

# City of Sault Ste. Marie Active Transportation Asset Management Plan

June 2024

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## Table of Contents

<b>1.</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Background .....	1
1.2	Objectives.....	1
1.3	Asset Management Provincial Requirements .....	1
1.4	Scope .....	2
1.5	Relationship to Other Corporate Documents .....	3
<b>2.</b>	<b>State of Infrastructure .....</b>	<b>4</b>
2.1	Asset Hierarchy .....	4
2.2	Current State of the Assets.....	5
2.2.1	Asset Inventory.....	5
2.2.2	Current Asset Replacement Value .....	5
2.2.3	Age and Remaining Service Life .....	6
2.2.4	Asset Condition .....	7
2.3	Asset Data Gap Analysis .....	7
2.3.1	Data Gap Observations .....	7
2.3.2	Data Confidence.....	8
2.3.3	Data Management Practice .....	8
<b>3.</b>	<b>Levels of Service .....</b>	<b>11</b>
3.1	Purpose .....	11
3.2	Objectives.....	11
3.3	Stakeholder Identification .....	12
3.3.1	Legislated and Regulatory Requirements.....	12
3.4	O. Reg. 588/17 Levels of Service Metrics .....	13
3.5	Levels of Service Performance Metrics .....	13
3.6	Levels of Service Performance Targets .....	15
3.7	Future Demand Drivers .....	15
<b>4.</b>	<b>Asset Management Strategies.....</b>	<b>17</b>
4.1	Asset Lifecycle Management Introduction .....	17
4.2	Asset Acquisition Strategies .....	18
4.3	Asset Operations and Maintenance Strategies.....	19
4.4	Renewal and Replacement Strategies .....	19
4.5	Decommissioning and Disposal Strategies .....	20
4.6	Risk Associated with Lifecycle Activities.....	20
<b>5.</b>	<b>Funding Need Analysis.....</b>	<b>22</b>
5.1	Reinvestment Forecast and Lifecycle Modeling .....	22
5.2	Capital Reinvestment Need Analysis.....	23
5.2.1	20-Year Reinvestment Need Analysis.....	23
5.3	Full Funding Need Profile .....	25
5.4	Funding Strategies .....	26
5.4.1	Investing in Canada Infrastructure Program .....	26
5.4.2	Municipal Asset Management Program (MAMP).....	26
5.4.3	Enabling Accessibility Fund (EAF).....	27
5.4.4	Northern Ontario Heritage Fund Corporation (NOHFC) .....	27
5.4.5	Active Transportation Fund.....	27
5.4.6	Trail Funding Program.....	27

6. Implementation Plan and Continuous Improvement ..... 28  
Appendix A – Active Transportation MS Excel Lifecycle Model and Inventory ..... 29

## Figures

Figure 1-1: The City's Asset Management Line of Sight.....	3
Figure 2-1: City of Sault Ste. Marie Active Transportation Asset Hierarchy.....	4
Figure 2-2: Active Transportation Asset Weighted Average Age and Remaining Service Life.....	7
Figure 2-3: Asset Information Lifecycle.....	9
Figure 4-1: Lifecycle Cost Accumulation Over Asset Life.....	17
Figure 4-2: Asset Deterioration Curve and Renewal Costs.....	21
Figure 5-1: Active Transportation 20-Year Reinvestment Need.....	23
Figure 5-2: Multi-Use Path Reinvestments by Year.....	24
Figure 5-3: Active Transportation Assets 20-Year Smoothed Annual Reinvestment Needs.....	25
Figure 5-4: Active Transportation Asset Full Funding Need Profile.....	25

## Tables

Table 1-1: O. Reg. 588/17: AM Planning for Municipal Infrastructure .....	2
Table 2-1: Active Transportation Inventory Summary .....	5
Table 2-2: Current Replacement Value .....	5
Table 2-3: Asset Data Completeness .....	7
Table 2-4: Data Confidence Grading Scale .....	8
Table 3-1: The City's Overarching Themes and Objectives.....	11
Table 3-2: Legislated and Regulatory Requirements.....	13
Table 3-3: Levels of Service Performance Metrics .....	14
Table 4-1: O&M Activities for Active Transportation Assets .....	19
Table 4-2: O&M Activities for Active Transportation Assets .....	19
Table 4-3: Decommissioning and Disposal Activities for Active Transportation Assets.....	20
Table 4-4: Key Steps in the Risk Management Process.....	20
Table 5-1: Inflation Rate over 20 Years .....	22
Table 5-2: Active Transportation Asset Capital Reinvestment Assumptions .....	23
Table 5-3: Active Transportation Assets 20-Year Total and Annual Average Reinvestment Need .....	24
Table 6-1: Recommended AM Improvement Initiatives .....	28



# 1. Introduction

AECOM Canada Ltd. (AECOM) was retained by The City of Sault Ste. Marie (the “City”) to develop an asset management plan (AMP) to comply with the requirements of Ontario Regulation 588/17 (O. Reg. 588/17) in respect to its non-core municipal infrastructure assets. The scope of work for this investigation is outlined in AECOM’s proposal dated May 25<sup>th</sup>, 2023, and subsequent project correspondence.

## 1.1 Background

Sault Ste. Marie is a city located on the St. Mary’s River, north of the United States of America, bordering three of the Great Lakes with an estimated population of 72,051 (2021). The City provides a wide range of public services to their constituents, with the public expectation that these services function efficiently at a certain level. The provision of these services requires the management of the physical assets to meet desired service levels, manage risks, and provide long-term financial sustainability. These assets include, but are not limited to roads, bridges, sidewalks, wastewater assets, stormwater management assets, landfill, fleets, buildings, and parks.

In accordance with the terms of reference for this assignment, it is understood that the City is proceeding with an AMP to comply with the second phase of the regulatory requirements in respect to its non-core municipal infrastructure assets, in accordance with O. Reg. 588/17, by July 1<sup>st</sup>, 2024. The non-core assets to be covered in the scope, as defined by the regulation, include the City’s protection services, solid waste, parks and cemetery, facilities, fleet, roadway appurtenances, and active transportation.

## 1.2 Objectives

The objective of this AMP is to deliver a financial and technical roadmap for managing the City’s active transportation assets and to provide the means for the City to maximize value from its assets, at the lowest overall expense, while at the same time enhancing service levels for its residents. Furthermore, the objective of this AMP is to align with the guidelines laid out in the City’s Strategic AM Policy and Section 5 of Ontario Regulation (O. Reg.) 588/17.

Organizations that implement good asset management (AM) practices will benefit from improved business and financial performance, effective investment decisions, and better risk management. Stakeholders can expect lower total asset life cycle costs, higher asset performance, and confidence in sustained future performance.

## 1.3 Asset Management Provincial Requirements

The O. Reg. 588/17 came into effect in 2018 and stipulates specific AM requirements to be in place within Ontario municipalities by certain key dates (**Table 1-1**). The development of this AMP is one of the steps to guide the City towards meeting the July 1<sup>st</sup>, 2024 deadline.

**Table 1-1: O. Reg. 588/17: AM Planning for Municipal Infrastructure**

<p><b>Description:</b> A regulation made under the Infrastructure for Jobs and Prosperity Act, 2015, stating that every municipality shall prepare and update a Strategic AM Policy, and that every municipality shall prepare an AM Plan for its core infrastructure assets by July 1, 2022, and an AM Plan for all other infrastructure assets by July 1, 2024. The regulation outlines several requirements that each AM Plan must follow, such as including current and proposed level of service. Core municipal infrastructure assets include water, wastewater, stormwater, road, and bridge assets.</p>	
<b>Deadline Date</b>	<b>Regulatory Requirement</b>
July 1 <sup>st</sup> , 2019	All municipalities are required to prepare their first Strategic AM Policy.
July 1 <sup>st</sup> , 2022	All municipalities are required to have an AM Plan for its entire core municipal infrastructure (i.e., water, wastewater, stormwater, roads, and bridges & culverts).
July 1 <sup>st</sup> , 2024	All municipalities are required to have an AM Plan for infrastructure assets not included under their core assets.
July 1 <sup>st</sup> , 2025	All AM Plans must include information about the LoS that the municipality proposes to provide, the lifecycle activities and associated costs needed to achieve those LoS, available funding, any funding shortfalls, and the risk of failing to meet the proposed LoS.

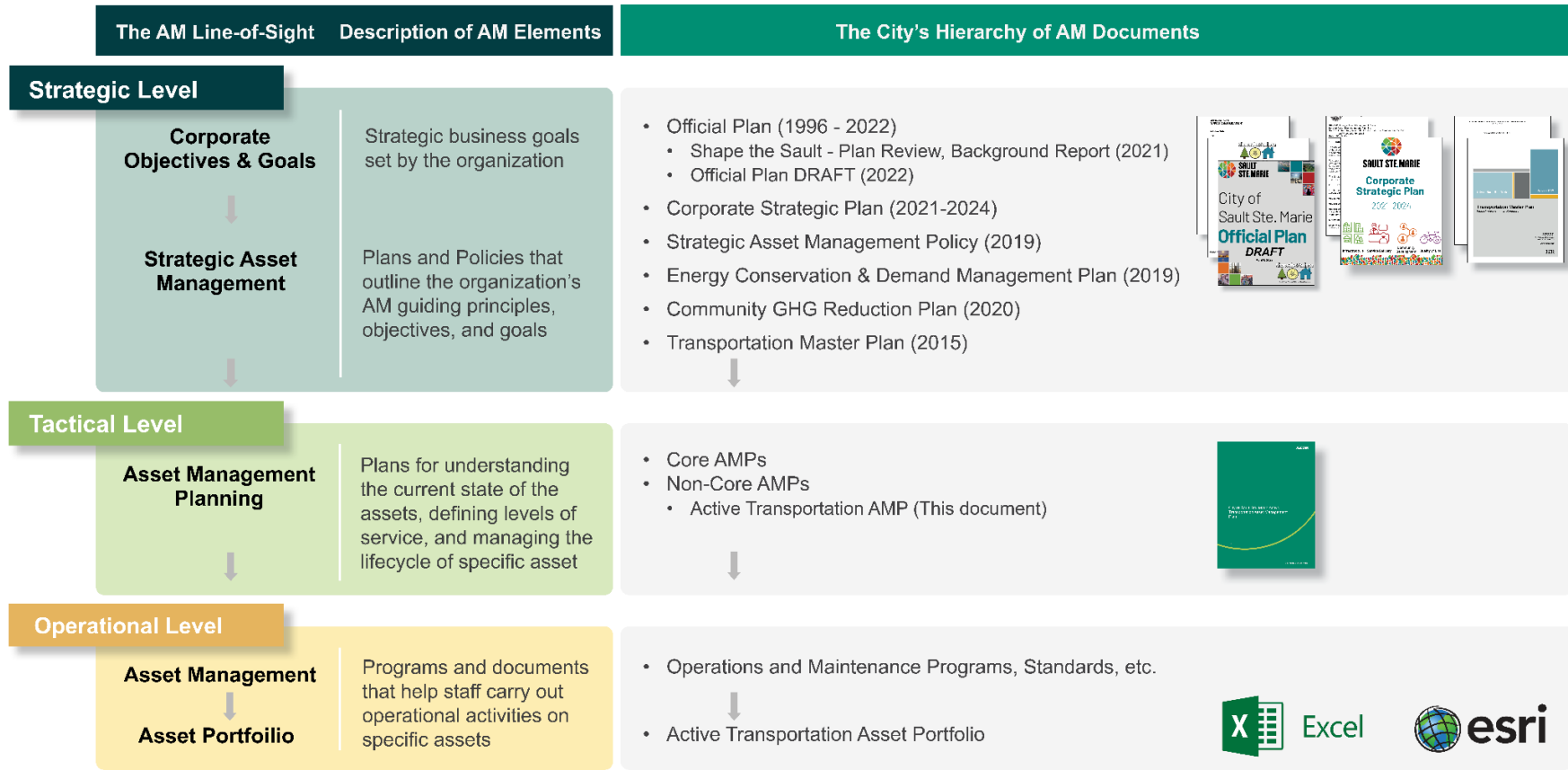
## 1.4 Scope

The following elements are included within the scope of this AMP:

- A summary of the asset inventory, including the replacement cost of the assets, the average age of the assets, the condition of the assets, and data gap analysis (**Section 2**).
- The City’s level of service (LoS) objectives, stakeholder identification, LoS framework, and future demand drivers (**Section 3**).
- Asset lifecycle management strategies and funding needs to maintain current LoS, minimize associated asset risks, and to optimize costs over the whole lifecycle of the asset (**Section 4 and 5**).

# 1.5 Relationship to Other Corporate Documents

This AMP is a tactical plan which links "top-down" strategic objectives with "bottom-up" operational activities. **Figure 1-1** demonstrates the line-of-sight between AM strategic objectives and tactical and operational AM elements, including the relationship this AMP has to the other plans in the City's hierarchy of documents.



**Figure 1-1: The City's Asset Management Line of Sight**

## 2. State of Infrastructure

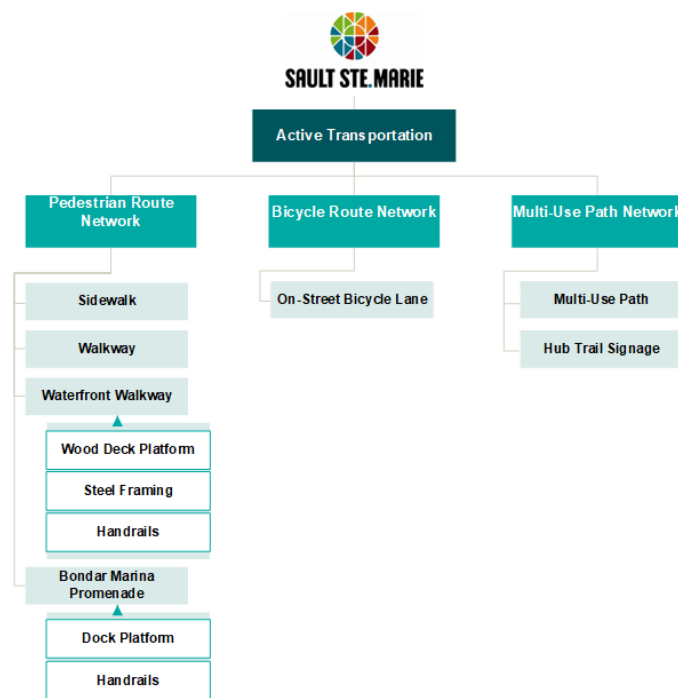
Active transportation assets encompass a variety of infrastructure and amenities designed to support non-motorized modes of transportation, such as walking and cycling. The City's active transportation system includes the pedestrian route network, the bicycle route network, and the multi-use path network. The components of these networks form a comprehensive inventory, detailing the quantity, condition, and specifications. By analyzing the inventory and assessing the data gaps, this section facilitates informed decision-making and strategic resource allocation, providing essential insights into maintenance needs and financial requirements.

### 2.1 Asset Hierarchy

To fulfill the requirements of O. Reg. 588/17 and to pave the way for robust long-range AM planning, the City necessitates a logically segmented asset breakdown structure (hierarchy) within the ambit of this AMP. Achieving this requires a sufficiently granular classification of active transportation assets, enabling the identification of individual assets due for renewal. Striking the right balance is also crucial, as there is a fine trade-off between ensuring adequate granularity to provide essential information and avoiding excessive granularity that could make the effort to collect and manage information more burdensome than the usefulness derived from it.

In **Figure 2-1**, the hierarchy of active transportation is illustrated, showcasing three main categories: pedestrian route network, bicycle route network, and multi-use path network. Each category is further broken down into subcategories. This asset hierarchy establishes a logical indexing of the City's active transportation assets, categorizing them into primary (parent) and secondary (child- and grandchild) assets. Such a structure forms the foundational framework for subsequent discussions and analysis, enabling the drill-down to a specific asset within the hierarchy to support maintenance planning or costs tracking at the asset or higher levels.

It is important to mention that pedestrian and multi-use path bridges are not encompassed within this hierarchy, as they have been addressed in the Roads AMP. Additionally, the steel sheet pilings supporting the waterfront walkway provide stormwater protection for the seawall and will be incorporated into the Stormwater AMP in the next iteration. Therefore, they are excluded from the waterfront walkway asset components and further analysis in this AMP.



**Figure 2-1: City of Sault Ste. Marie Active Transportation Asset Hierarchy**

## 2.2 Current State of the Assets

### 2.2.1 Asset Inventory

A complete active transportation inventory is compiled based on the raw data provided by the City during the data gathering stage of the project, and is obtained from the following sources: ArcGIS Shapefile – Public Sidewalks (November, 2023), ArcGIS Shapefile – Bike Lanes (November, 2023), ArcGIS Shapefile – Hub Trails (January, 2024).

**Table 2-1** presents the summary of the City’s active transportation inventory.

**Table 2-1: Active Transportation Inventory Summary**

Asset Group	Asset Category	Asset Sub-Category	Quantity	Unit
Active Transportation	Pedestrian Route Network	Sidewalk	346	km
		Walkway	8	km
		Waterfront Walkway	1/2,745	km / m <sup>2</sup>
		Bondar Marina Promenade	0.13/199	km / m <sup>2</sup>
	Bicycle Route Network	On-Street Bicycle Lane	35	km
	Multi-Use Path Network	Multi-Use Path	26	km
		Hub Trail Signage	134	Ea.

### 2.2.2 Current Asset Replacement Value

The asset replacement value is the estimated cost that would be incurred to replace an existing asset with a new one of similar functionality, at current market prices or construction costs. This value represents the monetary amount required to reproduce or procure an asset equivalent to the one being assessed. Examining the distribution of asset replacement values allows the City to comprehend which asset categories hold the highest value for both the City and the public.

**Table 2-2** presents the unit replacement cost and the total replacement value for active transportation asset categories within the City. It is worth noting that the cost valuations for the bicycle route network have already been included in the City’s Roads AMP; therefore, they are not considered here. Aside from that, the combined replacement value for the remaining categories amounts to approximately \$156 million, with the pedestrian route network accounting for the majority portion (87%).

**Table 2-2: Current Replacement Value**

Asset Group	Asset Category	Asset Sub-Category	Unit Replacement Cost	Total Replacement Value
Active Transportation	Pedestrian Route Network	Sidewalk	\$250 / m	\$123,412,000
		Walkway	\$250 / m	\$2,509,000
		Waterfront Walkway	\$485 – \$1,894 / m and m <sup>2</sup>	\$9,078,000
		Bondar Marina Promenade	\$353 – \$1,228 / m and m <sup>2</sup>	\$422,000
	Bicycle Route Network*	-	-	-
	Multi-Use Path Network	Multi-Use Path	\$555 / m	\$20,283,000
Hub Trail Signage		\$468 – \$707 Ea.	\$108,000	
<b>Total</b>				<b>\$155,812,000</b>

\* Replacement costs for bicycle route network have been included in the Roads AMP.

It is noted that the replacement costs are estimated based on a Class 4<sup>1</sup> cost estimation approach. These estimates are typically prepared with limited information, resulting in wide accuracy ranges. Class 4 estimates serve various purposes, including project screening, feasibility assessment, concept evaluation, and preliminary budget approval. They are utilized for detailed strategic planning, business development, project screening at more advanced stages, alternative scheme analysis, confirmation of economic and technical feasibility, and approval to proceed to the next stage. Typically, depending on the construction complexity of the project, relevant reference information, and other associated risks, the accuracy ranges for Class 4 estimates fall within the following bounds (could exceed based on various criteria):

- On the lower side, -10% to -20%
- On the higher side, +20% to +30%

It is also worth noting that the total replacement values are presented in inflated dollars and have been marked up by 45%, out of which 15% accounts for engineering and project management cost and 30% for contingency cost.

### 2.2.3 Age and Remaining Service Life

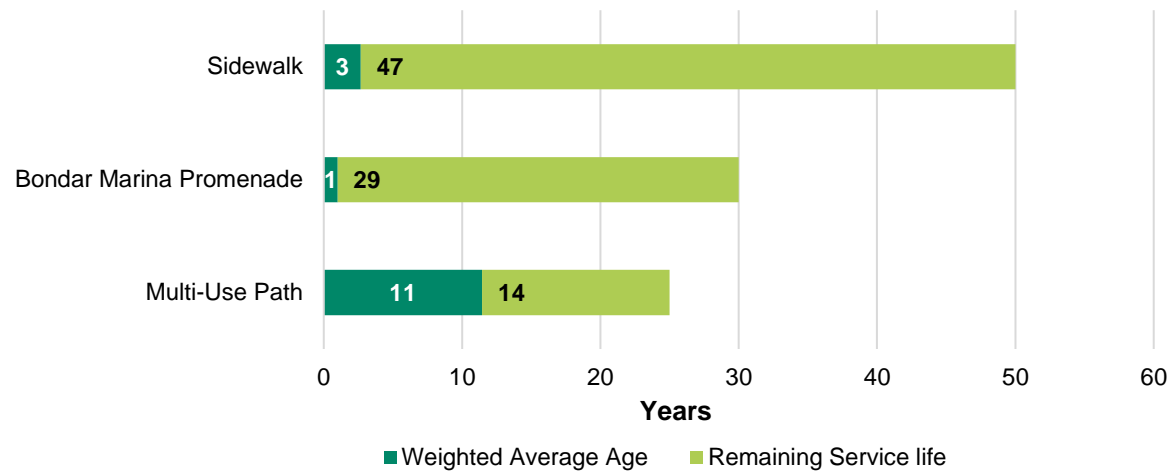
The asset age is based on the install year of the assets and the remaining service life (RSL) is estimated by considering both the age and the expected service life (ESL) in years. In practice, different assets will deteriorate at varying rates, and their deterioration may not necessarily follow a linear pattern over time. However, it is crucial to consider the level of effort required to predict failure in relation to the asset value. For highly valuable assets, more sophisticated deterioration modeling may be justified. Conversely, for low-value assets, the cost of deterioration modeling might surpass the replacement cost of the asset. Moreover, the actual service life can vary significantly from the ESL. ESL is defined as the period over which an asset is available for use and able to provide the required LoS at an acceptable risk and serviceability (i.e., without unforeseen costs of disruption for maintenance and repair). In some instances, a variation in expected vs. actual service life is evident due to the following factors:

- **Operating Conditions and Demands:** Some assets are operated intermittently or even infrequently or are being operated at a lower demand than their designed capacity. Thus, the actual operating “age” of the asset is reduced.
- **Environment:** Some assets are exposed to very aggressive environmental conditions (e.g., corrosive chemicals), while other assets are in relatively benign conditions; thus, the deterioration of assets is affected differently.
- **Maintenance:** Assets are maintained through renewal or replacement of components, which prolongs the service life of the asset.
- **Technological Obsolescence:** Some assets can theoretically be maintained indefinitely, although considerations such as cost to maintain the asset, its energy efficiency, and the cost to upgrade to an updated technology that would result in cost savings are likely to render this approach uneconomical.

**Figure 2-2** shows the weighted average asset age and RSL as a proportion of average ESL for sidewalks, Bondar Marina promenade, and multi-use paths. However, due to the absence of installation date information for all other asset subcategories (i.e., the remaining subcategories under the pedestrian route network), their average age and RSL are not presented in this section. It is recommended to collect installation date information for these assets and include it in the next iteration of the AMP.

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<sup>1</sup> Association for the Advancement of Cost Engineering (AACE) International Recommended Practice No. 18R-97. Cost Estimate Classification System - As Applied In Engineering, Procurement, and Construction for the Building and General Construction Industries, 2020, Retrieved in February 2024



**Figure 2-2: Active Transportation Asset Weighted Average Age and Remaining Service Life**

## 2.2.4 Asset Condition

There are no regular field condition assessments for active transportation assets that produce reliable condition gradings for AM purposes. In some instances, this gap can be addressed by applying the two-parameter Weibull distribution function, a statistical method commonly used in reliability studies and lifetime prediction models. However, in this particular case, only 5% of the City’s active transportation assets have installation dates (**Section 2.3.1**), which limits the application of Weibull distribution.

To enhance the evaluation on asset condition, it is recommended that the City establish a mechanism to collect essential asset information. Such action would contribute valuable data for more comprehensive condition assessments and assist in implementing effective asset management strategies.

## 2.3 Asset Data Gap Analysis

This section summarizes the current state of the City’s asset data by assessing the quality of the asset inventory. Specifically, this section identifies existing data gaps, determines the overall confidence in the current asset data, and introduces good practices of data management.

### 2.3.1 Data Gap Observations

The City’s active transportation assets were not previously stored in a single inventory. A significant amount of asset information was extracted from GIS databases, supplemented by spreadsheets and documents. Efforts have been made to address and fill gaps in key data where available, such as expected service life and replacement costs, based upon the City’s own experience. This has been enhanced by additional data sources such as RS Means and AECOM’s prior experience from other active transportation AM projects.

**Table 2-3** provides a summary of data completeness levels in the compiled active transportation inventory across key data attributes. It is recommended that the City continue to work on filling any remaining gaps, ensuring a comprehensive and up-to-date database.

**Table 2-3: Asset Data Completeness**

Asset Group	Inventory Completeness (%)					
	Asset ID	Location	Install Date	Condition	Expected Service Life	Replacement Cost
Active Transportation	0%	100%	5%	0%	81%	81%

Improvement activities that support continuous improvement of the asset inventory are:

1. Asset ID: Currently, asset IDs created in individual ArcGIS shapefiles are not unique to other asset classes. It is recommended to add unique asset ID to new assets identified in the asset inventory.
2. Installation year: It is recommended to collect accurate installation date information for all assets and include it in the next iteration of the AMP.
3. Condition Assessment: Consider a routine condition assessment program.

## 2.3.2 Data Confidence

The quality of asset data is critical to effective AM, accurate financial forecasts, and informed decision-making. For this reason, it is important to know what the reliability of the information is for the State of Infrastructure analysis of the active transportation assets. **Table 2-4** provides a description for the data confidence grades used to classify the reliability of the asset data. This can serve as a reference for the City to assess the quality of their asset data.

**Table 2-4: Data Confidence Grading Scale**

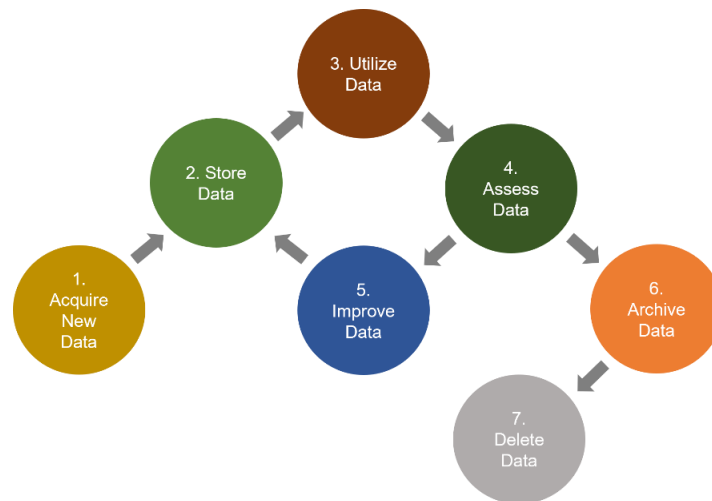
Confidence Grades	Description
A - Highly reliable	Data is based on sound records, procedures, investigations, and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B - Reliable	Data is based on sound records, procedures, investigations, and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C - Uncertain	Data is based on sound records, procedures, investigations, and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy is estimated $\pm 25\%$
D - Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E - Unknown	None or very little data held.

## 2.3.3 Data Management Practice

The asset data lifecycle is a sequence of stages that data goes through from its initial build (i.e., data capture and entry) to its eventual archival and/or deletion at the end of its useful life<sup>2</sup>. A clear definition and understanding of the organization's process for acquiring, storing, utilizing, assessing, improving, archiving, and deleting data (see **Figure 2-3**) will ensure good data management practices and help to sustain levels of data quality required to support AM activities.

<sup>2</sup> TechTarget Network, Definition: Data Life Cycle, 2020.





**Figure 2-3: Asset Information Lifecycle**

The seven key stages of the asset data lifecycle are described in more detail below:

- **Acquiring New Data:** The majority of new asset data arises from asset creation, refurbishment and overhaul activities. New data may also come by way of inheritance or transfers from other business units, organizations, or third parties. As such, it is important to have clearly defined processes in place not only to add or update asset data, but to migrate and merge data from other sources.
- **Storing Data:** The way asset data is stored is an important consideration for overall data quality. Having a planned approach to data storage will inevitably reduce the likelihood of duplication and inconsistencies across datasets within the organization. Depending on the needs of the organization, this stage may involve procuring a new software to adequately house the data, along with a data backup and recovery plan to ensure that the necessary data protection and privacy standards are met.
- **Utilizing / Analysing Data:** This aspect of the asset information lifecycle is where users encounter the data to support data-driven activities within the organization. Data can be viewed, processed, edited, and published to allow users to access the data outside the organization. Critical data that has been modified should be fully traceable to maintain the integrity of the data. As such, it is important to communicate to the users why asset data is so important, and how it is used to inform decisions within the organization.
- **Assessing Data:** Assessing the data quality helps to determine the level of confidence in the information and ensures that decision-makers are making informed decisions based on the quality of data available to them. Moreover, it is important to fully understand the availability and quality of the asset data before issuing information publicly. Some of the results of data degradation, due to improper or lack of assessment, may include:
  - Poor asset performance due to lack of information and understanding of asset behaviour.
  - Non-compliance with statutory regulations or safety requirements.
  - Safety incidents due to risks not being identified or reported.
  - Asset failure due to gaps in maintenance planning.
- **Improving Data:** Improving data quality involves establishing clear targets which are intended to be communicated widely across the organization. It is imperative that the organization understands the costs, benefits, and risks associated with any data improvements since the cost of the improvement may outweigh the overall benefit. It is also important to note that *more* data does not necessarily mean *better* data. It is very possible to collect data that does not add value to the organization. As such, it is critical that the organization aligns its data improvement targets with its AM objectives and considers the data-driven decisions staff need to make at the operational and strategic level, to ensure that the *right* data is being improved upon.
- **Archiving Data:** Archiving data is the process of storing data that is no longer active or required but is able to be retrieved in case it is needed again. Data that is archived is stored in a location where no usage or

maintenance occurs. It is recommended that a data archive strategy exists within an organization in order to lay out the data archival requirements, which includes the following factors:

- Consider what data should be archived and articulate the reasons behind the archival decisions.
  - Examine any legal obligations pertaining to the retention of data records.
  - Determine the appropriate duration for retaining different categories of data records.
  - Evaluate the risks associated with the inability to retrieve specific data records.
  - Specify the authorized individuals or entities who should have access to archived data records.
  - Establish the expected timeframe for retrieving archived data records.
  - Communicate these requirements across the organization to ensure staff understand why records are being archived, how they can access archived data records, and for how long archived data records can still be accessed.
- **Deleting Data:** The deletion of data is the final component of the asset information lifecycle. Typically, within organizations there is a resistance to permanently delete data, otherwise known as data “squirrelling”, due to the overall capacity of storing data increasing and the cost decreasing. However, within the organization’s data archive strategy, a retention period should be specified to indicate when data should be deleted, along with any processes to follow, such as obtaining prior authorization.

## 3. Levels of Service

### 3.1 Purpose

Level of Service (LoS) supports every aspect of the overall AM System. The objective of establishing clearly defined service levels is to help the City meet stakeholder values, achieve its strategic goals, make informed decisions, and implement effective asset lifecycle activities.

Documenting LoS is a proven practice that will enable the City to:

- Link corporate strategic objectives to customer expectations and technical operations.
- Balance customer needs and expectations while evaluating the effectiveness of operations and whether the right LoS is being provided at the right cost.
- Transition from an “Asset Stewardship” approach that focuses on making decisions based on maintaining assets in an acceptable condition to a “Serviceability” approach that is geared towards making decisions based on balancing the costs, risks, and goals for the LoS being provided by the City’s assets.
- Communicate the physical nature of infrastructure that the City owns and is financially responsible for while promoting the use of LoS to enable effective consultation with stakeholders regarding alternative funding options according to desired LoS outcomes.
- Make recommendations on strategies that the City can take now to minimize future renewal costs while ensuring that adequate LoS can be delivered without burdening future generations.
- Assess internal (e.g., program changes) and external (e.g., climate change) factors that have the potential to impact the City’s ability to deliver services and how these factors may impact the LoS being provided.
- Implement a corporate continuous improvement program to further optimize AM across all service areas.

O. Reg. 588/17 mandates that Ontario municipalities must report their current LoS by July 1, 2024. Additionally, the proposed LoS for all municipal assets including core and non-core assets should be reported by July 1, 2025.

### 3.2 Objectives

Defining LoS objectives is important for drawing a line of sight between the City’s corporate objectives and the tangible asset performance outcomes. To do so, the LoS objectives must take into consideration stakeholder interests to develop asset performance measures that aim to meet the needs and expectations of the community. By doing this, the City will ensure that their assets are striving towards optimal performance, not only operationally, but economically, socially, and sustainably as well.

Every stakeholder has certain interests in the service being provided and in general. The City’s corporate objective is to lift up the community and build pride, and attract people (visitors, employers, and employees). The City’s Comprehensive Background Report<sup>3</sup> for the New Official Plan outlined the overarching themes that reflect the City’s value, as shown in **Table 3-1**. Each overarching theme is also assigned a corporate service objective.

The development of level of service targets should be aligned with these corporate objectives which will be addressed in the next iteration of the AMP.

**Table 3-1: The City’s Overarching Themes and Objectives**

Overarching Themes	Corporate Objective
Healthy Community	Supports healthy living, active transportation, access to passive and active recreation, social interaction and the creation of spaces that are comfortable, safe and accessible for all ages and abilities (the “8 to 80 Cities” concept).

<sup>3</sup> City of Sault Ste Marie. 2021. Comprehensive Background Report.

Overarching Themes	Corporate Objective
Environmental Sustainability	Supports energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions and climate change adaptation.
Integrated Mobility	Supports accessibility and choice of a diversity of transportation modes.
Sense of Place	Fosters a welcoming place for all that establishes connection and provides a memorable experience to visitors.
Sustainable Growth	Stimulates reinvigoration of neighbourhoods to provide a complete range of housing, services, employment, and recreation.
Economic Resiliency	Supports the growth and diversification of the City's economy.
Social Equity	Contributes to creating a welcoming and inclusive community, focusing on the removal of systemic barriers so that everyone has access to an acceptable standard of living and can fully participate in all aspects of community life.
Cultural Vitality	Celebrates the City's history, diverse communities, and natural and cultural heritage, with the Downtown as the City's core destination for arts and culture.

### 3.3 Stakeholder Identification

A stakeholder is any person or organization that can affect, be affected by, or perceive themselves to be affected by a decision or an activity. Stakeholder analysis is the process of understanding stakeholder needs, expectations, and perceptions relative to the stakeholder's level-of-interest and level-of-influence over the organization. The organization typically engages with their stakeholders to:

- Establish which activities or services matter most to them.
- Understand their risk appetite and risk threshold.
- Understand their willingness to pay for services.

Stakeholders can take many forms and may be internal (i.e., staff, Council) or external (i.e., the public, regulatory agencies, suppliers, neighbouring municipalities, etc.) to the organization. The following groups were identified as key stakeholders for fleet during the LoS workshops held with City staff. This is not intended to be an exhaustive list; however, the following groups provide a good starting point for the City to move forward to the next stage. The City's key stakeholder groups are identified below.

- Residential Customers
- Industrial, Commercial & institutional (ICI) Customers
- Regulatory Agencies
- Neighbouring Municipalities
- Environmental Groups
- Internal City Departments
- Disability Groups
- Sault Cycling Club

#### 3.3.1 Legislated and Regulatory Requirements

Active Transportation assets are critical to the City's ability to provide essential services to the community, and for protecting the health and safety of the public. As such, key legislative requirements exist for the City's infrastructure assets, which ensure that minimum requirements are met and standards are in place that promote a high quality of life (i.e., clean drinking water and safe roads, etc.). A sample of key Federal and Provincial legislated requirements are outlined below in **Table 3-2**. Monitoring and development programs relevant to fleet assets are also listed.

**Table 3-2: Legislated and Regulatory Requirements**

<b>Federal</b>	<b>Provincial</b>
<ul style="list-style-type: none"><li>• Motor Vehicle Safety Act</li><li>• Canadian Environmental Protection Act, 1999 (CEPA)</li><li>• Federal Sustainable Development Act</li></ul>	<ul style="list-style-type: none"><li>• Highway Traffic Act</li><li>• Ontario's Drive Clean Program</li><li>• Ontario Public Service Green Fleet Directive</li><li>• Environmental Assessment Act<ul style="list-style-type: none"><li>– Ontario Regulation 231 – Transit Projects and Metrolinx Undertakings</li></ul></li><li>• Environmental Protection Act<ul style="list-style-type: none"><li>– Ontario Regulation 85 – End of Life Vehicles</li></ul></li><li>• Commercial Vehicle Operating Registration (CVOR)</li><li>• Bus driver licensing through Ontario DriveTest Centres</li></ul>

## 3.4 O. Reg. 588/17 Levels of Service Metrics

Currently, O. Reg 588/17 only identifies levels of service metrics for core assets. A number of key LoS performance measures for active transportation assets have been identified in consultation with City staff through workshops, are detailed in [Section 3.5](#).

## 3.5 Levels of Service Performance Metrics

Through a review of the legislated and regulatory requirements required for active transportation and collaboration with the City during the LoS workshop, 5 LoS performance metrics were determined for active transportation, as presented in [Table 3-3](#).

**Table 3-3: Levels of Service Performance Metrics**

Asset Category	Universal Service Value	LoS Performance Measure	Unit	Is Data Available? (Y/N)	Data Source
Active Transportation	Access & Capacity	Walking, Cycling and Transit Volumes on Key Corridors	#	Y	The City's Transit services collect passenger count data. The City's Engineering Department has the capability to collect passenger count data.
Active Transportation	Access & Capacity	Non-auto Mode Share	%	Y	Statistics Canada Census. Data is collected in 5 year intervals.
Active Transportation	Affordability	Proportion of Budget Dedicated to Capital and Maintenance of Active Transportation Infrastructure	%	Y	The City's municipal budget.
Active Transportation	Access & Capacity	Active Transportation Network Growth	km	N	Potential data source is the City's ArcGIS database. Includes multi-use trails, on-street bike lanes, sidewalks, and walkways. However, it should be noted that the data is not readily accessible.
Active Transportation	Quality & Reliability	User Comfort for the Multi-Use Trail	Letter Grade	N	Potential data sources are user ratings and surveys. The City's planning department gather user feedback during informational sessions. Comments related to the multi-use trail can be utilized in creation of a grading system to indicate the overall quality of the active transportation system. However, it should be noted that the data is not readily accessible.

## 3.6 Levels of Service Performance Targets

Establishing LoS targets is an important part of continual improvement and performance management. Without performance targets, it is difficult to ascertain whether goals are being met, or the extent of the gap if they are not. Incorporating targets into the City's LoS framework helps to ensure that targets are reasonable, aligned with customer expectations, and evaluated on an objective basis by considering cost-benefit trade-offs.

One of the key challenges in setting infrastructure performance targets in a municipal environment is that they can often become biased and/or politically motivated. Therefore, it is important to review LoS targets with internal and external stakeholders, especially the customers who will be impacted the most by changes in service delivery. An important aspect of evaluating LoS targets is determining how the user is willing to pay for the service. Regulatory requirements are an exception; however, they only provide the minimum service standard. Cost is still an important parameter to consider when assessing the merits of service improvements. To deal with the financial realities, it is necessary to:

- Calculate how much the service costs based on current LoS.
- Determine the cost associated with varying the LoS.
- Assess the customers' willingness to pay.

It is important that any targets set be realistic and achievable. Therefore, it is not advisable that the City sets any firm targets until their current performance has been fully assessed. O. Reg. 588/17 requires AMPs to include proposed levels of service and a formalized financial strategy by July 1, 2025.

## 3.7 Future Demand Drivers

Demand management is a critical component of managing the desired LoS in a sustainable manner, now and into the future. Understanding demand drivers enables the City to proactively develop effective, long-term strategies that are suitable for the City's unique political, environmental, social and technological landscape.

A summary of factors identified from the LoS workshop that would impact fleet service levels include, but are not limited to, the following:

- Technology.
- Electrification.
- Energy and Demand Management.
  - Increased Use of Electric Micro-Mobility Devices.
- Funding level.
- Growth
- Climate Change.
- Cold Climate
  - Creates operational issues in snow removal.
  - Staffing availability is limited for cold weather maintenance.
  - Staffing qualifications limited.

On November 2, 2021, the City had released the Comprehensive Background Report for updating the Official Plan<sup>4</sup>. The City's Official Plan guides local decision-making on land use, development, and public infrastructure over the next 20 years. The City's population is expected to reach to 80,000 by 2031, and 83,300 people by 2036. Employment is projected to grow by approximately 6,000 jobs, from 31,000 jobs in 2016 to 36,900 jobs in 2036.

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<sup>4</sup> City of Sault Ste Marie. 1996. Official Plan

When additional assets to accommodate this population and employment growth are introduced to the City's portfolio, additional human resources, training and funding are required to maintain and operate, and renew or replace those assets. O. Reg. 588/17 requires municipalities by July 1, 2025, to estimate capital expenditures and significant operating costs to achieve the proposed LoS and accommodate projected increases in demand caused by population and employment growth. This includes the estimated capital expenditures and significant operating costs related to new construction and / or to upgrade existing municipal infrastructure assets. The City will have to address these aspects during the later phases of the AM regulatory compliance process and before the 2025 deadline.

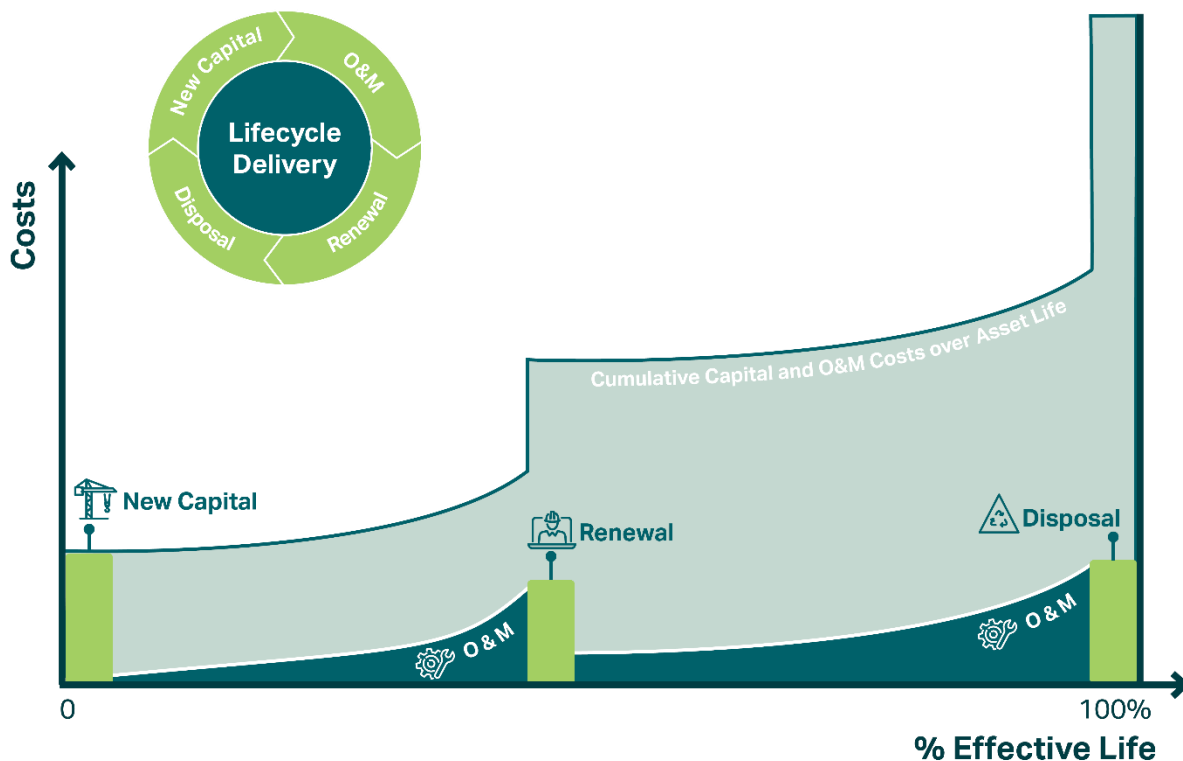


## 4. Asset Management Strategies

### 4.1 Asset Lifecycle Management Introduction

Asset lifecycle management focuses on the specific activities that should be undertaken during all phases of the asset lifecycle. Considering the entire asset lifecycle ensures that the City makes sound decisions that take into account present and future service delivery needs.

The overarching goal of lifecycle management is to maximize the long-term benefits and services that the City's assets deliver while minimizing the associated costs and risks in the long run. Every asset has a lifecycle cost, which is the total cost of all activities undertaken throughout its service life. Part of the purpose of the AM planning process is to fully understand and predict the long-range financial requirements for the City's infrastructure, facilitating planning and resource management in the most cost-effective manner possible. **Figure 4-1** illustrates how costs typically accumulate over an asset's life. It is worth noting that the ongoing operations and maintenance, renewal & replacement, and disposal costs accumulate up to many multiples of the initial acquisition costs. As such, it is important to fully understand the entire lifecycle costs before proceeding with asset acquisition.



**Figure 4-1: Lifecycle Cost Accumulation Over Asset Life**

Asset lifecycle management strategies are typically organized into the following categories.

1. **Asset Acquisition / Procurement / Construction:** Acquisition includes expansion activities and upgrading activities to extend services to previously unserved areas or meet the demands of growth and functional requirements. When acquiring new assets, the City should evaluate credible alternative design solutions, considering how the asset will be managed at each of its lifecycle stages. AM and full lifecycle considerations for the acquisition of new assets include, but are not limited to, the following:



- The asset's operability and maintainability.
- Supply chain considerations.
- Availability and management of detours.
- Staff skill and availability to manage the asset.
- The manner of the asset's eventual disposal.

2. **Asset Operations and Maintenance (O&M):** As new infrastructure is commissioned, the City assumes the responsibility of operating and maintaining the infrastructure according to O&M standards to ensure its safety and reliability. The operations staff provides the necessary day-to-day support for operating the assets. Maintenance expenses include periodic preventive maintenance to ensure that the infrastructure can provide reliable service throughout the life of the asset and corrective maintenance that is required to repair defective assets as needed. Inadequate funding for O&M will adversely impact the lifespan of assets. The number of O&M resources required in any period is a function of the current inventory of infrastructure and the total O&M needs for each asset. As the inventory of infrastructure grows, total O&M requirements will also increase.



3. **Renewal and Replacement:** The third aspect of full lifecycle costing pertains to the renewal and replacement of assets that have deteriorated to the point where they no longer provide the required service. Renewal or rehabilitation costs may be incurred during the life of an asset where an investment is made to improve its condition and/or functionality. Replacement activities are expected to occur once an asset has reached the end of its useful life, and renewal is no longer a viable option.



4. **Decommissioning and Disposal:** There will inevitably come to a point in time when an asset must be removed from service, and depending on the type of asset, there may be significant costs associated with its decommissioning and disposal. Factors that may influence the decision to retire an asset include changes to leading to non-compliance, the inability of the asset to handle increased LoS, technological advances rendering the asset obsolete, the cost of retaining the asset exceeding the benefits gained, the current risk associated with the asset's failure becoming intolerable, assets negatively impacting service delivery or negative impacts on the environment.



Normally, major costs that may be incurred during disposal and decommissioning derive from the environmental impact of the disposal and, if required, the rehabilitation and decontamination of land. However, some cost savings may be achieved through the residual value of the asset or by exploring alternative uses for the asset. In all cases, it is important to consider disposal and decommissioning as the strategy employed has the potential to attract significant stakeholder attention. For that reason, the costs and risks associated with disposal and decommissioning should be equally considered in the City's capital investment decision-making process.

## 4.2 Asset Acquisition Strategies

The City's pursuit of active transportation assets is driven by growth, primarily guided by the Official Plan and Transportation Master Plan. Additionally, the City considers other guiding documents, including the Cycling Master Plan, Corporate Strategic Plan, Energy Conservation & Demand Management Plan, Community GHG Reduction Plan, Strategic Asset Management Policy, and the Active Transportation Plan which is currently under development.

## 4.3 Asset Operations and Maintenance Strategies

Effective O&M of assets is crucial for sustainable performance and longevity. Managing O&M costs involves developing comprehensive strategies that optimize resource utilization while ensuring asset reliability. Proactive maintenance schedules and condition monitoring can help identify potential issues before they escalate, reducing unplanned downtime and minimizing repair costs. Implementing energy-efficient technologies and best practices in active transportation AM also contribute to cost-effectiveness over the asset's lifecycle. **Table 4-1** summarizes the O&M activities associated with the City's active transportation assets.

**Table 4-1: O&M Activities for Active Transportation Assets**

Asset Group	Asset Category	Activities Undertaken by the City	Notes
Active Transportation	Pedestrian Route Network	<ul style="list-style-type: none"> <li>Inspect and repair.</li> <li>Snow removal.</li> <li>Inspect the condition of the frame/railing for the waterfront walkway section.</li> <li>Inspect or replace wood planks on the boardwalk on a complaint basis.</li> <li>Assess the structural framework and integrity with external engineering consultants.</li> <li>Replace a certain number of boards annually.</li> </ul>	<ul style="list-style-type: none"> <li>It is the City's responsibility to perform snow removal on 1/3 to 1/2 of the overall network. However, snow removal is not mandated by Ontario's Minimum Maintenance Standards (MMS), and there are no clear definitions for these requirements. Despite this, the City does not want to transfer this responsibility to the residents, considering the demographic, which primarily consists of an aging population.</li> <li>The City has initiated the benchmarking of snow removal O&amp;M, sending surveys to participants to learn about the methodologies employed for snow clearing in the network.</li> <li>The City's sidewalks O&amp;M cost includes concrete maintenance and summer/winter maintenance programs.</li> </ul>
	Bicycle Route Network	<ul style="list-style-type: none"> <li>Inspect and repair.</li> <li>Snow removal.</li> <li>Street sweeping and cleaning.</li> </ul>	<ul style="list-style-type: none"> <li>The on-street bike lane network is currently closed seasonally, but cycling residents desire it to be open year-round.</li> </ul>
	Multi-Use Path Network	<ul style="list-style-type: none"> <li>Inspect and repair.</li> <li>Snow removal.</li> </ul>	NA

## 4.4 Renewal and Replacement Strategies

Renewal often involves upgrading or refurbishing existing assets to extend their lifespan, while replacement entails acquiring new assets. The costs associated with these activities include not only the direct expenses of acquisition but also indirect costs such as downtime during the transition, training for new technologies, and potential disposal or recycling costs. **Table 4-2** summarizes the renewal and replacement activities associated with the City's active transportation assets.

**Table 4-2: O&M Activities for Active Transportation Assets**

Asset Group	Asset Category	Activities Undertaken by the City	Notes
Active Transportation	Pedestrian Route Network	<ul style="list-style-type: none"> <li>Resurface.</li> <li>Replace at end of life.</li> <li>Re-deck the boardwalk.</li> <li>Replace the frame/railing for the waterfront walkway section as needed.</li> </ul>	<ul style="list-style-type: none"> <li>3% of sidewalk network (by length) is replaced annually.</li> <li>Some sidewalks are replaced in conjunction with road reconstruction, and the associated costs are covered under roadway projects. Sidewalk evaluation is included as a smaller component of the roadway resurfacing program.</li> </ul>

Asset Group	Asset Category	Activities Undertaken by the City	Notes
	Bicycle Route Network	<ul style="list-style-type: none"> <li>Resurface.</li> <li>Replace at end of life.</li> </ul>	<ul style="list-style-type: none"> <li>The City allocates approximately \$180,000 for replacement costs on a 5-year cycle.</li> <li>Bike lane condition assessments and inspections are conducted by road crews.</li> <li>Considerations of separated bike lanes may create additional efforts for snow removal and other maintenance activities</li> </ul>
	Multi-Use Path Network	<ul style="list-style-type: none"> <li>Resurface.</li> <li>Replace at end of life.</li> </ul>	<ul style="list-style-type: none"> <li>The City's maintenance expenditure for multi-use path network is approximately \$50,000, while asphalt works are not included in this budget.</li> <li>While tree roots may cause issues necessitating replacement, the City's budget is inadequate to address such concerns.</li> </ul>

## 4.5 Decommissioning and Disposal Strategies

Effective asset decommissioning and disposal are integral components of strategic AM. As the City's active transportation assets approach the end of their lifecycle or become obsolete, a systematic methodology to their removal and decommissioning is essential. This process involves careful planning, environmental considerations, and adherence to the City's regulatory requirements. **Table 4-3** summarizes the decommissioning and disposal activities associated with the City's active transportation assets.

**Table 4-3: Decommissioning and Disposal Activities for Active Transportation Assets**

Asset Group	Activities Undertaken by the City
Active Transportation	<ul style="list-style-type: none"> <li>Sidewalk panels are separated and disposed of in an unofficial concrete dump.</li> <li>The City has an asphalt recycler to store asphalt material.</li> <li>The City has a budget for crushing the concrete and reuse in applicable projects, amounting to approximately \$80,000 in reserve.</li> </ul>

## 4.6 Risk Associated with Lifecycle Activities

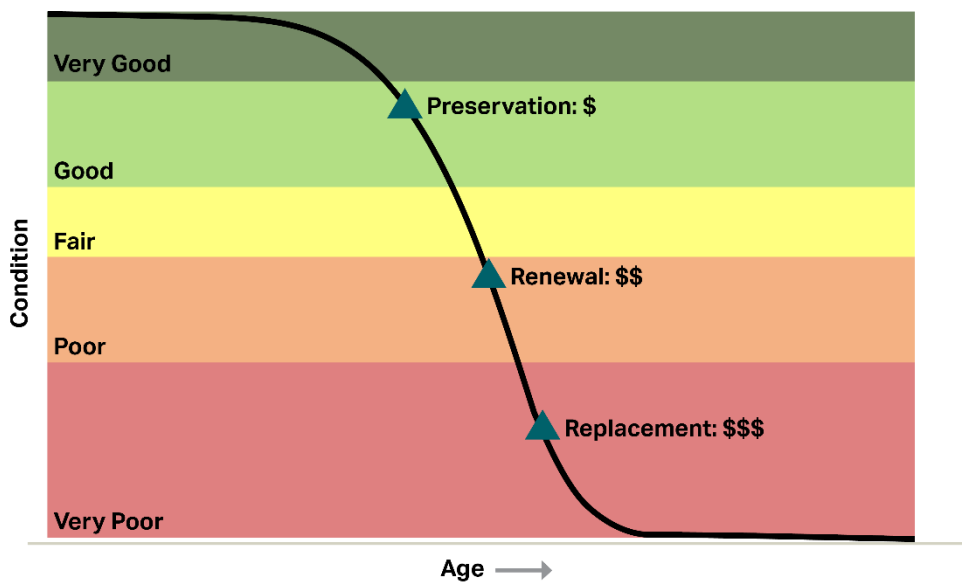
In the context of AM, risk is defined as the consequence or impact of uncertainties on AM objectives. These uncertainties span a spectrum of events, including financial market fluctuations, unexpected asset failures, changes in regulatory environments, and other factors capable of influencing the performance or condition of assets. Risk management, developed to handle uncertainties in a systematic and timely manner, is a practical framework that ensures thoughtful decision-making and protects the achievement of goals. The risk management process generally follows a series of steps, as outlined in **Table 4-4**.

**Table 4-4: Key Steps in the Risk Management Process**

Step	Description
1. Establish the context	<ul style="list-style-type: none"> <li>Define the scope of the risk management process and the objectives that the City seeks to achieve through effective risk management.</li> <li>Consider the City's internal and external factors and understand stakeholder expectations.</li> </ul>
2. Risk identification	<ul style="list-style-type: none"> <li>Identify potential risks that could impact the City's AM objectives.</li> </ul>
3. Risk analysis	<ul style="list-style-type: none"> <li>Utilize qualitative or quantitative analysis methods to assess risks.</li> </ul>
4. Risk evaluation	<ul style="list-style-type: none"> <li>Evaluate the likelihood and impact of identified risks.</li> <li>Prioritize risks based on their criticality.</li> </ul>
5. Risk treatment	<ul style="list-style-type: none"> <li>Develop strategies to reduce the likelihood and impact of identified risks.</li> <li>Implement preventive measures to address potential issues proactively.</li> </ul>

Step	Description
	<ul style="list-style-type: none"> <li>Establish contingency plans for managing risks that cannot be eliminated.</li> </ul>
6. Monitor and review	<ul style="list-style-type: none"> <li>Regularly update risk assessments to reflect evolving circumstances.</li> <li>Develop KPIs and monitoring tools to track the effectiveness of risk treatment strategies.</li> <li>Learn from the City's past experiences and continuously improve risk management strategies.</li> </ul>

Over the course of an asset's service life, the accelerating rate of deterioration with age poses inherent risks, inevitably leading to a corresponding increase in maintenance costs. **Figure 4-2** illustrates a general asset deterioration curve. This trend becomes particularly pronounced in the final phase of the asset's service life, where the cost of maintenance experiences a rapid escalation, highlighting the financial risks associated with prolonged neglect. This phenomenon underscores the critical importance of preventive maintenance in the early stages of an asset's service life. By addressing risks proactively during these initial periods, the potential financial burden tied to accelerated deterioration in later stages can be effectively mitigated.



**Figure 4-2: Asset Deterioration Curve and Renewal Costs**

Beyond the general guidance, the City's approach to risk management should be tailored to their overarching goals, financial resources, and willingness to tolerate uncertainties. Key considerations include:

### 1. Safety

The City faces challenges in managing active transportation assets, especially concerning slip, trip, and fall incidents among residents, which could potentially result in insurance claims. The exposure to such risk is heightened due to the dynamic nature of outdoor pathways and public spaces. Uneven surfaces, weather-related hazards, and varying traffic conditions all contribute to difficulties in mitigating pedestrian safety incidents. To minimize this risk, the City should prioritize regular maintenance, promptly address potential tripping hazards, and implement preventive measures such as anti-slip surfaces.

### 2. Accessibility in Active Transportation Infrastructure

As the demand for active transportation options increases, the City faces a growing need to ensure that their active transportation infrastructure caters to diverse accessibility requirements, accommodating the evolving demand of pedestrians, cyclists, and other users. However, the City's existing infrastructure may present challenges due to aging facilities and outdated amenities, potentially hindering accessibility for active transportation users. To address these challenges effectively, the City should implement innovative solutions and revise strategies to enhance accessibility and promote the use of active transportation methods.

## 5. Funding Need Analysis

Financial forecasting and capital planning are a critical element of ensuring the efficient and sustainable management of infrastructure. This involves estimating future financial needs and developing a strategic plan to secure the necessary funding for maintenance, renewal, or expansion of assets. By accurately forecasting financial requirements and implementing a well-structured capital plan, the City can not only ensure the long-term viability of their infrastructure systems but also effectively manage costs, reduce environmental risks, and protect public health.

The financial projections presented in the subsequent sections provide visualizations of the results from the financial model. The subsequent sections are structured as follows:

**Section 5.1** shows the assumptions adopted in the financial model to determine the reinvestment or replacement decisions for each sub-category of active transportation.

**Section 5.2** assesses the annual funding requirements for the next 20 years (2024-2043). Additionally, a smoothed allocation of annual funding is provided to align with the City’s budgeting requirements.

**Section 5.3** presents the full funding needed over the next 10 years (2024-2033). The full funding expenditure profile includes the budget required for capital, O&M, and disposal.

### 5.1 Reinvestment Forecast and Lifecycle Modeling

The lifecycle analysis was conducted using an MS Excel Asset Lifecycle Model that integrated asset inventory, age, ESLs, replacement values, and condition to establish a theoretical replacement cycle for each active transportation asset. The reinvestment forecasts prepared for this assessment provide estimates of the costs required over the next 20 years to sustain each of the City’s active transportation assets. A financial dashboard was developed to present the results of the lifecycle modeling (**Appendix A**).

The annual reinvestment needs for the active transportation assets were determined based on their age and ESL in years (i.e., replacing assets that have exceeded their ESL) in inflated dollar values, incorporating the following assumptions:

- Base year: The base year used is 2024. Any historic asset valuations have been inflated using the experienced inflation rate.
- Inflation rate: the inflation rates adopted for the financial model are presented in **Table 5-1**.

**Table 5-1: Inflation Rate over 20 Years** <sup>5</sup>

Year	Inflation Rate
2024	7%
2025	6%
2026	5%
2027	4%
2028	4%
2029	3%
2030 - 2043	3%

- Markup: The project management and engineering, and contingency mark ups are 15% and 30% respectively.

<sup>5</sup> AECOM Analysis, “Rising Inflation”, June 2022, Retrieved in October 2022

- Disposal Rate: 1% of the annual reinvestment is used as an allocation for disposal costs.

When the installation date is unavailable for assets, which is the case for the majority of the assets categorized under pedestrian route network, an annual reinvestment rate is applied to estimate the need for asset replacement. Detailed reinvestment assumptions for assets with missing installation dates or asset categories requiring a specific renewal approach are provided in [Table 5-2](#).

**Table 5-2: Active Transportation Asset Capital Reinvestment Assumptions**

Asset Categories	Annual Reinvestment Rate (2024-2033)	Reinvestment Strategy	Annual Average Reinvestment Cost (2024-2033)*
Pedestrian Route Network	2%	Replace assets for a life cycle of 50 years	\$ 50,180 – \$2,468,000
Bondar Marina Promenade	2%	Replace for a life cycle of 30 years, starting 10 years after installation (2022)	\$ 8,440
Hub Trail Signage	The Council has already approved \$150,000 for replacing hub trail signage; therefore, this capital reinvestment is not included in the funding need analysis.		

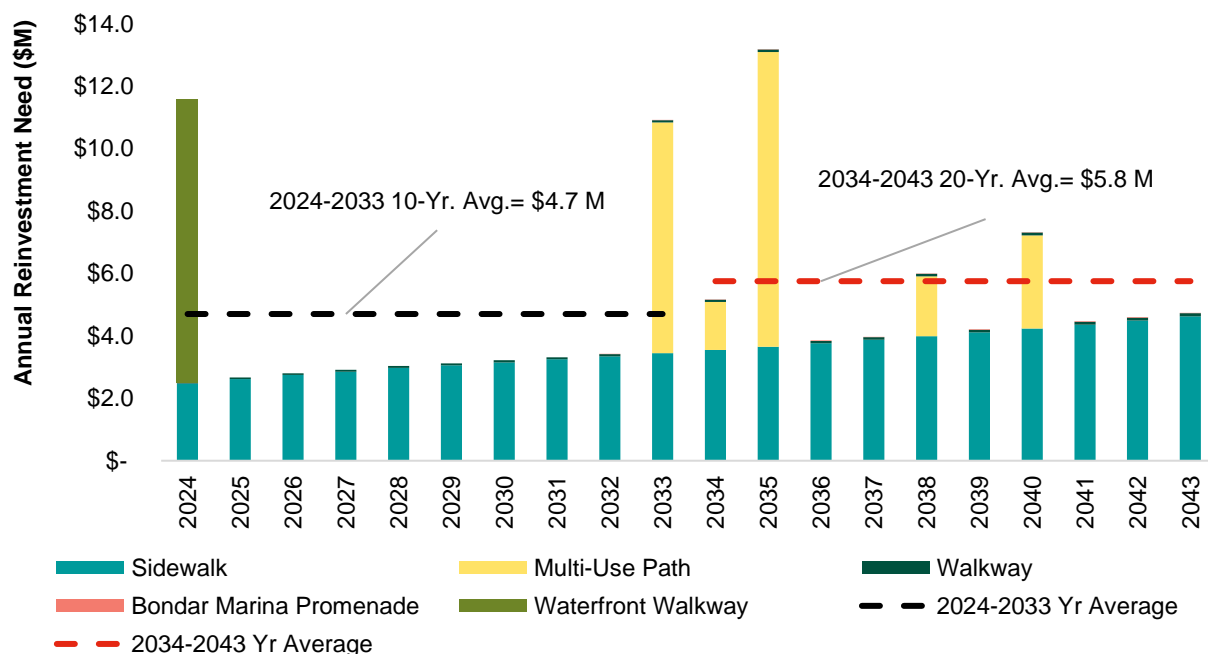
\* Note: The annual average reinvestment cost is presented in non inflated dollar value.

## 5.2 Capital Reinvestment Need Analysis

### 5.2.1 20-Year Reinvestment Need Analysis

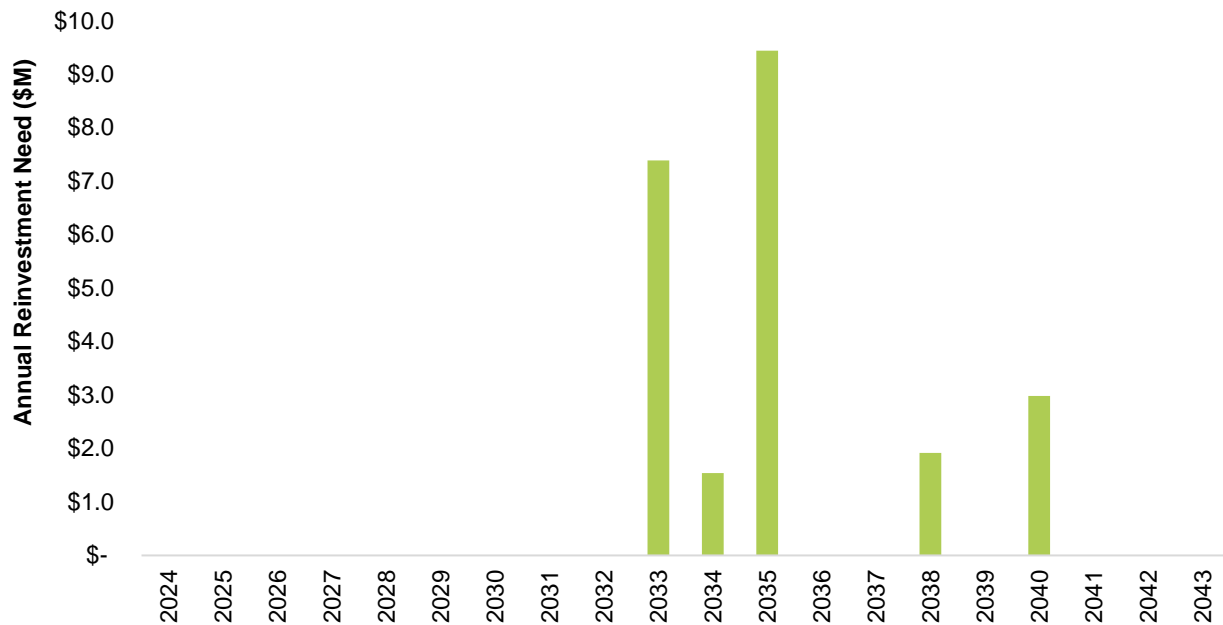
The City's active transportation assets require an average annual reinvestment of \$4.7 million over the period 2024-2033 and \$5.8 million over 2034-2043 in inflated dollar values, as presented in

**Figure 5-1.** This is equivalent to a total of approximately \$105 million over the next 20-year period. Notably, the reinvestment funding needs for sidewalks comprise the largest portion in most years, with a few exceptions, such as 2024, 2033, and 2035. In 2024, the waterfront walkway requires a reinvestment need of approximately \$9 million, mainly because the steel framing of the waterfront deck platform has exceeded its ESL and necessitates replacement. Additionally, the multi-use paths play a significant role in the reinvestment needs in 2033 and 2035.



**Figure 5-1: Active Transportation 20-Year Reinvestment Need**

**Figure 5-2** provides a detailed illustration of the reinvestment requirements for the multi-use paths by year. It is evident that, with an ESL of 25 years, a large portion of the multi-use paths will reach the end of life in 2033 and 2035, calling for replacement and thus contributing to the spikes.



**Figure 5-2: Multi-Use Path Reinvestments by Year**

The detailed 20-year reinvestment needs for active transportation assets are presented in **Table 5-3** in inflated dollar values.

**Table 5-3: Active Transportation Assets 20-Year Total and Annual Average Reinvestment Need**

Asset Sub-Category	Annual Average Need	20-Year Total
Sidewalk	\$3,529,000	\$70,581,000
Walkway	\$72,000	\$1,435,000
Waterfront Walkway	\$454,000	\$9,076,000
Bondar Marina Promenade	\$8,000	\$162,000
Multi-Use Path	\$1,164,000	\$23,274,000
<b>Total</b>	<b>\$5,226,000</b>	<b>\$104,529,000</b>

To better align with the City’s budgeting requirements, the annual capital reinvestment needs for the City’s active transportation assets have been evenly distributed over the next 20 years, as illustrated in **Figure 5-3**. This smoothing of reinvestment requirements aims to facilitate the City’s budgeting processes by providing a more predictable and uniform financial outlook. Rather than experiencing significant fluctuations in capital expenditure from year to year, this approach allows for a more consistent and manageable financial planning for the City throughout the period of 2024-2043.



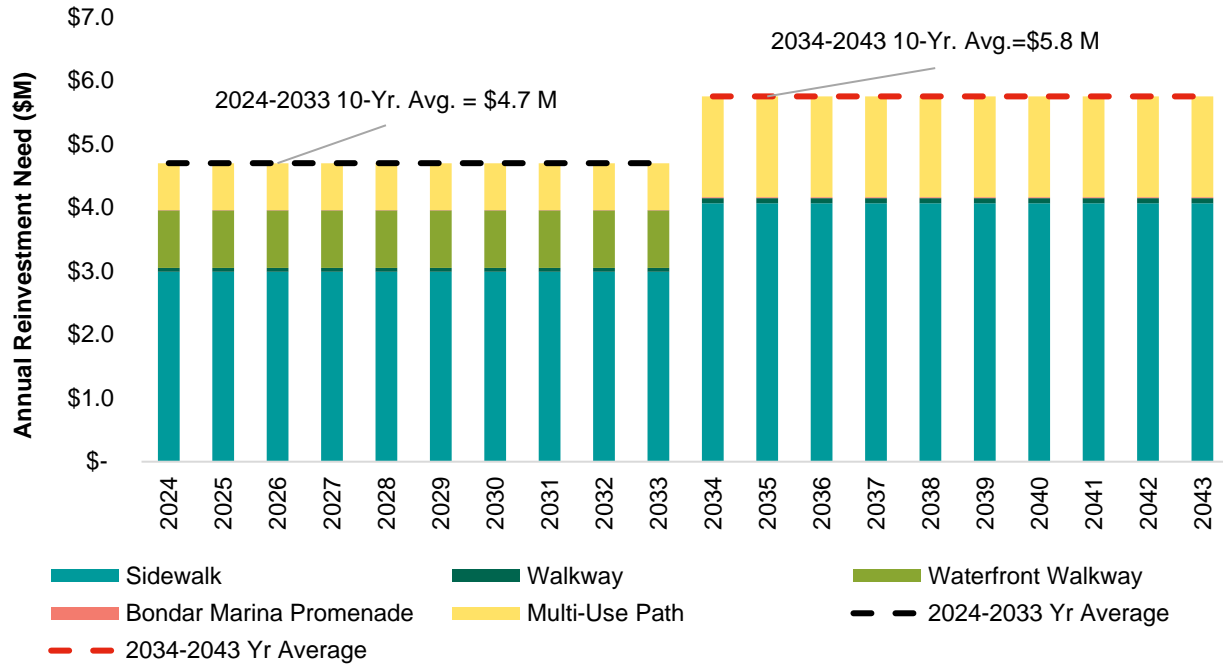


Figure 5-3: Active Transportation Assets 20-Year Smoothed Annual Reinvestment Needs

### 5.3 Full Funding Need Profile

Figure 5-4 shows a full picture of the City’s active transportation asset funding forecast for the next 10 years. This graph provides the City with a comprehensive understanding of the full funding requirements, essential for effective financial planning activities. The smoothed annual reinvestment cost (Figure 5-3) was combined with the City’s projected O&M cost (approximately \$1.6 million annually for sidewalks). Additionally, one percent of the annual replacement cost was added to account for the asset disposal cost. With these additions, the City’s active transportation asset full funding requirement increases to approximately \$64 million over the next 10 years, averaging \$6.4 million per year in inflated dollar value.

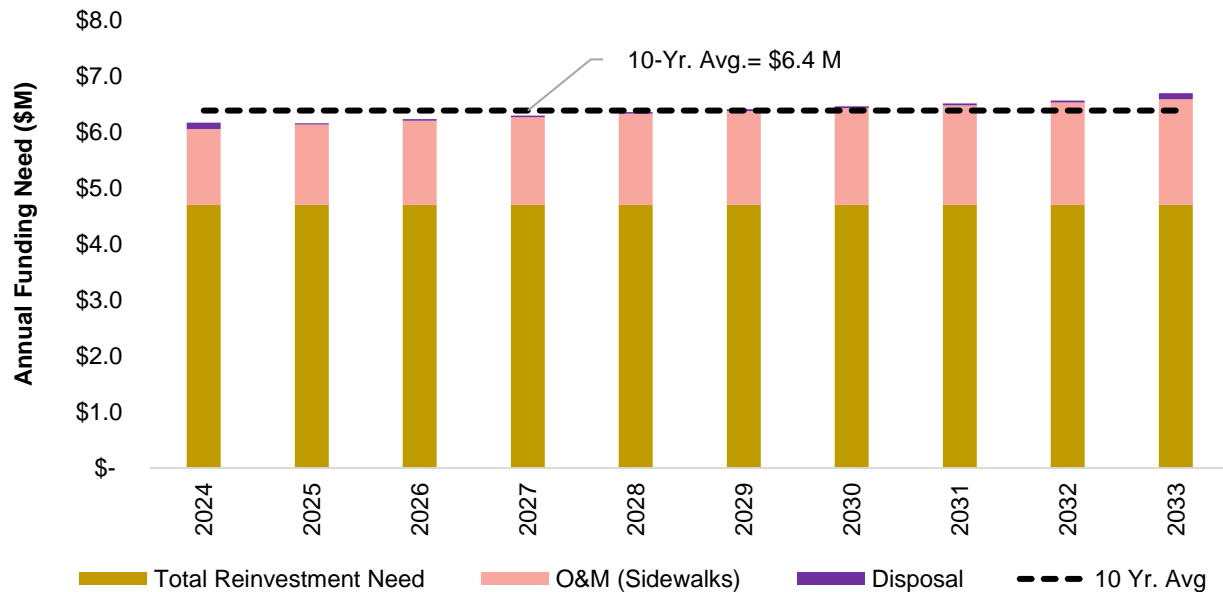


Figure 5-4: Active Transportation Asset Full Funding Need Profile

## 5.4 Funding Strategies

The City relies primarily on the property tax levy to fund their active transportation assets. Additionally, they receive funding from sources such as the Canada Community-Building Fund (CCBF), the Ontario Community Infrastructure Funding (OCIF), and the Ontario Municipal Commuter Cycling Program (OMCC). These diverse funding streams enable the City to allocate investments that exceed the capacity achievable through tax levies alone.

Moreover, AECOM suggests exploring the following options, acknowledging that the City's eligibility for these funds is subject to certain criteria:

- Investing in Canada Infrastructure Program
- Municipal Asset Management Program (MAMP)
- Enabling Accessibility Fund (EAF)
- Northern Ontario Heritage Fund Corporation (NOHFC)
- Active Transportation Fund

### 5.4.1 Investing in Canada Infrastructure Program

Administered by the Government of Canada, the Investing in Canada Infrastructure Program delivers long-term and stable funding to communities with the aim of addressing environmental challenges, fostering clean growth, and enhancing resilience to climate change. Through bilateral agreements, over \$33 billion in funding is allocated to provinces and territories, supporting a diverse range of infrastructure projects nationwide<sup>6</sup>.

The program encompasses investments across four targeted funding streams: the public transit stream, the green infrastructure stream, the community, culture, and recreation infrastructure stream, and the rural and northern communities' infrastructure stream. The public transit stream allocates funds for the construction, expansion, and enhancement of public transit infrastructure. The focus of these investments is on projects that aim to increase the capacity of public transit systems, enhance the quality and safety of existing or future transit infrastructure, and improve overall access to public transit systems. In pursuit of funding through this stream, the City has actively submitted proposals for the following projects<sup>7</sup>:

- Electrification of Transit System
- Transit Facility and Equipment Upgrades
- Purchase of Rolling Stock Assets
- Relocation of the Downtown Transit Terminal Construction and Renovation
- Transit Facility and Equipment Upgrades
- Purchase of Transit Ticket Vending Machines
- Purchase and Installation of Transit Bus Shelter

### 5.4.2 Municipal Asset Management Program (MAMP)

The MAMP is aimed at improving AM practices within municipalities<sup>8</sup>. Designed to assist municipalities in gaining a better understanding, planning, and efficient and sustainable management of their infrastructure assets, the program may offer funding to support the development or improvement of AM plans. This financial support is intended to incentivize municipalities to adopt and implement sustainable AM practices.

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<sup>6</sup> Investing in Canada Infrastructure Program. (2023). Infrastructure Canada. [Infrastructure Canada - Investing in Canada Infrastructure Program](#). Retrieved on February 14<sup>th</sup>, 2024.

<sup>7</sup> Investing in Canada Infrastructure Program: Projects Under Review. (2022). Infrastructure Canada. [Infrastructure Canada - Investing in Canada Infrastructure Program: Projects Under Review](#). Retrieved on February 14<sup>th</sup>, 2024.

<sup>8</sup> Municipal Asset Management Program. (n.d.). Federation of Canadian Municipalities. [Municipal Asset Management Program | FCM](#). Retrieved on February 14<sup>th</sup>, 2024.

### 5.4.3 Enabling Accessibility Fund (EAF)

The EAF is a Federal government program aimed at supporting projects that enhance accessibility for individuals with disabilities<sup>9</sup>. The fund provides financial assistance to eligible organizations for initiatives such as infrastructure improvements, renovations, and retrofitting to create more accessible spaces. Its goal is to contribute to a barrier-free and inclusive society by addressing physical barriers and promoting equal access in community spaces.

### 5.4.4 Northern Ontario Heritage Fund Corporation (NOHFC)

The NOHFC is an organization that provides financial support and promotes economic development in the northern regions of Ontario. Established to stimulate growth and sustainability, NOHFC offers funding for various projects, such as business expansion, job creation, infrastructure development, and community initiatives. Within the NOHFC, the Community Enhancement Program is an initiative aimed at supporting community-driven projects<sup>10</sup>. This program provides financial assistance for local initiatives that enhance community infrastructure, amenities, and services. Eligible projects may include the development or improvement of recreational facilities, community spaces, and essential services.

### 5.4.5 Active Transportation Fund

The Active Transportation Fund, introduced as part of a \$5.9 billion funding initiative for public transit and active transportation, aims to invest \$400 million over five years (beginning 2021-22) to enhance and expand active transportation networks across diverse communities<sup>11</sup>. Aligned with Canada's National Active Transportation Strategy, this fund seeks opportunities to increase the quantity, utilization, and quality of active transportation infrastructure nationwide. Eligible projects under this fund are divided into two streams: planning projects and capital projects. Planning projects, with a maximum payout of \$50,000, involve the development or enhancement of formal active transportation strategic planning documents and stakeholder engagement. Capital projects, on the other hand, involve new infrastructure construction, enhancement of existing infrastructure, and the incorporation of fixed design and safety features that encourage increased active transportation. It is worth noting that the application for this fund is currently closed, and the results will be communicated in writing by Infrastructure Canada.

### 5.4.6 Trail Funding Program

The Trail Funding program is intended to assist Trail operators across Canada in the development and enhancement of the Trans Canada Trail<sup>12</sup>. The program includes a range of funding streams to support specific trail priorities including trail infrastructure and major repairs, trail signage, and accessibility and inclusion in trails.

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<sup>9</sup> About Enabling Accessibility Fund. (2023). Government of Canada. [Enabling Accessibility Fund - Canada.ca](https://www.canada.ca/en/gov/department-of-infrastructure/active-transportation/active-transportation-fund). Retrieved on February 14<sup>th</sup>, 2024.

<sup>10</sup> Community Enhancement Program. (2024). Northern Ontario Heritage Fund Corporation. [Community Enhancement Program | NOHFC](https://www.nohfc.ca/en/community-enhancement-program). Retrieved on February 14<sup>th</sup>, 2024.

<sup>11</sup> Active Transportation Fund. (2023). Infrastructure Canada. [Infrastructure Canada - Active Transportation Fund](https://www.infrastructure.gc.ca/active-transportation-fund). Retrieved on February 14<sup>th</sup>, 2024.

<sup>12</sup> Trail Funding Program: Program Framework. Trans Canada Trail. [Trans Canada Trail | Trail Funding Program: Program Framework \(tctrail.ca\)](https://www.tctrail.ca/en/trail-funding-program). Retrieved on March 15<sup>th</sup>, 2024.

## 6. Implementation Plan and Continuous Improvement

Continuous improvement is an important component of any AM program and is achieved through the implementation of recommended improvement initiatives which support sustainable service delivery. AECOM has identified a set of activities that represents the next stage of AM planning and implementation within the City, as shown in **Table 6-1**.

**Table 6-1: Recommended AM Improvement Initiatives**

Index	Improvement Initiative	Description
1.	Refine the asset hierarchy and inventory.	<ul style="list-style-type: none"> <li>Continue to refine the asset inventory and close existing data gap.</li> <li>As mentioned in <b>Section 2.1</b>, incorporate the steel sheet pilings supporting the waterfront walkway into the Stormwater AMP in the next iteration.</li> </ul>
2.	Use consistent condition grading schemes and develop a condition assessment process for all active transportation assets.	<ul style="list-style-type: none"> <li>Perform condition assessments on the most critical assets first. This ensures that assets are assessed using the same methodology and prioritized based on their criticality. It facilitates a more defensible business case when addressing issues of asset degradation with senior management and the Council.</li> <li>For assets without condition data, it is recommended that the City establish a mechanism to collect the installation dates.                             <ul style="list-style-type: none"> <li>Currently, only 5% of the City's active transportation assets have installation dates.</li> </ul> </li> </ul>
3.	Refine the LoS Framework and Setting LoS Targets.	<ul style="list-style-type: none"> <li>Analyze asset performance data to identify trends and establish annual performance benchmarks.</li> <li>Engage in discussions with key stakeholders to establish service level targets and identify associated costs to meet those targets.</li> <li>Once LoS targets have been decided upon, the City should develop strategies on how to meet service level targets, considering its existing operating environment (i.e., staff availability, current funding, resources, etc.).</li> <li>Develop a Customer Consultation Plan to engage the public and other stakeholders on the LoS framework and better understand customers' willingness to pay for enhanced service levels.</li> </ul>
4.	Incorporate risk assessment for future iterations of the AM plan, and use the risk assessment results to drive future condition assessments and financial needs forecasting	<ul style="list-style-type: none"> <li>Conduct a comprehensive criticality and risk assessment of assets to inform work prioritization.</li> <li>Review risk attribute values periodically to ensure alignment with business objectives and risk appetite.</li> <li>Overlay the risk model with the current state of the assets (i.e., condition) and the financial forecast. Using this approach, the City could focus its monitoring, maintenance, and renewal and replacement budget and activities on high-risk assets. Medium-risk infrastructure could be addressed through the mitigation of failure via regular monitoring, while the failure of low-risk assets could be accepted with caution.</li> </ul>
5.	Funding Need	<ul style="list-style-type: none"> <li>The financial model is based on several assumptions previously outlined in <b>Section 5</b>. It is recommended the City review financial modeling assumptions on reinvestment rate and replacement values and update the financial model with new information as it becomes available.</li> <li>As outlined in</li> <li><b>Figure 5-2</b>, it is recommended that the City allocate an average of \$4.7 million per year over the next 10 years for capital reinvestment in active transportation assets. Additionally, a total of \$1.6 million should be budgeted for O&amp;M expenditures during the same period.</li> </ul>
6.	Continue to find ways to improve AM initiatives across the City by maintaining a high level of AM awareness through training, communication, and knowledge sharing.	<ul style="list-style-type: none"> <li>Conduct an AM Software Assessment to identify future system requirements, which may involve enhancing existing software, adding new features, or replacing the current system.</li> <li>Develop a Knowledge Retention Strategy and Internal Communications Plan to document staff AM knowledge and experience for reporting and succession planning purposes. Communicate AM improvement initiatives and enhance AM awareness internally through internal communication.</li> </ul>

# Appendix A – Active Transportation MS Excel Lifecycle Model and Inventory

