CITY OF BRANTFORD

2024 Asset Management Plan

Forestry and Horticulture Non-Core Assets City of Brantford, Ontario

Prepared by: Infrastructure Planning Asset Management, Public Works
Corporation of the City of Brantford, June 2024

RECORD SHEET

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RECORD SHEET

Asset Management Document Set	Asset Group	First Issuance
Strategic Asset Management Policy	All	May 2019
Asset Management Plan Core Assets Overview	Core Assets Replaced by Core & Non-Core Assets Overview	September 2021
Asset Management Plan, Core Assets	Environmental Services Transportation	September 2021
Asset Management Plan Core & Non-Core Assets Overview	Core & Non-Core Assets	June 2024
Asset Management Plan, Non-Core Assets	Forestry & Horticulture	This Document
Asset Management Plan, Non-Core Assets	Airport Cemetery Clerks Services Economic Development & Tourism Facilities Fire Fleet & Transit Golf Human Resources IT Services Library Parking Parks & Recreation Police Solid Waste	June 2024
Asset Management Plan, Non-Core Assets	Housing JNH	TBD

ASSET MANAGEMENT PLAN
FORESTRY & HORTICULTURE

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FORESTRY & HORTICULTURE INTRODUCTION

Per O.Reg 588/17 all municipal infrastructure assets which fall outside of the core asset categories (water, wastewater, stormwater and roads) and their respective subcategories, shall be non-core or “other” infrastructure assets. These assets shall have qualitative descriptions and technical metrics established by the municipality.

Table 1 below outlines which Asset Types are included under each Asset Class and will be reported on in this AMP document. In addition, it is important to note that the AMP only includes assets owned by the City or Local Boards and does not include assets that are owned privately or by other organizations.

Table 1: Asset Type Breakdown

	Asset Class	
	Forestry	**Horticulture**
Asset Type:	Right-of-Way Trees	Gardens
	Trees on City Parcels	Sheds & Greenhouses
	Tree Support & Protection	Irrigation

1. FORESTRY ASSETS

1.1. INTRODUCTION

The City of Brantford owns and maintains assets under the Forestry asset class. The purpose of this section is to present specific information about the Forestry asset class to answer the questions posed in **Section 2** of the **Asset Management Plan (AMP) Overview Document**, and includes the following:

- Forestry Assets' Data Inventory and Condition Approach;
- Summary of Forestry Assets;
- Lifecycle Activities and Cost of Forestry Assets;
- Current Forestry Assets' Levels of Service;
- Current Forestry Assets' Performance; and
- Conclusion.

1.2. FORESTRY ASSETS' DATA INVENTORY AND CONDITION APPROACH

Information related to the City's data collection methodologies as well as data confidence level definitions are defined in the **Asset Management Plan Overview Document**.

The City of Brantford currently has four (4) approaches to establishing the inventory and condition of Forestry assets due to available resources, technologies, and budget restrictions:

- Periodic aerial LiDAR surveys of tree locations and canopy coverage;
- Condition assessments outsourced to consultants;
- Periodic inspection programs conducted by City staff; and
- Estimated condition based on asset specific information.

A list of all condition assessments for all non-core assets can be found in **Table 7** in the **Asset Management Plan Overview Document**.

The origin of the Forestry asset data for inventory, replacement cost, and condition, as well as data confidence in each are provided in **Table 2** below.

Table 2: Trees Assets' Data Origin and Confidence Level

	Inventory			Replacement Cost			Condition		
Asset Type	**Inventory (incl. Quantity and Age) From**	**Data Confidence Level**	**Data Confidence Description**	**Replacement Cost From**	**Data Confidence Level**	**Data Confidence Description**	**Condition From**	**Data Confidence Level**	**Data Confidence Description**
Right-of-Way Trees	Inventory from Lidar Data Assessment and partial from Condition Assessment	Medium	Lidar Data Assessment	Staff knowledge	Low	Estimated costs based on actual unit cost	Staff knowledge and partial from Condition Assessment	Medium	Condition Assessment currently underway but not yet complete.
Trees on City Parcels	Inventory from Lidar Data Assessment	Low	Lidar Data Assessment	Staff knowledge	Low	Estimated costs based on actual unit cost	Staff knowledge	Low	Condition not currently tracked in a formal way.
Tree Support & Protection	Field observation by staff	Low	Informal inventory prepared by staff	Staff Knowledge	Low	Estimated costs based on actual unit costs	Staff knowledge	Low	Condition not currently tracked in a formal way.

Per **Table 2** above, Forestry assets' inventory and condition data are typically at a Medium or Low confidence level with an overall average confidence level of Low. Inventory and condition data related to Right of Way (ROW) trees are currently undergoing a formal assessment and the confidence level is expected improve to High for these assets once the assessment is complete.

A Low confidence level has been indicated for Trees on City Parcels as no formal condition assessment has been completed. Trees on City Parcels are often left natural and not regularly maintained. Trees are assumed to be in good condition unless trees are known to be dead, diseased, high risk or service requests have been received against them.

A Low confidence level has been indicated for Tree Support & Protection as no formal condition assessment has been completed and the inventory is based on staff knowledge. As these assets are entered into the City's new work management system it is expected the inventory and condition information will improve.

The confidence level for replacement value is low for all asset categories. While the unit costs are known in most cases they are typically the costs for young trees and are less accurate for more mature trees. A valuation for mature trees which takes additional factors into account to more accurately assess the value of varying tree heights, diameters at breast height (DBH) and canopy coverage has been identified as a gap to be addressed in future editions of the plan.

1.2.1 SERVICE LIFE

Formal condition assessments are periodically completed on Forestry assets. Where condition assessments have not been completed, the condition has been estimated based on the estimated service life of the asset shown below in **Table 3**. The average overall estimated service life for assets can be found in **Table 5**.

Table 3: Infrastructure Services and Support Assets' Estimated Service Life

Asset	Estimated Service Life
Right-of-Way Trees	Right-of-Way trees are maintained by City staff and/or contractors on a semi regular basis. As living assets they are subject to disease, infestation and damage. Provided that these assets are maintained and healthy, they have an average life expectancy of 60 years before replacement.
Trees on City Parcels	Individual trees on City Parcels (i.e. woodlots, open spaces, parks, cemeteries, trails, etc.) are generally not replaced by the City once their lifecycle has ended. Woodlots and forested areas are considered to be self-sustaining barring a catastrophic event. Provided that these assets are maintained and healthy, they have an average life expectancy of 75 years or more before a removal is necessary.
Tree Support & Protection	Tree Protection & Support devices may not spend their entire useful life at the same location. As some trees outgrow the need for mechanical support and/or protection the devices are moved to tree assets at other locations. Provided that these assets are maintained they have an average life expectancy of four (4) to 50 years depending on the materials they are made from.

1.2.2 CONDITION SCORING

For the purpose of this report and standardizing condition scores across all assets in the Asset Management Plan, the Condition Rating is defined by three (3) Condition Scores as defined in the table below. For assets with formal consultant condition assessments, the conditions have been modified to fit into this model.

Table 4: Condition Score Description

Condition Score	Condition Rating	Description
1 - 1.4	Good	Assets are in working order/healthy, have no or minor deficiencies/no signs of disease or infestation. Where condition data is not available, this category applies to assets which are within the first 40% of their estimated service life.
1.5 - 2.4	Fair	Assets show general signs of deterioration/age, some elements may have significant deficiencies/signs of disease or infestation, and asset will likely require repairs/removal in the next 10 years. Where condition data is not available, this category applies to assets which are within 41% - 80% of their estimated service life.
2.5 - 3	Poor	Asset is below standard showing signs of significant deterioration, is in danger of imminent failure, and will require repair, replacement or removal within the next year. Where condition data is not available, this category applies to assets which have exceeded 80% of their estimated service life.

1.3. SUMMARY OF FORESTRY ASSETS

The summary of assets for the Forestry Asset Class can be found below. The summary of assets includes: Quantity, Replacement Cost, Average Age, and Average Condition Score for each asset type in accordance with O. Reg 588/17.

1.3.1 TOTAL SUMMARY OF ASSETS

A table summarizing all Forestry assets is included in **Table 5** below. Detailed information about each asset is included in individual sections. Calculations of averages have been weighted by the overall replacement value of assets. This means that assets of higher estimated replacement value will have a stronger influence on the average then if the average was calculated based on the number of assets.

The total replacement cost for all Forestry assets is approximately $35.9M and they are a weighted average of 39.8 years old which is 64% of the overall average estimated service life of 62 years. Overall Forestry assets are in Good condition with a weighted average condition score of 1.32.

Table 5: Total Summary of Forestry Assets

Asset	Quantity	Unit	Replacement Cost	Average Age (years)	Average Estimated Service Life (years)	% of Estimated Service Life Expended	Average Condition Score	Average Condition Description
Forestry Assets Total			**$35.9M**	**39.8**	**62**	**64%**	**1.32**	**GOOD**
Right-of-Way Trees*	55,942	Ea	$29.9M	40	60	67%	1.38	GOOD
Trees on City Parcels*	118,214	Ea	$5.9M	39	75	52%	1	GOOD
Tree Support & Protection	247	Ea	$0.09M	31	47	66%	2.08	FAIR

*Asset count derived from LiDAR analysis and has not been fully field verified.

1.3.2 RIGHT-OF-WAY TREES

Assets within the Right-of-Way (ROW) Trees group are related to trees which are located within the municipally owned area alongside the roadway which can include boulevards and shoulders.

It can be seen in **Figure 1** that there is estimated to be over 55,900 ROW trees with a total replacement cost of $29.9M. Assets are typically in Good condition with a weighted average condition score of 1.38.

The weighted average age for the City's ROW trees is 40.1 years and was based on an assigned growth factor based on species multiplied by the measured diameter at breast height (DBH) and is 67% of the weighted average estimated service life of 60 years for all ROW trees. The distribution of overall weighted condition data for each asset is shown in **Figure 1**. The values are weighted based on estimated replacement value.

It is important to note that the condition is based on the City's 2023/2024 tree field inventory which had reviewed 28,068 trees out of the 55,942 trees estimated in the LiDAR survey at the time calculations were complete for this iteration of the AMP. Future iterations of the AMP will be able to reference the full inventory.

NO. OF TREES	REPLACEMENT COST	WEIGHTED AVG AGE (YEARS)	WEIGHTED AVG ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION SCORE	AVERAGE CONDITION DESCRIPTION
55.9K	29.9M	40.1	60	1.38	Good

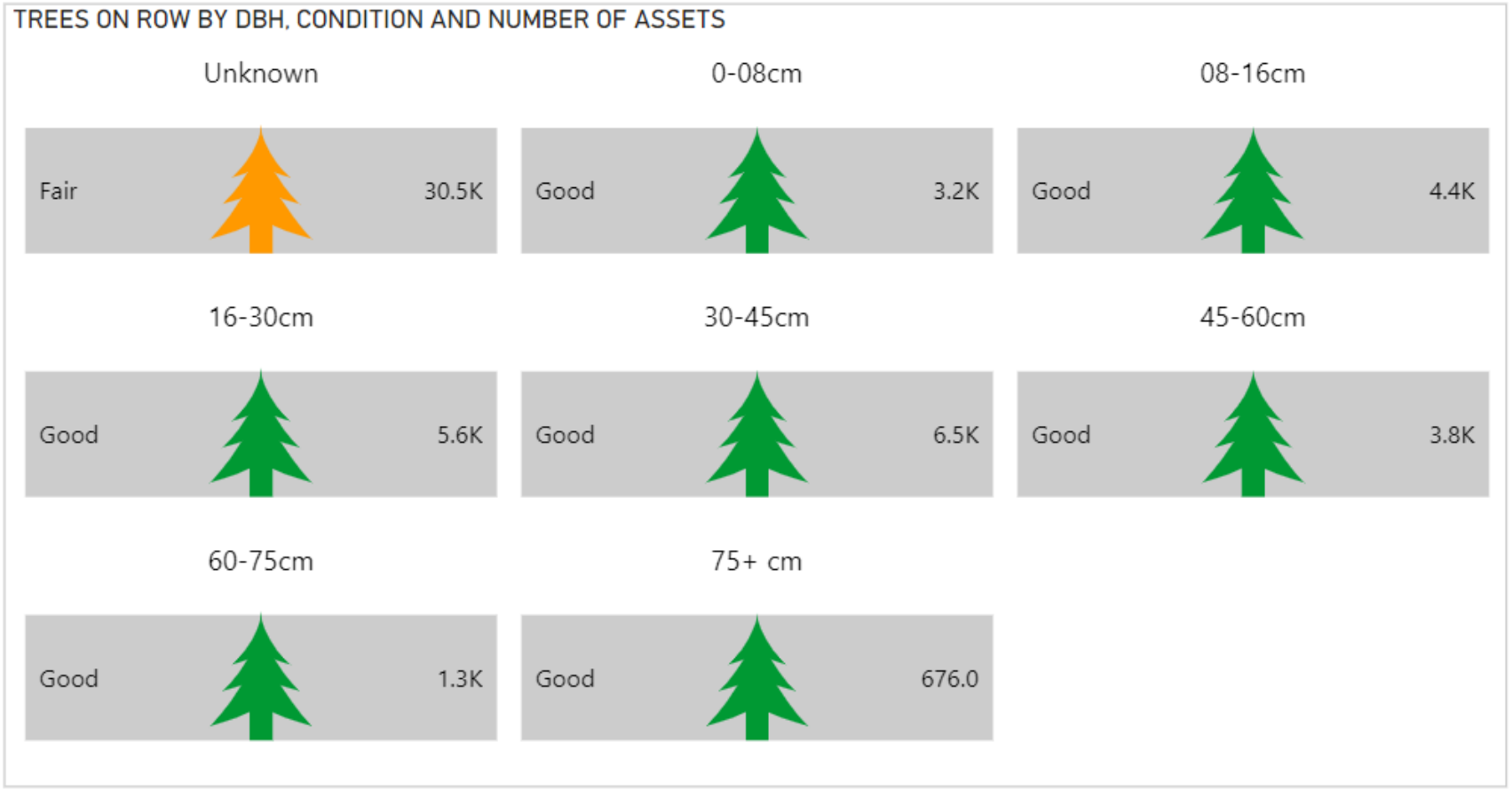

Figure 1: Right-of-Way Trees Asset Summary by Diameter at Breast Height (DBH)

1.3.3 TREES ON CITY PARCELS

Trees on City Parcels are those trees which are located on City owned property outside of the Right-of-Way boundaries. This can include woodlots, open spaces, parks, cemeteries, trails, and land surrounding City facilities. These trees are generally not replaced by the City once their lifecycle has ended, however in some areas they will be replaced by natural processes. While the trees are generally not actively replaced by the City, they are actively managed throughout their lifecycle, maintenance activities will depend on their location and proximity to users of the land they are located within and to adjacent properties. E.g. Trees in woodlots in close proximity to trails would be expected to have more maintenance activities performed against them then trees in areas meant to be closed to foot traffic.

Per **Figure 2** below, the City owns and maintains over 118,000 trees on City Parcels.

The weighted average age of the City's Trees on City Parcels is 39 years which is 52% of its weighted average estimated service life of 75 years. All assets are considered to be in Good condition with a score of 1. The distribution of overall weighted condition data for each asset is shown in **Figure 2**. The values are weighted based on estimated replacement value.

Trees in woodlots and wooded area are considered self-sustaining. The replacement value for these assets is based on the removal cost for trees located outside of woodlots and wooded areas and it is based on re-establishment costs (site preparation, planning stock, planting, etc.) for trees located within woodlots and wooded areas. The re-establishment costs would only be expected to be incurred in the case of a catastrophic event where relying on self-sustainment of the area would be undesirable.

NO. OF TREES	REPLACEMENT COST	WEIGHTED AVG AGE (YEARS)	WEIGHTED ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION SCORE	AVERAGE CONDITION DESCRIPTION
118K	5.9M	39	75	1	GOOD

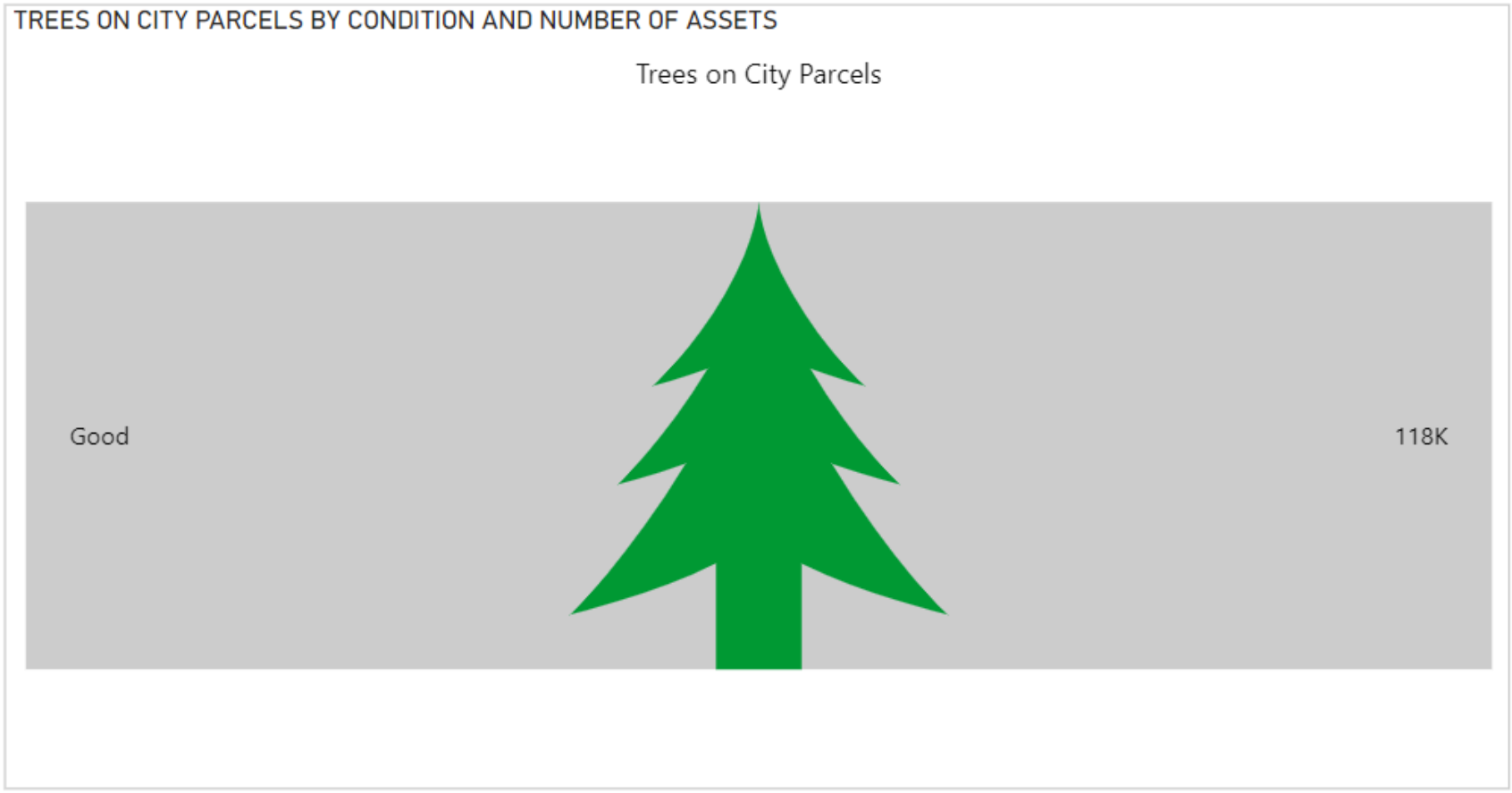

Figure 2: Trees on City Parcels Asset Summary

1.3.4 TREE SUPPORT & PROTECTION

Tree Support & Protection assets are typically deployed on young trees or trees in the right of way to protect them from damage by animals, high winds or ground compaction. They can include guards, root cells, grates and mechanical supports. Some assets in this category may be re-deployed to multiple locations throughout the life of the asset as the tree at one location outgrows the need for protection. The asset currently used most frequently at the City is tree grates. It is expected that other asset types will grow in use as the City's downtown is reconstructed. Water bags have been included and were last deployed as part of a climate change special project, while the bags remain in the possession of the City they are not regularly deployed at this time.

Per **Figure 3** below, the City owns and maintains 247 protection assets within the tree support & protection asset class.

The weighted average age of the City's protection assets is 31 years which is 66% of its weighted average estimated service life of 47 years. All assets were indicated to be in Fair condition with a score of 2.08 based on staff knowledge. As new work tracking softwares are deployed at the City, condition data is expected to improve for this asset class for future iterations of the plan. The distribution of overall weighted condition data for each asset is shown in **Figure 3**. The values are weighted based on estimated replacement value.

NO. OF SUPPORT & PROTECTION ASSETS	REPLACEMENT COST	WEIGHTED AVG AGE (YEARS)	WEIGHTED AVG ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION SCORE	WEIGHTED AVG CONDITION DESCRIPTION
247	$0.09M	31	47	2.08	FAIR

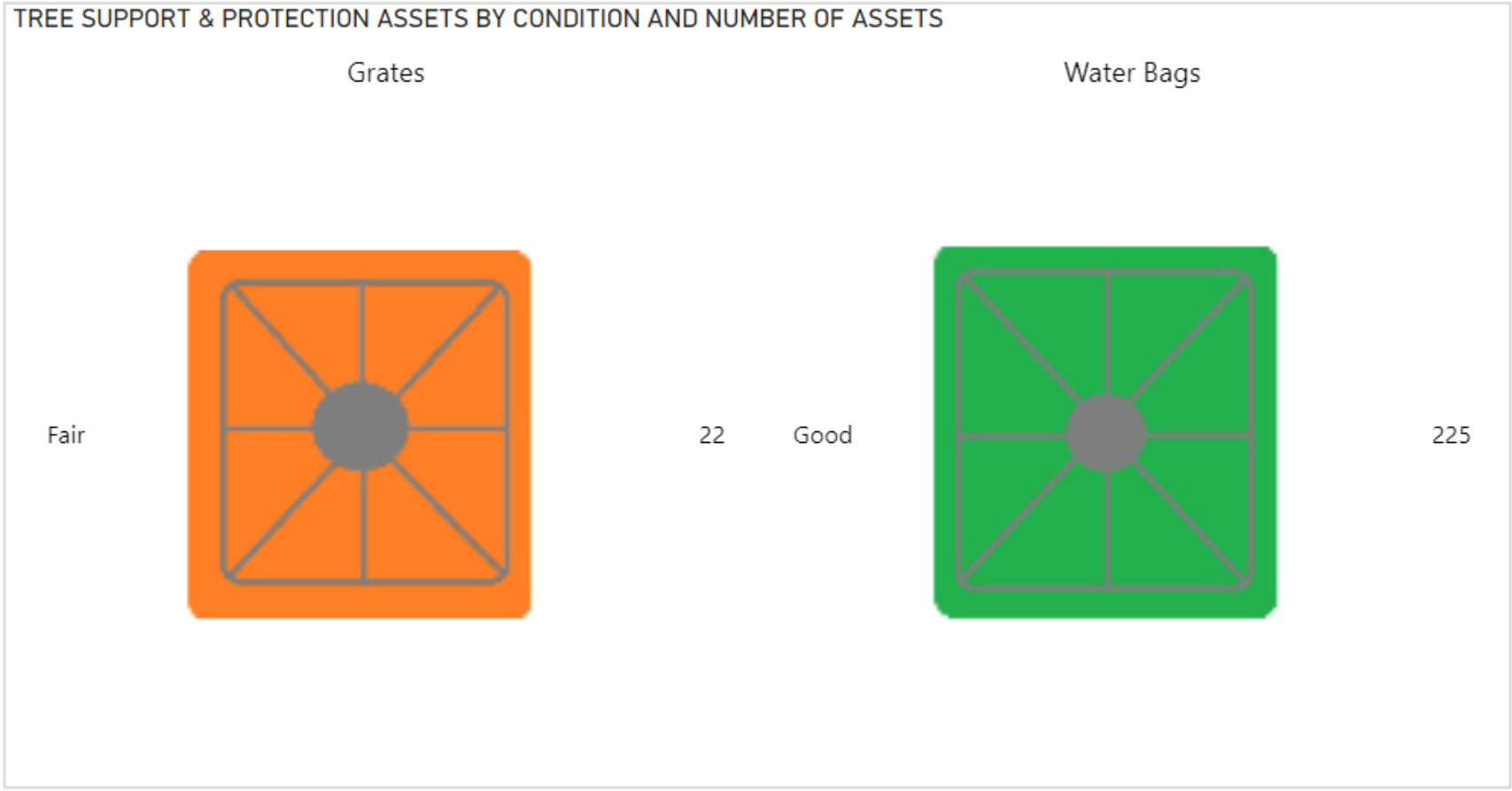

Figure 3: Tree Support & Protection Asset Summary

1.4. LIFECYCLE OF FORESTRY ASSETS

The lifecycle of Forestry assets is described under four (4) categories which are described in this section:

- Key Lifecycle Stages of Forestry Assets;
- Lifecycle Activities;
- Risks of Lifecycle Activities; and
- 10 Year Lifecycle Costs of Forestry Assets.

1.4.1 KEY LIFECYCLE STAGES OF FORESTRY ASSETS

The lifecycle of an asset refers to the following stages: Planning, Creation/Acquisition, Operations and Maintenance, Renewal/Disposal which are defined in the Main Body of the report. For Forestry assets specifically our general process is as follows:

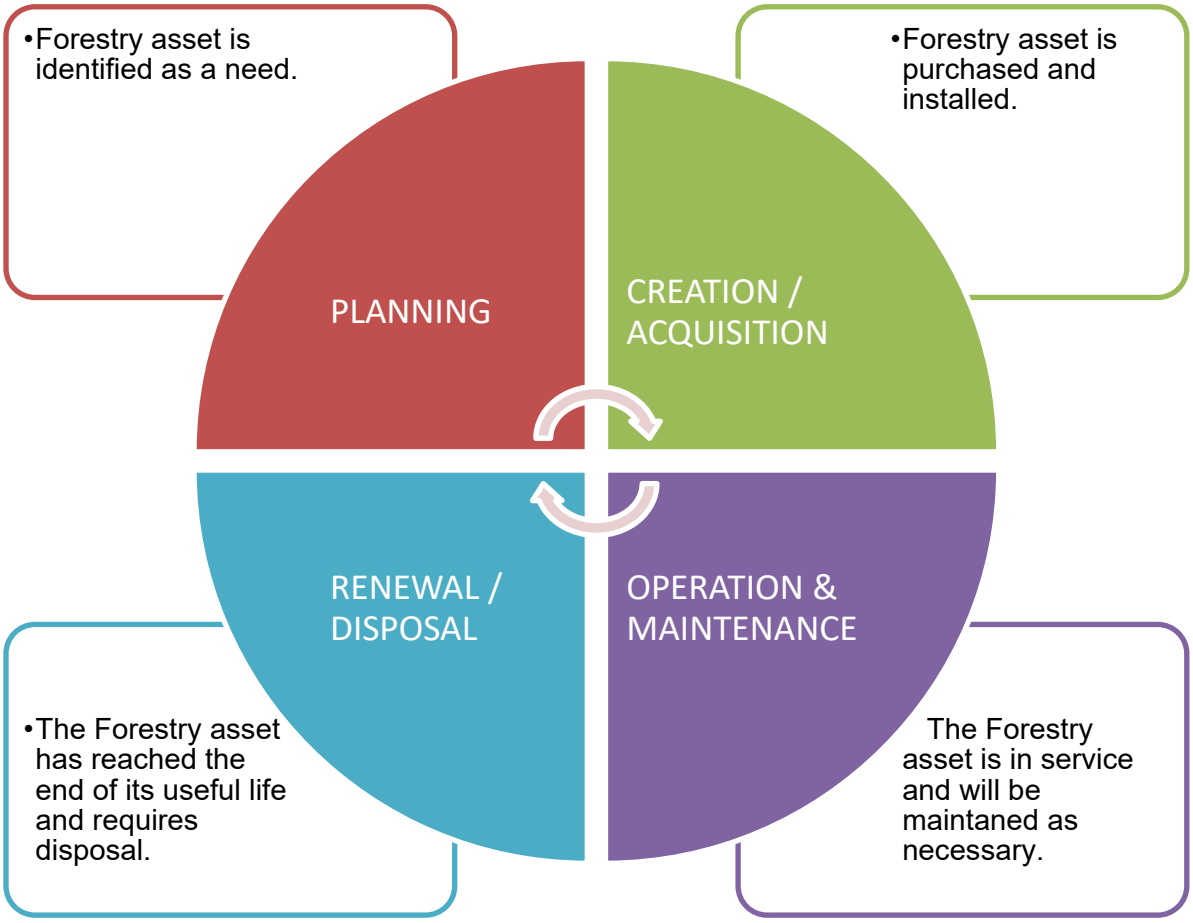

Figure 4: Lifecycle Stages of Forestry Assets

1. **Planning** –The Forestry asset has been identified as a need. The asset is purchased considering all needs, City policies and Master Plans.
2. **Creation / Acquisition / Replacement** – The cost and requirements for the new asset are defined considering all City needs and policies. The asset is purchased and installed/planted.
3. **Operation and Maintenance** – The Forestry asset has been installed/planted and is providing benefits to the community. Maintenance (Lifecycle) Activities are completed on the asset at specific time intervals as shown in **Table 6** to prevent premature failures of the asset. Additional monitoring and potential improvements are evaluated during this process.
4. **Renewal / Disposal** – The Forestry asset has reached the end of its useful life, has died prematurely or has been replaced and requires disposal. The disposal considers the effect on human health and well-being, the environment, aesthetics and recreation. Environmental impacts include loss of biodiversity, soil erosion, air quality, climate regulation and water management. Human impacts include air pollution, heat island effect, mental health and noise reduction. These impacts are taken into account in the Planning stage thereby restarting the cycle. The City follows industry standards when disposing of these assets.

1.4.2 LIFECYCLE ACTIVITIES

A list of the planned Lifecycle Activities, annual cost, and frequency for each Forestry Asset Class can be found in **Table 6** below. These activities are currently being undertaken to maintain these Forestry assets and therefore maintain the current levels of service.

Table 6: Lifecycle Activities for Forestry Assets

Asset Type	Lifecycle Activity	2024 Annual Cost*	Frequency	Completed by
Right of Way Trees	Installation	$90,000	Yearly in different locations	Forestry Operations
	Pest Monitoring & Management	$2,000	Once ever six (6) months	Contracted Service – Forestry Operations
	Safety Inspections	$4,000	As Required	Forestry Operations
	Uprooted Trees Restoration	$4,000	As Required	Forestry Operations
	Pruning	$220,000	Complaint and Condition based Yearly along Hydro Corridors	Forestry Operations
	Removal	$154,000	Complaint and Condition based	Forestry Operations
	Stump Removal	$139,000	Based on removal activity	Contracted Service - Forestry Operations
Trees on City Parcels	Pest Monitoring & Management	$15,000	As Required	Contracted Service – Forestry Operations
	Safety Inspections	$2,000	As Required	Forestry Operations
	Pruning	$10,000	As Required, Location Based	Forestry Operations
	Removal	$10,000	As Required, Location Based	Forestry Operations
Tree Support & Protection**	Inspect Tree Grates	$1,000	Complaint Based	Forestry Operations

*2024 Annual Cost is typically based on an average of the 4 year cost estimates presented in the 2024 Operating Budget.
**Tree Support & Protection assets, including tree grates, do not have an installation and removal activity under forestry as it is typically completed as part of a larger road capital project.

Lifecycle activities occur on each of our Forestry assets classes. Forestry assets are maintained by Forestry Operations staff and activities are currently tracked through a combination of the City's TreePlotter software and GIS maps.

1.4.3 RISKS OF LIFECYCLE ACTIVITIES

The identified lifecycle activities in **Table 6** above are historical activities taken on by Forestry Operations staff or hired contractors. Some risks associated with these activities include:

- **Tree Damage –** When done incorrectly, pruning can make a tree vulnerable to pathogens and diseases which may lead to the loss of the tree. This can be mitigated by completing pruning at the correct time of year, by a professional.
- **Arborist Safety –** Even with proper safety protocols in place and properly followed, tree removal and pruning can be hazardous due to equipment failures, proximity to powerlines, weather, unknown tree conditions and other factors.

However, if these activities were not completed, the risks would include:

- **Premature Canopy Loss** due to undetected pest or disease infestations that could have been mitigated with early detection;
- **Safety Hazards to People and Property** due to undetected limbs or trunks posing safety risks or safety risks which were not removed promptly**;**
- **Electrical Service Disruptions** due to overgrown trees near powerlines that could have been mitigated with preventative maintenance; and
- **Increased Cost** due to reactive actions which could have been prevented with preventative maintenance.

1.4.4 10 YEAR LIFECYCLE COSTS OF FORESTRY ASSETS

Figure 5 below outlines the 10 year lifecycle costs of Forestry assets.

Although there are a number of assets needing to be replaced over the 10 years, the cost for Operation and Maintenance of Forestry Assets outweighs the capital cost for this infrastructure.

At this time some capital replacements are occurring as an operating cost in the City's budget, a portion of these costs are shown as a capital cost below rather than an operating one. It is anticipated that there remains some additional capital replacement costs and removals within the operating budget which is difficult to identify and separate using currently available data. As data tracking in the new work management software improves, adjustments will be made to the AMP to consolidate the full replacement spending under a single budget type. In addition, current replacement valuations only account for the cost of a new, smaller, tree and ignores the cost of removal of larger trees. It is expected that once the City's inventory is complete, a more detailed methodology taking into account tree attributes, such as size and species as well as estimated removal costs, will be able to be developed.

Based on the information presented in the figure below, the total annual average capital cost for the next 10 years needed to maintain the state of good repair of these Forestry assets is $0.27M, and the average annual Operation and Maintenance cost to maintain the current state of good repair is $2.6M. Therefore, it is recommended that the City invest $2.9M in Forestry assets annually to maintain the state of good repair.

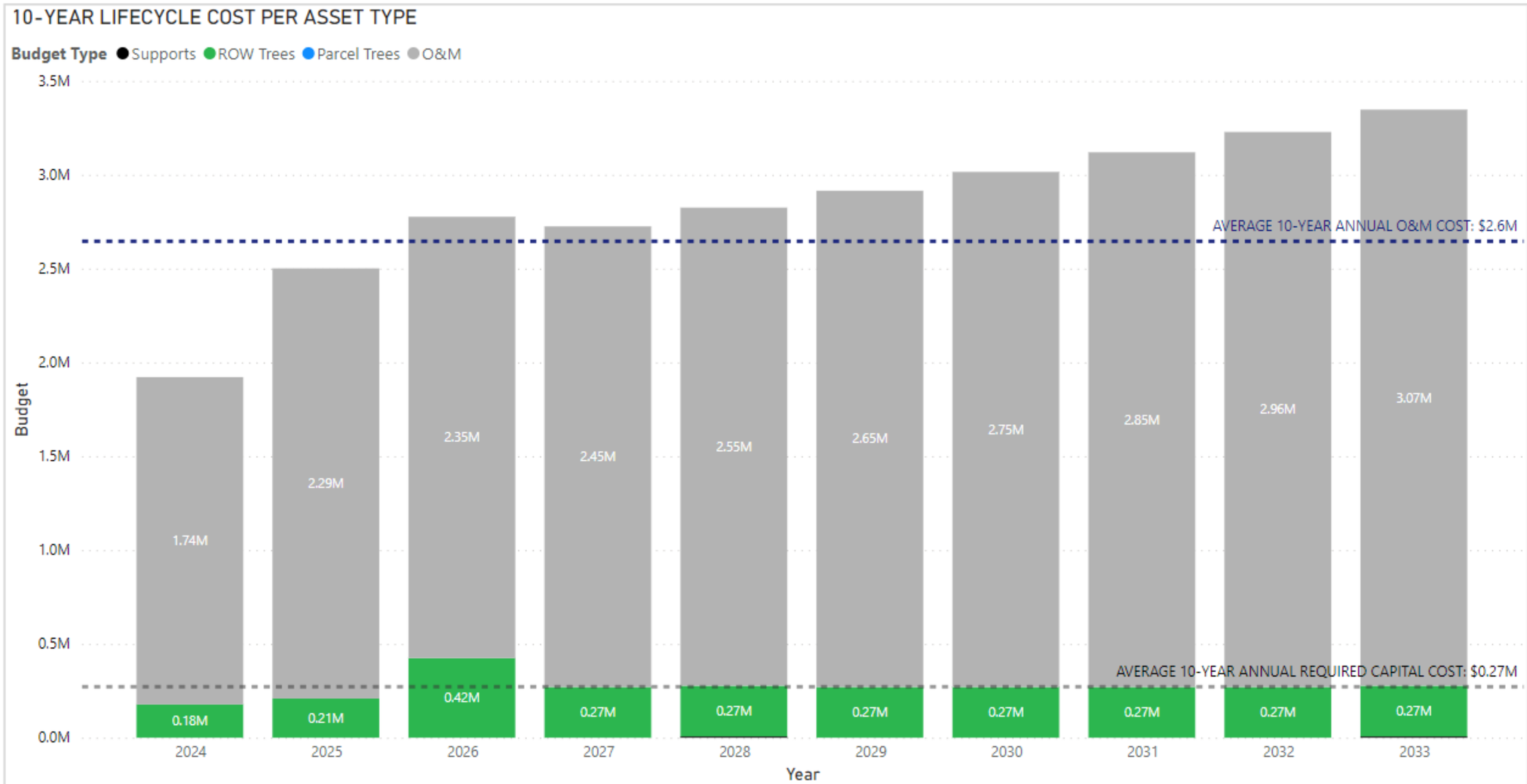

Figure 5: 10-Year Lifecycle Cost Per Forestry Asset Type

Notes:

1. Operation and Maintenance Costs are estimated based on the 2024 Operating Budget and are inflated by 3.8% each year. These Operation and Maintenance Costs are associated with all three Forestry Asset Categories.
2. The amounts required for Tree Support & Protection assets in the next 10 years are small enough that they are difficult to distinguish in the graph. An amount of $6,750 is forecasted as required in both year 2028 and year 2033.
3. For assets where no formal capital forecast was available, the replacement year is based on the estimated remaining service life of each asset or the condition assessment of each asset, as applicable.
4. Reimbursements and revenues are ignored in order to capture total cost/expenses.

Per **Figure 6** below, the existing 10-year forecast from 2024 – 2033, further explained in **Section 8.3 of the Asset Management Plan Overview Document**, indicates that the City is currently planning to spend an average of $0.24M on Forestry assets capital work annually, and as noted above, the required 10-year average amount is $0.27M for these assets, which indicates there is an annual 10-year funding gap of $0.03M for Forestry assets. The impacts resulting from these funding gaps will be monitored and reported as appropriate.

The City of Brantford is currently moving to a four (4) year budget cycle and departments will complete long term planning as opposed to annual planning for projects within this time period. The Prioritization Matrix explained in **Section 9** of the **Asset Management Plan Overview Document** has also been implemented which will help departments confirm priority projects. It is anticipated that the new process for the City's 2024 budget cycle will help departments prepare and request funding in advance of significant replacement costs for assets reaching the end of their useful life.

It is important to note that currently the City does not have access to detailed data on Capital or Operation and Maintenance costs for Forestry assets, on a single job basis but with the implementation of new work tracking software and department initiatives, it is anticipated this information will improve in future iterations of the AMP.

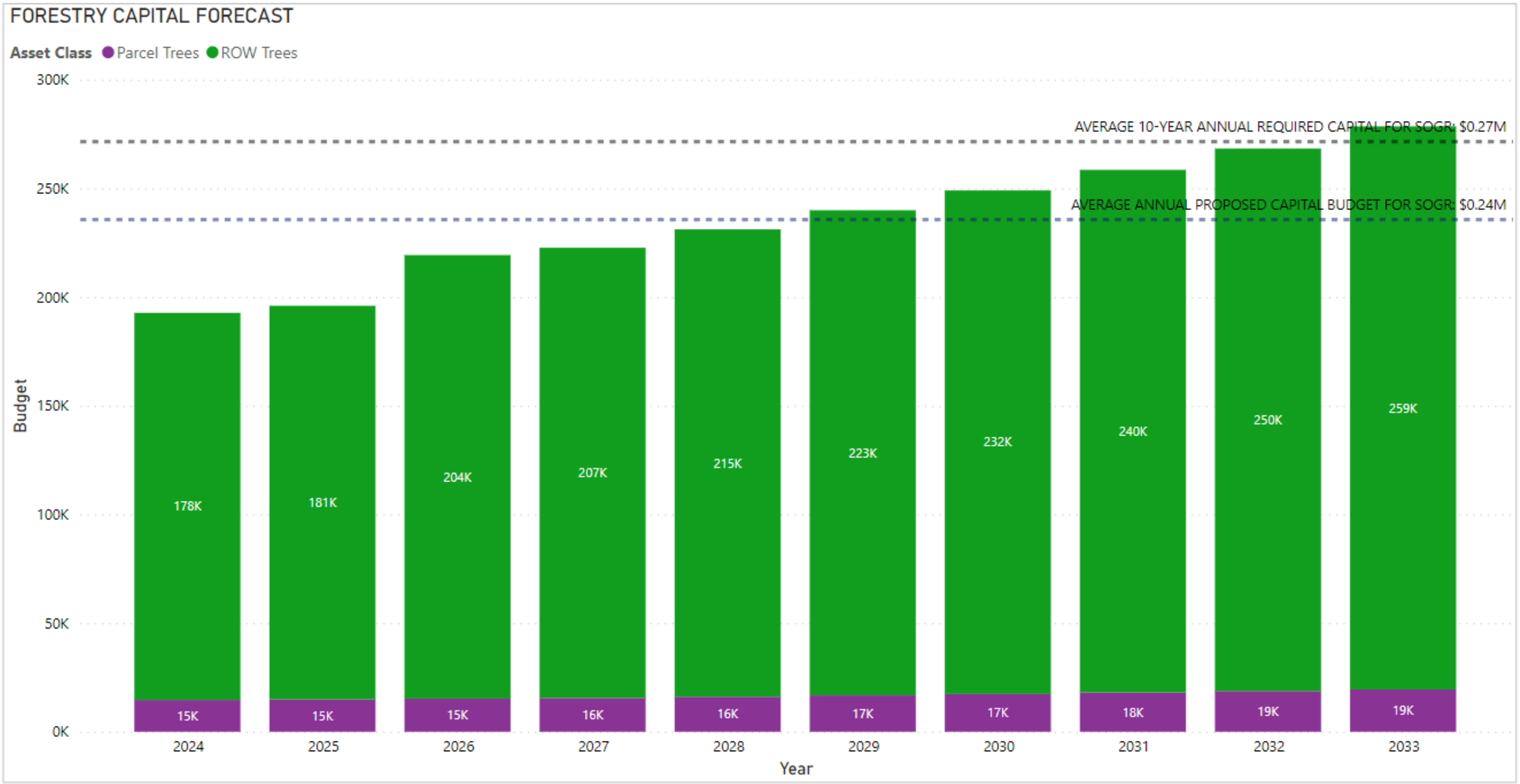

Figure 6: Existing Capital Budget Forecast from 2024 – 2033 for Forestry Assets

1.5. CURRENT LEVELS OF SERVICE

1.5.1 O. REG 588/17 CUSTOMER LEVELS OF SERVICE

O. Reg 588/17 does not currently have defined customer levels of service for this asset class that must be reported within this plan. This section will be kept for future plan iterations should O. Reg 588/17 be updated and require defined customer levels of service be reported.

1.5.2 O. REG 588/17 TECHNICAL LEVELS OF SERVICE

O. Reg 588/17 does not currently have defined technical levels of service for this asset class that must be reported within this plan. This section will be kept for future plan iterations should O. Reg 588/17 be updated and require defined technical levels of service be reported.

1.5.3 MUNICIPALLY DEFINED CUSTOMER LEVELS OF SERVICE

The customer levels of service are defined in **Section 6.2** of the **Asset Management Plan Overview**. For Forestry assets, the asset specific interpretation of these levels of service is defined below in **Table 7.**

Table 7: Municipally Defined Customer Levels of Service

Customer Level of Service	Definition
Accessibility	Forestry assets should not impede accessible access along pathways used by customers. Forestry assets should be distributed throughout the City in a way that promotes easy daily proximity to Forestry assets.
Quality	Forestry assets should deliver their intended services at a certain quality.
Cost Efficiency	Forestry assets should meet the needs of the user at an affordable cost to the City.
Safety	Forestry assets should not endanger people or property.
Environmental Sustainability	Forestry assets shall consider energy efficiency of surrounding infrastructure when being placed.
Reliability	Forestry assets should be available as needed.
Responsiveness	Requests for forestry services should be completed as quickly as safely practical. Responsiveness should account for the relative risk to the public, the surrounding property, the asset itself and to the staff completing the response. Pests and pathogens should be proactively monitored to reduce delays in mitigating their spread.

1.5.4. MUNICIPALLY DEFINED TECHNICAL LEVELS OF SERVICE

The technical levels of service for Forestry assets have been developed based on the customer levels of service defined in **Table 7**. The currently available customer levels of service with the corresponding technical levels of service and Key Performance Indicators (KPI) metrics are defined in **Table 8**. Due to a low response rate on customer surveys conducted from 2023/2024, the confidence level in the applicability of the KPIs derived from the survey data, to the wider population, is Low.

The need for additional KPIs and KPI targets has been identified and the City will look for opportunities to gather and include this information for future iterations of this AMP.

Table 8 Technical Levels of Service KPIs

Customer Level of Service	Technical LOS	2022 KPI	2024 KPI	Units
Accessibility	Not Available (N/A)	N/A	N/A	N/A
Quality*	Citizen Assessment of Value for Money	N/A	62%	% of survey responses on value for money indicating an assessment of average or higher
Cost Efficiency	Annual Cost per % Canopy Coverage	N/A	0.14M	$ per 1% canopy coverage
Safety	Not Available	N/A	N/A	N/A
Environmental Sustainability	Carbon Offsets by City Trees	3.8**	N/A	T of CO_2e
Reliability	Not Available	N/A	N/A	N/A
Responsiveness	Not Available	N/A	N/A	N/A

*Information obtained from external surveys conducted in 2023/2024, more details available in Overview Document. Note due to a low response rate the confidence level in the applicability of the information to the wider population is Low.
**2023 Climate Change Action Plan and Emissions Inventory Annual Update Council Report 2023-688.

1.6. CURRENT ASSET PERFORMANCE

The current asset performance for Forestry assets have been separated into two (2) categories for this section of the report:

- Energy Performance; and
- Operating Performance

1.6.1 FORESTRY ASSETS CURRENT ENERGY PERFORMANCE

The City of Brantford has a Corporate Energy Management Plan (CEMP) which emphasizes energy efficiency within the City. The goals of the CEMP are to reduce energy use, energy intensity, and greenhouse gas (GHG) emissions in our Facilities. In addition, through the City's Climate Change Action Plan and Climate Lens Tool explained in **Section 10** of the Asset Management Plan Overview Document, the City has been working to improve our facilities' energy efficiency and reduce the associated carbon footprint.

Currently, the City does not have a method to track Energy Performance for the Forestry asset class. Forestry assets impact the City's Energy Performance both directly (e.g. energy spent in their maintenance) and indirectly (e.g. creation of shade resulting in reduced summer cooling costs). This section will be kept for future iterations as ways to track Energy Performance for this asset class are explored and developed.

1.6.2 FORESTRY ASSETS CURRENT OPERATING PERFORMANCE

Currently, the City does not have a method to track Operating Performance for the Forestry asset class. It is expected that the eventual tracking may involve the survival rate of saplings and the precentage of mature trees in the urban canopy. This section will be kept for future iterations as ways to track Operating Performance for this asset class are explored and developed.

1.7. DISCUSSION AND CONCLUSIONS

In conclusion, the City of Brantford operates and maintains many Forestry assets. These assets are in Good condition with a total estimated replacement cost of approximately $35.9M.

The asset inventory and condition data confidence for Forestry is typically at a Low to Medium level which is improving as a third-party condition assessment for ROW trees is currently underway. Trees on City Parcels are generally considered self-sustaining and their condition has been assumed. These trees are generally not replaced by the City once their lifecycle has ended, however in some areas they will be replaced by natural processes.

The lifecycle stages for Forestry assets includes: Planning, Creation, Operation and Maintenance, and Disposal. During the Planning stage, the City identifies the need for the asset; during the Creation stage, the asset is purchased and installed/planted or deployed; during the Operation and Maintenance stage, the asset is operating and lifecycle activities (i.e. maintenance) occur on each of our assets to maintain the state of good repair; and the Disposal stage is when the asset has reached the end of its useful life, has died prematurely or is underperforming and requires disposal.

Lifecycle activities are currently typically tracked through a combination of Esri GIS Maps and TreePlotter. TreePlotter is a relatively new software for the City, and the data from it is expected to improve over time. For more information on key database applications and work order management, please refer to **Section 4.2** in the **AMP Overview** document. As staff continue to track data and review opportunities to improve tracking, the frequency and costs associated with specific activities will be better represented.

It is estimated based on the average annual cost in the 10 Year Life Cycle Costing that the City should be spending an average $0.27M annually for capital forestry asset costs and will be spending an average of $2.6M on Operating and Maintenance on these assets. The City is currently proposing to spend an average of $0.24M annually on capital for Forestry assets' state of good repair.

While some Current Levels of Service have been identified, additional metrics have been identified as a need for Forestry assets. Currently, these levels of service will be either tracked based on reported information within TreePlotter, the GIS map of forestry requests or periodic customer surveys. Brantford is working to continue to develop the process to track these metrics which will assist in tracking these and any further identified KPIs for future iterations.

Asset performance is separated into operating and energy performance in the City's AMPs. The City is unable to assess asset performance for energy or operations in this iteration of the AMP. The City is currently reviewing best practices and will be looking to provide updated information in future iterations of this plan.

2. HORTICULTURE ASSETS

2.1. INTRODUCTION

The City of Brantford owns and maintains assets under the Horticulture asset class. The purpose of this section is to present specific information about the Horticulture Asset class so that we can answer the questions posed in **Section 2** of the **Asset Management Plan (AMP) Overview Document**, and includes the following:

- Horticulture Assets' Data Inventory and Condition Approach;
- Summary of Horticulture;
- Lifecycle Activities and Cost of Horticulture Assets;
- Current Horticulture Assets' Levels of Service;
- Horticulture Asset Performance; and
- Conclusion.

2.2. HORTICULTURE ASSETS' DATA INVENTORY AND CONDITION APPROACH

The City of Brantford has different approaches to establishing the condition for each Horticulture asset due to available resources, technologies, and budget restrictions.

There are currently two approaches used by the City to assess the condition of our Horticulture assets:

- Periodic inspection programs conducted by City staff; and
- Estimated condition based on asset specific information.

A list of all condition assessments for all assets can be found in **Table 7** in the **Asset Management Plan Overview Document**.

The origin of the Horticulture asset data for inventory, replacement cost, condition as well as data confidence are provided in **Table 9** below.

Table 9: Horticulture Assets' Data Origin and Confidence Levels

	Inventory			Replacement Cost			Condition		
Asset Type	**Inventory (incl. Quantity and Age) From**	**Data Confidence Level**	**Data Confidence Description**	**Replacement Cost From**	**Data Confidence Level**	**Data Confidence Description**	**Condition From**	**Data Confidence Level**	**Data Confidence Description**
Gardens	Staff Knowledge	Medium	Informal inventory prepared by staff with incomplete data	Staff Knowledge	Medium	Assumptions made by staff if data unavailable.	Staff Knowledge	Medium	Informal condition assessment by staff.
Sheds & Greenhouses	Staff Knowledge and GIS	High	Locations have been confirmed by Staff in field	.Staff Knowledge .Industry Standard Area Costing .Insurance Valuations .TCA Registry	Medium	Most recent valuation given more weight but valuations vary depending on source	Staff Knowledge	Low	Condition not formally tracked at this time. Formal building condition assessment to be completed for greenhouses.
Irrigation	Staff Knowledge and Tangible Capital Asset (TCA) Registry	Medium	Asset is buried and some sites require further investigation to confirm presence	TCA Registry	Low	Original construction cost adjusted to 2024 dollars	Staff Knowledge	Low	Condition not formally tracked at this time

Per **Table 9** above, Horticulture assets' inventory data is at a Medium or High confidence level, replacement cost is at a Medium or Low level and condition data is typically at a Low confidence level. In particular this area lacks formal condition assessment information.

Improvements to the inventories and assessment programs will be ongoing as a result of department priorities to close these data gaps. Building Condition Assessments of all City facilities are currently planned to be completed over a 10-year cycle.

2.2.1. SERVICE LIFE

Condition assessments are not typically completed on Horticulture assets. Therefore, the condition has been estimated based on the estimated service life of the asset presented in **Table 10** below. Many factors may affect service life including, but not limited to, maintenance schedules, building materials, soil conditions, weather conditions, pest infestations or changing service requirements at the City of Brantford.

The average overall estimated service life for assets can be found in **Table 12**.

Table 10: Horticulture Assets' Estimated Service Life

Asset	Estimated Service Life
Gardens	Gardens are maintained by City staff and/or members of the community on a regular basis. As living assets they are subject to disease, infestation and damage. Provided that these assets are maintained and healthy, they have a life expectancy of one (1) to 25 years before replacement. With annual garden beds having the shortest life expectancy and shrub garden beds having the longest.
Sheds & Greenhouses	Provided that sheds and greenhouses are maintained they are expected to remain structurally sound and functional under normal conditions for 30 years before replacement or significant rehabilitation. Environmental conditions and operating practices may result in a shorter or longer useful lifetime.
Irrigation	Irrigation assets mostly consist of underground piping connecting to sprinkler heads. Provided that these assets are correctly installed and maintained, they have a life expectancy of 10 years.

2.2.2. CONDITION SCORING

For the purpose of this report and standardizing condition scores across all assets in the Asset Management Plan, the Condition Rating is defined by three (3) Condition Scores as defined in **Table 11** below. For assets with formal consultant condition assessments, the conditions have been modified to fit into this model.

Table 11: Condition Score Description

Condition Score	Condition Rating	Description
1 – 1.4	Good	Assets are in working order/healthy, have no or minor deficiencies/no signs of disease or infestation. Where condition data is not available, this category applies to assets which are within the first 40% of their estimated service life.
1.5 – 2.4	Fair	Assets show general signs of deterioration/age, some elements may have significant deficiencies/signs of disease or infestation, and asset will likely require repairs/removal in the next 10 years. Where condition data is not available, this category applies to assets which are within 41% - 80% of their estimated service life.
2.5 - 3	Poor	Asset is below standard showing signs of significant deterioration, is in danger of imminent failure, and will require repair, replacement or removal within the next year. Where condition data is not available, this category applies to assets which have exceeded 80% of their estimated service life.

2.3. SUMMARY OF HORTICULTURE ASSETS

The summary of assets for the Horticulture Asset Class can be found below. The summary of assets includes: Quantity, Replacement Cost, Weighted Average Age, and Weighted Average Condition Score for each asset type in accordance with O.Reg 588/17. The weighted average is derived based on the overall replacement value of the assets being assessed.

2.3.1. TOTAL SUMMARY OF ASSETS

A table summarizing all Horticulture assets is included in **Table 12** below. Detailed information about each asset is included in individual sections. The total replacement cost for Horticulture assets is approximately $6.7M with a weighted average age of 30 years which exceeds the weighted average estimated service life for the asset class. Overall, Horticulture assets are in Good condition with a weighted average condition score of 1.2. Calculations of averages have been weighted by the overall replacement value of assets. This means that assets of higher estimated replacement value will have a stronger influence on the average then if the average was calculated based on the number of assets.

The information provided in this section is based predominantly on staff knowledge and understanding of the assets. A formal condition assessment is recommended for the greenhouses and the irrigation systems, as an age based condition indicates that the asset should be replaced, while the staff assessment is that the assets are in generally good condition. The formal assessment would provide an estimate for when replacement budgeting will need to begin.

Table 12: Total Summary of Horticulture Assets

Asset	Quantity	Unit	Replacement Cost	Weighted Average Age (Years)	Weighted Average Estimated Service Life	Percentage of Estimated Service Life	Weighted Average Condition Score	Weighted Average Condition Description
Horticulture Total			**$6.7M**	**30**	**22**	**100%**	**1.2**	**GOOD**
Gardens	22,124	m^2	$2.2M	12	14	79%	1.7	FAIR
Sheds & Greenhouses	15	Ea	$3.5M	50	30	0%	1.0	GOOD
Irrigation	24	Ea	$1.0M	22	10	0%	1.0	GOOD

2.3.2. GARDENS

Gardens at the City of Brantford encompass both Community Gardens and gardens maintained exclusively by City staff. Gardens maintained by City staff are sorted into one of five categories based on plants within the garden beds. The five categories are: perennial, perennial/shrub, shrub, annual and planters. The annual and planters are in good condition, with the remaining three categories, and the community gardens being in fair condition.

Per **Figure 7** below, Gardens can be broken down into six sub asset groups, consisting of the community gardens and the five categories based on plant type, which have a total replacement cost of $2.2M. The average garden age is 11 years and is 79% of the estimated service life of 14 years. The condition data below is based on available information provided by Horticulture staff and a weighted average condition score of 1.7 or Fair was calculated. The distribution of overall weighted condition data for each asset is in **Figure 7**. The values are weighted based on estimated replacement value.

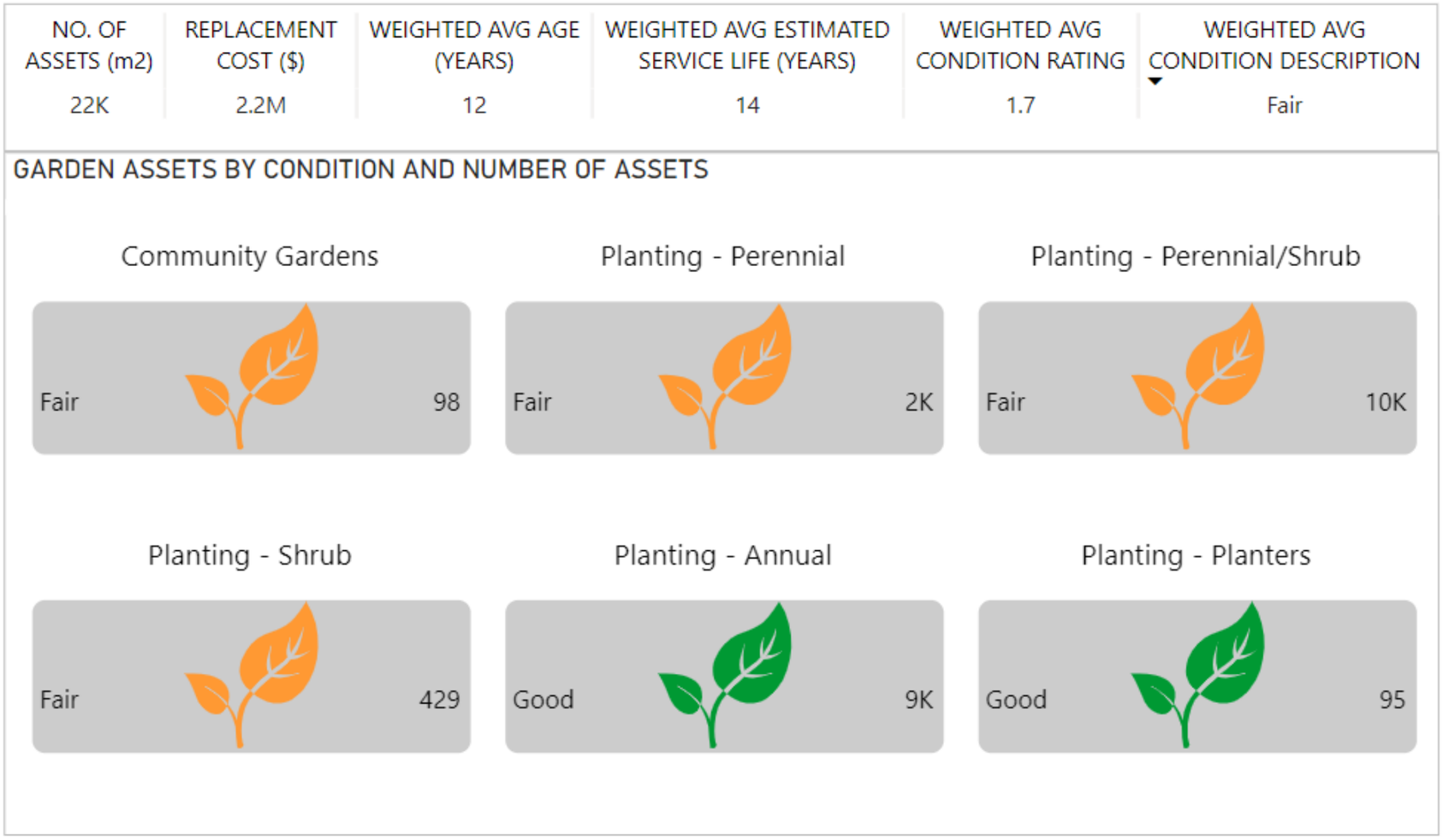

Figure 7: Garden Asset Summary

2.3.3. SHEDS & GREENHOUSES

Sheds and greenhouses at the City consist of 15 structures in total, predominantly located at the Parks & Recreation yard. The greenhouse asset consists of the main greenhouse buildings and two support buildings: the potting shed and the boiler shed. These two sheds are grouped with the greenhouse due to their specialty support function which will result in a higher replacement value than a typical shed. All of the greenhouse assets and none of the sheds have surpassed their estimated service life. Based on staff assessment they have been assigned a condition of Good, however a formal condition assessment is recommended to be completed in the future in order to confirm the overall condition of these assets.

Per **Figure 8** below, sheds and greenhouses have a total replacement cost of $3.7M. The weighted average building age is 50 years and is higher than the estimated service life of 30 years. The distribution of overall weighted condition data for each asset is shown in **Figure 8**. The values are weighted based on estimated replacement value.

NO. OF ASSETS	REPLACEMENT COST ($)	WEIGHTED AVG AGE (YEARS)	WEIGHTED AVG ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION RATING	WEIGHTED AVG CONDITION DESCRIPTION
15	3.7M	50	30	1.0	Good

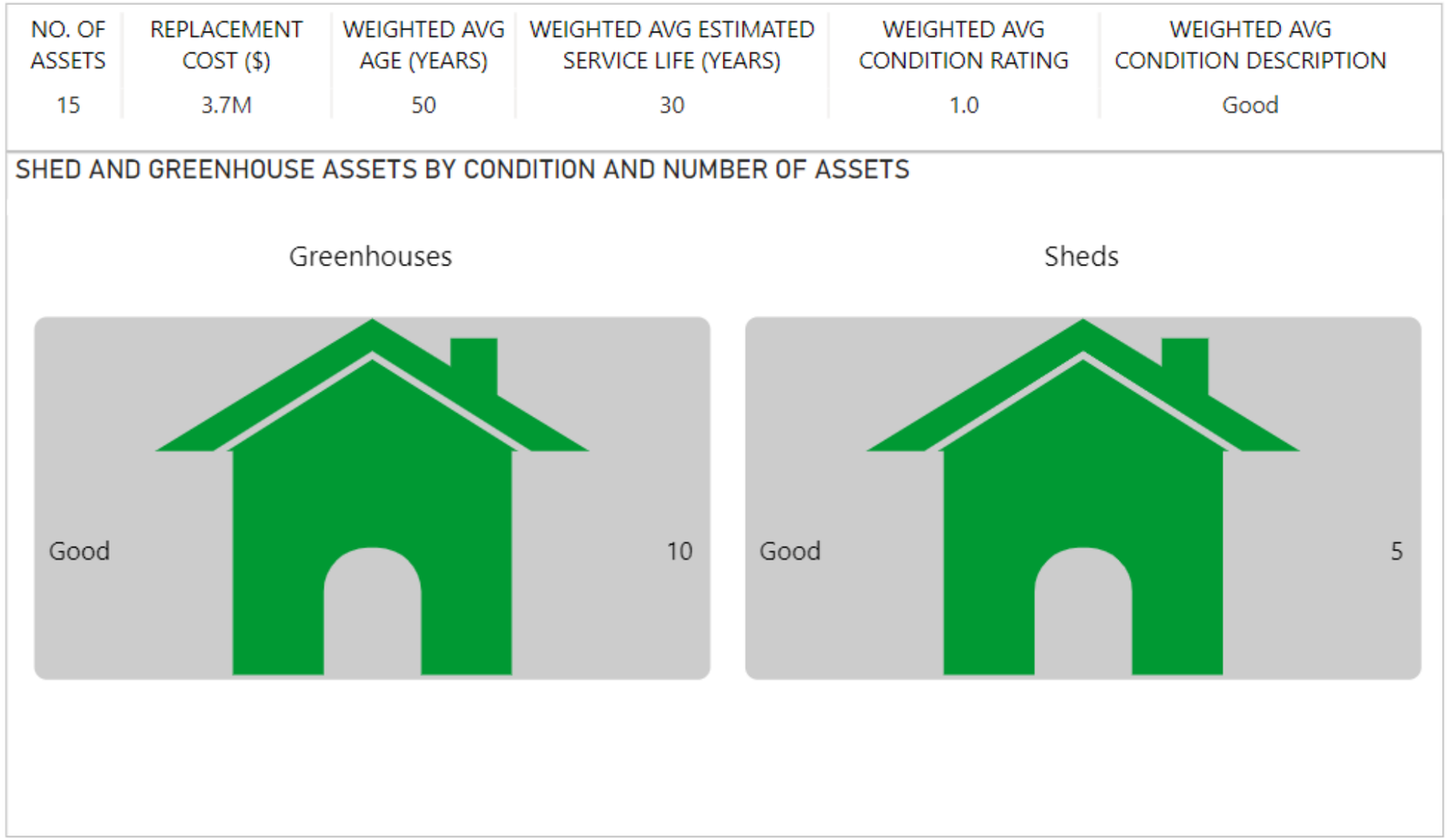

Figure 8: Sheds & Greenhouses Asset Summary

2.3.4. IRRIGATION

Irrigation systems exist throughout City parks which contain horticulture beds. They typically consist of buried, underground piping and sprinkler heads at set intervals with a control system.

Per **Figure 9** below, irrigation systems are not broken down into sub asset groups and have a total replacement cost of $1.0M. The weighted average irrigation is 22 years and is higher than the estimated service life of 10 years. The condition data below is based on available information provided by Horticulture staff and a weighted average condition score of 1.0 or Good was calculated. The values are weighted based on estimated replacement value.

NO. OF ASSETS	REPLACEMENT COST ($)	WEIGHTED AVG AGE (YEARS)	WEIGHTED AVG ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION RATING	WEIGHTED AVG CONDITION DESCRIPTION
24	1.0M	22	10	1.0	GOOD

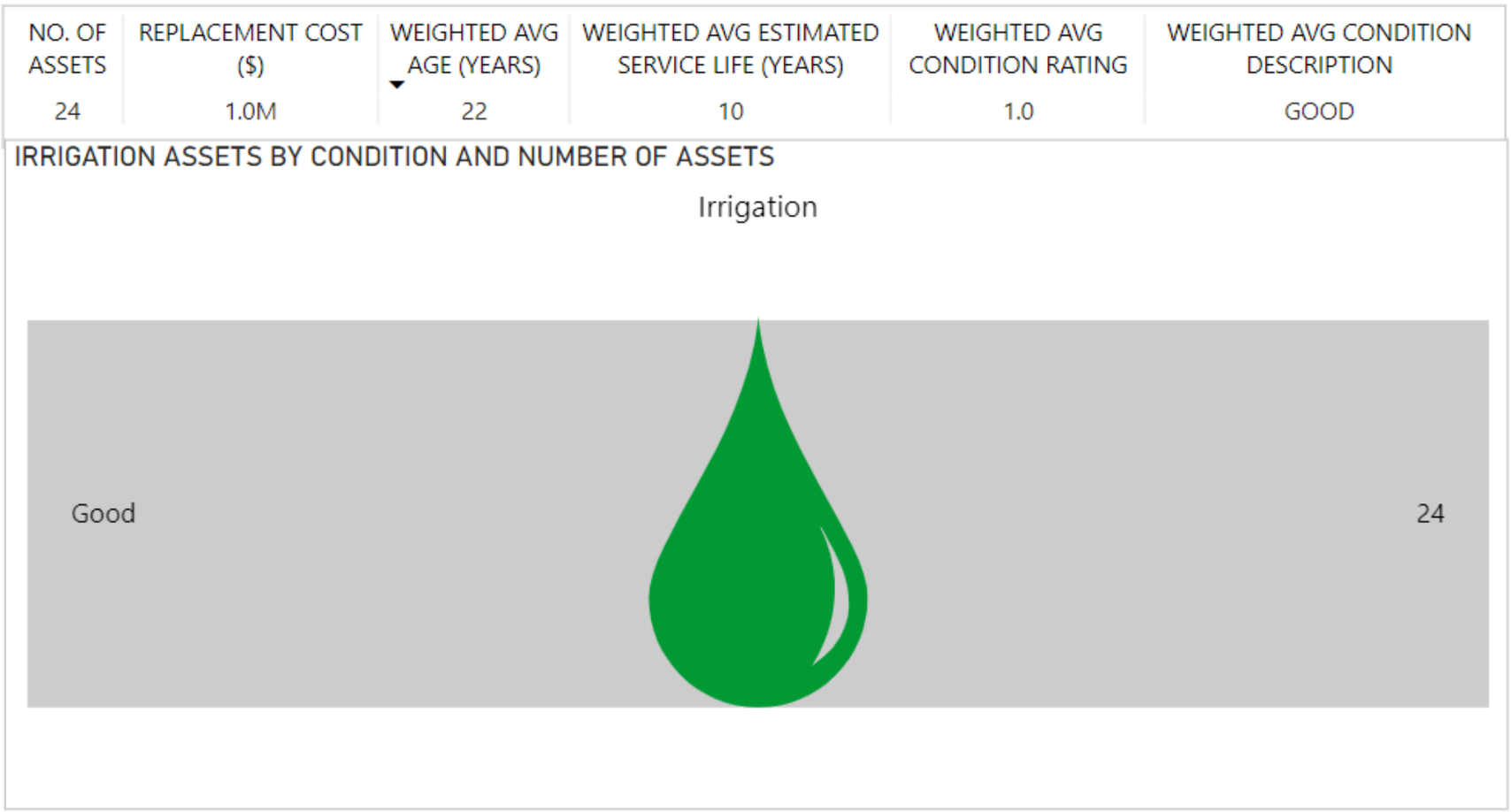

Figure 9: Irrigation Asset Summary

2.4. LIFECYCLE OF HORTICULTURE ASSETS

The lifecycle of Horticulture assets consists of four (4) categories which are described in this section:

- Key Lifecycle Stages of Horticulture Assets;
- Lifecycle Activities;
- Risks of Lifecycle Activities; and
- 10 Year Lifecycle Costs of Horticulture Assets.

2.4.1. KEY LIFECYCLE STAGES OF HORTICULTURE ASSETS

The lifecycle of an asset refers to the following stages: Planning, Creation/Acquisition, Operations and Maintenance, and Renewal/Disposal which are defined in the Main Body of the report. For Horticulture assets specifically our general process is as follows:

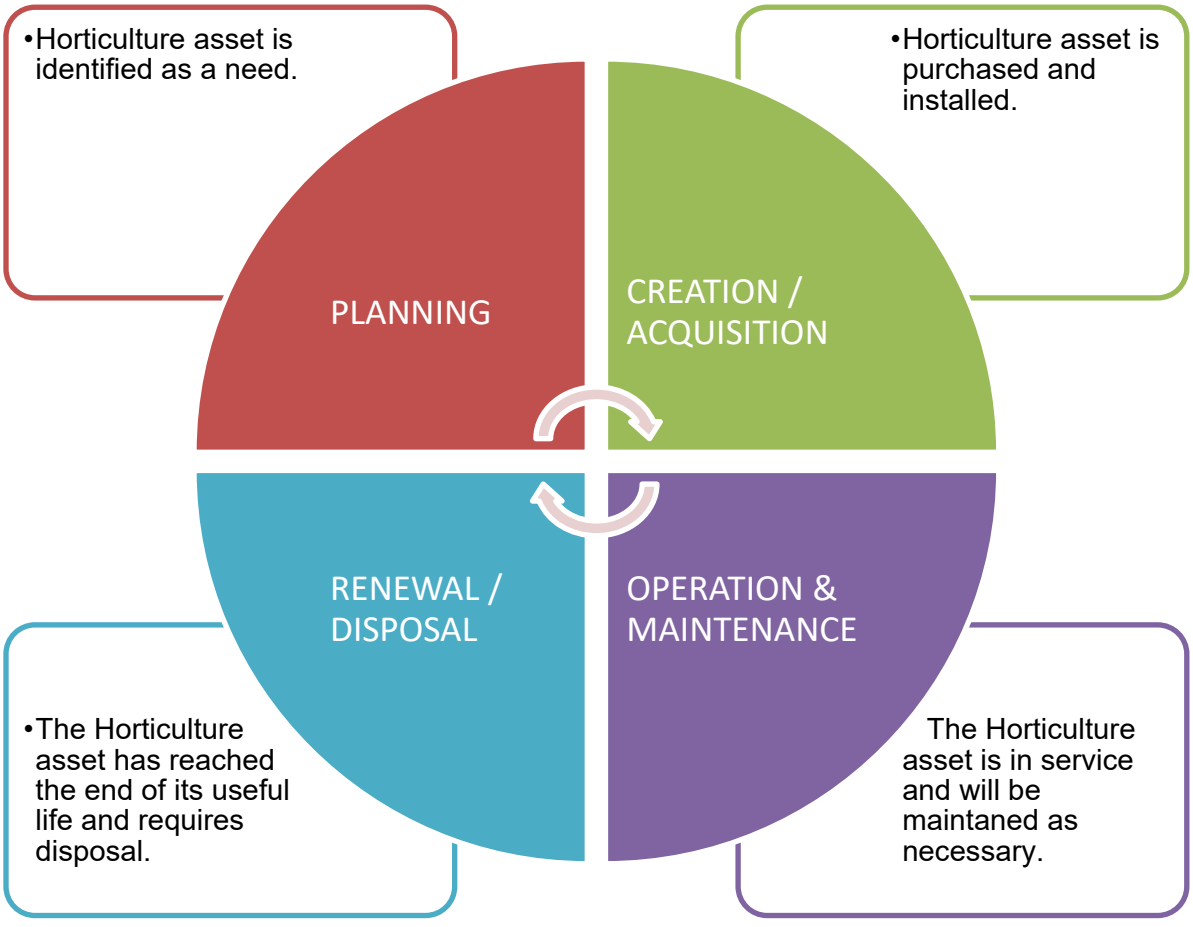

Figure 10: Lifecycle Stages of Forestry Assets

1. **Planning** –The Horticulture asset has been identified as a need. The asset is purchased considering all needs, City policies and Master Plans.
2. **Creation / Acquisition / Replacement** – The cost and requirements for the new asset are defined considering all City needs and policies. The asset is purchased and installed/planted. Depending on the plant, horticulture assets may undergo a growing stage within City greenhouses which results in this stage being extended until the plant is of a certain size or maturity prior to deployment.
3. **Operation and Maintenance** – The Horticulture asset has been installed/planted and is providing benefits to the community. Maintenance (Lifecycle) Activities are completed on the asset at specific time intervals as shown in **Table 13** to prevent premature failures of the asset. Additional monitoring and potential improvements are evaluated during this process.
4. **Renewal / Disposal** – The Horticulture asset has reached the end of its useful life, has died prematurely or has been replaced and requires disposal. The disposal considers the effect on customers such as required detouring or service disruptions which are taken into account in the Planning stage thereby restarting the cycle. The City follows industry standards when disposing of these assets.

2.4.2. LIFECYCLE ACTIVITIES

A list of the planned Lifecycle Activities, annual cost, and frequency for each Horticulture Asset Class can be found in **Table 13** below. These activities are currently being undertaken to maintain our Horticulture assets and therefore maintain the current levels of service.

Table 13: Lifecycle Activities for Horticulture Assets

Asset Type	Lifecycle Activity	2024 Annual Cost*	Frequency	Completed by
Gardens	Mulch	$30,000	As needed	Horticulture
	Pest Monitoring & Management	$15,000	As needed	Horticulture or Contractor
	Plant Propagation, Maintenance & Installation	$400,000	Annual	Horticulture
	Planting Bed Maintenance	$200,000	6 months or As needed	Horticulture
	Pruning	$150,000	6 months	Horticulture
	Watering	$150,000	2 weeks	Horticulture
Sheds & Greenhouses	Winterize & Season Start	$5,000	Fall & Spring	Horticulture
	Boiler Inspection & Repair	$7,500	To be determined	To be determined
	Repair	$47,800	As needed	Horticulture or Contractor
Irrigation	Repair	$10,000	As needed	Horticulture
	Winterize & Season Start	$25,000	Fall & Spring	Horticulture

*2024 Annual Cost is typically based on estimates presented in the 2024 Operating Budget. For items noted as “As needed” the annual cost indicated will be re-allocated if not required in any particular year.

Lifecycle activities occur on horticulture assets to ensure that plants survive and that the non-living assets operate as efficiently as possible. Activities related to horticulture are not formally tracked. Public Works is currently in the process of deploying a work management system.

When these activities are integrated into a tracking system the frequency and cost associated with these activities will be better represented. At this time, the costs associated with the Operating and Maintenance activities on these assets are estimated based on 2024 Operating Budget and are not formally recorded, but future updates of the AMP should include actual costs, frequency, and time associated with these activities.

2.4.3. RISKS OF LIFECYCLE ACTIVITIES

The identified lifecycle activities in **Table 13** above are historical activities taken on by Horticulture. However, some risks with these activities include:

- **Shrub Damage –** When done incorrectly, pruning can make a shrub vulnerable to pathogens and diseases which may lead to the loss of the shrub. This can be mitigated by completing pruning at the correct time of year, by a professional.
- **Staff Safety –** Even with proper safety protocols in place and properly followed, garden bed maintenance can be hazardous due to proximity to roadways, weather, and other factors.

However, if these activities were not completed, the risks would include:

- **Premature Plant Cover Loss** due to undetected pest or disease infestations that could have been mitigated with early detection or due to insufficient watering during hot and dry conditions; and
- **Increased Cost** due to reactive actions which could have been prevented with preventative maintenance.

2.4.4. 10 YEAR LIFECYCLE COSTS OF HORTICULTURE ASSETS

Figure 11 below outlines the 10 year lifecycle costs of Horticulture assets. Typically when the condition of an asset is estimated based on service life there are spikes in the first year to account for the backlog of assets that have exceeded their service lives. However, the majority of these assets are performing as the City of Brantford requires and, with regular updates and maintenance, are not necessarily planned for replacement. As the condition assessments for Horticulture assets are currently informal, it is anticipated that the 10 year lifecycle cost projection will change if formal assessments are completed. While it is not anticipated that the condition will change drastically from the informal assessments completed by staff; it is anticipated that the formal assessments will result in more informed projections for when the assets may need to be replaced.

Based on the information presented in the figure below, the total annual average capital cost for the next 10 years to maintain the state of good repair spent on these Horticulture assets is $0.4M, and the average annual Operation and Maintenance cost to maintain the state of good repair is $1.5M. Therefore, it is recommended that the City invest $1.9M in Horticulture assets annually to maintain the state of good repair.

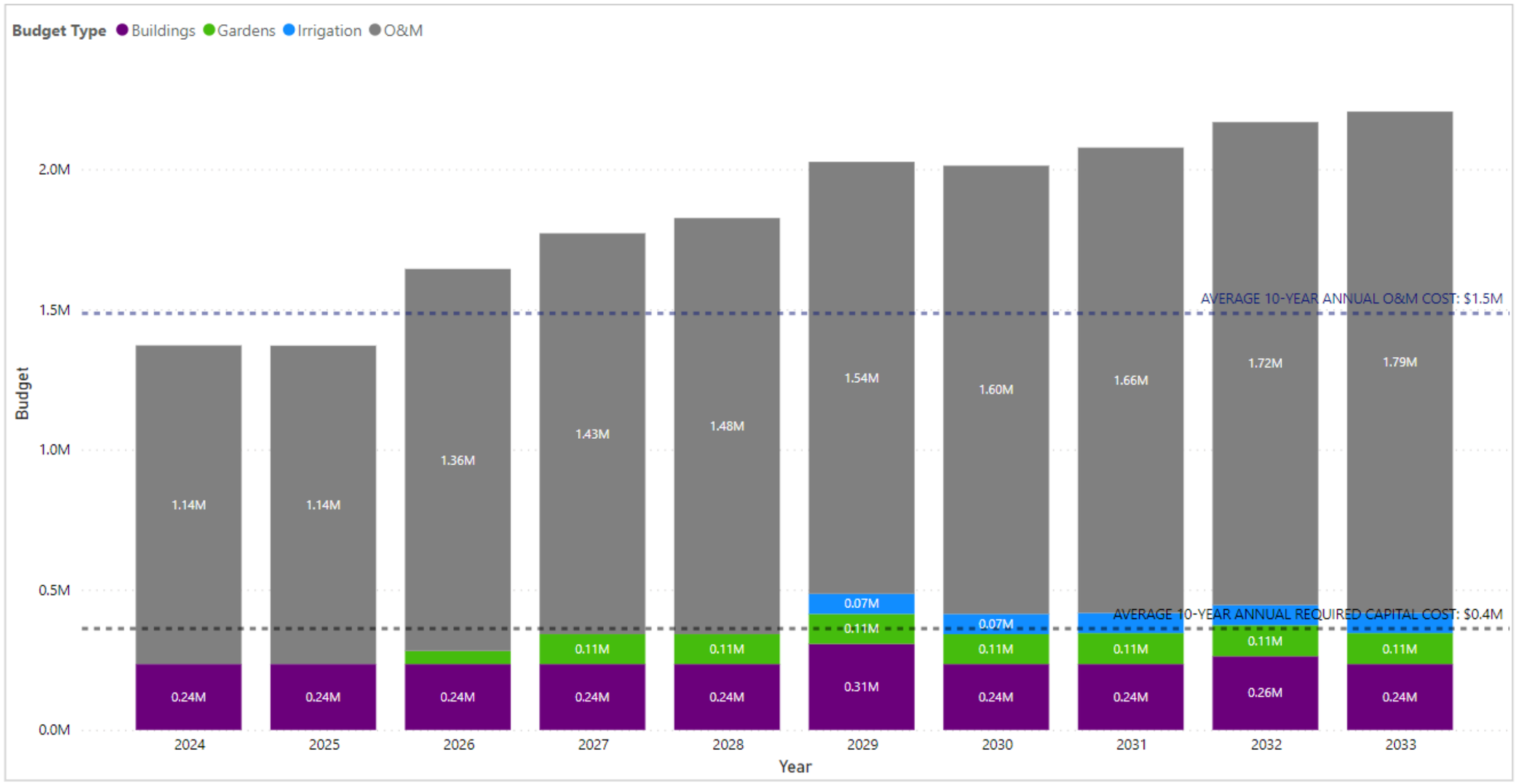

Figure 11: 10-Year Lifecycle Cost Per Horticulture Asset Type

Notes:

1. Operation and Maintenance (O&M) Costs are estimated based on the 2024 Operating Budget and are inflated by 3.8% each year.
2. For all other assets where no formal forecast was available, the replacement year is based on the current informal condition assessment or the estimated remaining service life of each asset.
3. Reimbursements and revenues are ignored in order to capture total cost/expenses.

Per **Figure 12**, the existing 10-year forecast from 2024 – 2033, further explained in **Section 8.3 of the Asset Management Plan Overview Document**, indicates that the City is currently planning to spend an average of $0.03M on Horticulture assets capital work annually, and as noted above, the required 10-year average amount is $0.4M for these assets, which indicates there is an annual 10-year funding gap of $0.37M for Horticulture assets. The impacts resulting from these funding gaps will be monitored and reported as appropriate.

The City of Brantford is currently moving to a four (4) year budget cycle and departments will complete long term planning as opposed to annual planning for projects within this time period. The Prioritization Matrix explained in **Section 9** of the **Asset Management Plan Overview Document** has also been implemented which will help departments confirm priority projects. It is anticipated that the new process for the City's 2024 budget cycle will help departments prepare and request funding in advance of significant replacement costs for assets reaching the end of their useful life.

It is important to note that currently the City does not have access to detailed data on Capital or Operation and Maintenance costs for Horticulture assets, on a single job basis but with the implementation of new work tracking software and department initiatives, it is anticipated this information will improve in future iterations of the AMP.

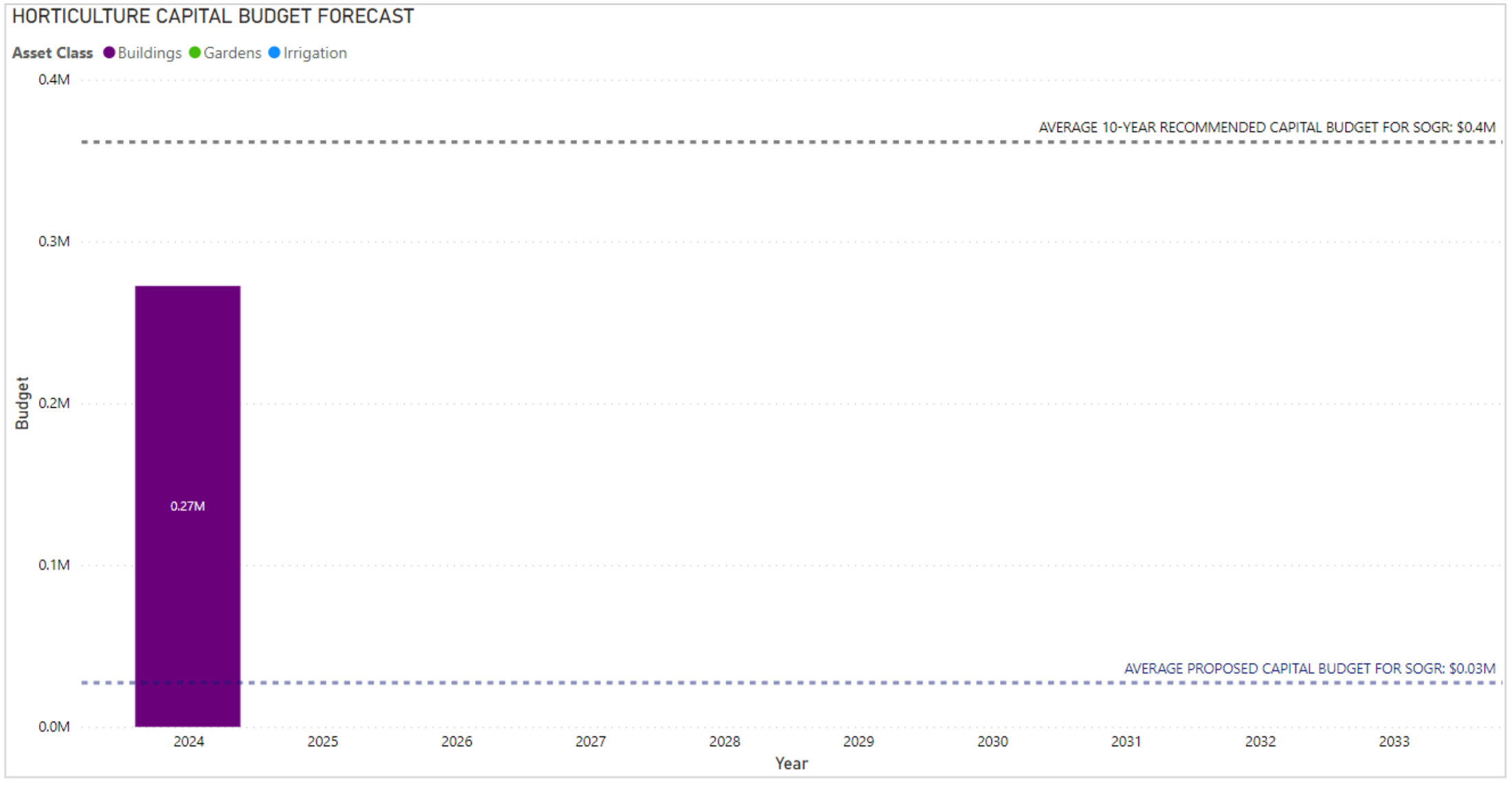

Figure 12: Existing Capital Budget Forecast from 2024– 2033 for Horticulture Assets

2.5. CURRENT LEVELS OF SERVICE

2.5.1. O.REG 588/17 CUSTOMER LEVELS OF SERVICE

O. Reg 588/17 does not currently have defined customer levels of service for this asset class that must be reported in this plan. This section will be kept for future iterations in case O. Reg 588/17 requires defined customer levels of service be reported.

2.5.2. O.REG 588/17 TECHNICAL LEVELS OF SERVICE

O. Reg 588/17 does not currently have defined technical levels of service for this asset class that must be reported in this plan. This section will be kept for future iterations in case O. Reg 588/17 requires defined technical levels of service be reported.

2.5.3. MUNICIPALLY DEFINED CUSTOMER LEVELS OF SERVICE

The customer levels of service are defined in **Section 6.2** of the **Asset Management Plan Overview**. For Horticulture assets, the asset specific interpretation of these levels of service is defined below in **Table 14**.

Table 14: Municipally Defined Customer Levels of Service

Customer Level of Service	Definition
Accessibility	Horticulture assets should not impede accessible access along pathways used by customers. Horticulture assets should be distributed throughout the City in a way that promotes easy daily proximity to Horticulture assets.
Quality	Horticulture assets should deliver their intended services at a certain quality.
Cost Efficiency	Horticulture assets should meet the needs of the user at an affordable cost to the City.
Safety	Horticulture assets should not endanger people or property.
Environmental Sustainability	Horticulture assets shall consider environmental sustainability when being placed including options for water conservation.
Reliability	Horticulture assets should be available as needed.
Responsiveness	Horticulture services should be promptly delivered when requests are made. Responsiveness should account for the relative risk to the public, the surrounding property, the asset itself and to the staff completing the response. Pests and pathogens should be proactively monitored to reduce delays in mitigating their spread.

Currently Horticulture does not participate in any additional benchmarking activities.

1.5.4. MUNICIPALLY DEFINED TECHNICAL LEVELS OF SERVICE

The technical levels of service for Horticulture assets have been developed based on the customer levels of service defined in **Table 14**. The currently available customer levels of service with the corresponding technical levels of service and Key Performance Indicators (KPI) metrics are defined in **Table 15**. Due to a low response rate on customer surveys conducted from 2023/2024, the confidence level in the applicability of the KPIs derived from the survey data, to the wider population, is Low.

The need for additional KPIs and KPI targets has been identified and the City will look for opportunities to gather and include this information for future iterations of this AMP.

Table 15 Levels of Service KPIs

Customer Level of Service	Technical LOS	2024 KPI	Units
Accessibility	Not Available	N/A	Not Available (N/A)
Quality*	Citizen Assessment of Value for Money	57%	% of survey responses on value for money indicating an assessment of average or higher
Cost Efficiency	Annual Cost per sq. m of Garden	51.37	$ per sq. m of garden
Safety	Not Available	N/A	N/A
Environmental Sustainability	Not Available	N/A	N/A
Reliability	Not Available	N/A	N/A
Responsiveness	Not Available	N/A	N/A

*Information obtained from external surveys conducted in 2023/2024, more details available in Overview Document. Note due to a low response rate the confidence level in the applicability of the information to the wider population is Low.

2.6. CURRENT ASSET PERFORMANCE

The current asset performance for Horticulture assets have been separated into two (2) categories for this section of the report:

- Energy Performance; and
- Operating Performance

3.6.3 HORTICULTURE ASSETS CURRENT ENERGY PERFORMANCE

The City of Brantford has a Corporate Energy Management Plan (CEMP) which emphasizes energy efficiency within the City. The goals of the CEMP are to reduce energy use, energy intensity, and greenhouse gas (GHG) emissions in our Facilities. In addition, through the City's Climate Change Action Plan and Climate Lens Tool explained in **Section 10** of the **Asset Management Plan Overview Document**, the City has been working to improve our facilities' energy efficiency and reduce the associated carbon footprint.

Currently, the City does not have a method to track Energy Performance for the Horticulture asset class. Horticulture assets impact the City's Energy Performance both directly (e.g. energy spent in their operations and maintenance) and indirectly (e.g. absorption of rain water reducing the need for energy spent in stormwater management; cooling effects on surrounding urban area). This section will be kept for future iterations as ways to track Energy Performance for this asset class are explored and developed.

3.6.4 HORTICULTURE ASSETS CURRENT OPERATING PERFORMANCE

Currently, the City does not have a method to track Operating Performance for the Horticulture asset class. It is expected that the eventual tracking may involve the survival rate of perennial beds and the volume of water consumed for watering each year. This section will be kept for future iterations as ways to track Operating Performance for this asset class are explored and developed.

2.6. DISCUSSION AND CONCLUSIONS

In conclusion, the City of Brantford operates and maintains Horticulture assets. These assets are in Good condition with a total estimated replacement cost of approximately $6.7M.

The inventory data confidence for Horticulture assets is typically at a Medium to High level as assets as staff have a good knowledge of asset locations but no formal inventory has been completed. The data confidence for replacement costs is low to medium as many assets are older making their original installation cost less reliable, resulting in the use of various evaluation methods. The condition data confidence level is low to medium as no formal assessments have been completed and some assets are buried making them more difficult to assess. A new work management system is planned and is anticipated to improve data and data confidence for future iterations of this plan.

The lifecycle stages for Horticulture assets includes: Planning, Creation, Operation and Maintenance, and Disposal. During the Planning stage, the City identifies the need for the asset; during the Creation stage, the asset is grown, purchased and installed/planted or designed and built; during the Operation and Maintenance stage, the asset is operating and lifecycle activities (i.e. maintenance) occur on each of our assets to maintain the state of good repair; and the Disposal stage is when the asset has reached the end of its useful life or is underperforming and requires disposal.

Lifecycle activity tracking methods are currently being updated, as staff continue to review and improve opportunities for tracking, the frequency and costs associated with specific activities will be better represented.

It is estimated based on the average annual cost in the 10 Year Life Cycle Costing that the City should be spending an average $0.4M annually for capital Horticulture assets and will be spending an average of $1.5M on Operating and Maintenance on these assets. The City is currently proposing to spend an average of $0.03M annually on capital for Horticulture assets' state of good repair.

The service life of garden assets within the Horticulture asset class can be difficult to predict as the lifecycle differs between individual plants and soil conditions. Data regarding the lifecycle of these assets is anticipated to improve as staff begin to use the new work management software.

Additional Current Levels of Service have been identified as a need for Horticulture assets. Some of the KPIs identified are based on a customer survey conducted from 2023 to 2024 which had a low response rate. Therefore the confidence in the applicability of the survey results to the wider population is Low at this time. Brantford is

working to continue to develop the process to track these metrics which will assist in tracking these and any additional KPIs identified in future iterations of this plan.

Asset performance is separated into operating and energy performance in the City's AMPs. However, due to limited available data, the City is unable to assess asset performance for energy or operations in this iteration of the AMP. The City is currently reviewing best practices and will be looking to provide updated information in future iterations of this plan.