Municipality of Clarington

Asset Management Plan 2024

Clarington

Table of Contents

01

Executive Summary

Overview

The 2024 Asset Management Plan (AMP) has been completed in accordance with provincial regulation O. Reg. 588/17, which establishes the standard content that must be included in all Asset Management Plans in the Province of Ontario. This plan provides summary level data on all the non-core assets owned and operated by the Municipality. The Municipality's core assets, as defined by O. Reg. 588/17, include roads, bridges, culverts, and stormwater. All other assets are considered non-core for the purposes of asset management planning.

The purpose of the AMP is to identify the capital costs required to maintain current service levels over the next ten years. This AMP does not provide any funding recommendations as the legislation only requires that the annual lifecycle costs be identified for the next ten years. Funding recommendations will be provided in the next iteration of the AMP, which will include a financing strategy and proposed levels of service. This next iteration is required for completion by July 1, 2025.

The AMP is divided into several chapters, each providing a specific set of information related to different aspects of the plan.

The Introduction chapter provides a contextual overview of asset management planning, including the purpose of the AMP and a brief summary of the provincial legislation. The introduction also provides the growth forecast, risk assessment, and discussion of climate considerations as required under the legislation.

The Summary of Non-core Infrastructure Assets chapter summarizes the asset information for all asset categories to provide an aggregated summary of all non-core assets owned by the Municipality. This chapter also provides greater context on the various components of the AMP, including a discussion on the embedded assumptions and methodologies.

The AMP also includes individual chapters for each of the asset categories included in the plan. The individual chapters include a greater level of detail by providing summary level information down to the asset sub-type level. These chapters also define some of the alternative assumptions and methodologies specific to the corresponding asset category. The Summary of Non-core Infrastructure Assets chapter is essentially an aggregated summary of the chapters related to the individual asset categories.

Summary of Non-core Assets

The table below provides the summary level data for each non-core asset category included in the AMP. The summary level data includes average age, average condition, and total replacement cost for all the underlying assets within the various asset categories.

Asset Category	Quantity	Average Age (Years)	Replacement Cost ($2024)	Average Condition (ULC%)	Average Condition State
Corporate Facilities[1]	10	82.4	$122,579,000	0.88%	Good
Corporate Fleet	209	9.0	44,316,000	84%	Good
Emergency Services	779	6.2	2,578,000	57%	Good
Information Technology	587	9.3	6,080,000	50%	Good
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Parks	629	20.5	61,765,000	84%	Good
Recreation, Community, and Culture[1]	172	48.1	461,704,000	0.11%	Good
Transportation Infrastructure[2]	10,267	21.8	215,671,000	29%	Very Good
Total[3]	**12,889**	**41.8**	**$942,568,000**	**50%**	**Good**

1. Average condition for Corporate Facilities and Recreation, Community, and Culture are based on a Facilities Condition Index (FCI) as opposed to the Useful Life Consumption percentage (ULC%).
2. Quantity of Transportation Infrastructure also includes a combined 385.6 km's of sidewalk and guiderails.
3. Total Average Condition of 50% excludes Corporate Facilities and Recreation, Community, and Culture as these assets utilize the FCI condition methodology. These assets are assessed as "Good", on average, meaning the total average condition state would remain as "Good" if these assets were included.

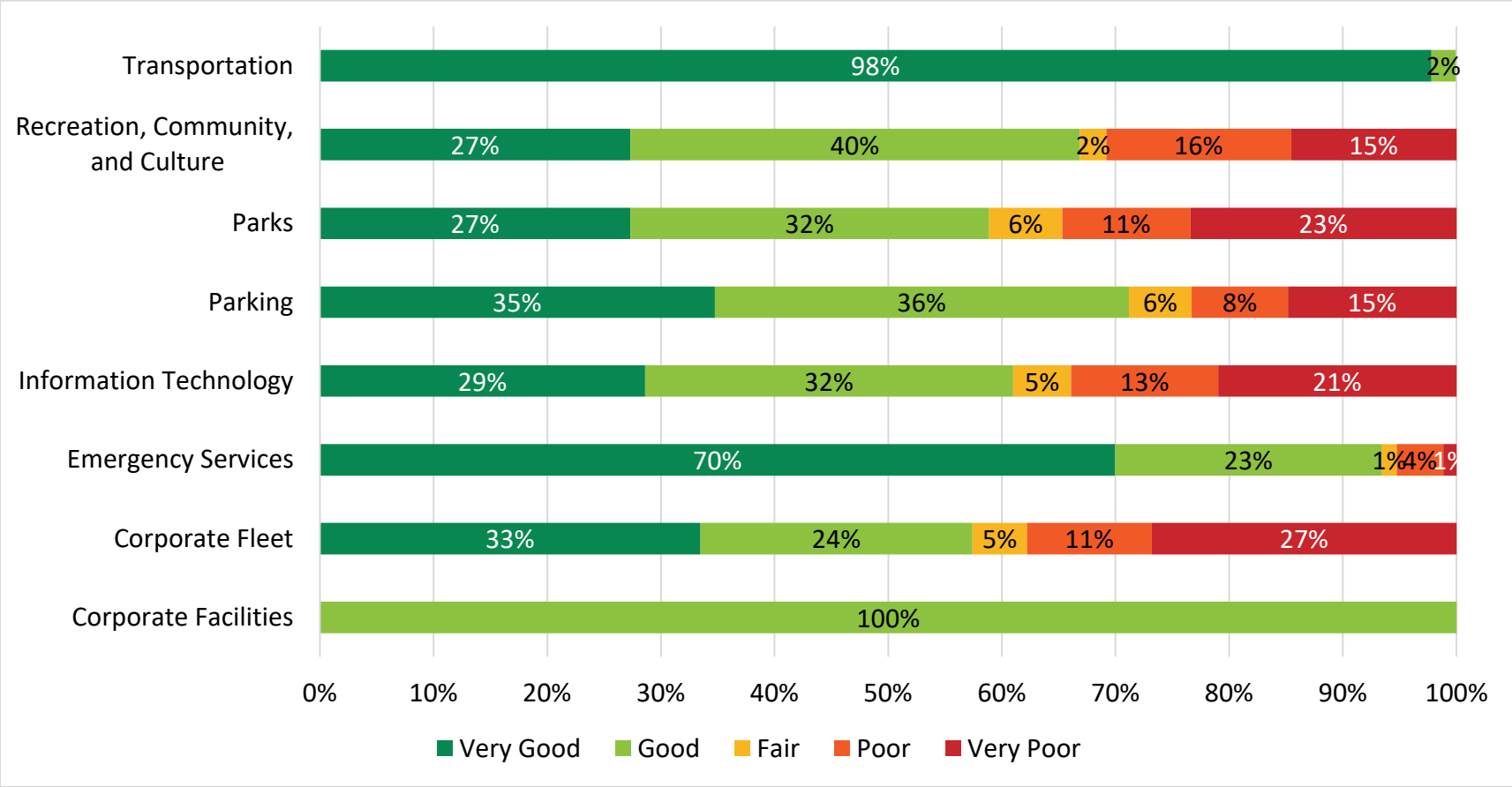
The average age and condition for each asset category represents a weighted average, based on replacement cost, of the average age and condition of the various asset types within each asset category. The total average age and condition for all non-core assets represents a weighted average of the various asset categories, based on replacement cost.

The total replacement cost for each asset category represents the sum of the replacement costs of all the underlying assets within the category. Replacement costing reflects an estimate of the full replacement of each asset and was derived using a combination of recent tenders and staff estimates.

The condition assessments for Corporate Facilities and Recreation, Community, and Culture were determined using a Facilities Condition Index (FCI) methodology. The FCI reflects the cost of remedying maintenance deficiencies as a percentage of the current replacement value. The FCI condition assessments were determined through Building Condition Assessments that were completed by an external engineering consultant in late 2023 and early 2024.

The remaining assets use a Useful Life Consumption percentage (ULC%) methodology to derive a condition rating. The ULC% is calculated by dividing the assets age by its estimated useful life to determine the percentage of its estimated useful life that has been consumed. This methodology was used because most assets are not routinely subject to physical condition assessments.

Although the average condition of the Municipality's non-core assets is rated as Good, the condition rating for each individual underlying asset ranges from Very Good to Very Poor. The figure below provides the condition distribution for all underlying assets, based on the quantity of assets within each asset category.

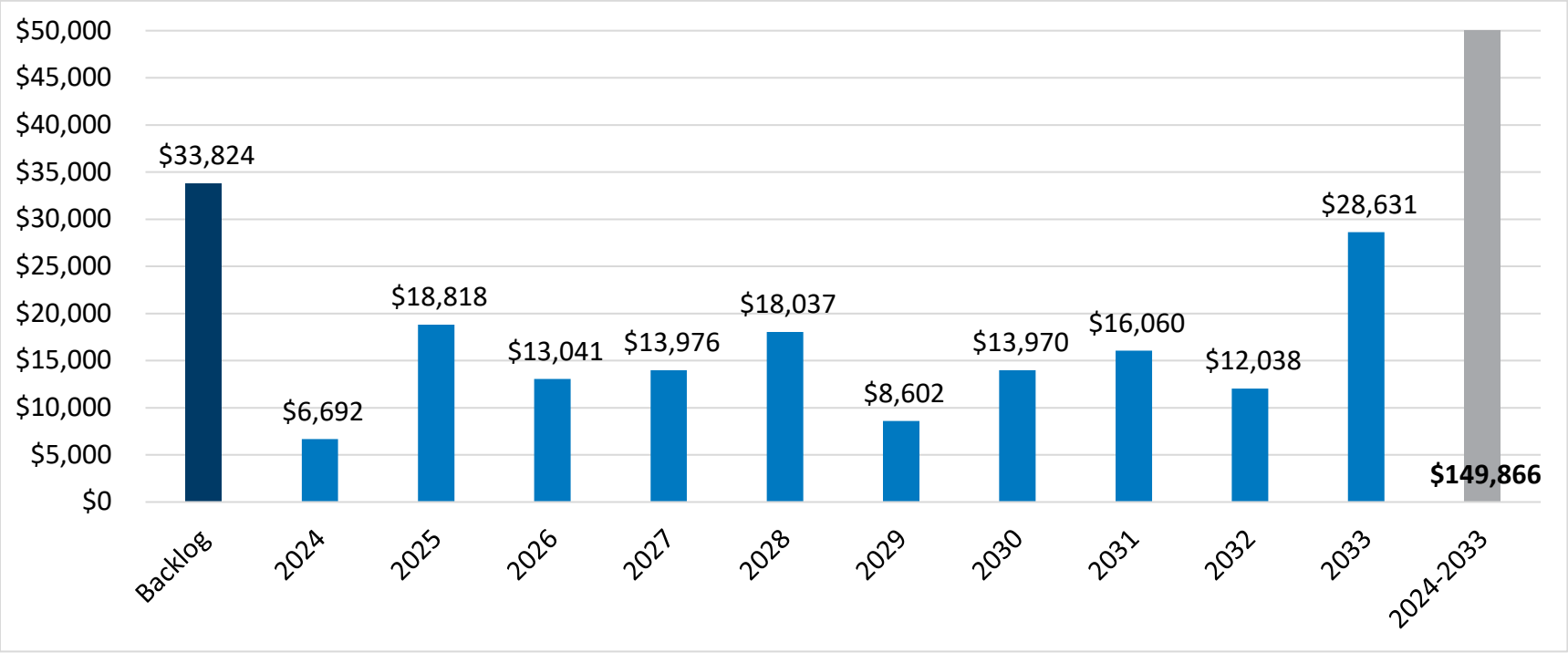


Lifecycle Management Strategies and Costing

According to O. Reg. 588/17, asset management plans must identify the set of planned actions required to maintain assets at their current level of service and provide a ten-year capital plan that forecasts the costs associated with the lifecycle management strategies over the next ten-years.

Municipal assets undergo a number of lifecycle activities throughout their lifecycle; however, the lifecycle costing in the AMP only includes the activities that form a capital cost to the Municipality (i.e.: the replacement of the assets). The regulation states that only capital costs and “significant” operating costs should be captured in the AMP. However, the regulation does not define a “significant operating cost”. Therefore, no operating costs have been deemed significant for the purpose of this AMP. This operating cost assumption will be reevaluated for the next iteration of the AMP when full lifecycle costing, beyond a ten-year forecast horizon, will be identified.

The figure below identifies the estimated annual cost, over the next ten years, of all capital lifecycle activities required to maintain all non-core assets at the current level of service. The estimated cost of lifecycle activities, for the 2024-2033 forecast period, is approximately $150 million.



The costs in the figure above also include approximately $34 million in backlog costs. The backlog represents the total estimated replacement cost of assets that, according to their age and estimated useful life, have surpassed their scheduled year of replacement, and likely require replacement sometime within the ten-year forecast period.

It is important to note that items appearing in the backlog may not necessarily require immediate attention. These assets have likely been maintained through general maintenance and repair and may still be performing their functional duty at an acceptable level. Since these assets have surpassed their planned year of replacement, it is difficult to predict in which year these assets will now require replacement. These assets will sit in the backlog until such time as they are replaced.

The backlog includes only items that have a reasonable likelihood of requiring replacement within the ten-year forecast period. Items that are beyond their estimated useful life but are not planned for replacement over the forecast period have been removed from the backlog.

Average Annual Lifecycle Costing

The costs identified in the figure above represent the estimated annual gross cost of capital lifecycle activities over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant variances in annual costs. In an effort to eliminate the significant variances, the AMP provides three scenarios for averaging out the total gross costs over the 2025-2033 period. Averaging out the costs ensures that the annual costs are increasing at a linear rate.

The table below provides the average annual costs for each of the three scenarios. All of the scenarios remove any costs that have already been included in previous municipal budgets. However, the three scenarios differ in their approach to addressing the backlog.

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Level	$13,004	$13,521	$14,060	$14,620	$15,202	$15,807	$16,437	$17,092	$17,774	**$137,516**
Reduce Backlog	$14,692	$15,278	$15,887	$16,520	$17,179	$17,864	$18,576	$19,317	$20,087	**$155,399**
Eliminate Backlog	$16,573	$17,235	$17,923	$18,639	$19,384	$20,158	$20,963	$21,800	$22,670	**$175,347**

The “current service level” scenario represents the status quo and assumes the overall dollar value of the backlog will remain constant throughout the forecast period. Under this scenario, the overall dollar value of the backlog will remain constant, but the projects within the backlog could change. This scenario also assumes that the current asset condition distribution would remain relatively constant throughout the forecast period.

The “reduce backlog” scenario identifies the estimated average annual lifecycle cost under the assumption that 50 per cent of the current backlog would be eliminated over the forecast period. This scenario provides for a gradual reduction in the dollar value of the backlog over time. This scenario would improve the asset condition distribution by transitioning more assets into the Very Good to Good condition rating.

The “eliminate backlog” scenario identifies the estimated average annual lifecycle cost under the assumption that the entire backlog would be eliminated over the ten-year forecast period. This would significantly improve the asset condition distribution by transitioning most assets into the Very Good to Good condition rating.

Inflation Assumption

Future costing throughout the forecast period has been inflated at a rate of four per cent per year. This is to ensure that future costs represent a reasonable estimate of the actual cost expected in that year. The four per cent inflation rate is based on a historical average of the non-residential Building Construction Price Index.

02

Introduction

Overview

The 2024 Asset Management Plan (AMP) is a comprehensive document that provides a long-term plan for investment in non-core capital infrastructure assets. Non-core capital assets include all assets that are not considered “core” for asset management purposes. Core assets, which were the subject of the Municipality’s previous AMP, include Roads, Bridges, Culverts, and Stormwater assets. The AMP for the Municipality’s core assets was presented to Council in June 2022.

This iteration provides a long-term capital forecast for the replacement and financial management of the Municipality’s existing non-core infrastructure assets. This long-term capital forecast forms one of the pillars of the Municipality’s comprehensive long-term financial plan.

The purpose of the AMP is to identify the capital costs required to maintain the current service delivery standards of the Municipality’s non-core assets over the next ten years. The AMP identifies only the capital costs of maintaining or replacing the assets and does not include the operating costs associated with general maintenance and repair. The plan also does not provide a recommendation for funding the capital costs involved in the plan, but rather identifies only the estimated capital costs required to maintain the Municipality’s non-core assets, at their current level of service, over a ten-year forecast horizon. Full lifecycle costing (i.e. beyond a ten-year forecast horizon), along with a corresponding funding strategy, will be included in the next iteration of the AMP, which is required by July 1, 2025.

The 2024 AMP aims to capture as many non-core asset types and categories as possible and uses the best information available to forecast the capital financing needs of these assets over the next ten years. A variety of approaches were used to estimate the current state of the Municipality’s infrastructure, along with the estimated costs to maintain these assets over the long-term. The AMP is intended to be a tool for staff and Council to guide long-term financial planning decisions and will assist in many areas of financial planning, including capital budgeting and long-term financial forecasting.

Asset management planning has been identified as a key component of the Clarington Strategic Plan. The Municipality has identified the AMP as a strategic action required to address the priority of maintaining, protecting and investing in municipal infrastructure and assets.

It is important to note that the AMP represents a snapshot in time and is based on both a series of assumptions and the best information available to staff at the time of development. As these assumptions change over time, the underlying data will be updated and refined to ensure the information remains relevant and accurate.

Legislative Context for Asset Management Planning

Asset management planning has become a legislated responsibility for municipalities in the Province of Ontario. The legislative context and requirements have significantly evolved over the past decade.

In 2016, the Provincial Government passed the Infrastructure for Jobs and Prosperity Act, which gave the Province the authority to guide municipal asset management planning through regulation. This was followed, in late 2017, by the introduction of O. Reg. 588/17, which established the standard content to be included in all Asset Management Plans in the Province of Ontario. Specifically, the regulation requires the following components:

- Development of a Strategic Asset Management Policy.
- Infrastructure asset inventory, including summary level data on each asset category.
- Defined current and proposed levels of service.
- Lifecycle activities undertaken to achieve the defined levels of service.
- Financial strategy to support the levels of service and lifecycle activities.

Although all components were included in O. Reg. 588/17, the Province is utilizing a phased approach for the implementation of the different components. The following table provides the implementation deadlines for the various components listed above:

Table I – Asset Management Plan Implementation Deadlines

Implementation Date	Requirement
July 1, 2019	Municipalities to adopt a Strategic Asset Management Policy.
July 1, 2022	Municipalities to complete AMP for core assets, as defined by the Province.
July 1, 2024	Municipalities to complete AMP for remaining non-core assets.
July 1, 2025	Municipalities to develop a funding strategy and proposed service levels for all assets.

Clarington completed the core asset AMP in 2022 and has now completed the iteration related to non-core assets. The two plans include all the legislative components required for each implementation date, including a summarized asset inventory, current levels of service metrics, and annualized lifecycle activities.

The Municipality is now working towards developing a funding strategy and proposed levels of service targets for all assets, which represent the final components of the provincial asset management requirements. This final component will be completed and presented to Council in June 2025.

Strategic Asset Management Policy

The Municipality adopted its Strategic Asset Management Policy (G15) in 2019. The policy outlines the commitments and principles that will be considered in the Municipality's asset management planning. It ensures strategic alignment with the Municipality's vision of building a sustainable, creative, and caring community. This vision requires the alignment of many initiatives, while ensuring that all existing and planned asset decisions support the recommended levels of service and long-term vision for the community.

As per O. Reg. 588/17, the Strategic Asset Management Policy must be reviewed every five years. The Municipality's policy was reviewed as part of the development of the 2024 AMP and no significant changes to the policy are being proposed. The policy will be reviewed again as part of the 2025 asset management legislative requirements. Any proposed changes stemming from this exercise will be brought to Council in conjunction with the 2025 iteration of the AMP.

Asset Management Plan Development

Overview

The AMP was developed in accordance with O. Reg. 588/17 and is structured to comply with both the legislative requirements contained within the legislation and the Municipality's Strategic Asset Management Policy.

The 2024 AMP includes only non-core assets, as defined by O. Reg. 588/17, which are owned and operated by the Municipality. As mentioned, the Municipality has previously developed an AMP that focused on the core assets of Roads, Bridges and Culverts, and Stormwater. The core asset AMP will need to be reviewed and updated by 2027, in accordance with provincial legislation.

The Municipality's non-core assets were grouped into different asset categories based on asset characteristics and levels of service expectations. The following table provides the different asset categories, along with a description of the assets included in each category.

Table II – Non-core Asset Categories

Asset Category	Description
Corporate Facilities	Includes all facilities, owned by the Municipality, that are used for public administration purposes and not for community programming purposes.
Corporate Fleet	Includes all the vehicles and equipment required to perform the various services provided by the Municipality. This includes fire trucks, snowplows, ice resurfacers, etc.
Emergency Services	Includes the various assets and equipment used in the delivery of fire and emergency services. Excludes fire stations (Corporate Facilities) and fire vehicles (Corporate Fleet).
Information Technology	Includes various information technology hardware and software used by the Municipality for service delivery and communication purposes.
Parking Infrastructure	Includes the assets used in the delivery of parking services throughout the Municipality. Includes parking lots, parking lot lights, centralized parking meters, and Electric Vehicle (EV) chargers.
Parks	Includes infrastructure used in providing parks services and outdoor recreation activities. Includes playground equipment, sports fields/courts, trails, etc. Cemetery infrastructure, such as columbarium's, are also included in this asset category.
Recreation, Community, and Culture	Includes the facilities, owned by the Municipality, that are used for community programming and events. Includes arenas, aquatic centres, community halls, museums, and libraries. Also included are various pieces of fitness and recreation equipment.
Transportation Infrastructure	Includes the assets used in the delivery of transportation services, with the exception of the Municipality's Road network. Includes traffic lights, sidewalks, guiderails, streetlights, etc.

Developing the AMP was a collaborative effort between the Finance and Technology Department and the various Departments and Divisions that own and operate the assets used in the delivery of municipal services. Collaboration with service area experts was a key component of ensuring the plan includes the best information available.

Asset Management Plan Structure

The plan has been designed to emphasize the asset categories by providing dedicated chapters for each of the non-core asset categories. Each asset category chapter includes separate sections focusing on the various requirements of O. Reg. 588/17, such as State of Local Infrastructure, Levels of Services, and Lifecycle Management Strategies. These chapters provide a higher degree of granularity by summarizing data down to the asset sub-type level and provide insight on specific assumptions and nuances that are unique to the corresponding asset category.

The AMP also provides a “Summary of Non-core Infrastructure Assets” chapter that aggregates the information from the individual asset categories to provide insight into the overall state of non-core infrastructure for the Municipality. This chapter provides further information on the legislative requirements for each component of the AMP, along with background information on the general assumptions and methodologies used to derive the data.

Risk Assessment

The AMP assesses risk as the likelihood of failure, which is quantified through the asset condition rating. The consequence of failure is difficult to quantify and has not been identified in this iteration of the AMP. The identified lifecycle activities have been established based on the likelihood of asset failure as opposed to the consequence of failure.

The Municipality is currently undertaking work to define a consequence of failure matrix that could be used to prioritize lifecycle activities in future iterations of the AMP. Currently, asset spending prioritization is done by subject matter experts within the various departments. The AMP identifies the annual costs associated with maintaining and replacing assets based on their likelihood of failure. Individual departments will conduct their own funding assessment as to which projects should be brought forward or pushed back based on the consequence of asset failure.

Growth Considerations

The Municipality plans for growth through the development of its Official Plan and associated Secondary Plans. The purpose of the Official Plan is to guide and manage development in the Municipality and includes policies that provide for a more urban, walkable community, with great public spaces and complete streets designed for people.

The Municipality uses Development Charges (DC's), and the associated DC Study, to plan for the infrastructure required to service the increased growth identified through the Official Plan. The Municipality last updated its DC study in 2020 and is currently in the process of developing a new DC Study for implementation in 2025.

The 2020 DC Study forecasts population and employment growth out to 2031. The DC Study estimates are provided in Table III below. The population estimates exclude the census undercount, while the employment estimates include both work from home and employees with no fixed place of work.

Table III – Population and Employment Estimates – 2020 DC Study

	Early 2020	Early 2025	Early 2030	Mid 2031
Population	99,289	113,484	129,687	134,941
Employment	30,765	36,178	39,475	40,458

Annualized estimates for the next ten years are provided in Table IV below. The annualized estimates are based on the information from the 2020 DC Study and use the estimated growth rate from 2030-2031 to derive estimates for 2032 and 2033.

Table IV – Annualized Population and Employment Estimates (2024 – 2033)

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Population	110,645	113,484	116,725	119,965	123,206	126,446	129,687	134,941	140,195	145,449
Employment	35,095	36,178	36,837	37,497	38,156	38,816	39,475	40,458	41,441	42,424

The specific types of infrastructure required to service this growth were also included in the 2020 DC Study. The value of infrastructure requirements identified in the 2020 DC Study, which pertain to the assets included in this AMP, are provided in the table below. The estimates reflect totals over the entire DC Study forecast period of 2020 – 2031.

The table provides both the actual costs provided in the DC Study ($2020) and an estimate of the value in current dollar terms ($2024). The current estimates are derived by inflating the 2020 costs by the four per cent per year inflation factor used throughout the AMP.

Table V – Value of Growth-Related Infrastructure (2020-2031) – 2020 DC Study

DC Service Area	DC Study Cost ($2020)	Estimated Current Cost ($2024)
Fire Protection Services	$11,483,000	$13,433,000
Parks and Recreation	160,833,000	188,152,000
Library Services	11,072,000	12,953,000
Total	**$183,388,000**	**$214,538,000**

Annualized growth-related infrastructure cost estimates, for the next ten years, have been provided in the table below. These estimates are based on the information provided above from the 2020 DC Study. The DC Study only projects infrastructure costs out to 2029 for the DC service areas related to the non-core infrastructure assets. The DC Study projections were used to derive estimates for the remaining forecast years of 2030 – 2033.

Table VI – Annualized Growth-Related Infrastructure Costs ($000's) (2024 – 2033)

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2024-2033
Total	$20,663	$7,477	$47,082	$12,680	$14,681	$38,568	$4,820	$6,342	$8,680	$12,355	**$173,348**

As the costs in the table above form part of the DC Study, the initial cost of infrastructure would be partially funded through DC's. However, the replacement of this infrastructure would not be DC eligible and would need to be covered through non-DC sources.

Some of the assets included in the costs above have likely been acquired and would be included in the AMP. However, assets that have not yet been acquired are not represented as the AMP deals exclusively with the maintenance and replacement of current infrastructure. The table demonstrates that growth-related infrastructure, although partially funded by DC's for the initial acquisition, also have significant replacement costs that need to be funded. The funding for the replacement of growth-related infrastructure will be planned through capital budgeting and long-term capital forecasting.

Climate Change Considerations

Climate change considerations have been incorporated in the AMP, where possible, through the estimated replacement costing of the assets. Replacement costing is based on the Municipality's current standards for asset acquisition and functionality. For example, replacement costing for fleet assets assume electric vehicle replacement, where possible, while replacement costing for lighting luminaires assume LED replacement.

In March 2020, the Municipality of Clarington joined over 400 Canadian municipalities and 1,300 local governments by declaring a climate emergency. By declaring a climate emergency, the Municipality acknowledges its leadership role in responding to climate change by reducing Greenhouse Gas (GHG) emissions.

Clarington Corporate Climate Action Plan

In March 2021, Clarington Council approved the Clarington Corporate Climate Action Plan (CCCAP) to prepare for climate change and reduce the negative impact Municipal service delivery may have on the environment. The CCCAP outlines over one hundred actions the Municipality can take to respond to climate change while adapting services and operations to minimize climate risks. It also sets targets to reduce corporate GHG emissions. The CCCAP sets a target to reduce corporate GHG emissions by 35 per cent by 2030 and achieve net-zero emissions by 2050. The actions in the CCCAP will be considered in all asset replacement activities moving forward.

Green Fleet and Equipment Policy

In December 2023, Clarington Council approved the Green Fleet and Equipment Policy. This policy directs staff to prioritize investment in low or zero-emission fleet assets as a means of reducing GHG emissions. As per the Green Fleet and Equipment Policy, the AMP assumes electric replacement for all fleet assets where an electric replacement is available. Currently, electric replacements are available for cars and vans, light-duty trucks, and certain pieces of equipment. The provisions of the Green Fleet and Equipment Policy have been captured in the levels of service indicators for fleet assets by tracking the number of electric vehicles as a percentage of total fleet.

Asset Management Planning – Long-term Vision

The Municipality will continue working towards satisfying the various legislative components of asset management planning, in accordance with the legislative deadlines provided in O. Reg. 588/17.

Once the remaining iterations have been completed by the legislative deadlines, staff will undertake work to consolidate the three separate documents into a single, comprehensive AMP, that includes all assets owned and operated by the Municipality. The consolidated plan will include updated asset inventory information for all assets, along with updated lifecycle costing and a corresponding financing strategy.

Future asset management planning will also include the development of a natural asset inventory and the inclusion of natural assets in future plans. Until a comprehensive natural asset inventory is developed, asset management plans will continue to include only engineered assets.

Going forward, the underlying asset data will be updated on an annual basis to ensure the information remains relevant and useful. This data will then be used to inform future capital budgeting and forecasting. The development of a single, comprehensive AMP for all assets is intended to form a critical component of the Municipality's long-term financial plan.

03

Summary of Non-core Infrastructure Assets

Overview

The following sections provide an overview of the various components required under the provincial asset management regulation O. Reg. 588/17. The regulation requires an overview of the state of local infrastructure, including asset age, condition, and replacement cost, along with indicators of current service levels and annual lifecycle costing over a ten-year forecast horizon.

The specific information relating to the different asset categories is presented in the corresponding chapter related to the specific asset category. The summary information on the different asset categories has been aggregated into the sections below. The purpose is to provide an overall summary for all non-core assets owned and operated by the Municipality.

The sections below also provide further context into the assumptions and methodologies used to derive the data, along with further legislative detail on the various components included in O. Reg. 588/17.

State of Local Infrastructure

According to O. Reg. 588/17, the following information for each asset category must be identified as an indicator of the state of local infrastructure:

- Summary of the assets included in the asset category.
- Replacement cost of the assets included in the asset category.
- Average age of the assets in the asset category, determined by assessing the average age of the components of the assets.
- Information available on the condition of the assets in the category.
- Description of the municipality's approach to assessing the condition of the assets in the category (based on recognized and generally accepted good engineering practices where appropriate).

The table below provides the aggregated summary information for the different asset categories included in the AMP.

Table 1 – Average Age, Replacement Cost, and Average Condition – All Non-core Asset Categories

Asset Category	Quantity	Average Age (Years)	Replacement Cost ($2024)	Average Condition (ULC%)	Average Condition State
Corporate Facilities[1]	10	82.4	$122,579,000	0.88%	Good
Corporate Fleet	209	9.0	44,316,000	84%	Good
Emergency Services	779	6.2	2,578,000	57%	Good
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2. Quantity of Transportation Infrastructure also includes a combined 385.6 km's of sidewalk and guiderails.
3. Total Average Condition of 50% excludes Corporate Facilities and Recreation, Community, and Culture as these assets utilize the FCI condition methodology. These assets are assessed as "Good", on average, meaning the total average condition state would remain as "Good" if these assets were included.

The majority of asset data, including the inventory, age, and historical costing of assets, has been extracted from the Municipality's asset management tracking software, CityWide. The Finance and Technology Department maintains the CityWide database and works with other departments to ensure the system is updated when new assets are acquired.

The majority of data for Corporate Facilities and Recreation, Community, and Culture (RCC) facilities has been extracted from Building Condition Assessments (BCA's) that were completed in late 2023 and early 2024. These

BCA's provide current condition assessments, lifecycle costing, and replacement values. The condition assessments provided in the AMP were directly extracted from the BCA's.

Lifecycle costing for Corporate Facilities and RCC assets were derived from the BCA's but were adjusted to match the annual inflation assumptions used for all other asset categories. Replacement costs for the AMP were estimated by staff and were derived by applying a current cost per square foot estimate to the size of each facility. This approach was used to better estimate the overall cost associated with the complete reconstruction of each facility.

Asset Exclusions

The assets included in the AMP represent only the assets that are being actively maintained by the Municipality and are scheduled to be replaced. There are some assets in the municipal inventory that are still in use but are not scheduled to be replaced at the end of their useful life. These assets are typically well beyond their estimated useful life but remain in the asset inventory because they continue to perform some functional duty for the Municipality. These assets have typically already been replaced by newer assets but remain in active service. These assets have been excluded from the AMP to provide a more realistic representation of the state of local infrastructure.

Summary of Assets

The following table provides the different asset categories included in the AMP, along with the specific asset types included in each category. Each asset type is then further divided into specific asset sub-types. Asset types were determined by grouping similar assets with similar characteristics (e.g. replacement costs, estimated useful lives, and lifecycle activities).

Descriptions of the various asset sub-types are included in the individual chapters for each asset category. These descriptions also provide further details on the assets included in any "Miscellaneous" category.

Table 2 – Summary of Asset Types

Asset Category	Asset Types	Asset Sub-Types
Corporate Facilities	Corporate Facilities	Municipal Administration Centre
		Fire Stations
		Operations Depots
		Animal Services Building
Corporate Fleet	Vehicles	Aerials, Pumpers, Tankers
		Cars and Vans
		Heavy, Medium, and Light Duty Vehicles
	Equipment	Ice Resurfacers
		Loaders, Graders, Tractors, Mowers
		Trailers and Unlicensed Equipment
Emergency Services	Suppression Gear	Bunker Suits and Helmets
		Self-Contained Breathing Apparatus'
	Equipment	Suppression Equipment
		Defibrillators, Pagers, Radios
	Training Infrastructure	Miscellaneous training equipment
Information Technology	Communications	Communication Towers and Wireless Links
		Phone system
	Software	Software systems
	Hardware	Various hardware (laptops, monitors, etc.)

Asset Category	Asset Types	Asset Sub-Types
Parking Infrastructure	Parking Lots	Paved and Gravel lots
	Parking Lot Infrastructure	Lights, Central Pay Meters, Electric Vehicle Chargers
Parks	Play Courts	Tennis, Basketball, and Pickleball Courts
	Play Fields	Baseball, Softball, Soccer, Football, and Cricket Fields
		Lacrosse Bowl
	Playgrounds	Playground/Outdoor Fitness Equipment and Splashpads
	Park Structures/Amenities	Sports field lights and Park lights
		Park washrooms
		Shade structures and Miscellaneous structures
	Trails	Park/non-park trails, Waterfront trails, Multi-use paths
	Miscellaneous	Miscellaneous Park assets
Recreation, Community, and Culture	Facilities	Arenas, Aquatic Centres, Indoor Soccer Facility, Community Facilities, Culture Facilities
	Equipment	Fitness and Recreation equipment
Transportation Infrastructure	Guiderails	Steel Beam, Guideposts/Post & Cable, Concrete barriers
	Sidewalks	Concrete and Asphalt
	Streetlighting	Concrete, Wood, Aluminum poles (standard and decorative)
		LED luminaires (standard and decorative)
	Traffic Controls	Traffic signals and Pedestrian crossings
	Equipment	Radar message boards

Replacement Costing

The total replacement cost of all non-core assets owned by the Municipality is estimated at over $942 million (Table 1). The majority of the cost is associated with the various Corporate and RCC facilities. The estimated replacement cost for these facilities is over $580 million, or over 60 per cent of the total cost of non-core asset replacement.

Replacement Costing Assumptions

Replacement costing generally represents an estimate for the full replacement of an asset. This would include the estimated cost of the tangible asset, along with the costs associated with construction, installation, and removal of the existing asset. All replacement costing has been provided in current (2024) dollars.

Replacement costing was derived using recent tenders for similar assets, along with the expertise of staff involved in the purchasing and operation of the assets. When past tenders were used to estimate replacement costing, costs were inflated to best reflect current pricing.

Replacement costing for facilities is based on a $750 cost per square foot. This cost was applied to the estimated square footage of each facility (both Corporate and RCC) to derive the full replacement cost. The estimated cost per square foot is based on recent tenders and represents the current cost assumption used by the Municipality's Facilities Division for capital budgeting purposes.

Estimated Replacement Costing – Core and Non-core Assets

The total replacement cost of over $942 million refers only to the non-core assets included in this AMP. It is important to note that there are also significant replacement costs associated with the Municipality's core assets. The core assets of roads, stormwater, bridges, and culverts represent a significant share of the total assets owned and operated by the Municipality.

The table below provides the replacement costing for the core assets that was included in the 2022 AMP. The costs in the 2022 AMP were provided in 2020 dollars. The table inflates the costs into current dollars ($2024), using a four per cent per year inflation factor, as a means of estimating the current replacement cost for these assets.

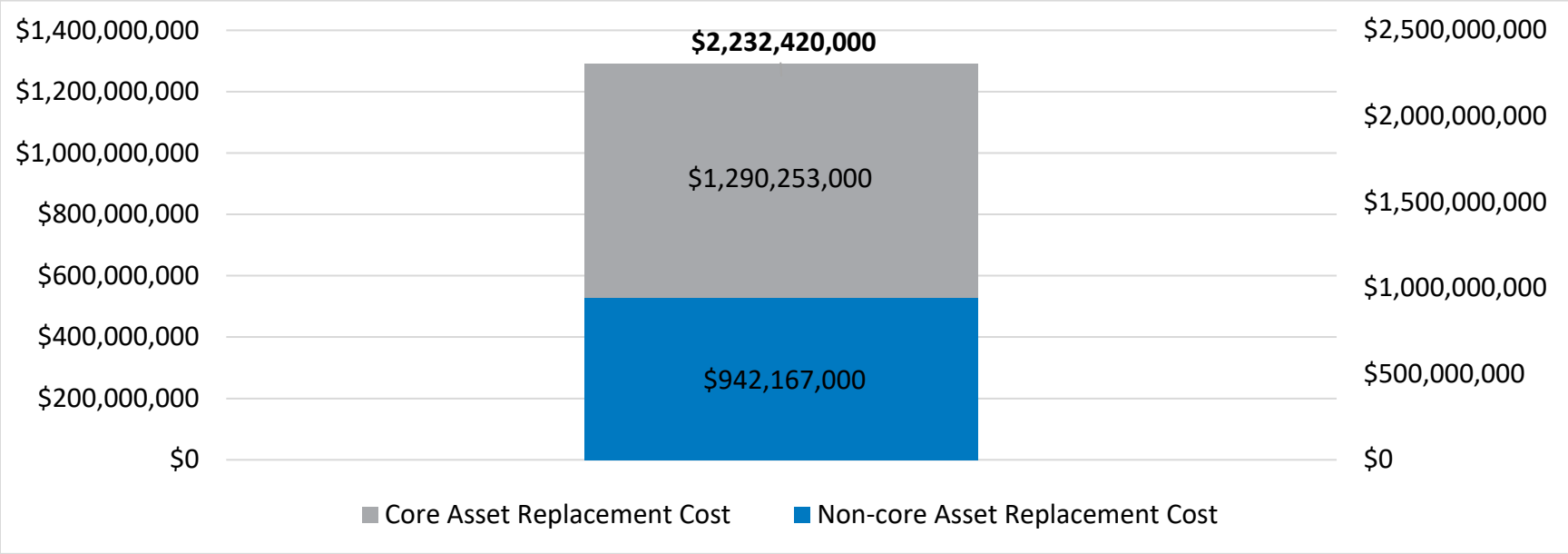
Table 3 – Core Asset Replacement Costs

Core Assets	2022 AMP Replacement Cost ($2020)	Replacement Cost ($2024)
Stormwater Management	$188,266,000	**$220,245,000**
Roads	714,628,000	**836,014,000**
Bridges and Culverts	200,020,000	**233,995,000**
Total	$1,102,914,000	**$1,290,253,000**

The total replacement cost for core assets, based on the information from the 2022 AMP and inflating costs into current dollars, is approximately $1.3 billion. The figure below shows the total estimated replacement cost for all Municipal assets, combining the total replacement cost of non-core assets with the estimated current replacement cost for core assets. The addition of the estimated replacement cost of core assets results in a total replacement cost, for all Municipal assets, of over $2.2 billion.

The estimates provided for core assets have been included for illustrative purposes only. The composition of core assets has likely changed since the core asset AMP was completed and replacement costing has potentially increased at a higher rate. A true reflection of current replacement costing for core assets would require a detailed review and update of the core asset AMP. The table above is intended to act as a reminder that the Municipality owns a significant amount of additional infrastructure that, although not accounted for in this AMP, must be considered when assessing the full replacement cost of the Municipality's total asset inventory.

Figure 1 – Estimated Total Asset Replacement Costing ($2024) – All Core and Non-core Assets



Asset Age

The majority of asset age data was extracted from the Municipality's asset inventory and was determined based on the in-service date provided in CityWide. The average age for each asset category represents a weighted average, based on replacement cost, of the average age of the various asset types within each category. The average age of the various asset types, within each asset category, is provided in the individual asset chapters.

The total average age for all non-core assets, presented in Table 1, represents a weighted average of the various asset categories, based on replacement cost. The total average age of all non-core assets is approximately 41.8 years.

Average age varies significantly depending on the type of asset. The average age of facilities is significantly higher than the other asset categories because these assets are generally maintained and renovated not typically subject to a full replacement. The age of these assets is based on the initial construction date, which, in the case of the Municipal Administration Centre, was over one-hundred years ago.

In certain circumstances, the age of specific asset types was unknown. In these cases, efforts were made to estimate the age as accurately as possible. In other cases, estimating the age with a reasonable degree of accuracy was not possible based on data gaps. In these limited circumstances, the average age was listed as "N/A" (not available). This was done for certain types of streetlights that were likely installed before electronic documentation became available.

Estimated Useful Life

Each asset has also been assigned an estimated useful life based on industry best practice or through discussions with service area experts within the Municipality. The Municipality's Capitalization Policy assigns an estimated useful life to all capital assets as a means of amortizing the asset for financial reporting purposes. The estimates provided in this policy are based on industry best practice (at the time the policy was developed) and were used in most circumstances for the AMP.

In other circumstances, the expertise of staff was used to determine the estimated useful life based on updated estimates from recent acquisitions. The estimated useful life of certain assets tends to lengthen over time with improvements in technology and manufacturing. For example, light poles for streetlights and sports fields are now equipped with a lifetime warranty. The estimated useful life for specific asset types has been included in the chapters for the individual asset categories.

Asset Condition

Condition Assessment Methodology – Non-Facility Assets

The condition for most of the Municipality's non-core assets (excluding Facilities) has not been assessed through a physical condition assessment. Most of these assets are visually inspected on a periodic basis to identify obvious signs of deterioration; however, most assets are not routinely subject to physical inspections that assess the structural condition of the asset.

In the absence of physical condition assessments, the AMP uses the age of the asset as a proxy for condition. The metric used is the Useful Life Consumption Percentage (ULC%), which derives a condition based on the assets age relative to its estimated useful life. The ULC% is calculated by dividing the assets age by its estimated useful life to determine the percentage of its estimated useful life that has been consumed.

New assets would have a ULC% of 0% as these assets have not yet consumed any of their estimated useful lives. Assets that have reached their estimated useful life would have a ULC% of 100%, indicating that they have consumed all of their estimated useful life. It is possible for assets to have a ULC% greater than 100% if the asset is beyond its estimated useful life.

It is important to note that a ULC% of greater than 100% is not necessarily an immediate concern. Some assets, through routine maintenance, can last beyond their estimated useful life and still perform their desired level of service. However, close attention should be paid to these assets as they are beyond their estimated useful life and will likely require replacement in the near future.

The table below segments the ULC% into qualitive condition states. The ULC% condition states are segmented based on the probability of failure. An asset that has reached its estimated useful life (ULC% of 100%) would be considered in “Fair” condition. Once an asset starts to exceed its estimated useful life, the probability of failure increases, and the condition becomes “Poor” to “Very Poor”. The condition assessment scale was provided by the consulting firm Watson and Associates and is based on guidance in the International Infrastructure Management Manual.

Table 4 – ULC% Condition States

ULC%	Condition State
0% ≤ ULC% ≤ 45%	Very Good
45% < ULC% ≤ 90%	Good
90% < ULC% ≤ 100%	Fair
100% < ULC% ≤ 125%	Poor
125% < ULC%	Very Poor

In certain limited cases, the condition of an asset is determined through a physical condition assessment. This is the case for many Emergency Services assets that have a direct impact on the health and safety of the user (e.g. bunker gear, helmets, Self-Contained Breathing Apparatus (SCBA’s), etc.). These assets have been provided a condition rating of “Assessed”, which reflects the fact that they are physically inspected on a frequent basis to ensure the assets remain in Very Good condition. This is also the case for certain types of critical IT infrastructure.

Condition Assessment Methodology – Facility Assets

The condition of Corporate and RCC Facilities were assessed by an engineering consulting team through formal Building Condition Assessments (BCA's). The BCA's were completed in late 2023 and early 2024 and included visual inspections of the majority of facilities owned by the Municipality.

The purpose of the visual assessments was to provide a general indication of the present physical condition of the building components. The inspections evaluated the structure and facility elements, the building envelope, and the mechanical/electrical systems. The BCA's also included a predictive ten-year forecast for renewal costs. The BCA's did not include any physical or destructive testing and observations were made only in areas that were visible or readily accessible.

The BCA's assessed the condition of each facility using a Facility Condition Index (FCI) methodology. The FCI reflects the cost of remedying maintenance deficiencies as a percentage of the current replacement value. The AMP uses the FCI derived from the BCA's as the condition assessment for all facility assets.

The table below segments the FCI% into qualitative condition states. The FCI is a widely recognized benchmark, used in facilities management, and the condition states identified below are based on industry best practice.

Table 5 – FCI Condition States

FCI	Condition State	Definition
0% ≤ FCI% < 5%	Good	Facilities look clean and functional with limited expectation of equipment/component failure. Repairs are generally more aesthetic in nature.
5% ≤ FCI% < 10%	Fair	Facilities are beginning to show signs of wear and equipment failures are more frequently expected. Specific systems/components require repair or replacement.
10% ≤ FCI% < 30%	Poor	Facilities appear worn, with increasing deterioration, and frequent component failures are expected. Replacement of major systems are required.

FCI	Condition State	Definition
30% < FCI%	Critical	Facilities appear worn, with obvious signs of deterioration, and frequent equipment failures are expected. Replacement of multiple systems are required, and the facility poses a health and safety risk.

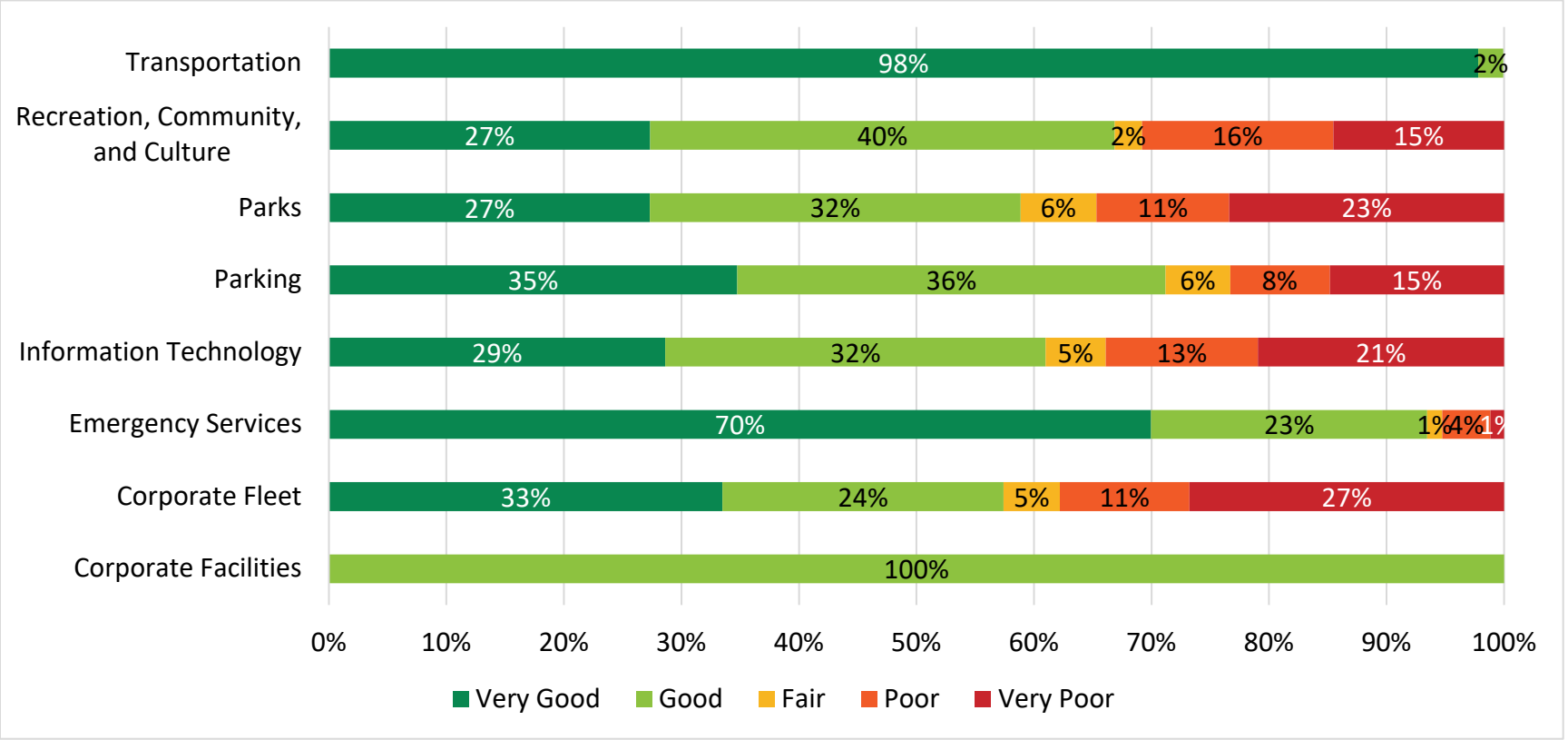
Note that the FCI calculations use replacement value, as opposed to replacement cost, as the denominator in the condition calculation. Total replacement value represents only the sum of the costs of each component part of the facility whereas replacement cost is a broader measure that includes all the other costs associated with replacing a facility (e.g. project management, contingencies, labour costs, etc.).

Assessed Conditions

Most non-core asset categories have an average condition rating of Good (Table 1). The average condition rating for each asset category is determined using the same weighted average approach used for determining average age. The condition ratings suggest that the majority of assets, with significant estimated replacement costs, are within their estimated useful life. The average condition for Transportation Infrastructure is rated as Very Good due to the lengthy estimated useful lives applied to the assets with the highest replacement costs.

Although the average condition for all asset categories is rated as Good or Very Good, the condition rating for each individual underlying asset ranges from Very Poor to Very Good. The figure below provides the condition distribution for all underlying assets within the various asset categories. The figure below provides an unweighted view of asset conditions and provides the distribution based on the quantity of assets. The condition distribution for Recreation, Community, and Culture is significantly different than the average condition for this asset category because the distribution is unweighted, and the quantity of recreation equipment far outnumbers the quantity of facilities.

Figure 2 – Condition Distribution by Asset Category



Assessed Condition – Facilities

The condition assessments provided for all municipal facilities represent the current condition as of 2024. The individual chapters for Corporate Facilities and Recreation, Community, and Culture also provide a long-term condition rating that assesses the total condition for the next five and ten years. The total condition ratings for the next five to ten years range from Good to Critical. This suggests that, although the current condition is rated as Good, these facilities still require a significant amount of renewal needs within the next ten years.

Levels of Service

The Municipality's current level of service, for the purpose of the AMP, is defined as maintaining both the asset condition distribution and the overall size of the backlog at current levels. Assets typically require replacement when they reach the point where they can no longer perform their functional duty. It is difficult to predict when an asset will reach the point where it can no longer perform its functional duty as this is typically dependent on the frequency of use. For example, two identical fleet vehicles may have very different replacement schedules if one vehicle is used far more frequently than the other. The vehicle with the higher use frequency will likely deteriorate at a faster rate and will likely need to be replaced sooner than the other.

As asset failure can occur at any point throughout the lifecycle, the AMP assumes that assets will require replacement at the end of their useful life. Some assets may need to be replaced before the end of their useful life, while other assets may last beyond their estimated useful life. The AMP assumes that, on average, assets will no longer be able to perform their functional duty at the end of their useful life. At this point, the asset will either be replaced or will be included in the backlog. This assumption also ensures that the average condition of each asset category is generally maintained at current levels.

Levels of Service Metrics

Specific levels of service metrics were developed for each asset category. Metrics were developed in an effort to reflect the desires, values, and expectations of the community. The structure of the levels of service tables are similar for all asset categories and include the following columns:

- **Service Attribute** – identifies the high-level attribute being addressed and are intended to reflect important values of the organization.
- **Levels of Service Statement** - intended to capture the expectations of the community.
- **Performance Measure** – intended to quantify the expectation identified in the Levels of Service Statement.
- **Current Performance** – identifies the current performance of the metric, using the most recent data available.

Efforts were made to maintain consistency across the various asset categories in terms of the service level attributes being addressed. Attributes were selected based on certain key characteristics, such as sustainability, accessibility, cost effectiveness, and quality.

The service attributes of cost effectiveness and quality were applied to all asset categories, whereas sustainability and accessibility were applied when appropriate. The performance measures for cost effectiveness and quality were also consistently applied across all asset categories.

Cost effectiveness is measured by identifying the current capital reinvestment rate for each asset category. The reinvestment rate was determined by identifying the most recent capital budget allocations, with respect to replacement and rehabilitation, and dividing by the total estimated replacement cost for the respective asset category. Quality is measured by the current average condition rating identified in the AMP.

Levels of Service Targets

The AMP identifies only the current level of service for each performance measure. Proposed levels of service and corresponding service level targets will be included in future iterations of the AMP, in accordance with O. Reg. 588/17. Although efforts will be made to maintain the current subset of performance measures, these measures may be refined in future iterations as more data becomes available.

Lifecycle Management Strategies

Lifecycle management strategies represent the set of planned actions required to maintain assets at their current level of service. The set of actions can include activities intended to maintain or extend the service life of an asset. Asset management plans must also include a ten-year capital plan that forecasts the costs associated with the lifecycle management strategies over the ten-year period.

The table below identifies the main categories of lifecycle activities or planned actions that would be associated with capital assets.

Table 6 – Lifecycle Activities for Capital Assets

Lifecycle Activity	Description
Inspection	Includes routine inspections of assets to ensure condition remains at desired levels. This could include physical inspections or visual inspections.

Lifecycle Activity	Description
General Repair and Maintenance (minor rehabilitation)	Includes the routine maintenance and repair activities performed to ensure assets reach their estimated useful life. These activities are generally minor in nature and typically represent a cost of less than $5,000.
Major Repair and Maintenance (major rehabilitation)	Includes major repair and maintenance work that exceeds $5,000 per activity. This would typically include the repair or replacement of a major asset component.
Replacement	Includes the full replacement of the asset at the end of its lifecycle.
Expansion or Enhancement	Includes the expansion or enhancement of an asset; generally completed to enhance the level of service provided by the asset.
Disposal	Activities associated with disposing of an asset once it has reached the end of its useful life or when it is no longer required by the Municipality.

Inspection activities and general maintenance and repair are either completed by staff or are budgeted through the Municipality's operating budget. As these activities typically represent operating costs, the cost of these activities has not been included in the AMP. According to O. Reg. 588/17, only capital costs and "significant" operating costs should be captured in the AMP. The Municipality does not consider inspection and general maintenance and repair activities as significant operating costs for the purposes of the AMP.

The Lifecycle costs included in the AMP pertain only to major capital repair, maintenance and replacement activities. Major repair and maintenance activities are typically performed on facility assets as these assets are not typically subject to a full replacement. Facility assets are actively maintained through both general and major repair and maintenance. Replacement activities form the basis of the lifecycle costing for all other asset categories. Most maintenance activities performed on municipal assets are funded through the operating budget, leaving mainly the replacement of the asset to be funded through the capital budget.

Expansion or enhancement activities have not been included in the AMP as these activities often result in an increased service level. These activities typically represent a capital cost to the Municipality; however, they are typically partially funded by development charges. According to O. Reg. 588/17, the AMP must include the cost of

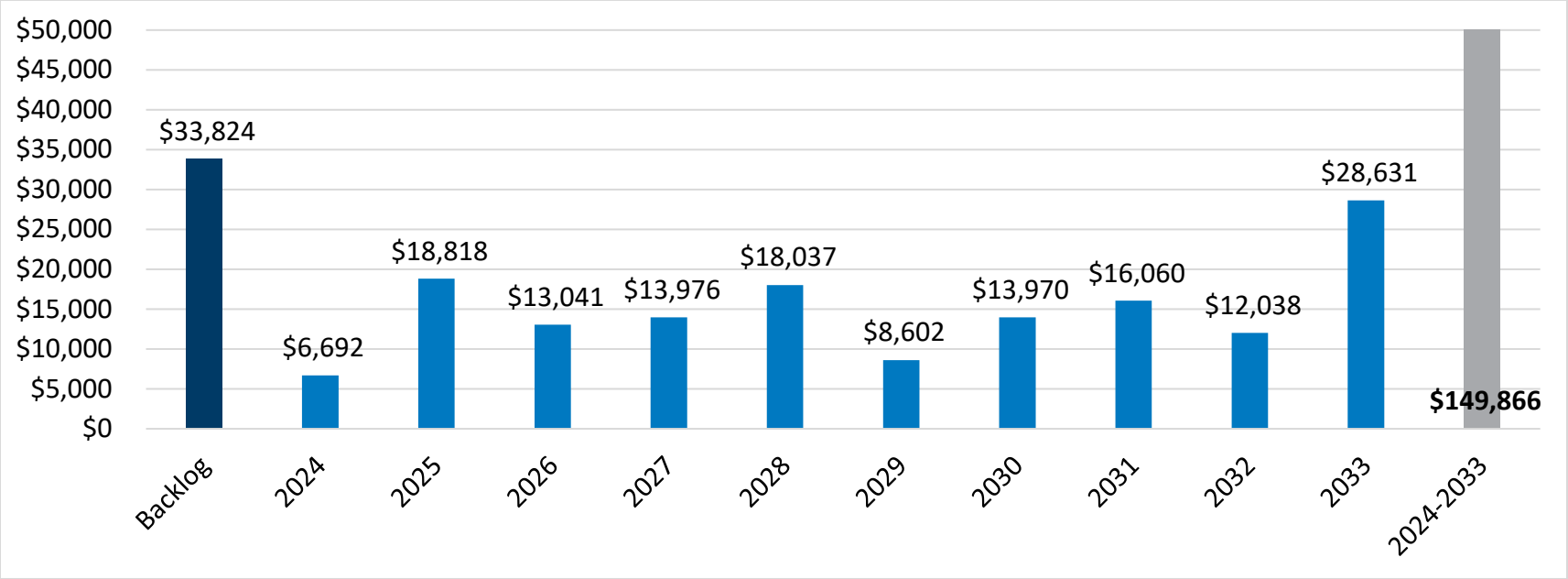
providing lifecycle activities that would need to be undertaken to maintain the current levels of service. Disposal activities have also not been included in lifecycle costing as these activities rarely result in a capital cost.

Lifecycle Strategy Costing and Backlog

As mentioned, the Municipality's current practice is to plan for the replacement of an asset once the asset can no longer perform its functional duty. Since it is difficult to predict when an asset may fail, the AMP assumes the asset will fail once it reaches Poor condition (i.e. end of its estimated useful life).

The lifecycle management costs presented in the AMP include the major repair and maintenance activities, funded through the capital program, and the end-of-life replacement of the assets. The figure below identifies the estimated annual cost, over the next ten years, to perform these lifecycle activities across all asset categories.

Figure 3 – Annual Lifecycle Costing ($,000's) – All Non-core Asset Categories



The estimated cost of lifecycle activities, over the 2024-2033 period, is approximately $150 million. The total estimated cost, including all the costs included in the backlog, is approximately $183.7 million.

The backlog represents the total estimated replacement cost of assets that, according to their age and estimated useful life, have surpassed their anticipated year of replacement. The backlog represents the total estimated cost of the assets that are beyond their estimated useful life and that will likely require replacement sometime within the ten-year forecast period.

It is important to note that items appearing in the backlog may not necessarily require immediate attention. These assets have likely been maintained through general maintenance and repair and may still be performing their functional duty at an acceptable level. Since these assets have surpassed their planned year of replacement, it is difficult to predict in which year these assets will now require replacement. These assets will sit in the backlog until such time as they are replaced.

The backlog contains only the assets that have a reasonable likelihood of requiring replacement within the ten-year forecast period. Some backlog items are more theoretical in nature, in that they appear in the backlog only because they have exceeded their estimated useful life. The physical condition of these assets is such that there is a minimal likelihood that replacement would be required within the ten-year forecast period. These items have been removed from the backlog, leaving the backlog with only the items with a reasonable likelihood of requiring replacement within the forecast period.

Average Annual Lifecycle Costing

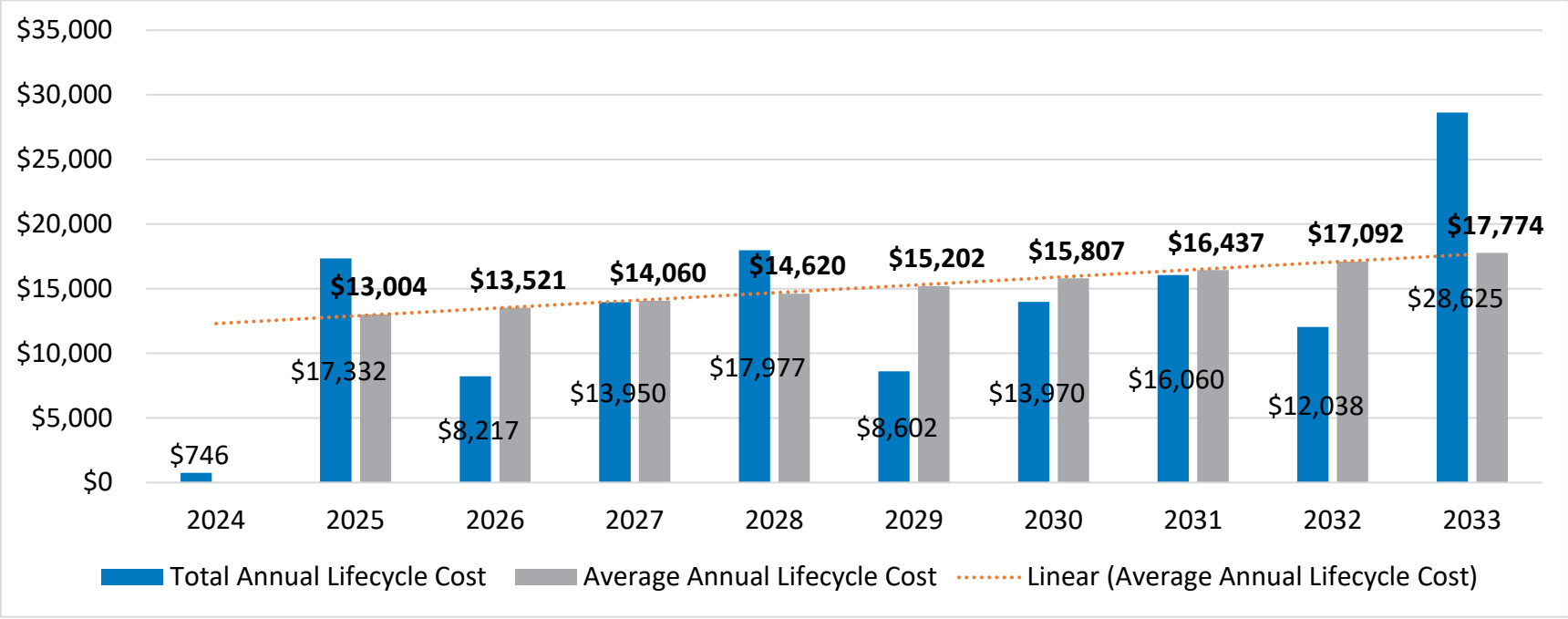
The costs in Figure 3 represent the estimated annual gross cost of replacing assets at the end of their estimated useful life, along with the estimated gross cost of major repair and maintenance needs over the next ten years. The amount of annual maintenance and replacement activities varies, leading to significant variations in annual costing. In an effort to smooth out the large variances, an average annual cost of lifecycle activities has been determined.

Figure 4 compares the total annual lifecycle costs with the average annual lifecycle costs of maintaining all non-core assets at their current level of service. The average annual costs have been structured so that the costs increase at the assumed annual rate of inflation (approximately four percent per year). This ensures that, in real, inflation-adjusted terms, the costs are being spread equitably over the forecast period.

In order to ensure that current levels of service are being maintained, the average annual costs assume the overall dollar value of the backlog will remain constant throughout the forecast period. This scenario assumes that some items in the backlog would be addressed on an annual basis, but the replacement of backlog items would come at the expense of other scheduled replacement activities. Some scheduled activities would then fall into the backlog, thus maintaining the overall size of the backlog at its current level. This scenario would also ensure a consistent mix of assets, with condition ratings ranging between Very Good to Very Poor, would be maintained.

Figure 4 also removes the estimated costs that have been previously budgeted. Some lifecycle activities have already been budgeted but have not yet been performed. The estimated total annual costs, within each scenario, assumes that the previously budgeted activities no longer represent a cost to the Municipality. Since the majority of lifecycle costs for 2024 have been previously budgeted, the total annual costs have been averaged out over the 2025-2033 period.

Figure 4 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The average annual costs identified in Figure 4 represent the average annual costs of maintaining current service levels, with the current dollar value of the backlog and the current asset condition distribution remaining constant throughout the forecast period. The figures below provide alternative costing scenarios that take a more aggressive approach to addressing the backlog.

Figure 5 identifies the estimated average annual lifecycle cost under the assumption that the current level of service will be maintained and that 50 per cent of the current backlog would be eliminated over the ten-year forecast period. This scenario takes a gradual approach to reducing the backlog over time. This scenario would lead to a gradual transition of all assets to Very Good to Good condition, with some assets likely remaining in the Poor to Very Poor condition at the end of the ten-year forecast period.

Figure 5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

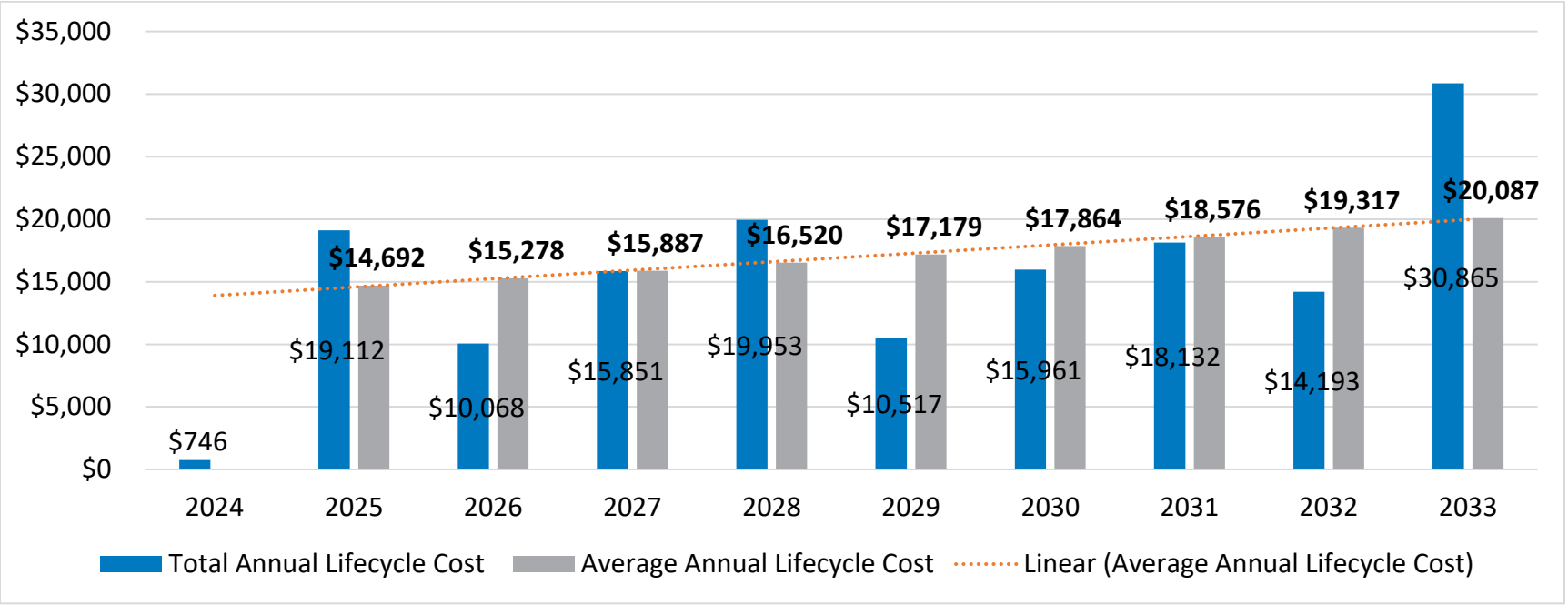
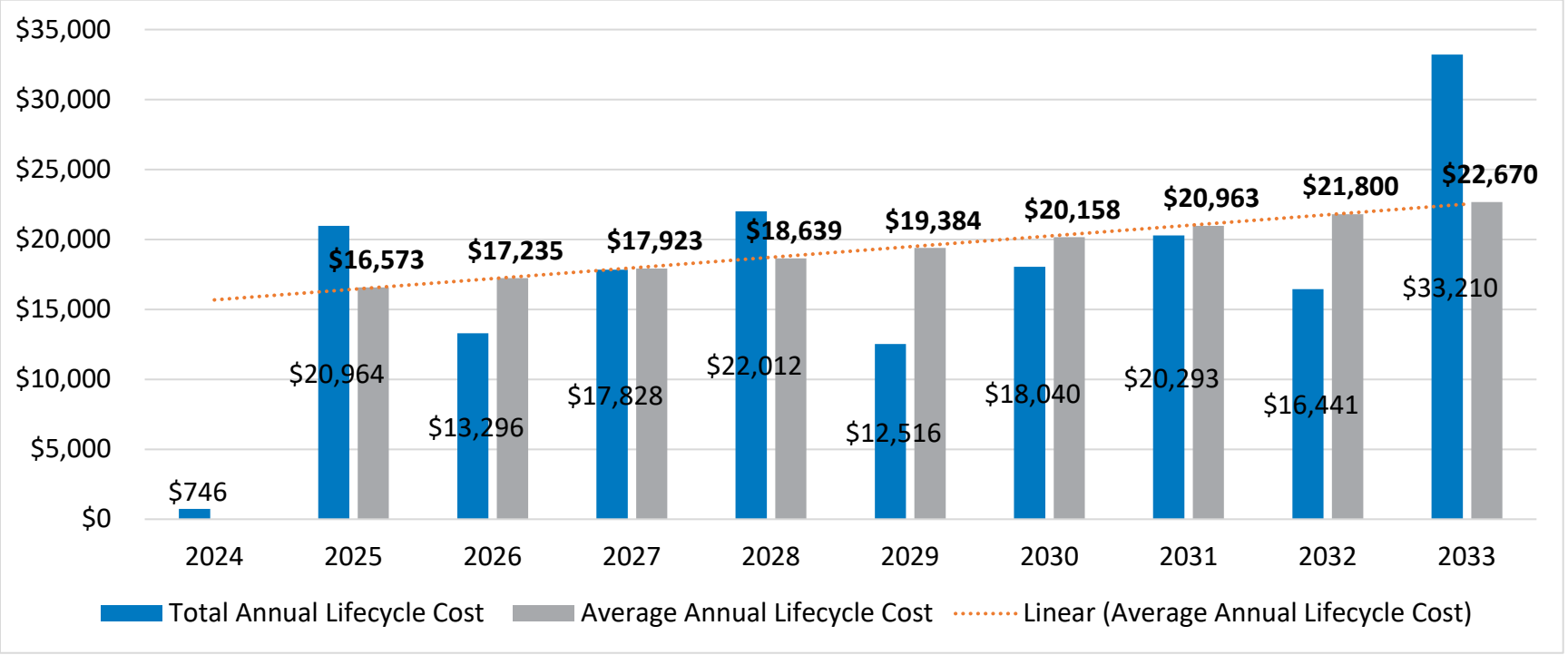


Figure 6 identifies the estimated average annual lifecycle cost under the assumption that the current level of service will be maintained and that the entire backlog will be eliminated over the ten-year forecast period. This scenario would transition the majority of assets into the Very Good to Good condition rating by the end of the forecast period.

Figure 6 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the total average annual costs of maintaining the current level of service (i.e.: maintaining the dollar value of the current backlog) with the alternative scenarios of reducing and eliminating the backlog over the ten-year forecast period. The total costs, over the 2025-2033 period, range from approximately $137.5 million, under the current service level scenario, to approximately $175.3 million under the scenario of eliminating the entire backlog.

Table 7 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Level	$13,004	$13,521	$14,060	$14,620	$15,202	$15,807	$16,437	$17,092	$17,774	**$137,516**
Reduce Backlog	$14,692	$15,278	$15,887	$16,520	$17,179	$17,864	$18,576	$19,317	$20,087	**$155,399**
Eliminate Backlog	$16,573	$17,235	$17,923	$18,639	$19,384	$20,158	$20,963	$21,800	$22,670	**$175,347**

Inflation Assumptions

The costs identified in the lifecycle management strategies are heavily dependent on the inflation assumption used throughout the AMP. The AMP assumes a four per cent per year inflation assumption for all asset types. The four per cent annual inflation factor is based on the historic average of the non-residential Building Construction Price Index (BCPI). The BCPI is often used as a proxy to estimate inflation on capital infrastructure.

The average annual BCPI growth rate for the Toronto Census Metropolitan Area was just over four per cent for the 2010 to 2023 period. Significant inflationary increases began to occur in 2021, with the Toronto CMA BCPI increasing 9.6 per cent. These above average increases continued in 2022 and 2023, with annual increases of 16.2 and 8.2 per cent respectively.

The significant increases from 2021 to 2023 were related to a number of macroeconomic shocks and geopolitical events (e.g. supply chain issues, labour shortages, international conflicts, etc.). It is difficult to predict whether the recently elevated BCPI inflation rates will continue into the future or whether these inflation rates will return to the long run average.

Consumer Price Index (CPI) inflation averaged just over two per cent per year over the same 2010 to 2023 period. This is in line with the Bank of Canada target for a two per cent annual inflation rate. CPI inflation also increased

significantly between 2021 and 2023 but is beginning to normalize in early 2024. The Bank of Canada is committed to bringing CPI inflation back down to its two per cent per year target. Assuming annual CPI inflation returns to the two per cent per year target, and the historical relationship between CPI and BCPI holds, a four per cent annual inflation rate, over the next ten years, is a reasonable assumption.

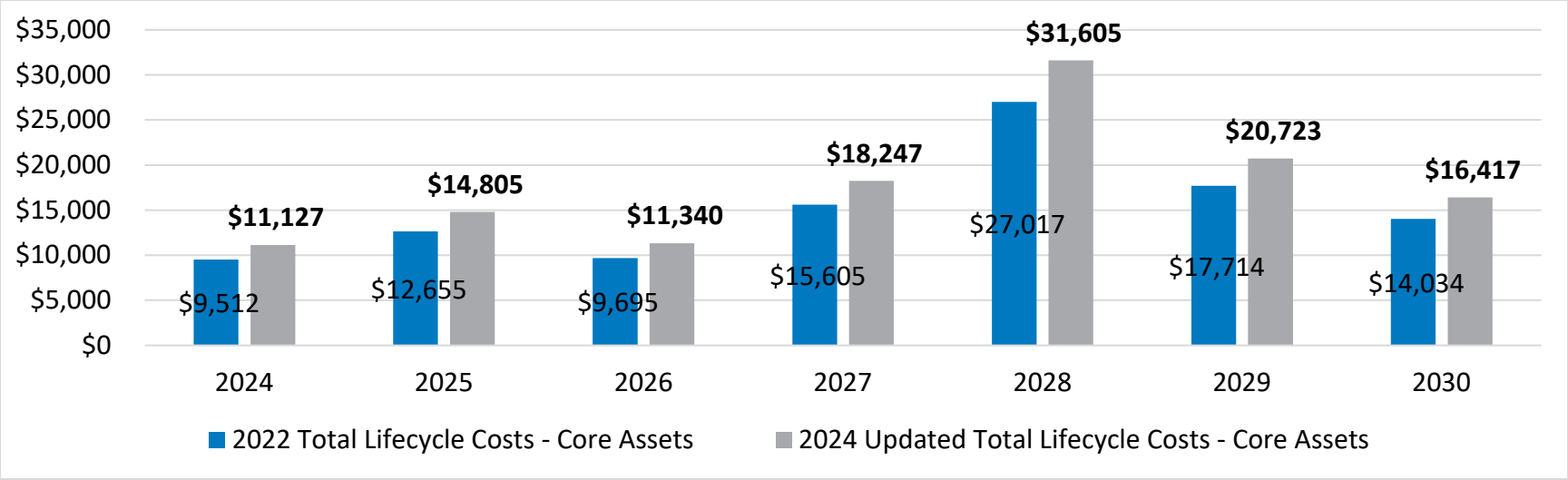
Inflation factors will be monitored closely over the coming years and any adjustments will be incorporated through the annual capital budget process.

Lifecycle Costing Including Core Assets

The total annual lifecycle costs identified in Figure 3 above reflect only the costs for the non-core assets that form the basis of this AMP. Identifying the total annual lifecycle costing for all assets owned by the Municipality, would require the inclusion of the core assets included in the 2022 AMP.

The figure below provides the estimated annual lifecycle costs, for all roads, stormwater, and bridges/culverts assets, that were presented in the 2022 AMP, along with the estimated costs in current (2024) dollars. The costs in the figure represent only the capital costs identified in the 2022 AMP.

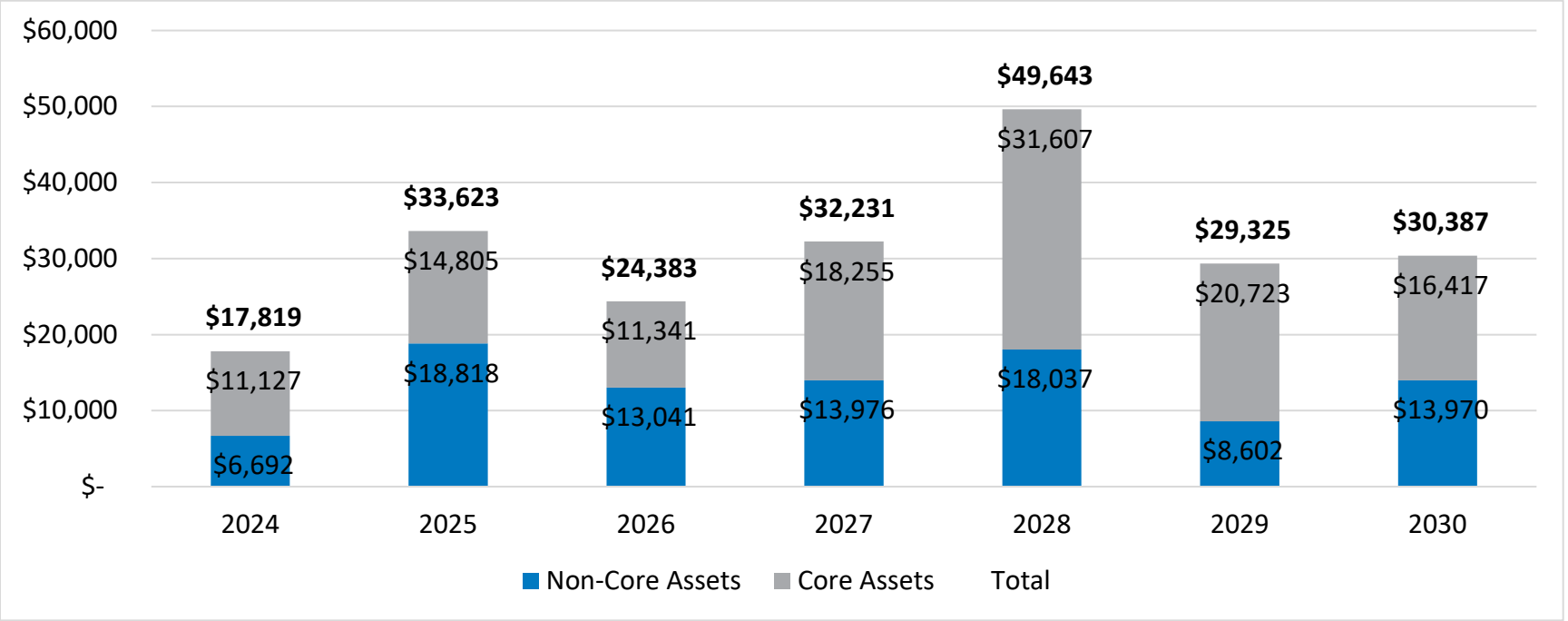
Figure 7 – 2022 AMP - Total Capital Lifecycle Costs ($,000's) – Core Assets



The forecast period for the 2022 AMP was 2021-2030. The figure above includes only the forecasted costs that are within the forecasted period of the current AMP (2024–2033).

The figure below consolidates the total annual lifecycle costs for both the core and non-core assets, over the 2024-2030 period.

Figure 8 – Total Annual Lifecycle Costs – All Assets



It should be noted again that the estimates provided for core assets have been included for illustrative purposes only. The composition of core assets has likely changed since the core asset AMP was completed and lifecycle costing has potentially increased at a higher rate. A true reflection of future lifecycle costing for core assets would require a detailed review and update of the core asset AMP. The figure above is intended to act as a reminder that the Municipality owns a significant amount of additional infrastructure that, although not accounted for in this AMP, must be considered when assessing the total lifecycle costs associated with all municipal infrastructure.

04

Corporate Facilities

Corporate Facilities Overview

Corporate Facilities includes all the facilities, owned by the Municipality, that are used for public administration purposes and not for community programming. Corporate Facilities includes the Municipal Administration Centre and the Animal Services facility, along with various fire stations and Public Works depots. The Municipality's Corporate Facilities are operated and managed by the Facilities division of the Public Services Department.

The majority of asset management information for Corporate Facilities has been derived from the Building Condition Assessments (BCA) completed in late 2023 and early 2024. The Municipality contracted an external engineering consultant to conduct detailed condition assessments of all major facilities within the Municipality. The BCA's provide updated replacement values, condition assessments, and lifecycle management costs.

The Municipality's Corporate Facilities have been divided into different sub-asset types, based on similar characteristics and functions. The different sub-types are provided and defined in the tables below.

Table A1 – Corporate Facilities Assets

Asset Type	Asset Sub-Type	Purpose
Corporate Facilities	Municipal Administration Centre	The main administration building for the Municipality and the location for most full-time permanent staff. The building also includes the Bowmanville branch of the Clarington Public Library.
	Fire Stations	Includes five fire stations, spread across the Municipality, that are operated by Clarington Emergency and Fire Services.
	Public Works Depots	Includes three Public Works depots used for both administration purposes and for the storage of municipal fleet and equipment.
	Animal Services Building	The main administrative building for the Animal Services Division.

State of Local Infrastructure

Asset Inventory

The summarized asset inventory for Corporate Facilities is presented in the table below. Replacement costing is based on a full reconstruction of the corresponding facilities. An estimate of $750 per sq. ft has been applied to the size of each facility to generate the replacement cost. These figures differ from what is presented in the BCA's as the BCA's provide a replacement value as opposed to a replacement cost. Total replacement value represents only a sum of the costs of each component part of the facility, whereas replacement cost is a broader measure that includes all the other costs associated with replacing a facility (e.g. project management, contingencies, labour costs, etc.).

Table A2 - Summarized Asset Inventory – Corporate Facilities

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Replacement Cost ($2024)
Corporate Facilities	Municipal Administrative Centre	1	121	$66,004,000
	Fire Stations	5	26.8	33,344,000
	Public Works Depots	3	50	18,855,000
	Animal Services Building	1	64	4,376,000
Total		**10**	**78.8**	**$122,579,000**

As shown in Table A2, the total replacement cost for the Municipalities Corporate Facilities is approximately $122.6 million. The Municipal Administration Centre (MAC) accounts for over half of the total replacement cost. The MAC is the main administrative building for the Municipality and is where the majority of administrative staff are located.

Asset Age

Table A3 includes a summary of the average age of the various Corporate Facilities within each sub-category. The age of each asset in the inventory is assessed and given equal weighting when deriving the average age for each asset sub-type. The average age for each asset sub-type represents the simple average of the various facilities within that category. The total average age for all Corporate Facilities represents a weighted average of all asset sub-types, based on total replacement cost.

Table A3 – Average Age and Condition – Corporate Facilities

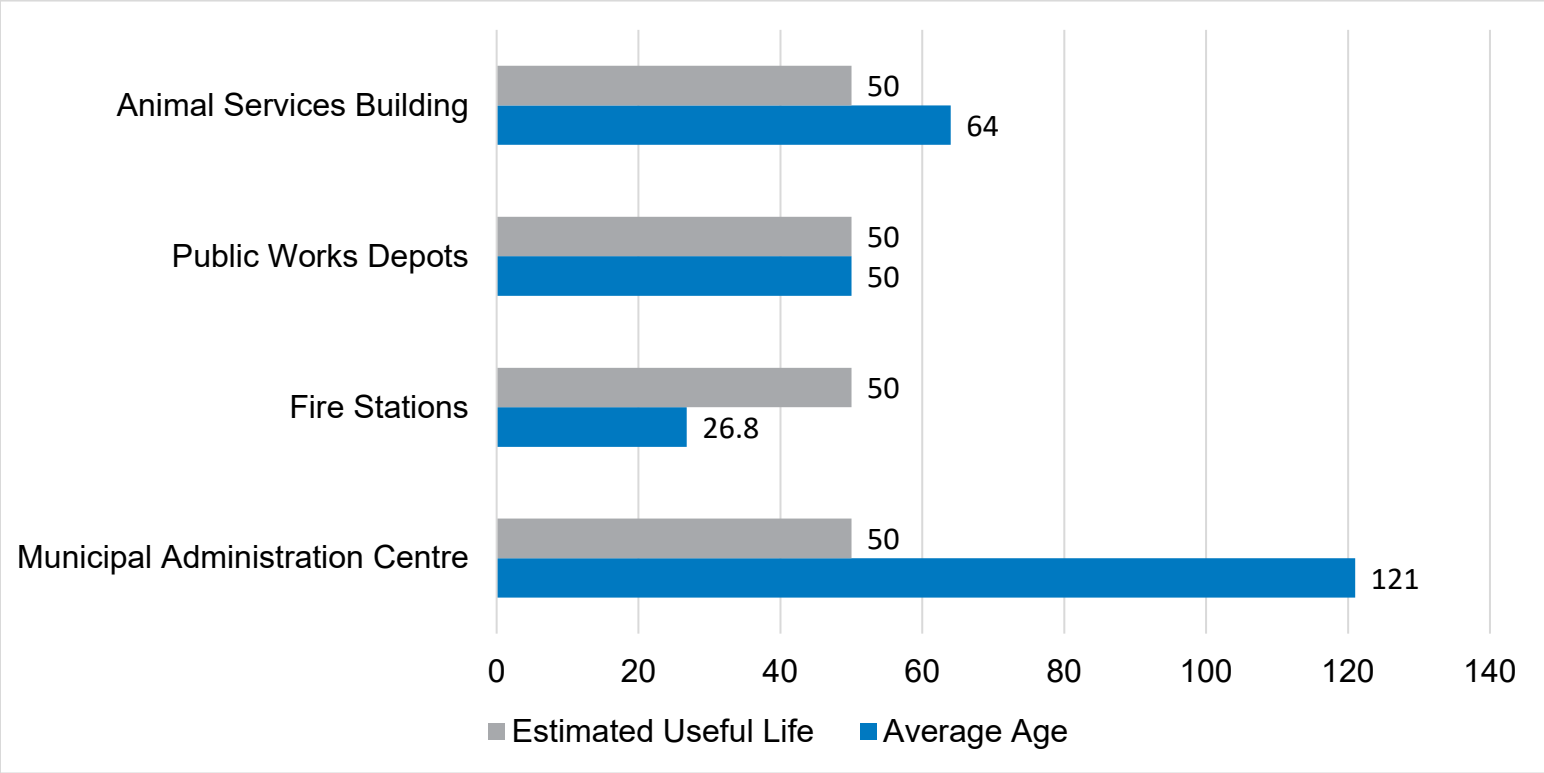
Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Estimated Useful Life[1]	Average Condition (FCI%)	Average Condition State
Corporate Facilities	Municipal Administrative Centre	1	121	50	1.00%	Good
	Fire Stations	5	26.8	50	0.49%	Good
	Public Works Depots	3	50	50	1.00%	Good
	Animal Services Building	1	64	50	1.60%	Good
Total		**10**	**78.8**	**50**	**0.88%**	**Good**

[1] Estimated useful life based on the structure of the facility.

The age for each individual facility represents the age of the original portion of the building. For example, the MAC has an original component built in 1903, with an additional component constructed in 1988 and another addition built in 2003. The AMP uses the date of the original construction as the basis for the age calculation.

Each asset has also been assigned an estimated useful life based on industry standards and the Municipality's current Capitalization Policy. Figure A1 below compares the average age with the average estimated useful life for each asset sub-type.

Figure A1 – Average Age (Years) and Estimated Useful Life (Years) – Corporate Facilities



The average age for many of the Corporate Facilities exceeds the estimated useful life. However, the average age is based on the original construction date of the facility and all facilities undergo regular rehabilitation and maintenance activities to ensure the buildings remain in good working order.

Figure A1 also uses the estimated useful life of the building structure to compare against the average age. The estimated useful life of the entire facility is difficult to assess given the various underlying components. The Municipality's Capitalization Policy assigns different useful life assumptions to different facility components. The various estimated useful life assumptions are provided in Table A4 below.

Table A4 – Estimated Useful Life – Various Building Components

Asset Class	Sub-class	Type	Estimated Useful Life
Buildings	Structure	Overall	50 years
	Roof	As per material and condition	Variable
	Structure	Interior	25 years
	Structure	Mechanical (includes HVAC, heat pumps, water heaters, etc.)	Variable
	Specialized	Indoor pool; Ice pad	30 years
	Specialized	Indoor field	15 years
	Site Improvement	Parking lot, Landscaping	20 years
	Whole	Sand domes, Salt shed, Quonset hut, Sheds	25 years

Asset Condition

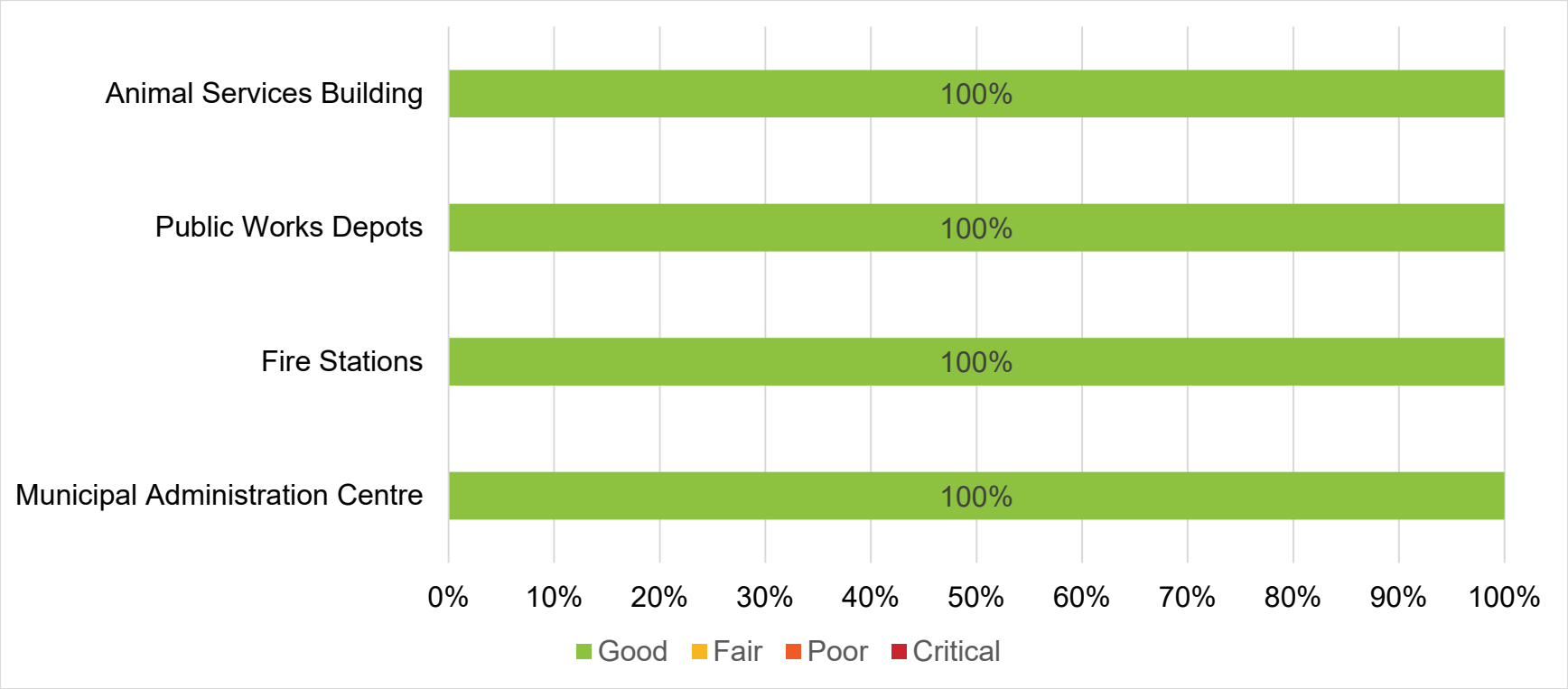
Table A3 also provides the current (2024) average condition rating for each of the asset sub-types within Corporate Facilities. Corporate Facilities use the Facilities Condition Index (FCI) methodology to assess condition. The FCI is an industry standard used to assess the condition of building assets.

As described in the Municipality's BCA's, the Facility Condition Index (FCI) is a comparative indicator of the relative condition of facilities. The FCI is expressed as a ratio of the cost of remedying maintenance deficiencies to the current replacement value. Calculating the FCI, for a particular year, requires dividing the cost of renewal needs in that particular year by the total estimated replacement value. Note that the BCA's use total replacement value, as opposed to total replacement cost, as the denominator in their condition calculations.

The average condition for all Corporate Facilities is rated as Good. The average condition rating for Corporate Facilities was derived using a weighted average based on the replacement cost of each asset sub-type. The condition rating for each facility reflects the current FCI rating for 2024 as provided in the BCA's.

The figure below provides the condition distribution for each of the asset sub-types. All the facilities, within each sub-type, have an FCI rating of Good for 2024.

Figure A2 – Condition Distribution – Corporate Facilities



Long-term Condition Rating

In addition to providing a condition rating for the current year, the BCA's also provide total condition ratings for the next five and ten years. These condition ratings are derived by summing the total dollar value of renewal needs over the next five and ten years and dividing by the current replacement value. The table below provides the total average condition rating for the next five and ten years for each asset sub-type within Corporate Facilities.

Table A5 – Total Five- and Ten-Year Average Condition Rating

	Total 5-year FCI%	Total 5-year Condition State	Total 10-year FCI%	Total 10-year Condition State
Municipal Administration Building	6.24%	Fair	27.57%	Poor
Fire Stations	8.79%	Fair	20.96%	Poor
Public Works Depots	23.78%	Poor	30.88%	Critical
Animal Services Building	7.20%	Fair	26.88%	Poor

The table above suggests that, although the current average condition of Corporate Facilities is rated as Good, these facilities will still require a significant amount of renewal needs, over the next five to ten years, relative to their current replacement value.

Levels of Service

The levels of service for Corporate Facilities were developed in an effort to reflect the desires, values, and expectations of the community. The Level of Service statements are intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect some of the key characteristics important to the organization.

The Municipality's current levels of service performance are provided in the table below. Proposed levels of service and their respective targets will be identified in future iterations of the AMP.

Table A6 – Current Levels of Service – Corporate Facilities

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Managing Corporate Facility assets in a fiscally sustainable manner	Corporate Facilities Reinvestment Rate	1.8%
Quality	Ensuring Corporate Facilities are in a suitable condition for public administration	% of Corporate Facilities in Fair or better condition (FCI)	100%
Sustainability	Providing public administrative services in an environmentally sustainable manner	Annual electric energy consumption for all Corporate Facilities, per sq. ft.	1,350 kWh
		Annual natural gas consumption for all Corporate Facilities, per sq. ft	17 m3
		Annual water consumption for all Corporate Facilities, per sq. ft.	0.44 m3

Lifecycle Management Strategies and Costing

The Municipality undertakes four main types of lifecycle activities to ensure Corporate Facilities assets maintain their current level of service.

Inspection activities are completed periodically to assess the overall condition of each facility, along with the condition of each major component part (e.g. roof, plumbing, electrical, etc.). Routine inspections are completed by staff, including quarterly mechanical inspections and monthly visual building inspections. Detailed BCAs are completed approximately every 5-years and help identify the potential maintenance requirements over a forecast horizon. The cost of BCA inspections represents a capital cost to the Municipality and have been captured in the annual lifecycle costing.

Minor repair and maintenance activities are performed throughout the useful life of an asset. These activities include the general maintenance required to ensure the assets remain in good working order. Minor expenses are funded through repair and maintenance accounts in the Municipalities operating budget and have not been included in annual lifecycle costing. Major expenses are funded through the Municipalities capital budget.

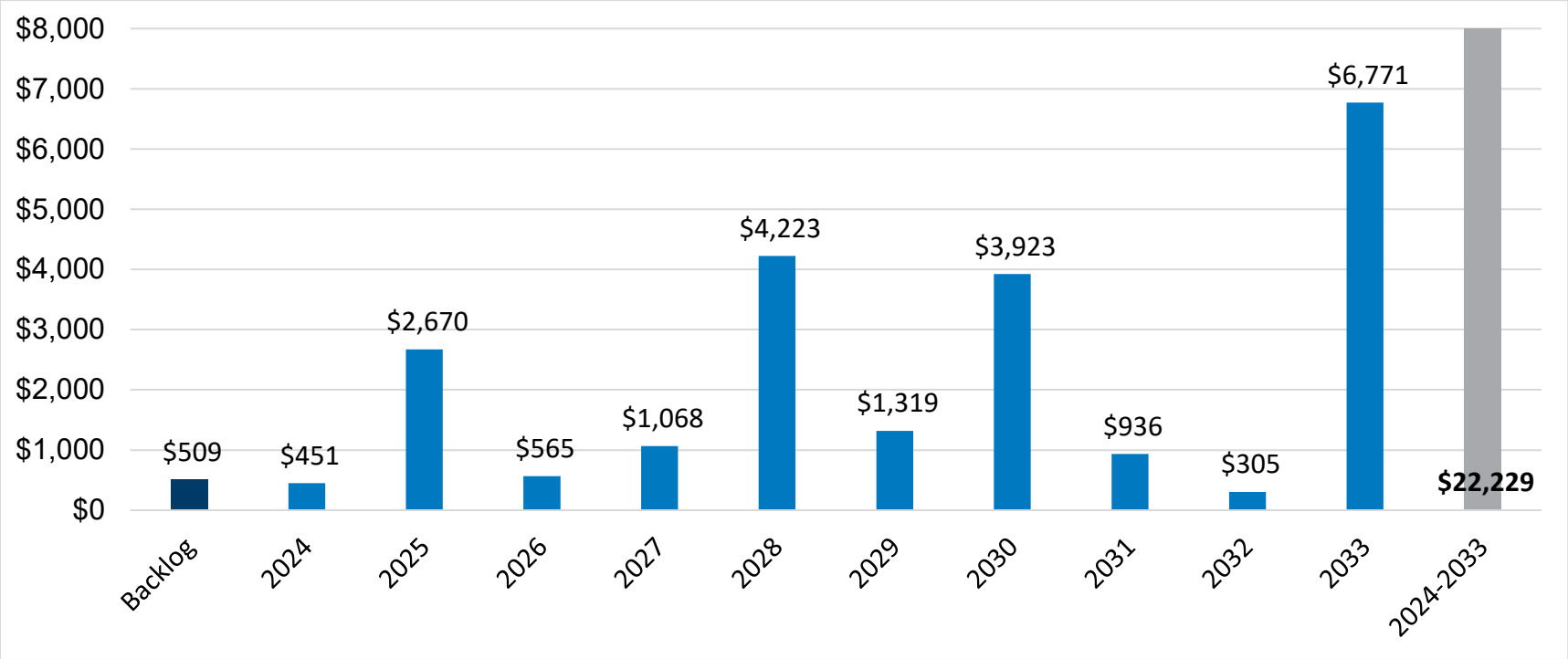
Major repair and maintenance activities are also performed throughout the assets lifecycle. Major repairs and maintenance occur when the cost to perform the activity exceeds $5,000 and the cost becomes a capital expense.

The BCA's provide a ten-year forecast for repair and maintenance activities required to maintain the facilities in good working order. The forecasts from the BCA's have been used as the basis for the lifecycle costing estimates in the AMP. The AMP assumes that minor costs ($5,000 or less) will flow through the municipal operating budget and have not been included in lifecycle costing. Lifecycle costing in the AMP includes only the major expenses, identified in the BCA's, that exceed the $5,000 threshold.

Replacement activities involve the full replacement of an asset at the end of its useful life. The AMP does not forecast the full replacement of any Corporate Facilities over the ten-year forecast period.

The figure below identifies the annual lifecycle costing required to maintain the Municipality's current level of service as identified in the BCA's.

Figure A3 – Annual Lifecycle Costing – Corporate Facilities ($,000's)



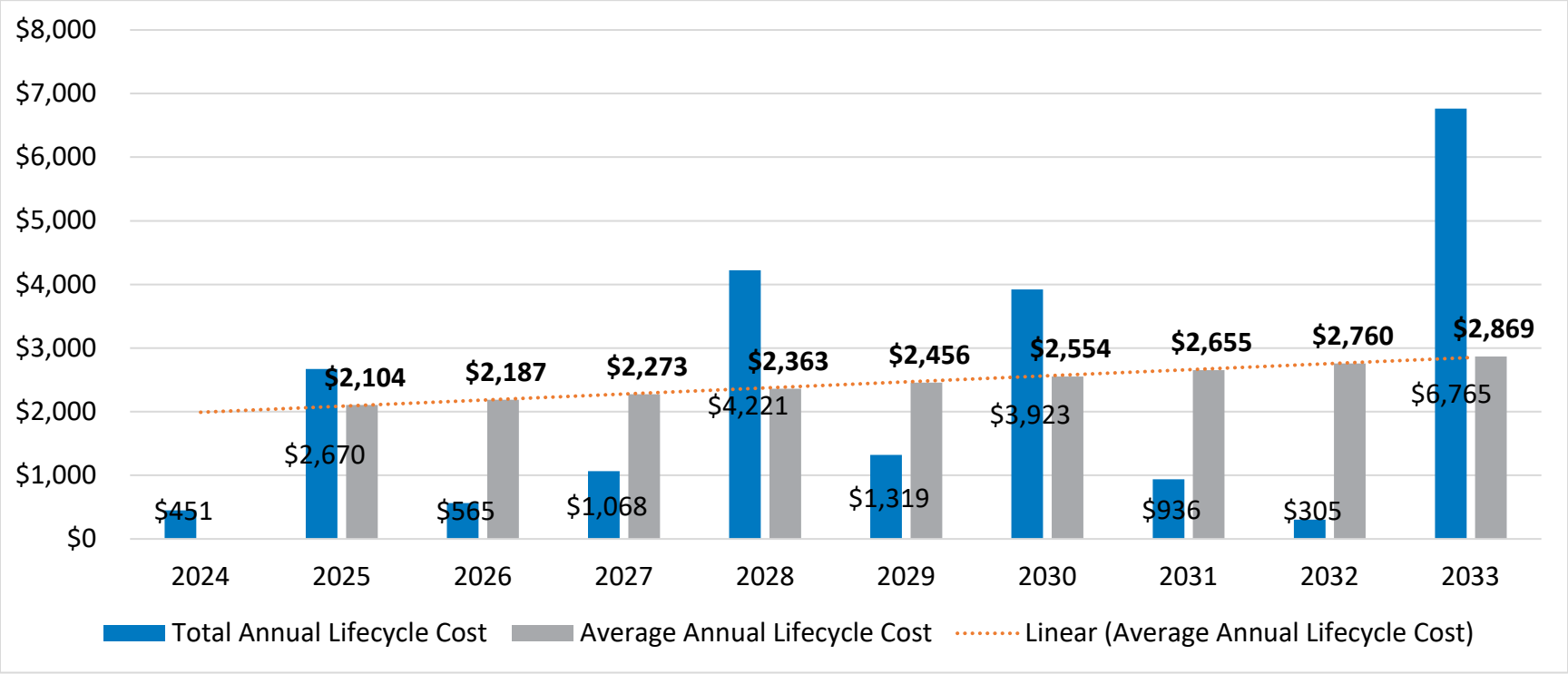
It will cost approximately $22.2 million over the next ten years to maintain the current level of service. The total cost, including the cost of the backlog, is approximately $22.7 million. The backlog items include maintenance activities that were identified in the BCA's to be performed in 2023.

Average Annual Lifecycle Cost

The costs in Figure A3 represent the annual gross cost of maintaining Corporate Facilities assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure A4 below removes the significant annual variances by determining the average annual cost of maintaining Corporate Facilities assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed.

Figure A4 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure A5 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure A5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

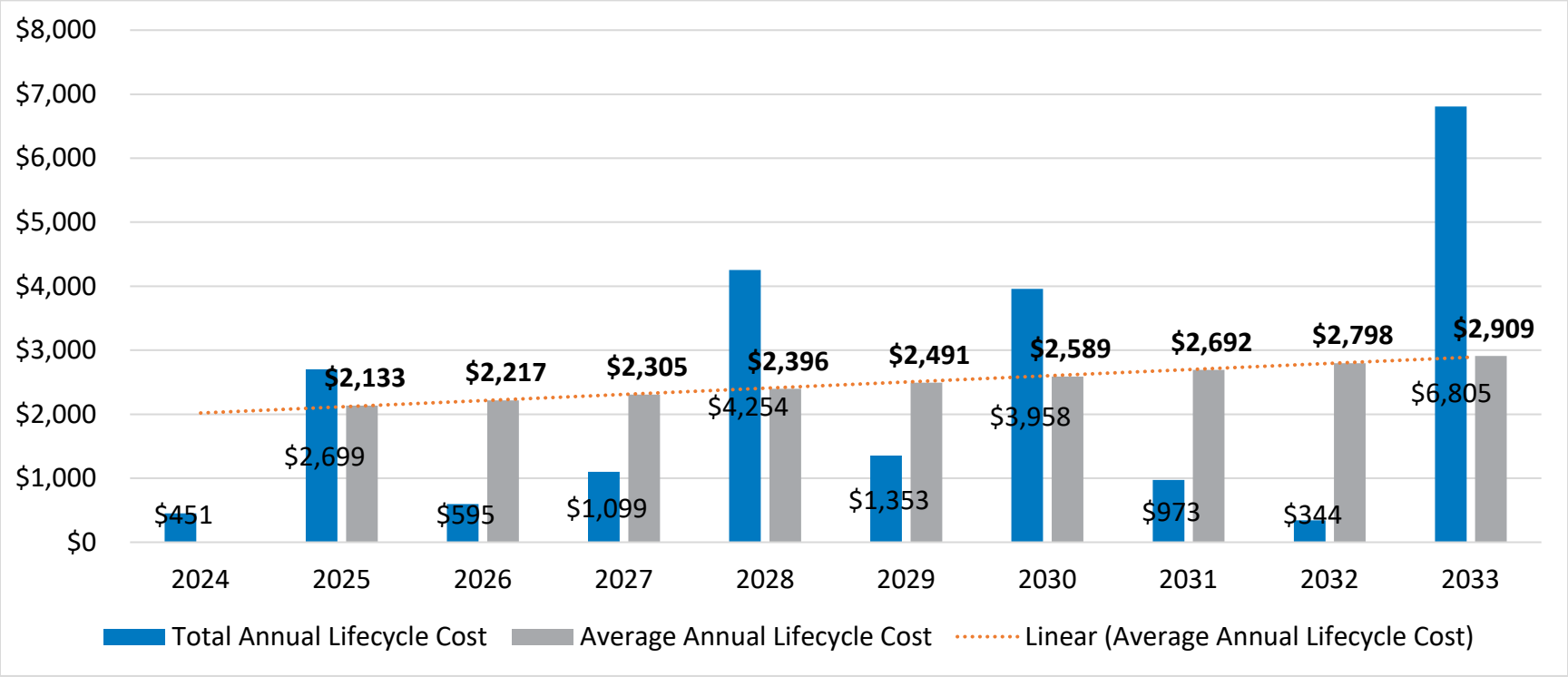
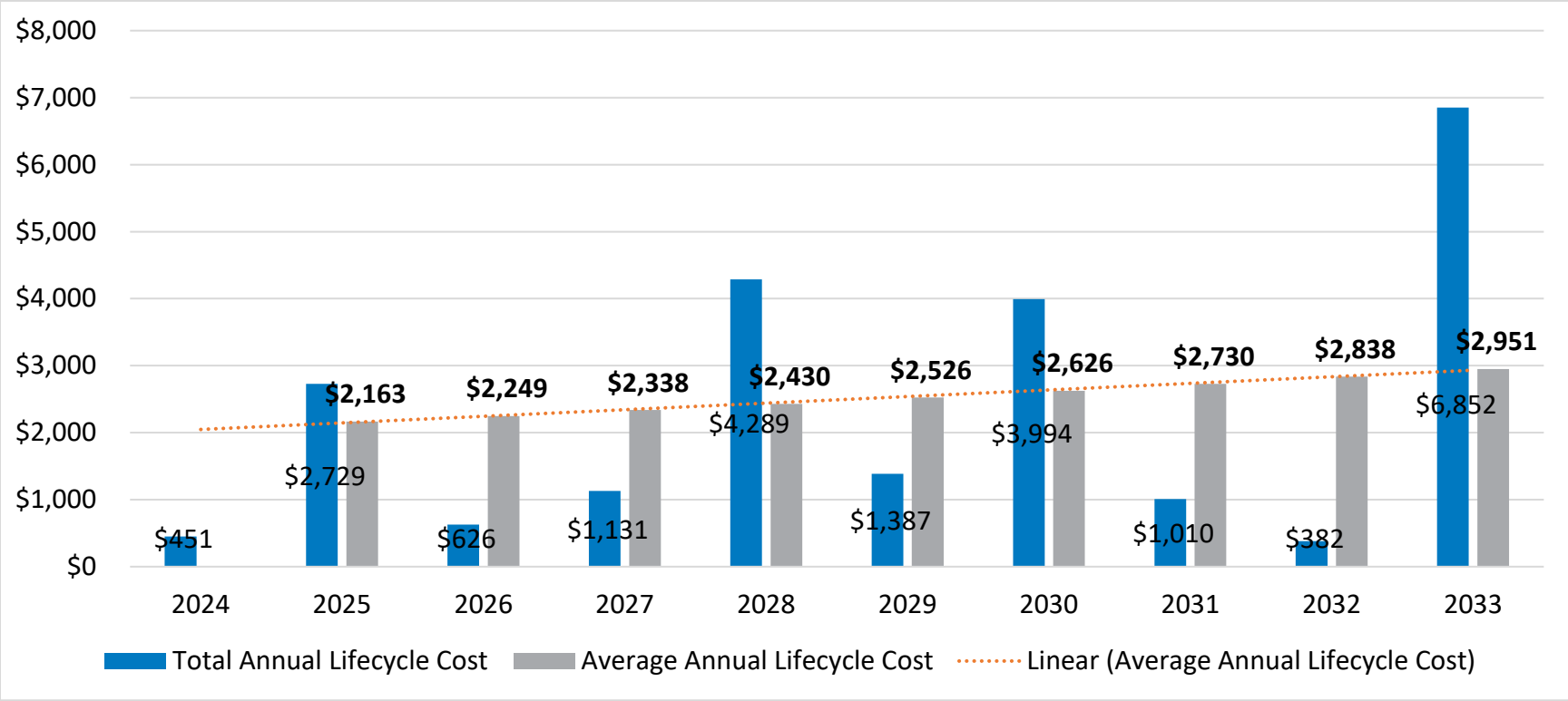


Figure A6 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure A6 – Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table A7 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Level	$2,104	$2,187	$2,273	$2,363	$2,456	$2,554	$2,655	$2,760	$2,869	**$22,220**
Reduce Backlog	$2,133	$2,217	$2,305	$2,396	$2,491	$2,589	$2,692	$2,798	$2,909	**$22,532**
Eliminate Backlog	$2,163	$2,249	$2,338	$2,430	$2,526	$2,626	$2,730	$2,838	$2,951	**$22,852**




05

Corporate Fleet

Corporate Fleet Overview

The Municipality of Clarington owns and operates a variety of fleet assets, including vehicles and equipment. Fleet assets are all managed by the Works Division, within the Public Services Department, but are operated by various departments and divisions. The Municipality requires a diverse set of vehicles and equipment to ensure the municipality can effectively deliver a variety of services to residents.

The Municipality's vehicles and equipment have been divided into different asset sub-types, based on similar characteristics and functions. The different sub-types are provided and defined in the tables below.

Table B1 – Fleet Vehicle Types

Asset Type	Asset Sub-type	Purpose
Vehicles	Aerials	Type of fire truck, operated by the Emergency Services Division, that is equipped with an extendable ladder or boom.
	Pumpers	Type of fire truck, operated by the Emergency Services Division, that carries water and is equipped with a pump to deliver water directly to a fire.
	Tankers	Type of fire truck, operated by the Emergency Services Division, that is primarily used to transport water to emergencies for use by other vehicles or equipment.
	Cars & Vans	Includes the vehicles used for various municipal purposes, such as Municipal Law Enforcement and Building Inspections.
	Heavy Duty Vehicles	Includes the Municipality's largest vehicles, used by the Works Division, such as snowplows and garbage trucks
	Medium Duty Vehicles	Includes vehicles with at least one ton of payload capacity. This includes several trucks used by the Operations Division.
	Light Duty Vehicles	Includes vehicles with less than one ton of payload capacity. Includes many pick-up trucks used for operations activities.

Table B2 – Fleet Equipment Types

Asset Type	Asset Sub-type	Purpose
Equipment	Ice Resurfacers	Used by the Community Services Division to smooth the ice service in the various arenas.
	Loaders & Graders	Includes chippers, backhoes, and graders used by the Works Division for forestry activities.
	Tractors & Mowers	Includes sidewalk tractors for snow clearing and mowers for grass cutting operations.
	Trailers	Includes trailers used for transporting equipment, such as pressure washers and steamers.
	Unlicensed Equipment	Includes various items of miscellaneous equipment, such as gators, excavators, and groomers.

State of Local Infrastructure

Asset Inventory

The asset inventory summary for corporate fleet is provided in the table below. The majority of replacement costing has been estimated using a combination of recent tenders for similar vehicles and estimates provided by subject matter experts from the Municipality's Public Works Division. In certain circumstances, replacement costing has been estimated by applying an inflation factor to historical costing.

Table B3 – Summarized Asset Inventory – Corporate Fleet

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Replacement Cost ($2024)
Vehicles	Aerials	2	13.5	$4,800,000
	Cars & Vans	30	5.8	1,810,000
	Heavy Duty Vehicles	41	8.1	12,780,000
	Medium Duty Vehicles	13	11.1	1,628,000
	Light Duty Vehicles	36	7.1	3,475,000
	Pumpers	8	9.8	7,707,000
	Tankers	4	11.8	2,084,000
Equipment	Ice Resurfacers	6	9.8	890,000
	Loaders & Graders	12	7.8	4,913,000
	Tractors & Mowers	31	5.1	2,919,000
	Trailers	18	12.7	725,000
	Unlicensed Equipment	8	8.6	585,000
Total		**209**	**9**	**$44,316,000**

As shown in Table B3, the total replacement cost for the Municipalities corporate fleet is approximately $44.3 million. The total replacement cost for vehicles is approximately $34.3 million, while the estimated replacement cost for equipment is roughly $10 million. The replacement costing is based on an inventory of 134 vehicles and 75 units of equipment.

Emergency Services vehicles, namely Aerials, Pumpers, and Tankers, and Heavy-Duty Vehicles account for over half of the total estimated replacement cost for corporate fleet. These vehicles provide a critical health and safety function for the Municipality, including the delivery of emergency services and winter maintenance.

The asset inventory in Table B3 includes only the vehicles and equipment that are being actively maintained by the Municipality and are forecasted for replacement at the end of their useful life. The Municipality retains a small subset of vehicles that are beyond their estimated useful life and are not scheduled for replacement. These vehicles are typically retained by the Municipality for training purposes or because they still provide some alternative benefit to the Municipality.

Once these vehicles reach a state where they can no longer perform even their alternative function, they will be disposed and will not be replaced. Therefore, these assets have been excluded from the asset inventory for AMP purposes.

Asset Age

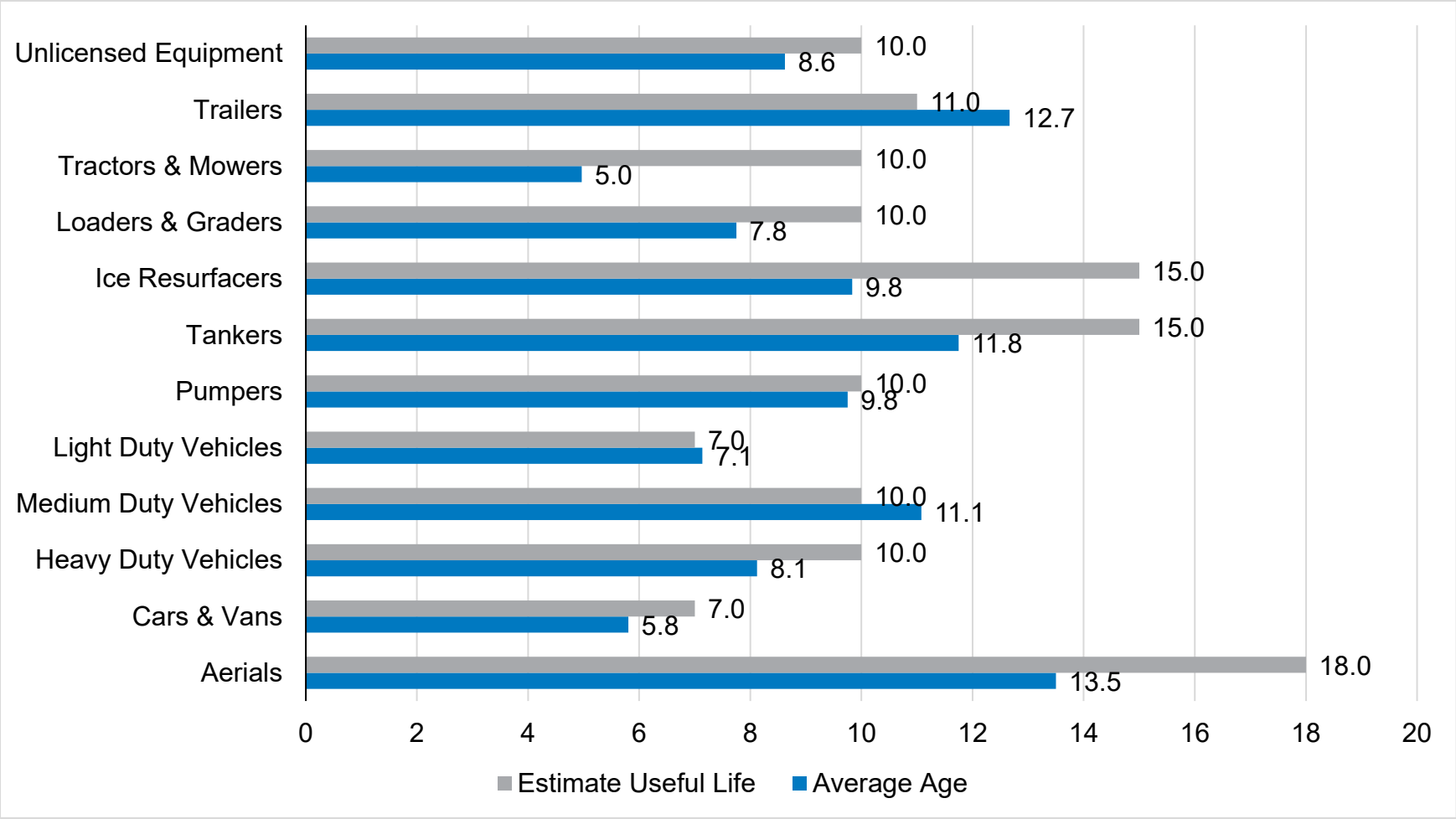
Table B4 includes a summary of the average age of the fleet assets within each sub-type. The age of each vehicle in the asset inventory is assessed and given equal weighting when deriving the average age for each fleet type. The average age for each sub-type represents the simple average of the various vehicles/equipment in that category. The total average age for all fleet types represents a weighted average of the different sub-types, based on total replacement cost.

Table B4 – Average Age and Condition – Corporate Fleet Assets

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Estimated Useful Life (Years)	Average Condition (ULC%)	Average Condition State
Vehicles	Aerials	2	13.5	18	75%	Good
	Cars & Vans	30	5.8	7	83%	Good
	Heavy Duty Vehicles	41	8.1	10	81%	Good
	Medium Duty Vehicles	13	11.1	10	111%	Poor
	Light Duty Vehicles	36	7.1	7	102%	Poor
	Pumpers	8	9.8	10	98%	Fair
	Tankers	4	11.8	15	78%	Good
Equipment	Ice Resurfacers	6	9.8	15	66%	Good
	Loaders & Graders	12	7.8	10	78%	Good
	Tractors & Mowers	31	5.1	10	49%	Good
	Trailers	18	12.7	11	127%	Very Poor
	Unlicensed Equipment	8	8.6	10	86%	Good
Total[1]		**209**	**9**		**84%**	**Good**

Each vehicle has also been assigned an estimated useful life based on industry standards and the Municipality's current Capitalization Policy. Figure B1 compares the average age with the average estimated useful life for each fleet type. The average age, for the majority of the Municipality's fleet assets, is within the estimate useful life.

Figure B1 – Average Age (Years) and Estimated Useful Life (Years) – Corporate Fleet



Asset Condition

Table B4 also provides the average condition rating for each of the fleet types within the Municipality. The condition percentages are derived using the ULC% methodology. The average condition rating for the entire stock of corporate fleet has been assessed as Good. This rating was derived using a weighted average of all asset sub-types, based on total replacement cost.

The average condition rating for each fleet type varies from Good to Very Poor. The condition rating of the individual assets within each sub-type also varies from Very Good to Very Poor. The figures below illustrate the condition distribution within each fleet asset sub-type.

Figure B2 – Condition Distribution – Vehicles

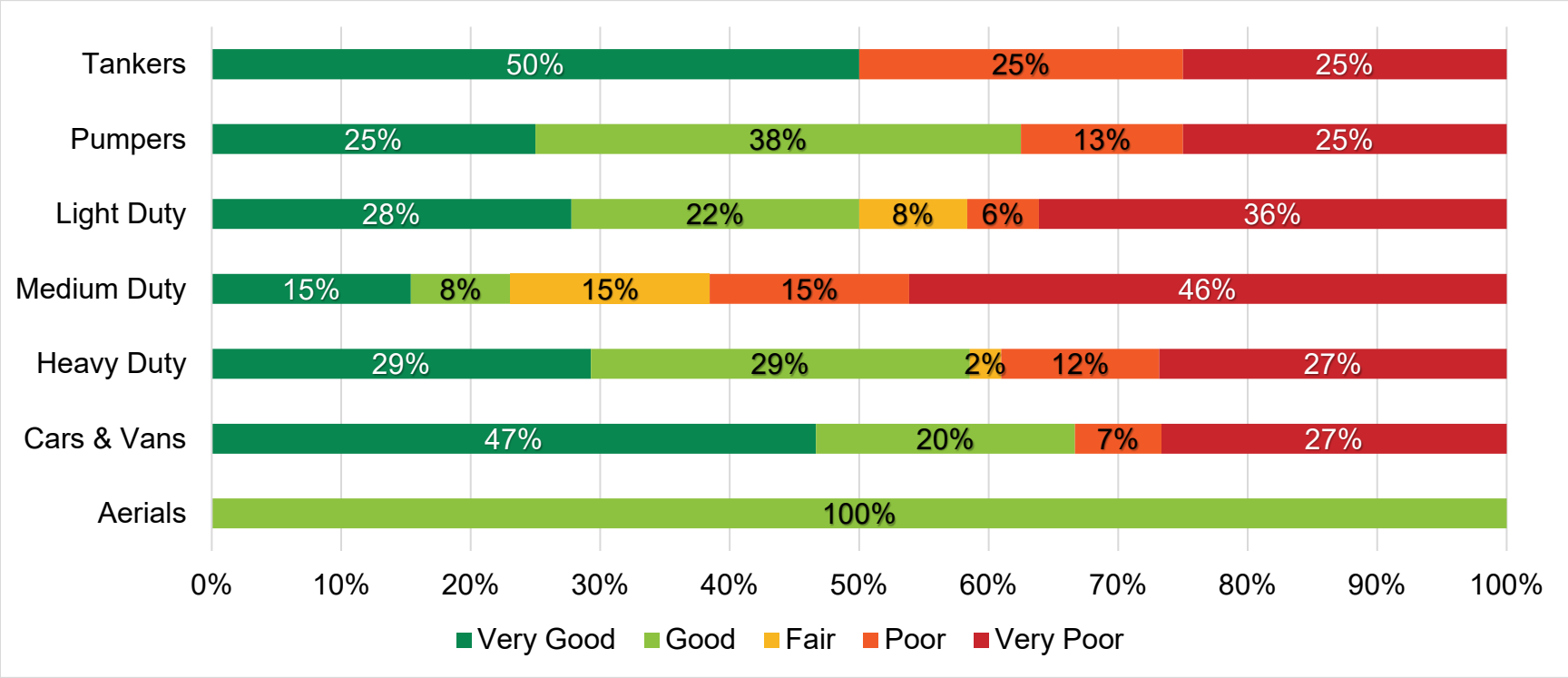
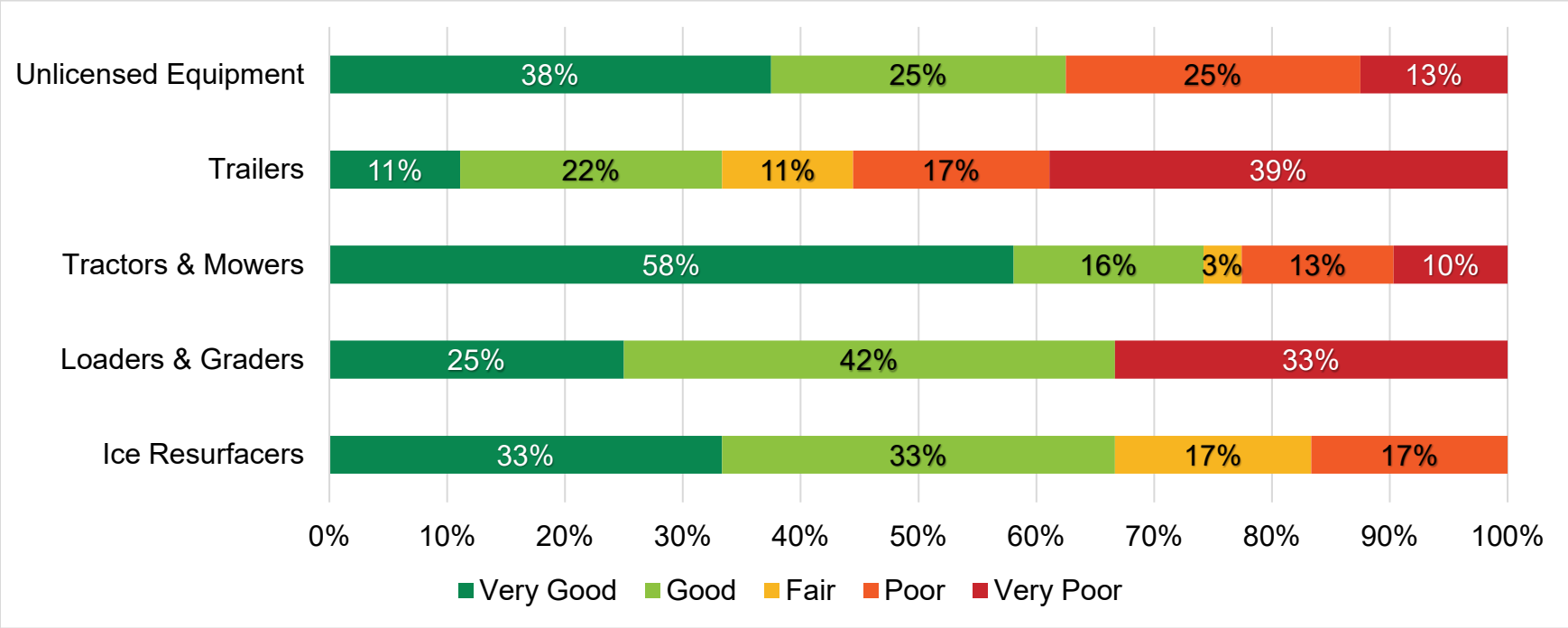


Figure B3 – Condition Distribution – Equipment



As previously stated, vehicles and equipment that are no longer being actively maintained and are not scheduled to be replaced have been excluded from the asset inventory. These assets are well passed their estimated useful life and would typically be assessed as Very Poor. Excluding these assets provides a more accurate reflection of the condition state of the Municipality's vehicles and equipment.

It should also be noted that Emergency Services Vehicles, such as Aerials, Pumpers, and Tankers, receive annual inspections to ensure the vehicles are able to perform their required service. Although some of these vehicles may be approaching the end of their useful life, the annual inspections ensure that the vehicles remain in good working order.

Levels of Service

The levels of service for Corporate Fleet were developed in an effort to reflect the desires, values, and expectations of the community. The Level of Service statement is intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect some of the key characteristics important to the organization.

The Municipality's current level of service performance is provided in the table below. Proposed levels of services and their respective targets will be identified in future iterations of the AMP.

Table B5 – Current Levels of Service – Corporate Fleet

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Providing fleet services to the community in a fiscally sustainable manner	Corporate Fleet Reinvestment Rate	8.70%
Safety	Providing vehicles and equipment that are safe for use in the community	% of legislated MTO safety inspections completed	100.00%
		% of legislated MTO safety inspections met	100.00%
Quality	Providing corporate fleet assets in an acceptable condition	% of vehicles in Fair or better condition	59.70%
		% of equipment in Fair or better condition	66.70%
Sustainability	Providing environmentally sustainable fleet services for the community	% of vehicles (excluding fire trucks) that are fully electric (EV)	6.67%
		Annual fuel expenditure per fleet asset	$3,048

Lifecycle Management Strategies and Costing

The Municipality undertakes three main types of lifecycle activities to ensure fleet assets maintain their current level of service.

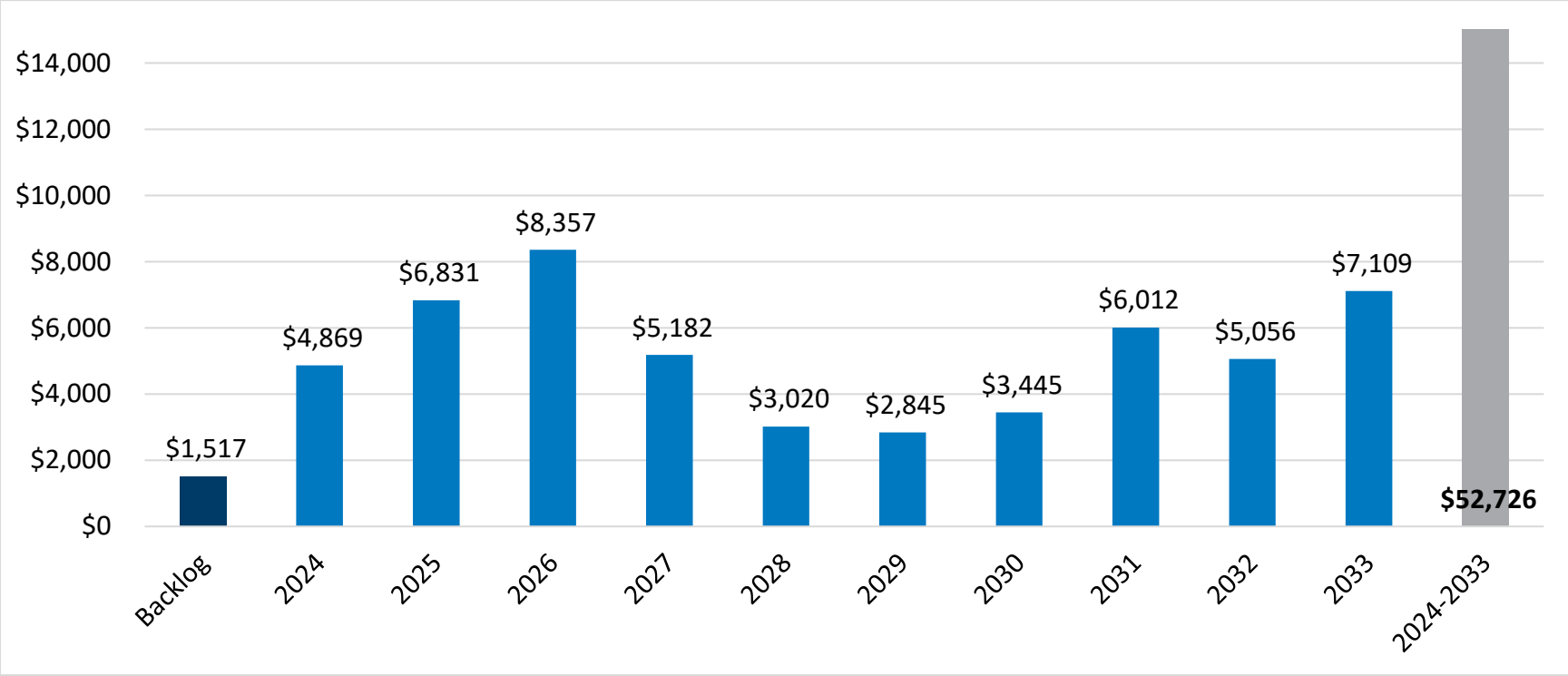
Inspection activities are completed annually, as a requirement of the Ontario Ministry of Transportation, on all municipal fleet vehicles included under the Commercial Vehicle Operator's Registration. These inspections are done for safety purposes and are completed both in-house and by external contractors. The cost of performing these inspections is financed through the operating budget, therefore the costs have not been identified in annual lifecycle costing.

General repair and maintenance activities are performed throughout the lifecycle of the assets. These activities include the general maintenance activities that would typically be performed on a vehicle, such as oil changes and repairs of major component parts (engine, brakes, etc.). The majority of these activities are performed in-house, with the expense flowing through a specific repair and maintenance account in the Municipalities operating budget. As these lifecycle activities are already captured in the Municipality's operating budget and are not considered a significant operating cost, they have not been identified in the annual lifecycle costing presented in the AMP.

Replacement activities involve the full replacement of vehicles or equipment at the end of their useful life. The replacement of vehicles and equipment represent a significant capital expense and form the basis of the annual lifecycle costing identified in the AMP. The Municipality's current level of service is to replace a fleet asset once it can no longer perform its required service. The AMP assumes this would take place at the end of the asset's useful life.

The figure below identifies the annual lifecycle costs for fleet replacements over the next ten years.

Figure B4 – Annual Lifecycle Costing – Corporate Fleet ($,000)

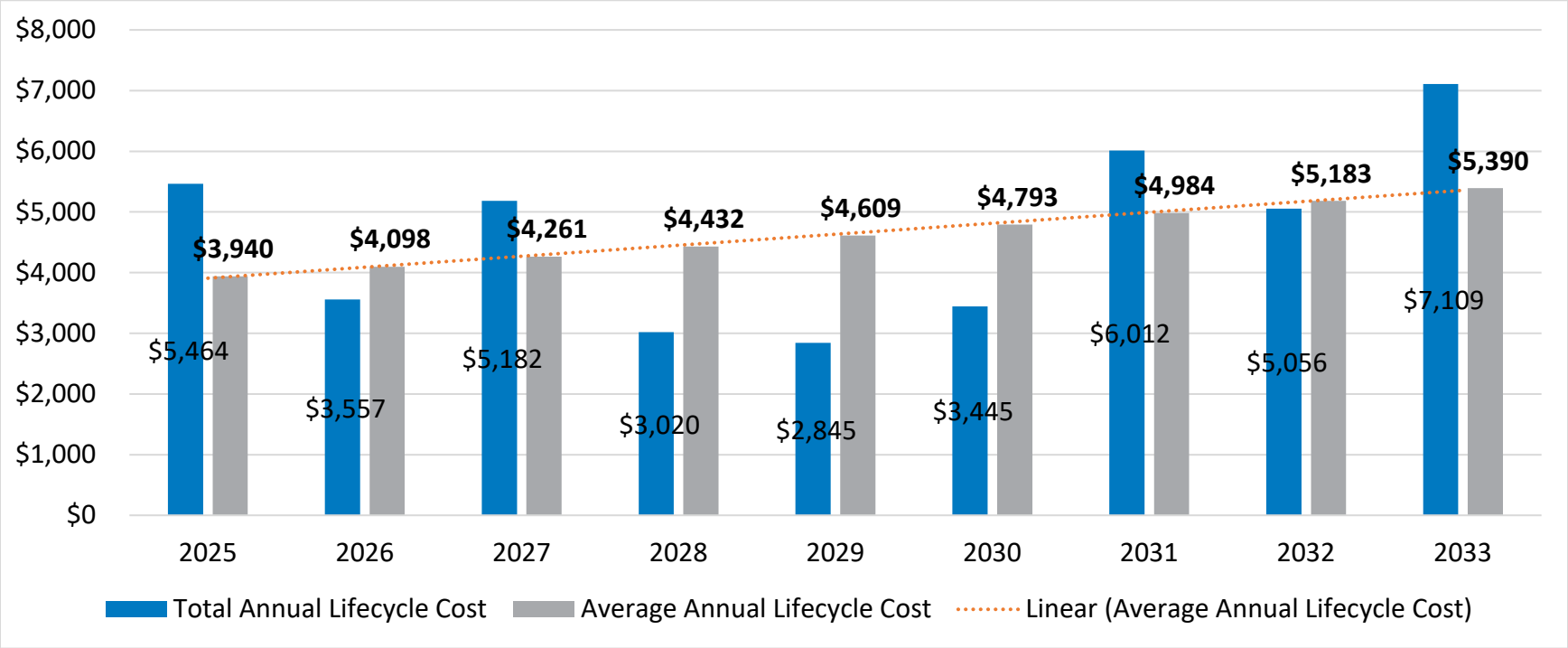


It will cost approximately $52.7 million, over the next ten years, to maintain the current level of service. The total cost, including all the costs in the backlog, is approximately $54.2 million.

Average Annual Lifecycle Cost

The costs in Figure B4 represent the annual gross cost of maintaining Corporate Fleet assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure B5 below removes the significant annual variances by determining the average annual cost of maintaining Corporate Fleet assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed. Figure B5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure B6 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure B6 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

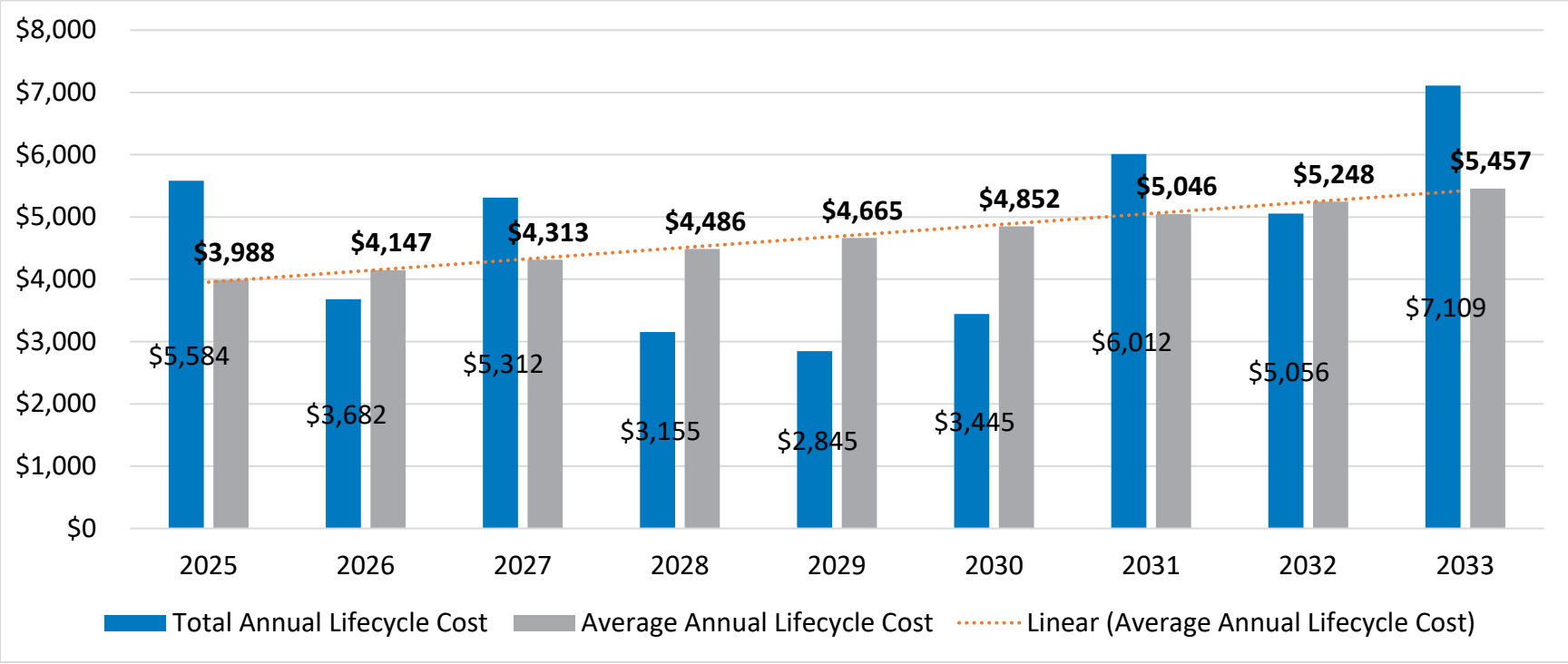
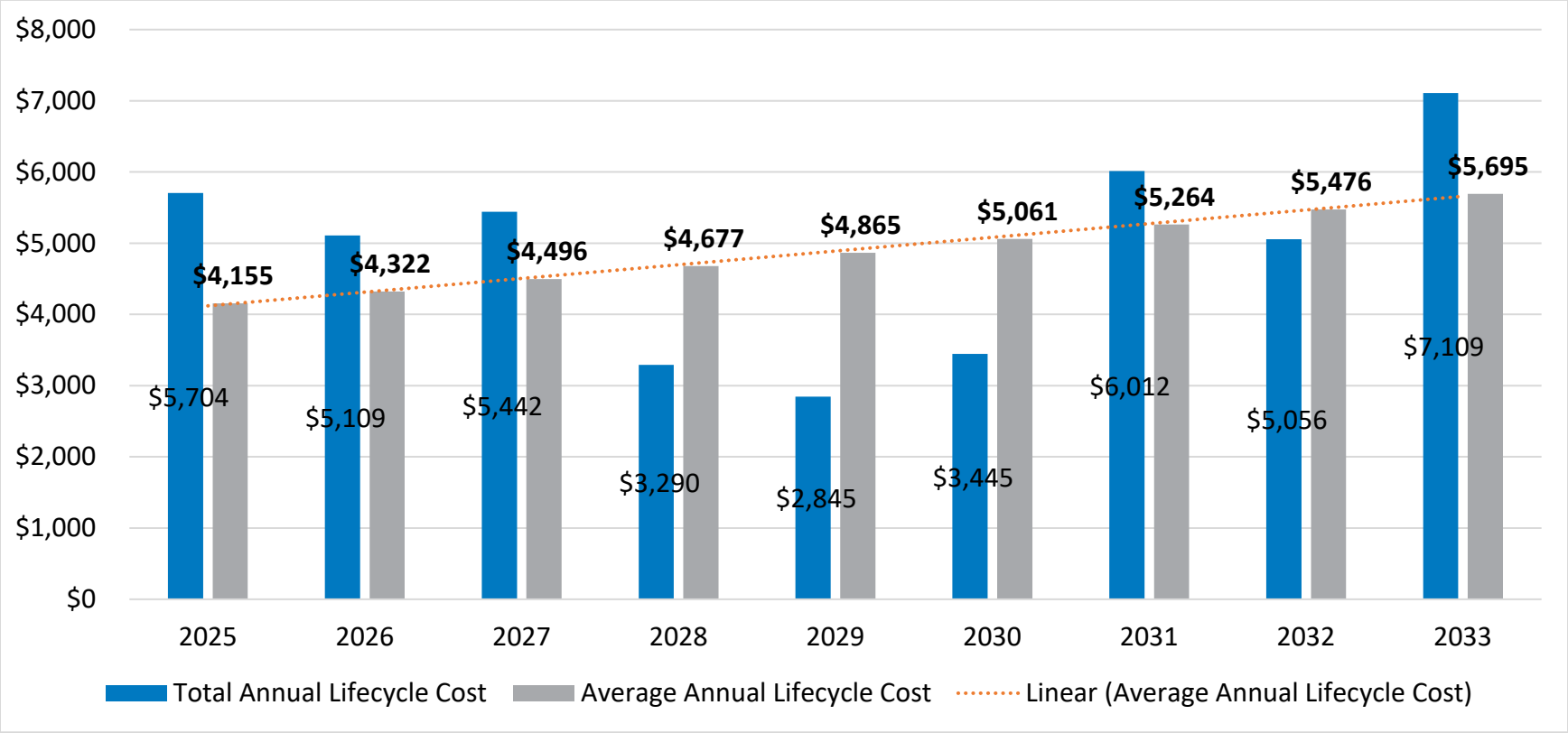


Figure B7 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure B7 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table B6 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Level	$3,940	$4,098	$4,261	$4,432	$4,609	$4,793	$4,984	$5,183	$5,390	**$41,690**
Reduce Backlog	$3,988	$4,147	$4,313	$4,486	$4,665	$4,852	$5,046	$5,248	$5,457	**$42,200**
Eliminate Backlog	$4,155	$4,322	$4,496	$4,677	$4,865	$5,061	$5,264	$5,476	$5,695	**$44,012**

06

Emergency Services

Emergency Services Overview

Clarington Emergency and Fire Services (CEFS) owns and operates a number of infrastructure assets that are used for the essential services provided by the fire crews. These assets include items used for the front-line delivery of fire protection services, along with items used for the training of front-line fire fighters.

Some of the largest assets associated with CEFS are the fire stations and fire trucks. Although these assets are operated by CEFS, they are managed by other divisions within the organization. In order to ensure a consistent grouping of assets within each asset category, fire stations have been included under Corporate Facilities and fire trucks have been included under Corporate Fleet.

The remaining assets pertaining to Emergency Services have been divided into separate asset sub-types. The different sub-types are provided and defined in the tables below.

Table C1 – Emergency Services Assets

Asset Type	Asset Sub-Type	Purpose
Suppression Gear	Bunker Suits	Includes fire protection gear, such as jackets and pants, used by fire fighters when responding to an emergency. Full-time fire fighters have two sets of gear, part-time firefighters have one.
	Helmets	Includes the helmets used by front line fire fighters when responding to an emergency.
	Self-Contained Breathing Apparatus (SCBA's)	Apparatus that provides an autonomous supply of atmospheric air when fighting fires. The SCBA includes the actual unit, along with one cylinder.
Equipment	Suppression Equipment	Includes equipment used in fire suppression or in the maintenance of suppression gear. Includes thermal imaging cameras, air compressors (for SCBA cylinders), SCBA fit testers, and bunker gear washers/dryers.

Asset Type	Asset Sub-Type	Purpose
	Defibrillators	Apparatus is used to control heart fibrillation by application of an electric current to the chest wall or heart. Includes the defibrillators located on trucks and in the stations.
	Digital Pagers	Pagers used by fire fighters to notify volunteer fire fighters of an emergency.
	Harris Radios	The radio's used in emergency services vehicles to receive dispatch calls. Includes both mobile and portable radios for each vehicle.
Training Infrastructure	Training Equipment	Includes various equipment used in firefighting training, such as wired headsets, voice enunciators, training props, and extinguisher training unit.

State of Local Infrastructure

Asset Inventory

The asset inventory summary for Emergency Services is provided in the table below. The majority of replacement costing has been estimated using a combination of recent tenders for similar assets and estimates provided by staff within CEFS. In certain circumstances, replacement costing has been estimated by applying an inflation factor to historical costing.

Table C2 - Summarized Asset Inventory – Emergency Services

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Replacement Cost ($2024)
Suppression Gear	Bunker Suits	250	3.9	$750,000
	Helmets	187	3.7	78,000
	SCBA's	43	6.0	377,000
Equipment	Suppression Equipment	22	10.0	504,000
	Defibrillators	12	5.0	38,000
	Digital Pagers	135	7.0	135,000
	Harris Radios	120	6.3	600,000
Training Infrastructure	Training Equipment	10	5.7	96,000
Total		**779**	**6.2**	**$2,578,000**

As shown in Table C2, the total replacement cost for Emergency Services assets (excluding fire stations and fire trucks) is approximately $2.6 million.

Asset Age

Table C3 includes a summary of the average age of Emergency Services assets within each asset sub-type. The age of each asset is assessed and given equal weighting when deriving the average age for each sub-type. The average age for each sub-type represents the simple average of the various components within that category. The total average age for all Emergency Services assets, represents a weighted average of the different asset sub-types, based on total replacement cost.

Table C3 – Average Age and Condition – Emergency Services

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Average Estimated Useful Life	Average Condition (ULC%)[1]	Average Condition State
Suppression Gear	Bunker Suits	250	3.9	10.0	Assessed	Very Good
	Helmets	187	3.7	10.0	Assessed	Very Good
	SCBA's	43	6.0	15.0	Assessed	Very Good
Equipment	Suppression Equipment	22	10.0	13.1	76%	Good
	Defibrillators	12	5.0	7.0	Assessed	Very Good
	Digital Pagers	135	7.0	10.0	70%	Good
	Harris Radios	120	6.3	10.0	63%	Good
Training Infrastructure	Training Equipment	10	5.7	8.4	67%	Good
Total		**779**	**6.2**		**57%**	**Good**

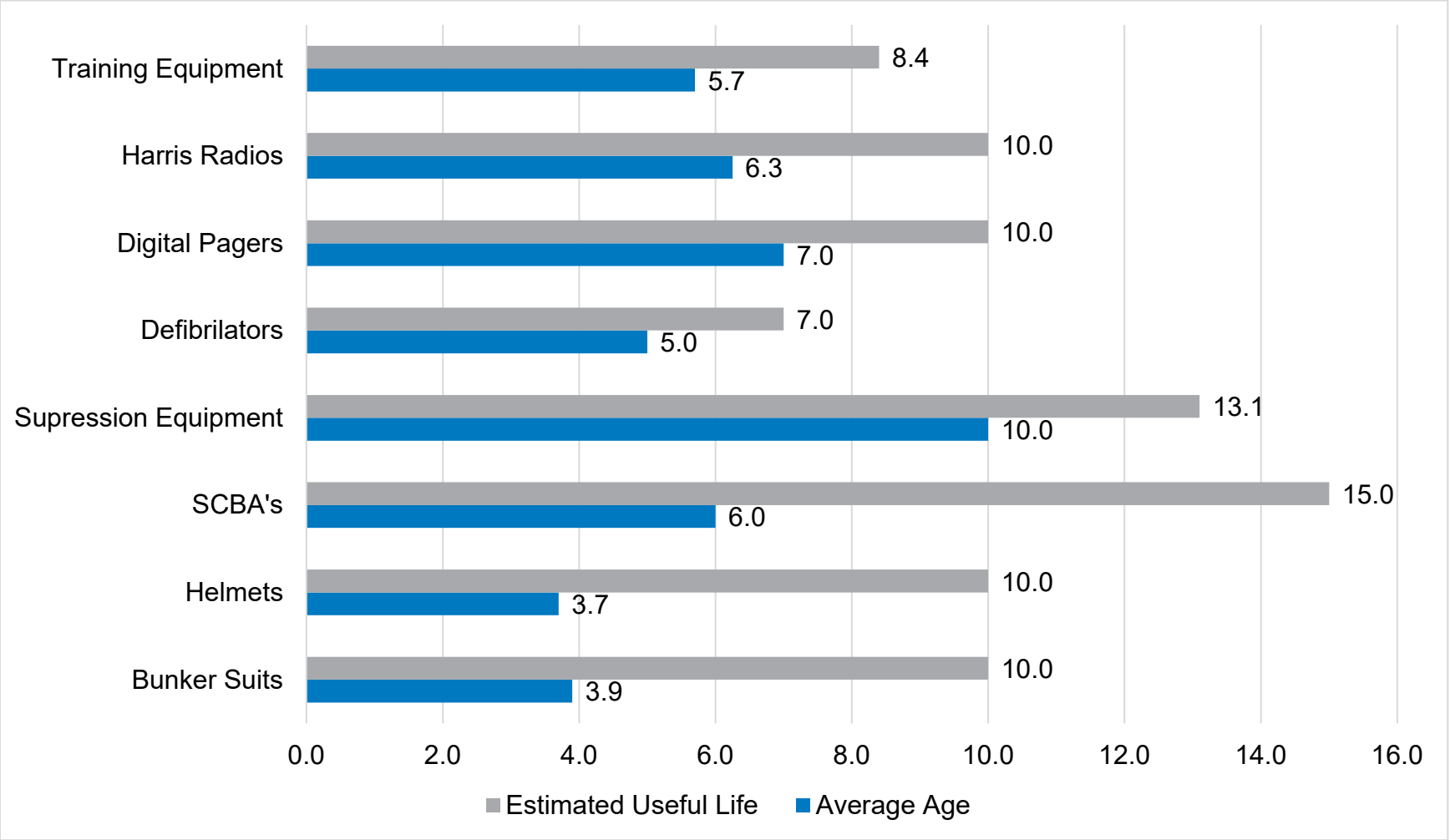
[1]Average condition labelled "Assessed" indicates the asset is assessed annually to ensure it remains in Very Good condition.

Each asset has also been assigned an estimated useful life based on a combination of industry standards and the Municipality's current Capitalization Policy.

The Suppression Equipment and Training Equipment sub-types include various pieces of equipment, as identified in Table C1. These various equipment types also include various useful life estimates. The estimated useful life for these sub-types reflects a weighted average of the estimated useful life of each contributing component.

The figure below compares the average age with the average estimated useful life for each asset sub-type. The average age for all sub-types is within the estimate useful life.

Figure C1 – Average Age (Years) and Estimated Useful Life (Years) – Emergency Services



Asset Condition

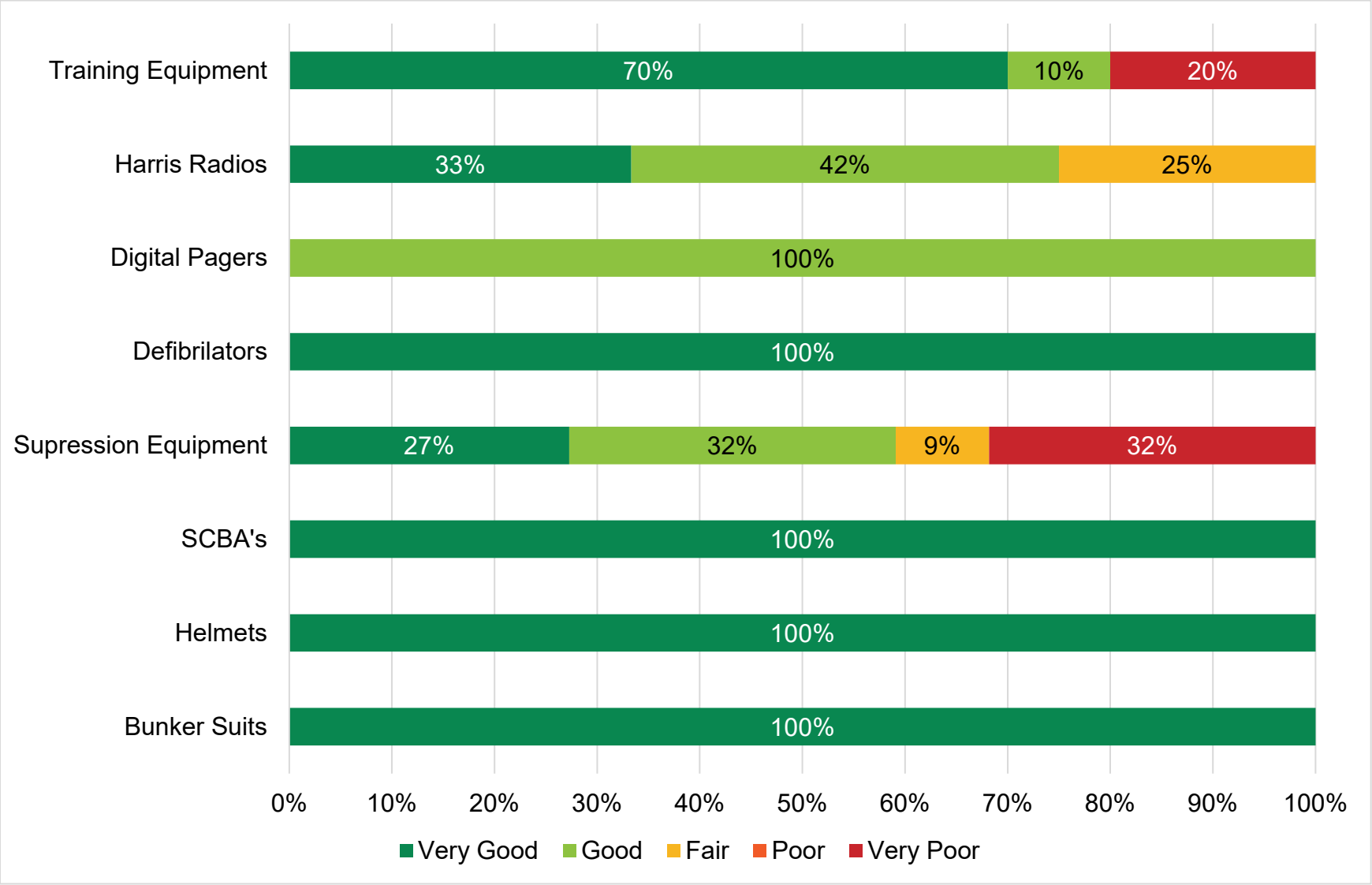
Table C3 also provides the average condition rating for each of the asset sub-types within Emergency Services. The condition percentages are derived using the ULC% methodology.

Certain asset types have a condition rating labelled as “Assessed”. This is to reflect the fact that these assets are subject to annual condition inspections to ensure the assets are always maintained in Very Good condition. These assets pose a significant health and safety risk if they are not maintained in Very Good condition. If a particular asset fails inspection, the asset would be immediately repaired or replaced.

The average condition for all Emergency Services assets is rated as Good. The average condition rating for Emergency Services was derived using a weighted average based on the replacement value of each asset sub-type. The total average condition was derived by applying a 45 per cent ULC% to the assets rated as “Assessed”, which equates to a Very Good condition rating.

The condition of each individual asset with an “Assessed” condition rating is rated as Very Good. However, for the other asset sub-types, the condition of each individual asset varies. The figure below illustrates the condition distribution within each asset sub-type.

Figure C2 – Condition Distribution – Emergency Services



Levels of Service

The levels of service for Emergency Services were developed in an effort to reflect the desires, values, and expectations of the community. The Level of Service statements are intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect some of the key characteristics important to the organization.

The Municipality's current level of service performance is provided in the table below. Proposed levels of service and their respective targets will be identified in future iterations of the AMP.

Table C4 – Current Levels of Service – Emergency Services

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Managing Emergency Services assets in a fiscally sustainable manner	Emergency Services Reinvestment Rate	7.1%
Quality	Ensuring Emergency Services assets are in a suitable condition for emergency response	% of Emergency Services assets in Fair or better condition (FCI)	100%

Lifecycle Management Strategies and Costing

The Municipality undertakes three main types of lifecycle activities to ensure Emergency Services assets maintain their current level of service.

Inspection activities are completed on all suppression gear and life saving devices, such as defibrillators. These inspections are completed annually to ensure the assets remain in Very Good condition. The Municipality contracts out the inspections of these assets and the expense is funded through the municipal operating budget. The Municipality does not consider this a significant operating expense; therefore, the costs are not included in the AMP.

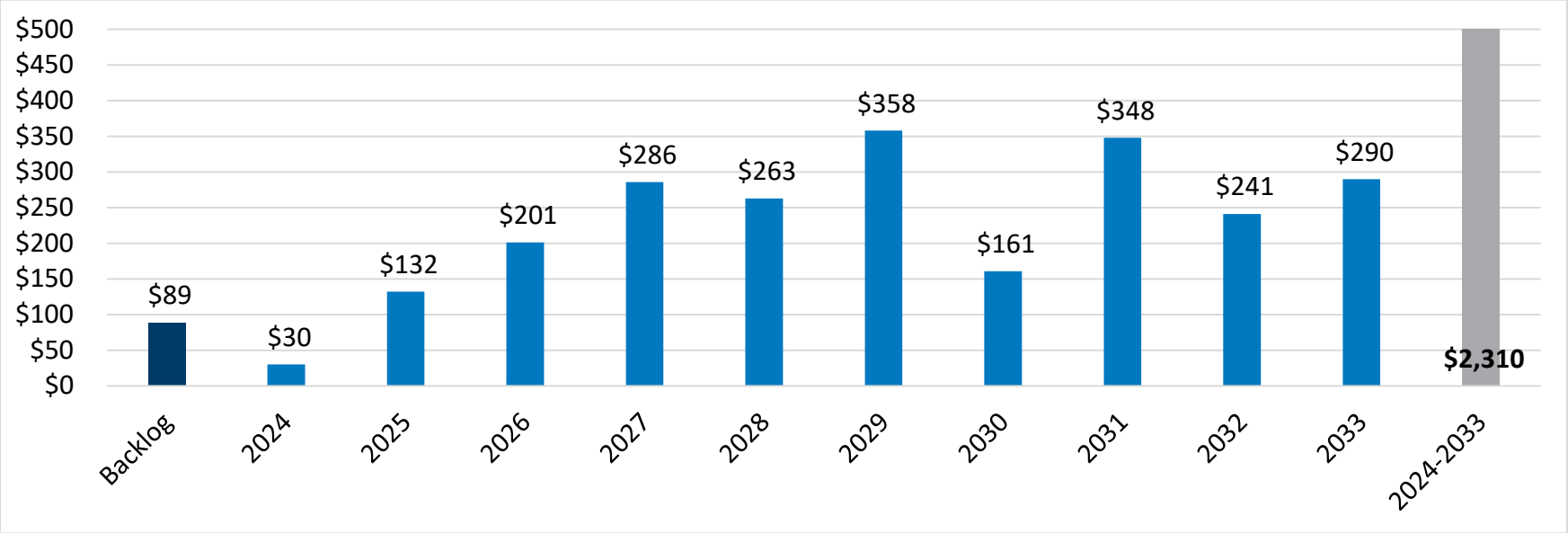
General repair and maintenance activities are performed throughout the useful life of the assets. These activities include the general maintenance required to ensure the assets reach their estimated useful life. These

expenses are funded through repair and maintenance accounts in the municipal operating budget. These operating costs are not considered significant for the purposes of the AMP and have not been identified in the annual lifecycle costing.

Replacement activities involve the full replacement of assets at the end of their useful life, including the assets that are assessed on an annual basis. The replacement of Emergency Services assets represents a capital expense and forms the basis of the annual lifecycle costing identified in the AMP. The Municipality's current level of service is to replace an asset once it can no longer perform its functional duty.

The figure below identifies the annual lifecycle costing required to maintain the Municipality's current level of service.

Figure C3 – Annual Lifecycle Costing – Emergency Services ($000's)



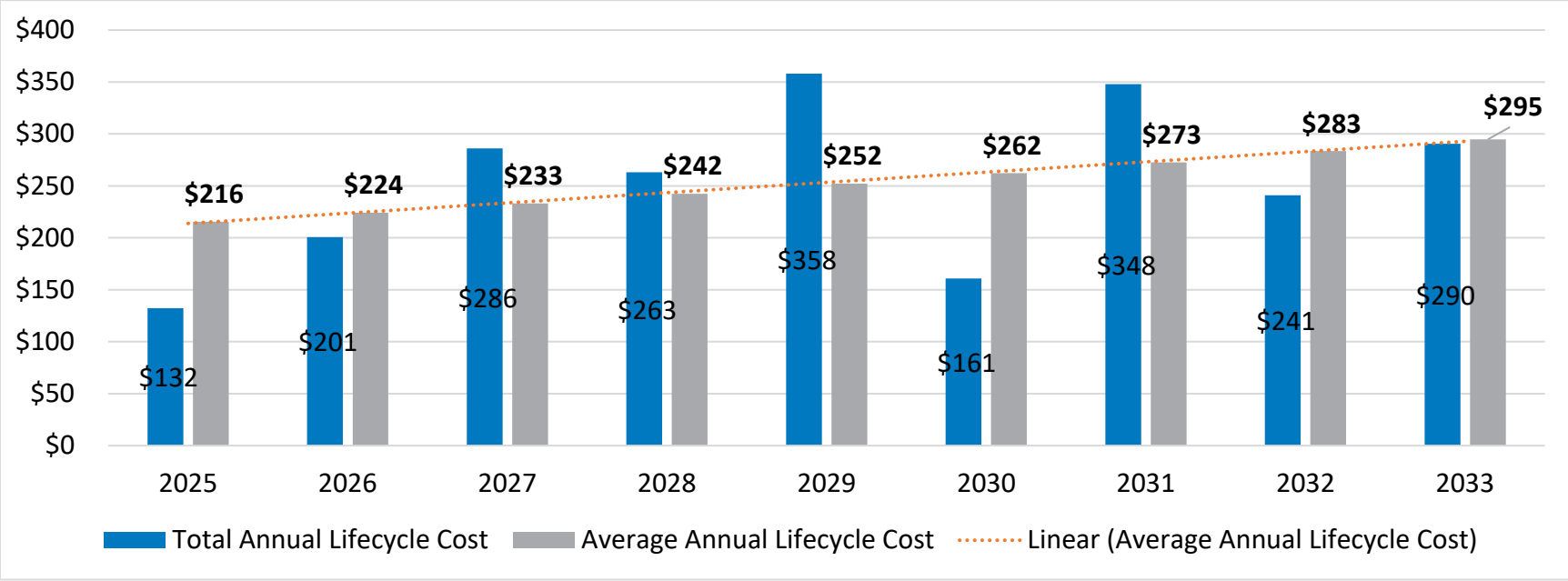
It will cost approximately $2.3 million, over the next ten years, to maintain the current level of service. The total cost, including the cost of the backlog, is approximately $2.4 million.

Average Annual Lifecycle Cost

The costs in Figure C3 represent the annual gross cost of maintaining Emergency Services assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure C4 below removes the significant annual variances by determining the average annual cost of maintaining Emergency Services assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed.

Figure C4 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure C5 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure C5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

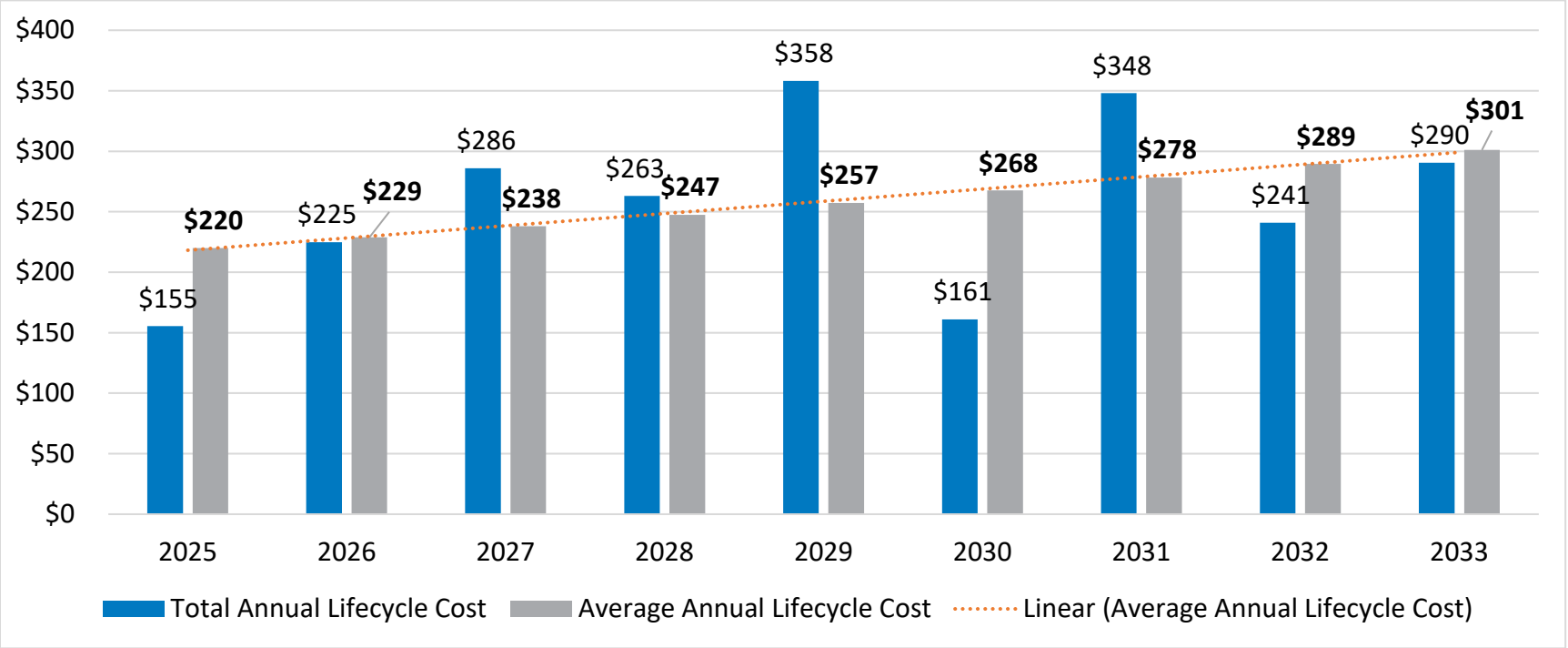
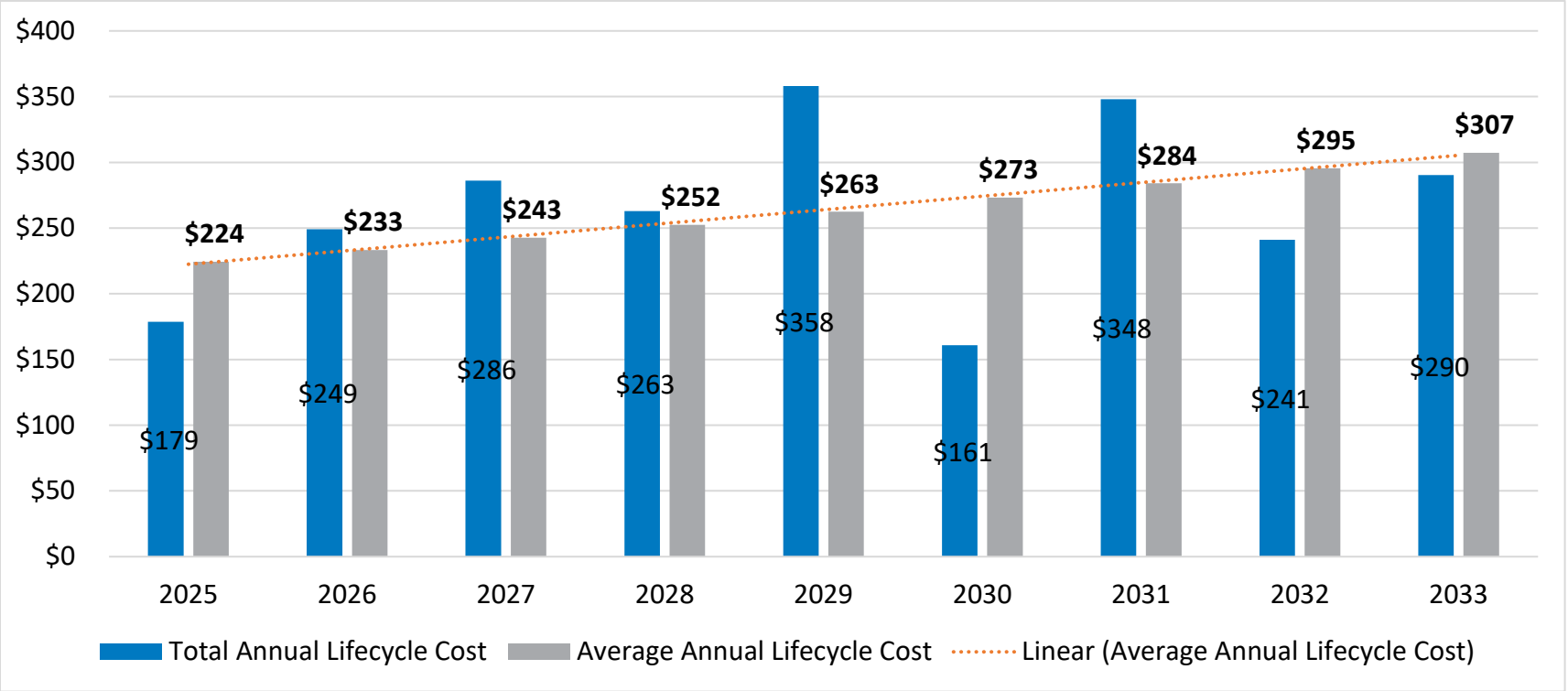


Figure C6 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure C6 –Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table C5 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Levels	$216	$224	$233	$242	$252	$262	$273	$283	$295	**$2,280**
Reduce Backlog	$220	$229	$238	$247	$257	$268	$278	$289	$301	**$2,328**
Eliminate Backlog	$224	$233	$243	$252	$263	$273	$284	$295	$307	**$2,375**

07

Information Technology

Information Technology Overview

Information Technology (IT) infrastructure includes various pieces of hardware and software used by the various departments and divisions throughout the Municipality. IT infrastructure also includes the telecommunications infrastructure located throughout the municipality to ensure communication channels remain open and accessible. IT infrastructure is managed by the IT division of the Finance and Technology Department but is operated by the various departments within the municipality.

The Municipality's IT infrastructure has been divided into different sub-types, based on similar characteristics and functions. The different sub-types are provided and defined in the table below.

Table D1 – IT Infrastructure Assets

Asset Type	Asset Sub-type	Description
Communications	Communication Towers	Tower structure equipped with antennas, transmitters, and receivers that facilitate wireless communication.
	Wireless Links	Wireless radio links used to connect remote offices to the Municipal Administration Building, allowing staff access to Internet local applications required for service delivery.
	Phone System	Phone system used for internal and external communication. Phone system is being converted to a cloud-based software in 2024.
Software	Software Systems	Includes the various pieces of software used by the various departments for various activities (e.g. budgeting, scheduling, accounting, etc.). Includes only the major software systems that resulted in an initial capital cost.
Hardware	SMART Boards	Large, touch screen monitors, that allow users to interact with digital content.

Asset Type	Asset Sub-type	Description
	Laptops	Various laptops used throughout the Municipality.
	Personal Computers (PC's)	Various desk-top computers used throughout the Municipality.
	Monitors	Various computer monitors used throughout the Municipality.
	Servers	Unit used to manager network resources, such as data storage, email processing, file sharing, and application hosting.
	Switches	Unit that connects devices, such as computers, printers, and servers, to the local network.
	Tablets	Electronic device that combines features of a smartphone and laptop.
	Wireless Access Points	Networking hardware device that allows Wi-Fi devices to connect to a wired network.
	Accessories	Touch panels and mini PC's used to control electronic devices in meeting rooms and Council chambers.
	Projectors	Output device that projects large scale visual displays.
	Firewalls	Network security system unit that monitors and controls incoming and outgoing network traffic.

Asset Type	Asset Sub-type	Description
	Uninterrupted Power Source (UPS)	Continual power system unit that provides automated backup electric power when the main power source fails.

State of Local Infrastructure

Asset Inventory

The summarized asset inventory for IT infrastructure is presented in Table D2 below. The majority of replacement costing has been estimated using a combination of recent tenders for similar assets and estimates provided by staff within the corporate IT division.

Table D2 - Summarized Asset Inventory – IT Infrastructure

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Replacement Cost ($2024)
Communications	Communication Towers	5	14.6	$319,000
	Wireless Links	16	18	54,000
	Phone System	1	6	35,000
Software	Software Systems	24	9.7	4,982,000
Hardware	SMART Boards	1	8.3	10,000
	Laptops	181	2.2	302,000
	PC's	105	5.5	84,000
	Monitors	97	2.9	15,000
	Servers	5	3.6	43,000
	Switches	59	6.6	81,000
	Tablets	33	1.3	26,000

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Replacement Cost ($2024)
	Wireless Access Points	43	2.7	41,000
	Accessories	6	1.8	36,000
	Projectors	2	4	2,000
	Firewalls	2	6	43,000
	UPS	7	8	7,000
Total		**587**	**9.3**	**$6,080,200**

As shown in Table D2, the total replacement cost for the Municipality's IT infrastructure is approximately $6.08 million. The majority of the total replacement cost relates to software infrastructure. Software systems are an important component of IT infrastructure as they are used for accounting, budgeting, building permits, and various other forms of service delivery.

The Municipality uses many pieces of software to perform a variety of functions. The software assets presented in the AMP include only the major software assets that resulted in a significant capital cost at acquisition. The replacement costing for software is difficult to estimate, given the rapidly changing technology and the variety of options available. IT software replacement costing, for the purposes of the AMP, was estimated by inflating the original purchase price by the Software and Software Licensing component of the Statistics Canada Informatics Professional Services Price Index. Historical data was analyzed to determine an average annual increase.

The AMP also assumes that software systems will continue to be replaced by software infrastructure purchased from a supplier. Software purchases may transition to a subscription-based model in the future, where software subscriptions are provided for a monthly fee as opposed to purchasing physical systems from a supplier. This transition is dependent on a number of factors and is difficult to predict. Therefore, the AMP assumes the current acquisition model will be maintained.

The Municipality is transitioning away from a physical phone system to an online model where no physical phone unit is required. The replacement cost for phone systems reflects this change.

Asset Age

Table D3 includes a summary of the average age of the various IT assets within each asset sub-type. The age of each asset in the inventory is assessed and given equal weighting when deriving the average age for each sub-type. The average age for each sub-type represents the simple average of the various components within that category. The total average age for all IT assets represents a weighted average of the different sub-types, based on total replacement cost.

Table D3 – Average Age and Condition – IT Assets

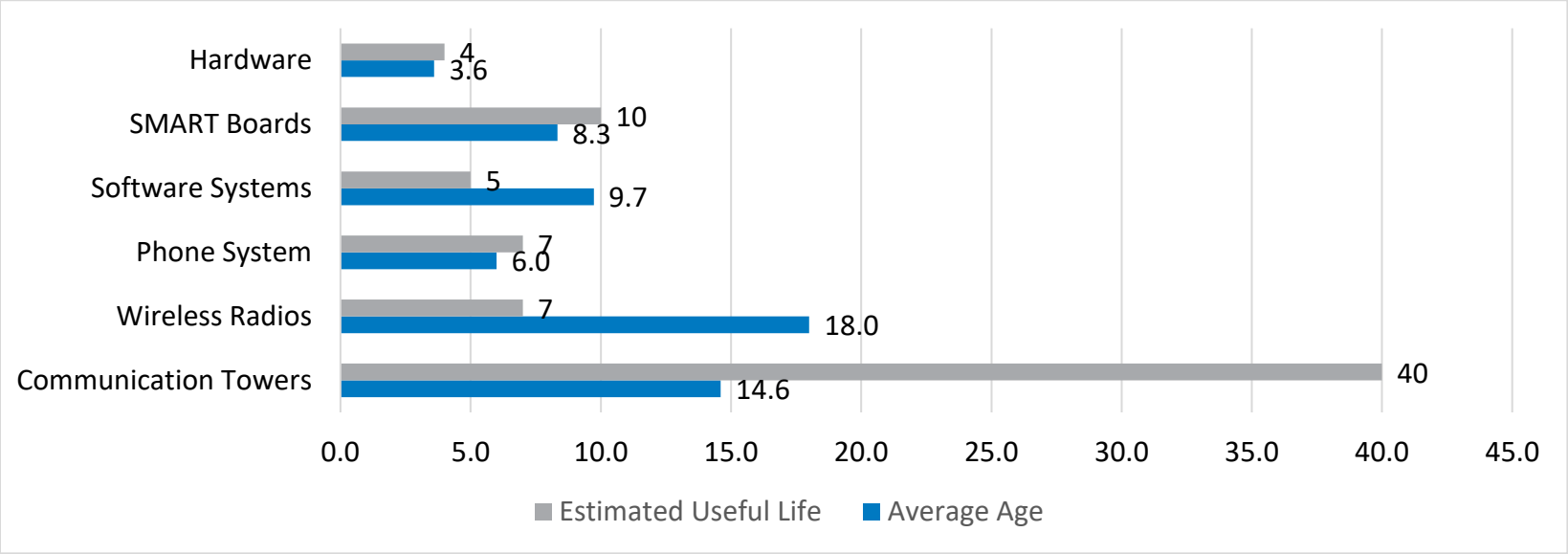
Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Estimated Useful Life (Years)	Average Condition (ULC%)	Average Condition State
Communications	Communication Towers	5	14.6	40	Assessed[1]	Very Good
	Wireless Links	16	18	7	257%	Very Poor
	Phone System	1	6	7	86%	Good
Software	Software Systems	24	9.7	5	N/A[2]	Very Good
Hardware	SMART Boards	1	8.3	10	83%	Good
	Laptops	181	2.2	4	55%	Good
	PC's	105	5.5	4	138%	Very Poor
	Monitors	97	2.9	4	73%	Good
	Servers	5	3.6	4	90%	Good
	Switches	59	6.6	4	165%	Very Poor
	Tablets	33	1.3	4	33%	Very Good
	Wireless Access Points	43	2.7	4	68%	Good
	Accessories	6	1.8	4	46%	Good
	Projectors	2	4	4	100%	Fair
	Firewalls	2	6	4	150%	Very Poor

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Estimated Useful Life (Years)	Average Condition (ULC%)	Average Condition State
	UPS	7	8	4	200%	Very Poor
Total		**587**	**9.3**		**50%**	**Good**

[1]Average condition labelled "Assessed" indicates the asset is assessed annually to ensure it remains in Very Good condition.
[2]Condition rating for Software Systems is not provided as these assets are continuously maintained to ensure they remain in Very Good condition.

Each asset has also been assigned an estimated useful life based on industry standards and the Municipality's current Capitalization Policy. Figure D1 below compares the average age with the average estimated useful life for each asset sub-type. The average age, for the majority of the Municipality's IT assets, is within the estimate useful life.

Figure D1 – Average Age (Years) and Estimated Useful Life (Years) – IT Assets



Asset Condition

Table D3 also provides the average condition rating for each of the asset sub-types within IT. The condition percentages are derived using the ULC% methodology.

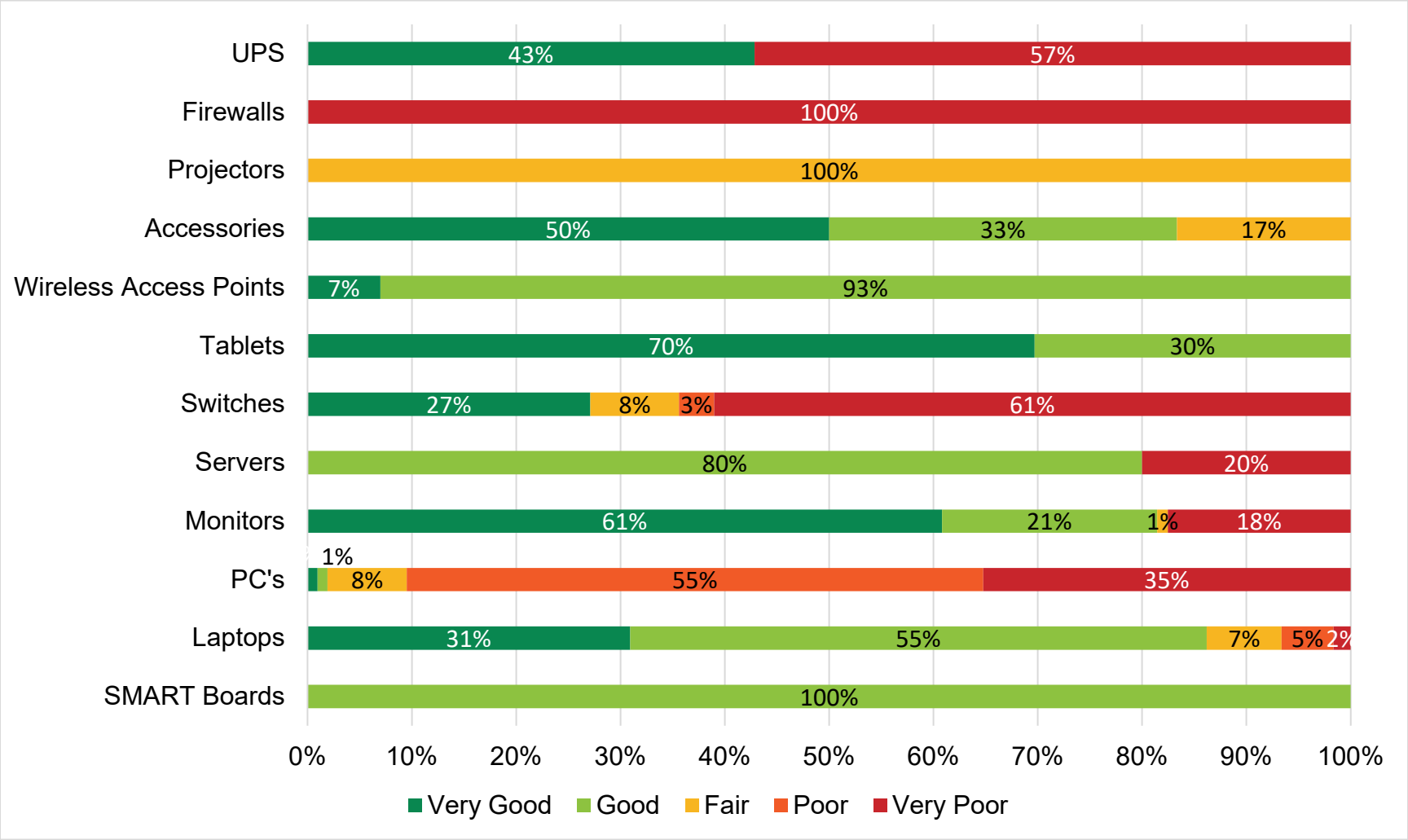
Communication Towers have been assigned a condition rating of “Assessed”. This reflects the fact that the towers are inspected on an annual basis to ensure they remain in Very Good condition. If a structural deficiency is identified during the inspection, corrective action is taken immediately. These assets will always be maintained in Very Good condition.

Software Systems have been assigned a condition rating of “N/A”. This is to reflect the fact that all software systems retained by the Municipality are updated and maintained on a consistent basis to ensure security and integrity of the systems. Although these systems are not assessed for condition, they are consistently supported and maintained by the supplier to ensure they continue to meet the requirements of the IT division. Therefore, these assets will always be maintained in Very Good condition.

The average condition for all IT assets is rated as Good. The average condition rating for IT infrastructure was derived using a weighted average of all asset sub-types, based on total replacement cost. The total average was derived by applying a 45 per cent ULC% to the assets rated as “Assessed” or “N/A”, which equates to a Very Good condition rating.

The condition of each individual asset with an “Assessed” and “N/A” condition rating is Very Good. However, for the Hardware sub-asset categories, the condition of each individual asset varies. The figure below illustrates the condition distribution within the Hardware sub-asset type.

Figure D2 – Condition Distribution – IT Infrastructure – Hardware



Levels of Service

The levels of service for IT were developed in an effort to reflect the desires, values, and expectations of the community. The Level of Service statements are intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect some of the key characteristics important to the organization.

The Municipality's current level of service performance is provided in the table below. Proposed levels of services and their respective targets will be identified in future iterations of the AMP.

Table D4 – Current Levels of Service – IT Assets

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Managing IT assets in a fiscally sustainable manner	IT Infrastructure Facilities Reinvestment Rate	15.4%
Customer Service	Provide responsive IT support to municipal staff	Average time to resolve a ticket	1d 19h 18m
Quality	Ensuring IT assets remain in a suitable condition for administrative use	% of IT Hardware in Fair or better condition (FCI)	69%
Reliability	Providing reliable IT connectivity for municipal administration	Percent average database availability (excluding planned downtime)	99%

Lifecycle Management Strategies and Costing

The Municipality undertakes three main types of lifecycle activities to ensure IT assets maintain their current level of service.

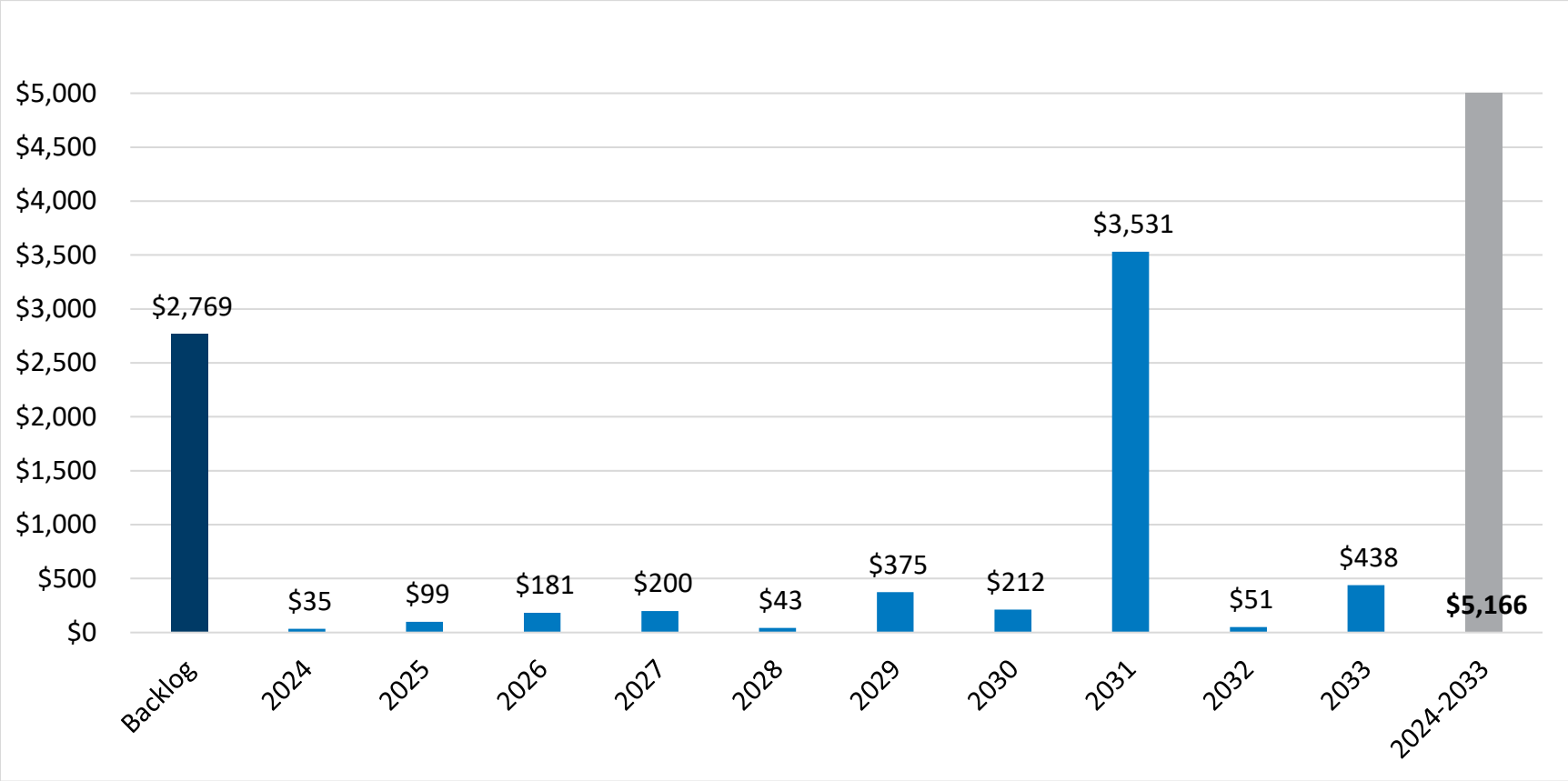
Inspection activities are completed annually on all communication towers. These inspections are done to ensure the structural integrity of this critical infrastructure and to ensure the condition rating remains Very Good. The Municipality contracts out the inspections of these assets and the expense is funded through the operating budget. The Municipality does not consider this a significant operating expense; therefore, the costs are not included in the AMP.

General repair and maintenance activities are performed throughout the lifecycle of the assets. These activities include the general maintenance required to ensure the assets reach their estimated useful life. These expenses are funded through repair and maintenance accounts in the Municipalities operating budget. These operating costs are not considered significant for the purposes of the AMP and have not been identified in the annual lifecycle costing.

Replacement activities involve the full replacement of assets at the end of their lifecycle, including the assets that are assessed on an annual basis. The replacement of IT assets represents a capital expense and forms the basis of the annual lifecycle costing identified in the AMP. The Municipality's current level of service is to replace an asset once it can no longer perform its functional duty. The AMP assumes this will occur at the end of the asset's useful life.

The figure below identifies the annual lifecycle costing required to maintain the Municipality's current level of service.

Figure D3 – Annual Lifecycle Costing – IT Infrastructure ($000's)



It will cost approximately $5.2 million, over the next ten years, to maintain the current level of service. The total cost, including all the costs included in the backlog, is approximately $7.9 million. The large cost in 2031 is largely the result of the contract expiration for the AMANDA software system. The contract for the AMANDA system expires in 2031, at which time a renewal of the contract or a replacement of the software will be required. It is too

early to determine which option will be chosen; therefore, to be prudent, the AMP is assuming replacement. The current replacement cost for the AMANDA software is approximately $2.4 million.

Backlog

The large backlog primarily consists of software system replacement costs. Many software systems are beyond their estimated useful life of five years. Software systems are assigned an estimated useful life of five years to reflect the rapid pace of technological advancement. Despite the fact that most systems are beyond their estimated useful life, the systems are still being updated and maintained by both the supplier and IT staff; therefore, the condition rating for these assets remains Very Good.

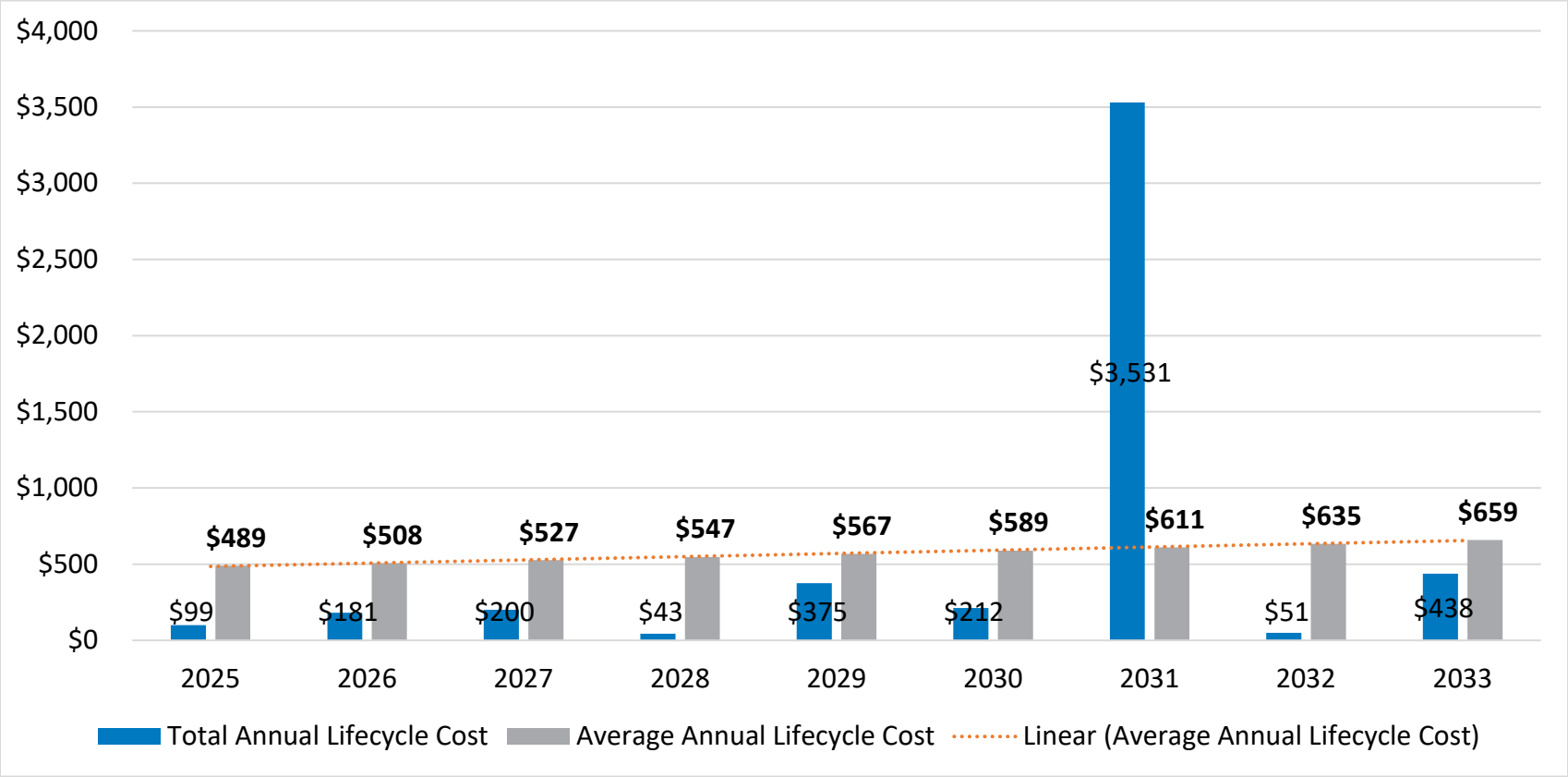
It is difficult to predict when software system replacement will occur as software would only be replaced if the supplier stops supporting the system or technological advancements lead users to request a change. Given the unpredictability, all software systems have been placed in the backlog, with the exception of the AMANDA system that is under contract until 2031. Again, given the rapid pace of technological advancement, there is a reasonable chance that some, if not all, software systems could require replacement within the next ten years.

Average Annual Lifecycle Costing

The costs in Figure D3 represent the annual gross cost of maintaining IT assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure D4 below removes the significant annual variances by determining the average annual cost of maintaining IT assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed.

Figure D4 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure D5 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure D5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

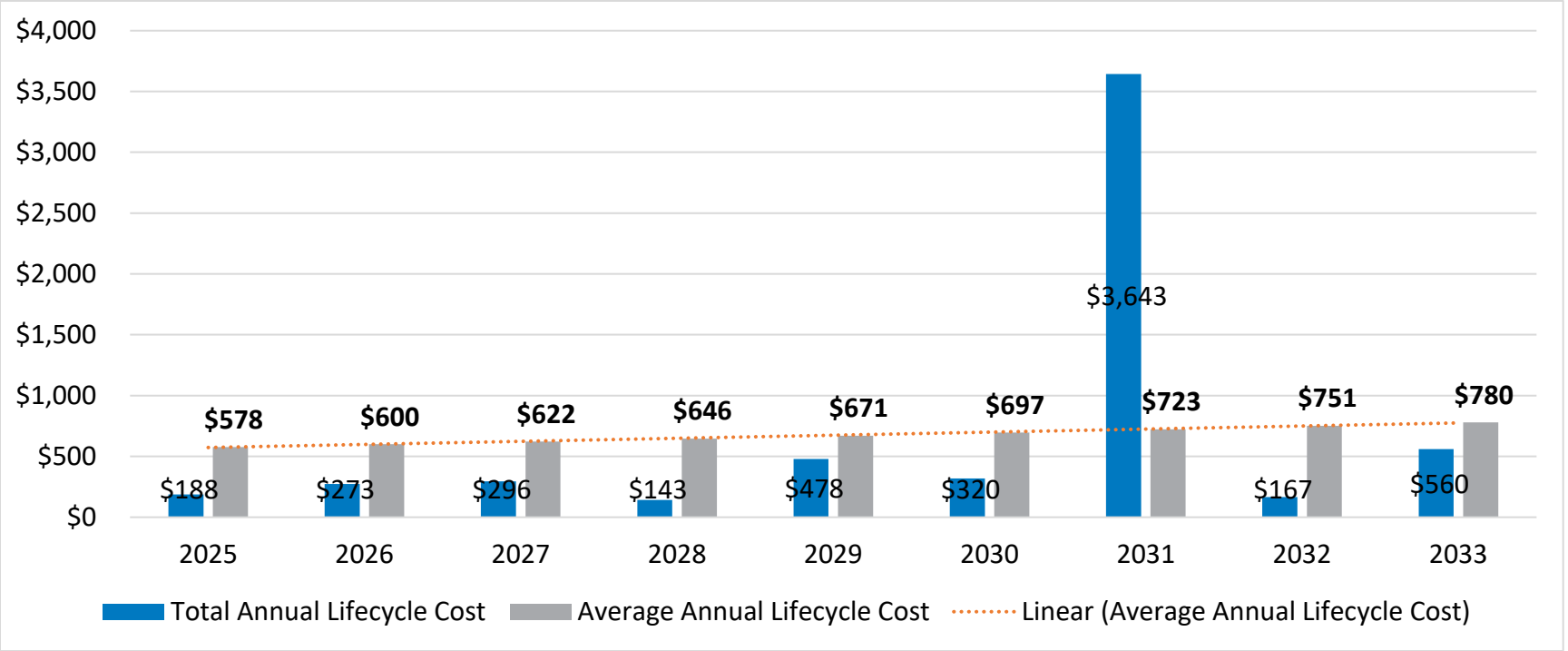
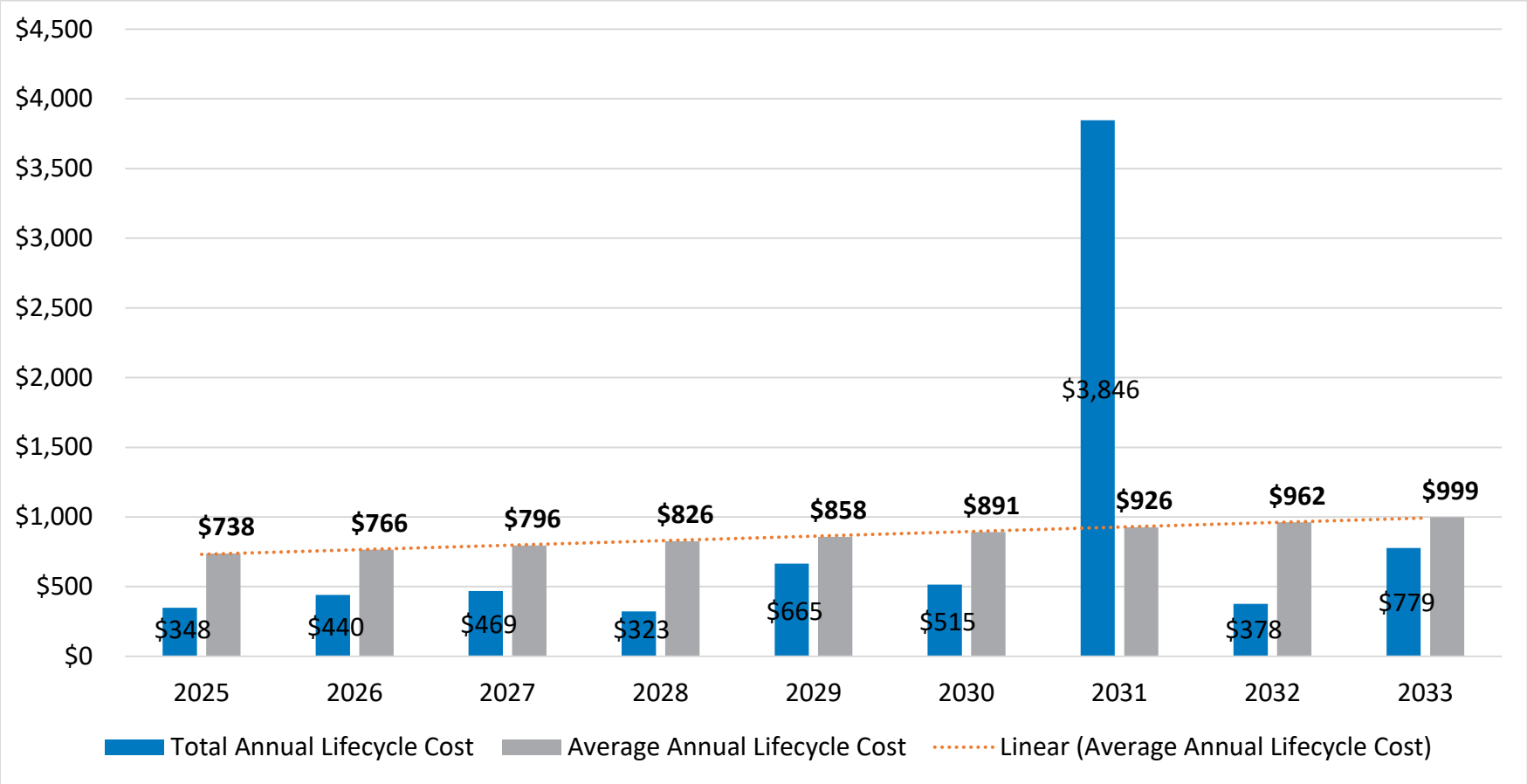


Figure D6 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure D6 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table D5 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Level	$489	$508	$527	$547	$567	$589	$611	$635	$659	**$5,132**
Reduce Backlog	$578	$600	$622	$646	$671	$697	$723	$751	$780	**$6,068**
Eliminate Backlog	$738	$766	$796	$826	$858	$891	$926	$962	$999	**$7,761**

08

Parking Infrastructure

Parking Infrastructure Overview

Parking Infrastructure includes all the infrastructure used to provide parking services within the Municipality, including parking lots, parking lot lights, central parking meters, and EV chargers. The Municipality also owns various coin-based on-street parking meters in the downtown area. These meters have not been included in the AMP as they are all scheduled to be replaced by centralized meters in the Fall of 2024. The new on-street central meters will be included in future iterations of the AMP, after they have been acquired and installed.

The Municipality's Parking Infrastructure assets have been divided into different asset sub-types, based on similar characteristics and functions. The different sub-types are provided and defined in the Table below.

Table E1 – Parking Infrastructure Assets

Asset Type	Asset Sub-type	Description
Parking Lots	Paved Parking Lots	Various parking lots, throughout the Municipality, that are paved with asphalt.
	Gravel Parking Lots	Various parking lots, throughout the Municipality, that consist of a gravel base.
Parking Lot Infrastructure	Parking Lot Lights	Includes the light pole and luminaire used to provide lighting to municipally owned parking lots.
	Central Parking Lot Meters	Centralized pay stations used in municipally owned parking lots. Does not include on-street parking.
	EV Charging Stations	Stations used to charge electric vehicles. Includes both the charging units and pedestals.

State of Local Infrastructure

Asset Inventory

The summarized asset inventory for Parking Infrastructure is presented in the table below. Replacement costing has been derived using a combination of recent tenders for similar assets and estimates provided by municipal staff. In certain circumstances, replacement costing has been estimated by applying an inflation factor to historical costing.

Table E2 - Summarized Asset Inventory – Parking Infrastructure

Asset Type	Asset Sub-type	Quantity	Average Age (Years)	Replacement Cost ($2024)
Parking Lots	Paved Parking Lots	57	19.1	$22,029,000
	Gravel Parking Lots	23	33.0	4,297,000
Parking Lot Infrastructure	Parking Lot Lights[1]	136	31.7	1,302,000
	Central Parking Lot Meters	5	10.4	41,000
	EV Charging Stations	15	2.6	206,000
Total		**236**	**21.7**	**$27,875,000**

[1] Quantity refers to the number of parking lot light poles. Replacement cost includes both light poles and luminaires. Certain light poles may have multiple luminaires.

As shown in Table E2, the total replacement cost for Parking Infrastructure assets is approximately $27.9 million. Most of the replacement costing relates to the replacement of parking lots, which account for over 94 per cent of total replacement costing.

The replacement costing for parking lots is based on an average cost per square meter that has been applied to the total square meters of each parking lot. The cost includes the full replacement of the parking lot, including excavation work. The same cost per square meter was applied to estimating the replacement cost of gravel

parking lots. The assumption used in the AMP is that all gravel parking lots will be converted to paved lots at the time of replacement.

Replacement costing for parking lot lights assumes a full replacement of both the pole and luminaire. New light poles are now coming equipped with lifetime warranties while new LED luminaires have an estimated useful life of 15-20 years. Given the assumed age of parking lot lots, the AMP has assumed a full replacement of both light pole and luminaire at the time of replacement.

Asset Age

Table E3 includes a summary of the average age of the various Parking Infrastructure assets within each asset sub-type. The age of each asset in the inventory is assessed and given equal weighting when deriving the average age for each sub-type. The average age for each sub-type represents the simple average of the various components within that category. The total average age, for all Parking Infrastructure assets, represents a weighted average of the different sub-types, based on total replacement cost.

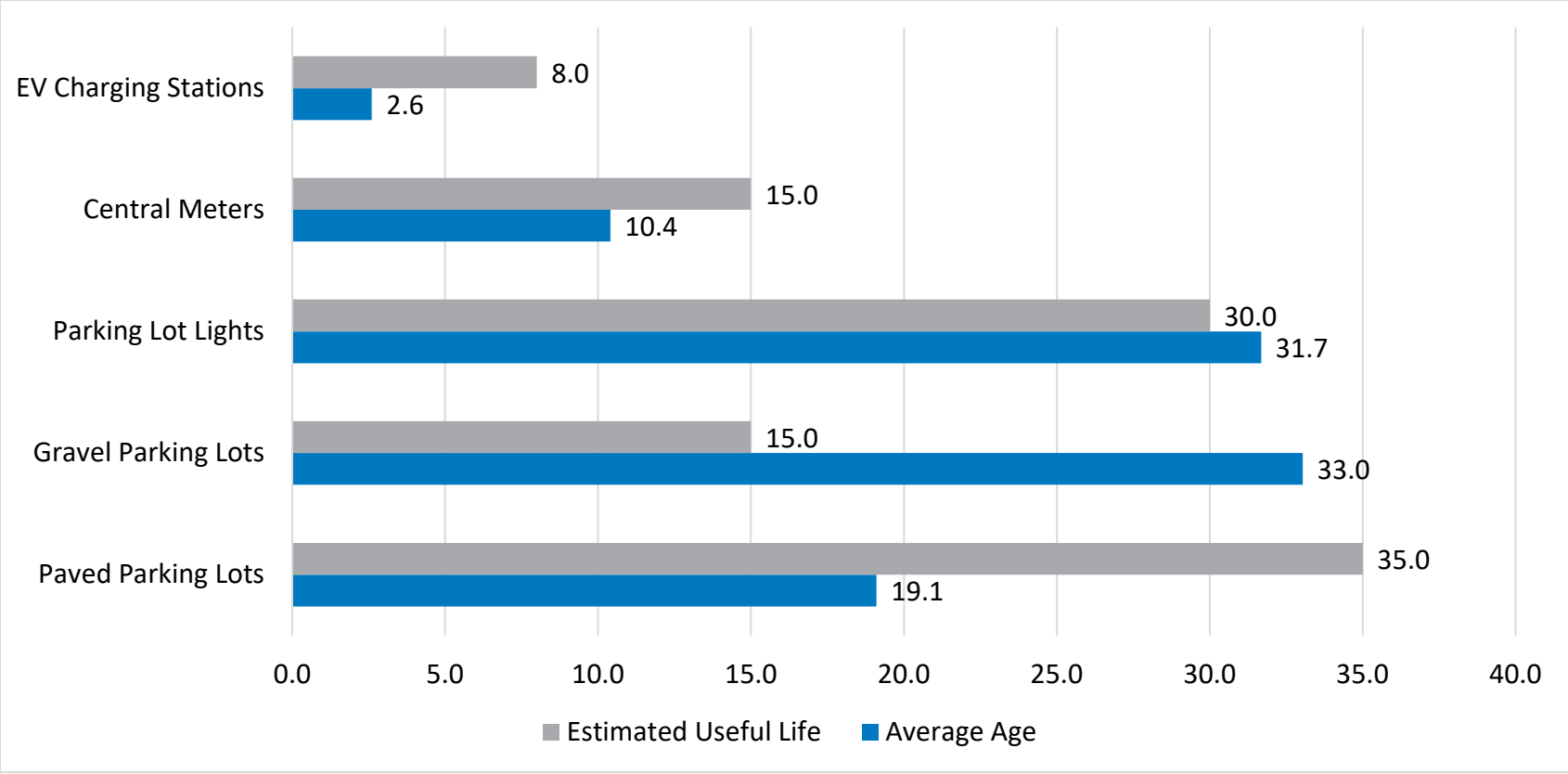
Table E3 – Average Age and Condition – Parking Infrastructure

Asset Type	Asset Sub-type	Quantity	Average Age (Years)	Estimated Useful Life (Years)	Average Condition (ULC%)	Average Condition State
Parking Lots	Paved Parking Lots	57	19.1	35	55%	Good
	Gravel Parking Lots	23	33	15	220%	Very Poor
Parking Lot Infrastructure	Parking Lot Lights	136	31.7	30	106%	Poor
	Central Parking Lot Meters	5	10.4	15	69%	Good
	EV Charging Stations	15	2.6	8	33%	Very Good
Total		**236**	**21.7**		**82%**	**Good**

The age of certain individual parking lot lights is unknown. In this circumstance, the age has been estimated based on the age of the facility in which the lights are located. The age also reflects the age of the light pole as the luminaires have likely been replaced a few times throughout the lifecycle.

Each asset has also been assigned an estimated useful life based on industry standards and the Municipality's current Capitalization Policy. Figure E1 below compares the average age with the average estimated useful life for each asset sub-type. The average age, for the majority of Parking Infrastructure sub-types, is within the estimated useful life.

Figure E1 – Average Age (Years) and Estimated Useful Life (Years) – Parking Infrastructure

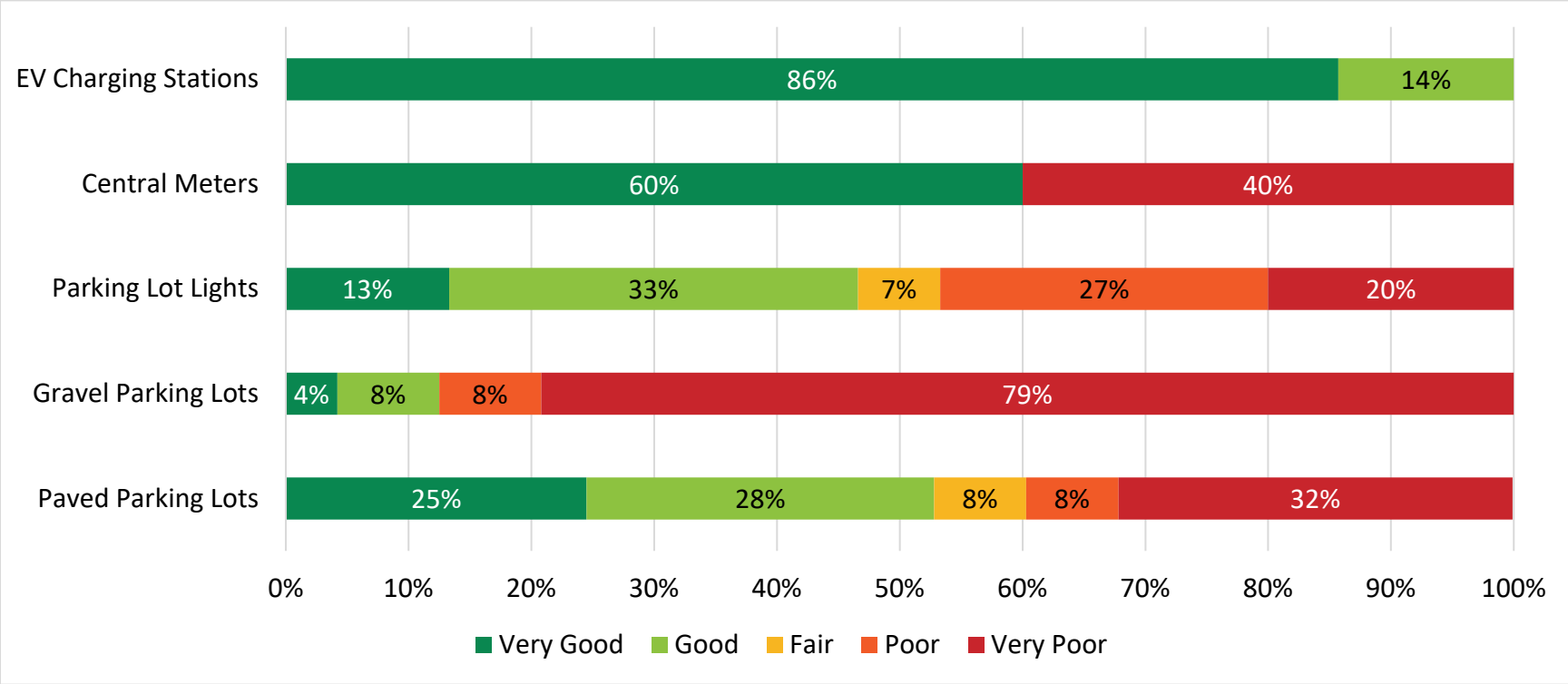


Asset Condition

Table E3 also provides the average condition rating for each of the asset sub-types within Parking Infrastructure. The condition assessments have been derived using the ULC% methodology. The average condition for all Parking Infrastructure assets is rated as Good. This average condition rating was derived using a weighted average based on the replacement cost of each asset sub-type.

Although the overall condition is assessed as Good, the actual condition of the various assets within each sub-type varies. The figure below illustrates the condition distribution within each specific sub-asset type.

Figure E2 – Condition Distribution – Parking Infrastructure



Levels of Service

The levels of service for Parking Infrastructure were developed in an effort to reflect the desires, values, and expectations of the community. The Level of Service statements are intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect the key characteristics important to the organization.

The Municipality's current level of service performance is provided in the table below. Proposed levels of services and their respective targets will be identified in future iterations of the AMP.

Table E4 – Current Levels of Service – Parking Infrastructure

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Providing Parking services to the community in a fiscally sustainable manner	Parking Infrastructure Reinvestment Rate	3.0%
Accessibility	Ensuring an adequate supply of parking at Municipal facilities	# of parking lot spaces per 1,000 population	29
Quality	Providing Parking Infrastructure assets in an acceptable condition	% of parking lots in fair or better condition	48%
		% of parking infrastructure in fair or better condition	69%
Sustainability	Providing environmentally sustainable Parking services for the community	# of EV charging stations per 1,000 population	0.22
		EV Charger Utilization Rate	11.4%

Lifecycle Management Strategies and Costing

The Municipality undertakes three main types of lifecycle activities to ensure Parking Infrastructure assets maintain their current level of service.

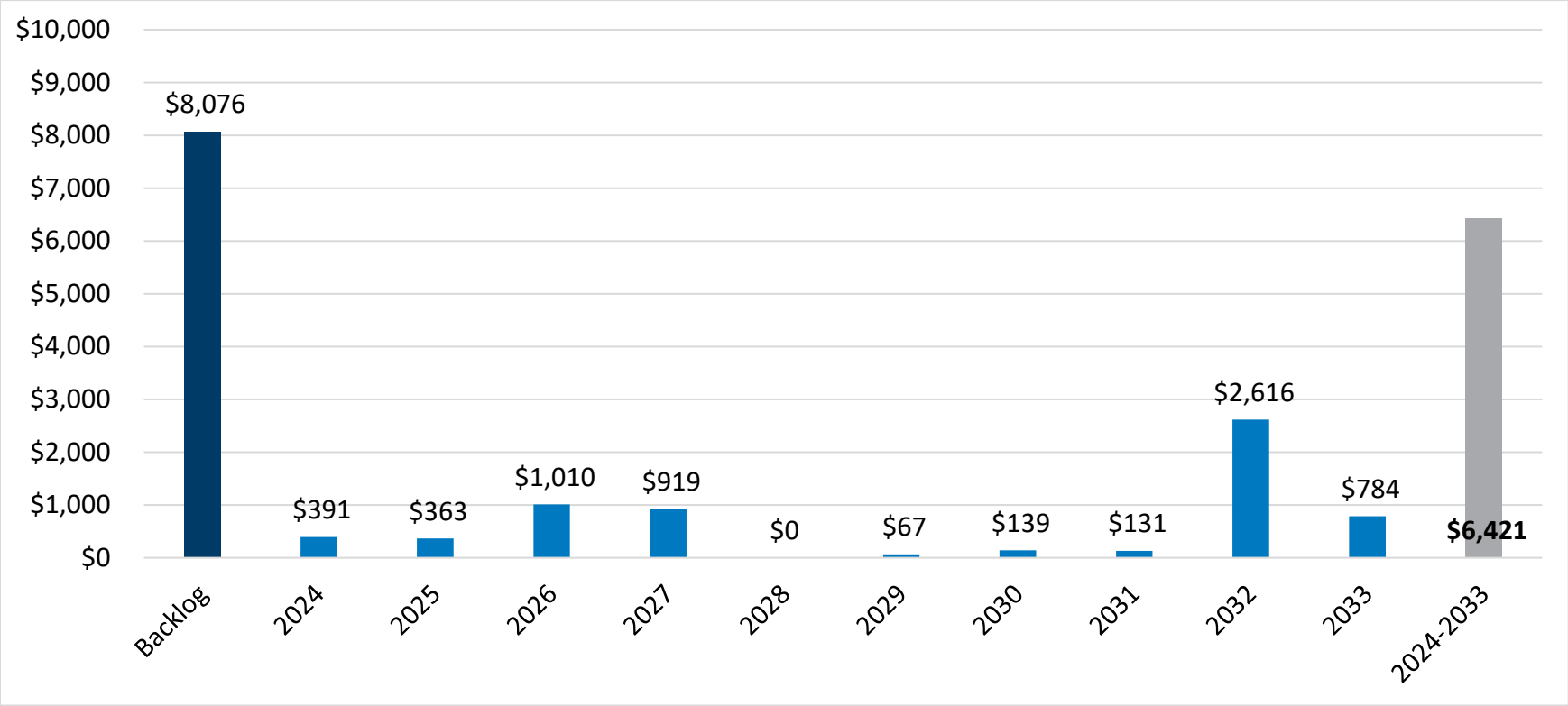
Inspection activities are completed periodically to assess the overall condition of parking lots and to determine the level of maintenance activity required. These inspections have historically been completed by consultants. However, annual visual inspections are expected to be completed by staff on a go-forward basis. As these inspections become incorporated into staff responsibilities, there will be no additional cost to the Municipality beyond staff time.

General repair and maintenance activities are performed throughout the lifecycle of the assets. These activities include the general maintenance required to ensure the assets remain in good working order. General repair and maintenance activities are either completed in-house or are funded through the annual operating budget. These expenses are not considered significant for the purposes of the AMP and have not been included in annual lifecycle costing.

Replacement activities involve the full replacement of assets at the end of their lifecycle. The replacement of Parking Infrastructure assets represents a capital expense and forms the basis of the annual lifecycle costing identified in the AMP. The Municipality's current level of service is to replace an asset once it can no longer perform its functional duty.

The figure below identifies the annual lifecycle costing required to maintain the Municipality's current level of service.

Figure E3 – Annual Lifecycle Costing – Parking Infrastructure ($000's)



It will cost approximately $6.4 million over the next ten years to maintain the current level of service. The total cost, including all the costs included in the backlog, would be approximately $14.4 million.

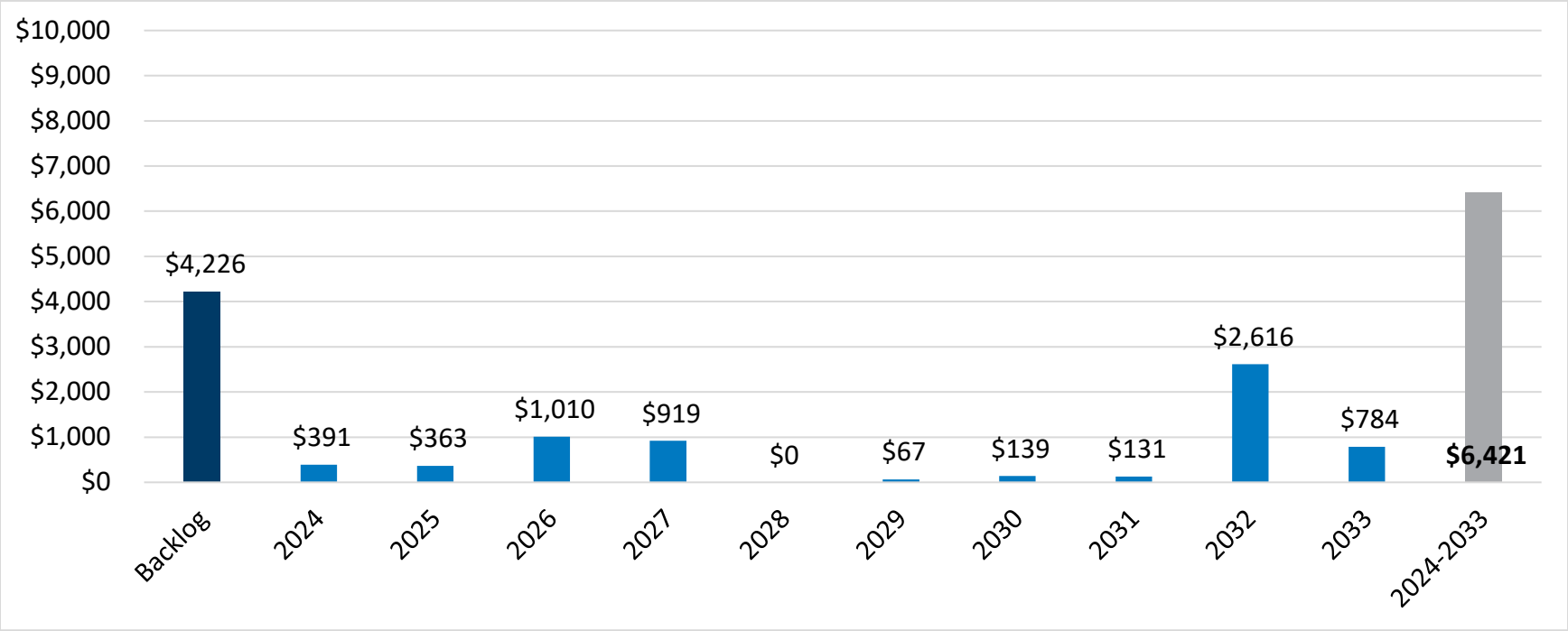
Backlog

The backlog for Parking Infrastructure consists mainly of paved and gravel parking lots that are beyond their estimated useful life. The AMP assumes that gravel parking lots would be replaced by paved lots at the time of

replacement. However, although most gravel parking lots are beyond their estimated useful life of 15 years, it is unlikely that these lots would require paving within the ten-year forecast period. As these lots are likely to maintain their functional duty over the ten-year forecast period, they represent a theoretical backlog cost as opposed to a legitimate backlog cost.

The paved parking lots in the backlog represent a legitimate backlog cost as the condition of a paved lot does start to deteriorate as it reaches the end of its useful life. There is a higher likelihood that a paved lot, at the end of its useful life, would require attention within the ten-year forecast period. Figure E4 below provides the annual lifecycle costing, with the exclusion of gravel parking lots from the backlog.

Figure E4 – Annual Lifecycle Costing – Parking Infrastructure ($000's) – Remove Theoretical Backlog

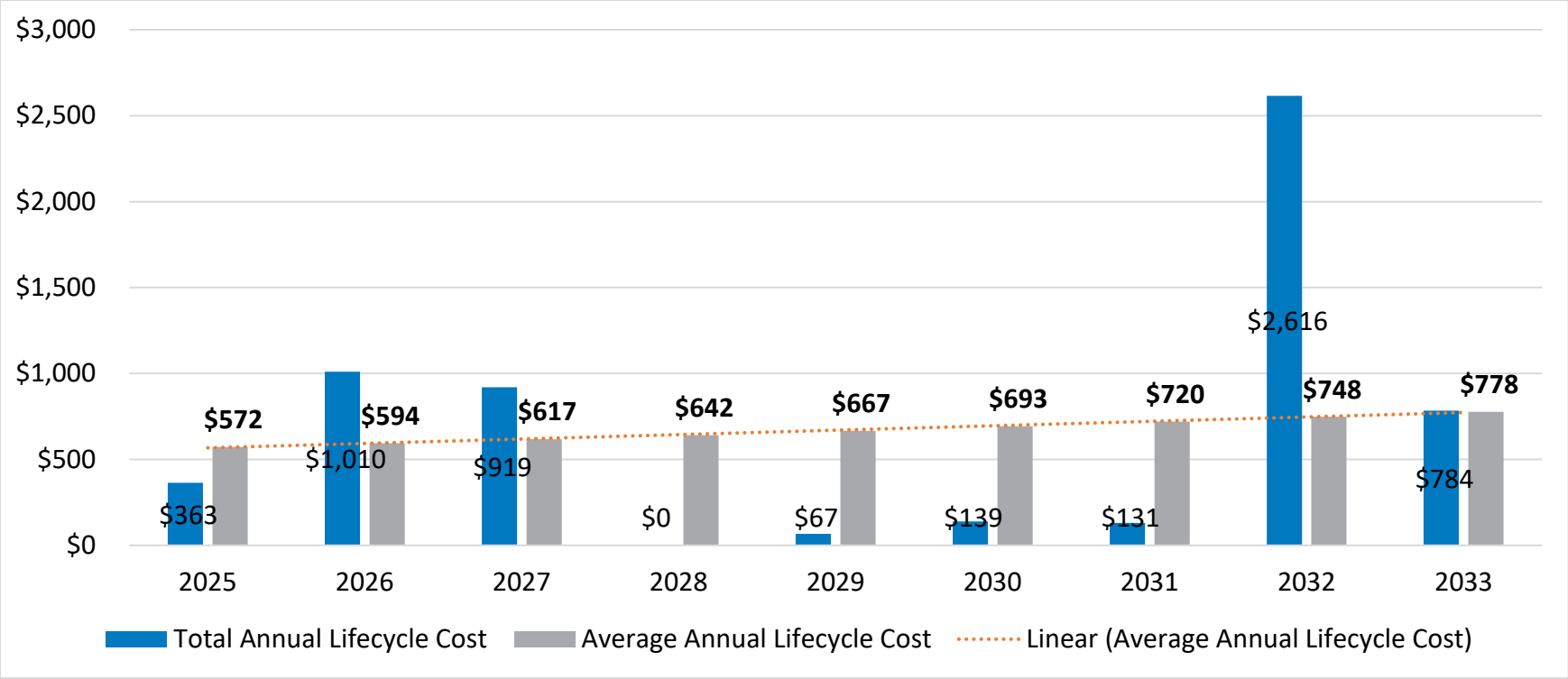


Average Annual Lifecycle Cost

The costs in Figure E4 represent the annual gross cost of maintaining Parking Infrastructure assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure E5 below removes the significant annual variances by determining the average annual cost of maintaining Parking Infrastructure assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed.

Figure E5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure E6 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure E6 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

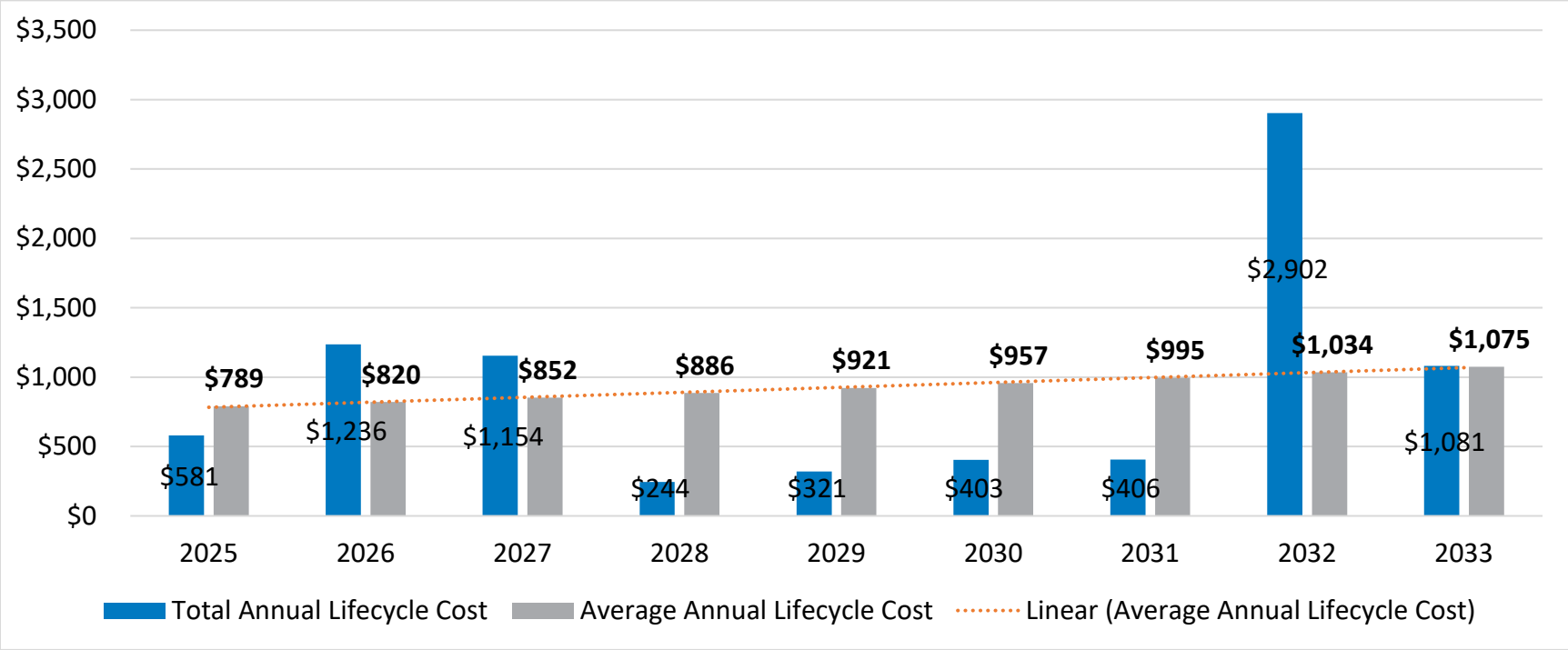
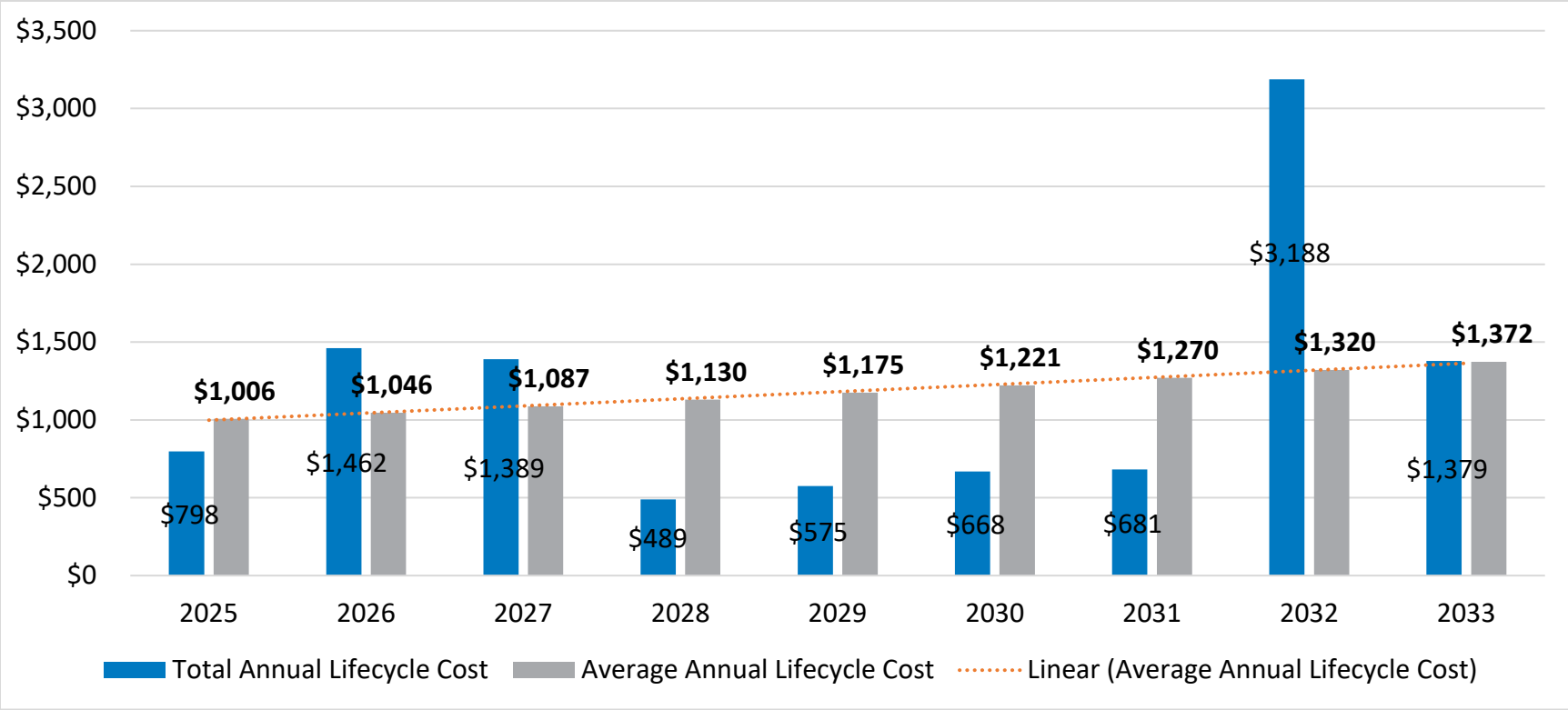


Figure E7 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure E7 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table E5 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Level	$572	$594	$617	$642	$667	$693	$720	$748	$778	**$6,030**
Reduce Backlog	$789	$820	$852	$886	$921	$957	$995	$1,034	$1,075	**$8,330**
Eliminate Backlog	$1,006	$1,046	$1,087	$1,130	$1,175	$1,221	$1,270	$1,320	$1,372	**$10,629**

09

Parks

Parks Overview

Parks infrastructure includes all the infrastructure used to provide parks services within the Municipality, including outdoor sporting activities and outdoor recreation. Included in Parks infrastructure are playgrounds, playfields (soccer, baseball, etc.), play courts (tennis, basketball, etc.), along with various other assets related to outdoor activities. The majority of Parks assets are operated by the Public Works division within the Public Services Department.

The Municipality's Parks assets have been divided into different asset sub-types, based on similar characteristics and functions. The different sub-types are provided and defined in the table below.

Table F1 – Park Assets

Asset Type	Asset Sub-type	Purpose
Play Courts	Tennis Courts	Various outdoor tennis courts across the Municipality. Includes combination of asphalt and acrylic surfaces.
	Basketball Courts	Includes both full basketball courts and half courts. Includes combination of asphalt and acrylic surfaces.
	Pickleball Courts	Various pickleball courts across the Municipality. Includes combination of asphalt and acrylic surfaces.
Play Fields	Softball Fields	Various softball fields across the Municipality. Includes combination of red clay and dirt infield surfaces.
	Baseball Fields	Various baseball fields across the Municipality. Includes combination of red clay and dirt infield surfaces.
	Soccer Fields	Includes both full size soccer fields and junior fields across the Municipality.
	Lacrosse Bowl	Outdoor bowl intended for lacrosse. Includes paved surface, boards, and netting.
	Football Fields	Includes a grass-surface, full sized football field.
	Cricket Fields	Includes a concrete pad located on former soccer fields intended for cricket use.

Asset Type	Asset Sub-type	Purpose
Playgrounds	Playground Equipment	Includes the play structures and the wood chip base at various playground locations.
	Outdoor Fitness Equipment	Includes outdoor step climber, ladder, inclined crunch bench, and pullup bars located at Rickard Park.
	Splashpads	Includes various splash pad play structures and rubber surfaces. Various locations across the Municipality
Park Structures/Amenities	Sports Field Lights	Includes both the pole and luminaire used to illuminate tennis courts, soccer fields, and baseball/softball fields.
	Park Lights	Luminaires used to illuminate various parks across the Municipality.
	Shade Structures	Includes both steel and wood gazebos and pergolas located at various parks across the Municipality.
	Park Washrooms	Washroom facilities located at various parks across the Municipality
	Miscellaneous Structures	Includes the Rotary Park clock tower, Bowmanville Valley wooden staircase, and viewing decks at the Samuel Wilmot Nature Area.
Trails	Park Trails/Walkways	Includes paved, brick, and granular trails located at various parks across the Municipality.
	Non-Park Trails	Includes paved and granular trails located outside the Municipality's Park network.
	Waterfront Trails	Includes paved and granular trails that run along the Municipality's waterfront.
	Multi-Use Paths	Includes off-road multi-use paths at various locations across the Municipality.
Miscellaneous	Columbarium's	Structures for the public storage of funerary urns.
	Skateboard Parks	Various skateboard parks and associated infrastructure located throughout the Municipality
	Underground Waste Containers	Large waste containers with underground storage capacity.

Asset Type	Asset Sub-type	Purpose
	Other Miscellaneous	Includes fountains/monuments, outdoor pool, fish ladder equipment, bleachers, scoreboards, boat launches, trail netting, and cricket equipment.

State of Local Infrastructure

Asset Inventory

The summarized asset inventory for Parks assets is presented in the table below. Replacement costing has been derived using a combination of recent tenders for similar assets and estimates provided by municipal staff. In certain circumstances, replacement costing has been estimated by applying an inflation factor to historical costing.

Table F2 - Summarized Asset Inventory – Parks

Asset Type	Asset Sub-type	Quantity	Average Age (Years)	Replacement Cost ($2024)
Courts	Tennis Courts	11	15.0	$1,300,000
	Basketball Courts	23	18.4	1,307,000
	Pickleball Courts	6	2.5	362,000
Play Fields	Softball	23	30.9	8,107,000
	Baseball	7	28.9	2,823,000
	Soccer	42	24.9	10,464,000
	Lacrosse Bowl	1	19.0	956,000
	Football	1	16.0	221,000
	Cricket	1	1.0	230,000
Playgrounds	Playground Equipment	62	11.0	8,520,000
	Outdoor Fitness Equipment	4	6.0	32,000

Asset Type	Asset Sub-type	Quantity	Average Age (Years)	Replacement Cost ($2024)
	Splashpads	16	15.0	3,362,000
Park Structures/Amenities	Field Lights	112	23.0	2,397,000
	Park Lights	129	18.0	2,020,000
	Shade Structures	39	15.7	1,887,000
	Park Washrooms	6	25.8	4,124,000
	Miscellaneous Structures	3	20.7	594,000
Trails	Park Trails/Walkways	73	19.0	3,163,000
	Non-Park Trails	17	12.2	2,655,000
	Waterfront Trails	11	14.5	2,290,000
	Multi-Use Paths	3	3.7	421,000
Miscellaneous	Columbarium's	5	7.8	845,000
	Skateboard Parks	5	13.8	1,523,000
	Underground Waste Containers	15	10.9	173,000
	Other Miscellaneous	14	8.1	1,989,000
Total		**629**	**20.5**	**$61,765,000**

As shown in Table F2, the total replacement cost for Parks assets is approximately $61.8 million. Playgrounds and play fields account for over half of the total replacement value ($34.7 million).

Asset Age

Table F3 includes a summary of the average age of the various Parks assets within each asset sub-type. The age of each individual asset in the inventory is assessed and given equal weighting when deriving the average age for each sub-type. The average age for each sub-type represents the simple average of the various components within that category. The total average age, for all Parks assets, represents a weighted average of the different sub-types, based on total replacement cost.

Table F3 – Average Age and Condition – Parks

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Estimated Useful Life (Years)	Average Condition (ULC%)	Average Condition State
Courts	Tennis Courts	11	15.0	20	75%	Good
	Basketball Courts	23	18.4	20	92%	Fair
	Pickleball Courts	6	2.5	20	13%	Very Good
Play Fields	Softball	23	30.9	25	124%	Poor
	Baseball	7	28.9	25	115%	Poor
	Soccer	42	24.9	25	100%	Fair
	Lacrosse Bowl	1	19.0	25	76%	Good
	Football	1	16.0	25	80%	Good
	Cricket	1	1.0	25	4%	Very Good
Playgrounds	Playground Equipment	62	11.0	15	73%	Good
	Outdoor Fitness Equipment	4	6.0	15	40%	Very Good
	Splashpads	16	15.0	20	75%	Good
Park Structures/ Amenities	Field Lights	112	23.0	25	92%	Fair
	Park Lights	129	18.0	20	90%	Good
	Shade Structures	39	15.7	27	58%	Good

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Estimated Useful Life (Years)	Average Condition (ULC%)	Average Condition State
	Park Washrooms	6	25.8	45	57%	Good
	Miscellaneous Structures	3	20.7	33	56%	Good
Trails	Park Trails/Walkways	73	19.0	22	88%	Good
	Non-Park Trails	17	12.2	19	65%	Good
	Waterfront Trails	11	14.5	19	78%	Good
	Multi-Use Paths	3	3.7	20	18%	Very Good
Miscellaneous	Columbarium's	5	7.8	50	16%	Very Good
	Skateboard Parks	5	13.8	25	55%	Good
	Underground Waste Containers	15	10.9	15	73%	Good
	Other Miscellaneous	14	8.1	24.1	41%	Very Good
Total		**629**	**20.5**		**84%**	**Good**

Each asset has also been assigned an estimated useful life based on industry standards and the Municipality's current Capitalization Policy.

Although the asset sub-types are structured to include similar assets, some sub-types include different estimated useful lives for the underlying assets. This is largely the result of different materials being used to produce the same asset (e.g. wooden shade structure versus a steel structure). This being the case, an average estimated useful life has been provided for each asset sub-type. Averages represent the average of the useful lives of the underlying assets within the asset sub-type, weighted by replacement cost.

The Other Miscellaneous sub-type includes a wide variety of assets with a wide variety of estimated useful lives. The average age for this sub-type represents a weighted average for the various components within the sub-type, based on total replacement cost.

Figures F1 and F2 compare the average age with the average estimated useful life for each asset sub-type. The average age, for the majority of Parks infrastructure sub-types, is within the estimate useful life.

Figure F1 – Average Age (Years) and Estimated Useful Life (Years) – Courts, Fields, and Playgrounds

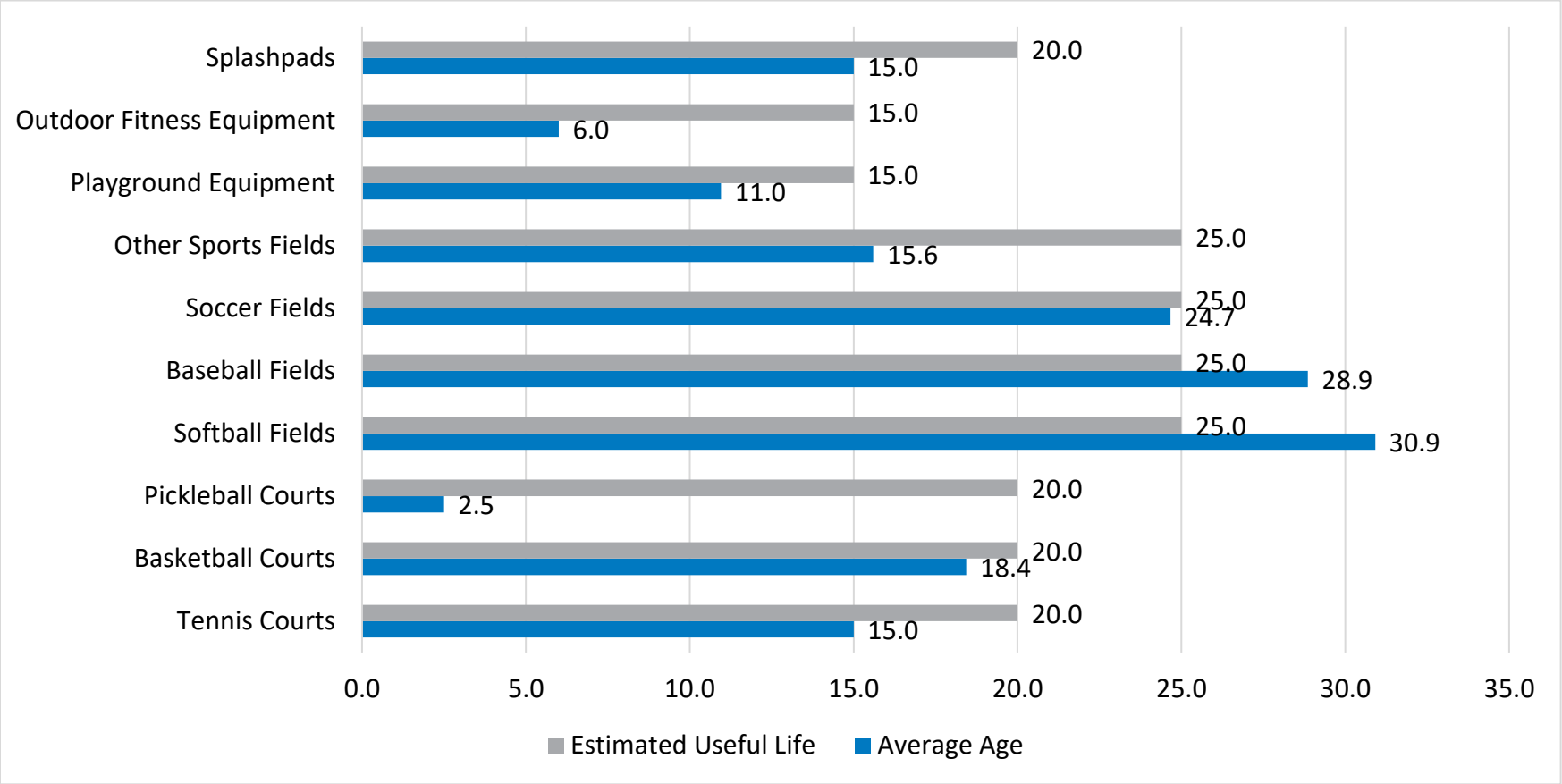
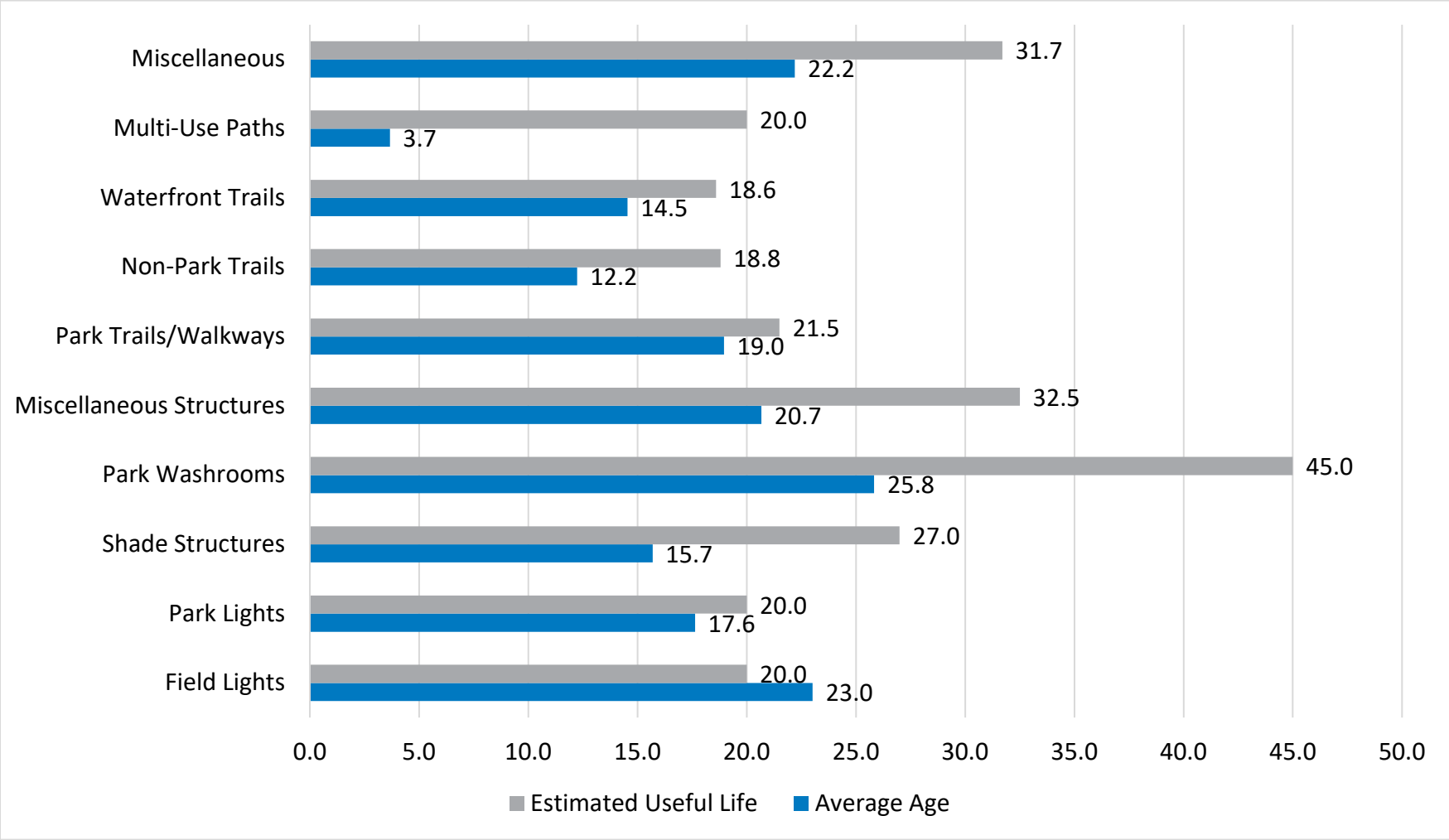


Figure F2 - Average Age (Years) and Estimated Useful Life (Years) – Structures and Trails



Asset Condition

Table F3 also provides the average condition rating for each of the Parks asset sub-types. The condition assessments have been derived using the ULC% methodology. The average condition for all Parks assets is rated as Good. This average condition rating was derived using a weighted average based on the replacement cost of each asset sub-type.

Although the overall condition is assessed as Good, the actual condition of the various assets within each sub-type varies. The figures below illustrate the condition distribution within each specific sub-type.

Figure F3 – Condition Distribution – Courts, Fields, and Playgrounds

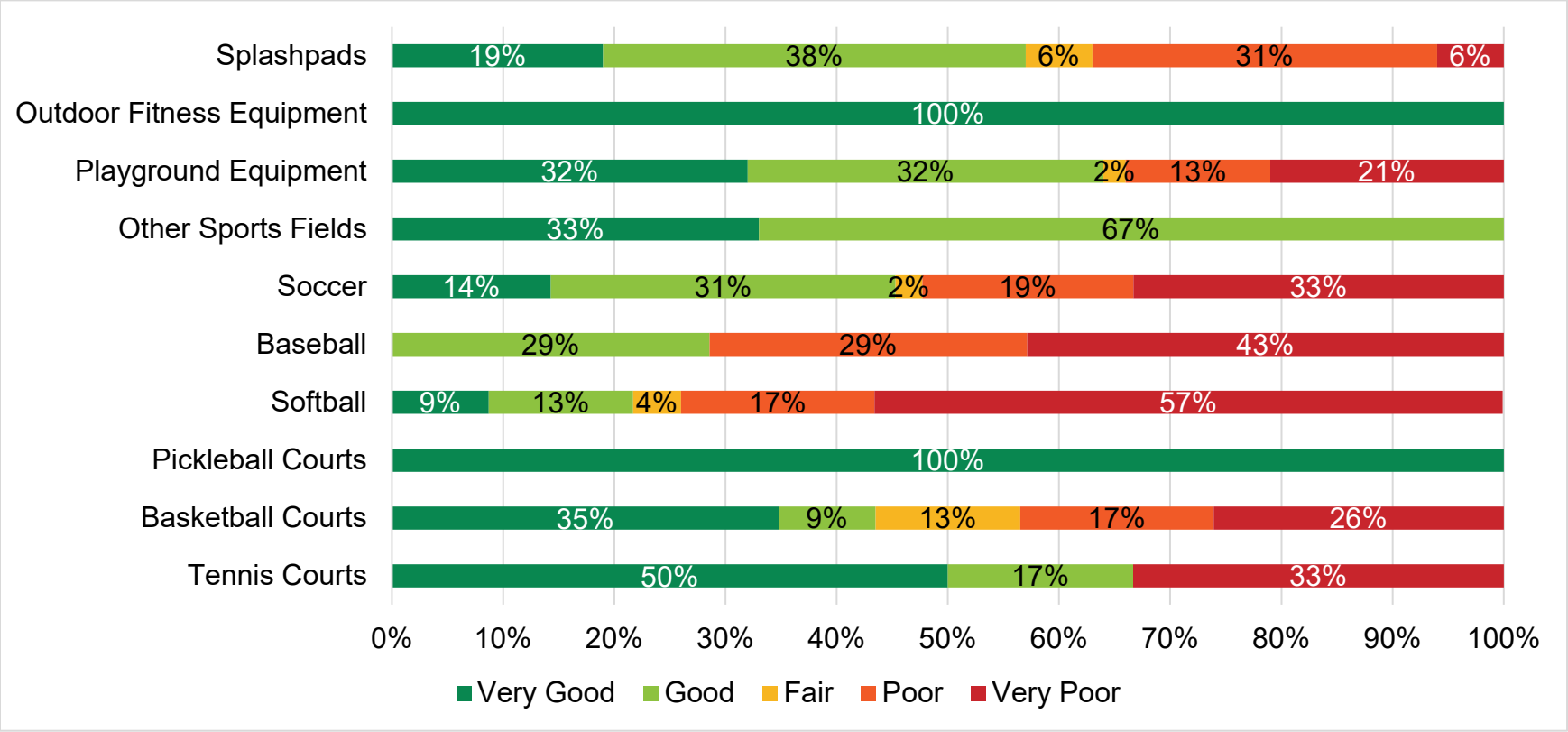
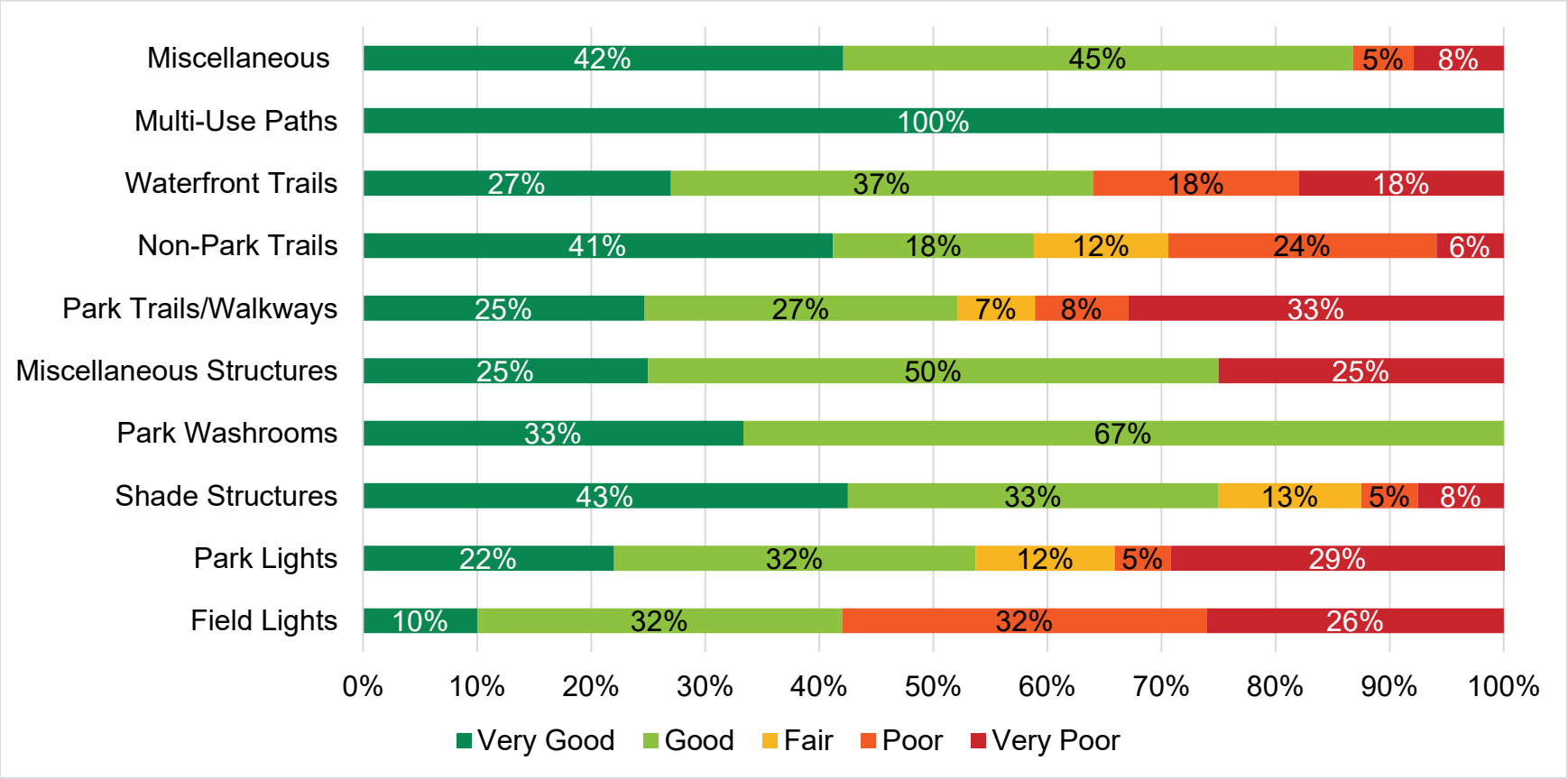


Figure F4 – Condition Distribution – Park Structures and Trails



The condition of the asset is largely dependent on the asset age. The asset age is based on the year of initial installation. Many assets undergo routine maintenance activities (e.g. soccer fields, baseball fields, etc.) to ensure the asset is suitable for activity. It is possible that, given the routine maintenance of the asset, the actual structural condition of the asset is better than what is reflected in the ULC%.

Levels of Service

The levels of service for Parks were developed in an effort to reflect the desires, values, and expectations of the community. The Level of Service statements are intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect some key characteristics important to the organization.

The Municipality's current level of service performance is provided in the table below. Proposed levels of services and their respective targets will be identified in future iterations of the AMP.

Table F4 – Current Levels of Service – Parks

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Providing Parks services to the community in a fiscally sustainable manner	Parks infrastructure Reinvestment Rate	3.5%
Accessibility	Ensuring reasonable availability of park amenities for the community	Number of sports fields/courts per 1,000 population	0.37
		Number of playgrounds per 1,000 population	0.58
		Number of splashpads per 1,000 population	0.15
		Kilometers of park trails per 1,000 population	2.66
Quality	Providing Parks assets in an acceptable condition	% of sports fields/courts in fair or better condition (age based)	0.47
		% of playgrounds in fair or better condition (age based)	0.63
		% of splashpads in fair or better condition	0.68
Sustainability	Providing environmentally sustainable Parks services for the community	Annual electric energy consumption for parks services, per 1,000 population	1,940 kWh

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
		Annual Propane consumption for parks services, per 1,000 population	90 m3
		Annual water consumption for parks services, per 1,000 population	575 m3

Lifecycle Management Strategies and Costing

The Municipality undertakes four main types of lifecycle activities to ensure Parks assets maintain their current level of service.

Inspection activities are completed periodically to assess the condition of various assets and to determine the level of maintenance activity required. These inspections have historically been completed by consultants. However, annual visual inspections are expected to be completed by staff on a go-forward basis. As these inspections become incorporated into staff responsibilities, there will be no additional cost to the Municipality beyond staff time.

General repair and maintenance activities are performed throughout the lifecycle of an asset. These activities include the general maintenance required to ensure the assets remain in good working order. General repair and maintenance activities are either completed in-house or are funded through the annual operating budget. These expenses are not considered significant for the purposes of the AMP and have not been included in annual lifecycle costing.

Rehabilitation activities include larger preventative maintenance activities typically performed on the asset at mid-life. Rehabilitation activities include planned activities that are performed on assets to ensure they reach their estimated useful life. These activities result in a capital cost to the Municipality and have been included in the lifecycle costing identified in the AMP. Regularly scheduled rehabilitation activities are only performed on a small sub-set of asset types as most Parks assets will reach their estimated useful life through minor repair and maintenance activities. The rehabilitation activities for Parks assets are presented in the table below.

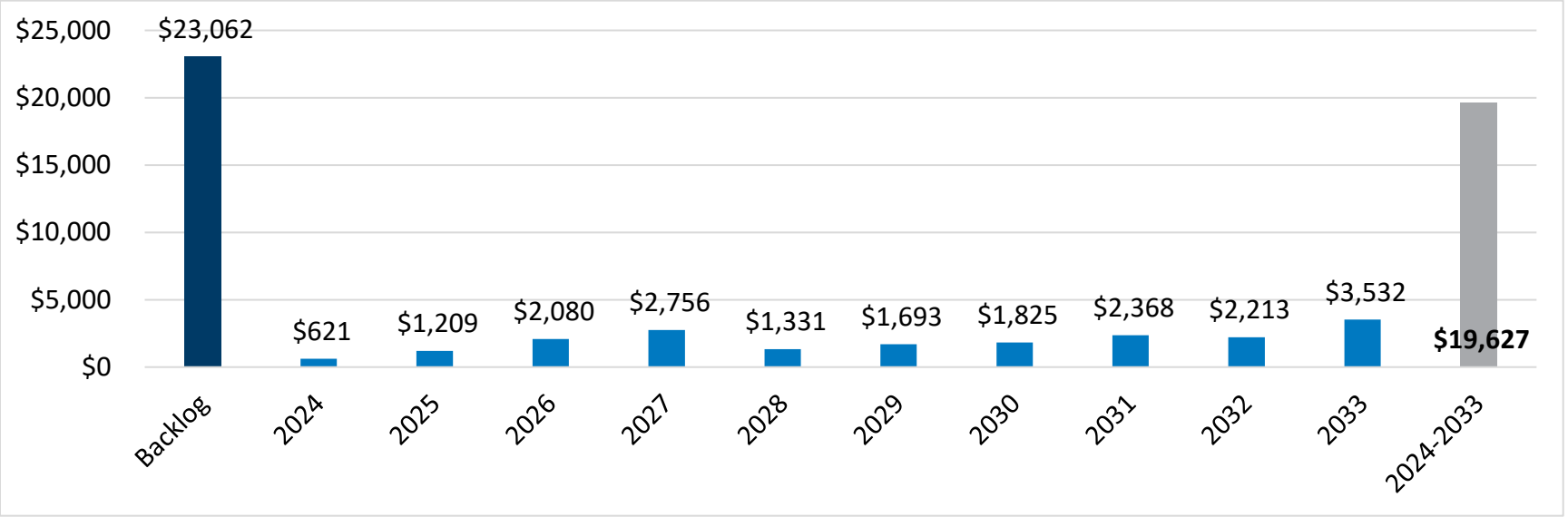
Table F5 – Rehabilitation Activities – Parks Assets

Sub-Asset Type	Activity	Estimated Cost ($2024)	Frequency
Tennis Courts	Resurfacing	$37 /sq. m	7 years
Pickleball Courts	Resurfacing	$37 /sq. m	7 years
Splashpads	Resurfacing	$17,000	10 years

Replacement activities involve the full replacement of assets at the end of their useful life. The replacement of Parks assets represents a capital expense and forms the majority of the annual lifecycle costing identified in the AMP. The Municipality's current level of service is to replace an asset once it can no longer perform its functional duty. The AMP assumes an asset will no longer be able to perform its functional duty at the end of its useful life.

The figure below identifies the annual lifecycle costing required to maintain the Municipality's current level of service.

Figure F5 – Annual Lifecycle Costing – Parks ($000's)

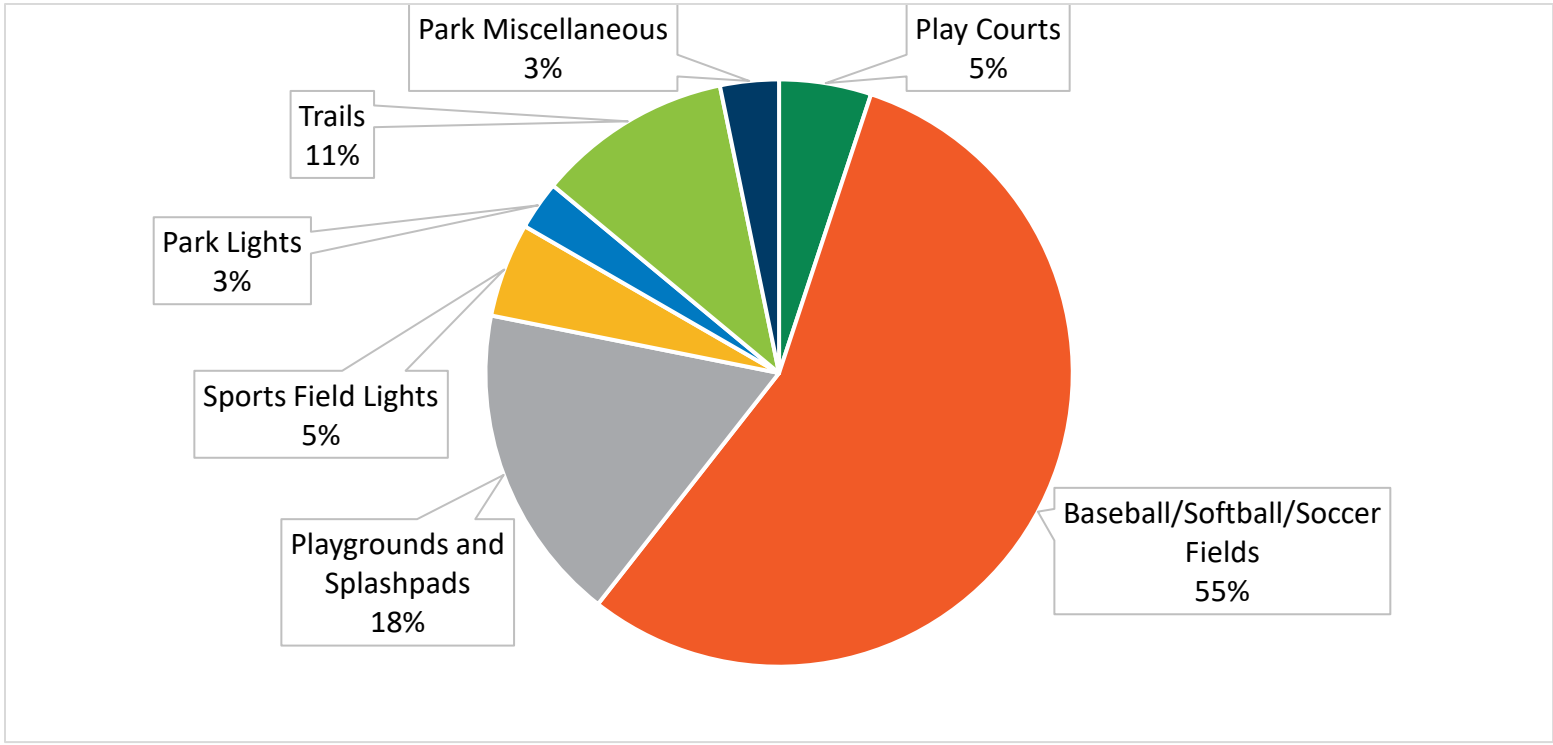


It will cost approximately $19.6 million over the next ten years to maintain the current level of service. The total cost, including all the costs included in the backlog, would be approximately $42.7 million.

Backlog

The figure below provides the composition of the backlog for Parks assets. Replacement of sports fields (baseball, softball, and soccer) account for over half of the total costs included in the backlog. The items in the backlog represent legitimate backlog costs as there is a high likelihood that these items will require replacement within the ten-year forecast period. The average condition rating for baseball and softball fields is Poor, whereas the average condition rating for soccer fields is Fair. Playgrounds and splashpads are also frequently used assets that typically require replacement at the end of their useful life.

Figure F6 – Backlog Composition – Parks Assets

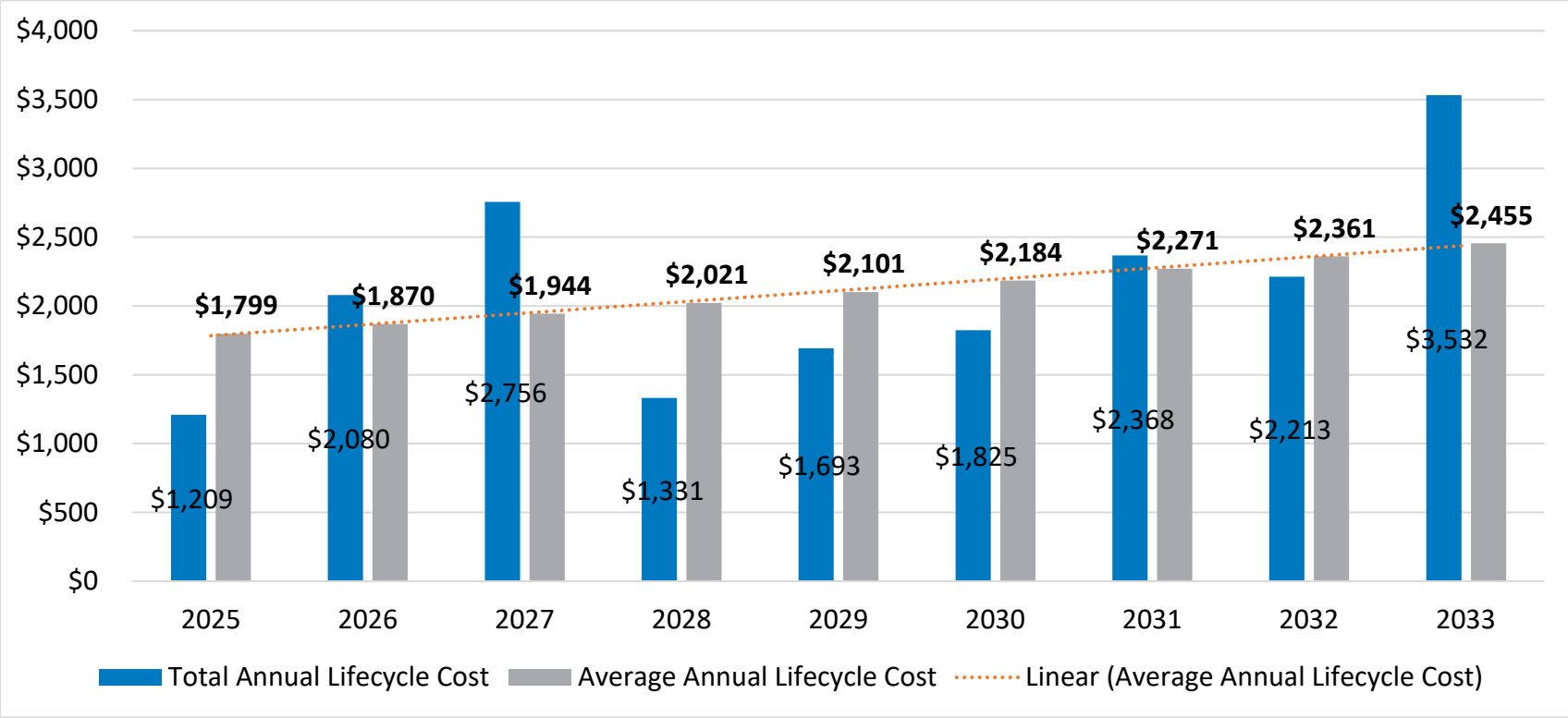


Average Annual Lifecycle Cost

The costs in Figure F5 represent the annual gross cost of maintaining Parks assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure F7 below removes the significant annual variances by determining the average annual cost of maintaining Parks assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed.

Figure F7 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure F8 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure F8 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduced Backlog

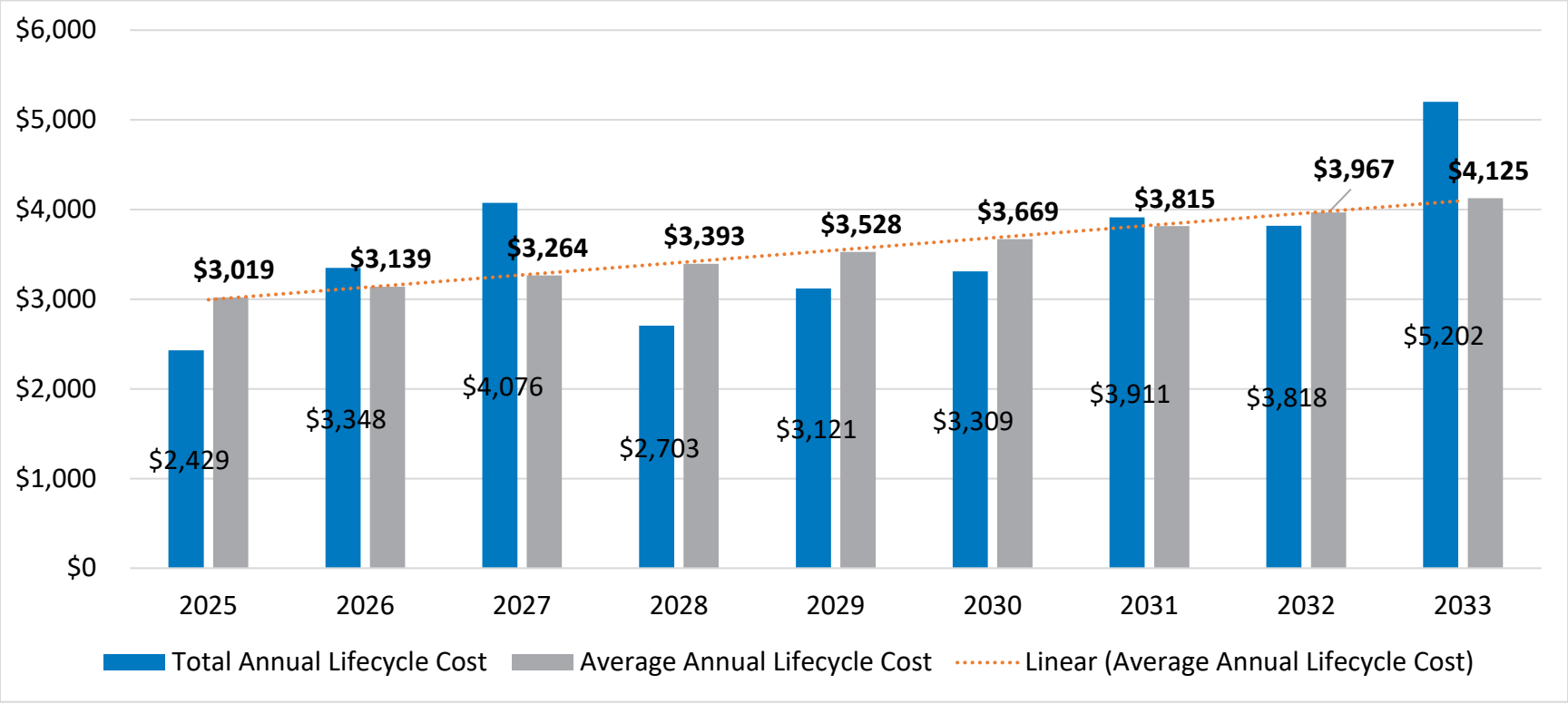
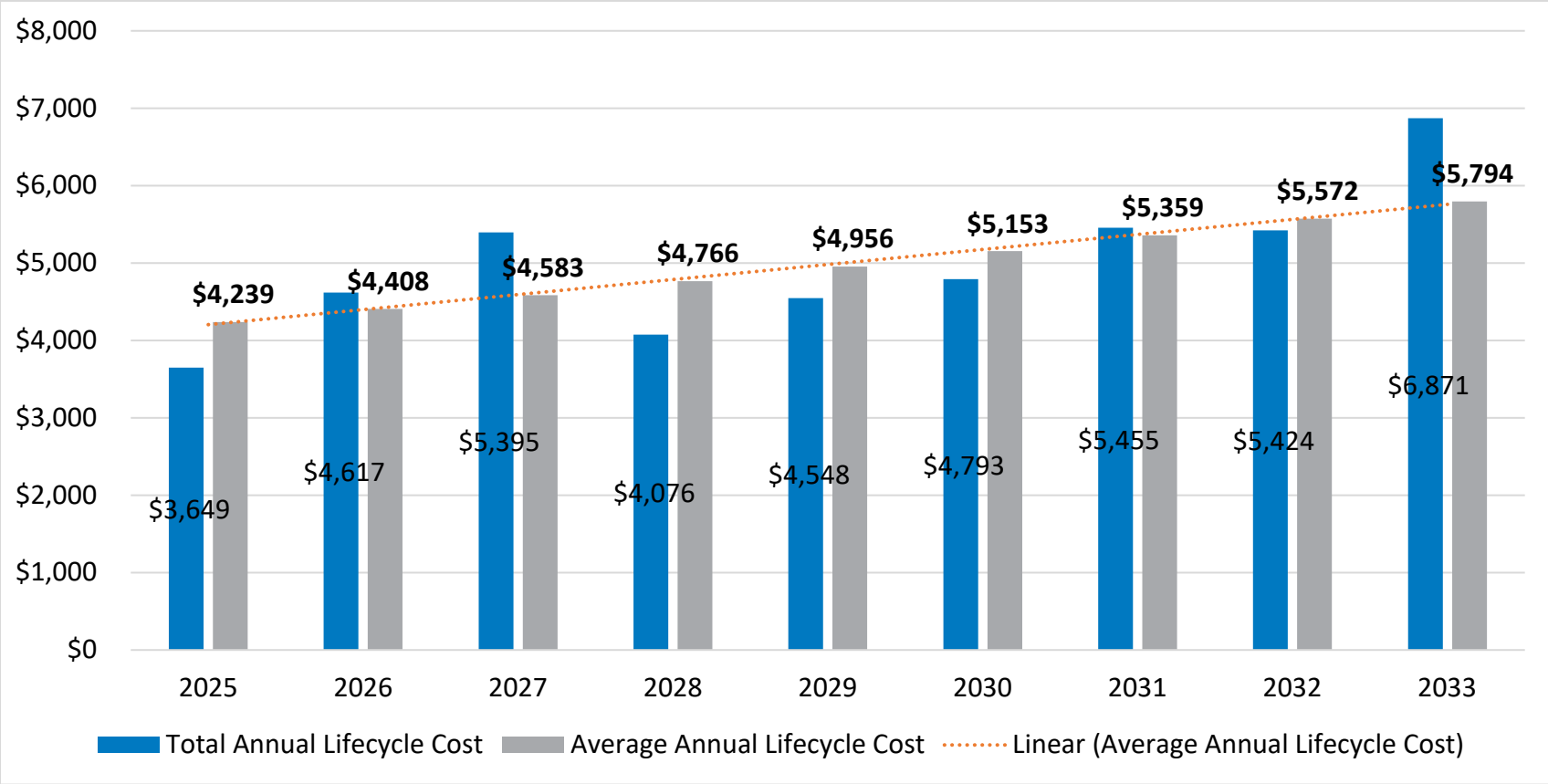


Figure F9 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure F9 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table F6 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Levels	$1,799	$1,870	$1,944	$2,021	$2,101	$2,184	$2,271	$2,361	$2,455	**$19,006**
Reduce Backlog	$3,019	$3,139	$3,264	$3,393	$3,528	$3,669	$3,815	$3,967	$4,125	**$31,918**
Eliminate backlog	$4,239	$4,408	$4,583	$4,766	$4,956	$5,153	$5,359	$5,572	$5,794	**$44,829**




10

Recreation, Community, and Culture

Recreation, Community, and Culture Overview

Recreation, Community, and Culture (RCC) infrastructure includes all the facilities owned by the Municipality and used for community programming or community use. RCC facilities include arenas, aquatic centres, community halls, and certain libraries. The Bowmanville Library is included under the Corporate Facilities asset category as the Bowmanville branch is connected to, and included with, the Municipal Administration Centre. The Courtice library has been included with the Courtice Community Centre as the Courtice branch is part of this facility.

Also included in RCC are the various pieces of equipment associated with recreation activities, such as fitness equipment and miscellaneous recreation equipment. The Municipality's RCC facilities are operated and managed by the Facilities division of the Public Services Department, while the equipment is owned and operated by the Community Services division within Public Services.

The majority of asset management information for RCC Facilities has been derived from the Building Condition Assessments (BCA) completed in late 2023 and early 2024. The Municipality contracted an external engineering consultant to conduct detailed condition assessments on all major facilities within the Municipality. The BCA's provide updated replacement values, condition assessments, and lifecycle management costs.

The Municipality's RCC assets have been divided into different asset sub-types, based on similar characteristics and functions. The different sub-types are provided and defined in the table below.

Table G1 – Recreation, Community, and Culture Assets

Asset Type	Asset Sub-Type	Purpose
Facilities	Arenas	Includes any sports complex that is equipped with at least one ice pad. The entire sports complex would be considered an arena.
	Aquatic Centres	Includes any sports or community complex that is equipped with at least one swimming pool. The entire sports/community complex would be considered an aquatic centre.
	Indoor Soccer Facility	The Municipality's soccer dome, which includes an indoor turf soccer field, along with changerooms and office space.

Asset Type	Asset Sub-Type	Purpose
	Community Facilities	Includes all community halls and community centres that are used for special events and can be rented by the public for private use.
	Culture Facilities	Includes three museums, one visual arts centre, and the Orono and Newcastle branches of the Clarington Public Library.
Equipment	Fitness Equipment	The various pieces of strength and cardio equipment included in the Municipality's fitness centres. Fitness centres are located within certain arenas and aquatic centres.
	Recreation Equipment	Equipment used for the purpose of providing recreation services. This includes small equipment, such as floor scrubbers, that would not be included in the Municipality's broader inventory of fleet and equipment.

State of Local Infrastructure

Asset Inventory

The summarized asset inventory for RCC is presented in Table G2 below. Replacement costing for RCC facilities is based on a full reconstruction of the corresponding facilities. An estimate of $750 per sq. ft has been applied to the size of each facility to generate the replacement cost. These figures differ from what is presented in the BCA's as the BCA's provide a replacement value as opposed to a replacement cost. Total replacement value represents only a sum of the costs of each component part of the facility, whereas replacement cost is a broader measure that includes all the other costs associated with replacing a facility (e.g. project management, contingencies, labour costs, etc.).

Replacement costing for equipment has been derived using a combination of recent tenders for similar assets and estimates provided by staff within Community Services. In certain circumstances, replacement costing has been estimated by applying an inflation factor to historical costing.

Table G2 - Summarized Asset Inventory – Recreation, Community, and Culture

Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Replacement Cost ($2024)
Facilities	Arenas	5	38.2	$202,114,000
	Aquatic Centres	3	30.3	102,946,000
	Indoor Soccer Facility	1	19.0	23,250,000
	Community Facilities	13	80.0	98,861,000
	Culture Facilities	6	88.7	33,721,000
Equipment	Fitness Equipment	115	6.4	404,000
	Recreation Equipment	29	7.2	409,000
Total		**172**	**48.1**	**$461,705,000**

As shown in Table G2, the total replacement cost for RCC assets is approximately $461.7 million. Most of the replacement costing relates to the RCC facilities, with arenas and aquatic centres accounting for the largest share of the cost.

Asset Age

Table G3 includes a summary of the average age of the various RCC assets within each asset sub-type. The age of each asset in the inventory is assessed and given equal weighting when deriving the average age for each sub-type. The average age for each sub-type represents the simple average of the various components within that category. The total average age for all RCC assets represents a weighted average of the different sub-types, based on total replacement cost.

Table G3 – Average Age and Condition – Recreation, Community, and Culture

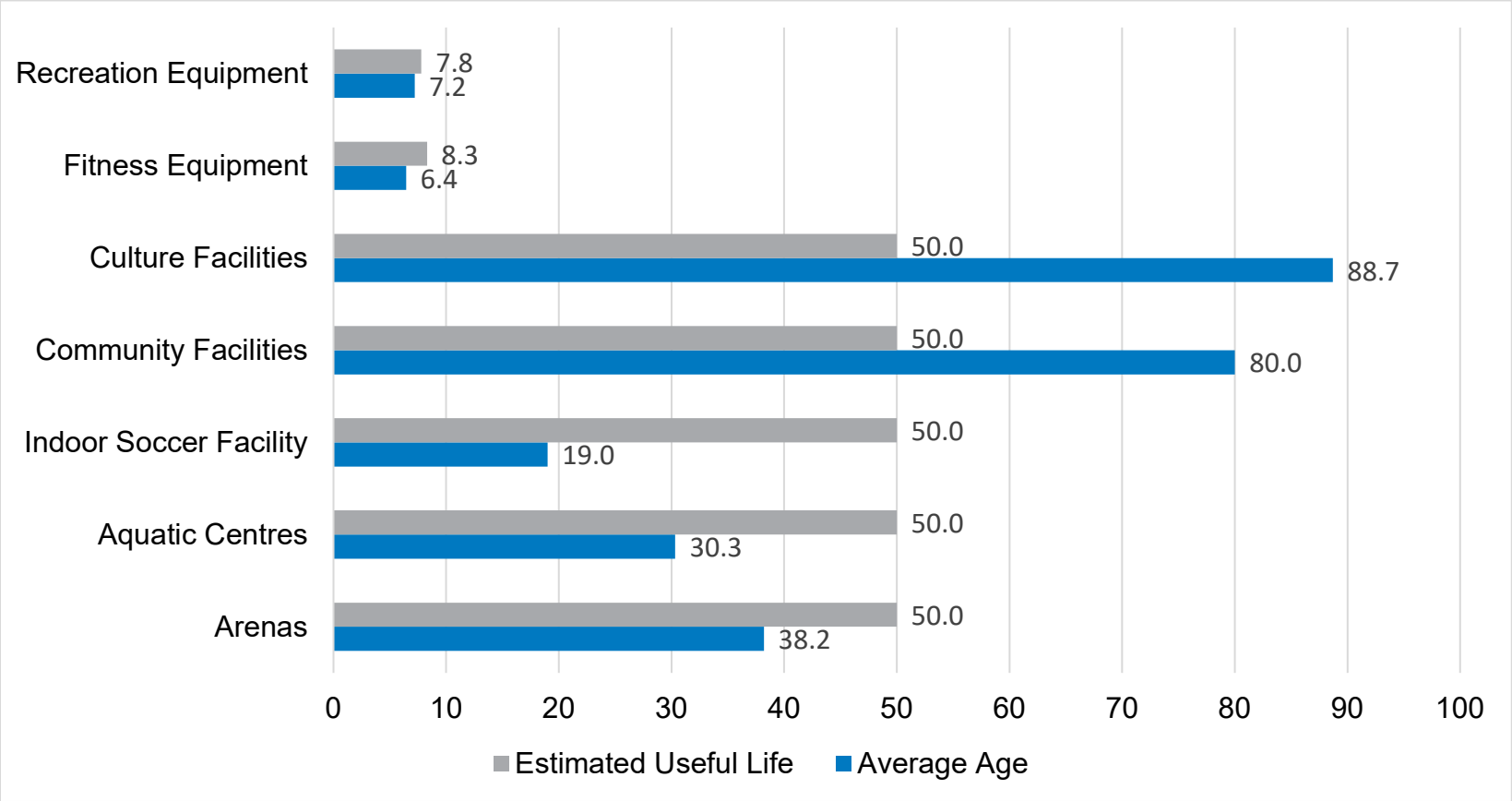
Asset Type	Asset Sub-Type	Quantity	Average Age (Years)	Average Estimated Useful Life (Years)	Average Condition (FCI)	Average Condition State
Facilities	Arenas	5	38.2	50	0.04%	Good
	Aquatic Centres	3	30.3	50	0.13%	Good
	Indoor Soccer Facility	1	19	50	0.00%	Good
	Community Facilities	13	80	50	0.24%	Good
	Culture Facilities	6	88.7	50	0.21%	Good
Equipment[1]	Fitness Equipment	115	6.4	8	76%	Good
	Recreation Equipment	29	7.2	8	94%	Fair
Total[2]		**172**	**48.1**		**0.12%**	**Good**

[1] Average condition for equipment assets is based on the ULC% methodology.
[2] Total average condition includes only the FCI condition ratings for Facilities as Facilities account for 99 per cent of RCC replacement costs.

The age for each of the facilities within each facility sub-type represents the age of the original portion of the building. Some facilities may have undergone additions or significant renovations over the years; however, the AMP uses the date of the original construction as the basis for the age calculation.

Each asset has also been assigned an estimated useful life based on industry standards and the Municipality's current Capitalization Policy. Figure G1 below compares the average age with the average estimated useful life for each asset sub-type. The average age, for the majority of RCC assets, is within the estimate useful life.

Figure G1 – Average Age (Years) and Estimated Useful Life (Years) – Recreation, Community, and Culture



In terms of RCC facilities, Figure G1 uses the estimated useful life of the building structure to compare against the average age. The estimated useful life of the entire facility is difficult to assess given the various underlying components. The Municipality's Capitalization Policy assigns different useful life assumptions to different facility components. The various estimated useful life assumptions are provided in Table G4 below.

Table G4 – Estimated Useful Life – Various Building Components

Asset Class	Sub-class	Type	Estimated Useful Life
Building	Structure	Overall	50 years
	Roof	As per material and condition	Variable
	Structure	Interior	25 years
	Structure	Mechanical (includes HVAC, heat pumps, water heaters, etc.)	Variable
	Specialized	Indoor pool; Ice pad	30 years
	Specialized	Indoor field	15 years
	Site Improvement	Parking lot, Landscaping	20 years
	Whole	Sand domes, Salt shed, Quonset hut, Sheds	25 years

Asset Condition

Table G3 also provides the average condition rating for each of the asset sub-types within RCC. RCC Facilities use the Facilities Condition Index (FCI) methodology to assess condition. The FCI is an industry standard used to assess the condition of building assets. The condition of the equipment assets was derived using the ULC% methodology.

As described in the Municipality's BCA's, the Facility Condition Index (FCI) is a comparative indicator of the relative condition of facilities. The FCI is expressed as a ratio of the cost of remedying maintenance deficiencies to the current replacement value. Calculating the FCI, for a particular year, requires dividing the cost of renewal needs in that particular year by the estimated replacement value. Note that the BCA's use total replacement value, as opposed to total replacement cost, as the denominator in their condition calculations.

The average condition for all RCC assets is rated as Good. The average condition rating for RCC assets reflects only the facility component and was derived using a weighted average based on the replacement cost of each sub-type. The condition rating for each facility reflects the current FCI rating for 2024 as provided in the BCA's.

Equipment assets were excluded from the total average condition rating as the facility component accounts for 99.8 per cent of the total RCC asset replacement costing.

The figures below provide the condition distribution for each of the sub-asset types. All the facilities, within each asset sub-type, have an FCI rating of Good for 2024. The condition of the individual equipment assets varies from Very Poor to Very Good.

Figure G2 – Condition Distribution – Recreation, Community, and Culture - Facilities

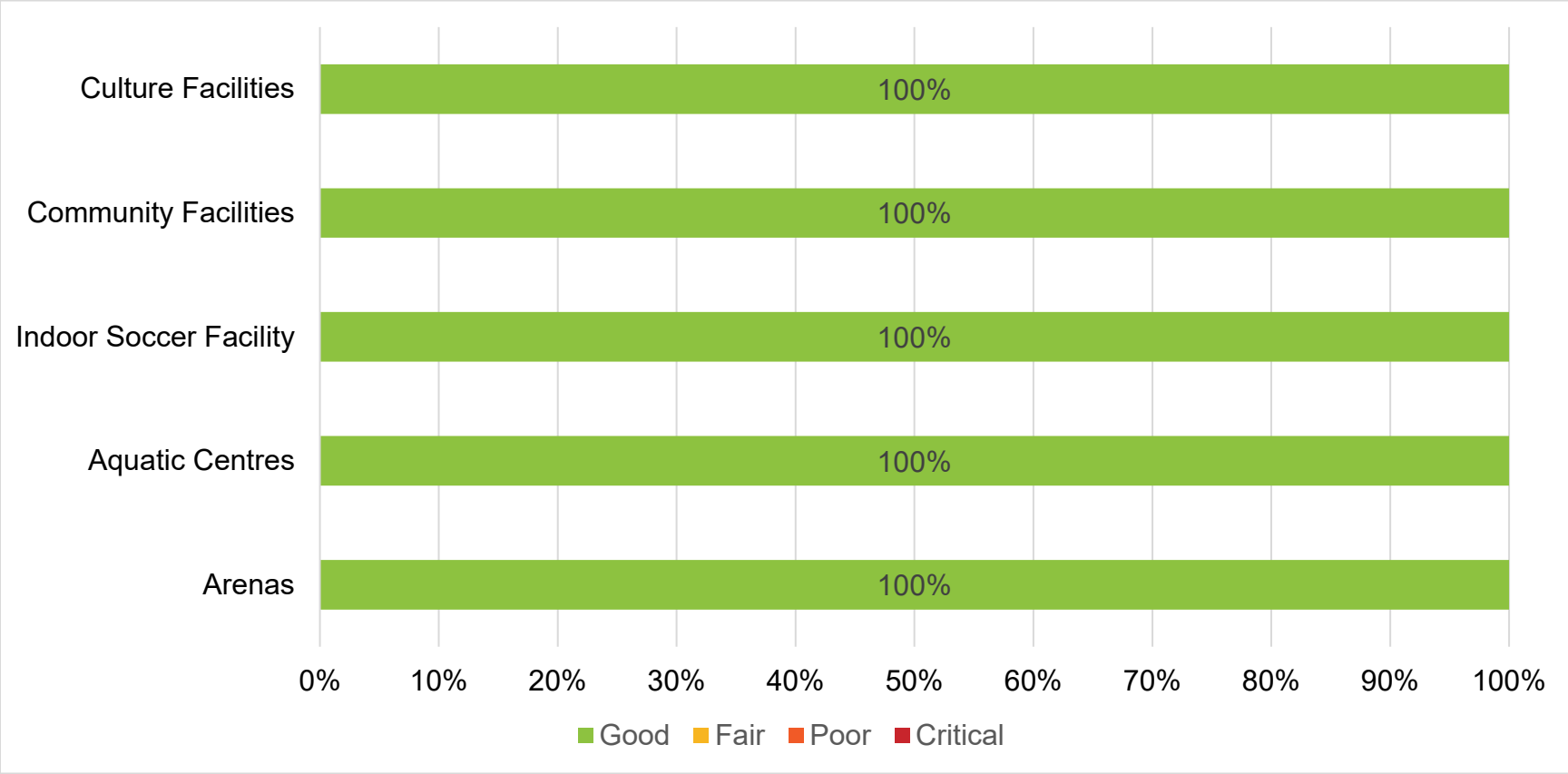
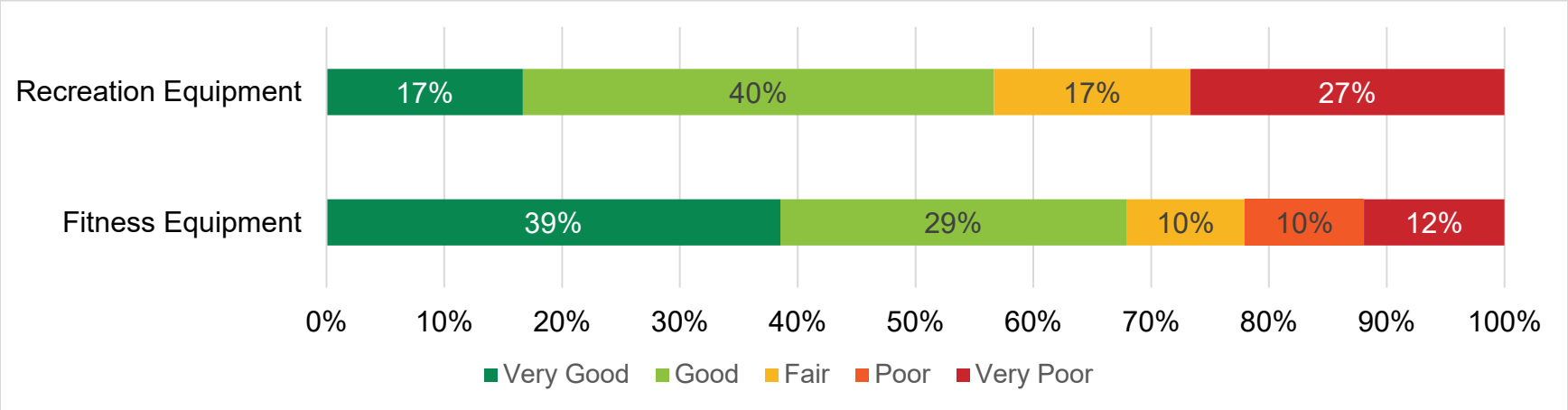


Figure G3 – Condition Distribution – Recreation, Community, and Culture – Equipment



Long-term Condition Rating – RCC Facilities

In addition to providing facility condition ratings for the current year, the BCA's also provide total condition ratings for the next five and ten years. These condition ratings are derived by summing the total dollar value of renewal needs over the next five and ten years and dividing by the current replacement value. The table below provides the total average condition rating for the next five and ten years for each facility sub-type within RCC.

Table G5 - Total Five- and Ten-year Average Condition Rating – RCC Facilities

	Total 5-year FCI%	Total 5-year Condition State	Total 10-year FCI%	Total 10-year Condition State
Arenas	3.13%	Good	16.41%	Poor
Aquatic Centres	3.64%	Good	9.83%	Fair
Community Centres	14.08%	Poor	25.80%	Poor
Culture Facilities	21.19%	Poor	33.47%	Critical

The table above suggests that, although the current average condition of RCC facilities is rated as Good, these facilities will still require a significant amount of renewal needs, over the next five to ten years, relative to their current replacement value.

Levels of Service

The levels of service for RCC were developed to reflect the desires, values, and expectations of the community. The Level of Service statements are intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect some of the key characteristics important to the organization.

The Municipality's current level of service performance is provided in the table below. Proposed levels of services and their respective targets will be identified in future iterations of the AMP.

Table G6 – Current Levels of Service – Recreation, Community, and Culture

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Managing Recreation, Community, and Culture assets in a fiscally sustainable manner	Recreation, Community, and Culture Facilities Reinvestment Rate	0.6%
Accessibility	Ensuring recreation and culture activities are accessible to all members of the community	Number of ice pads per capita (ratio)	1: 15,396
		Number of indoor swimming pools (excluding tot pools) per capita (ratio)	1: 35,923
		Library square feet per person	0.42
Quality	Ensuring Recreation, Community, and Culture assets remain in a suitable condition for public use	% of Recreation, Community, and Culture facilities in Fair or better condition (FCI)	100%
		% of Recreation, Community, and Culture equipment in Fair or better condition	77%

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Sustainability	Providing Recreation, Community, and Culture services in an environmentally sustainable manner	Annual electric energy consumption for all Corporate Facilities, per sq. ft.	128 kWh
		Annual natural gas consumption for all Corporate Facilities, per sq. ft	16 m3
		Annual water consumption for all Corporate Facilities, per sq. ft.	3.2 m3

Lifecycle Management Strategies and Costing

The Municipality undertakes four main types of lifecycle activities to ensure RCC assets maintain their current level of service.

Inspection activities are completed periodically to assess the overall condition of each facility, along with the condition of each major component part (e.g. roof, plumbing, electrical, etc.). Routine inspections are completed by staff, including quarterly mechanical inspections and monthly visual building inspections. Detailed BCA's are completed approximately every 5-years and help identify the potential maintenance requirements over a forecast horizon. The cost of BCA inspections represents a capital cost to the Municipality and have been captured in the annual lifecycle costing.

Minor repair and maintenance activities are performed throughout the lifecycle of the assets. These activities include the general maintenance required to ensure the assets remain in good working order. Minor expenses are funded through repair and maintenance accounts in the Municipalities operating budget. Major expenses are funded through the Municipalities capital budget.

Major repair and maintenance activities are also performed throughout the lifecycle of the asset. Major repairs and maintenance occur when the cost to perform the activity exceeds $5,000 and the cost becomes a capital expense.

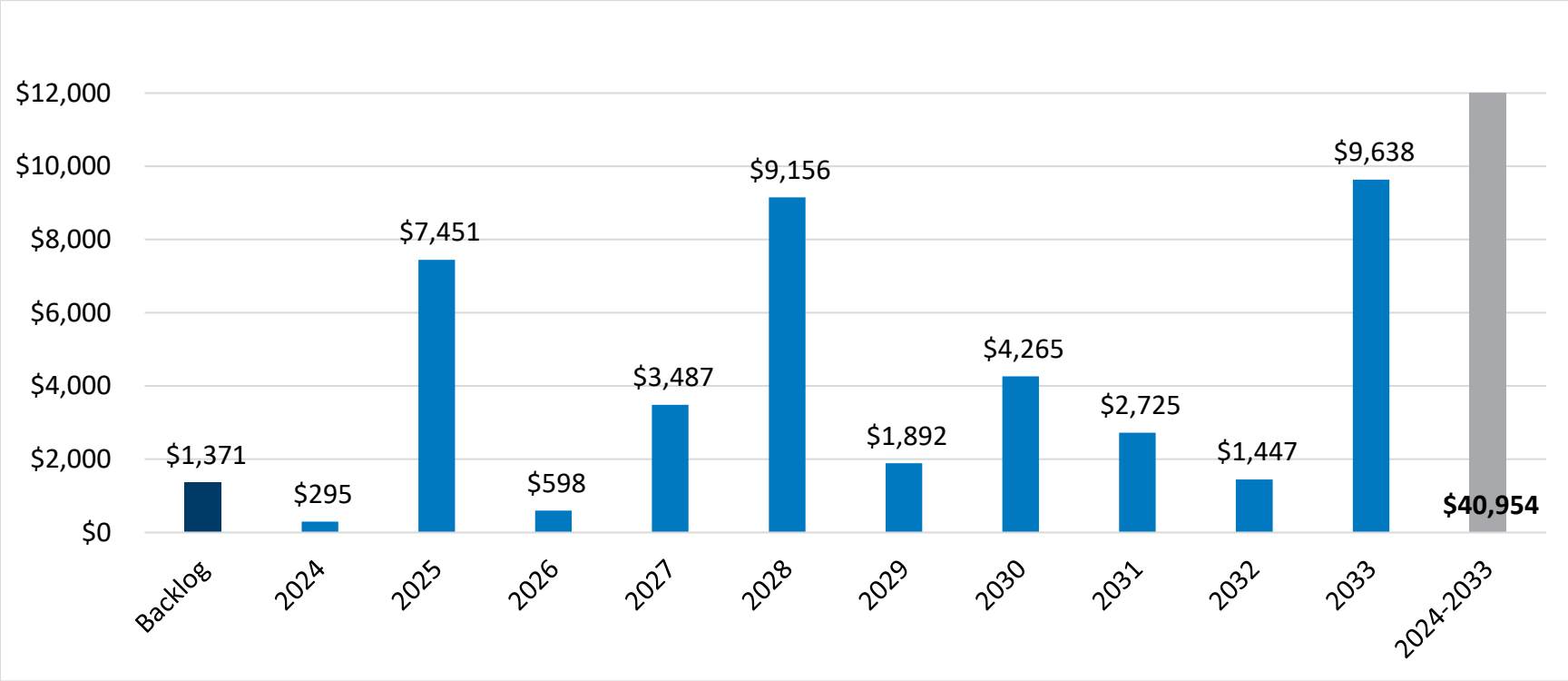
The BCA's provide a ten-year forecast for repair and maintenance activities required to maintain the facilities in good working order. The forecasts from the BCA's have been used as the basis for the facility lifecycle costing estimates in the AMP. The AMP assumes that minor costs ($5,000 or less) will flow through the municipal

operating budget and have not been included in lifecycle costing. The lifecycle costing in the AMP includes only the major expenses, identified in the BCA's, that exceed the $5,000 threshold.

Replacement activities involve the full replacement of assets at the end of their useful life. Replacement activities constitute a capital cost and have been included in the AMP for equipment assets. The AMP does not forecast the full replacement of any RCC facilities over the ten-year forecast period.

The figure below identifies the annual lifecycle costing required to maintain the Municipality's current level of service.

Figure G4 – Annual Lifecycle Costing – Recreation, Community, and Culture ($,000's)



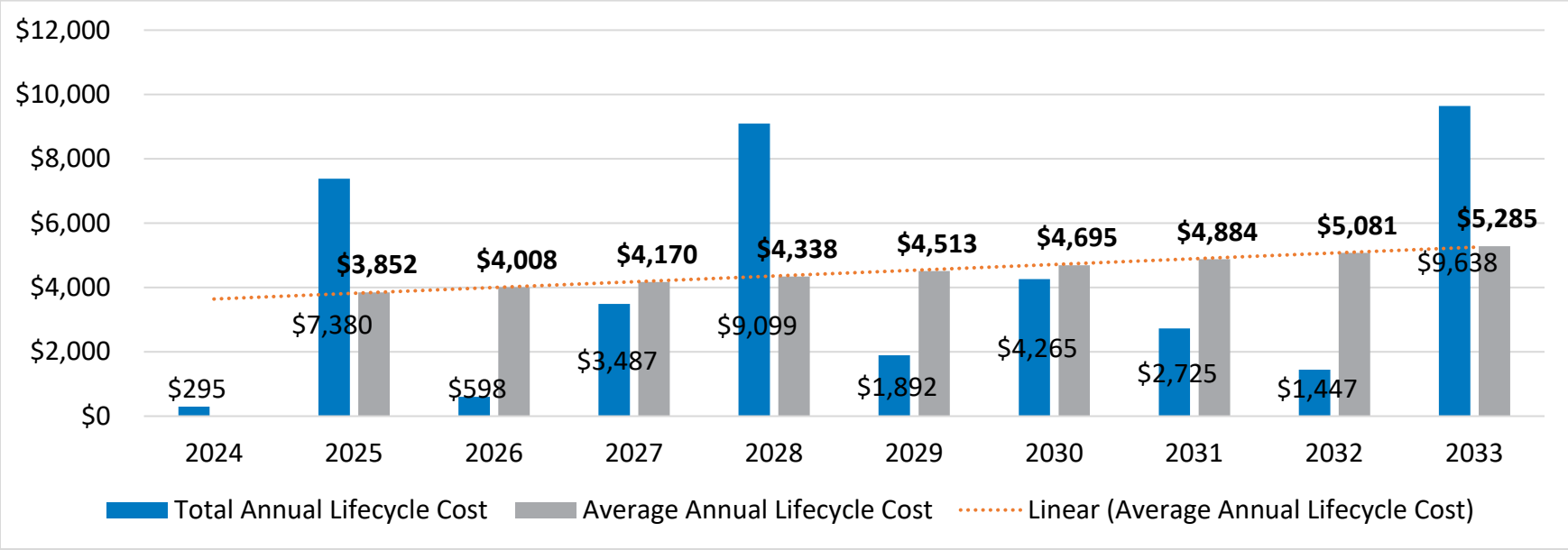
It will cost approximately $41 million over the next ten years to maintain the current level of service. The total cost, including all the costs in the backlog, is approximately $42.3 million. The backlog items include maintenance activities that were identified in the BCA's to be performed in 2023. The backlog also includes various equipment assets that are beyond their estimated useful life.

Average Annual Lifecycle Cost

The costs in Figure G4 represent the annual gross cost of maintaining RCC assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure G5 below removes the significant annual variances by determining the average annual cost of maintaining RCC assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed.

Figure G5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure G6 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure G6 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

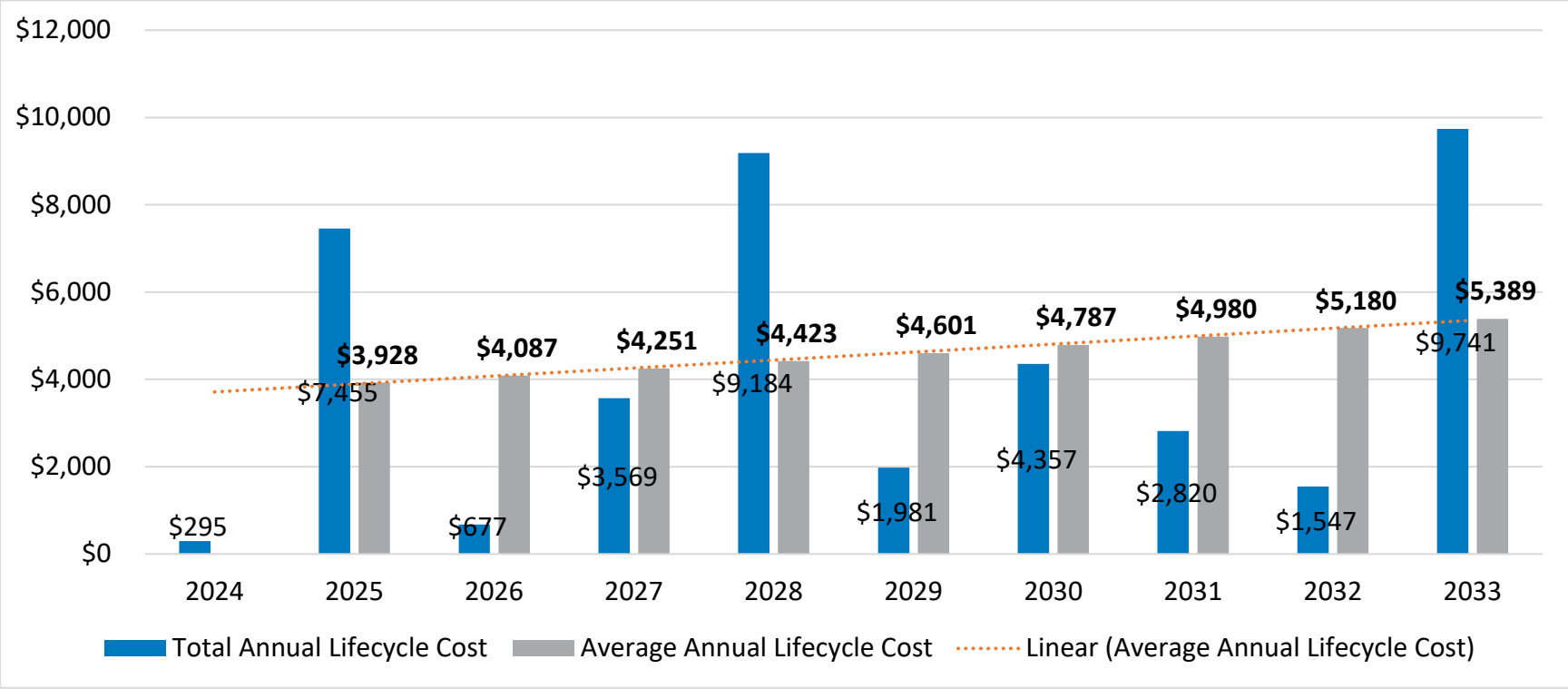
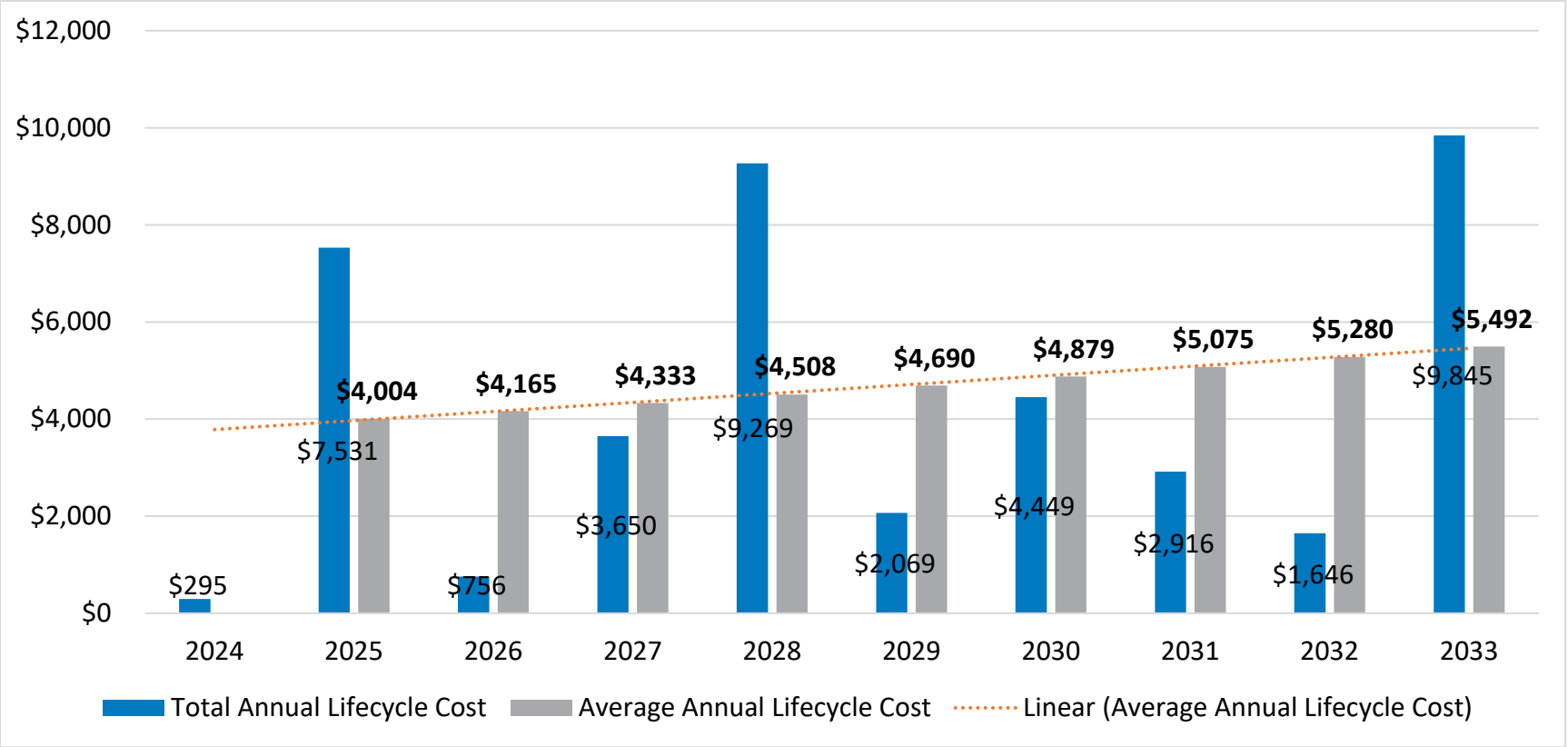


Figure G7 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure G7 – Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table G7 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Levels	$3,852	$4,008	$4,170	$4,338	$4,513	$4,695	$4,884	$5,081	$5,285	**$40,825**
Reduce Backlog	$3,928	$4,087	$4,251	$4,423	$4,601	$4,787	$4,980	$5,180	$5,389	**$41,625**
Eliminate Backlog	$4,004	$4,165	$4,333	$4,508	$4,690	$4,879	$5,075	$5,280	$5,492	**$42,426**




11

Transportation Infrastructure

Transportation Infrastructure Overview

Transportation Infrastructure includes all the infrastructure used to ensure the safe and efficient transportation of pedestrians, cyclists and vehicles. Transportation Infrastructure includes items such as sidewalks, streetlights, traffic signals, and guiderails. Transportation Infrastructure does not include the municipal road network. Roads are considered core infrastructure and were included in the previous iteration of the AMP related to core infrastructure.

The Municipality's Transportation Infrastructure assets have been divided into different asset sub-types, based on similar characteristics and functions. The different sub-types are provided and defined in the table below. Transportation Infrastructure is overseen by both the Planning and Infrastructure Services Department and the Public Works division of the Public Services Department.

Table H1 – Transportation Infrastructure Assets

Asset Type	Asset Sub-Type	Purpose
Guiderails	Steel Beam Guiderails	Steel guiderails used to guide traffic along a roadway and away from hazardous situations, such as drop-offs or fixed objects.
	Guideposts / Post & Cable	Serve the same purpose as steel guiderails but are constructed using wood posts and steel cables.
	Concrete Barriers	Serve the same purpose as steel guiderails but are constructed from reinforced concrete.
Sidewalks	Concrete Sidewalks	Portion of the Municipality's sidewalk network constructed with a concrete base.
	Asphalt Sidewalks	Portion of the Municipality's sidewalk network constructed with an asphalt base.
Streetlighting	Concrete Standard Poles	Concrete pole used to support the streetlight luminaire.
	Wood Poles	Wood pole used to support the streetlight luminaire.

Asset Type	Asset Sub-Type	Purpose
	Aluminum Poles	Aluminum pole used to support the streetlight luminaire.
	Concrete Decorative Poles	Concrete pole used to support the streetlight luminaire. Typically made of spun-concrete to provide aesthetic appeal.
	Steel Decorative Poles	Steel pole, enhanced with decorative features, used to support a streetlight luminaire.
	Standard LED Luminaire	Light fixture, secured to a streetlight pole, to illuminate the roadway.
	Decorative LED Luminaire	Decorative light fixture, secured to a streetlight pole, to illuminate the roadway.
Traffic Controls	Traffic Signals	Signaling infrastructure used at roadway intersections to allow safe passage of motor vehicles. Includes traffic lights, cabinets, and pedestrian signals.
	Pedestrian Crossings	Signaling infrastructure used to stop traffic and allow pedestrians safe passage across a roadway.
Equipment	Radar Message Boards	Electronic traffic devices used to enhance safety by displaying vehicle speed and displaying information to drivers.

State of Local Infrastructure

Asset Inventory

The summarized asset inventory for Transportation Infrastructure is presented in Table H2 below. Replacement costing has been derived using a combination of recent tenders for similar assets and estimates provided by municipal staff. In certain circumstances, replacement costing has been estimated by applying an inflation factor to historical costing.

Table H2 - Summarized Asset Inventory – Transportation Infrastructure

Asset Type	Asset Sub-Type	Quantity	Length (Km)	Average Age (Years)	Replacement Cost ($2024)
Guiderails	Steel Beam Guiderails		23.96	15.8	$8,627,000
	Guideposts / Post & Cable		7.02	24.8	839,000
	Concrete Barriers		0.02	38.0	13,000
Sidewalks	Concrete Sidewalks		347.81	22.8	157,906,000
	Asphalt Sidewalks		6.77	23.6	3,787,000
Streetlighting	Concrete Standard Poles	3,739		22.6	25,841,000
	Wood Poles	143		N/A	659,000
	Aluminum Poles	229		N/A	1,781,000
	Concrete Decorative Poles	663		17.2	5,156,000
	Steel Decorative Poles	247		N/A	1,921,000
	Standard LED Luminaire	4,292		4.0	2,468,000
	Decorative LED Luminaire	910		2.0	1,283,000
Traffic Controls	Traffic Signals	18		20.2	5,076,000
	Pedestrian Crossings	5		4.0	238,000
Equipment	Radar Message Boards	21		4.9	76,000
Total		**10,267**	**385.58**	**21.8**	**$215,671,000**

As shown in Table H2, the total replacement cost for Transportation Infrastructure assets is approximately $215.7 million. Most of the replacement costing relates to the sidewalk network, which accounts for over $161 million of the total replacement cost. The Municipality also owns over 3,700 concrete streetlight poles, totaling over $25 million in replacement costing.

Replacement costing is based on the full replacement of each asset. In terms of traffic signals, this includes all components of a signalized intersection (e.g. LED lights, cabinet, electrical work, light poles, automated pedestrian signals, etc.). The Municipality recently completed an LED conversion program on streetlight luminaires; therefore, the luminaire replacement costing assumes an LED replacement.

Asset Age

Table H3 includes a summary of the average age of the various Transportation Infrastructure assets within each asset sub-type. The age of each asset in the inventory is assessed and given equal weighting when deriving the average age for each sub-type. The average age for each asset sub-type represents the simple average of the various components within that sub-type. The total average age, for all Transportation Infrastructure assets, represents a weighted average of the different sub-types, based on total replacement cost.

Table H3 – Average Age and Condition – Transportation Infrastructure

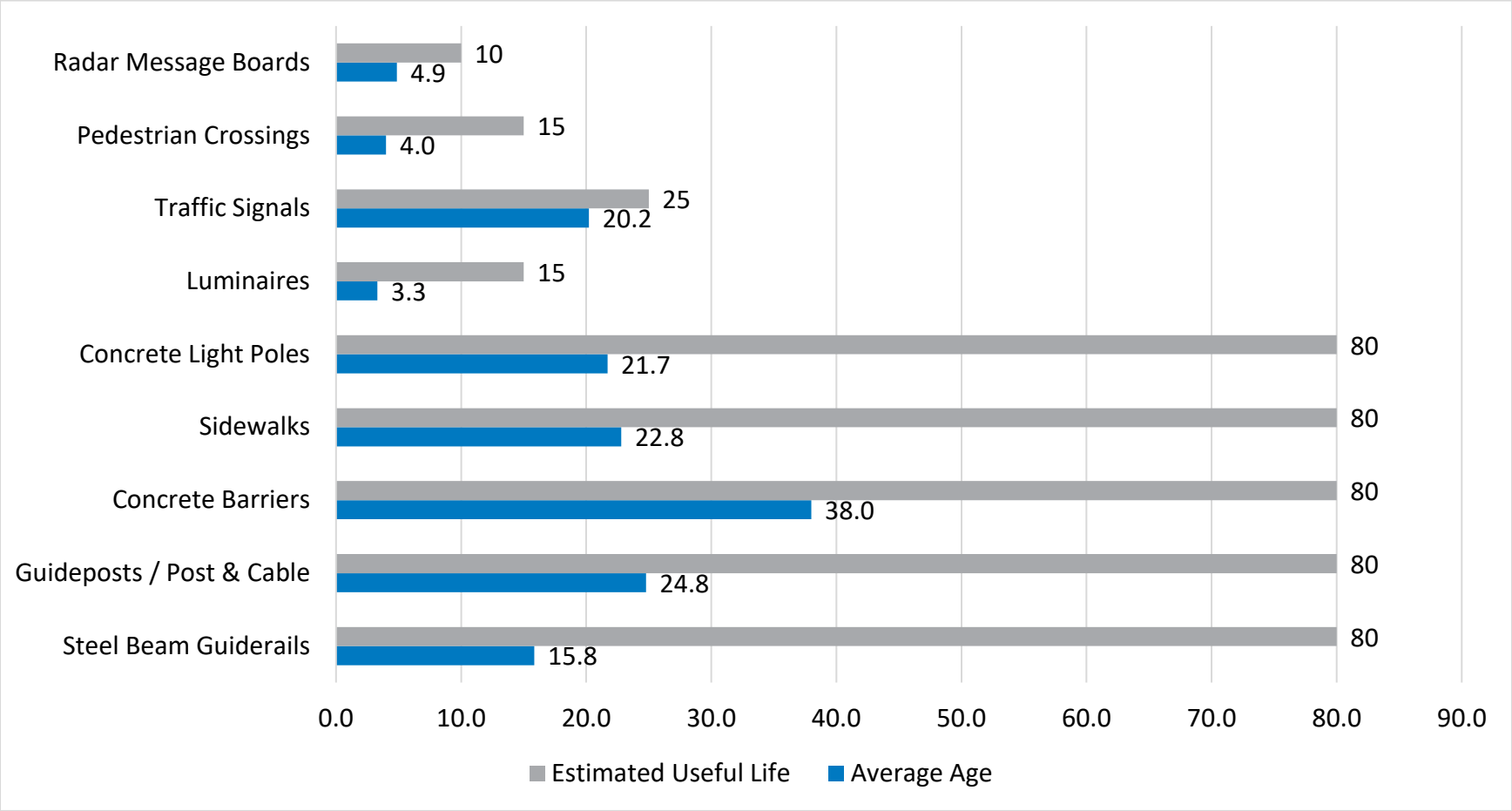
Asset Type	Asset Sub-Type	Quantity	Length (Km)	Average Age (Years)	Average Estimated Useful Life	Average Condition (ULC%)	Average Condition State
Guiderails	Steel Beam Guiderails		23.96	15.8	80	20%	Very Good
	Guideposts / Post & Cable		7.02	24.8	80	31%	Very Good
	Concrete Barriers		0.02	38	80	48%	Good
Sidewalks	Concrete Sidewalks		347.81	22.8	80	29%	Very Good
	Asphalt Sidewalks		6.77	23.6	80	30%	Very Good
Streetlighting	Concrete Standard Poles	3,739		22.6	80	28%	Very Good
	Wood Poles	143		N/A	80	N/A	N/A
	Aluminum Poles	229		N/A	80	N/A	N/A
	Concrete Decorative Poles	663		17.2	80	22%	Very Good
	Steel Decorative Poles	247		N/A	80	N/A	N/A
	Standard LED Luminaire	4,292		4	15	27%	Very Good
	Decorative LED Luminaire	910		2	15	13%	Very Good
Traffic Controls	Traffic Signals	18		20.2	25	81%	Good
	Pedestrian Crossings	5		4	15	27%	Very Good
Equipment	Radar Message Boards	21		4.9	10	49%	Good
Total		**10,267**	**385.58**	**21.8**		**29%**	**Very Good**

In terms of streetlight poles, the only age and condition information available is for concrete poles (standard and decorative). The other streetlight pole types represent a much smaller proportion of the total streetlight pole inventory. The majority of the non-concrete streetlight poles were likely installed before the Municipality instituted electronic tracking. Non-concrete streetlight poles have been assigned an age of “N/A” to reflect the fact that no data is available.

Each asset has also been assigned an estimated useful life based on industry standards and the Municipality’s current Capitalization Policy. The estimated useful life for guiderails, sidewalks, and streetlight poles has been set to 80 years to match the estimated useful life of a road. These assets have very long-life spans and will not typically be subject to a large scale replacement unless a major road replacement occurs. Large road replacements may require the removal of the adjacent sidewalk, streetlights, and guiderails, in which new infrastructure would then be installed in its place.

Figure H1 below compares the average age with the average estimated useful life for each asset sub-type. Based on the long estimated useful life assigned to many of the asset categories, the average age for the majority of Transportation Infrastructure is well within the estimated useful life. The figure excludes the assets in which the age is unknown.

Figure H1 – Average Age (Years) and Estimated Useful Life (Years) – Transportation Infrastructure



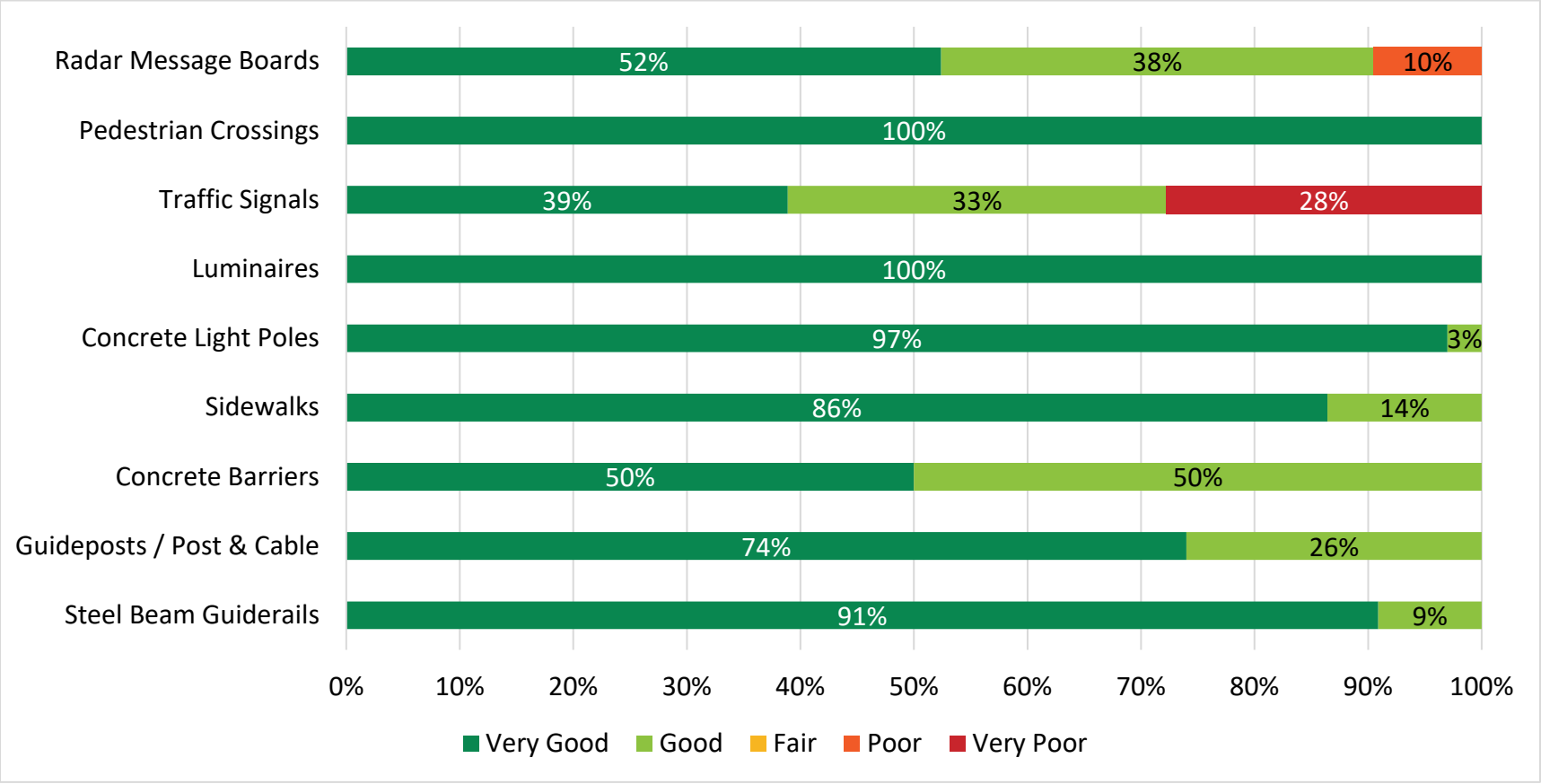
Asset Condition

Table H3 also provides the average condition rating for each of the asset sub-types within Transportation Infrastructure. The condition assessments have been derived using the ULC% methodology. The average condition for all Transportation Infrastructure assets is rated as Very Good. This average condition rating was derived using a weighted average of all asset sub-types, based on total replacement cost.

The Very Good condition rating stems from the fact that many assets have a very long estimated useful life. Many of the assets holding a large share of the overall replacement cost (streetlights and sidewalks) do not typically get replaced unless severely damaged or because they are part of a road segment being replaced.

Although the overall condition is assessed as Very Good, the actual condition of the various assets within each asset sub-type varies. The figure below illustrates the condition distribution within each specific sub-type.

Figure H2 – Condition Distribution – Transportation Infrastructure



Levels of Service

The levels of service for Transportation Infrastructure were developed in an effort to reflect the desires, values, and expectations of the community. The Level of Service statements are intended to capture the expectations of the community, while the performance measures are intended to quantify those expectations. The Levels of Service attributes are intended to reflect some of the key characteristics important to the organization.

The Municipality's current level of service performance is provided in the table below. Proposed levels of services and their respective targets will be identified in future iterations of the AMP.

Table H4 – Current Levels of Service – Transportation Infrastructure

Service Attribute	Level of Service Statement	Performance Measure	Current Performance
Cost Effective	Maintaining Transportation Infrastructure in a fiscally sustainable manner	Transportation Infrastructure Reinvestment Rate	0.50%
Accessibility	Providing Transportation Infrastructure that is accessible for all	% of sidewalks that comply with AODA minimum clearance width of 1.5m	83%
Quality	Providing major Transportation Infrastructure assets in an acceptable condition	% of sidewalks in Fair or better condition	59.70%
		% of streetlight luminaires in Fair or better condition	66.70%
Sustainability	Providing environmentally sustainable Transportation services for the community	% of vehicles (excluding fire trucks) that are fully electric (EV)	6.67%

Lifecycle Management Strategies and Costing

The Municipality undertakes three main types of lifecycle activities to ensure Transportation Infrastructure assets maintain their current level of service.

Inspection activities are completed periodically to assess the overall condition of Transportation Infrastructure assets. Sidewalks receive frequent visual inspections to determine whether maintenance activity is required. Other assets are also visually inspected to determine the level of maintenance required. These inspections are typically completed at the staff level and do not represent an additional cost to the Municipality. There are no inspection costs included in annual lifecycle costing.

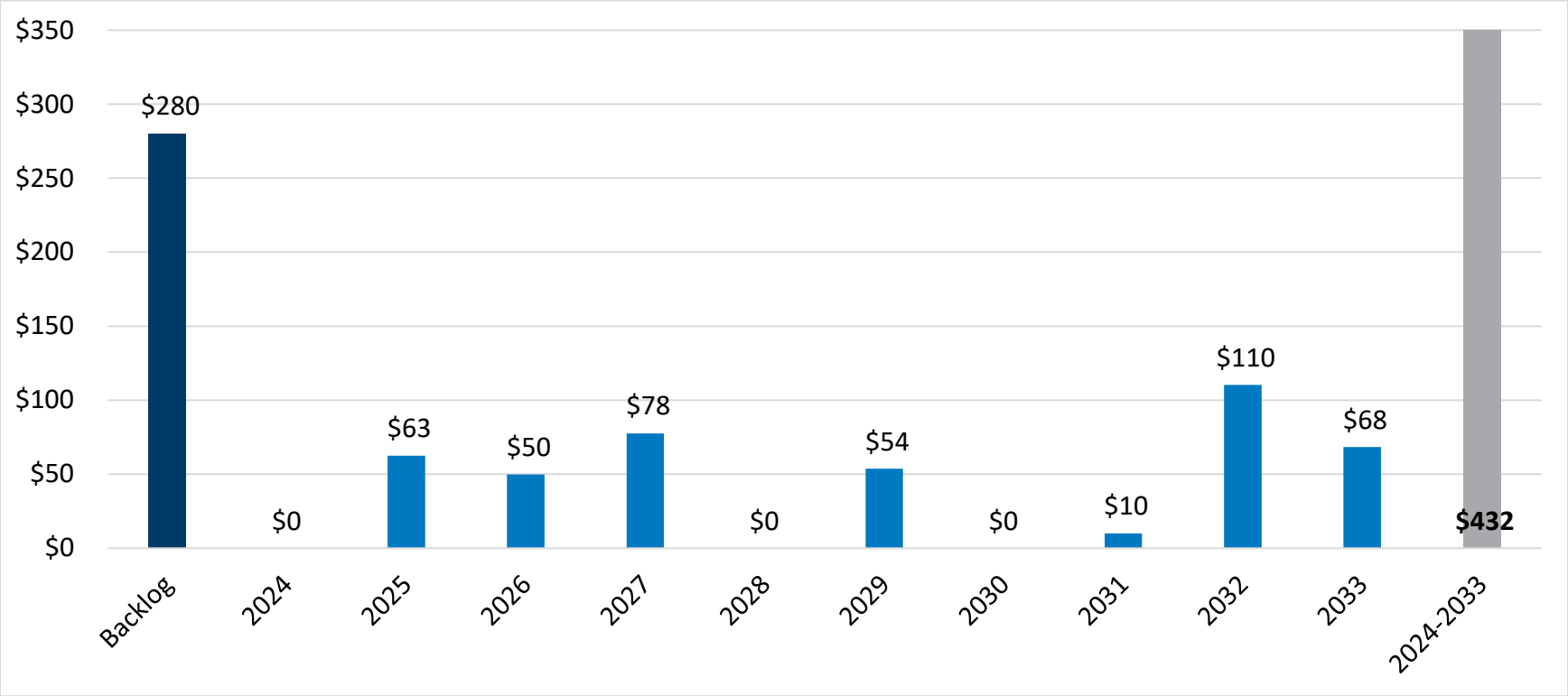
General repair and maintenance activities are performed throughout the lifecycle of the assets. These activities include the general maintenance required to ensure the assets remain in good working order. Sidewalk infrastructure is generally subject to general repair and maintenance to ensure they remain in suitable condition. General repair and maintenance is typically performed on a sidewalk as opposed to a full sidewalk replacement. These activities are funded through the annual operating budget and have not been included in the AMP.

Replacement activities involve the full replacement of assets at the end of their useful life. The replacement of Transportation Infrastructure assets can represent both a capital expense and an operating expense. Certain assets, such as streetlight poles, do not form a significant expense on an individual basis. If an individual streetlight pole or luminaire requires replacement, it would form an operating expense. If a large pool of streetlight poles and luminaires required replacement, the sum total would reflect a capital expense.

As many of the Transportation Infrastructure assets are replaced on a case-by-case basis (i.e.: funded through the operating budget) and do not require full replacement on a routine basis, the estimated lifecycle capital costing is quite minimal relative to the overall replacement cost. The routine end-of-life replacements that represent a capital expense are the only lifecycle activities included in the lifecycle costing.

The figure below identifies the annual lifecycle costing required to maintain the Municipality's current level of service.

Figure H3 – Annual Lifecycle Costing – Transportation Infrastructure ($000's)



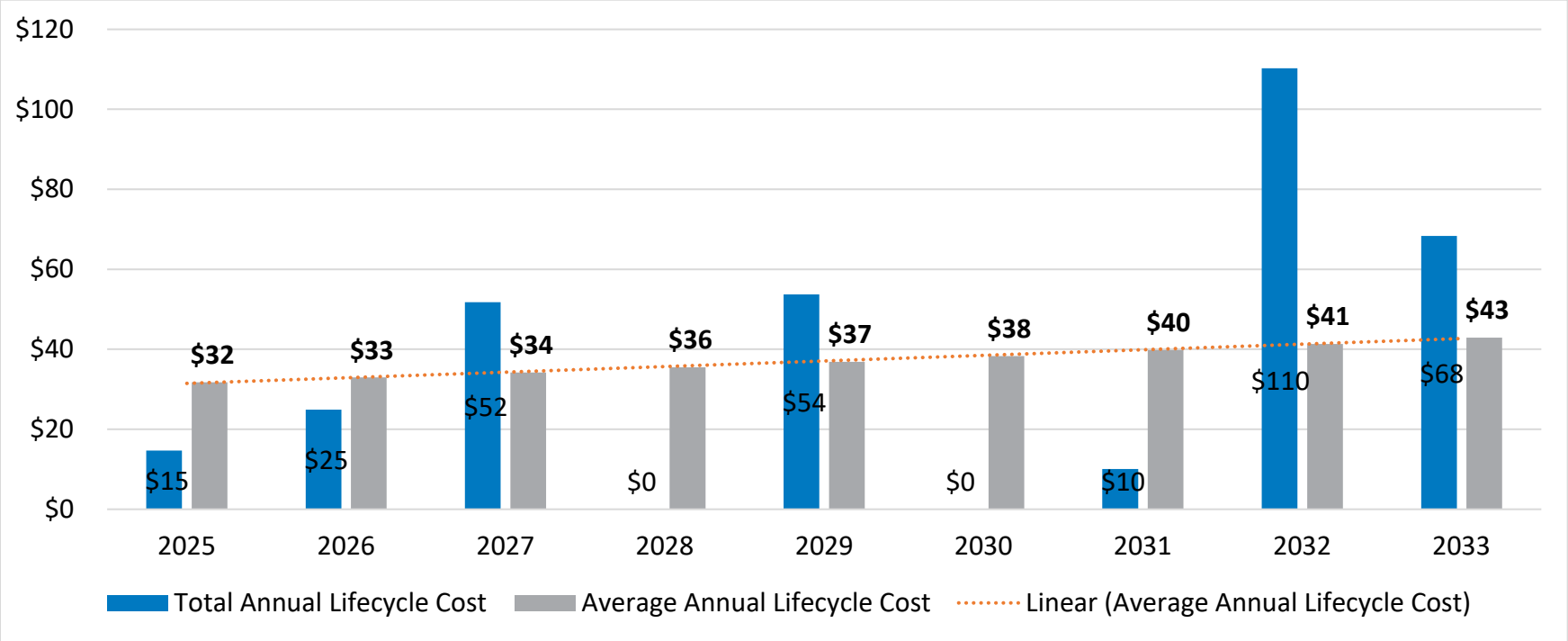
It will cost approximately $432,000, over the next ten years, to maintain the current level of service. The total cost, including all the costs in the backlog, is approximately $732,000. Again, this small value reflects the fact that most Transportation Infrastructure are not routinely replaced and, if they do require replacement on an individual basis, the expense typically forms part of the operating budget.

Average Annual Lifecycle Cost

The costs in Figure H3 represent the annual gross cost of maintaining Transportation Infrastructure assets over the next ten years. The amount of lifecycle activities varies on an annual basis, leading to significant cost variances from year-to-year.

Figure H4 below removes the significant annual variances by determining the average annual cost of maintaining Transportation Infrastructure assets at their current level of service (i.e.: maintaining the overall dollar value of the backlog throughout the forecast period). The figure also nets off any costs where the work has already been budgeted but not yet completed.

Figure H4 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's)



Alternative Lifecycle Costing

The figure above identifies the average annual costs at current service levels, where the dollar value of the backlog and current asset condition distribution remain constant throughout the forecast period. The figures below provide alternative costing scenarios based on a more aggressive approach to addressing the backlog.

Figure H5 provides average annual costing under a scenario in which the overall size of the backlog is reduced by 50 per cent over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include more assets in the Good to Very Good range.

Figure H5 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Reduce Backlog

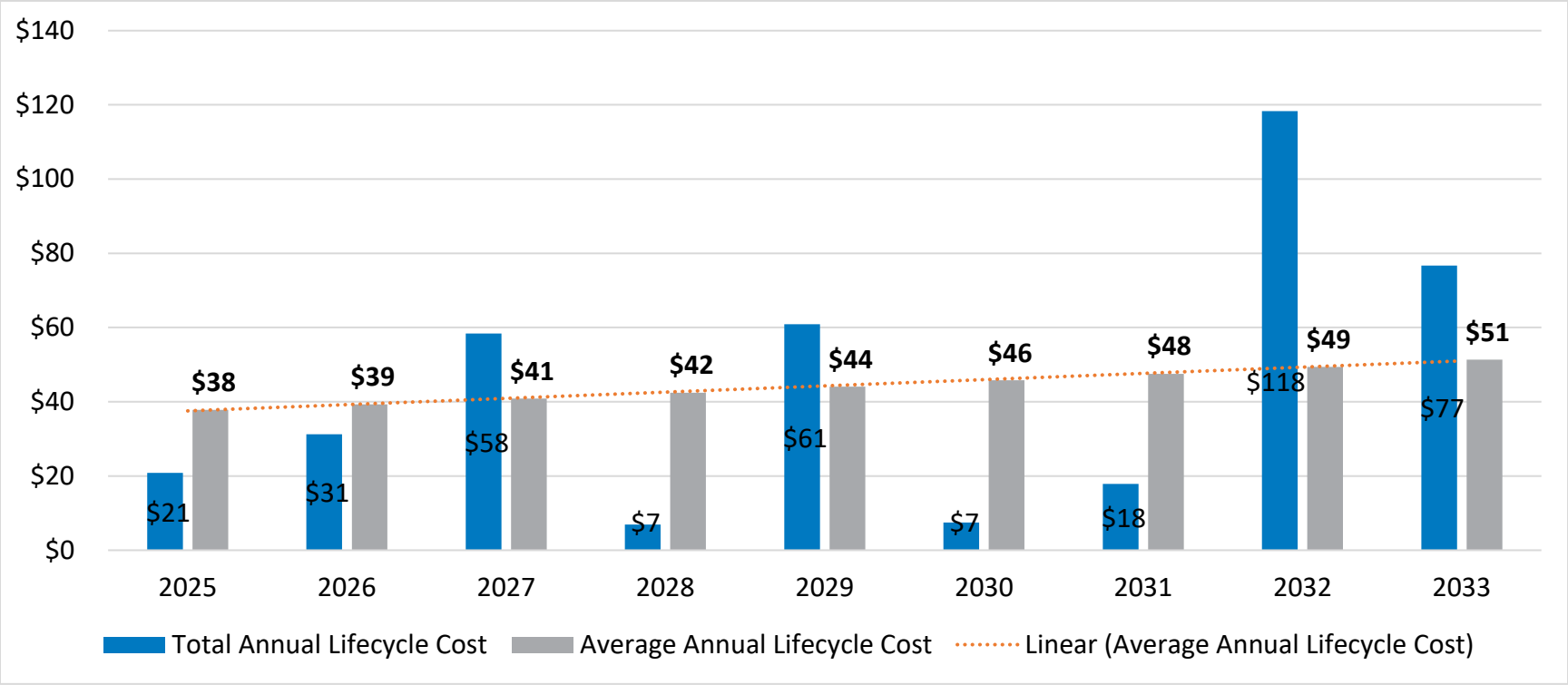
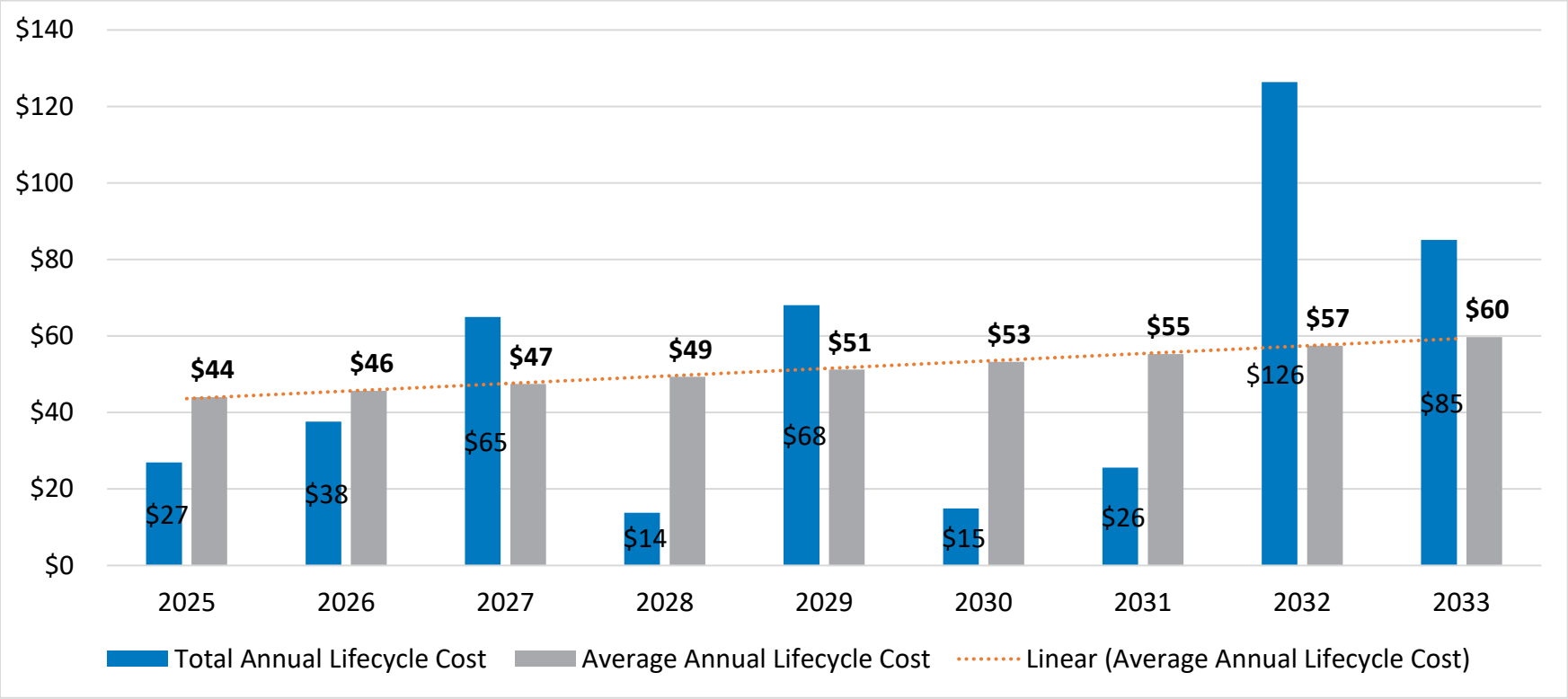


Figure H6 provides average annual costing under a scenario where the entire backlog is eliminated over the ten-year forecast period. This would result in a service level enhancement in which the condition distribution would include nearly all assets in the Good to Very Good range.

Figure H6 - Total Annual Lifecycle Cost vs Average Annual Lifecycle Cost ($,000's) – Eliminate Backlog



The table below compares the average annual cost of maintaining current service levels (i.e.: maintaining the current dollar value of the backlog) with the alternative scenarios of reducing and eliminating the backlog over the forecast period.

Table H5 – Average Annual Lifecycle Cost Comparison ($,000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Current Service Levels	$32	$33	$34	$36	$37	$38	$40	$41	$43	**$334**
Reduce Backlog	$38	$39	$41	$42	$44	$46	$48	$49	$51	**$399**
Eliminate Backlog	$44	$46	$47	$49	$51	$53	$55	$57	$60	**$463**

Streetlight Luminaires

The Municipality implemented an LED streetlight conversion program in 2020. The project included replacing existing streetlight luminaires with LED replacements. The majority of the conversions were completed in 2020, with additional conversions completed in 2022.

The LED luminaires have an estimated useful life of 15 years; therefore, the estimated replacement of these luminaires falls just outside the 10-year forecast horizon in the AMP (estimated replacement in 2034). The current estimated replacement cost for the standard LED luminaires totals nearly $2.5 million.

Streetlight luminaires tend not to be replaced until they fail. Luminaire replacements are typically funded through the operating budget as they are replaced on a case-by-case basis. However, given that many of the LED luminaires were installed at the same time, there is a possibility that a large amount could also fail at the same time. This could potentially lead to a large capital expense.

Table H6 illustrates the impact to the Average Annual Lifecycle Cost if the full replacement of all standard LED luminaires were included within the 10-year forecast period. The table provides the estimated average annual lifecycle costs under scenario one. The estimated average annual cost would be reduced under the other two scenarios.

Table H6 – Average Annual Lifecycle Cost – Luminaire Replacement ($000's)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Average Annual Lifecycle Cost (No Luminaires)	$32	$33	$34	$36	$37	$38	$40	$41	$43	**$334**
Average Annual Lifecycle Cost (Luminaires)	$344	$355	$367	$380	$393	$407	$421	$436	$451	**$3,554**




Asset Management Plan 2024

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