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# ASSET MANAGEMENT PLAN

## FIRE & EMERGENCY SERVICES



2024  
OWENSOUND.CA

# 1.0 Introduction

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The City’s Fire & Emergency Services is broken out into four asset classes and includes the following:

- **Personal Protective Equipment (PPE):** PPE is equipment that is worn by firefighters and includes bunker gear and self-contained breathing apparatus.
- **Equipment:** Fire and Emergency Services require different pieces of equipment to support operations for fire, medical, and other events.
- **Apparatus:** The fleet of vehicles that is utilized by Fire & Emergency Services for responses to fire, medical, and other events.
- **Facilities:** Administration, mechanic and storage space required to support the delivery of Fire and Emergency Services.

# 2.0 State of Infrastructure

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## 2.1 Inventory

Table 2.1.1 summarizes the Fire and Emergency Services inventory by asset class.

Table 2.1.1 Fire & Emergency Service Inventory

Asset Class	Asset Type	Current Inventory
PPE	Bunker Gear	32*
	Breathing Apparatus	21
Equipment	Telecommunications	31
	Specialized	30

	Miscellaneous (Hoses)	119
Apparatus	Truck	4
	Boat	1
Facilities <sup>1</sup>	Fire Hall	1

*\* Includes 1 Bunker Gear Drying Rack and 1 Bunker Gear Washing Machine*

**2.2 Valuation**

Replacement Cost Valuation

Facilities

The replacement cost of buildings was determined through the Building Condition Assessment completed in 2023.

PPE, Equipment, Apparatus

The 2024 replacement costs were determined based on estimated replacement value through historical costs updated by inflation, market research, and other industry standards.

The estimated replacement cost of the City’s Fire and Emergency Services assets in 2024 dollars is \$12.4 million.

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<sup>1</sup> The City’s facility related database is being developed to componentize buildings into multiple assets that make up a single structure, following UNIFORMAT II guidelines. However, when discussing inventory for the purposes of asset management, it is more practical to report on the number of structures/buildings rather than each component.

Table 2.2.1 Fire and Emergency Services Asset Replacement Valuation

Asset Class	Unit Replacement Cost	Replacement Cost	% of Total Value
PPE	Pooled	\$613,000	5%
Equipment	Pooled	\$356,000	3%
Apparatus	Pooled	\$8,250,000	66%
Facilities	Pooled	\$3,200,000	26%
	<b>Total</b>	<b>\$12,419,000</b>	<b>100%</b>

## 2.3 Assessment Approach

### 2.3.1 PPE & Equipment

The City does not currently undertake third-party condition inspections for its apparatus, PPE or equipment, therefore the condition of these assets is estimated using the remaining useful life (RUL) method, and where possible through internal subject matter expert inspections. It is important to note that the RUL method used to determine the condition is solely age-based and does not consider any maintenance activities undertaken to extend the useful life of the assets. The confidence in the accuracy of the condition with this method is typically low. However, it should be noted that the replacement of many fire assets is heavily regulated, and therefore the replacement schedule for the majority of assets is in conjunction with its estimated useful life.

Table 2.3.1.1 PPE & Equipment Rating

Rating	RUL % (Age Based)
Very Good	>95
Good	80-94
Fair	40-79
Poor	10-39
Very Poor	<10

### 2.3.2 Apparatus

The City's apparatus is maintained by an in-house mechanic and through third party specialists if required. Fleet maintenance and replacement is in accordance with NFPA 1911: Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus.

Table 2.3.2.1 Apparatus Rating

Rating	Age (years)
Very Good	<5
Good	6-9
Fair	10-14
Poor	15-19

Very Poor	>20
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### 2.3.3 Facilities

The state of the Fire Hall facility is determined through third-party building condition assessments (BCA) and is given a Facility Condition Index<sup>2</sup> (FCI) score. The Fire Hall building condition assessment was conducted in 2023 through McIntosh Perry Limited.

Table 2.3.1.2 Facilities Rating

Rating	Facility Condition Index
Very Good	<5%
Good	6-10%
Fair	11-30%
Poor	31-60%
Very Poor	>60%

## 2.4 Asset Condition Assessment

The table below provides the average condition score of the Fire and Emergency Service assets by asset class.

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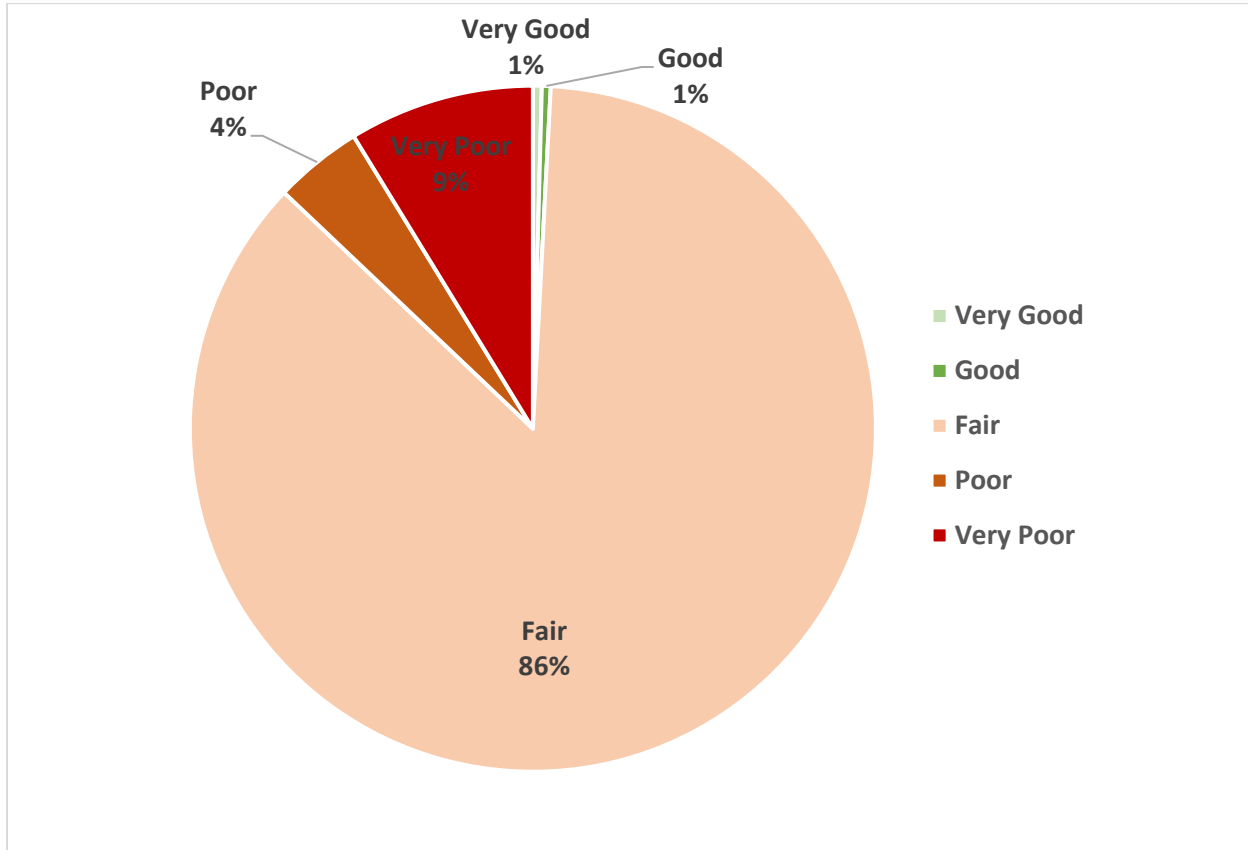
<sup>2</sup> FCI is equal to the Total Building Repair/Upgrade/Renewal needs in dollars (\$) divided by the Current Replacement Value of Building Components in dollars (\$). FCI is obtained by aggregating the total cost of any needed or outstanding repairs, renewal or upgrade requirements at a building compared to the current replacement value of the building components.

Table 2.4.1 Equipment and Fleet Condition Assessment

Asset Class	Condition Score	Condition System
PPE	Fair (55%)	RUL (Age-based)
Equipment	Fair (57%)	RUL (Age-based)
Apparatus	Fair (14yrs)	Average Age
Facilities	Poor (43.2%)	FCI

A pie chart breaking out the assets by condition for the Fire and Emergency services assets is shown in Chart 2.4.1 below.

Chart 2.4.1 Visual Fire and Emergency Services Condition Assessment



The State of Assets with the most recent 2024 data indicates that 2% of Fire and Emergency Assets are in good condition, 86% are in fair condition, and 13% are in poor or very poor condition.

## 2.5 Useful Life

The useful life of the Fire and Emergency Services assets will vary by component, and the overall life is significantly impacted by the level of use. There are currently no defined maintenance strategies deployed to extend the useful life, however, NFPA guidelines are followed to ensure the assets are kept in safe working order, and preventative maintenance is routinely completed on fire apparatuses. It is possible to have some equipment that exceeds the lives defined as well as some equipment that requires replacement prior to the end of their anticipated life, however, due to the nature of fire assets, many do not exceed their anticipated useful lives. Some fire assets such as apparatuses are often promptly replaced at the end of their useful life, no matter the inspected condition, due to governing regulations.



Facilities are unlike other assets because they comprise numerous components, each with its own distinct lifespan and maintenance requirements. The overall life of a building is significantly impacted by the maintenance strategies employed and the level of use each component endures. The City understands that there are various maintenance strategies tailored to each asset component.

The City is currently developing a fleet management strategy. This strategy will confirm the anticipated useful life for similar fleet assets across the organization.

Table 2.5.1 outlines the anticipated useful life for each asset class. These lives are used for PSAB purposes and align with the Municipality’s tangible capital asset (TCA) policy.

Table 2.5.1 Useful Life by Asset Class – Fire and Emergency Services

Asset Class	Anticipated Useful Life (years)
New Asset / Replacement	
PPE	5-20
Equipment	5-20
Apparatus	20
Facilities <sup>3</sup>	10-100

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<sup>3</sup> The large span in anticipated useful life is due to the fact that buildings are broken out into 6 components as per Uniformat II guidelines, with each component type having varying useful lives.

### 3.0 Level of Service

Unlike the 2022 Asset Management Plan for Core Assets (roads, bridges, stormwater, water, and wastewater), O. Reg. 588/17 does not identify requirements for reporting on non-core Levels of Services such as Fire and Emergency Services.

Levels of Service (LOS) refers to the quality and availability of services provided to residents and are defined by various performance measures.

With no guidance in the regulation, the only measurable LOS statement currently available is based on the condition of the assets. Until more comprehensive LOS targets are developed, using asset condition as a key indicator will help guide strategic planning and resource allocation.

The following table summarizes the current level of service performance, based on the most recent data available.

Strategic Priority/Values	Level of Service Statement	Technical Level of Service	Current Performance	Target Performance
Service Excellence Safe City	Assets are maintained in a state of good repair and are reliable.	% of Fire assets in fair or better condition.	88%	TBD

The City will need to consider the development of both Community and Technical Levels of Services to be maintained by the City as it continues to develop its asset management program. The 2025 asset management plan will outline the proposed levels of service as defined by City Council.

### 3.1 Corporate Objective

In Ontario, a municipalities fire department is an “all hazards” emergency response organization that provides its residents, visitors and businesses with protection against loss of life, property and the environment from the effects of fire, illness, accidents and all other hazards through preparedness,

prevention, public education and emergency response. As per the City's Strategic Plan, the Owen Sound Fire Department aims to foster a safe community by providing emergency services to meet the community's safety needs in a respectful manner.

### **3.2 Legislative Requirements – General**

A non-exhaustive list of the legislative requirements that impact the delivery of Fire & Emergency Services include the following:

- Fire Protection and Prevention Act
- National Fire Protection Association Standards
- Ontario Fire Marshall
- Ontario Building Code (Prevention)
- Section 21 Guidance Notes
- Transport Canada Regulations
- Ontario Ministry of Transportation

## **4.0 Asset Management Strategy**

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### **4.1 Lifecycle Activities and Planned Actions**

To effectively maintain the Fire & Emergency Services assets at the established service levels, they require the appropriate maintenance or rehabilitation strategy applied throughout an asset's lifecycle. All equipment and apparatus are inspected and repaired based on an annual schedule that complies with government-regulated standards and mandates. There are six lifecycle maintenance strategies considered in the overall sustainable management of fire assets, described in Table 4.1.1 below.

Table 4.1.1 Lifecycle Activities – Fire & Emergency Services

Activities	Planned Actions	Lifecycle Activities
Non-infrastructure Solutions	Actions or policies that can lower costs or extend life and can include adjustments to levels of service	<ul style="list-style-type: none"> <li>• Master Planning</li> <li>• Third-party Building Condition Assessments</li> </ul>
Maintenance	Regularly scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events.	<ul style="list-style-type: none"> <li>• Bunker Gear Cleaning</li> <li>• Bunker Inspection</li> <li>• SCBA Inspection</li> <li>• Small Equipment Maintenance</li> <li>• Manufacturer Maintenance Guidelines</li> </ul>
Renewal/Rehabilitation	Significant repairs designed to extend the life of the asset.	<ul style="list-style-type: none"> <li>• Equipment Refurbishment</li> </ul>
Replacement	Activities that are expected to occur once an asset has reached the end of its useful life and renewal/rehabilitation is no longer an option.	<ul style="list-style-type: none"> <li>• Replacement as per NFPA Standards</li> <li>• Condition Based Replacement</li> </ul>

Activities	Planned Actions	Lifecycle Activities
Disposal	Activities associated with disposing of an asset once it has reached its useful life, or is otherwise no longer needed by the municipality.	<ul style="list-style-type: none"> <li>• Sale of assets</li> </ul>
Expansion	Planned activities required to extend services to previously unserved areas – or expand services to meet growth demands.	<ul style="list-style-type: none"> <li>• Facility expansion to meet community needs</li> </ul>

#### 4.2 Risks Associated with the Strategy

The City does not currently have a corporate risk management strategy or risk profiles for assets. It is recommended that the City develop a corporate wide risk management toolkit for the next Asset Management Plan update in 2025.

Risks associated with not completing the above lifecycle activities are as follows:

##### **Third-party Building Condition Assessments**

Failure to conduct third-party building condition assessments risks an inaccurate understanding of the actual state of facilities, leading to unanticipated repairs and maintenance costs. These missed insights could also compromise safety standards, decrease asset longevity, and result in decreased investment return.

##### **Bunker Gear Cleaning**

Not conducting regular bunker gear cleaning poses critical safety risks as it increases personnel exposure to hazardous materials and contaminants, thus compromising health and operational performance. The effectiveness and reliability of the gear are also jeopardized, which could impact task execution in emergencies. From a legislative standpoint, failure to maintain the gear properly may result in a breach of Occupational Health and Safety

regulations. Additionally, over time, the lifecycle of the gear is reduced due to material degradation caused by the accumulation of contaminants.

### **Bunker Inspection**

Neglecting bunker inspections is fraught with operational risks, primarily missing the detection of damage that might lead to gear failure during emergencies, compromising the safety of personnel. This oversight amplifies the risk of injury by not recognizing integrity issues ahead of time. In a legislative context, non-compliance with mandated safety regulations and standards can have serious repercussions. Financially, neglected inspections might lead to higher costs due to the urgent need for gear replacement under emergency conditions.

### **SCBA Inspection**

Without regular SCBA inspections, there are substantial safety risks, such as malfunctioning equipment potentially resulting in fatalities during hazardous operations. The lack of inspection could lead to unreliable equipment performance when it is most needed. From a legislative perspective, failure to meet mandatory inspection intervals and maintain proper records can constitute serious breaches of regulations. Additionally, the new lifecycle defects remain undiscovered, diminishing the effective operational life of the equipment.

### **Small Equipment Maintenance**

By not adhering to small equipment maintenance schedules, performance risks increase, which can lead to equipment failure at critical moments, directly impacting task efficiency and effectiveness. Financially, neglected maintenance often results in increased repair and replacement costs.

### **Manufacturer Maintenance Guidelines**

Ignoring manufacturer maintenance guidelines can void warranties, subsequently leading to increased costs associated with repairs and replacements. It elevates operational risks due to potential equipment failure caused by improper maintenance practices and can lead to costly emergency repairs.

### **Replacement as per NFPA Standards**

Neglecting to replace equipment according to NFPA (National Fire Protection Association) standards introduces significant safety risks, as outdated or worn equipment may fail during critical operations. This noncompliance with established standards could lead to legislative risks, including potential penalties or fines, as adherence to NFPA guidelines is often mandated by law. The operational effectiveness of firefighting and emergency response could be severely compromised, resulting in increased risks to personnel and the public. Additionally, ignoring these standards may lead to higher long-term costs due to more frequent breakdowns and emergency replacements, which can be both financially burdensome and inefficient.

### **Condition Based Replacement**

Failure to implement condition-based replacement strategies can lead to unnecessary risks, as equipment might be kept in service beyond its functional lifespan, risking failure when needed most. This oversight can result in increased safety hazards and operational inefficiencies. Without these timely evaluations, financial risks increase due to unexpected repair and replacement needs, alongside potential productivity losses.

### **4.3 Lifecycle Analysis**

The City endeavors to follow the National Fire Protection Association Standards for the lifecycle maintenance and replacement of PPE, equipment, and Apparatus. While many of the standards identify lifecycle activities, the replacement of PPE, equipment, and apparatus is determined by age and suggested useful life, and where applicable, legislation.

The lifecycle strategies are prioritized through the capital and operating budget processes, guided by needs studies, legislation and standards, and internal assessments that help identify the needs of the fire assets.

During the capital budget process, staff identify the most cost-effective options for completing projects while maintaining the current level of service.

It is recommended to develop a comprehensive lifecycle strategy aligned with the levels of service for non-core assets in the future when the proposed levels of service are defined in the 2025 asset management plan, through consultation with Council. This strategy will be crucial to ensure a systematic approach to asset management, allowing for proactive maintenance and timely upgrades. By aligning the strategy with the

established levels of service, the City can optimize resource allocation, minimize unexpected failures, and maintain infrastructure quality, ultimately leading to cost savings and improved public satisfaction. It is important to note that balancing these costs within the City's budgets may necessitate reducing levels of service and seeking additional funding source



## 5.0 Financing Strategy

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### 5.1 Annual Funding vs Annual Investment Required

O. Reg. 588/17 requires the Municipality to identify the cost of the lifecycle activities that would need to be undertaken to maintain the current levels of service for each of the ten years following the year for which the current levels of service are determined along with the costs of providing those activities.

#### Funding

The below chart outlines the 10-year lifecycle costs of fire assets currently being funded:

Table 5.1.1 Annual Funding – Fire & Emergency Services

Activities	Annual Costs (\$)										
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Non-Infrastructure Solutions	-	-	-	-	-	-	-	-	-	-	-
Maintenance	91,000	93,275	95,607	97,997	100,447	102,958	105,532	108,170	110,875	113,647	116,488
Renewal/Rehabilitation	-	-	-	-	-	-	-	-	-	-	-
Replacement	497,200	384,300	52,400	122,500	75,600	77,400	92,440	92,440	1,692,440	100,000	92,440

<b>Disposal</b>	-	-	-	-	-	-	-	-	-	-	-
<b>Expansion</b>	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Total</b>	<b>988,200</b>	<b>477,575</b>	<b>148,007</b>	<b>220,497</b>	<b>176,047</b>	<b>180,358</b>	<b>197,972</b>	<b>200,610</b>	<b>1,803,315</b>	<b>213,647</b>	<b>208,928</b>

The average annual investment, as included in the City's annual operating budget, approved multi-year capital plan, and adjusted for the five years outside of the multi-year capital plan is \$429,338.

Non-Infrastructure Solutions is derived from the Multi-Year Capital Plan, and operating budget, where applicable and are identified in the lifecycle strategy section above. Maintenance costs have been determined through the 2024 Operating budget and are inflated by 2.5% each year for this plan. Renewal/Rehabilitation costs will derived from the Multi Year Capital Plan as the City better defines these activities in future capital detail sheets. For the purposes of this report, these activities have been identified as replacement activities. Replacement costs have been taken from the Multi-Year Capital Plan and Fleet Reserve Schedule. Expansion activities have been derived from needs identified from consultants, and relate to facility expansion. This amount was derived from the multi-year capital plan. The multi-year capital plan is approved out to 2029. To forecast the subsequent years, an average of the previous years was used for the final five years of this plan.

It is important to note that the above table includes all budgeted items, no matter the source of funding. Funding sources include reserves, taxation, and grants. Due to this, the funding amounts are not ensured and can be dependent on receiving a grant.

## Investment Required

The below chart outlines the 10-year annual investment required to maintain the current level of service of Fire and Emergency Services assets utilizing the results of condition assessments and best practice applications.

Table 5.1.2 Annual Investment Required – Fire & Emergency Services

Activities	Annual Costs (\$)											
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
Non-Infrastructure Solutions	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance	91,000	93,275	95,607	97,997	100,447	102,958	105,532	108,170	110,875	113,647	116,488	
Renewal/Rehabilitation	-	-	-	-	-	-	-	-	-	-	-	
Replacement	1,725,020	914,356	113,640	96,540	598,890	189,420	147,800	342,000	1,769,800	164,560	42,000	
Disposal	-	-	-	-	-	-	-	-	-	-	-	
Expansion	400,000	-	-	-	-	-	-	-	-	-	-	
<b>Total</b>	<b>2,216,020</b>	<b>1,007,631</b>	<b>209,247</b>	<b>194,537</b>	<b>699,337</b>	<b>292,378</b>	<b>253,332</b>	<b>450,170</b>	<b>1,880,675</b>	<b>278,207</b>	<b>158,488</b>	

The average annual investment required for the non-core road network to maintain the current level of service for this portfolio is \$694,547.

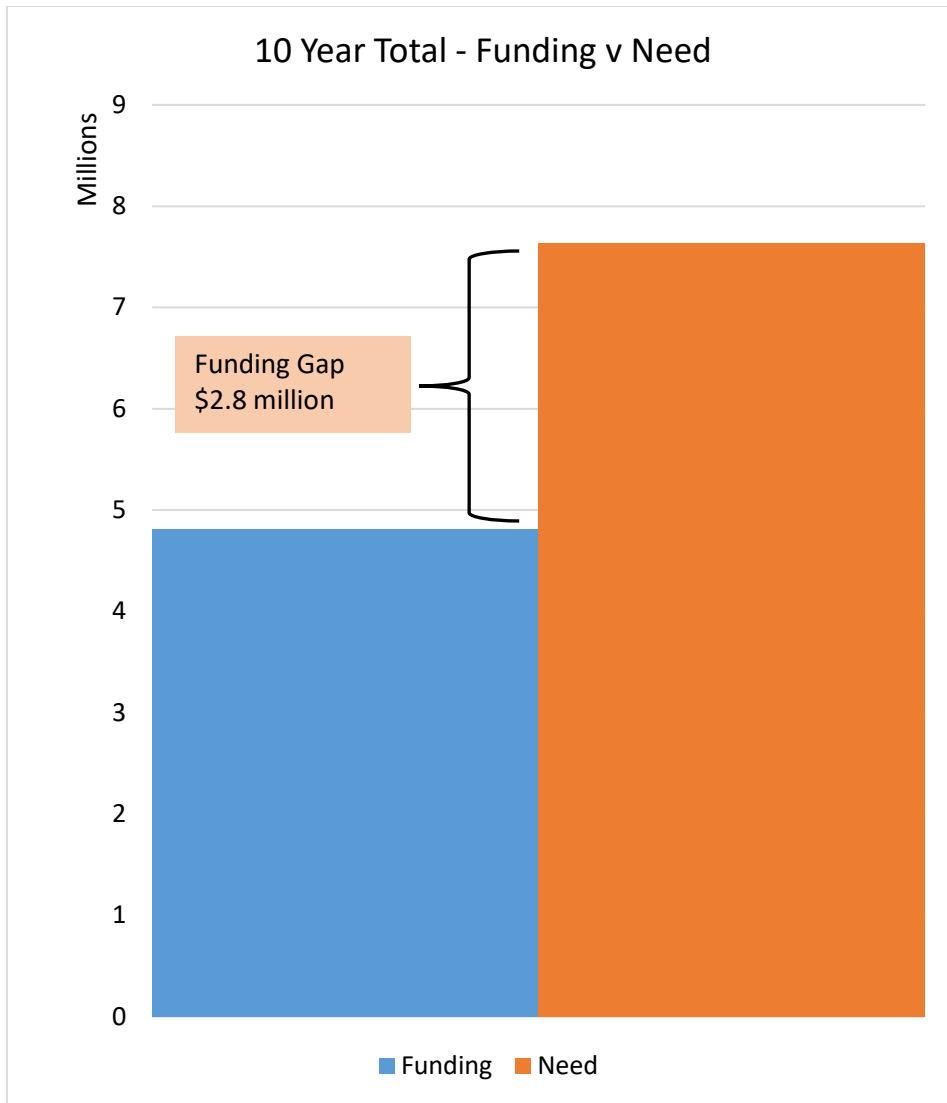
Non-Infrastructure Solutions are derived from the Multi-Year Capital Plan and operating budget, where applicable and are identified in the lifecycle strategy section above. Maintenance costs have been determined through the 2024 Operating budget and are inflated by 2.5% each year for the period of this plan. Renewal/Rehabilitation costs have been identified as replacement activities until such time the City updates its capital detail process. Replacement costs have been taken from the 2024 Building Condition Assessments, which outlines the activities to be undertaken to maintain the facility in a state of good repair, Fleet Reserve Schedule and a replacement schedule for all other assets based on end of useful life date. Expansion activities have been derived from needs identified from consultants and relate to facility expansion.

### 5.3 Annual Funding vs Annual Investment Required Analysis

The analysis between the Investment Required and the Funding identifies the funding gap between the two financial models. The result of this analysis is included in Tables 5.3.1 as follows:

Table 5.3.1 10 Year Total - Funding vs Need – Fire & Emergency Services

	Annual Costs (\$)											10 Year Total
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
<b>Funding</b>	988,200	477,575	148,007	220,497	176,047	180,358	197,972	200,610	180,3315	213,647	208,928	4,815,155
<b>Need</b>	2,216,020	1,007,631	209,247	194,537	699,337	292,378	253,332	450,170	1,880,675	278,207	158,488	7,640,021
<b>Funding Gap</b>	-1,227,820	-530,056	-61,240	25,960	-523,290	-112,020	-55,360	-249,560	-77,360	-64,560	50,440	-2,824,866



Based on the above, the 10-year funding gap is \$2.8 million, and the average annual funding gap is \$265,209.

In order to meet the financial requirements of the Lifecycle Financing Strategy, the City will be required to fund projects through additional revenue tools such as reserve and reserve funds, grants, debt, new revenues, or additional annual levy increases. Alternatively, projects will need to continue to be deferred, which will have a negative impact on the overall condition. During the creation of the 2025 plan, Level of Service workshops with Council will be held. If levels of service are recommended to be changed, this will affect the financing strategy.

## 5.4 Lifecycle Financing Strategy Limitations

The Lifecycle Financing Strategy has been developed on the current levels of service and programs being delivered by the Municipality. This model implies that these practices have been in place since the installation of the assets and does not recognize the impacts of previous investments that have resulted in the current system condition, nor does it take into account any backlog.

## 6.0 Improvement Plan and Recommendations

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The following recommendations are based on the review of current management practices; and inventory, valuation and condition analysis.

Table 6.0.1 Asset Management Planning Recommendations – Fire & Emergency Services

	Recommendations
1.	Continue with the completion of Building Condition and Equipment Assessments for all fire assets.
2.	Update Building Condition and Equipment Assessments on a five-year cycle, unless otherwise legislated, to monitor conditions.
3.	Develop Levels of Service to reflect the various asset types in the City's portfolio.
4.	Develop a lifecycle management plan to ensure component quality and extend the useful life where possible.