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City of Sault Ste. Marie Facility Asset Management Plan

June 2024

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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 25th, 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, facilities (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 1st, 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 facilities 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 1st, 2024 deadline.

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

| <p>Description: 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> | |
|---|--|
| Deadline Date | Regulatory Requirement |
| July 1 st , 2019 | All municipalities are required to prepare their first Strategic AM Policy. |
| July 1 st , 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 st , 2024 | All municipalities are required to have an AM Plan for infrastructure assets not included under their core assets. |
| July 1 st , 2025 | All AM Plans must include information about the level of service that the municipality proposes to provide, the activities required to meet those level of service, and a strategy to fund activities. |

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 (**Sections 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.

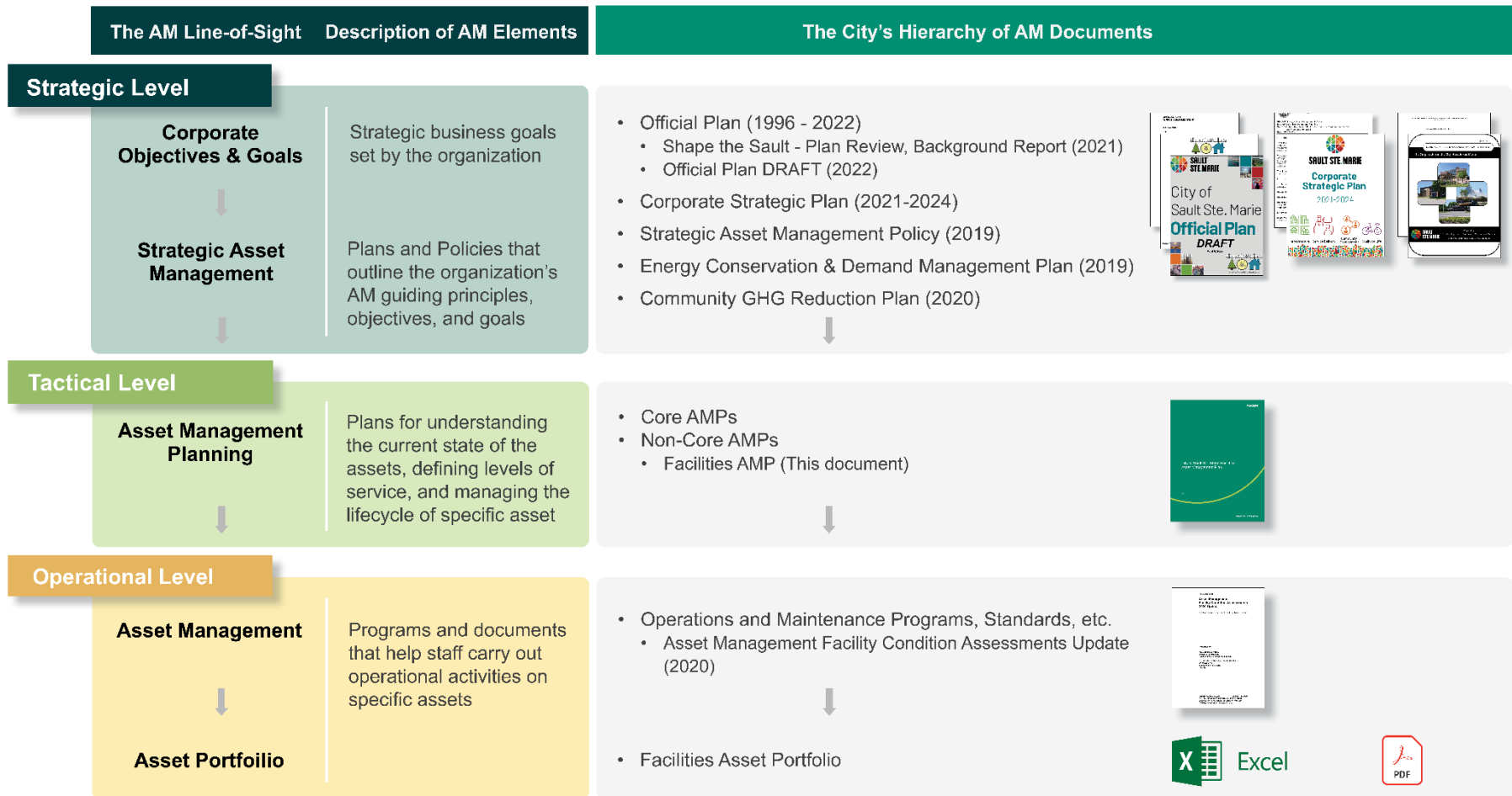


Figure 1-1: The City's AM Line of Sight

2. State of Infrastructure

Facilities in the City encompass a diverse range of buildings crucial to the functionality and vibrance of the City's communities. The City's facilities include cemetery, marinas, community centers, fire, library, police, public works, transit, and IT assets.

For this project, AECOM leveraged the data from the "Asset Management Facility Condition Assessments 2020 Update", a comprehensive catalog that details the quantity, condition, and specifications of all relevant facilities within the City. By analyzing the inventory and addressing data gaps, this section enables informed decision-making and strategic resource allocation, offering 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 facilities. 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 facilities is illustrated, showcasing two main categories: Facility and IT. Each category is further broken down into subcategories. This asset hierarchy establishes a logical indexing of the City's facilities, 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.

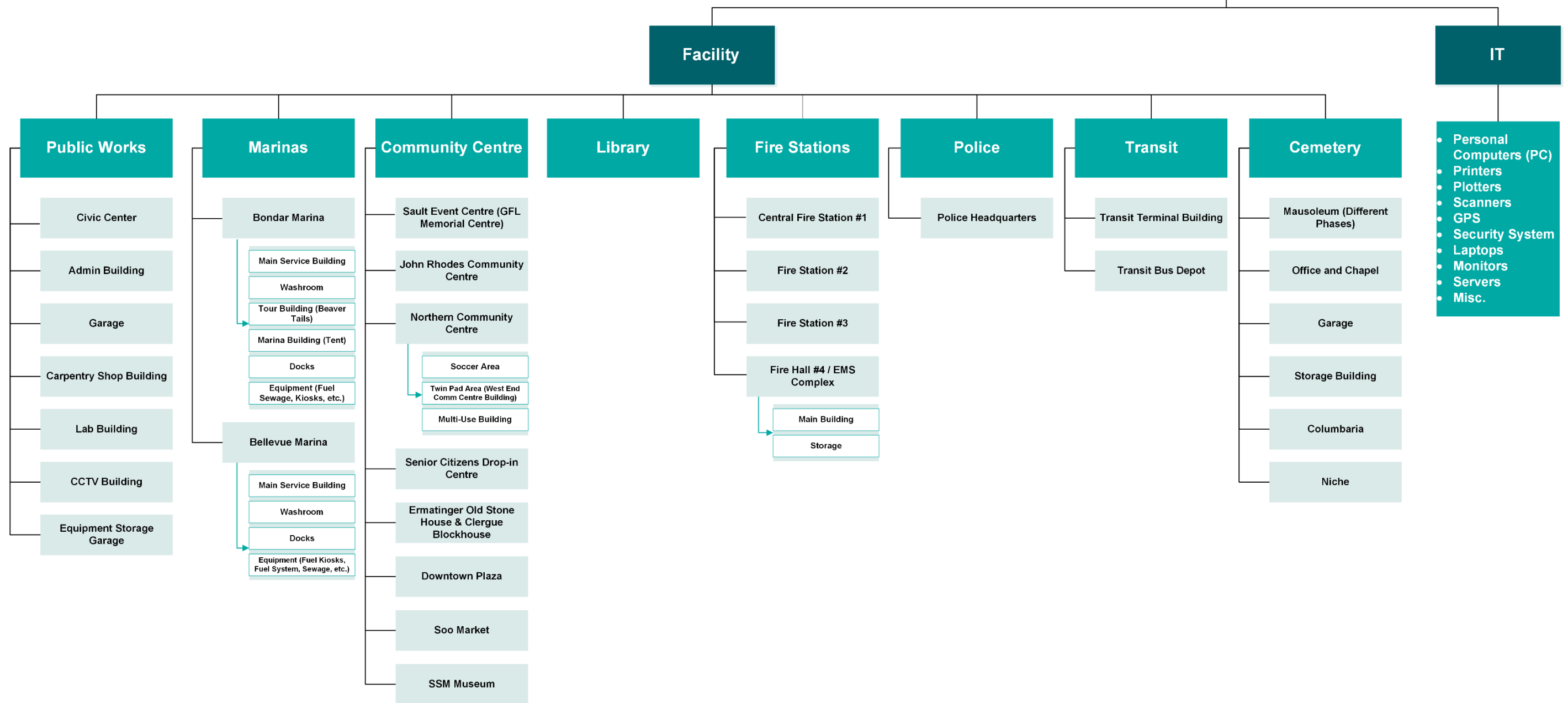


Figure 2-1: City of Sault Ste. Marie Facility Asset Hierarchy

2.2 Current State of the Assets

2.2.1 Asset Inventory

Table 2-1 presents the summary of the City's facility inventory. City's facility inventory includes a diverse range of facilities and IT assets, which have been categorized as Cemetery, Community Center, Fire, IT, Library, Park (Marina), Police, Public Works, and Transit.

Table 2-1: Facility Inventory Summary

| Asset Class | Facility | Facility Name | Asset Category | Quantity | Unit |
|-------------|------------------|---|----------------|---------------|--------|
| Facility | Cemetery | Greenwood Cemetery | Mausoleum | 21 structures | Ea. |
| | Cemetery | Greenwood Cemetery | Columbaria | 33 structures | Ea. |
| | Cemetery | Greenwood Cemetery | Office | 1 | Ea. |
| | Cemetery | Greenwood Cemetery | Garage | 1 | Ea. |
| | Cemetery | Greenwood Cemetery | Niche | 808 | Ea. |
| | Cemetery | Greenwood Cemetery | Storage | 1 | Ea. |
| | Community Center | Downtown Plaza | - | 2,314 | sq. ft |
| | Community Center | Ermatinger Old Stone House & Clergue Blockhouse | - | 7,686 | sq. ft |
| | Community Center | John Rhodes Community | - | 155,000 | sq. ft |
| | Community Center | Northern Community Centre | - | 143,114 | sq. ft |
| | Community Center | Sault Event Centre (GFL Memorial Centre) | - | 134,075 | sq. ft |
| | Community Center | Senior Citizens Drop-in | - | 14,470 | sq. ft |
| | Community Center | Soo Market | - | 7,746 | sq. ft |
| | Community Center | SSM Museum | - | 17,672 | sq. ft |
| | Fire | Central Fire Station #1 | - | 18,120 | sq. ft |
| | Fire | Fire Hall #4 / EMS Complex | - | 38,460 | sq. ft |
| | Fire | Fire Station #2 | - | 4,311 | sq. ft |
| | Fire | Fire Station #3 | - | 4,311 | sq. ft |
| | IT | - | Laptops | 152 | Ea. |
| | IT | - | Misc | 268 | Ea. |
| IT | - | Monitors | 900 | Ea. | |
| IT | - | PC | 1,910 | Ea. | |
| IT | - | Plotter | 2 | Ea. | |
| IT | - | Copier | 1 | Ea. | |
| IT | - | Scanner | 3 | Ea. | |
| IT | - | GPS | 3 | Ea. | |

| Asset Class | Facility | Facility Name | Asset Category | Quantity | Unit |
|---------------|----------|------------------------------------|------------------|----------|--------|
| IT | | - | Printers | 112 | Ea. |
| IT | | - | Server Storage | 1 | Ea. |
| IT | | - | Surveying Camera | 4 | Ea. |
| IT | | - | Servers | 89 | Ea. |
| Library | | Main Branch Public Library | - | 33,525 | sq. ft |
| Park (Marina) | | Robert Bondar Park Marina | Service Building | 2 | Ea. |
| Park (Marina) | | Robert Bondar Park Marina | Structure | 1 | Ea. |
| Park (Marina) | | Robert Bondar Park Marina | Tour Building | 1 | Ea. |
| Park (Marina) | | Robert Bondar Park Marina | Tent | 1 | Ea. |
| Park (Marina) | | Robert Bondar Park Marina | Dock | 2 | Ea. |
| Park (Marina) | | Robert Bondar Park Marina | Fuel System | 2 | Ea. |
| Park (Marina) | | Robert Bondar Park Marina | Sewage | 1 | Ea. |
| Park (Marina) | | Bellevue Marina | Dock | 8 | Ea. |
| Park (Marina) | | Bellevue Marina | Fuel Kiosk | 1 | Ea. |
| Park (Marina) | | Bellevue Marina | Service Building | 1 | Ea. |
| Park (Marina) | | Bellevue Marina | Fuel System | 3 | Ea. |
| Park (Marina) | | Bellevue Marina | Equipment | 8 | Ea. |
| Park (Marina) | | Bellevue Marina | Sewage | 1 | Ea. |
| Police | | Police Headquarters | - | 42,113 | sq. ft |
| Public Works | | Carpentry Shop Building 'B' | - | 4,750 | sq. ft |
| Public Works | | CCTV Building, Public Works | - | 1,216 | sq. ft |
| Public Works | | Civic Centre | - | 93,510 | sq. ft |
| Public Works | | Equipment Storage Garage, | - | 21,804 | sq. ft |
| Public Works | | Lab Building, Public Works | - | 1,236 | sq. ft |
| Public Works | | Public Works Administration | - | 10,100 | sq. ft |
| PWs | | Public Works Garage, Building A | - | 61,100 | sq. ft |
| Transit | | Transit Bus Depot | - | 44,000 | sq. ft |
| Transit | | Transit Terminal Building | - | 2,200 | sq. ft |

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 total replacement value for facility asset categories within the City. 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.

Table 2-2: Current Replacement Value

| Asset Class | Facility Type | Facility Name | Asset Category | Total Replacement Value (2024) |
|-------------|------------------|---|----------------|--------------------------------|
| Facility | Cemetery | Greenwood Cemetery | Mausoleum | \$40,656,000 |
| | Cemetery | Greenwood Cemetery | Columbaria | \$3,263,000 |
| | Cemetery | Greenwood Cemetery | Office | \$580,000 |
| | Cemetery | Greenwood Cemetery | Garage | \$508,000 |
| | Cemetery | Greenwood Cemetery | Niche | \$1,076,000 |
| | Cemetery | Greenwood Cemetery | Storage | \$580,000 |
| | Community Center | Downtown Plaza | - | \$11,000,000 |
| | Community Center | Ermatinger Old Stone House & Clergue Blockhouse | - | \$25,000,000 |
| | Community Center | John Rhodes Community Centre | - | \$60,000,000 |
| | Community Center | Northern Community Centre | - | \$60,000,000 |
| | Community Center | Sault Event Centre (GFL Memorial Centre) | - | \$41,899,000 |
| | Community Center | Senior Citizens Drop-in Centre | - | \$10,000,000 |
| | Community Center | Soo Market | - | \$3,300,000 |
| | Community Center | SSM Museum | - | \$35,000,000 |
| | Fire | Central Fire Station #1 | - | \$6,051,000 |
| | Fire | Fire Hall #4 / EMS Complex | - | \$9,652,000 |
| | Fire | Fire Station #2 | - | \$1,488,000 |
| | Fire | Fire Station #3 | - | \$1,431,000 |
| | IT | - | Laptops | \$768,000 |
| | IT | - | Miscellaneous | \$1,024,000 |
| | IT | - | Monitors | \$1,340,000 |
| | IT | - | PC | \$5,355,000 |
| | IT | - | Plotter | \$56,000 |

| Asset Class | Facility Type | Facility Name | Asset Category | Total Replacement Value (2024) |
|---------------|---------------|---|------------------|--------------------------------|
| | IT | - | Copier | \$170,000 |
| | IT | - | Scanner | \$186,000 |
| | IT | - | GPS | \$365,000 |
| | IT | - | Printers | \$1,300,000 |
| | IT | - | Server Storage | \$26,000 |
| | IT | - | Surveying Camera | \$599,000 |
| | IT | - | Servers | \$6,042,000 |
| Library | | Main Branch Public Library | - | \$12,438,000 |
| Park (Marina) | | Robert Bondar Park Marina | - | \$20,000,000 |
| Park (Marina) | | Bellevue Marina | - | \$12,962,000 |
| Police | | Police Headquarters | - | \$14,523,000 |
| PWs | | Carpentry Shop Building 'B' | - | \$2,295,000 |
| PWs | | CCTV Building, Public Works Yard | - | \$841,000 |
| PWs | | Civic Centre | - | \$60,000,000 |
| PWs | | Equipment Storage Garage, Public Works Yard | - | \$4,961,000 |
| PWs | | Lab Building, Public Works Yard | - | \$844,000 |
| PWs | | Public Works Administration Building | - | \$3,325,000 |
| PWs | | Public Works Garage, Building A | - | \$14,233,000 |
| Transit | | Transit Bus Depot | - | \$35,000,000 |
| Transit | | Transit Terminal Building | - | \$3,000,000 |
| Total | | | | \$513,137,000 |

It is noted that the replacement costs are estimated based on Class 4¹ cost estimation approach. These estimates are typically prepared with limited information, resulting in fairly 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%

¹ 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

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., roofing materials), 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.
 - Regular Maintenance: Timely inspections, repairs, and preventive maintenance extend service life.
 - Quality of Maintenance: Properly trained staff using quality materials impact longevity.
 - Deferred Maintenance: Neglecting repairs accelerates aging.
- **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 as a proportion of average ESL for IT assets. As observed, the IT assets have already exceeded their ESLs and require immediate attention. It is noted that for a few IT assets (scanner and laptops), installation year is not available. It is recommended to collect installation date information for these assets and include it in the next iteration of the AMP. **Figure 2-3** also illustrates the average age and RSL, based on the information captured from Morrison Hershfield Limited (MH) report, for facilities. MH conducted a comprehensive condition assessment for facilities in 2020, known as the “Asset Management Facility Condition Assessments 2020 Update”.

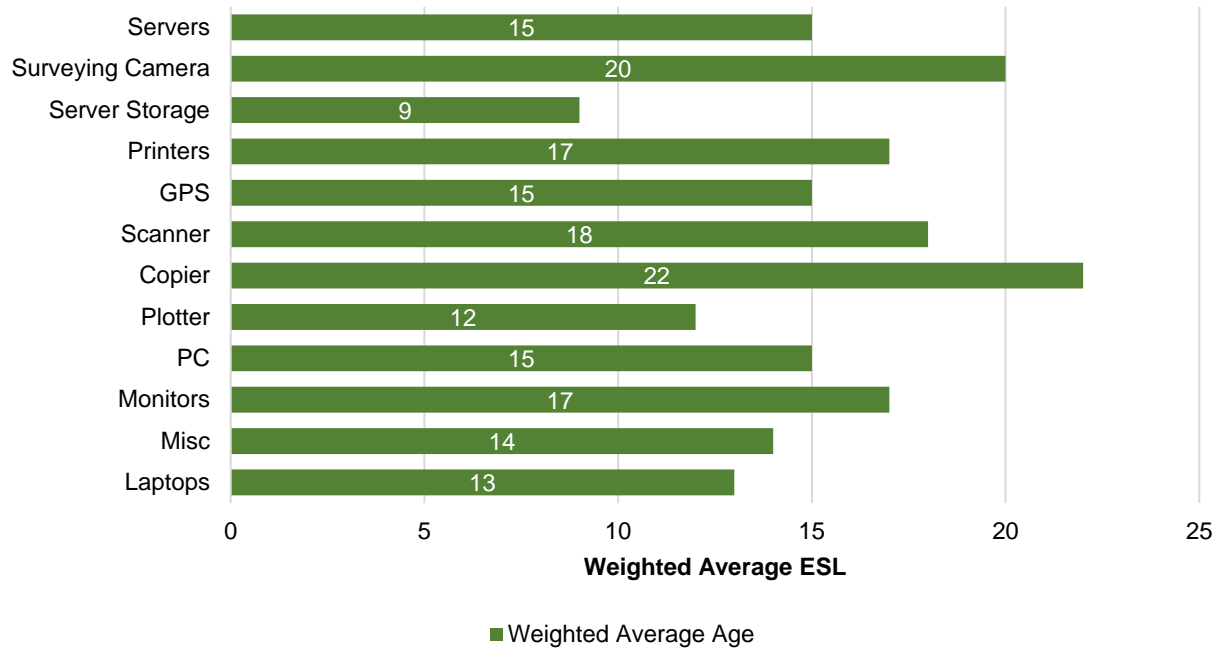


Figure 2-2: IT Assets Weighted Average Age and Remaining Service Life

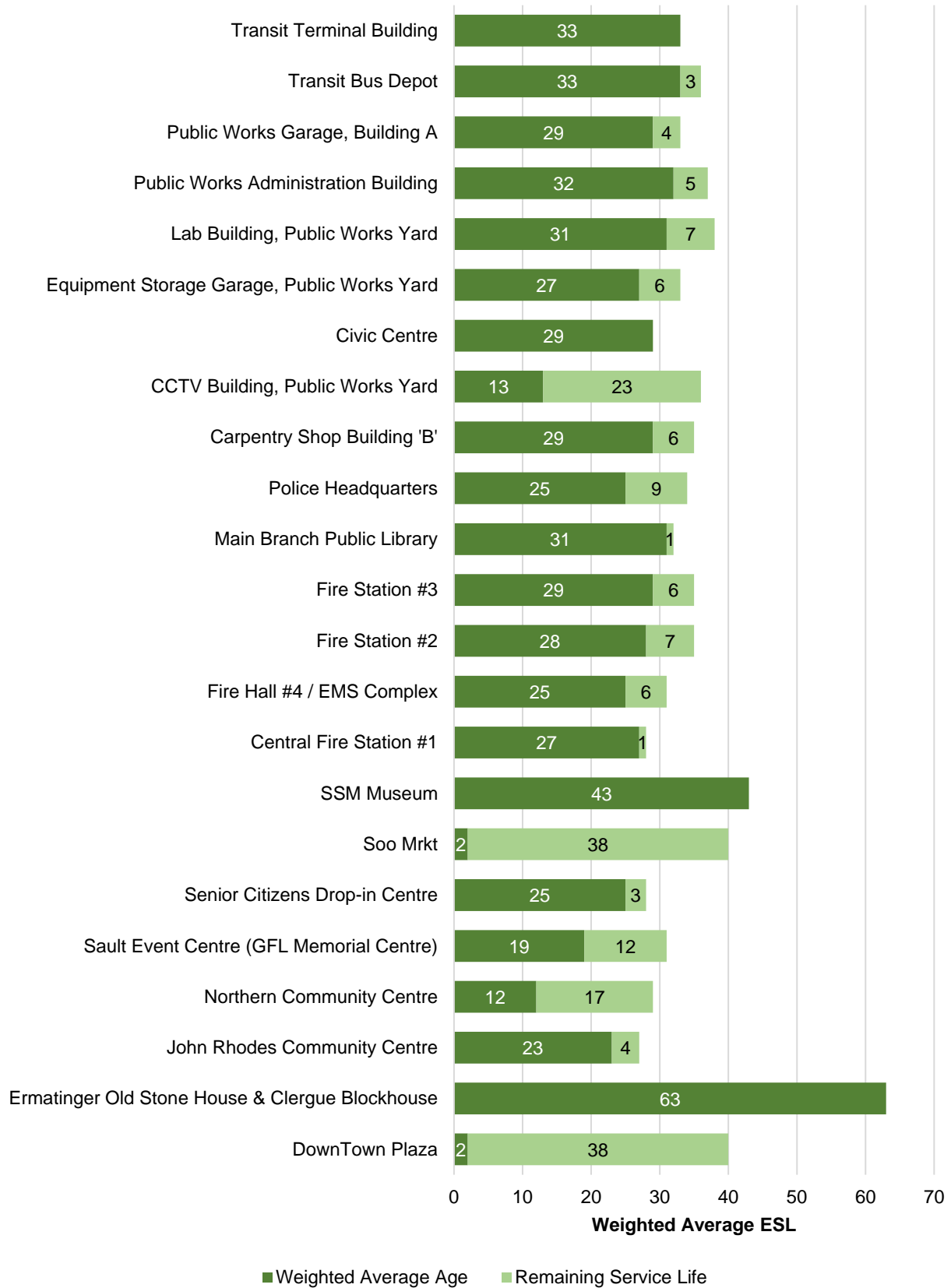


Figure 2-3: Facilities Average Age and Remaining Service Life

2.2.4 Asset Condition

As presented earlier (Figure 2-1), this AMP covers IT assets and facilities. After discussions with the City's staff, it was determined that IT assets lack a clear deterioration pattern. Consequently, IT assets have been excluded from this section. In terms of facilities, Morrison Hershfield Limited (MH)² conducted a comprehensive building condition assessment for 27 facilities in the City. AECOM utilized this information to provide a summarized overview of the condition of various facilities.

Table 2-3 and Figure 2-4 present the condition ratings of the City's facilities based on the MH report. It is worth noting that approximately 50% of the components are in very good and good condition, while only 11% fall into the poor and very poor categories. Additionally, 12% of the components did not have corresponding condition ratings. Figure 2-5 presents a further breakdown of the facilities' condition based on the Unifomat components.

Table 2-3: Facilities Condition Summary Based on the Condition Assessment Report Prepared in 2020

| Rank | Condition Rating | Count of Components | % of Replacement Value |
|--------------|------------------|---------------------|------------------------|
| 1 | Very Good | 49 | 4% |
| 2 | Good | 496 | 45% |
| 3 | Fair | 302 | 27% |
| 4 | Poor | 104 | 9% |
| 5 | Very Poor | 18 | 2% |
| 6 | Unknown | 134 | 12% |
| TOTAL | | 1,103 | 100% |

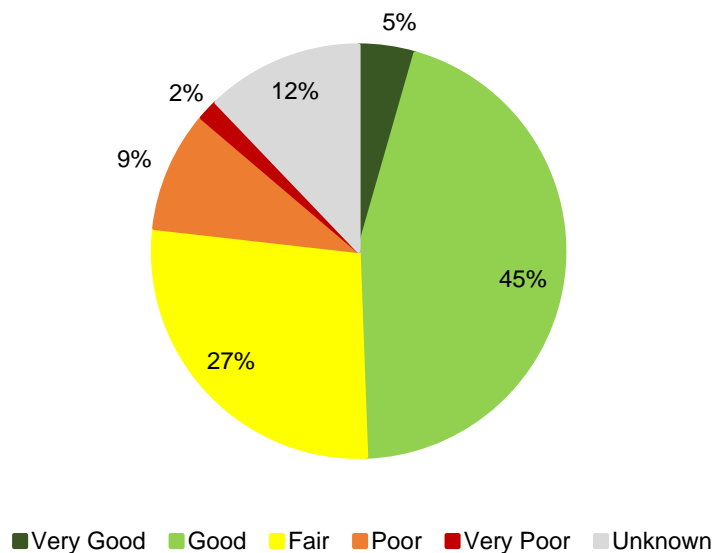


Figure 2-4: Facilities Condition by Count of Components

² Asset Management Facility Condition Assessments 2020 Update, Prepared by Morrison Hershfield Limited (MH)

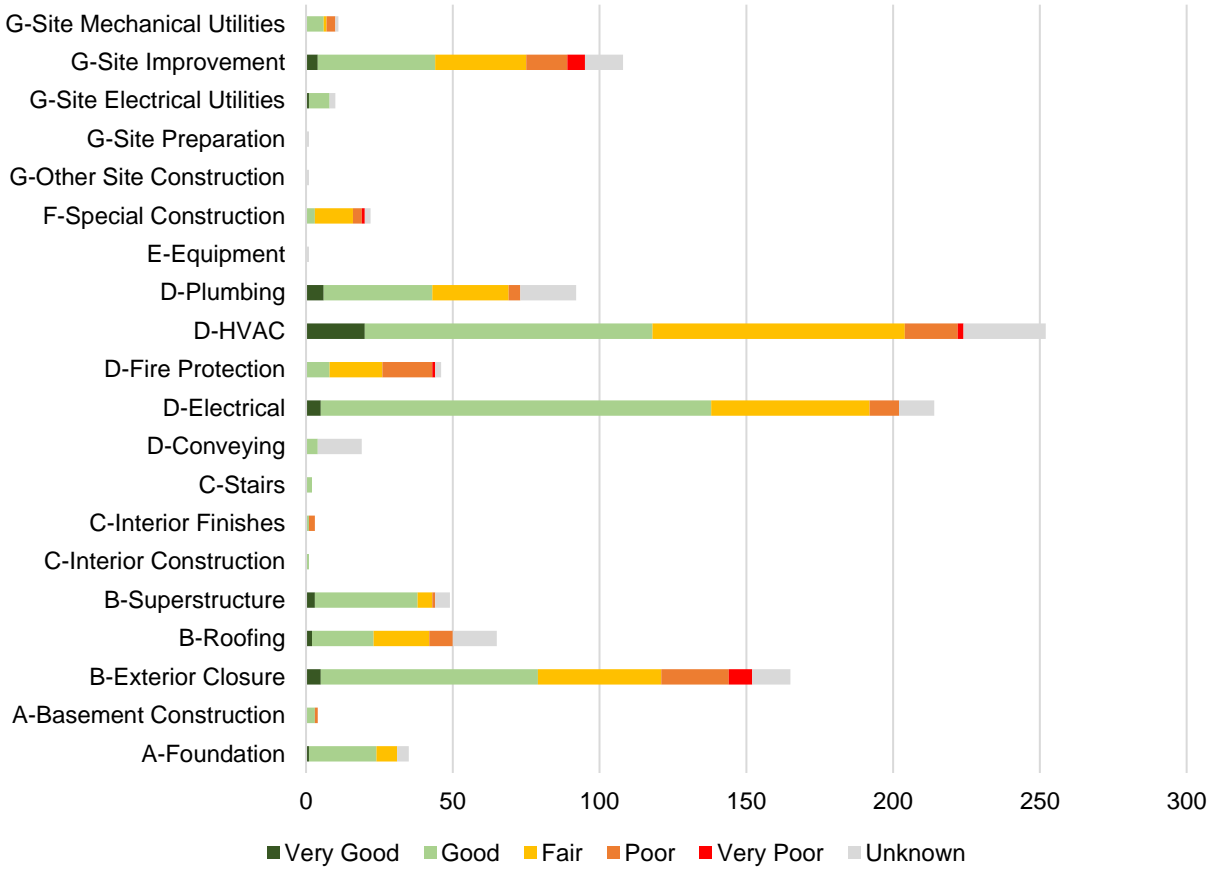


Figure 2-5: Facilities Condition Broken Down by Building Components

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 IT assets stored across multiple spreadsheets. Moreover, there is no single spreadsheet for facilities. This project has strived to successfully centralize the data into a single inventory. Additionally, it has addressed and filled gaps in key data, such as expected service life and replacement costs. **Table 2-4** provides a high-level summary of data completeness levels in the compiled facility 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 2-4: Asset Data Completeness

| Asset Group | Inventory Completeness (%) | | | | | |
|-------------|----------------------------|----------|--------------|-----------|-----------------------|------------------|
| | Asset ID | Location | Install Date | Condition | Expected Service Life | Replacement Cost |
| Facility | ≈ 0%* | 100% | 90% | 88% | 100% | ≈ 0%** |
| IT | ≈ 0% | ≈ 0%*** | ≈ 99% | 0% | 100% | 100% |

* No asset ID provided for facilities. (If available, asset IDs for building from GIS to be used for facilities)

** AECOM used RS Means to estimate the replacement cost for facilities.

*** Although the division is provided, the physical location is not clear.

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 facilities. **Table 2-5** 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 2-5: 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 ± 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 ± 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 ± 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 ± 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 life³. A clear definition and understanding of the organization's process for acquiring, storing, utilizing, assessing, improving, archiving, and deleting data (see **Figure 2-6**) will ensure good data management practices and help to sustain levels of data quality required to support AM activities.

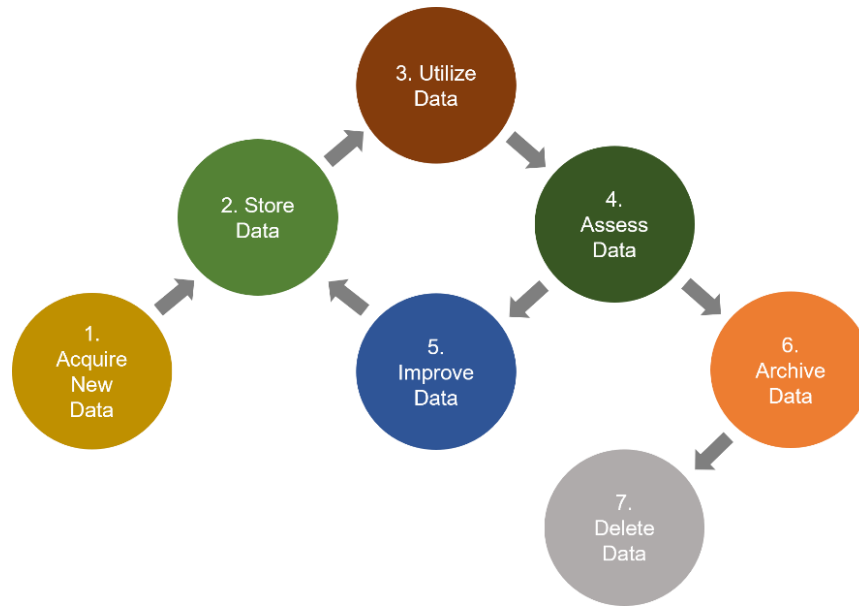


Figure 2-6: Asset Information Lifecycle

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:

³ TechTarget Network, Definition: Data Life Cycle, 2020.

- 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 Report⁴ 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 LoS targets should be aligned with these corporate objectives which will be addressed in the next iteration of the AMP.

⁴ City of Sault Ste Marie. 2021. Comprehensive Background Report.

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). |
| 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 facilities during the LoS workshop 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 for facilities are identified below:

- Residential Customers
- Regulatory Agencies
- Industrial, Commercial & institutional (ICI) Customers
- Regulatory Agencies
- Neighbouring Municipalities
- Environmental Groups
- Internal City Departments
- Sporting Groups
- Heritage Buildings, Museums, and Archival Building
- Developers

3.3.1 Legislated and Regulatory Requirements

Facilities 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., high quality community centres, marinas, etc.). A sample of key Federal and Provincial legislated requirements are outlined below in **Table 3-2**. Policy and guiding documents relevant to facilities are also listed.

Table 3-2: Legislated and Regulatory Requirements

| Federal | Provincial |
|--|--|
| <ul style="list-style-type: none"> • National Building Code of Canada • National Fire Code of Canada • National Energy Code of Canada for Buildings | <ul style="list-style-type: none"> • Building Code Acts • Ontario Heritage Act • Accessibility for Ontarians with Disabilities Act (AODA) • Municipal Acts • Electricity Act <ul style="list-style-type: none"> – Ontario Regulation 507 – Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans |

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 facilities 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 facilities and collaboration with the City during the LoS workshop, a summary of the City’s facilities LoS performance metrics are presented in **Table 3-3**.

Table 3-3: Levels of Service Performance Metrics (Facilities)

| Asset Category | Universal Service Value | LoS Performance Measure | Unit | Is Data Available? (Y/N) |
|----------------|------------------------------|---|-----------|-----------------------------|
| 1. Facility | Environment & Sustainability | Total annual electricity consumption per square foot | GJ / m2 | TBD |
| 2. Facility | Environment & Sustainability | Total annual natural gas consumption per square foot | GJ / m2 | TBD |
| 3. Facility | Environment & Sustainability | # of energy efficiency retrofit projects completed | # | TBD |
| 4. Facility | Access & Capacity | GFL Memorial Gardens - # of Walkers per Year | # / year | Y |
| 5. Facility | Access & Capacity | GFL Memorial Gardens - Utilization of Prime Time Hours | % | Y |
| 6. Facility | Access & Capacity | GFL Memorial Gardens - # of Visitors Annually | # / year | Y |
| 7. Facility | Access & Capacity | NCC - # of Turf bookings | # / year | Y |
| 8. Facility | Access & Capacity | Pool – # of swim passes issued annually | # / year | Y |
| 9. Facility | Access & Capacity | Seniors Centre - # of person registered participant days | # / year | Y |
| 10. Facility | Access & Capacity | ECNHS – Total visitation | - | TBD |
| 11. Facility | Access & Capacity | Roberta Bondar Pavilion – Bondar total participation | - | TBD |
| 12. Facility | Access & Capacity | Marinas – Boater nights | - | TBD |
| 13. Facility | Affordability | Cost of operating expenses to fire service buildings (utilities, repairs and maintenance, exterior and property maintenance, | \$ / year | TBD |

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 LoS 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 facility service levels include, but are not limited to, the following:

- Technology.
- Population Growth
- Building Construction.
- Energy and Demand Management.
- Funding level.
- Climate Change.

On November 2, 2021, the City's Planning Division released the Comprehensive Background Report for updating the Official Plan⁵. 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 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.

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.

⁵ City of Sault Ste Marie. 1996. Official Plan

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.

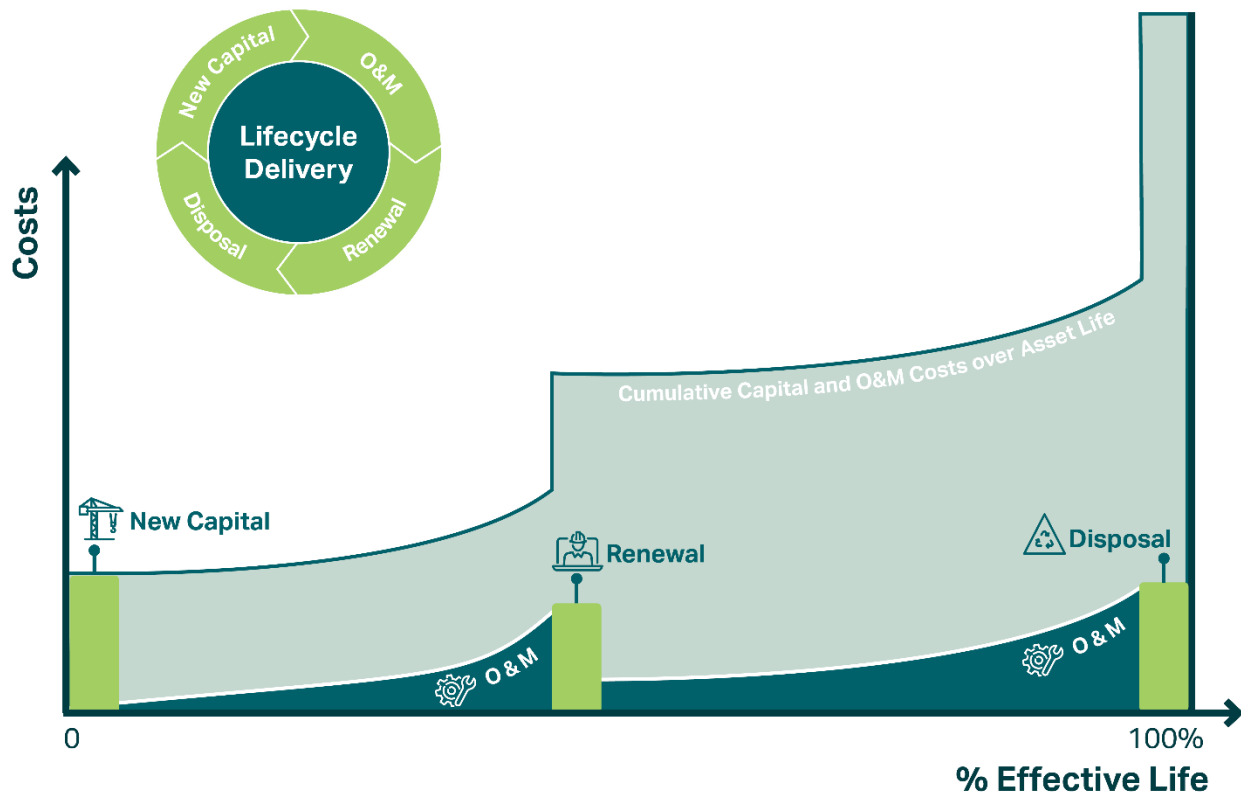


Figure 4-1: Lifecycle Cost Accumulation Over Asset Life

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, for example, roof replacement. Reconstruction 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

Population growth, marked by an influx of newcomers and students, as well as an increase in diversity, stands as the most significant driver for the City to acquire new facility assets. The demand for additional recreational activities, coupled with the need for diverse programming for active living seniors, also influence the City’s acquisition decisions. Additionally, the growth in the City’s workforce, particularly in essential services like Fire and Police, contributes to the need for expanded facilities. Compliance with regulations is also a significant driver, ensuring that the City aligns with relevant standards. Lastly, the City is influenced by technological advancements and an IT digital strategy, prompting the acquisition of new assets to keep pace with evolving technologies and enhance digital capabilities. **Table 4-1** summarizes the acquisition activities associated with the City’s facilities.

Table 4-1: Acquisition Activities for Facility Assets

| Asset Group | Activities Undertaken by the City | Guiding Documents |
|-------------|--|--|
| Facilities | <ul style="list-style-type: none"> Built a \$32 million recreation and culture facility. Developed a public plaza park in the downtown area. Established recreational facilities for seniors. Acquired transit terminal dispatch facilities. | <ul style="list-style-type: none"> The City’s Official Plan Corporate Strategic Plan Energy Conservation & Demand Management Plan Community Greenhouse Gas Reduction Plan Strategic AM Policy |

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 facility AM also contribute to cost-effectiveness over the asset’s lifecycle. **Table 4-2** summarizes the O&M activities associated with the City’s facility assets.

Table 4-2: O&M Activities for Facility Assets

| Asset Group | Asset Category | Activities Undertaken by the City | Notes |
|-------------|----------------|--|--|
| Facilities | Buildings | <ul style="list-style-type: none"> Condition assessment Mechanical and Electrical maintenance (HVAC, Electrical System, Plumbing) Building cleaning | <p>The City emphasizes the need for regular updates to condition assessment information due to two key reasons:</p> <ul style="list-style-type: none"> Some older documentation may no longer be relevant in the present context. Not all buildings were initially included in the assessment. |
| | IT | <ul style="list-style-type: none"> Cleaning Checking Updating Replacing components Security audits and assessments Safety inspections Equipment calibration | <p>For the libraries, the City is desired to implement a maintenance schedule and a robust management system for tracking work orders.</p> |

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 4-3** summarizes the renewal and replacement activities associated with the City’s facility assets.

Table 4-3: Renewal and Replacement Activities for Facility Assets

| Asset Group | Asset Category | Activities Undertaken by the City | Note |
|-------------|----------------|--|---|
| Facilities | Buildings | <ul style="list-style-type: none"> Renovation and rehabilitation Replacement at the end of life Unique practices for historical buildings | The City’s planned Initiatives include: <ul style="list-style-type: none"> Community services solar initiatives for power generation Roof renovations for John Rhodes Community Centre GFL garden projects |
| | IT | <ul style="list-style-type: none"> Hardware upgrades Software upgrades Replacement at the end of life | <ul style="list-style-type: none"> Adoption of new technology |

4.5 Decommissioning and Disposal Strategies

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

Table 4-4: Decommissioning and Disposal Activities for Facility Assets

| Asset Group | Asset Category | Activities Undertaken by the City | Note |
|-------------|----------------|--|--|
| Facilities | Buildings | <ul style="list-style-type: none"> Recycling Donation Hazardous waste management Post-disposal monitoring and reporting | <ul style="list-style-type: none"> The City has Environmental Impact Reduction Programs in place. The City conducts annual asbestos reviews. |
| | IT | <ul style="list-style-type: none"> Reuse and refurbishment Donation Waste-to-energy conversion Hazardous waste management Secure data and information removal Recycling of materials | - |

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 4-5](#).

Table 4-5: Key Steps in the Risk Management Process

| Step | Description |
|--------------------------|---|
| 1. Establish the context | <ul style="list-style-type: none"> Define the scope of the risk management process and the objectives that the City seeks to achieve through effective risk management. Consider the City's internal and external factors and understand stakeholder expectations. |
| 2. Risk identification | <ul style="list-style-type: none"> Identify potential risks that could impact the City's AM objectives. |
| 3. Risk analysis | <ul style="list-style-type: none"> Utilize qualitative or quantitative analysis methods to assess risks. |
| 4. Risk evaluation | <ul style="list-style-type: none"> Evaluate the likelihood and impact of identified risks. Prioritize risks based on their criticality. |
| 5. Risk treatment | <ul style="list-style-type: none"> Develop strategies to reduce the likelihood and impact of identified risks. Implement preventive measures to address potential issues proactively. Establish contingency plans for managing risks that cannot be eliminated. |
| 6. Monitor and review | <ul style="list-style-type: none"> Regularly update risk assessments to reflect evolving circumstances. Develop KPIs and monitoring tools to track the effectiveness of risk treatment strategies. Learn from the City's past experiences and continuously improve risk management strategies. |

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.

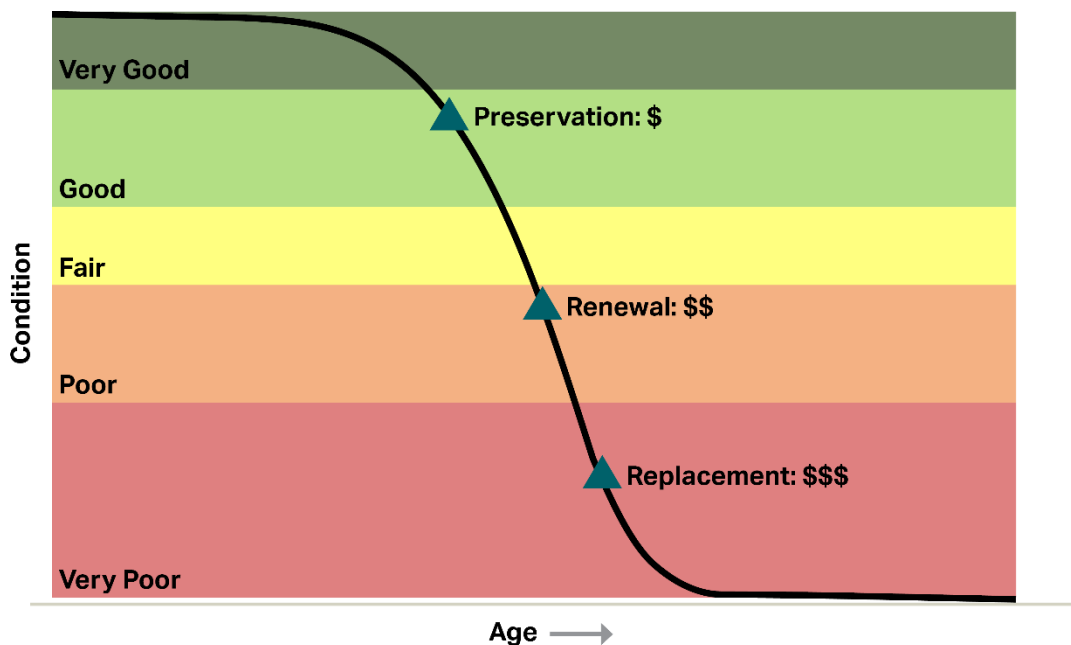


Figure 4-2: Asset Deterioration Curve and Renewal Costs

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. To help shape the City's risk management process, AECOM recommends taking into account the following key considerations:

1. Cybersecurity Risks

The interconnected nature of digital systems exposes the City to potential cyber threats, ranging from data breaches to ransomware attacks. A crucial aspect of mitigating these risks is maintaining up-to-date IT equipment. This involves not only patching and updating software but also upgrading hardware that may no longer receive security updates. Additionally, the City should consider implementing robust cybersecurity protocols, providing employee training on best practices in cybersecurity, and establishing intrusion detection systems to monitor and promptly respond to threats.

2. Regulatory Compliance

Stay up to date with all relevant regulations and standards to ensure compliance. Non-compliance can result in fines and other penalties.

3. Increased maintenance cost

By implementing consistent and proactive maintenance schedules for infrastructure and facilities, municipalities can identify and address potential issues before they escalate. This preventive approach reduces the likelihood of major breakdowns or emergency repairs, ultimately minimizing the overall O&M expenses. Additionally, regular maintenance extends the lifespan of assets, enhances their efficiency, and ensures that they comply with safety standards, contributing to a more sustainable and cost-effective management of municipal resources.

4. Sustainability Practices

Implement sustainability practices, such as energy-efficient systems and waste reduction strategies, to reduce operational costs and environmental impact.

5. Technology Integration

Technology integration can help municipalities mitigate risks throughout the lifecycle of their facilities by identifying potential dangers, updating infrastructure, promoting local economic development, enhancing workplace safety, and automating risk systems. These measures lead to more efficient operations, safer workplaces, and ultimately, more resilient communities.

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 and replacement decisions for facility assets.

Section 5.2 assesses the annual funding requirements over 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 facility assets. 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 facility assets. A financial dashboard was developed to present the results of the lifecycle modeling (**Appendix A**).

The annual reinvestment needs for the facility assets were determined based on various assumptions in inflated dollar values. For IT assets, as the majority of the assets have already exceeded their ESLs, which contributed to a significant backlog, an annual reinvestment rate of 10% was assumed over the next 20 years to renew and maintain these assets in a reasonable way. In addition, Morrison Hershfield Limited (MH) conducted a comprehensive condition assessment for facilities in the City, thoroughly examining the existing infrastructure and outlining recommendations for necessary improvements over a 20-year period. The findings of this assessment served as the foundation for this AMP, which incorporated an inflated reinvestment rate over the specified two-decade timeframe. The inflated reinvestment rate likely accounted for factors such as inflation, increased construction costs, and evolving facility standards. By incorporating this adjusted rate, the project aimed to ensure that the funding allocated over the 20-year period would be adequate to address not only the current conditions but also the anticipated future challenges and developments in the facilities in the City. This strategic approach reflects a proactive stance toward long-term facility management and sustainability, aligning with the recommendations put forth by MH in their initial condition assessment. For those facilities that did not include in the MH report, an annual reinvestment rate of 1% was assumed. Detailed reinvestment assumptions for facilities are provided in **Table 5-1**.

Table 5-1: Facility Capital Reinvestment Assumptions

| Facility Name/Category | Annual Reinvestment Rate (2024-2033) | Reinvestment Strategy | Annual Average Reinvestment Cost (2024-2033) * |
|---|--------------------------------------|---|--|
| Bellevue Marina | 1.00% | 1% annual reinvestment considered | \$158,000 |
| Carpentry Shop Building 'B' | 0.70% | MH Report | \$17,000 |
| CCTV Building, Public Works Yard | 1.62% | MH Report | \$14,000 |
| Central Fire Station #1 | 1.44% | MH Report | \$87,000 |
| Civic Centre | 0.54% | MH Report | \$324,000 |
| Downtown Plaza | 1.00% | 1% annual reinvestment considered | \$134,000 |
| Equipment Storage Garage, Public Works Yard | 0.86% | MH Report | \$43,000 |
| Ermatinger Old Stone House & Clergue Blockhouse | 0.15% | MH Report | \$39,000 |
| Fire Hall #4 / EMS Complex | 2.78% | MH Report | \$269,000 |
| Fire Station #2 | 1.81% | MH Report | \$27,000 |
| Fire Station #3 | 1.23% | MH Report | \$18,000 |
| Greenwood Cemetery | 0.39% | MH Report | \$181,000 |
| John Rhodes Community Centre | 0.38% | MH Report | \$226,000 |
| Lab Building, Public Works Yard | 1.64% | MH Report | \$14,000 |
| Main Branch Public Library | 0.69% | MH Report | \$87,000 |
| Northern Community Centre | 0.44% | MH Report | \$267,000 |
| Police Headquarters | 1.49% | MH Report | \$217,000 |
| Public Works Administration Building | 1.54% | MH Report | \$52,000 |
| Public Works Garage, Building A | 2.37% | MH Report | \$338,000 |
| Robert Bondar Park Marina | 1.20% | MH Report | \$240,000 |
| Sault Event Centre (GFL Memorial Centre) | 1.50% | MH Report | \$628,000 |
| Senior Citizens Drop-in Centre | 0.66% | MH Report | \$67,000 |
| Soo Market | 1.00% | 1% annual reinvestment considered | \$40,000 |
| SSM Museum | 0.19% | MH Report | \$68,000 |
| Transit Bus Depot | 0.44% | MH Report | \$156,000 |
| Transit Terminal Building | 0.49% | MH Report | \$15,000 |
| IT** | 10.00% | 10% annual reinvestment rate was considered | \$2,238,000 |
| 10-Year Average Annual Reinvestment Rate | 1.06% | - | \$5,964,000 |

* Note: The annual average reinvestment cost is presented in inflated dollar value. ** \$150,000 annually allocated to the dispatch system, which is equivalent to \$1.5 million from 2024 to 2033.

5.2 Capital Reinvestment Need Analysis

5.2.1 20-Year Reinvestment Need Analysis

The City's facilities require an average annual reinvestment of \$5.9 million over the period 2024-2033 and \$8.9million over 2034-2043 in inflated dollar values, as presented in **Figure 5-1**. This is equivalent to a total of approximately \$148 million over the next 20-year period. As mentioned before, facilities annual reinvestment need is determined based on the MH report. **Figure 5-2** illustrates a detailed breakdown of the facility 20-year reinvestment need.

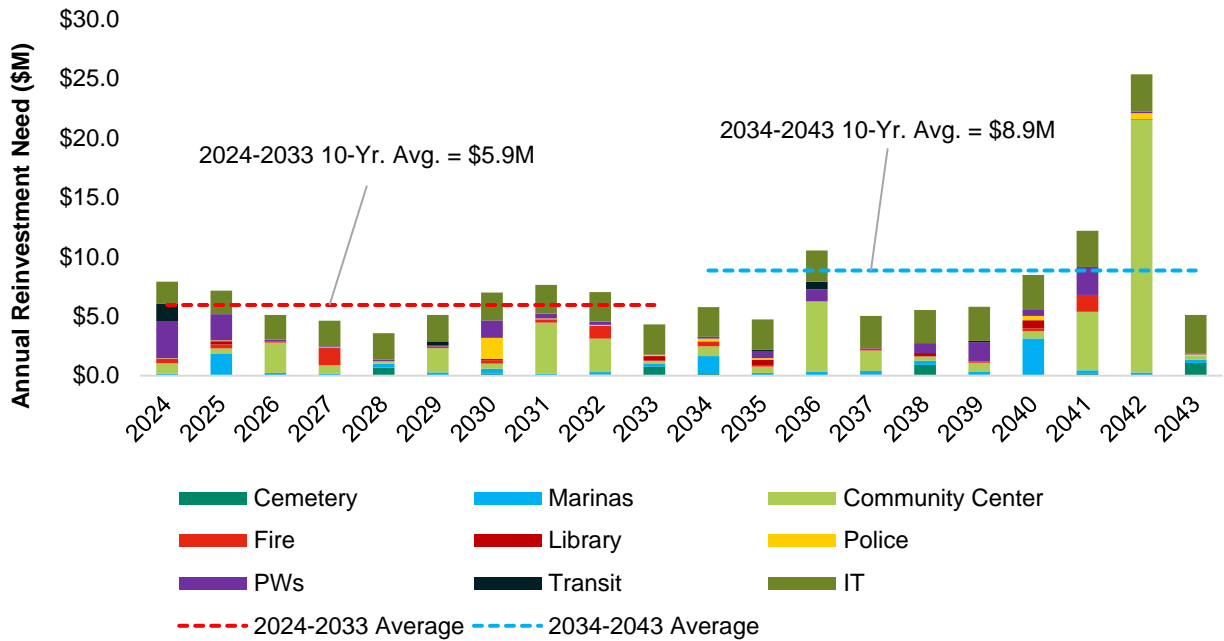


Figure 5-1: Facility 20-Year Reinvestment Need

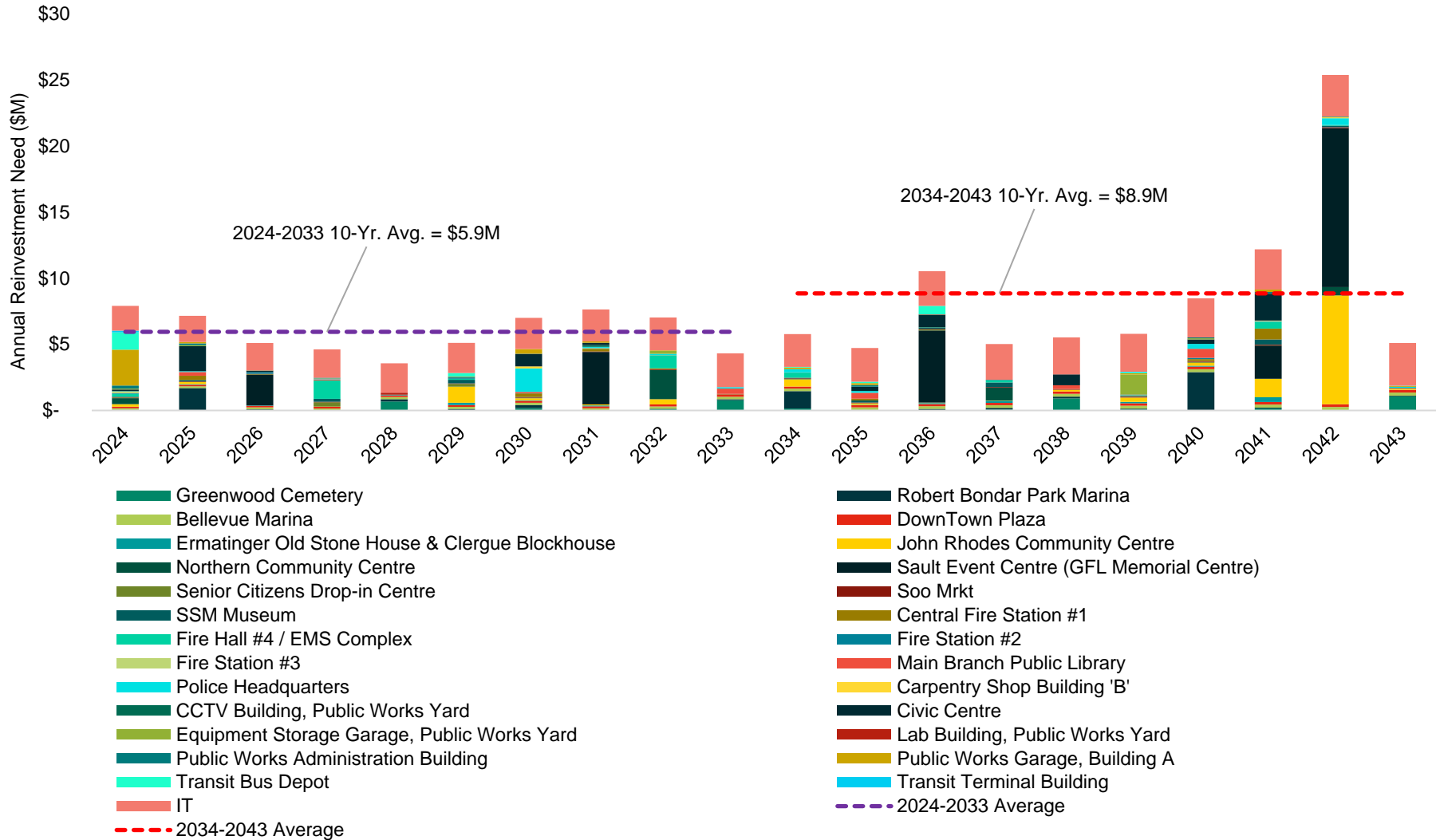


Figure 5-2: Detailed Breakdown of Facility 20-Year Reinvestment Need

The detailed 20-year reinvestment needs for facilities and IT are presented in **Table 5-2** in inflated dollar values.

Table 5-2: Facility 20-Year Total and Annual Average Reinvestment Need

| Facility Name/Category | Annual Average Need | 20-Year Total |
|--|---------------------|----------------------|
| Bellevue Marina | \$186,000 | \$3,707,000 |
| Carpentry Shop Building 'B' | \$13,000 | \$246,000 |
| CCTV Building, Public Works Yard | \$9,000 | \$177,000 |
| Central Fire Station #1 | \$101,000 | \$2,010,000 |
| Civic Centre | \$385,000 | \$7,687,000 |
| Downtown Plaza | \$158,000 | \$3,146,000 |
| Equipment Storage Garage, Public Works | \$104,000 | \$2,069,000 |
| Ermatinger Old Stone House & Clergue | \$61,000 | \$1,201,000 |
| Fire Hall #4 / EMS Complex | \$191,000 | \$3,819,000 |
| Fire Station #2 | \$22,000 | \$434,000 |
| Fire Station #3 | \$13,000 | \$253,000 |
| Greenwood Cemetery | \$214,000 | \$4,265,000 |
| John Rhodes Community Centre | \$666,000 | \$13,320,000 |
| Lab Building, Public Works Yard | \$11,000 | \$205,000 |
| Main Branch Public Library | \$115,000 | \$2,281,000 |
| Northern Community Centre | \$214,000 | \$4,276,000 |
| Police Headquarters | \$175,000 | \$3,488,000 |
| Public Works Administration Building | \$45,000 | \$885,000 |
| Public Works Garage, Building A | \$201,000 | \$4,002,000 |
| Robert Bondar Park Marina | \$361,000 | \$7,215,000 |
| Sault Event Centre (GFL Memorial Centre) | \$1,314,000 | \$26,279,000 |
| Senior Citizens Drop-in Centre | \$44,000 | \$873,000 |
| Soo Market | \$48,000 | \$944,000 |
| SSM Museum | \$95,000 | \$1,892,000 |
| Transit Bus Depot | \$121,000 | \$2,415,000 |
| Transit Terminal Building | \$11,000 | \$216,000 |
| IT | \$2,539,000 | \$50,774,000 |
| Total | \$7,417,000 | \$148,079,000 |

To better align with the City’s budgeting requirements, the annual capital reinvestment needs for the City’s facilities 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.

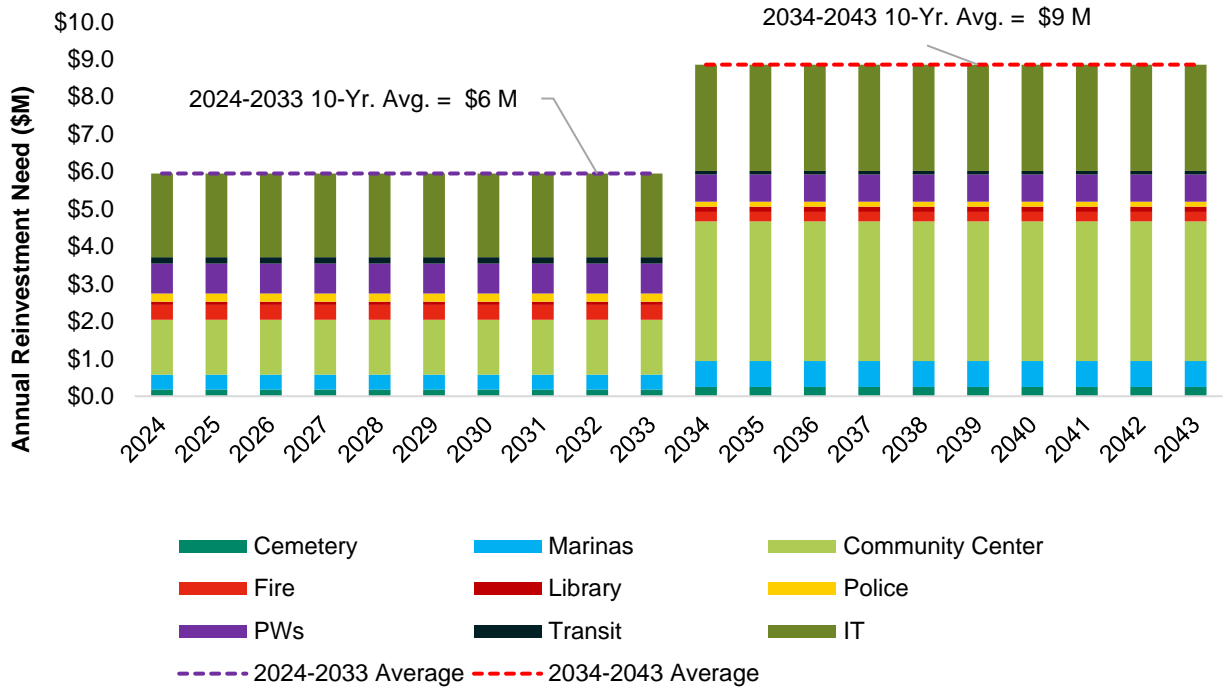


Figure 5-3: Facility 20-Year Smoothed Annual Reinvestment Needs

5.3 Full Funding Need Profile

Figure 5-4 shows a full picture of the City’s facility 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 total annual reinvestment cost (**Figure 5-1**) was combined with the City’s projected facility O&M cost⁶. Additionally, 1% of the annual replacement cost was added to account for the asset disposal cost. With these additions, the City’s facility full funding requirement increases to approximately \$120 million over the next 10 years, averaging \$12 million per year in inflated dollar value.

⁶ City of Sault Ste, Marie, 2024 Final Operating Budget

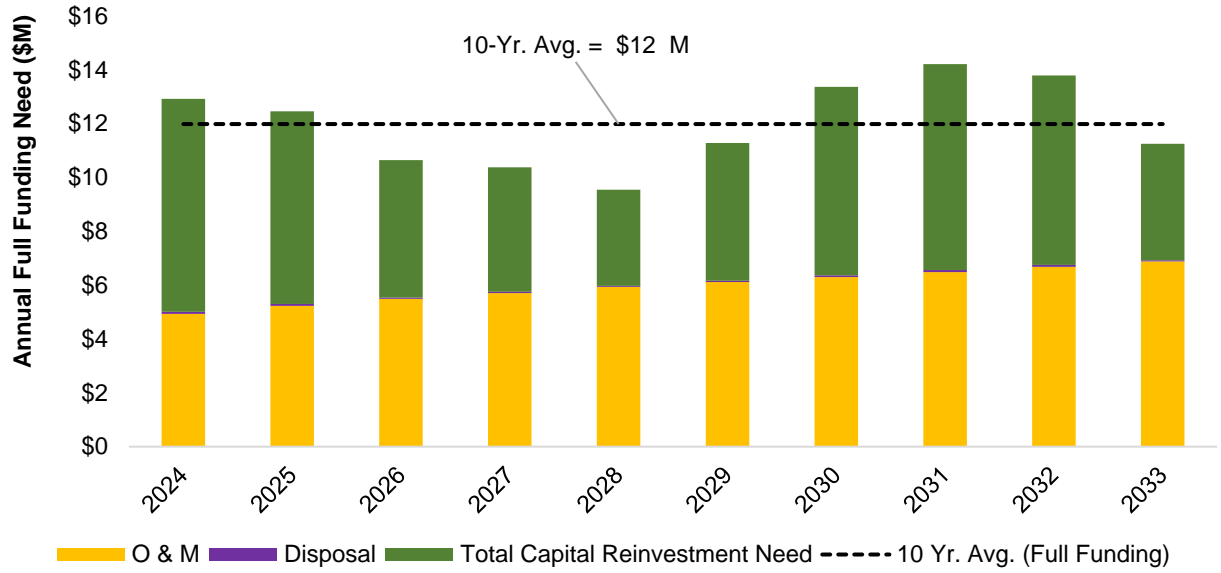


Figure 5-4: Facilities Full Funding Need Profile

5.4 Funding Strategies

The City primarily secures funding for facilities and IT assets through the property tax levy, supplemented by an annual contribution to IT asset reserves and financial support from higher levels of government. Drawing insights from other municipalities, the City is keen to explore the possibility of implementing an increase in the levy designated explicitly for capital assets. Simultaneously, they recognize the importance of striking the right balance between maximizing the potential of the property tax levy and ensuring affordability for residents and business owners. In light of the City's financial concerns, AECOM encourages the City to actively seek alternative funding sources to address potential challenges. This section introduces the following funding options, acknowledging that the City's eligibility for these funds is contingent upon specific criteria:

- Canada Community-Building Fund (CCBF)
- Canada Cultural Spaces Fund (CCSF)
- Municipal Asset Management Program (MAMP)
- Green Municipal Fund (GMF)
- Canada Growth Fund (CGF)
- Enabling Accessibility Fund (EAF)
- Northern Ontario Heritage Fund Corporation (NOHFC)

5.4.1 Canada Community-Building Fund (CCBF)

The CCBF, previously known as the Federal Gas Tax Fund, is a permanent source of upfront funding distributed twice a year to territories and provinces. The delivery of the CCBF to municipalities varies by province or territory, with allocation following a per-capita basis for provinces, territories, and First Nations⁷.

The CCBF is administered in Ontario through a bilateral agreement with the Government of Ontario, the Association of Municipalities of Ontario (AMO), and municipalities. This program allocates approximately \$816 million annually to 641 communities in Ontario, with an additional top-up of \$816.5 million provided in 2020 to expedite communities' recovery from the COVID-19 pandemic. Notably, as of 2022, the City has received over \$9 million through the CCBF, granting the City flexibility to strategically invest across 19 distinct project categories⁸.

5.4.2 Canada Cultural Spaces Fund (CCSF)

The CCSF is a program administered by the Department of Canadian Heritage in Canada⁹. The fund is designed to support the improvement, renovation, and construction of cultural spaces and facilities. Its primary goal is to enhance access to, and the quality of, cultural spaces for artists and their communities. It is also worth noting that this fund is in high demand, and available program funding is very limited for the current and next fiscal years.

5.4.3 Municipal Asset Management Program (MAMP)

The MAMP is aimed at improving AM practices within municipalities¹⁰. Designed to assist municipalities in gaining a better understanding, planning, and efficient and sustainable management of their infrastructure assets, the program

⁷ The Canada Community-Building Fund. (2022). Infrastructure Canada. [Infrastructure Canada - The Canada Community-Building Fund](#). Retrieved on February 14th, 2024.

⁸ Ontario's 2021–22 federal Canada Community-Building Fund allocations and top-up amounts. (2021). Infrastructure Canada. [Backgrounder: Ontario's 2021–22 federal Canada Community-Building Fund allocations and top-up amounts - Canada.ca](#). Retrieved on February 14th, 2024.

⁹ Canada Cultural Spaces Fund. (2024). Canadian Heritage. [Canada Cultural Spaces Fund - Canada.ca](#). Retrieved on February 14th, 2024.

¹⁰ Municipal Asset Management Program. (n.d.). Federation of Canadian Municipalities. [Municipal Asset Management Program | FCM](#). Retrieved on February 14th, 2024.

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.

5.4.4 Green Municipal Fund (GMF)

The GMF is a financial initiative in Canada dedicated to supporting sustainability and environmental projects at the municipal level. Managed by the Federation of Canadian Municipalities (FCM), the GMF provides funding and resources to assist municipalities across the country in undertaking projects that contribute to environmental sustainability, energy efficiency, and the reduction of greenhouse gas (GHG) emissions¹¹. Within the realm of facilities, municipalities can explore various opportunities provided by this fund. These opportunities may include funding for projects related to energy efficiency upgrades, renewable energy installations, green building initiatives, waste management programs, and other environmentally sustainable practices within municipal facilities. Some of the available funding opportunities are as follows:

- Capital project: Retrofit of existing municipal buildings.
- Capital project: Construction of new sustainable municipal and community buildings.
- Study: New construction of municipal and community buildings.
- Study: Retrofit pathway for municipal buildings.

5.4.5 Canada Growth Fund (CGF)

The CGF is an independent and arm's length public fund with a \$15 billion investment aimed at accelerating the adoption of technologies to reduce emissions and drive the transformation of Canada's economy¹². The fund's primary objective is to catalyze substantial private sector investment in Canadian businesses and projects, fostering economic growth on the path to net-zero emissions. The fund focuses its investment activities in three primary sectors: projects utilizing less mature technologies and processes proven in pilots but not yet widely adopted; clean technology companies scaling less mature technologies in demonstration or commercialization stages; and projects and companies involved in low-carbon or climate technology value chains.

5.4.6 Enabling Accessibility Fund (EAF)

The EAF is a federal government program aimed at supporting projects that enhance accessibility for individuals with disabilities¹³. 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.

5.4.7 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 projects¹⁴. 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.

¹¹ Funding opportunities. (n.d.). Green Municipal Fund. [Funding opportunities | Green Municipal Fund](#). Retrieved on February 14th, 2024.

¹² Canada Growth Fund. (n.d.). Department of Finance Canada. [gf-fc-en.pdf \(canada.ca\)](#). Retrieved on February 14th, 2024.

¹³ About Enabling Accessibility Fund. (2023). Government of Canada. [Enabling Accessibility Fund - Canada.ca](#). Retrieved on February 14th, 2024.

¹⁴ Community Enhancement Program. (2024). Northern Ontario Heritage Fund Corporation. [Community Enhancement Program | NOHFC](#). Retrieved on February 14th, 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"> Continue to refine the asset inventory and close existing data gaps, so as to have a more accurate representation of the current state of the facility and IT assets; and, ultimately, to make more informed and defensible decisions. <ul style="list-style-type: none"> AECOM recommends the City to create a comprehensive inventory with replacement value for all facilities based on the Unifomat structure, and keep updating the inventory as assets are acquired or disposed. The MH report is an appropriate reference to be used for developing the facility inventories. AECOM also recommends creating a clear and comprehensive IT inventory. Refine the install date information of the facilities and IT assets. Define unique asset IDs for IT assets. These IDs should differ from accounting numbers, as the accounting number is not unique for each asset. Asset IDs for buildings to be used in the next update of the AMP |
| 2. | Develop a formalized facility assets condition assessment process and use consistent condition grading schemes for these assets. | <ul style="list-style-type: none"> The grading system should include a description directly tied to each condition grade, along with details about the asset's performance and the necessary level of corrective and preventive maintenance required for assets falling within a certain condition rating category. This process will enable the City to keep track of and better forecast asset renewal needs. Record the condition of IT assets although IT assets do not show a clear deterioration pattern. Continue performing 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. <ul style="list-style-type: none"> Morisson Hershfield Limited (MH) implemented a thorough condition assessment for facilities in the City. While the MH (Municipal Health) report provides valuable insights, it's important to note that not every single facility within the City is covered by the report. This raises the necessity for a more comprehensive and up-to-date condition assessment program. Such a program should extend its coverage beyond the facilities included in the MH report, ensuring a thorough evaluation of all relevant structures and assets within the City. This expanded approach will enable a more holistic understanding of the overall condition of various facilities, facilitating better-informed decision-making and prioritization of maintenance or improvement initiatives |
| 3. | Refine the LoS Framework. | <ul style="list-style-type: none"> Collect current asset performance data for key performance indicators (KPIs) that are not currently being tracked. Analyze asset performance data to identify trends and establish annual performance benchmarks. Engaging with key stakeholders to define LoS targets and calculate the costs required to achieve these targets. Upon establishing LoS targets that is required by the July 1st ,2025 deadline by O. Reg. 588/17, the City should strategize on achieving these targets within the constraints of its operational context, including staff availability, existing funding, and available resources. Initiating a Customer Consultation Plan to involve the public and stakeholders in discussions about the LoS framework, aiming to understand their willingness to pay for improved LoS. Continue to maintain, monitor, and periodically update the LoS Framework. |

| Index | Improvement Initiative | Description |
|-------|---|---|
| 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"> • Conduct a criticality and risk assessment of assets to inform work prioritization. • Review risk attribute values periodically to ensure alignment with business objectives and risk appetite. • 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. |
| 5. | Establish a sustainable facility funding model that fits the needs of the community. | <ul style="list-style-type: none"> • In light of the annual funding need outlined in Figure 5-3, it is recommended that the City allocate an average of \$6.0 million per year over the next 10 years for capital reinvestment in facilities. Additionally, a total of approximately \$59 million should be budgeted for O&M expenditures during the same period. • Review financial modeling assumptions on reinvestment rate and replacement values and update the financial model with new information as it becomes available. The financial model is based on several key assumptions that could have a significant impact on the outcomes of the model. • Carefully review the reinvestment rate for IT assets. As mentioned earlier, most IT assets have already surpassed their Expected Service Lives (ESLs). To address this backlog, AECOM has allocated a 10% reinvestment rate for IT assets. However, this rate can be adjusted based on the specific requirements of the City. • Explore funding resources that the City may take into consideration while performing strategic lifecycle and financial strategies (Section 5.4) |
| 5. | 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"> • Conduct an AM Software Assessment to identify future system requirements, which may involve enhancing existing software, adding new features, or replacing the current system. • 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. • Communicate AM improvement initiatives and enhance natural AM awareness internally through internal communication. |

Appendix A - Facility MS Excel Lifecycle Model and Inventory

