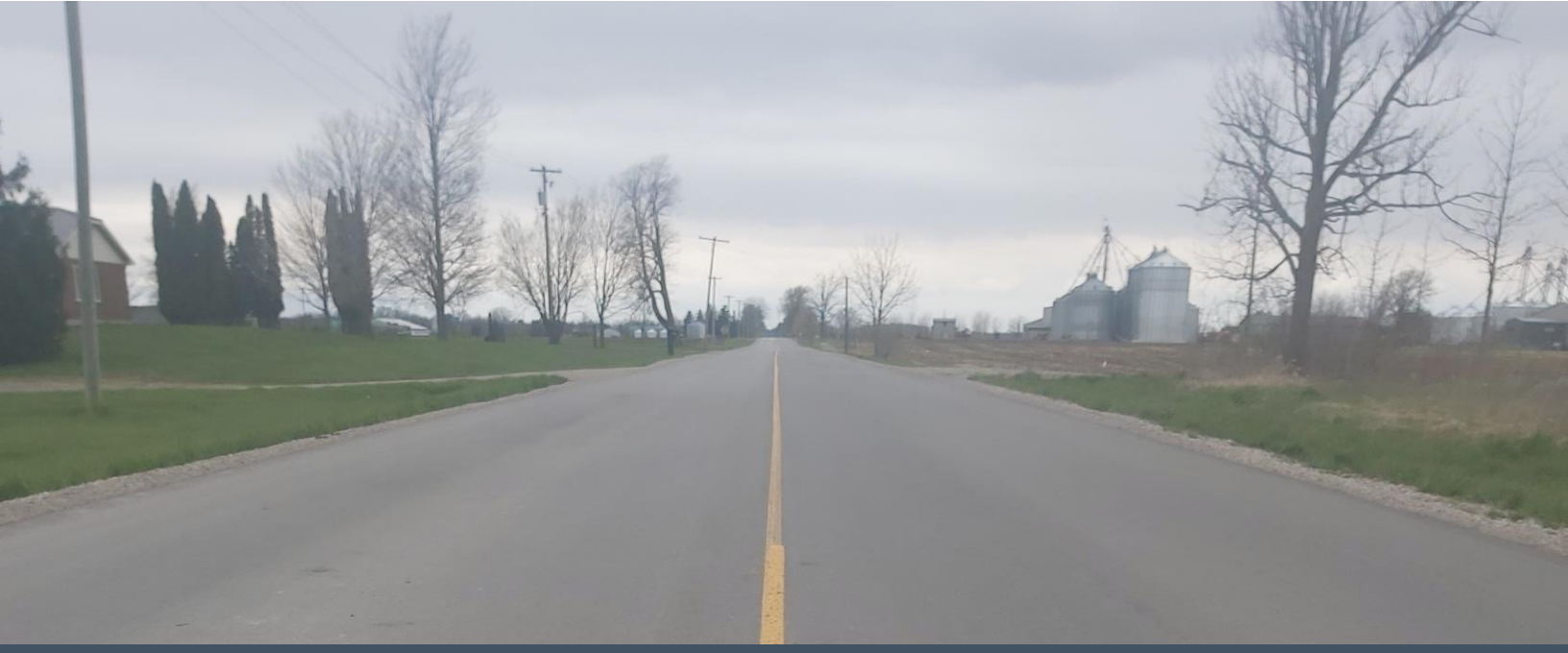

Asset Management Plan

Township of Adelaide Metcalfe

FINAL

Watson & Associates Economists Ltd.
905-272-3600
info@watsonecon.ca

June 14, 2022

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List of Acronyms and Abbreviations

BCI	Bridge Condition Index
C.I.R.C	Canadian Infrastructure Report Card
CCBF	Canada Community-Building Fund
HCB	High-Class Bituminous
IJPA	Infrastructure for Jobs and Prosperity Act
LCB	Low-Class Bituminous
O. Reg.	Ontario Regulation
OCIF	Ontario Community Infrastructure Fund
OSIM	Ontario Structure Inspection Manual
PCI	Pavement Condition Index
PSAB	Public Sector Accounting Board
ULC%	Useful Life Consumed Percentage

Report

Chapter 1
Introduction

1. Introduction

1.1 Overview

The main objective of an asset management plan is to use a municipality's best available information to develop a comprehensive long-term plan for capital assets. In addition, the plan should provide a sufficiently documented framework that will enable continual improvement and updates of the plan, to ensure its relevancy over the long term.

The Township of Adelaide Metcalfe (Township) retained Watson & Associates Economists Ltd. (Watson) to prepare a comprehensive asset management plan. One of the objectives of this plan is to move the Township's asset management practices into compliance with Ontario Regulation (O. Reg.) 588/17. It is also intended to be a tool for municipal staff and Council to use during various decision-making processes, including the annual budgeting process and future capital grant application processes.

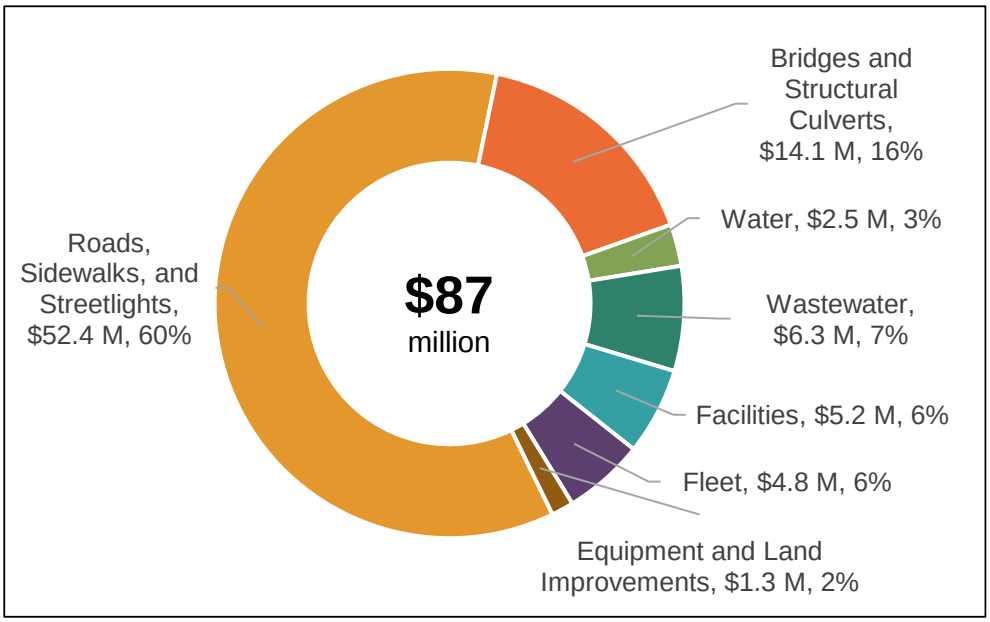
This is a comprehensive asset management plan covering all capital assets under the Township's ownership and management. The total current replacement cost of these assets is estimated at $86.7 million, or approximately $85,600 per household[1]. A breakdown of the replacement costs by major asset class is shown in Table 1-1, and illustrated in Figure 1-1. Roads, sidewalks and streetlights account for 57% of replacement cost, followed by bridges and structural culverts (structures) (18%), water and wastewater (11%), facilities (6%), fleet (6%), and equipment and land improvements (2%)

[1] Based on 1,013 occupied dwellings, as identified in the 2021 Census.

Table 1-1: Replacement Cost by Asset Class

Asset Class	Description	Replacement Cost (2022$)
Roads, Sidewalks, and Streetlights	214.5 km of roads 3.5 km of sidewalks, 29 streetlights	$52,450,000
Structures	13 bridges 34 culverts	$14,150,000
Water	3.9 km of watermains	$2,500,000
Wastewater	5.0 km of wastewater mains 1 treatment plant	$6,270,000
Facilities	9 buildings	$5,210,000
Fleet	22 vehicles	$4,840,000
Equipment and Land Improvements	Various equipment (e.g., fire hoses, welder, roadside mower) 5 land improvements (e.g., ball diamond, dugouts)	$1,330,000
Total		**$86,740,000**

Figure 1-1: Distribution of Replacement Cost by Asset Class



The Township's goals and objectives with respect to asset management are identified in its Strategic Asset Management Policy. A major theme within that policy is employing sound asset management practices to ensure that all municipal infrastructure assets meet expected performance levels and continue to provide desired service levels in the most efficient and effective manner. Through the implementation of the asset management plan, the Township's practice should evolve to provide services at levels proposed within this document. Moreover, infrastructure and other capital assets should be maintained at condition levels that provide a safe and functional environment for the Township's residents. Therefore, the asset management plan and the progress with respect to its implementation will be evaluated based on the Township's ability to meet these goals and objectives.

1.2 Legislative Context for the Asset Management Plan

Asset management planning in Ontario has evolved significantly over the past decade.

Before 2009, capital assets were recorded by municipalities as expenditures in the year of acquisition or construction. The long-term issue with this approach was the lack of a capital asset inventory, both in the municipality's accounting system and financial statements. As a result of revisions to section 3150 of the Public Sector Accounting Board (PSAB) handbook, effective for the 2009 fiscal year, municipalities were required to capitalize tangible capital assets, thus creating an inventory of assets.

In 2012, the Province launched the municipal infrastructure strategy. As part of that initiative, municipalities and local service boards seeking provincial funding were required to demonstrate how any proposed project fits within a detailed asset management plan. In addition, asset management plans encompassing all municipal assets needed to be prepared by the end of 2016 to meet Federal Gas Tax (now the Canada Community-Building Fund) agreement requirements. To help define the components of an asset management plan, the Province produced a document entitled Building Together: Guide for Municipal Asset Management Plans. This guide documented the components, information, and analysis that were required to be included in municipal asset management plans under this initiative.

The Province's *Infrastructure for Jobs and Prosperity Act, 2015* (IJPA) was proclaimed on May 1, 2016. This legislation detailed principles for evidence-based and sustainable long-term infrastructure planning. The IJPA also gave the Province the authority to

guide municipal asset management planning by way of regulation. In late 2017, the Province introduced O. Reg. 588/17 under the IJPA. The intent of O. Reg. 588/17 is to establish standard content for municipal asset management plans. Specifically, the regulations require that asset management plans be developed that define the current and proposed levels of service, identify the lifecycle activities that would be undertaken to achieve these levels of service, and provide a financial strategy to support the levels of service and lifecycle activities.

This plan has been developed to fully address the requirements of O. Reg. 588/17, utilizing the best information available to the Township at this time.

1.3 Asset Management Plan Development

This asset management plan was developed using an approach that leverages the Township's asset management principles as identified within its strategic asset management policy, capital asset information, and staff input.

The development of the Township's asset management plan is based on the steps summarized below:

1. Compile available information pertaining to the Township's capital assets to be included in the plan, including attributes such as size, material type, useful life, age, accounting valuation and current valuation. Update the current valuation, where required, using benchmark costing data or applicable inflationary indices.

2. Define and assess current asset conditions, based on a combination of municipal staff input, existing asset reports, and an age-based condition analysis.

3. Define and document current levels of service based on analysis of available data and consideration of various background reports.

4. Set proposed levels of service that the Township believes are achievable and affordable based on current information.

5. Develop lifecycle management strategies that identify the activities required to sustain the levels of service discussed above. The outputs of these strategies are summarized in the forecast of annual capital and operating expenditures required to achieve these level of service outcomes.

6. Develop a financing strategy to support the lifecycle management strategy. The financing plan informs how the capital and operating expenses arising from the asset management strategy will be funded over the forecast period.

7. Document the comprehensive asset management plan in a formal report to inform future decision-making and to communicate planning to municipal stakeholders.

1.4 Maintaining and Integrating the Asset Management Plan

The asset management plan should be updated as the strategic priorities and capital needs of the Township change. This can be accomplished in conjunction with specific legislative requirements (i.e., five-year review of the asset management plan as required by O. Reg. 588/17), as well as the Township's annual budget process. Further integration into other municipal financial and planning documents would assist in ensuring the ongoing accuracy of the asset management plan, as well as the integrated financial and planning documents.

When updating the asset management plan, it should be noted that the state of local infrastructure, lifecycle management strategy and financing strategy are integrated and affect each other. For example, the financing strategy outlines how the lifecycle management strategy will be funded. The lifecycle management strategy identifies the lifecycle activities that need to be planned for in order to enable the Township to maintain or achieve proposed levels of service, and the associated costs.

The asset management plan is a snapshot in time and is based on a number of assumptions regarding expected lifecycles and future performance of assets, lifecycle intervention costs, among others. The Township will need to establish processes for reviewing and updating these assumptions on a regular basis to keep the plan relevant and reliable.

Chapter 2
State of Local Infrastructure and Levels of Service

2. State of Local Infrastructure and Levels of Service

2.1 Introduction

This chapter provides an analysis of the Township's assets and the current service levels provided by those assets.

O. Reg. 588/17 requires that for each asset category included in the asset management plan, the following information must be identified:

- Summary of the assets;
- Replacement cost of the assets;
- Average age of the assets (it is noted that the regulation specifically requires average age to be determined by assessing the age of asset components);
- Information available on condition of assets; and
- Approach to condition assessments (based on recognized and generally accepted good engineering practices where appropriate).

Asset management plans must identify the current levels of service being provided for each asset category. For core municipal infrastructure assets, both the qualitative descriptions pertaining to community levels of service and metrics pertaining to technical levels of service are prescribed by O. Reg. 588/17. For all other infrastructure assets, each municipality needs to establish its own measures for levels of service.

The rest of this chapter addresses the requirements identified above, with each subsection focusing on an individual asset category.

2.2 Transportation

2.2.1 State of Local Infrastructure

The assets that support the Township's transportation services comprise roads, structures, sidewalks, and streetlights.

The Township's road network has 214.5 kilometres of roads with three different surface types: high-class bituminous (HCB), low-class bituminous (LCB) and gravel. Over half

of the network (54%) is gravel. The next most common surface type is LCB, 38% of the total road network length. Roads with HCB surface represent 8% of the total road network length. The estimated replacement cost of roads is $51.7 million. The average age of the road surfaces is 6.1 years. Table 2-1 provides a breakdown of the road network length, age, and replacement cost by surface type. A visual rendering of the data presented in Table 2-1 is provided in Figure 2-1

Table 2-1: Road Length, Age, and Replacement Cost by Surface Type

Surface Type	Length (Centreline-kilometres)	Average Age of Surface	Replacement Cost (2022$)
HCB	16.5	8.8 years	$11,720,000
LCB	80.9	11.7 years	$17,290,000
Gravel	117.0	1.8 years	$22,710,000
Total	**214.5**	**6.1 years**	**$51,720,000**

In addition to roads, the Township's transportation assets also include 3,490 metres of sidewalks and 29 streetlights with a combined replacement cost of $730,000. Table 2-2 provides a breakdown of sidewalk and streetlight quantity, average age, and replacement cost by asset class. A visual rendering of the data presented in Table 2-2 is provided in Figure 2-2.

Table 2-2: Sidewalk and Streetlight Quantity, Age, and Replacement Cost by Asset Type

Asset Class	Quantity	Average Age	Replacement Cost (2022$)
Sidewalks	3,490 metres	7.2 years	$540,000
Streetlights	29 lights	17.3 years	$180,000
Total		**9.8 years**	**$730,000**

The Township has 13 bridges and 34 structural culverts. The estimated replacement cost of the structures is $14.2 million. The average ages of bridges and structural culverts are 62 years and 40 years, respectively. Table 2-3 provides a breakdown of

structure quantity, age, and replacement cost by structure type. A visual rendering of the data presented in Table 2-3 is provided in Figure 2-3.

Table 2-3: Structure Quantity, Age, and Replacement Cost by Structure Type

Structure Type	Quantity	Average Age	Replacement Cost (2022$)
Bridges	13 bridges	62	$7,400,000
Structural Culverts	34 culverts	40	$6,750,000
Total	**47 structures**	**52**	**$14,150,000**

Figure 2-1: Road Length, Age, and Replacement Cost by Surface Type

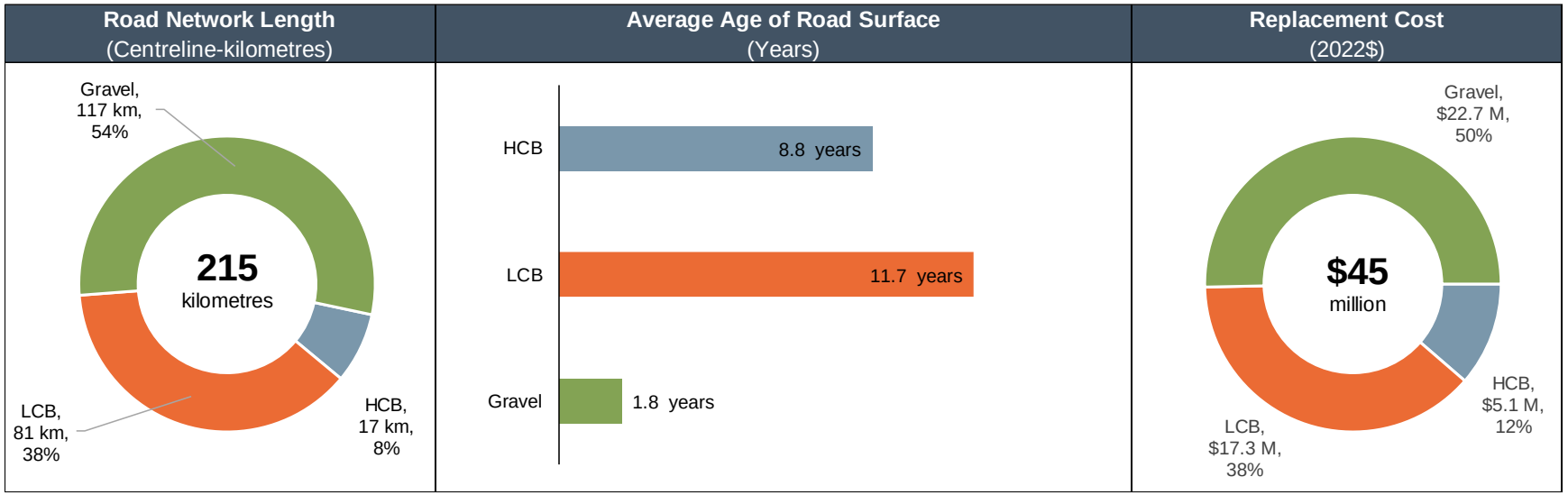


Figure 2-2: Sidewalk and Streetlight Age, and Replacement Cost by Asset Class

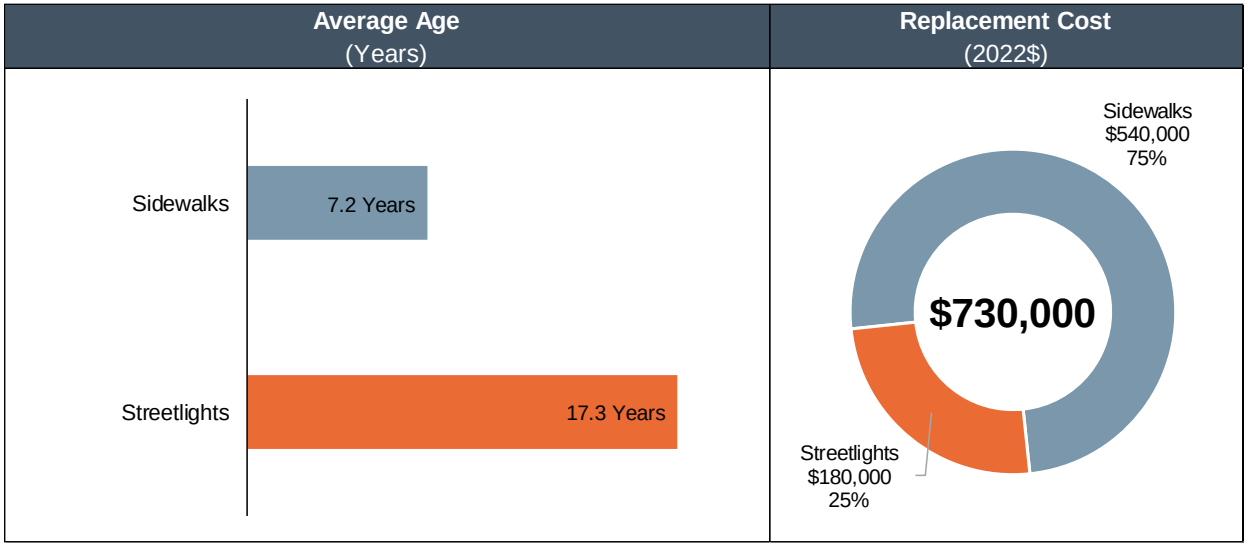
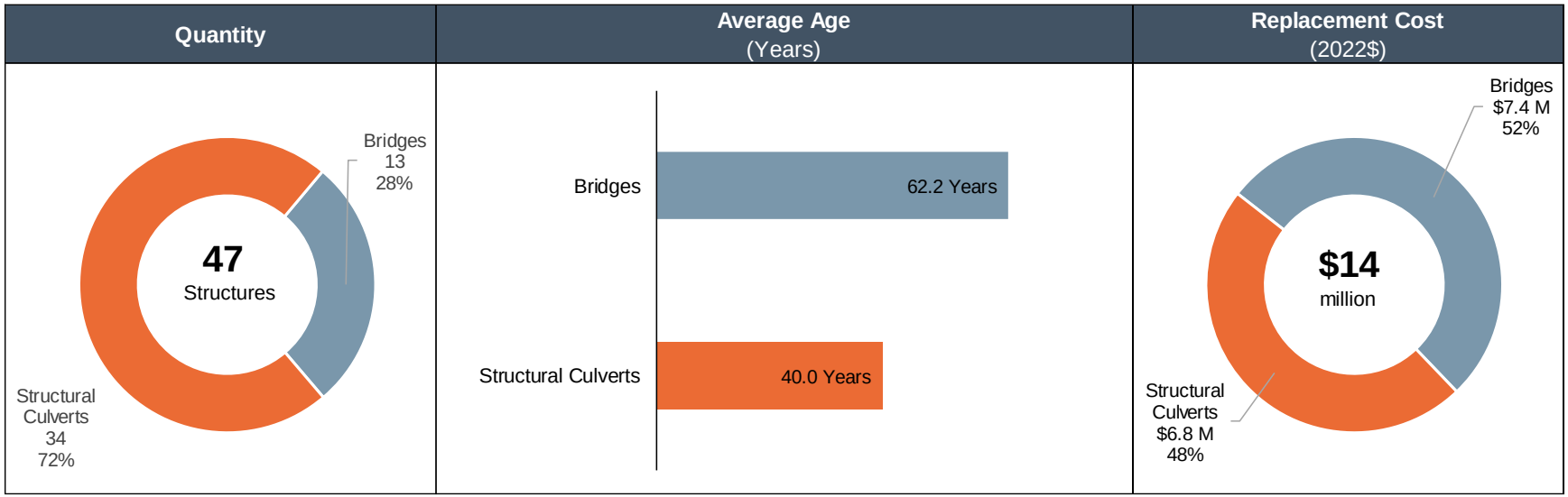


Figure 2-3: Structure Quantity, Age, and Replacement Cost by Structure Type



2.2.2 Condition

The Township had the condition of its paved roads assessed in 2021 by StreetScan. Paved roads were assessed using the Pavement Condition Index (PCI). The PCI is measured on a scale from 0 to 100, with 100 being an asset in as-new condition and 0 being a failed asset. The condition of gravel roads was estimated through a desktop exercise based on the time since the most recent re-gravelling. Gravel roads are re-gravelled on a three-year cycle. A three-point scale – Good (3), Fair (2), and Poor (1) – is used with the most recently re-gravelled roads being assigned a condition of "Good" and condition assumed to deteriorate by one point each year.

To better communicate the condition of the road network, the numeric condition ratings for roads have been segmented into qualitative condition states. Moreover, descriptions and example photos of roads in these condition states are provided to better communicate the condition to the reader. Table 2-4 summarizes the various Pavement Condition Index ratings and the condition state they represent.

Table 2-4: Condition States Defined with Respect to Pavement Condition Index – Roads

PCI Range[1]	Condition State	Example Photo	Description[2]
85 ≤ PCI ≤ 100	**Excellent**		A very smooth ride. Pavement is in excellent condition with few cracks.
70 ≤ PCI < 85	**Good**		A smooth ride with just a few bumps or depressions. The pavement is in good condition with frequent very slight or slight cracking.
55 ≤ PCI < 70	**Fair**		A comfortable ride with intermittent bumps or depressions. The pavement is in fair condition with intermittent moderate and frequent slight cracking, and with intermittent slight or moderate alligatoring and distortion.

[1] The mapping of PCI values to Condition States (PCI Labels) is based on the intervals used by StreetScan.
[2] Descriptions are from the SP-024 Manual for Condition Rating of Flexible Pavements (Ontario Ministry of Transportation, 2016)

PCI Range[1]	Condition State	Example Photo	Description[2]
40 ≤ PCI < 55	**Poor**		An uncomfortable ride with frequent to extensive bumps or depressions. Cannot maintain the posted speed at lower end of the scale. The pavement is in poor to fair condition with frequent moderate cracking and distortion, and intermittent moderate alligatoring.
25 ≤ PCI < 40	**Very Poor**		A very uncomfortable ride with constant jarring bumps and depressions. Cannot maintain the posted speed and must steer constantly to avoid bumps and depressions. The pavement is in poor condition with moderate alligatoring and extensive severe cracking and distortion.
10 ≤ PCI < 25	**Serious**	**No Examples**	The pavement is in poor to very poor condition with extensive severe cracking, alligatoring and distortion.
0 ≤ PCI < 10	**Failed**	**No Examples**	

Table 2-5 shows the average condition of the road network by surface type, which is weighted based on centreline-kilometres. On average, HCB and LCB roads are in the Good condition state and gravel roads are in the Fair condition state. Figure 2-4 and Figure 2-5 show the distribution of road length by condition state.

Table 2-5: Average Road Condition by Surface Type

Surface Type	Centreline Kilometres	Condition (Weighted Average)	Average Condition State
HCB	16.5	82	**Good**
LCB	80.9	79	**Good**
Gravel	117.0	2.2	**Fair**

Figure 2-4: Distribution of Paved Road Length (centreline-km) by Condition State

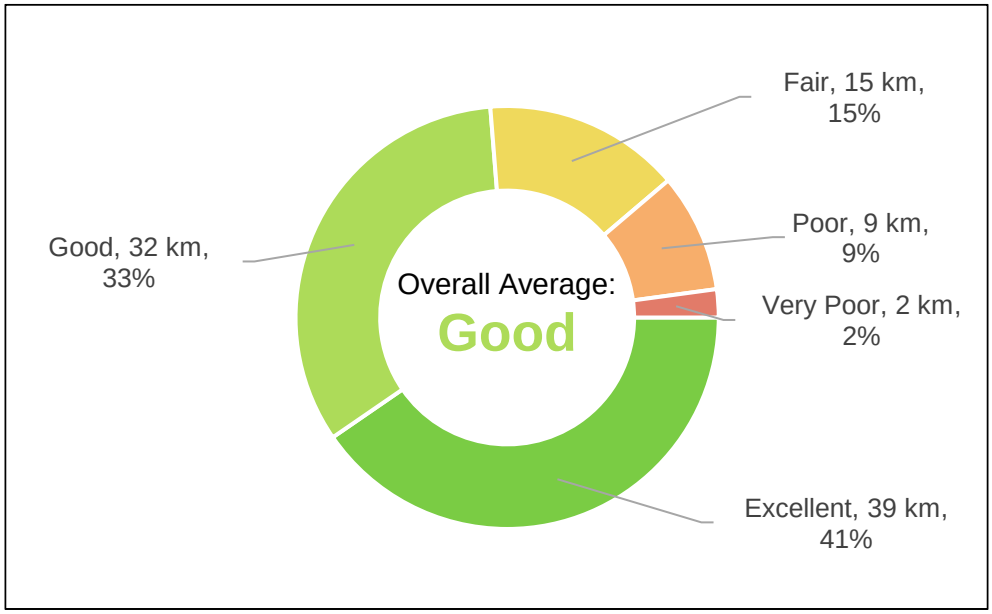
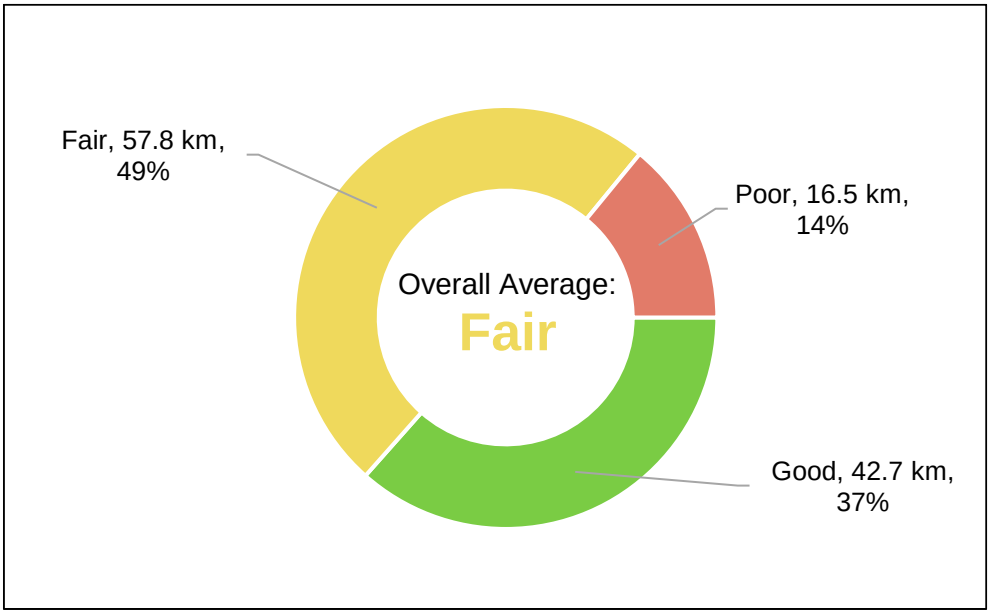


Figure 2-5: Distribution of Gravel Road Length (centreline-km) by Condition State



The condition of the Township's sidewalks and streetlights are evaluated based on age relative to the expected useful life (i.e., based on the percentage of useful life consumed (ULC%)). A brand-new asset would have a ULC% of 0%, indicating that zero percent of the asset's life expectancy has been utilized. On the other hand, an asset that has reached its life expectancy would have a ULC% of 100%. It is possible for assets to have a ULC% greater than 100%, which occurs if an asset has exceeded its typical life expectancy but continues to be in service. This is not necessarily a cause for concern; however, it must be recognized that assets that are near or beyond their typical life expectancy are likely to require replacement or rehabilitation in the near term.

To better communicate the condition of sidewalks, streetlights and other assets where ULC% will be used, the ULC% ratings have been segmented into qualitative condition states as summarized in Table 2-6. The scale is set to show that if assets are replaced around the expected useful life, they would have a rating of Fair. The rating of Fair extends to 140% of expected useful life. Beyond 140% of useful life, the probability of failure is assumed to have increased to a point where performance would be characterized as Poor or Very Poor.

Table 2-6: Condition States Defined with Respect to ULC%

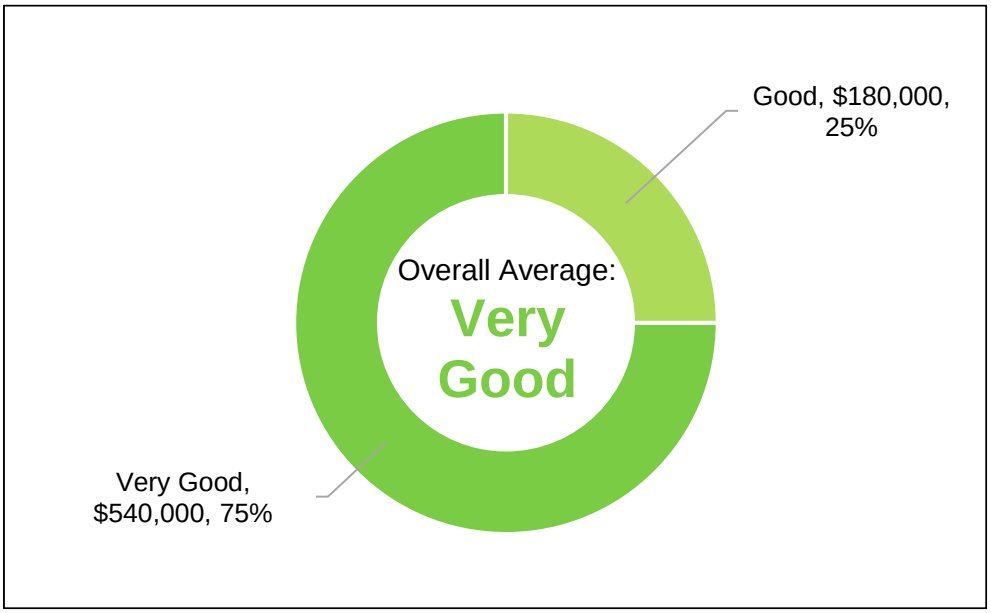
ULC% Range	Condition State
0% ≤ ULC% ≤ 45%	**Very Good**
45% < ULC% ≤ 90%	**Good**
90% < ULC% ≤ 140%	**Fair**
140% < ULC% ≤ 200%	**Poor**
200% < ULC%	**Very Poor**

The useful life is assumed to be 50 years for sidewalks and 40 years for streetlights. With these assumptions, both sidewalks and streetlights are in the Very Good condition state on average. Table 2-7 shows the results of the age-based condition analysis for sidewalks and streetlights. Figure 2-6 shows the distribution of sidewalk and streetlight replacement costs by condition state.

Table 2-7: Average Sidewalk and Streetlight Condition by Asset Class

Asset Class	Quantity	ULC% (Weighted Average)	Average Condition State
Sidewalks	3,490 metres	14%	**Very Good**
Streetlights	29 lights	43%	**Very Good**
Total		**22%**	**Very Good**

Figure 2-6: Distribution of Sidewalk and Streetlight Replacement Cost by Condition State



In accordance with O. Reg. 104/97, the Township completes biennial inspections of its bridges and culverts following the Ontario Structure Inspection Manual (OSIM). The most recent inspections were completed by Spreit Associates Engineers & Architects in 2021. Each structure was assigned a Bridge Condition Index (BCI). The BCI is on a scale of 0 to 100, with 100 being an asset in as-new condition and 0 being a failed asset. Similar to road assets, to better communicate the condition of the bridge and culvert inventory, the numeric condition ratings have been segmented into qualitative condition states. Photographs and descriptions of these condition states and the corresponding range of Bridge Condition Index (BCI) values are provided in Table 2-8.

Table 2-8: Condition States Defined with Respect to Bridge Condition Index – Structures

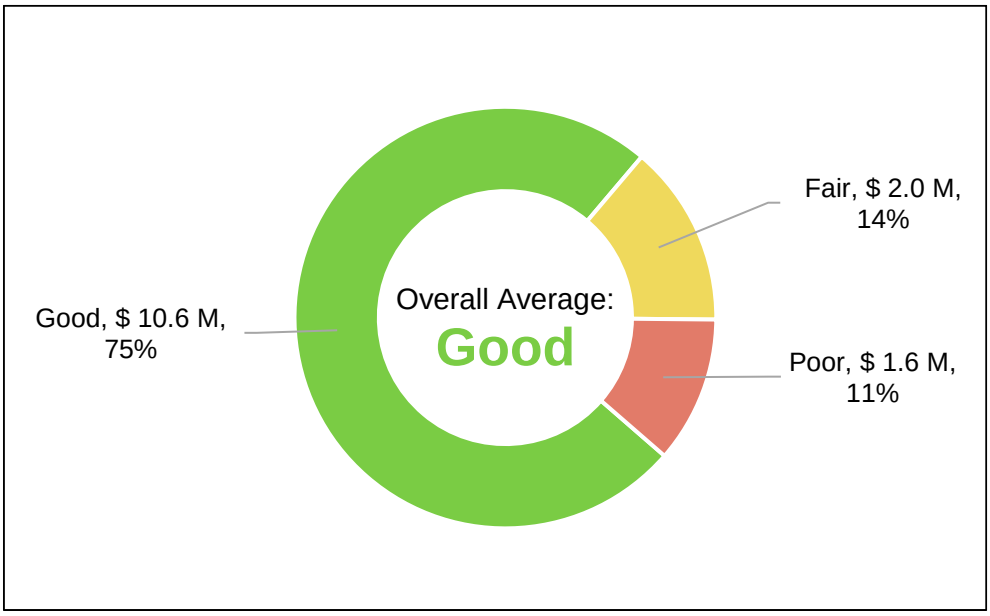
BCI Range	Condition State	Bridge Photos	Culvert Photos	Description
70 ≤ BCI ≤ 100	**Good**			Maintenance is not usually required within the next five years.
60 ≤ BCI < 70	**Fair**	No Examples		Maintenance work is usually scheduled within the next five years. This is the ideal time to schedule major bridge repairs to get the most out of bridge spending.
0 ≤ BCI < 60	**Poor**			Maintenance work is usually scheduled within one year. Structure may be at increased risk of requiring a loading restriction to be posted.

Table 2-9 shows the average BCI for structures. On average, the Township's bridges and structural culverts are in the Good condition state. Figure 2-7 shows the overall distribution of the Township's structures by condition state.

Table 2-9: Average Structure Condition by Structure Type

Structure Type	Quantity	Condition (Weighted Average)	Average Condition State
Bridges	13 structures	72	**Good**
Structural Culverts	34 structures	74	**Good**
Total	**47 structures**	**73**	**Good**

Figure 2-7: Distribution of Structure Replacement Cost by Condition State



2.2.3 Current and Proposed Levels of Service

The levels of service currently provided by the Township's transportation system are, in part, a result of the state of local infrastructure identified above. A levels of service analysis defines the current levels of service, establishes targets, and enables the Township to periodically evaluate these service level objectives. There are prescribed

levels of service reporting requirements under O. Reg. 588/17 for some transportation assets (i.e., roads, bridges and culverts). Table 2-11 includes the prescribed technical levels of service along with additional levels of service developed by the Township. The level of service measures were developed through identification of service aspects that are of interest to the users of roads and related assets.

The tables are structured as follows:

- The Service Attribute headings and columns indicate the high-level attribute being addressed;
- The Community Levels of Service column in Table 2-10 explains the Township's intent in plain language;
- The Performance Measure column in Table 2-11 describes a performance measure connected to the identified service attribute;
- The 2021 Performance column in Table 2-11 reports current performance for the performance measure; and
- The Target column in Table 2-11 reports the long-term performance that the Township intends to deliver for the performance measure.

Table 2-10: Transportation Service Community Levels of Service

Service Attribute	Community Levels of Service
Scope	The Township's transportation assets enable the movement of people and goods within the Township and provide connectivity to County and Provincial roads. In addition to passenger vehicles, the Township's transportation assets support commercial truck traffic, and provide reliable emergency vehicle access to all areas of the Township.
	The Township's roads are distributed evenly across the municipality. The road network provides a good level of connectivity with few dead-end roads.
Quality	The Township strives to maintain road and bridge surfaces to a level that supports an adequate travel experience for road users.
	Descriptions of roads and structures in different condition states are shown in Table 2-4 and Table 2-8.

Table 2-11: Transportation Service Technical Levels of Service

Service Attribute	Performance Measure	2021 Performance	Target
Scope	Number of lane-kilometres of arterial roads as a proportion of square kilometres of land area of the Township	Not Applicable	Not Applicable
	Number of lane-kilometres of collector roads as a proportion of square kilometres of land area of the Township	0.83 lane-km/km²	0.83 lane-km/km²
	Number of lane-kilometres of local roads as a proportion of square kilometres of land area of the Township	0.47 lane-km/km²	0.47 lane-km/km²
	Percentage of bridges in the Township with loading or dimensional restrictions	15%	15%
Quality	For paved roads in the municipality, the average pavement condition index value	80	80
	For unpaved roads in the municipality, the average surface condition	Fair (2.2)	Fair
	For bridges in the municipality, the average BCI value (condition state)	72 (Good)	Good
	For structural culverts in the municipality, the average BCI value (condition state)	74 (Good)	Good
	Average condition of sidewalks (ULC%)	Very Good (14%)	Good
	Average condition of streetlights (ULC%)	Very Good (43%)	Good

2.3 Water

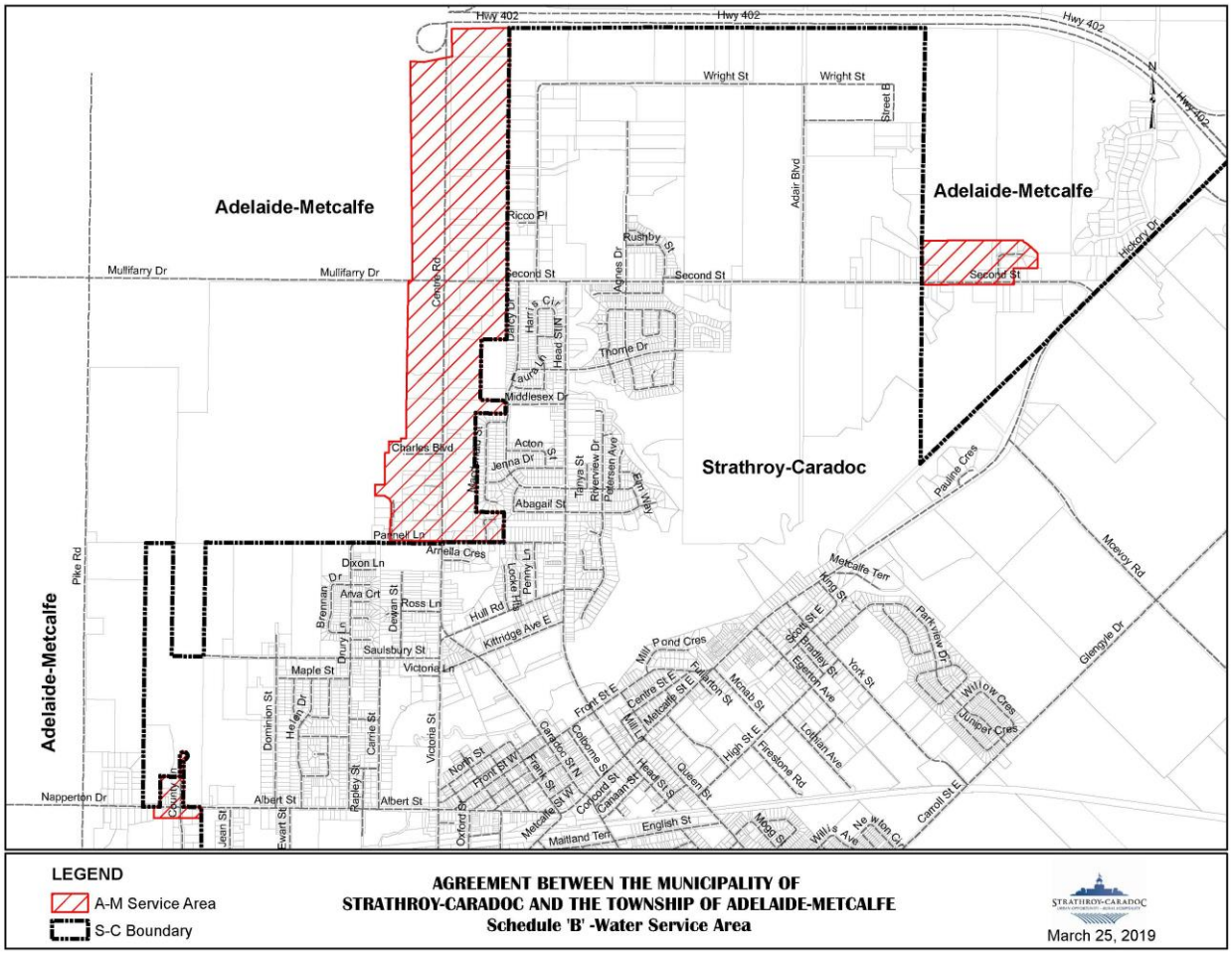
2.3.1 State of Local Infrastructure

There are three areas within the Township where water services are available. All three areas are adjacent to the Municipality of Strathroy-Caradoc, as illustrated in Map 2-1. Treated water is supplied by the Municipality of Strathroy-Caradoc and the Township is only responsible for distribution infrastructure. Table 2-12 shows water main length, age, and replacement cost.

Table 2-12: Water Distribution Asset Length, Age, and Replacement Cost by Asset Class

Asset Class	Length (m)	Average Age	Replacement Cost (2022$)
Water mains	3,883	14 years	$2,500,000

Map 2-1: Water Service Area



2.3.2 Condition

The condition of the water distribution assets is evaluated based on age relative to the expected useful life (i.e., based on the ULC%) as described for sidewalks and

streetlights assets in subsection 2.2.1. The useful life for water mains is assumed to be 80 years. With this assumption, all segments are in the Very Good condition state, with an average ULC% of 17%.

2.3.3 Current and Proposed Levels of Service

This subsection provides an overview of the Township's level of service framework for water. Table 2-13 and Table 2-14 show community levels of service and technical levels of service respectively.

Table 2-13: Water Service Community Levels of Service

Service Attribute	Community Levels of Service
Scope	Water service is provided to customers in three areas adjacent to the Municipality of Strathroy-Caradoc boundary. Properties along three Township roads have water service available: Centre Road from Pannell Lane to Highway 402, Grogast Court, and County Lane.
	The scope of the Township's water system is illustrated by Map 2-1. The map shows the areas with water service.
Reliability	The Township strives to minimize disruptions in water service.
	O. Reg. 588/17 requires descriptions of boil water advisories and service interruptions. They are not included in this plan because the Municipality of Strathroy-Caradoc operates the system.

Table 2-14: Water Service Technical Levels of Service

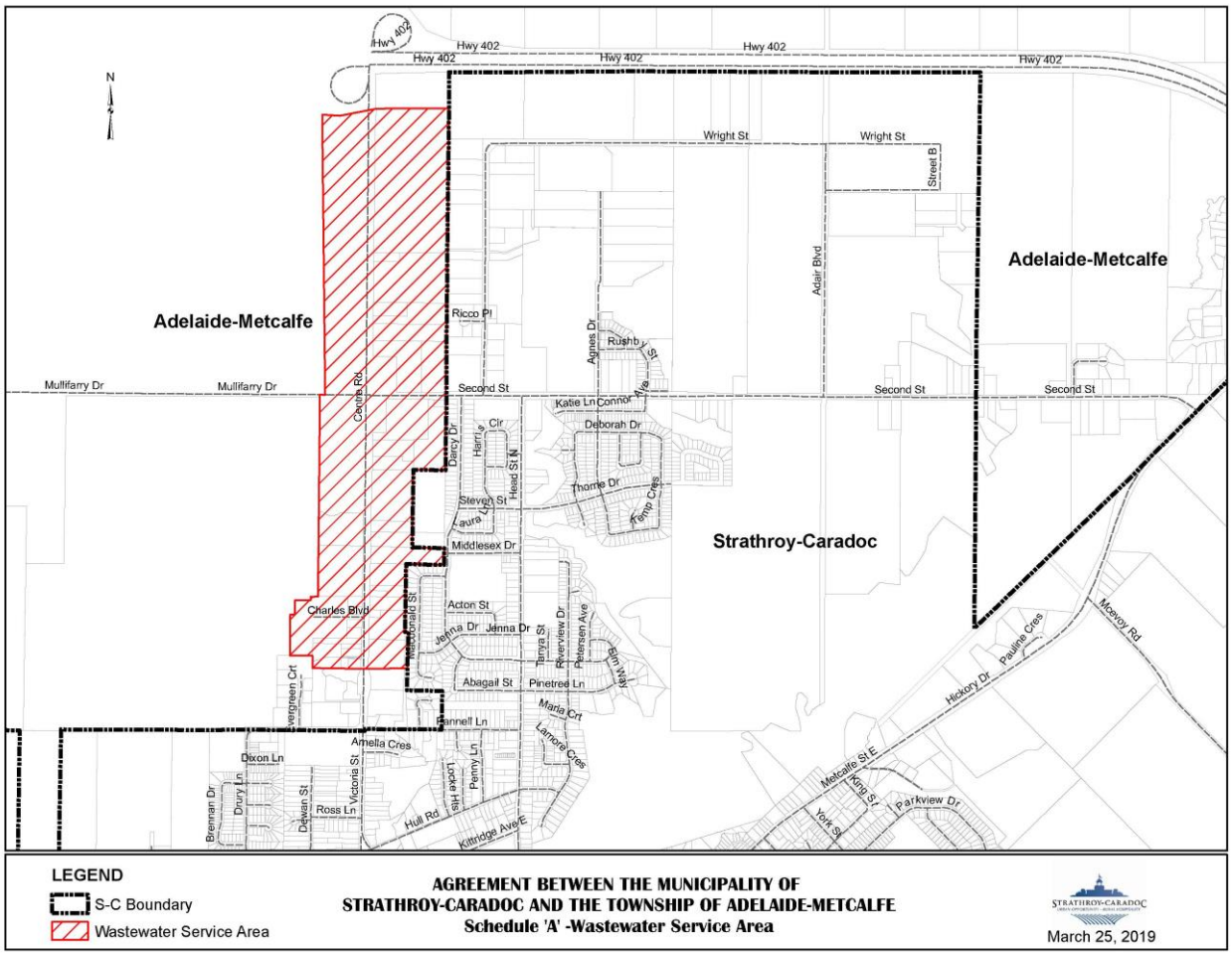
Service Attribute	Performance Measure	2021 Performance	Target
Scope	Percentage of properties connected to the municipal water system.	3.6%	Increase
	Percentage of properties where fire flow is available.	3.6%	Increase
Reliability	The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system.	0 connection days / connection	0 connection days / connection
	The number of connection-days per year lost due to water main breaks compared to the total number of properties connected to the municipal water system.	0 connection days / connection	0 connection days / connection

2.4 Wastewater

2.4.1 State of Local Infrastructure

There are two areas within the Township where wastewater services are available. One area is adjacent to the Municipality of Strathroy-Caradoc, as illustrated in Map 2-2. Wastewater from this area is treated by the Municipality of Strathroy-Caradoc and the Township is only responsible for the collection infrastructure. The other area with service is the community of Kerwood, as illustrated in Map 2-3. The Township is responsible for both collection and treatment of wastewater from this area.

Map 2-2: Wastewater Service Area Neighbouring the Municipality of Strathroy-Caradoc



Map 2-3: Wastewater Mains in the Kerwood Community

Table 2-15 provides a breakdown of wastewater assets, including quantity, age, and replacement cost by asset class.

Table 2-15: Wastewater Asset Quantity, Age, and Replacement Cost by Asset Class

Asset Class	Quantity	Average Age	Replacement Cost (2022$)
Wastewater mains	5,024 metres	15 years	$3,110,000
Wastewater Treatment plant	1 plant	12 years	$3,150,000
Total		13 years	$6,260,000

2.4.2 Condition

The condition of wastewater assets has not been assessed directly. The condition of the wastewater distribution assets is evaluated based on age relative to the expected

useful life (i.e., based on the ULC%) as described for sidewalks and streetlights in subsection 2.2.1. The useful life for wastewater mains is assumed to be 80 years. With this assumption, all segments are in the Very Good condition state, with an average ULC% of 18%. The wastewater treatment plant has been assigned the condition state Very Good based on the age of the facility and the fact that none of its components are expected to need replacement in the next 10 years. Table 2-16 presents the results of the condition analysis for wastewater assets.

Table 2-16: Average Wastewater Asset Condition by Asst Class

Asset Class	Quantity	Average ULC%	Average Condition State
Wastewater mains	5,024 metres	18%	**Very Good**
Wastewater Treatment plant	1 plant	Not Applicable	**Very Good**
Total			**Very Good**

2.4.3 Current and Proposed Levels of Service

This subsection provides an overview of the Township's level of service framework for wastewater. Table 2-17 and Table 2-18 show community levels of service and technical levels of service respectively.

Table 2-17: Wastewater Service Community Levels of Service

Service Attribute	Community Levels of Service
Scope	The Township provides wastewater service in two areas, one adjacent to the Municipality of Strathroy-Caradoc and the other being the community of Kerwood. The area with service adjacent to the Municipality of Strathroy-Caradoc extends from Centre Road 270 metres north of Pannell road to 200 metres south of Highway 402. Wastewater from Centre Road is treated by the Municipality of Strathroy-Caradoc. The community of Kerwood has a small, self-contained system with both collection and treatment.
	The scope of the Township's wastewater system is illustrated by Map 2-2 and Map 2-3. The maps show the serviced area neighbouring the Municipality of Strathroy-Caradoc and the location of the wastewater mains servicing the community of Kerwood.
Reliability	The Township strives to minimize wastewater service interruptions.
	Stormwater enters sanitary sewers by two routes: inflow and infiltration. Inflow refers to stormwater flows entering into sanitary sewers via access points, such as maintenance holes, that are not fully sealed or through deliberate connection of sources of stormwater to the wastewater system (e.g., downspouts and basement sump pumps). Infiltration refers to groundwater entering sanitary mains through cracks, holes, failed joints, and incorrect or faulty connections.
	Wastewater assets are designed to be resilient to stormwater inflow and infiltration by having capacity to handle flows significantly higher than average daily flows. This enables them to keep up with higher flows that are created by stormwater inflow and infiltration.
	The final effluent design objectives for the Kerwood wastewater treatment plant are identified in the facility's Environmental Compliance Approval (ECA # 9920-7FARSJ)

Table 2-18: Wastewater Technical Levels of Service

Service Attribute	Performance Measure	2021 Performance	Target
Scope	Percentage of properties connected to the municipal wastewater system.	6.6%	Increase
Reliability	The number of connection-days per year lost due to wastewater backups compared to the total number of properties connected to the municipal wastewater system.	0.0174 connection days / connection	0 connection days / connection
	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.	0 violations / connection	0 violations / connection

2.5 Facilities

2.5.1 State of Local Infrastructure

The Township is responsible for nine facilities with a total replacement cost of $5.2 million, as shown in Table 2-19.

Table 2-19: Age and Replacement Cost by Facility

Facility	Age	Replacement Cost (2022$)
B01 - Egremont Dr. Municipal Office	38	$790,000
B02 - Egremont Dr. Works Garage	44	$870,000
B03 - Napier Road Building	50	$560,000
B04 - Adelaide Metcalfe Storage Shed	72	$220,000
B05 - Sand Storage Shed	32	$150,000
B06 - Fire Station	12	$1,930,000
B07 - Washroom/pavilion	1	$420,000
B08 - Storage shed	57	$150,000
B09 - Pavilion	32	$120,000
Total	**27**	**$5,210,000**

2.5.2 Condition

All facilities were assigned a facility-level condition rating by Township staff using the scale shown in Table 2-20. Table 2-21 shows the assessed condition for each facility. The weighted average condition of the Township's facilities is Good. Figure 2-8 shows the distribution of facility replacement cost by condition rating.

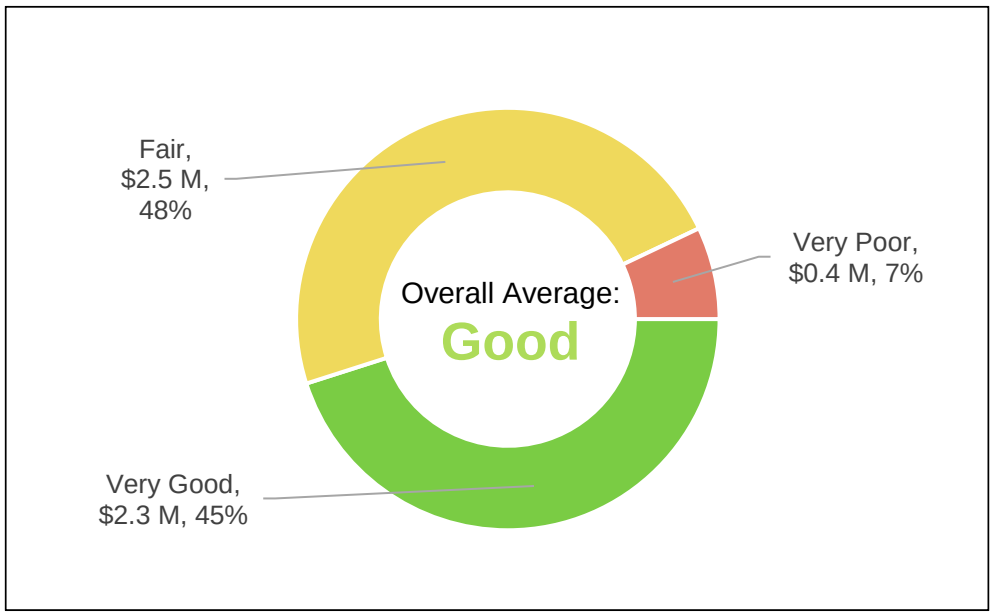
Table 2-20: Facility-level Rating Scale

Condition	Description
Very Good 5	No concerns.
Good 4	Deterioration causes minimal influence on use of facility. Occasional concerns raised by users.
Fair 3	Some deterioration beginning to be reflected in minor restrictions on operational uses. Concerns from users.
Poor 2	Regular complaints from users.
Very Poor 1	Generally not suitable for use.

Table 2-21: Overall Condition by Facility

Facility	Condition
B01 - Egremont Dr. Municipal Office	**Fair**
B02 - Egremont Dr. Works Garage	**Fair**
B03 - Napier Road Building	**Fair**
B04 - Adelaide Metcalfe Storage Shed	**Very Poor**
B05 - Sand Storage Shed	**Fair**
B06 - Fire Station	**Very Good**
B07 - Washroom/pavilion	**Very Good**
B08 - Storage shed	**Very Poor**
B09 - Pavilion	**Fair**

Figure 2-8: Distribution of Facility Replacement Cost by Condition Rating



2.5.3 Current and Proposed Levels of Service

This subsection provides an overview of the Township's level of service framework for Facilities. Table 2-22 and Table 2-23 show community levels of service and technical levels of service respectively.

Table 2-22: Facility Community Levels of Service

Service Attribute	Community Levels of Service
Quality	The Township maintains facilities at a level that provides a reasonable user experience.

Table 2-23: Facility Technical Levels of Service

Service Attribute	Performance Measure	2021 Performance	Target
Quality	Average condition of facilities	Good (3.8)	Good

2.6 Fleet

2.6.1 State of Local Infrastructure

The Township currently maintains a fleet of 22 vehicles with a combined replacement cost of $4.8 million. Table 2-24 shows fleet asset quantity, average age, and replacement cost.

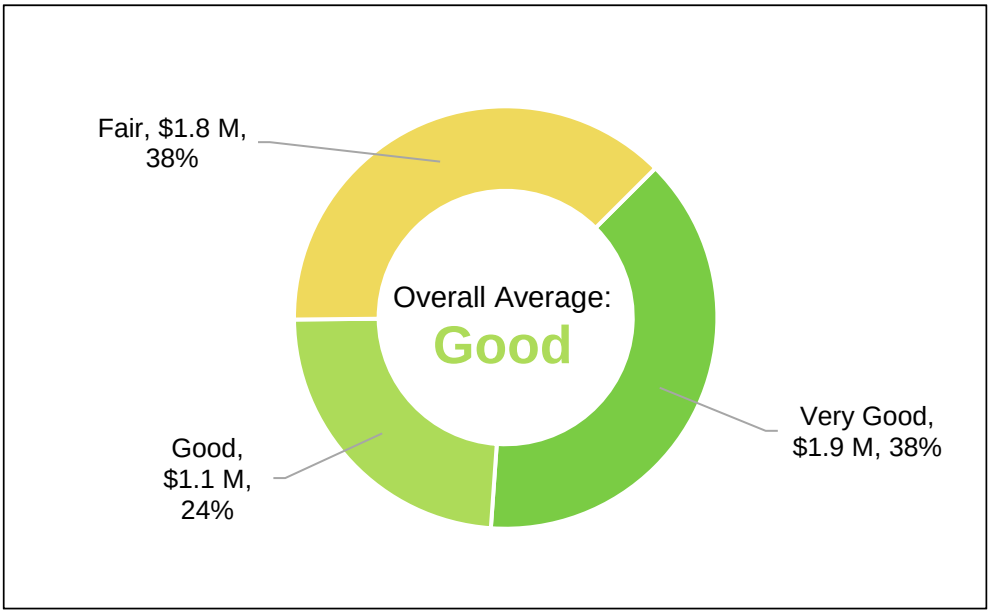
Table 2-24: Fleet Asset Quantity, Age and Replacement Cost by Asset Class

Asset Class	Quantity	Average Age	Replacement Cost (2022$)
Fleet	22 vehicles	11 years	$4,840,000

2.6.2 Condition

The condition of fleet assets is evaluated based on age relative to the expected useful life (i.e., based on the ULC%) as described for sidewalks and streetlights in subsection 2.2.1. The expected useful lives of fleet assets range from five to 25 years. On average fleet assets are in the Good condition state (ULC% is 67%). Figure 2-9 shows the distribution of fleet replacement cost by condition state.

Figure 2-9: Distribution of Fleet Replacement Cost by Condition State



2.6.3 Current and Proposed Levels of Service

This subsection provides an overview of the Township's level of service framework for fleet. Table 2-25 and Table 2-26 show community levels of service and technical levels of service respectively.

Table 2-25: Fleet Community Levels of Service

Service Attribute	Community Levels of Service
Reliability	The Township maintains vehicles so that they can be relied upon to perform as intended.

Table 2-26: Fleet Technical Levels of Service

Service Attribute	Performance Measure	2021 Performance	Target
Reliability	Average condition of vehicles (ULC%)	Good (67%)	Good

2.7 Equipment and Land Improvements

2.7.1 State of Local Infrastructure

The Township has a variety of equipment and five land improvement assets. Table 2-27 provides a breakdown of equipment and land improvement quantity, age, and replacement cost by asset class.

Table 2-27: Equipment and Land Improvement Quantity, Age, and Replacement Cost by Asset Class

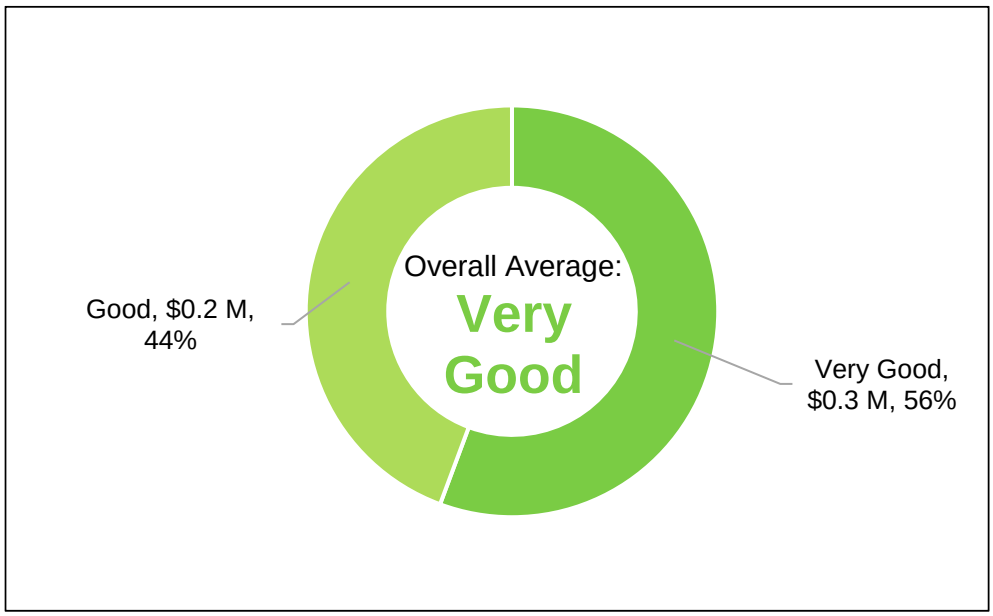
Asset Class	Quantity	Average Age	Replacement Cost (2022$)
Equipment	Not available[1]	Not available	$770,000
Land Improvements	5 assets	8 years	$560,000
Total			**$1,330,000**

2.7.2 Condition

The condition of land improvement assets is evaluated based on age relative to the expected useful life (i.e., based on the ULC%) as described for sidewalks and streetlights in subsection 2.2.1. The expected useful lives of land improvement assets range from 20 to 50 years. On average, land improvement assets are in the Very Good condition state (ULC% is 25%). Figure 2-10 shows the distribution of land improvement replacement cost by condition state.

[1] Some equipment assets are recorded as pooled assets without explicit counts. For example, there are 1,200 feet of fire hose where the number of sections is not recorded.

Figure 2-10: Distribution of Land Improvement Replacement Cost by Condition State



The condition of equipment has not been assessed. It is replaced on an as-needed basis.

2.7.3 Current and Proposed Levels of Service

This subsection provides an overview of the Township's level of service framework for land improvements. No levels of service are being reported for equipment because equipment is being replaced as required to meet operational needs. Table 2-28 and Table 2-29 show community levels of service and technical levels of service respectively for land improvements.

Table 2-28: Land Improvement Community Levels of Service

Service Attribute	Community Levels of Service
Reliability	The Township maintains land improvements so that they can be relied upon to perform as intended.

Table 2-29: Land Improvement Technical Levels of Service

Service Attribute	Performance Measure	2021 Performance	Target
Reliability	Average condition of land improvements (ULC%)	Very Good (25%)	Good

2.8 Population and Employment Growth

According to the 2021 census, the population of Adelaide Metcalfe was 3,011 in 2021. Based on current estimates, the population is expected to increase to 3,907 by 2046.

This population growth is expected to result in incremental service demands that may impact the current level of service. The Township plans to implement development charges to cover growth-related capital costs. Utilizing development charges helps ensure that the effects of future population and employment growth do not increase the cost of maintaining levels of service for existing tax and rate payers.

Chapter 3
Lifecycle Management Strategy

3. Lifecycle Management Strategy

3.1 Introduction

This chapter details the lifecycle management strategies that identify the recommended lifecycle activities required to achieve the proposed levels of service discussed in Chapter 2. Within the context of this asset management plan, lifecycle activities are the specified actions that can be performed on an asset in order to ensure it is performing at an appropriate level, and/or to extend its service life.[1] These actions can be carried out on a planned schedule in a prescriptive manner, or through a dynamic approach where the lifecycle activities are only carried out when specified conditions are met.

O. Reg. 588/17 requires that all potential lifecycle activity options be assessed, with the aim of identifying the set of lifecycle activities that can be undertaken at the lowest cost to meet the targeted levels of service. Asset management plans must include a 10-year capital lifecycle activities expenditure forecast that forecasts the lifecycle activities resulting from the lifecycle management strategy.

What follows are the lifecycle management strategies for all assets that have lifecycle activities funded through the capital budget. Gravel roads are excluded from the analysis because they are maintained through regular maintenance activities and a re-gravelling program that is fully funded through the operating budget. There are two outputs of the lifecycle management strategy. The first output is a 10-year lifecycle expenditure forecast that informs short- and medium- term planning. The second output is an estimate of average annual lifecycle costs to inform long-term financial planning and tax and rate setting.

3.2 Lifecycle Expenditure Forecast

A 10-year forecast of lifecycle expenditures was developed for each asset class using one of three approaches, depending on the complexity of the lifecycle strategy and data availability for each respective asset class. The three approaches are:

[1] The full lifecycle of an asset includes activities such as initial planning and maintenance which are typically addressed through master planning studies and maintenance management, respectively.

- Lifecycle model;
- Professional judgement; and
- As-needed replacement (annual provision).

The details of each approach are described in the following subsections.

3.2.1 Lifecycle Model Approach

For assets with fully-defined lifecycles and good age or condition data, the lifecycle expenditure forecast was developed by first estimating where each asset currently is in its lifecycle and then forecasting the timing and cost of future lifecycle activities. This method was used to develop the lifecycle expenditure forecast for paved roads, water mains, wastewater mains, fleet, and land improvements.

The lifecycle models used for roads are presented in Table 3-1 and Table 3-2 in subsection 3.2.1. The remaining asset classes for which the lifecycle model approach was used (i.e., water and wastewater mains, fleet, and land improvements) have only one lifecycle activity – replacement at the end of useful life.

Figure 3-1 and Figure 3-2 present the lifecycle expenditure forecasts for paved roads and fleet respectively. No lifecycle activities were identified for the next 10 years for water mains, wastewater mains, and land improvements.

Figure 3-1: Lifecycle Expenditure Forecast for Paved Roads (2022$)

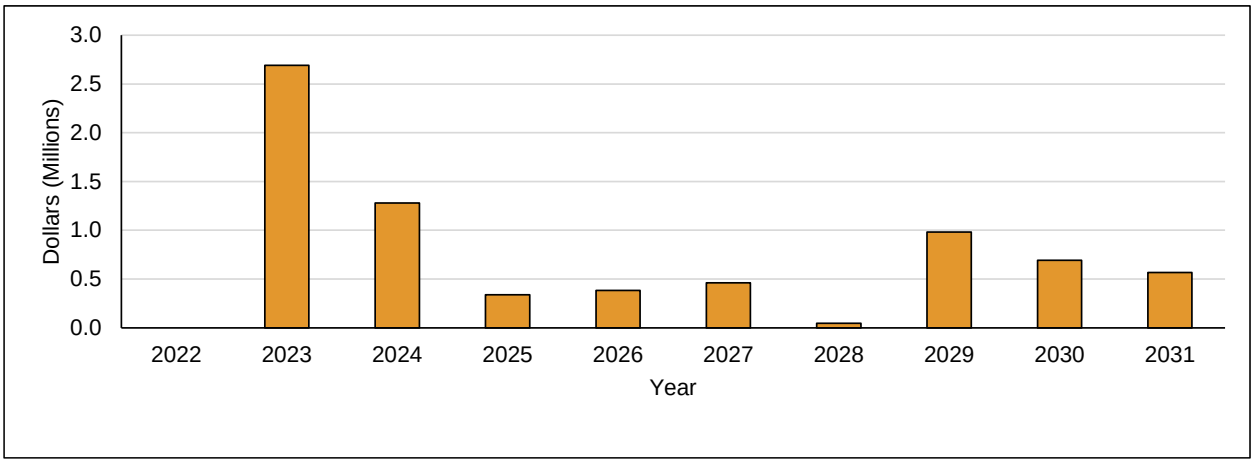
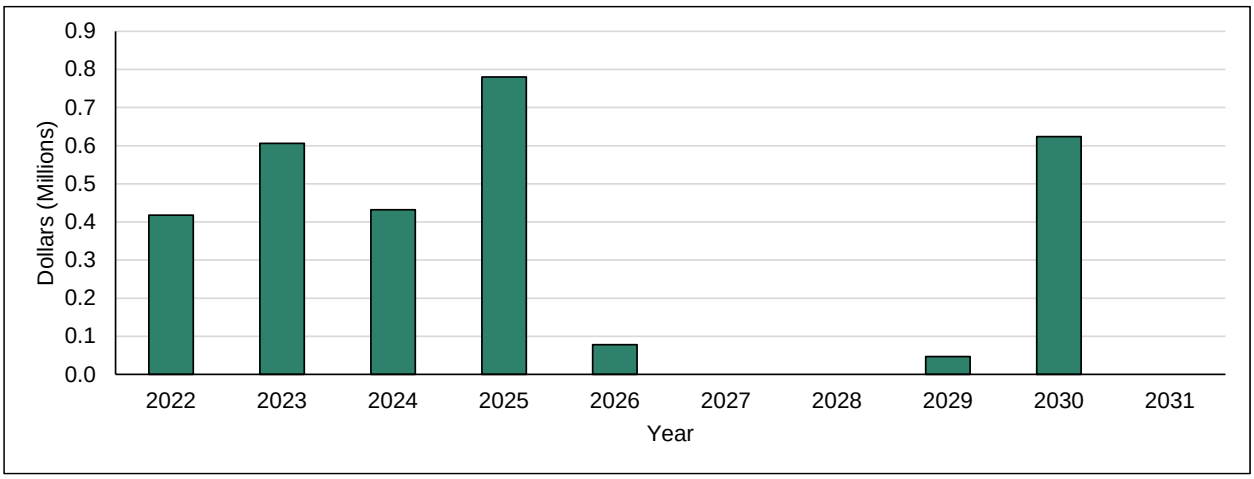


Figure 3-2: Lifecycle Expenditure Forecast for Fleet (2022$)

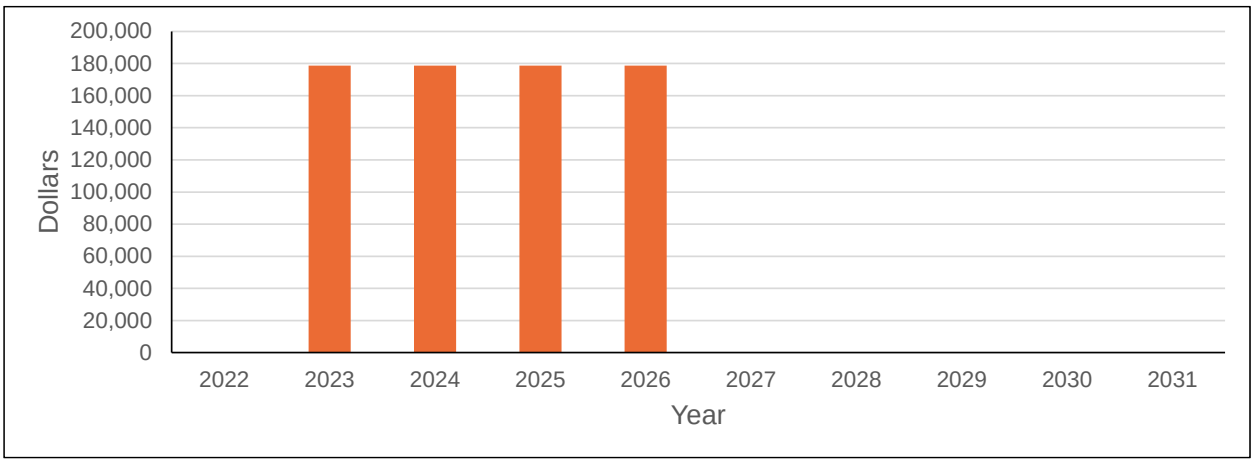


3.2.2 Professional Judgement Approach

For structures, facilities, and the Kerwood wastewater treatment plant, data is not currently available at a sufficiently detailed level to use the lifecycle model approach to produce a lifecycle expenditure forecast. Instead, the forecasts were compiled based on the professional judgement of Township staff and available background reports.

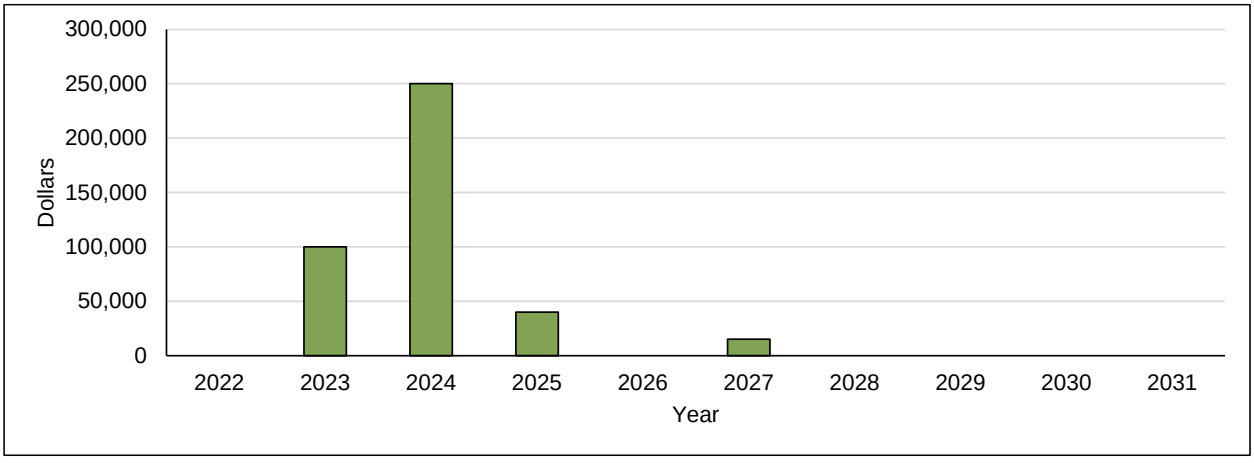
For structures, the lifecycle expenditure forecast is based on the 2021 OSIM report, which identified lifecycle activities totalling $715,000 for the next five years. It is noted that in the 2021 OSIM report, these lifecycle activities were not assigned to specific years. Therefore, for the purposes of the lifecycle expenditures forecast in this asset management plan, it was assumed that these lifecycle activities will be spread evenly from 2023 to 2026, averaging $179,000 (2022$) per year, as shown in Figure 3-3.

Figure 3-3: Lifecycle Expenditure Forecast for Structures (2022$)



For facilities and the Kerwood wastewater treatment plant, Township staff developed the lifecycle expenditure forecasts based on their operational knowledge of the assets. For facilities, lifecycle activities totalling $405,000 were identified for the 10-year forecast period, with timing of the corresponding expenditures shown in Figure 3-4. No lifecycle activities were identified for the Kerwood wastewater treatment plant for the next 10 years.

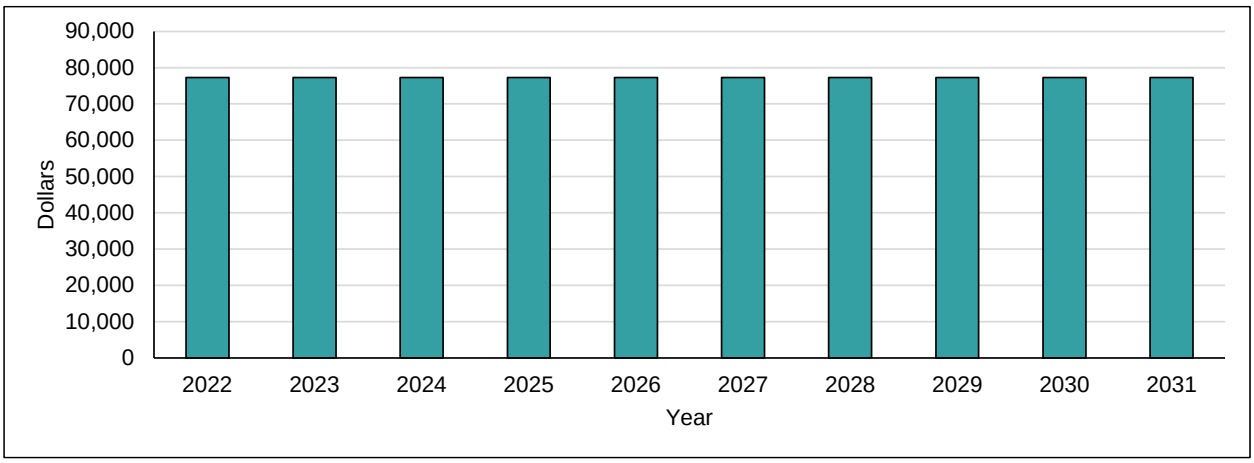
Figure 3-4: Lifecycle Expenditure Forecast for Facilities (2022$)



3.2.3 As-needed Replacement Approach

The Township intends to replace equipment on an as-needed basis. The lifecycle expenditure forecast includes an annual provision for equipment replacement totalling $77,000 (2022$), as shown in Figure 3-5.

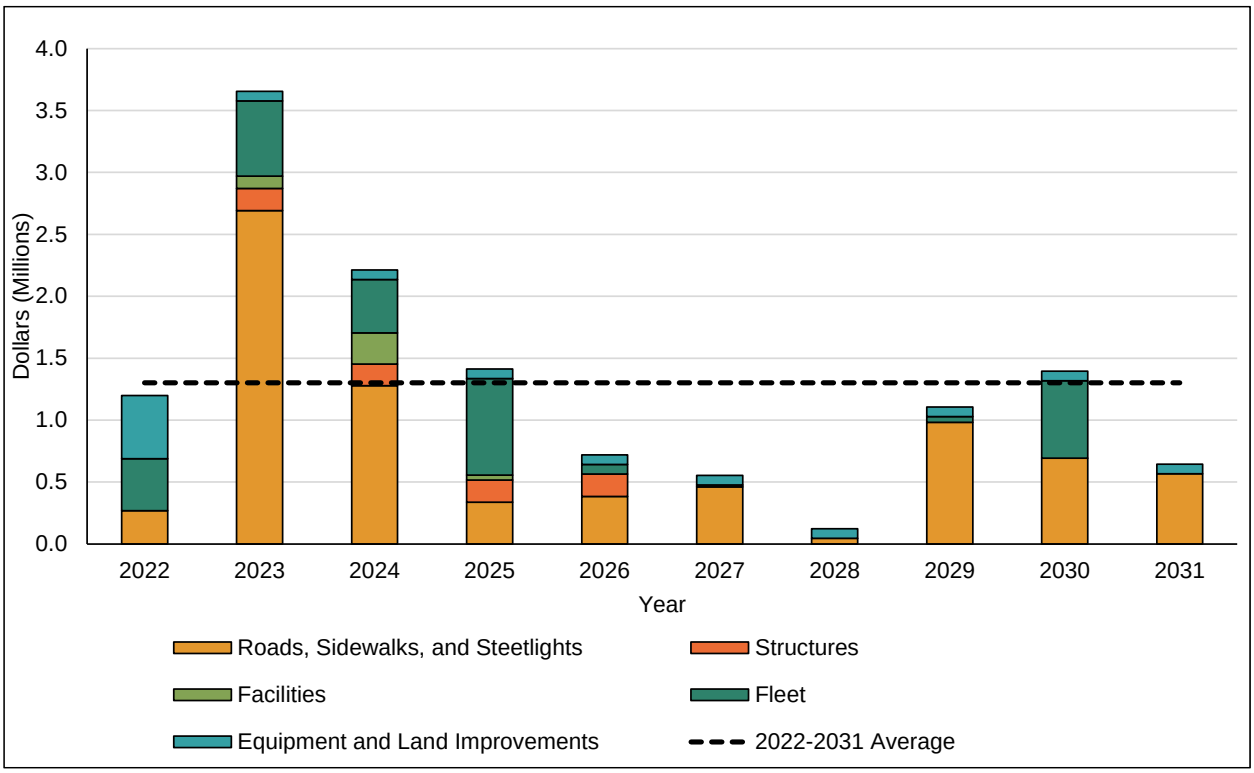
Figure 3-5: Lifecycle Expenditure Forecast for Equipment (2022$)



3.2.4 Summary

Figure 3-6 combines the lifecycle expenditure forecasts for individual asset classes in one chart. The average annual capital expenditures over the 10-year forecast are estimated at approximately $1.30 million, as shown by the dashed black line.

Figure 3-6: Annual Capital Expenditures by Asset Class (2022$)[1]



3.3 Average Annual Lifecycle Costs

While the 10-year capital plan provides an estimate of lifecycle expenditures in the short- and medium-term, it does not help set capital funding targets because it does not account for the full lifecycle of the assets. To account for needs beyond the 10-year forecast period, average annual lifecycle costs[2] need to be estimated. Depending on the asset class, one of three approaches was used to estimate average annual lifecycle costs:

- Lifecycle models;
- Replacement only; and
- Annual reinvestment rates suggested in the Canadian Infrastructure Report Card.

[1] The costs of projects for Kerwood Park in 2022 have been included with Equipment and Land Improvements.
[2] The average annual lifecycle cost for an asset is the total cost of all lifecycle activities over its full lifespan divided by its expected useful life.

Each approach is described in the following subsections, followed by an overall summary.

3.3.1 Lifecycle Models Approach

The lifecycles of roads and bridges typically involve both rehabilitative treatments (often multiple rounds) before a full reconstruction or replacement. All of these lifecycle activities need to be taken into account to quantify the full lifecycle cost of these assets. Once the total lifecycle costs have been estimated for an asset, average annual lifecycle costs can be calculated based on the asset's expected lifespan. The expected sequence of lifecycle activities for the Township's roads and bridges, along with estimated timing, unit costs, and the resultant average annual lifecycle cost per unit, are presented in Table 3-1, Table 3-2, and Table 3-3.

.

Table 3-1: HCB Road Lifecycle

Year	Lifecycle Activity	Unit Cost ($ per centreline-km, 2022$)
15	Resurface	$100,000
30		$100,000
58	Reconstruction	$310,000
Total Lifecycle Cost		**$510,000**
Average Annual Lifecycle Cost		**$8,790**

Table 3-2: LCB Road Lifecycle

Year	Lifecycle Activity	Unit Cost ($ per centreline-km, 2022$)
6	Resurface (2/3 single surface treatment, $3.00/m²; 1/3 pulverize and double surface treatment, $6.33/m²)	$31,000
12		$31,000
18		$31,000
24		$31,000
30		$31,000
36		$31,000
42		$31,000
48		$31,000
54		$31,000
60		$31,000
69	Reconstruction	$212,000
Total Lifecycle Cost		**$522,000**
Average Annual Lifecycle Cost		**$7,560**

Table 3-3: Bridges Lifecycle

Year	Lifecycle Activity	Unit Cost (Percentage of Replacement Cost)
25	Minor rehabilitation	15%
50	Major rehabilitation	35%
75	Replacement	100%
Total Lifecycle Cost		**150%**
Average Annual Lifecycle Cost		**2%**

3.3.2 Replacement Only Approach

For many assets, the only lifecycle activity is replacement when the asset reaches the end of its useful life. For these assets, long-run average annual lifecycle costs are based on replacement cost and the expected useful life. Replacement costs for these

assets are summarized in Chapter 2, and the expected useful lives are summarized in Table 3-4.

Table 3-4: Expected Useful Lives for Replacement Only Assets

Asset Class	Expected Useful Life (Years)
Structural Culverts	50
Water Mains	80
Wastewater Mains	80
Fleet	5 to 25
Land Improvements	20 to 50
Equipment	5 to 25

3.3.3 Canadian Infrastructure Report Card Approach

The lifecycle models approach and the replacement only approach cannot be used to estimate average annual lifecycle cost for facilities and the Kerwood wastewater treatment plant because the detailed data required is not available. Instead, a high-level approach is used for these asset classes, based on annual reinvestment rate ranges recommended in the 2016 Canadian Infrastructure Report Card (C.I.R.C). The C.I.R.C identifies a target annual reinvestment rate of between 1.7% and 2.5% of asset replacement cost for buildings and non-linear wastewater infrastructure (i.e., facilities). The mid-point of this range, 2.1%, was used to estimate average annual lifecycle costs for the Township's facilities and the Kerwood wastewater treatment plant.

3.3.4 Results

Based on the various approaches to estimating average annual lifecycle costs described above, the total average annual lifecycle cost for the Township's assets is estimated at $1.68 million. A breakdown of this total by asset class is provided in Table 3-5.

Table 3-5: Average Annual Lifecycle Cost by Asset Class

Asset Class	Average Annual Lifecycle Cost (2022$)
Tax Supported Assets	
Roads, Sidewalks, and Streetlights	$773,000
Structures	$283,000
Facilities	$109,000
Fleet	$274,000
Equipment and Land Improvements	$99,000
Subtotal Tax Supported Assets	$1,539,000
Water and Wastewater Assets	
Water	$31,000
Wastewater	$105,000
Subtotal Water and Wastewater Assets	$136,000
Grand Total	**$1,675,000**

Chapter 4
Financing Strategy

4. Financing Strategy

4.1 Introduction

This chapter outlines the financing strategy that would sustainably fund the lifecycle management strategies presented in Chapter 3. This financing strategy focuses on examining how the Township can fund the lifecycle activities required to maintain its assets at the targeted levels of service, as identified in Chapter 2. The strategy presented is a suggested approach which should be examined and re-evaluated during the annual budgeting processes to ensure the sustainability of the Township's financial position as it relates to its assets.

O. Reg. 588/17 requires at minimum a 10-year capital plan that forecasts the costs of implementing the lifecycle management strategy and the lifecycle activities required therein. The financing strategy in this asset management plan has been developed for a 10-year forecast period to be in compliance with this requirement.

Various financing options, including reserve funds, debt, and grants, were considered during the process of developing the financing strategy and are described in more detail in section 4.4 below.

4.2 Annual Contribution and Lifecycle Funding Target

An annual lifecycle funding target describes the amount of funding that would be required annually to fully finance a lifecycle management strategy over the long term. By planning to achieve this annual funding level, the Township would theoretically be able to fully fund capital works as they arise. In practice, capital expenditures often fluctuate year-to-year based on the asset replacement and renewal/rehabilitation projects being undertaken in a particular year. By planning to achieve the lifecycle funding target over the long term, however, the periods of relatively low capital needs would allow for the building up of lifecycle reserve funds that could be drawn upon in times of relatively high capital needs. The annual lifecycle funding target is the long-run average annual lifecycle cost identified in subsection 3.3.4, $1,675,000. This is the amount that has been built into the financial strategy outlined below.

In comparison, the Township budgeted to contribute approximately $1,343,000 from the tax levy and other current revenue sources towards capital-related needs in 2022. Included in this are budgeted contributions to capital projects in the current year, contributions to capital-related reserve funds, and reliable and long-term federal and provincial grants (i.e., Canada Community-Building Fund (CCBF) and Ontario Community Infrastructure Fund (OCIF)). The sum of these components is the amount of funding the Township contributed in 2022 to the provision of capital-related needs.

The difference between the annual lifecycle funding target and current annual contribution is referred to as the lifecycle funding gap. The Township is currently underfunding the annual lifecycle funding target by approximately $332,000 annually.

4.3 Annual Costs

The annual capital expenditures for the Township's assets from 2022 to 2031 are presented in Table A-1 in Appendix A and are summarized in Figure 3-6 in subsection 3.2.4. This expenditure forecast is based on the Township's 2022 capital budget and the lifecycle activities identified in preceding sections of this plan for 2023 and onwards.

The expenditure forecast includes a capital inflation factor of 4% annually, which aligns closely with the historical 20-year annual average rate of inflation as witnessed in Statistics Canada's Non-residential Building Construction Price Index.

4.4 Funding

Table A-6 in Appendix A summarizes the recommended strategy to finance the asset lifecycle costs identified in Table A-1. This funding forecast was based on the funding sources identified in the Township's 2022 budget.

The lifecycle costs required to sustain established level of service targets are being recovered through several methods:

- OCIF formula-based funding is identified for years in which the funding amount is known (2022). The Ontario Government more than doubled the Township's OCIF grant in 2022 as part of a five year initiative to support small, rural, and northern communities that started in 2022. In the financial strategy, the 2022

level of OCIF funding is maintained for the five-year duration of the provincial initiative. It is then reduced back to the 2021 funding level for 2027 to 2031.

- CCBF funding has been shown as a stable and long-term funding source for eligible capital projects. Annual funding estimates are based on the Township's 2022 funding level.

This financing strategy has been developed to be fully funded, and therefore no funding shortfall has been identified. This means, however, that if identified grants are not received at expected amounts then shortfalls may present themselves. In such an event, the difference could be made up through increases to the tax levy/user rates over-and-above those presented hereafter.

It is noted that this fully funded financing strategy phases in annual contributions towards capital such that the Township reaches full lifecycle funding levels by 2031.

4.5 Tax Levy Impact

As discussed in section 4.2, while the annual funding requirement may fluctuate, it is important for the Township to implement a consistent, yet increasing, annual investment in capital so that the excess annual funds can accrue in capital reserve funds. Table A-6 in Appendix A presents a summary of the impacts on the tax levy as a result of this financing strategy.

In order to fund the recommended lifecycle management strategy using the Township's own available funding sources (i.e., using taxation, CCBF funding, and OCIF funding), an increase in the Township's taxation levy of 3.2% annually would be required from 2023 to 2031.

Consideration for cash flow and positive reserve fund balances has been included in setting the capital reserve transfer amounts. A detailed continuity schedule of all capital-related reserves/reserve funds related to assets other than water and wastewater assets can be viewed in Table A-2, Table A-4, and Table A-5 in Appendix A.

Layering on assessment increases resulting from new assessment growth, assumed to be 0.64% annually, the impacts on individual property tax bills resultant from the financial strategy are estimated to be increases of 2.6% annually from 2023 to 2031.

The taxation impacts identified above include inflationary adjustments to the Township's operating costs and revenues as identified in its 2022 budget (i.e., general operating inflation of 2% annually). If, however, other funding sources become available (as mentioned above), or if maintenance practices allow for the deferral of capital works, then the impact on the Township's taxation levy would potentially decrease.

Further detail on the Financing Strategy is presented in Appendix A.

4.6 Water and Wastewater User Rates Impact

As discussed in section 4.2, while the annual funding requirement may fluctuate, it is important for the Township to make consistent, annual investments in capital so that the excess annual funds can accrue in water and wastewater capital reserves and reserve funds. Consistent with the Township's historical practice, in this asset management plan it has been assumed that the tax levy will cover the gap between full lifecycle funding needed for water and wastewater and revenues raised through user fees. The only adjustment made to user fees over the forecast period is an inflationary adjustment of 2% per year. It is noted, however, that full cost user fees are strongly encouraged for water and wastewater services. The Township should consider undertaking a detailed rate study to identify appropriate full-cost water and wastewater rates. A detailed continuity schedule of all capital-related reserves/reserve funds for water and wastewater can be viewed in Table A-3 in Appendix A.

Appendices

Appendix A
Financing Strategy Tables

Table A-1 Capital Budget Forecast (Inflated $)

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Capital Expenditures										
Tax Supported										
Roads, Sidewalks, and Steetlights	270,000	2,798,811	1,382,843	379,505	448,054	561,631	59,090	1,292,778	948,547	806,275
Structures	-	185,900	189,280	201,913	212,622	-	-	-	-	-
Facilities	-	104,000	270,400	44,995	-	18,250	-	-	-	-
Fleet	418,000	630,573	466,819	877,394	91,249	-	-	61,586	853,987	-
Equipment and Land Improvements	81,700	80,378	83,593	86,937	90,414	94,031	97,792	101,704	105,772	110,003
Kerwood Park	428,500	-	-	-	-	-	-	-	-	-
Total Tax Supported	**1,198,200**	**3,799,661**	**2,392,935**	**1,590,743**	**842,339**	**673,912**	**156,882**	**1,456,067**	**1,908,306**	**916,278**
Water and Wastewater										
Water	-	-	-	-	-	-	-	-	-	-
Wastewater	-	-	-	-	-	-	-	-	-	-
Total Water and Wastewater	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Expenditures	**1,198,200**	**3,799,661**	**2,392,935**	**1,590,743**	**842,339**	**673,912**	**156,882**	**1,456,067**	**1,908,306**	**916,278**
Capital Funding										
Tax Supported										
Debenture Issuance	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	656,385	-	108,200	-	-	-	-	-	-	-
Transfer from Capital R.F.s	27,500	3,232,285	1,985,135	1,285,243	530,739	469,912	(51,218)	1,243,867	1,691,906	695,478
Transfer from CCBF R.F.	334,543	333,908	98,700	100,600	102,600	104,700	106,800	108,900	111,100	113,300
Transfer from OCIF R.F.	175,172	233,468	200,900	204,900	209,000	99,300	101,300	103,300	105,300	107,500
Donation	4,600	-	-	-	-	-	-	-	-	-
Total Tax Supported	**1,198,200**	**3,799,661**	**2,392,935**	**1,590,743**	**842,339**	**673,912**	**156,882**	**1,456,067**	**1,908,306**	**916,278**
Water and Wastewater										
Debenture Issuance	-	-	-	-	-	-	-	-	-	-
Transfer from Capital R.F.s	-	-	-	-	-	-	-	-	-	-
Total Water and Wastewater	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Funding	**1,198,200**	**3,799,661**	**2,392,935**	**1,590,743**	**842,339**	**673,912**	**156,882**	**1,456,067**	**1,908,306**	**916,278**

Table A-2 Tax Supported Capital Reserve Funds

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	4,528,045	4,839,427	2,922,345	2,207,199	2,383,642	3,418,288	4,624,211	6,478,111	7,144,002	7,466,071
Transfer from Operating	243,991	1,257,903	1,226,710	1,414,948	1,498,360	1,585,163	1,675,660	1,769,680	1,867,582	1,969,430
Transfer to Capital	27,500	3,232,285	1,985,135	1,285,243	530,739	469,912	(51,218)	1,243,867	1,691,906	695,478
Closing Balance	4,744,536	2,865,044	2,163,921	2,336,904	3,351,263	4,533,540	6,351,089	7,003,924	7,319,677	8,740,023
Interest	94,891	57,301	43,278	46,738	67,025	90,671	127,022	140,078	146,394	174,800

Table A-3 Water and Wastewater Capital Reserve Funds

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	899,178	1,074,706	1,240,912	1,416,231	1,601,076	1,795,878	2,001,088	2,217,174	2,444,625	2,683,948
Transfer from Operating	154,455	141,874	147,549	153,451	159,589	165,973	172,612	179,516	186,697	194,165
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Closing Balance	1,053,633	1,216,580	1,388,462	1,569,682	1,760,665	1,961,851	2,173,700	2,396,691	2,631,322	2,878,113
Interest	21,073	24,332	27,769	31,394	35,213	39,237	43,474	47,934	52,626	57,562

Table A-4 Canada Community-Building Fund (CCBF) Obligatory Reserve Fund

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	472,272	237,208	-	-	-	-	-	-	-	-
CCBF Grant	94,828	96,700	98,700	100,600	102,600	104,700	106,800	108,900	111,100	113,300
Transfer to Capital	334,543	333,908	98,700	100,600	102,600	104,700	106,800	108,900	111,100	113,300
Closing Balance	232,557	-	-	-	-	-	-	-	-	-
Interest	4,651	-	-	-	-	-	-	-	-	-

Table A-5 Ontario Community Infrastructure Fund (OCIF) Obligatory Reserve Fund

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	17,824	36,468	-	-	-	-	-	-	-	-
OCIF Grant	193,101	197,000	200,900	204,900	209,000	99,300	101,300	103,300	105,300	107,500
Transfer to Capital	175,172	233,468	200,900	204,900	209,000	99,300	101,300	103,300	105,300	107,500
Closing Balance	35,753	-	-	-	-	-	-	-	-	-
Interest	715	-	-	-	-	-	-	-	-	-

Table A-6 Operating Budget Forecast (Inflated $)

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Expenditures										
Operating Expenditures										
Tax Supported										
General Government	1,183,829	1,148,200	1,171,200	1,194,600	1,218,500	1,242,900	1,267,700	1,293,100	1,319,000	1,345,300
Protection to Persons and Property	913,246	908,600	926,700	945,300	964,200	983,500	1,003,100	1,023,200	1,043,700	1,064,500
Public Works	1,931,019	1,937,500	1,976,300	2,015,800	2,056,100	2,097,200	2,139,200	2,182,000	2,225,600	2,270,100
Health Services	11,968	12,200	12,500	12,700	13,000	13,200	13,500	13,700	14,000	14,300
Parks & Recreastion	25,786	26,300	26,800	27,400	27,900	28,500	29,000	29,600	30,200	30,800
Planning & Development	26,000	26,500	27,100	27,600	28,100	28,700	29,300	29,900	30,500	31,100
Drainage	102,836	104,900	107,000	109,100	111,300	113,500	115,800	118,100	120,500	122,900
Transfer to Water and Wastewater	340,455	137,374	143,149	149,151	155,389	161,899	168,638	175,642	182,923	190,491
Water and Wastewater	292,475	104,000	106,100	108,200	110,400	112,600	114,900	117,200	119,500	121,900
Capital-related Expenditures										
Tax Supported										
Transfers to Capital Res./R.F.s	243,991	1,257,903	1,226,710	1,414,948	1,498,360	1,585,163	1,675,660	1,769,680	1,867,582	1,969,430
Transfer to Capital	656,385	-	108,200	-	-	-	-	-	-	-
Water and Wastewater										
Transfers to Capital Res./R.F.s	154,455	141,874	147,549	153,451	159,589	165,973	172,612	179,516	186,697	194,165
Repayment of Existing Debt	142,975	143,000	143,000	143,000	143,000	38,085	38,085	38,085	38,085	38,085
Total Expenditures	**6,025,420**	**5,948,352**	**6,122,309**	**6,301,251**	**6,485,839**	**6,571,220**	**6,767,495**	**6,969,724**	**7,178,287**	**7,393,071**
Revenues										
Tax Supported										
General Government	628,405	641,000	653,800	666,900	680,200	693,800	707,700	721,800	736,300	751,000
Protection to Persons and Property	110,320	112,500	114,800	117,100	119,400	121,800	124,200	126,700	129,300	131,800
Public Works	184,445	188,100	191,900	195,700	199,600	203,600	207,700	211,900	216,100	220,400
Health Services	-	-	-	-	-	-	-	-	-	-
Parks & Recreastion	4,800	4,900	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700
Planning & Development	46,400	47,300	48,300	49,200	50,200	51,200	52,300	53,300	54,400	55,500
Drainage	65,036	66,300	67,700	69,000	70,400	71,800	73,200	74,700	76,200	77,700
Transfer from CCBF Obligatory Reserve Fund	37,000									
Water and Wastewater										
Transfer From Tax Levy	340,455	137,374	143,149	149,151	155,389	161,899	168,638	175,642	182,923	190,491
Debt Servicing Cost Recovery	151,350	151,400	151,400	151,400	151,400	46,459	46,459	46,459	46,459	46,459
Rate Revenue	98,100	100,100	102,100	104,100	106,200	108,300	110,500	112,700	114,900	117,200
Total Revenues	**1,666,311**	**1,448,974**	**1,478,149**	**1,507,651**	**1,537,989**	**1,464,158**	**1,496,097**	**1,528,701**	**1,562,182**	**1,596,250**
Tax Levy Analysis										
Tax Revenues Required	4,359,109	4,499,377	4,644,159	4,793,600	4,947,849	5,107,062	5,271,398	5,441,022	5,616,105	5,796,821
Prior Year Tax Levy		4,359,109	4,499,377	4,644,159	4,793,600	4,947,849	5,107,062	5,271,398	5,441,022	5,616,105
Add: Tax Revenues from Incremental Assessment		28,075	28,978	29,911	30,873	31,867	32,892	33,951	35,043	36,171
Tax Revenues at 0% Tax Rate Increase		4,387,184	4,528,356	4,674,070	4,824,473	4,979,716	5,139,954	5,305,349	5,476,065	5,652,275
Additional Increase in Tax Levy		112,193	115,803	119,530	123,376	127,346	131,444	135,673	140,039	144,545
Total Tax Revenues		4,499,377	4,644,159	4,793,600	4,947,849	5,107,062	5,271,398	5,441,022	5,616,105	5,796,821
Estimated Impact on Tax Bills		2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%