure is:

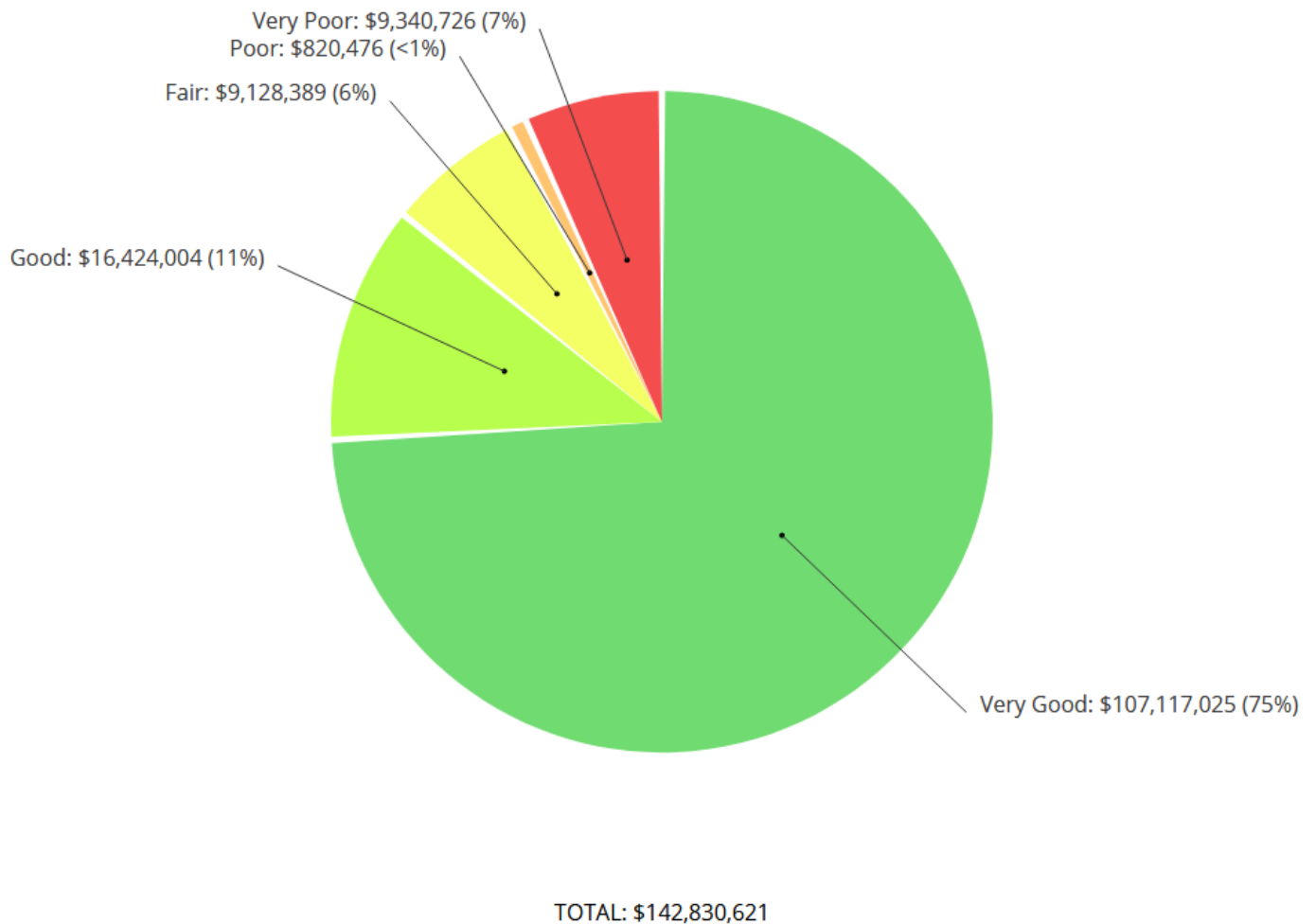
Consequence	5	0 Assets - \$0.00	4 Assets 384.30 m, unit(s) \$880,346.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	0 Assets - \$0.00	15 Assets 1,057.40 unit(s), m \$10,446,883.25	1 Assets 232.80 unit(s) \$209,520.00	1 Assets 266.90 unit(s) \$240,210.00	4 Assets 771.90 unit(s) \$842,240.00
	3	0 Assets - \$0.00	247 Assets 44,633.80 unit(s), m \$76,461,117.75	121 Assets 19,643.10 unit(s) \$30,148,984.04	17 Assets 3,171.10 unit(s), m \$4,070,243.00	37 Assets 5,168.74 unit(s) \$6,378,462.00
	2	0 Assets - \$0.00	156 Assets 2,201.40 unit(s) \$8,849,971.88	44 Assets 1,200.90 unit(s) \$2,017,384.26	12 Assets 217.60 unit(s) \$307,730.00	24 Assets 315.80 unit(s) \$1,097,002.91
	1	1 Assets 1.00 unit(s) \$24,356.00	40 Assets 804.42 unit(s), m \$457,447.41	9 Assets 225.00 unit(s) \$126,162.00	4 Assets 157.00 unit(s) \$67,501.00	24 Assets 229.00 unit(s) \$205,059.00
		1	2	3	4	5
		Probability				

The total replacement cost for the Water infrastructure is approximately \$143 million. Of this, \$9 million or 7% is in very poor condition. This is comprised of water pipe projects on the following roads:

- Cambridge Crescent in the amount of \$685,000 scheduled in 2018.
- Clairton Place in the amount of \$366,000 scheduled in 2017.
- Edgewood Rd. in the amount of \$279,000 scheduled in 2019.
- Fairfield Blvd. in the amount of \$943,000 scheduled in 2017.
- Highway 33 in the amount of \$243,000 scheduled in 2019.
- Kildare Ave. in the amount of \$255,000 scheduled in 2018.
- Manitou Cres. in the amount of \$678,000 scheduled in 2019.
- Morden Cres. in the amount of \$375,000 scheduled in 2017.
- Mott Street in the amount of \$196,500 scheduled in 2024.
- Princeton Place in the amount of \$447,000 scheduled in 2018.
- Sherwood Ave., north portion, in the amount of \$384,000 scheduled in 2017.
- Redundancy work to main line to Bath water tower in the amount of \$1.3 million scheduled in 2021.
- Westfield Drive in the amount of \$222,600 scheduled in 2020.
- Sherwood Ave., south portion, in the amount of \$768,000 scheduled in 2019.

In addition to the above watermain projects, another large water project in the next few years is redundancy for the Bath Water system. This redundancy can be achieved in a number of different ways and staff are exploring different options. Currently, the capital budget includes \$4 million in 2019. As an option is finalized, this number will change. All potential options would require considerable funds and the feasibility of funding this necessary project must be included in the user rate study in 2018, as well as all future financial plans.

Water Infrastructure Condition



3.6 Roads

In evaluating the condition and risk related to Roads, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based on inspected condition and age condition. The consequence of failure is determined by the financial, safety/health (road class) and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Safety / Health (Road Class)	Service Delivery (S)	Score (F+H+S)	COF
5	Significant > \$100,000	Significant Impact Class 1 & 2	Significant Interruptions Asphalt	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Major Impact Class 3	Major Interruptions Surface Treatment	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Moderate Impact Class 4	Moderate Interruptions Gravel	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Minor Impact Class 5	Minor Interruptions Dirt	5 - 7	Minor
1	Insignificant < \$10,000	No Impact Class 6	No Interruptions N/A	3 - 4	Insignificant

The risk rating is the probability of failure multiplied by the consequence of failure.

Risk rating = probability of failure (POF) X consequence of failure (COF)

The risk report for Roads is:

Consequence	5	10 Assets 9,997.69 unit(s), m \$3,150,932.00	7 Assets 6,253.74 unit(s), m2 \$920,658.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	215 Assets 95,239.94 unit(s), m \$43,420,221.35	119 Assets 78,282.36 unit(s) \$31,209,152.50	39 Assets 35,433.58 unit(s) \$13,026,430.45	10 Assets 10,632.07 unit(s) \$2,978,409.60	4 Assets 5,145.66 unit(s), m \$1,019,506.00
	3	245 Assets 50,212.04 unit(s), m \$18,768,066.15	144 Assets 62,220.87 unit(s) \$26,982,452.95	108 Assets 112,533.91 unit(s) \$57,702,866.55	58 Assets 72,371.31 unit(s), m \$35,054,557.45	37 Assets 35,665.25 unit(s), m \$5,838,694.25
	2	38 Assets 4,040.64 unit(s), m \$602,880.00	59 Assets 8,317.24 unit(s) \$953,602.00	9 Assets 2,032.23 unit(s) \$362,873.65	6 Assets 1,605.63 unit(s) \$496,209.75	7 Assets 905.50 unit(s) \$218,755.85
	1	99 Assets 2,099.17 unit(s), m \$2,209,592.00	62 Assets 4,095.31 unit(s), m \$1,136,639.00	4 Assets 13.00 unit(s) \$11,037.00	0 Assets - \$0.00	19 Assets 167.00 unit(s), m \$122,346.00
		1	2	3	4	5
		Probability				

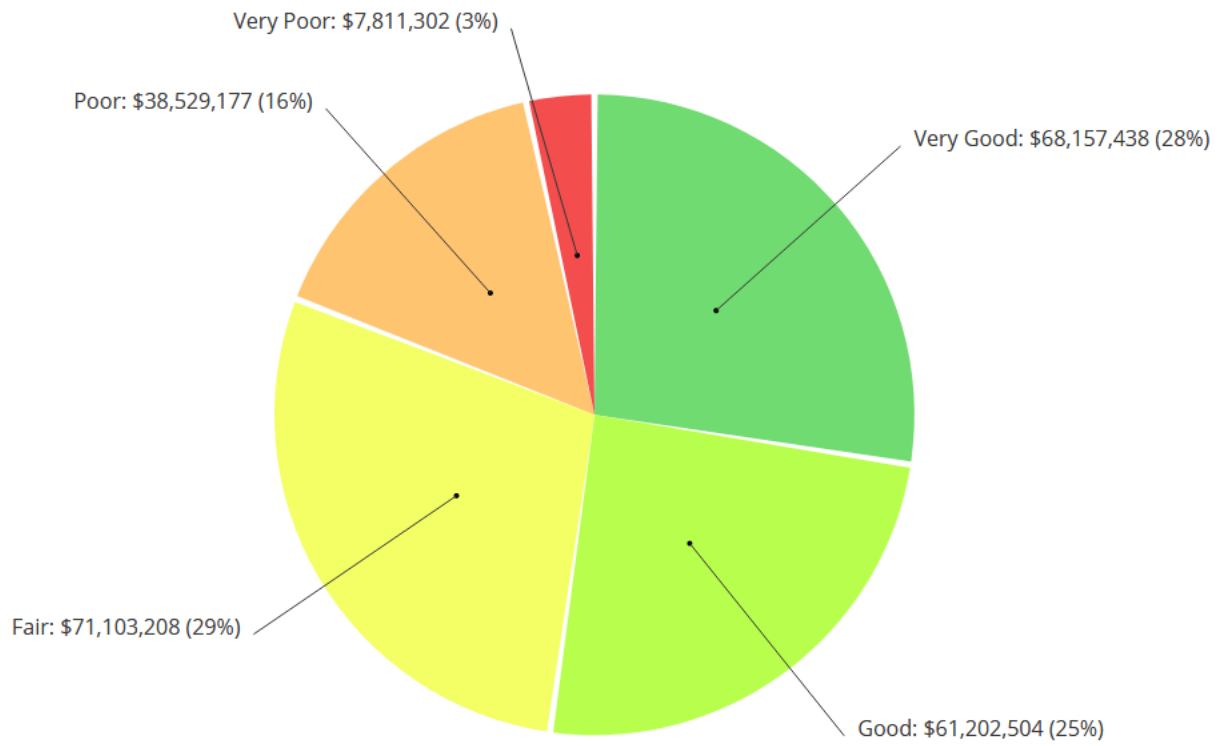
The total replacement cost for Roads is \$247 million, of which almost \$8 million, or 3%, is in very poor condition. There are a number of significant road projects included in this category, including the following:

Absalom Road	\$ 112,000
Battery St.	\$ 74,000
Clark Road	\$ 481,000
Cross Street	\$ 132,000
Fisk Road	\$ 374,000
Fralick Road	\$ 380,000
Fred Brown Road	\$ 1,773,000
Maple Road	\$ 340,000
McDonalds Lane	\$ 285,000
Neil Road *	\$ 157,000
Old Wilton Road	\$ 242,000
Shorey Road*	\$ 160,000
Simmons Road	\$ 383,000
Wilson Road *	\$ 439,000
Grand Total	\$ 5,332,000

*indicates a boundary road.

Also included in \$8 million of very poor condition assets, are some streetlight replacements.

Road Condition



TOTAL: \$246,803,629

3.7 Bridges and Culverts

In evaluating the condition and risk related to Bridges and Culverts, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based age. The consequence of failure is determined by the financial, safety/health (road class) and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Safety / Health (Road Class)	Service Delivery (S)	Score (F+H+S)	COF
5	Significant > \$100,000	Significant Impact Class 1 & 2	Significant Interruptions Asphalt	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Major Impact Class 3	Major Interruptions Surface Treatment	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Moderate Impact Class 4	Moderate Interruptions Gravel	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Minor Impact Class 5	Minor Interruptions Dirt	5 - 7	Minor
1	Insignificant < \$10,000	No Impact Class 6	No Interruptions N/A	3 - 4	Insignificant

The risk rating is the probability of failure multiplied by the consequence of failure.

Risk rating = probability of failure (POF) X consequence of failure (COF)

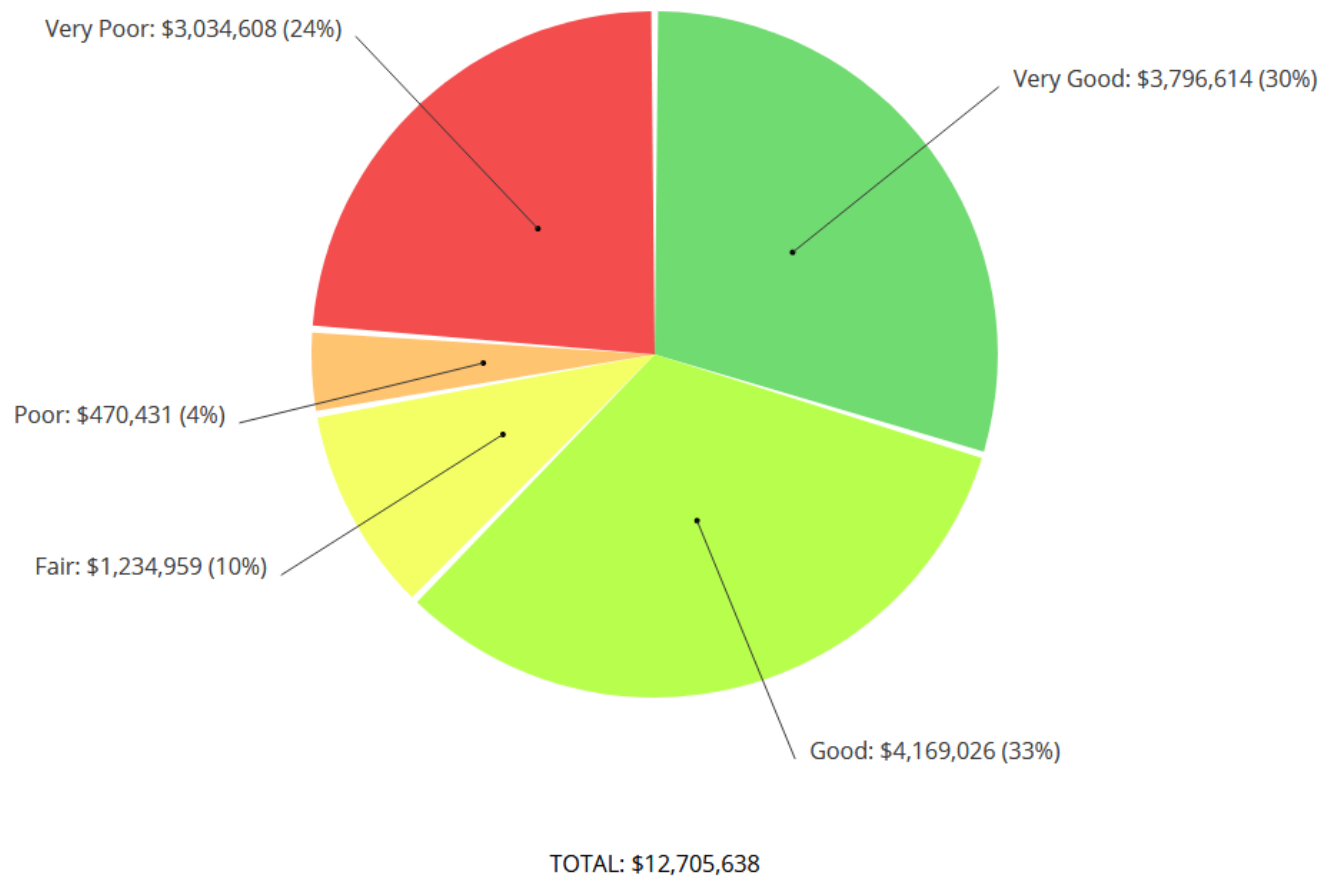
The total replacement cost for Bridges and Culverts is almost \$13 million. Of this, \$3 million or 24% is in very poor condition. Included in this category are:

- Amey's Bridge in the amount of \$328,000.
- Sharpe's Bridge on Maple Road in the amount of \$450,000
- Brandon Bridge in the amount of \$396,000.

In 2018, there will be a bridge inspection program, which will likely result in updated condition assessments and may impact the replacement date of the Township's bridges.

In addition to the above noted bridges, there are over 100 culverts which need to be replaced, based on their age.

Bridges and Culverts Condition



3.8 Storm Water

In evaluating the condition and risk related to Storm Water infrastructure, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based age. The consequence of failure is determined by the financial, safety/health (road class) and service delivery implications to the Township.

Consequence of Failure					
Range	Financial (F)	Safety / Health (Road Class)	Service Delivery (S)	Score (F+E+S)	COF
5	Significant > \$100,000	Significant Impact Class 1 & 2	Storm Sewer Pipes (> 1200mm)	14 - 15	Severe
4	Substantial \$50,000 - \$100,000	Major Impact Class 3	Storm Sewer Pipes (800mm - 1200mm)	11 - 13	Major
3	Considerable \$25,000 - \$50,000	Moderate Impact Class 4	Storm Sewer Pipes (450mm - 750 mm)	8 - 10	Moderate
2	Minor / Small \$10,000 - \$25,000	Minor Impact Class 5	Storm Sewer Pipes (≤ 450mm) Catchbasins Manhole	5 - 7	Minor
1	Insignificant < \$10,000	No Impact Class 6	n/a	3 - 4	Insignificant

The risk rating is the probability of failure multiplied by the consequence of failure.

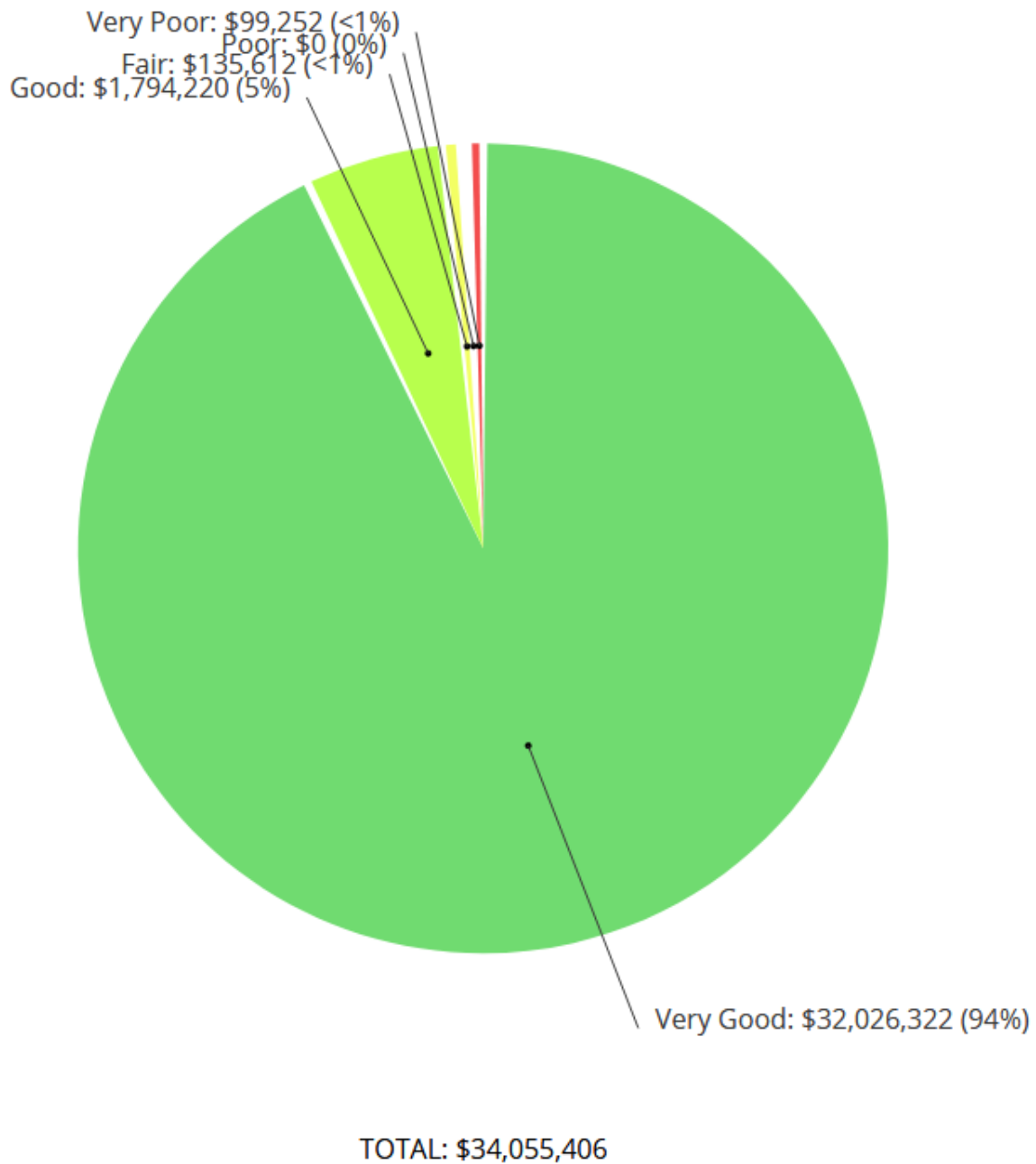
$$\text{Risk rating} = \text{probability of failure (POF)} \times \text{consequence of failure (COF)}$$

The risk report for Storm Water Infrastructure is:

Consequence	5	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	37 Assets 3,580.25 unit(s), m \$4,220,285.00	2 Assets 190.20 unit(s) \$113,210.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	3	247 Assets 16,557.00 unit(s) \$18,174,817.00	8 Assets 428.70 unit(s) \$489,332.00	1 Assets 19.70 unit(s) \$10,017.00	0 Assets - \$0.00	0 Assets - \$0.00
	2	367 Assets 13,071.03 unit(s), m \$9,688,539.00	6 Assets 254.80 unit(s) \$251,172.00	3 Assets 162.20 unit(s) \$114,994.00	0 Assets - \$0.00	4 Assets 64.50 unit(s) \$111,902.00
	1	115 Assets 1,309.20 unit(s) \$842,923.00	3 Assets 12.10 unit(s) \$15,264.00	2 Assets 22.40 unit(s) \$10,601.00	0 Assets - \$0.00	6 Assets 41.00 unit(s) \$92,350.00
		1	2	3	4	5
		Probability				

The total replacement cost of the Storm Water infrastructure is \$34 million. Of this, \$99,000 or less than 1% is in very poor condition.

Storm Water Infrastructure Condition



3.9 Land Improvements

In evaluating the condition and risk related to Land Improvements, staff reviewed the probability of failure, the consequence of failure and the risk outcomes. The condition rating is based on age. The consequence of failure is determined by the financial implications to the Township.

The risk rating is the probability of failure multiplied by the consequence of failure.

$$\text{Risk rating} = \text{probability of failure (POF)} \times \text{consequence of failure (COF)}$$

The risk report for Land Improvements is:

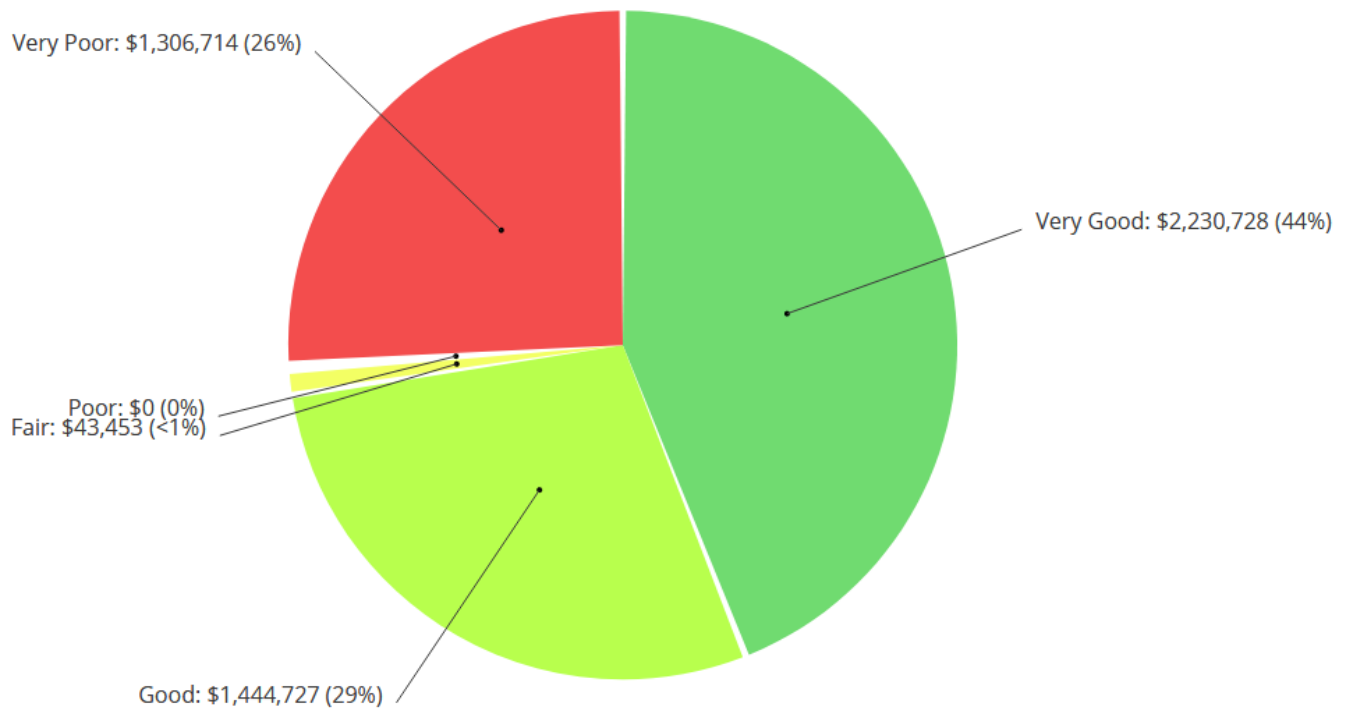
Consequence	5	5 Assets 5.00 unit(s) \$709,050.00	2 Assets 2.00 unit(s) \$336,331.00	0 Assets - \$0.00	0 Assets - \$0.00	13 Assets 10.00 unit(s) \$397,658.00
	4	11 Assets 8.00 unit(s), km2 \$859,936.00	4 Assets 4.00 unit(s) \$160,145.00	0 Assets - \$0.00	0 Assets - \$0.00	11 Assets 12.00 unit(s) \$463,733.00
	3	10 Assets 9.00 unit(s), km2 \$366,665.00	7 Assets 8.00 unit(s) \$396,465.00	0 Assets - \$0.00	0 Assets - \$0.00	5 Assets 5.00 unit(s) \$151,677.00
	2	14 Assets 1,011.00 unit(s), km2, feet \$245,126.00	11 Assets 11.00 unit(s) \$535,309.00	1 Assets 1.00 unit(s) \$17,339.00	0 Assets - \$0.00	11 Assets 11.00 unit(s) \$181,487.00
	1	11 Assets 8.00 unit(s), km2 \$49,951.00	6 Assets 6.00 unit(s) \$16,477.00	3 Assets 3.00 unit(s) \$26,114.00	0 Assets - \$0.00	23 Assets 23.00 unit(s) \$112,159.00
		1	2	3	4	5
		Probability				

Of the \$5 million in land improvements, \$1.3 million or 26%, are in very poor condition. This includes:

- \$337,000 for soccer pitches at Willie Pratt sports fields (4181 & 4182), which are currently in backlog. However, staff have reviewed and believe that the life on these assets can be extended.
- \$107,000 for curb and paving work at County Road 6 garage (4174 4175 4176) scheduled to be completed in 2032.
- \$84,000 for curb and paving work at County Road 4 garage (4248 & 4249) scheduled to be completed in 2041.
- \$77,000 for the parking lot at Finkle's Shore Park (4210) scheduled to be completed in 2033.

There are many other smaller projects in this category.

Land Improvements Condition



TOTAL: \$5,025,622

3.10 Linear Asset Management Plan

The Urban linear infrastructure asset replacement plan has been developed through the use of condition and risk, for water, sanitary, storm, as well as road surface and road base infrastructure. The program aligns the assets, geographically. The assessment looks at condition to determine year of replacement, while utilizing risk to set priorities.

Pipe assets are defined by Material, Pipe Size and Age (In-Service Date). The condition of water pipe is defined by age as well as break history. The condition of sanitary and storm pipe is determined through the CCTV inspection program, which should be a 8-12 year inspection program for each system.

The road network is broken down into surface and base assets, where surface is identified as asphalt and surface treatment. All the infrastructure in the municipal right of way have differing life expectancies, as well as preventative maintenance strategies and partial replacements/rehabilitations, that can be utilized to optimize an asset's length of life. There is no specific formula to assess the Township's linear assets to decide automatically which projects are required to be completed in a specific order. However, by geographically overlaying all the assets by condition and replacement date, as well as risk number, it provides a starting point for defining which watermains can be relined and which road surfaces can be replaced to better align all the underground infrastructure replacement, at an extended life or an optimized life span.

Through the use of operationally managed maintenance programs, the life expectancy of road infrastructure is extended and managed to defer the need for complete road reconstruction, where possible, to ensure maximum road base life is obtained.

Loyalist Township is focused on optimizing the life of our linear assets, keeping our roads in good condition and our safe drinking water system in good condition, to ensure we can meet our stated levels of service, while protecting the environment through sanitary and storm sewer design and maintenance.

The rural linear infrastructure plan can be broken down into two types of roads surface: treated and gravel. There are bi-annual maintenance programs in place to grade, ditch and add gravel, as well as apply calcium to the gravel roads in the Township. These programs help to extend the life of the assets without the need for full reconstruction. Surface treated roads, through similar maintenance programs, over the course of the next 10 years, will also have sufficient upgrades to minimize the need for full reconstruction. A focused approach on maintaining current roads that are in good condition, will allow these assets to be leveraged over the longer term, without requiring full reconstruction at significant capital costs.

New technology is always being developed and Loyalist Township is looking for new ways to optimize linear infrastructure in cost-effective ways. There is no specific strategy that will work for every scenario in the Township; through ongoing development and data collection we will be able to refine our strategy to bring the most value to the residents of Loyalist Township.

This integrated approach to planning the capital replacement for linear assets has resulted in the following projects being planned for the next three years:

Year	Street	Utilities	General Rate
2018	Cambridge Crescent	\$ 695,000	\$ 730,000
2018	Kildare Avenue	\$ 255,000	\$ -
2018	Princeton Place	\$ 445,000	\$ 325,000
2019	Manitou Crescent W	\$ 1,055,000	\$ -
2019	Sherwood Avenue	\$ 765,000	\$ -
2019	Park Crescent	\$ 320,000	\$ 130,000
2019	Upper Park Road	\$ 195,000	\$ 175,000
2019	Edgewood Road	\$ 890,000	\$ 390,000
2019	Compton Crescent	\$ 135,000	\$ 150,000
2020	Chesterfield Drive	\$ 1,035,000	\$ 730,000
2020	Bakers Lane	\$ 380,000	\$ 280,000
2020	Tareyton Road	\$ 245,000	\$ 260,000
2020	Main Street, Bath	\$ 285,000	\$ -

This is based on the information available at the writing of this report and is subject to change, as better information becomes available and is also dependent on available resources.

Over the longer term, staff anticipate capital work to linear assets on the following roads/sections of these roads between 2020 and 2027.

Littlefield Road
Rothwell Avenue
Asbury Avenue
Havergal Avenue
Bath High Pressure
Main Street, Bath
Sir John Johnson Drive
Academy Street
Huff Avenue
Cornell Avenue
Westran Avenue
Amherst Drive
Pittsfield Drive
Pruyn Crescent

4 Levels of Service

Levels of service are high level indicators that establish defined quality thresholds, at which municipal services should be supplied to the community. They support the organization's strategic goals and are based on customer expectations, statutory requirements, standards and the financial capacity of the municipality.

In June 2016, Loyalist Township Council approved approximately 150 service standards. These standards are tracked and reported on a quarterly basis to Council. Please see appendix A for this list of Township standards.

4.1 Transportation Services

4.1.1 Service Description

The Township's transportation network comprises approximately:

- 251.6 km of maintained (measured) centerline of road
- 109.1 km of gravel road
- 142.5 km of paved/surface treated roads
- 704 cross culverts
- 25 bridge/box culverts
- 35.7 km of sidewalk

Together, the above infrastructure enables the Township to deliver transportation and pedestrian facility services, and provide a range of options for moving about in a safe and efficient manner.

- Movement – providing for the movement of people and goods.
- Access – providing access to residential, commercial and industrial properties, and other community amenities.
- Recreation – providing for recreational use, such as walking, cycling or special events, such as parades.

4.1.2 Performance Indicators (reported annually)

Strategic Indicators

- Percentage of total reinvestment compared to asset replacement value.
- Completion of strategic plan objectives (related to transportation).

Financial Indicators

- Annual revenues compared to annual expenditures.
- Annual replacement value depreciation compared to annual expenditures.
- Total cost of borrowing compared to total cost of service.
- Revenue required to maintain annual network growth.

Tactical Indicators

- Percentage of road network rehabilitated / reconstructed.
- Value of bridge / large culvert structures rehabilitated or reconstructed.

- Overall road condition index as a percentage of desired condition index.
- Overall bridge condition index as a percentage of desired condition index.
- Annual adjustment in condition indexes.
- Annual percentage of network growth.
- Percent of paved road lane km where the condition is rated poor or critical.
- Number of bridge / large culvert structures where the condition is rated poor or critical.
- Percentage of road network replacement value spent on operations and maintenance.
- Percentage of bridge / large culvert structures replacement value spent on operations and maintenance.

Operational Indicators

- Percentage of road network inspected within last 5 years.
- Percentage of bridge / large culvert structures inspected within last two years.
- Operating costs for paved roads per lane km.
- Operating costs for gravel roads per lane km.
- Operating costs for bridge / large culvert structures per square metre.
- Number of customer requests received annually.
- Percentage of customer requests responded to within 24 hours.

4.2 Water / Sanitary / Storm Networks

4.2.1 Service Description

The Township's water distribution network, sanitary network and storm water network are made up as follows:

Water Distribution Network:

- 78.01 Km Watermain
- 1 Water Booster Station
- 3 Water Towers
- 1 Water Reservoir
- 2 Water Treatment Plants

Sanitary Network:

- 69.2 Km Sanitary Sewers
- 13.6 Km Sanitary Forcemains
- 8 Pumping Stations
- 2 Water Pollution Control Plants

Storm Water Network:

- 35.6 Km Storm Sewer
- 8.9 Km Catch Basin Leads
- 5 Storm Water Treatment Units
- 10 Wet Storm Ponds
- 1 Dry Storm Pond
- 2 Storm Depressions

Together, the above infrastructure enables the Township to deliver a potable water distribution service and a waste water and storm water collection service to the residents of the Township.

4.2.2 Scope of services

- The provision of clean safe drinking water through a distribution network of water mains and pumps.
- The removal of waste water through a collection network of sanitary sewer mains.
- The removal of storm water through a collection network of storm sewer mains and catch basins.

4.2.3 Performance Indicators (reported annually)

Strategic Indicators

- Percentage of total reinvestment compared to asset replacement value.

Financial Indicators

- Annual revenues compared to annual expenditures.
- Annual replacement value depreciation compared to annual expenditures.
- Total cost of borrowing compared to total cost of service.
- Revenue required to maintain annual network growth.
- Lost revenue from system outages.
- Completion of strategic plan objectives (related water / sanitary / storm).

Tactical Indicators

- Percentage of water / sanitary / storm network rehabilitated / reconstructed.
- Overall water / sanitary / storm network condition index as a percentage of desired condition index.
- Annual adjustment in condition indexes.
- Annual percentage of growth in water / sanitary / storm network.
- Percentage of mains where the condition is rated poor or critical for each network.
- Percentage of water / sanitary / storm network replacement value spent on operations and maintenance.

Operational Indicators

- Percentage of water / sanitary / storm network inspected.
- Operating costs for the collection of wastewater per kilometre of main.
- Number of wastewater main backups per 100 kilometres of main.
- Operating costs for storm water management (collection, treatment, and disposal) per kilometre of drainage system.
- Operating costs for the distribution/ transmission of drinking water per kilometre of water distribution pipe.
- Number of days when a boil water advisory issued by the medical officer of health, applicable to a municipal water supply, was in effect.
- Number of water main breaks per 100 kilometres of water distribution pipe in a year.
- Number of customer requests received annually per water / sanitary / storm networks.
- Percentage of customer requests responded to within 24 hours per water / sanitary / storm network.

Staff developed Public Works Operational Service Standards and received Council approval. These standards define tasks and frequency for maintenance of Township parks, sports fields and other assets. Please see Appendix B for this report and list of operational service standards.

5 Financial Strategy

As covered in the previous section of this report, staff have done extensive work to evaluate and update condition and risk assessments of Township assets. As with the entire report, this is an ongoing process that will require regular attention to ensure that the asset data is kept up to date and accurate.

The following studies will be completed in one to two years, which will facilitate the ongoing revisions to the asset management plan and financing strategies:

- Official Plan Review
- Growth Study
- Growth Area Storm Water EA
- Servicing Plan
- Utilities Rate Study and Financial Plan

A roads study was completed in 2016. The project updated the conditions and dimensional data on the Township road network. A database was developed, using the dimensional data and the existing road condition for each road section.

With this data, an analysis of the entire road network was undertaken and the results were used in the development of this asset management plan. All road sections were reviewed and have estimated improvement and replacement costs. This study provided the priorities for the roads that would benefit from improvement or replacement. A similar study will be undertaken in four or five years.

Including all Township assets, the risk matrix is:

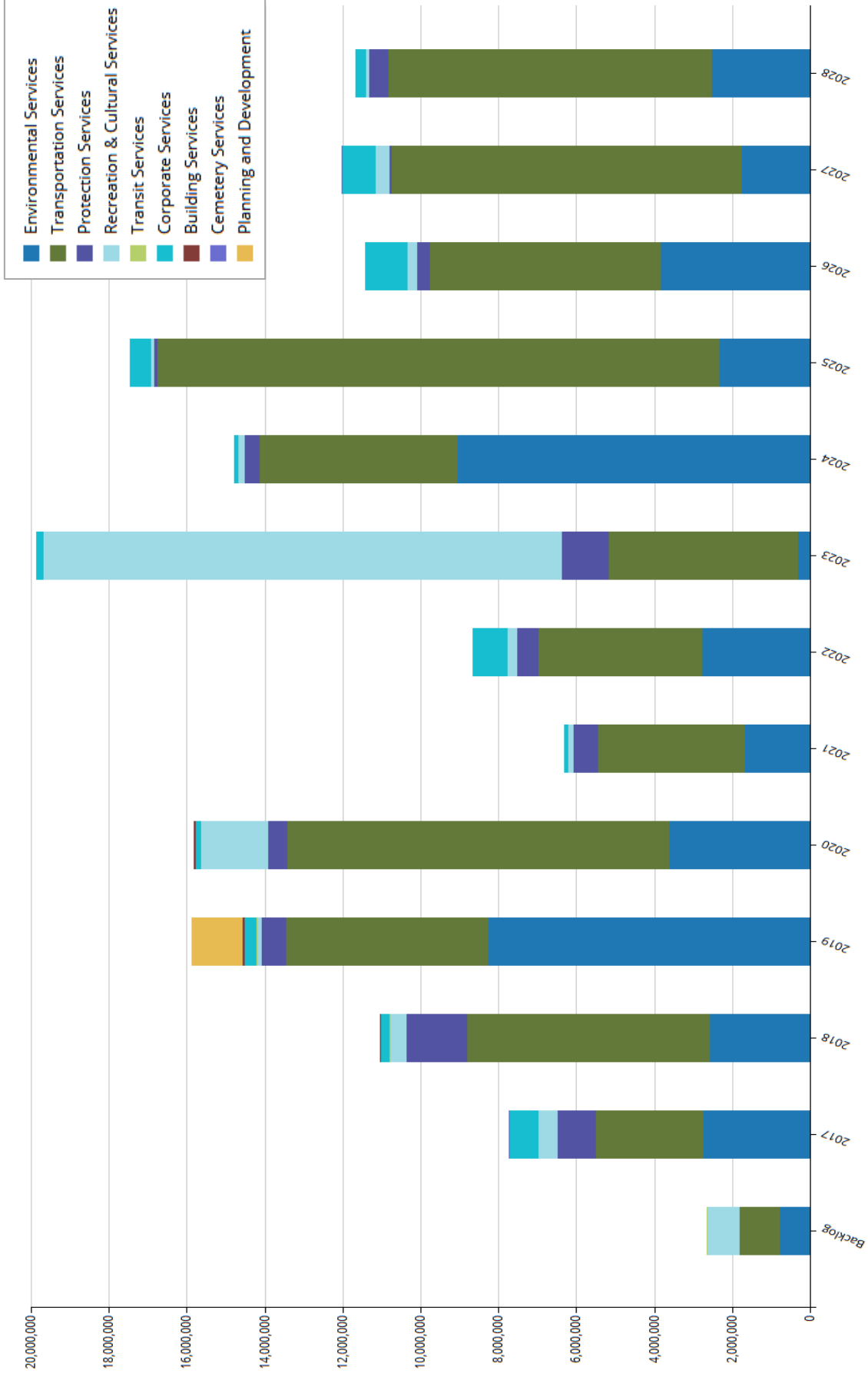
Consequence	5	23 Assets 10,014 unit(s), m \$5,508,098	14 Assets 6,641 unit(s), m2, m \$2,506,773	0 Assets - \$0	1 Assets 1 unit(s) \$228,452	16 Assets 11 unit(s) \$1,897,658
	4	314 Assets 110,741 unit(s), m, km2 \$66,372,846	161 Assets 80,426 unit(s), m \$47,380,066	54 Assets 35,680 unit(s) \$17,689,785	12 Assets 10,900 unit(s) \$3,378,620	19 Assets 5,930 unit(s), m \$2,325,479
	3	706 Assets 74,107 unit(s), m, km2 \$81,165,365	444 Assets 107,380 unit(s), m \$114,665,093	252 Assets 132,220 unit(s) \$91,626,773	78 Assets 75,545 unit(s), m \$39,368,656	89 Assets 40,846 unit(s), m \$12,717,514
	2	1,180 Assets 64,020 unit(s), m, km2, feet \$50,311,476	286 Assets 12,132 unit(s) \$13,599,392	77 Assets 3,419 unit(s) \$4,328,959	24 Assets 1,829 unit(s) \$1,301,905	59 Assets 1,309 unit(s) \$2,536,783
	1	397 Assets 4,377 unit(s), km2, m \$5,200,372	149 Assets 4,978 unit(s), m \$2,250,091	43 Assets 285 unit(s) \$523,402	10 Assets 166 unit(s) \$194,583	87 Assets 474 unit(s), m \$738,361
		1	2	3	4	5
		Probability				

The \$2 million in assets that have the highest probability of failure, with the highest consequence, are mainly projects scheduled to be completed in 2017. Also included, is a soccer pitch at Willie Pratt Sports Field. Upon closer inspection, staff feel that work on this field can be deferred five years.

There are 19 assets with a probability of failure of 5 and a consequence of failure of 4, totaling \$2.3 million. Approximately \$1.6 million of projects, or 70%, are scheduled to be completed in 2017, 2018 and 2019. The major projects are water pipe work on Morden Cres, Fairfield Blvd. and Manitou Cres., as well as work on Caton Rd.

The annual replacement for Township assets, including Utilities, is between \$8 million and \$20 million a year. In 2017, the Township could fully fund about \$5.4 million in general rate capital and \$2.6 million in Water and Sewer capital, however, the Township received approximately \$3 million in grants in 2017, which cannot be guaranteed in future years.

Annual Capital Requirement

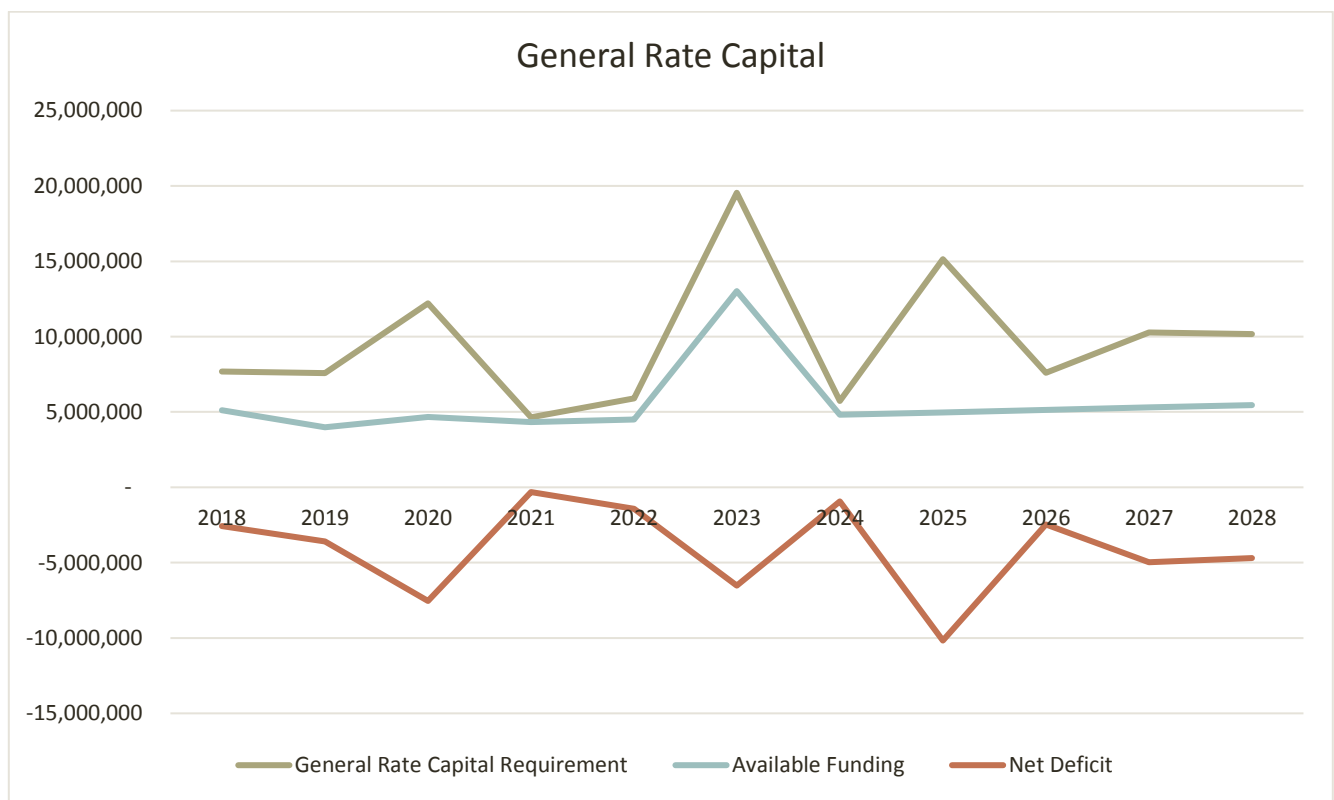


The ten-year outlook for general rate capital is illustrated in the following graph. The peak in 2023, includes \$9 million (funded 90% by Development Charges) for an expansion to the Recreation Centre, as well as \$5 million for required lifecycle replacement, due to aging infrastructure. Based on the Recreation Master Plan’s preliminary estimates on the expanded amenities, as well as staff’s projection on the soft/professional costs for this project, it is anticipated that the total project cost will be higher than the existing \$9 million, identified in the 10 year general rate capital plan.

Once staff have professional conceptual drawings complete, staff will obtain firm cost projections, and accurate costs will be included in the updated Development Charges By-law in 2019.

There are smaller peaks in 2020 and 2025; both years include significant road work.

The identified need for a new municipal office building is not currently included in these capital projections. However, this project is critical in nature as the municipal office building in Odessa does not have the capacity to house the number of staff currently employed by the Township. Due to the seriousness of the situation with office space, staff have undergone a process to review possible sites in the Township for a new municipal building and presented their findings to Council. Staff are now researching possible funding opportunities and strategies available, as the cost of a new building will be significant.



The Township faces a shortfall in funding every year for the next ten years. It will be imperative to explore and apply for any funding opportunities that become available.

Without other sources of funding, Council will need to defer capital work and/or issue debt. Based on the figures currently outlined in the capital plan for the general rate, the following debt would need to be issued to be able to fully fund the annual capital budget:

General Rate Budget					
Year	General Rate Capital Requirement	Available Funding	Net Deficit	Annual Debt Payment	*tax rate impact
2018	7,692,000	5,113,000	- 2,579,000	104,000	0.8%
2019	7,574,000	3,984,000	- 3,590,000	144,000	1.1%
2020	12,206,000	4,672,000	- 7,534,000	303,000	2.3%
2021	4,646,000	4,331,000	- 315,000		0.0%
2022	5,910,000	4,492,000	- 1,418,000	57,000	0.4%
2023	19,547,000	13,020,000	- 6,527,000	262,000	2.0%
2024	5,740,000	4,814,000	- 926,000	37,000	0.3%
2025	15,143,000	4,975,000	- 10,168,000	409,000	3.1%
2026	7,595,000	5,137,000	- 2,458,000	99,000	0.7%
2027	10,271,000	5,299,000	- 4,972,000	200,000	1.5%
2028	10,166,000	5,461,000	- 4,705,000	189,000	1.4%

The debt calculations are based on a 25-year rate of 3.5%, as posted on the Infrastructure Ontario website (October 23, 2017). The debt payments also assume a 25-year term.

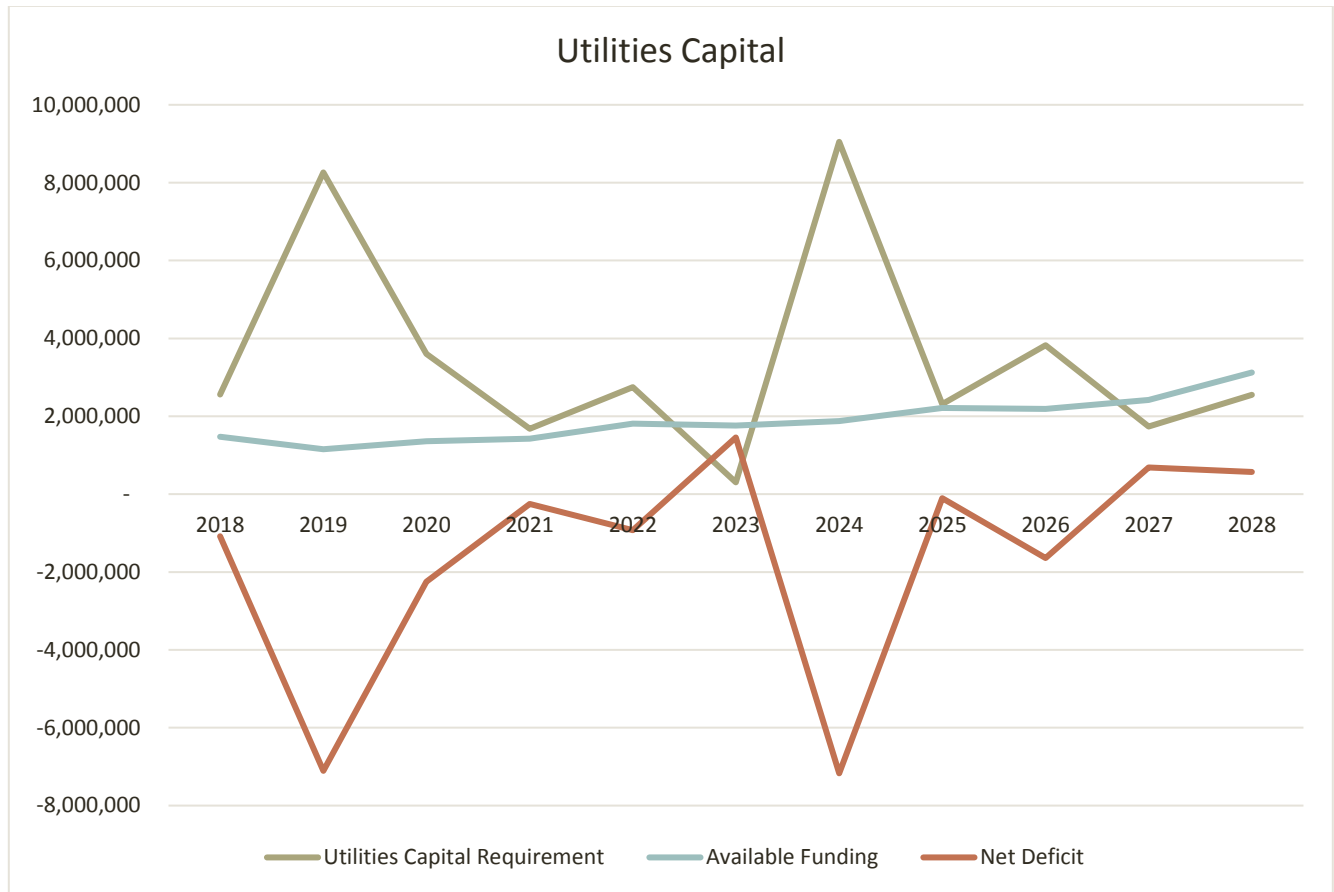
*The tax rate impact is based on the 2017 weighted assessment and the 2017 levy requirement. When adding in the additional annual debt payments, the corresponding increase to the tax rate is shown as a percentage. For example, in 2018, to borrow \$2.6 million will result in additional operating costs for debt payments of \$104,000. In terms of the 2017 assessment and levy, this would have meant a 0.8% increase to the tax rate.

Over the period from 2018 to 2028, the net deficit will total \$45 million and result in additional debt payments of \$1.8 million, which will need to be funded through the operating budget.

According to the 2016 Financial Information Return (FIR), the annual debt payments were \$1.3 million. The estimated annual repayment limit is \$5.2 million, as of the 2016 FIR information. Based on the current debt payments, and the projected debt payments required during the period 2018 to 2028, the Township would be paying approximately \$3.1 million, which would still be within the limit. From a financial perspective, increasing debt by this magnitude is certainly not the preferred method of financing.

The ten-year capital outlook for Utilities is spending an average of \$3.5 million per year. There is a peak in 2019, wherein \$4 million is budgeted for Bath water system redundancy work. This is critical to the reliability and safety of the water system.

Also creating a peak, is significant water pipe end of life cycle replacement in 2024. Staff will continue to refine the capital plan and endeavor to even out the amount of capital work to be completed in each year, based on available resources, criticality of assets and potential for failure.



The funding includes a \$150,000 increase in contribution from operating every year, during the ten-year period. However, the funding for Utilities capital is not sufficient in most years. Staff will continue to refine the annual capital budget to try to reduce some of the large peaks and be able to more adequately fund each year's budget. (i.e. move some capital work from 2024 to 2023, if possible, to match the work to the available funding and resources).

Utilities Capital Budget				
Year	Utilities Capital Requirement	Available Funding	Deficiency in Funds Available	Annual Debt Payment
2018	2,557,000	1,474,000	- 1,083,000	44,000
2019	8,260,000	1,153,000	- 7,107,000	286,000
2020	3,602,000	1,355,000	- 2,247,000	90,000
2021	1,677,000	1,428,000	- 249,000	10,000
2022	2,744,000	1,814,000	- 930,000	37,000
2023	303,000	1,758,000	1,455,000	
2024	9,049,000	1,878,000	- 7,171,000	288,000
2025	2,311,000	2,210,000	- 101,000	4,000
2026	3,828,000	2,190,000	- 1,638,000	66,000
2027	1,740,000	2,422,000	682,000	
2028	2,553,000	3,124,000	571,000	
Total	38,624,000	20,806,000	- 17,818,000	825,000

The debt calculations are based on a 25-year rate of 3.5%, as posted on the Infrastructure Ontario website (October 23, 2017). The debt payments also assume a 25-year term.

In 2018, staff will be reviewing and revising the utilities financial plan and preparing a rate study to propose water and sewer rates to Council. A more comprehensive utilities financial plan will be developed to identify options for funding future capital and operating requirements. The main sources of funding available to fund the deficiency in funds available amounts at this point, are utilities user rate increases and debt.