CITY OF BRANTFORD

2025 Asset Management Plan

Airport
City of Brantford, Ontario

Prepared by: Infrastructure Planning Asset Management, Public Works
Corporation of the City of Brantford, June 2025

RECORD SHEET

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Asset Management Document Set	Asset Group	First Issuance	Current Issuance
Strategic Asset Management Policy	All	May 2019	May 2019
Asset Management Plan Core & Non-Core Assets Overview	Core & Non-Core Assets	June 2024	June 2025
Asset Management Plan, Core Assets	Environmental Services Transportation	June 2021	June 2025
Asset Management Plan, Non-Core Assets	Airport	June 2024	This Document
Asset Management Plan	Cemetery Clerks Service Economic Development & Tourism Facilities Fire Fleet & Transit Forestry & Horticulture Golf Housing Human Resources IT Services Library Parking Parks & Recreation Police Solid Waste	June 2024	June 2025
Asset Management Plan, Non-Core Assets	JNH	TBD	TBD

ASSET MANAGEMENT PLAN
AIRPORT

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AIRPORT OPERATIONS 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.

Airport assets are managed by a combination of City staff from the Facilities department and the 3rd party who maintains daily operations of the airside.

Table 1: Asset Type Breakdown

	Asset Class
	Airport
Asset Type:	Buildings
	Fittings & Equipment
	Airside Site Works
	Groundside Site Works

1. AIRPORT ASSETS

1.1. INTRODUCTION

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

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

1.2. AIRPORT 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 three (3) approaches to establishing the inventory and condition of Airport assets due to available resources, technologies, and budget restrictions:

- 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 Airport asset data for inventory, replacement cost, and condition, as well as data confidence in each are provided in **Table 2** below.

Table 2: Airport Assets' Data Origin and Confidence Level

	Inventory			Replacement Cost			Condition			Level of Service		
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**	**Level of Service From**	**Data Confidence Level**	**Data Confidence Description**
Buildings	Inventory from GIS, Staff Knowledge, and Consultant Condition Assessment	Medium	Condition Assessments are from 2017	Industry Reference	Medium	Estimated costs based on known units	Age and Condition Assessment	Medium	Condition Assessments from 2017 and not completed for all buildings	Levels of Service Survey Staff Knowledge	Medium	Level of Service based public surveys. Confidence is medium due to the response rate being mitigated by other data sources for some KPIs.
Fittings & Equipment	Not Available	Low	Not Available	Industry Reference	Low	Estimated costs based on actual unit cost	Not Available	Low	Not Available	Levels of Service Survey Staff Knowledge	Medium	Level of Service based public surveys. Confidence is low due to the low response rate being mitigated by other data sources for some KPIs.
Airside Site Works	Inventory from GIS and Staff Knowledge	Medium	GIS requires updated field verification	Tangible Capital Asset Registry Industry Reference Staff Knowledge	Medium	Estimated costs	Age and Staff Knowledge	Low	Informal assessment by Staff	Levels of Service Survey Staff Knowledge	Medium	Level of Service based public surveys. Confidence is medium due to the low response rate being mitigated by other data sources for some KPIs.
Groundside Site Works	Inventory from GIS and Staff Knowledge	Medium	GIS Listing	Tangible Capital Asset Registry Industry Reference Staff Knowledge	Medium	Estimated costs	Age and Staff Knowledge	Low	Informal assessment by Staff	Levels of Service Survey Staff Knowledge	Medium	Level of Service based public surveys. Confidence is medium due to the low response rate being mitigated by other data sources for some KPIs.

Per **Table 2** above, Airport assets' data are typically at a Low or Medium confidence level with an overall average confidence level of Medium for the Buildings and Site Works and Low for Fittings & Equipment. The number of fittings & equipment assets is lower than would typically be expected at a City facility as most of the Airport buildings are rented unfurnished to 3rd parties.

Replacement costing for Buildings, Fittings & Equipment and Groundside Site Works is based on an industry standard cost guide published by a third party. While the costs are accurate they are an average over multiple geographic areas, this is expected to result in some variance at a City specific level and is why the confidence level is not marked as High.

Replacement costing for Airside Site Works is primarily based on Tangible Capital Asset (TCA) records.

Level of Service data is based on the public 2024 Levels of Service survey. Due to a low response rate for the public survey, the confidence in the Levels of Service reported are low.

1.2.1 SERVICE LIFE

Formal condition assessments are periodically completed on Airport 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**. Provided that assets are maintained they are expected to remain structurally sound and functional under normal conditions for the Estimated Service Lives outlined below before replacement or significant rehabilitation is required. Environmental conditions and operating practices may result in a shorter or longer useful lifetime.

Table 3: Airport Assets' Estimated Service Life

Asset	Estimated Service Life
Buildings	Buildings are composed of various sub-systems including structure, mechanical and electrical with different service lives. The different sub-system Estimated Service Lives are as follows: Structure & Substructure: 80 years Mechanical: 30 years Electrical: 25 years Interior: 15 years
Fittings & Equipment	10 years
Airside Site Works	Runway Lighting: 20 years Runways & Taxiways: 50 years Aprons: 50 years Instruments: 45 years Airside Signage: 40 years Aircraft Tie Downs: 50 years Wiring: 25 years
Groundside Site Works	Parking Lots: 30 years Pathways: 30 years Lighting: 25 years Light Supports: 40 years Fencing: 20 years Signs: 10 years

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, have no or minor deficiencies. 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, 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 AIRPORT ASSETS

The summary of assets for the Airport 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 Airport 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 Airport assets is approximately $82.3M and they are an average of 56 years old which is greater than the overall average estimated service life of 48 years. Overall Airport assets are in Good condition with a weighted average condition score of 1.2.

For **Table 5** an * on a column title indicates average value weighted by replacement value.

Table 5: Total Summary of Airport 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*
Airport Assets Total			**$82.3M**	**56**	**48**	**100%**	**1.2**	**GOOD**
Buildings	10	Ea	$62.4M	61	49	100%	1.0	GOOD
Fittings & Equipment	N/A	Ea	$1.4M	N/A	N/A	N/A	N/A	N/A
Airside Site Works	Varies	Varies	$17.0M	37	43	86%	1.9	FAIR
Groundside Site Works	Varies	Varies	$1.5M	68	28	100%	2.7	POOR

1.3.2 BUILDINGS

Assets within the Buildings group consist mostly of airplane hanger buildings which are rented out to airport users who wish to store and maintain their airplanes. There is also a maintenance building and a building that was used for the storage of physical records. There are other buildings along the airport airside which are constructed on land leases where the building is privately owned and maintained. As these building assets are privately held, they are not included in this Asset Management Plan.

It can be seen in **Figure 1** that there is estimated to be over 16,100 sq. m. of area with a total replacement cost of $62.4M. Assets are typically in Good condition with a weighted average condition score of 1.0. Six (6) of the ten (10) City owned buildings at the airport have had condition assessments completed within the last 10 years. The others are anticipated to have assessments completed within the next 10 years. The values are weighted based on estimated replacement value.

The average age for the City’s Airport Buildings is 61 years which is greater than the average estimated service life of 49 years for all buildings. However, as the condition rating for the six buildings formally assessed was Good, the overall weighted average condition of this asset type is Good rather than Poor.

AREA OF BUILDINGS (sq m)	REPLACEMENT COST ($)	WEIGHTED AVG AGE (YEARS)	WEIGHTED AVG ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION SCORE	WEIGHTED AVG CONDITION DESCRIPTION
16.1K	62.4M	61	49	1.0	Good

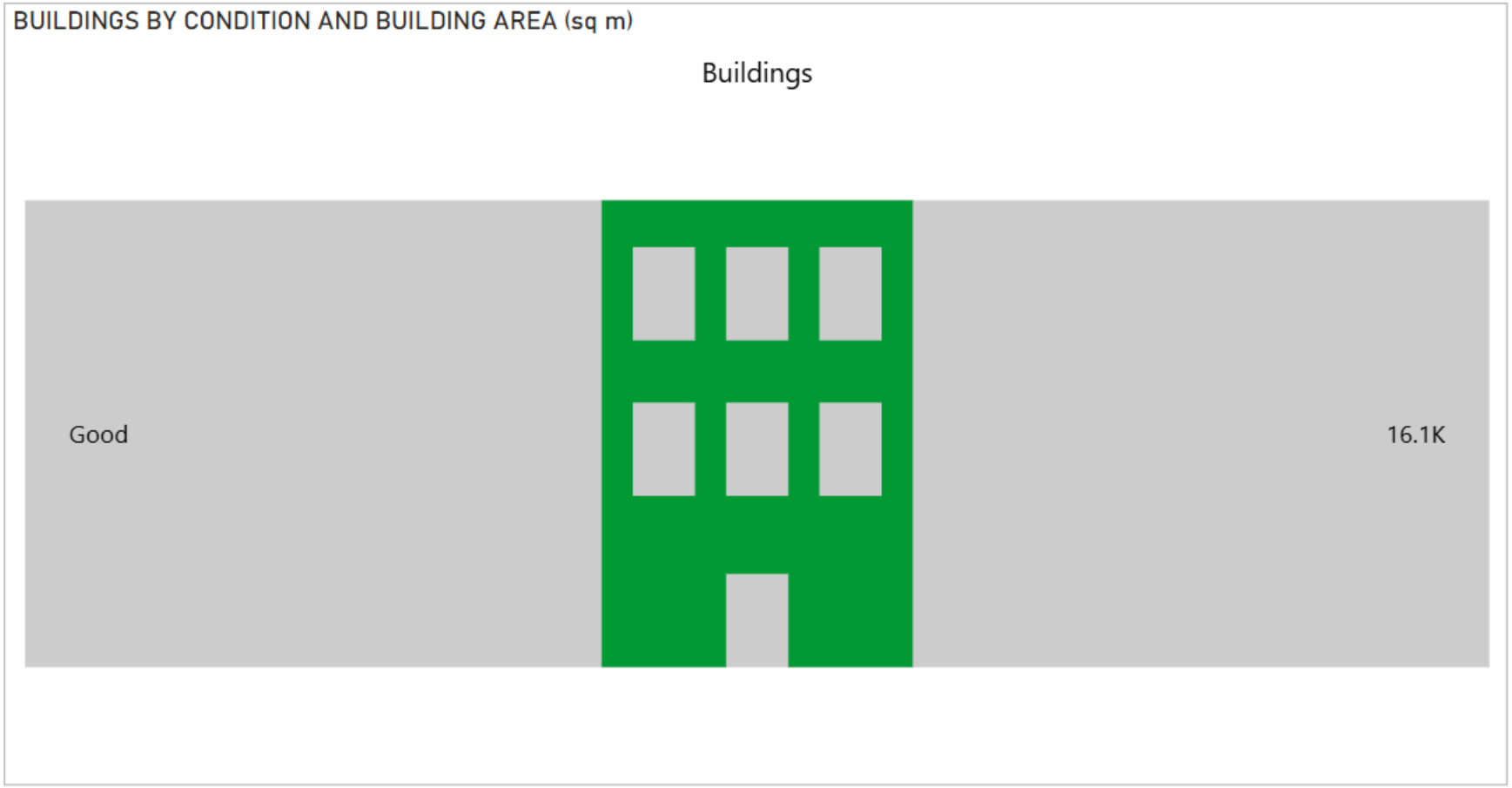

Figure 1: Buildings Asset Summary by Condition and Building Area

1.3.3 FITTINGS & EQUIPMENT

Furniture & Amenities are limited and the inventory available is incomplete. The terminal building is owned and maintained by a 3rd party and the only other structure in use by City staff is a maintenance building. The other City owned buildings are hanger buildings used to store and maintain aircraft which are rented unfurnished to 3rd parties. An inventory of furniture & amenities in the maintenance building is recommended to be completed in future for this asset class.

While a **Figure 2** caption has been included below, no Figure 2 exists at this time due to their being no current inventory of furniture & amenities assets within the airport buildings. The caption has been retained for future iterations of the plan when it is anticipated that a more complete inventory will be developed.

An overall average cost of $1.4M has been estimated based on an industry standard costing guide which attributes 2.2% of the total replacement value to fittings & equipment.

Figure 2: HOLD for Future AMP

1.3.4 AIRSIDE SITE WORKS

Airside refers to the area of an airport where aircraft operations take place. Assets within the Airside Site Works group includes: runways, taxiways, aprons, aircraft parking areas and tie downs, instruments, runway lighting and signage.

The Airside includes 228 lights, 40 tie downs, 17.6 km of underground wiring, 14 instruments, 28.7K sq m of parking lots, 80 sq m of pathways, 58.8K sq m of apron pavement, 96.5K sq m of runway pavement and 33.7K sq m of taxiway pavement with a total replacement cost of $17.0M. Assets are typically in Fair condition with a weighted average condition score of 1.9, the breakdown of condition by asset subtype is shown in **Figure 3**. The values are weighted based on estimated replacement value.

The average age for the City’s Airside Assets is 37 years which is 86% of the average estimated service life of 43 years for all airside assets.

NO. OF ASSET SUBTYPES	REPLACEMENT COST ($)	WEIGHTED AVG AGE (YEARS)	WEIGHTED AVG ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION RATING	WEIGHTED AVG CONDITION DESCRIPTION
9	17.0M	38	43	1.9	Fair

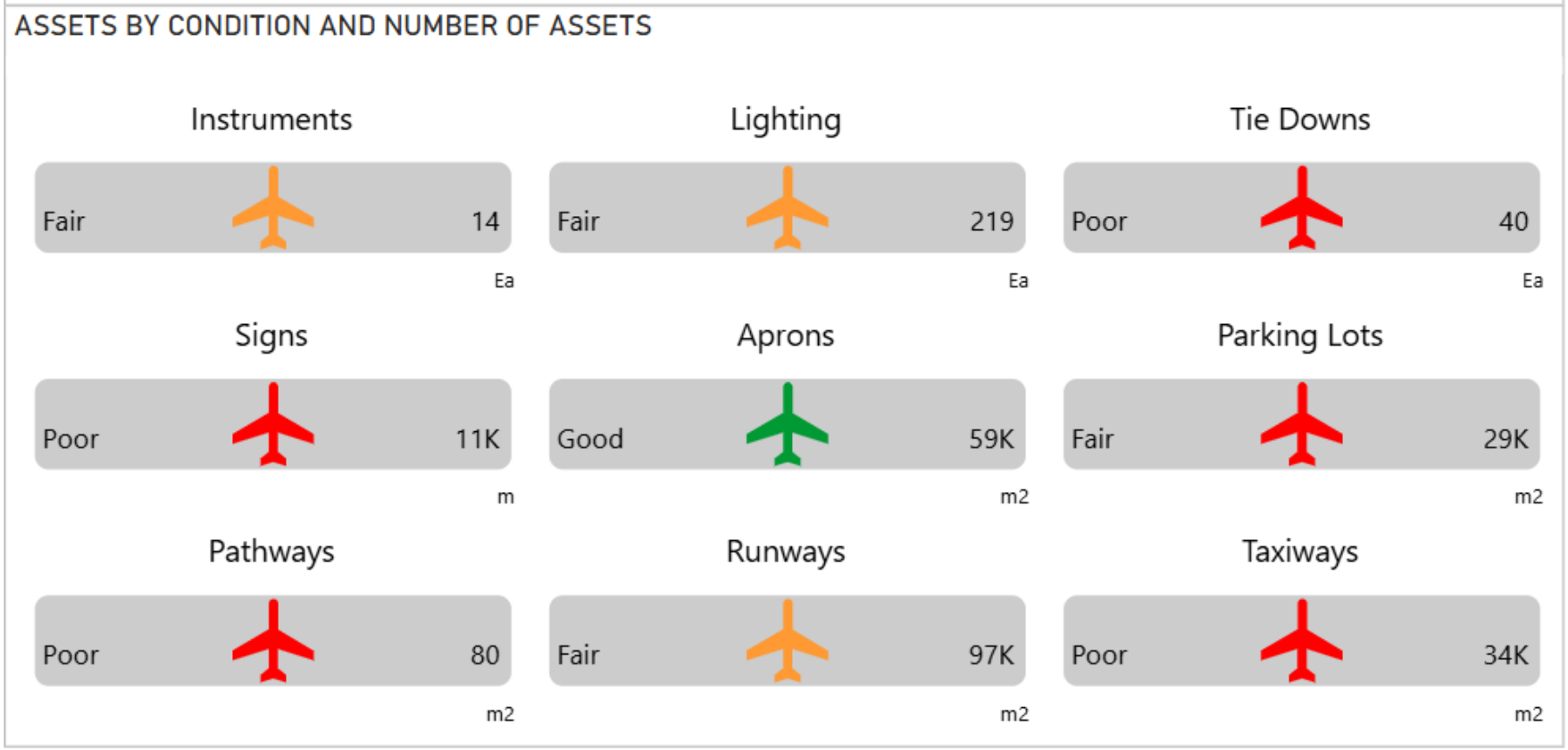

Figure 3 Airside Asset Summary by Condition and Number of Assets

1.3.5 GROUNDSIDE SITE WORKS

Groundside refers to the area of an airport which is accessible to the public including passengers, visitors, airport staff and pilots. Assets within the Groundside Site Works group include: parking lots, pathways, fencing, signage and parking lot lighting.

The Groundside includes 7.1 km of perimeter fencing, 17.6K sq m of parking lots, and 106 sq m of pathways with a total replacement cost of $1.5M. Assets are in overall poor condition with a weighted average condition score of 2.7, the breakdown of condition by asset subtype is shown in **Figure 4**. The values are weighted based on estimated replacement value.

The average age for the City's Airside Assets is 68 years which is greater than the average estimated service life of 28 years for all groundside assets.

NO. OF ASSET SUBTYPES	REPLACEMENT COST ($)	WEIGHTED AVG AGE (YEARS)	WEIGHTED AVG ESTIMATED SERVICE LIFE (YEARS)	WEIGHTED AVG CONDITION RATING	WEIGHTED AVG CONDITION DESCRIPTION
3	1.5M	69	28	15	Poor

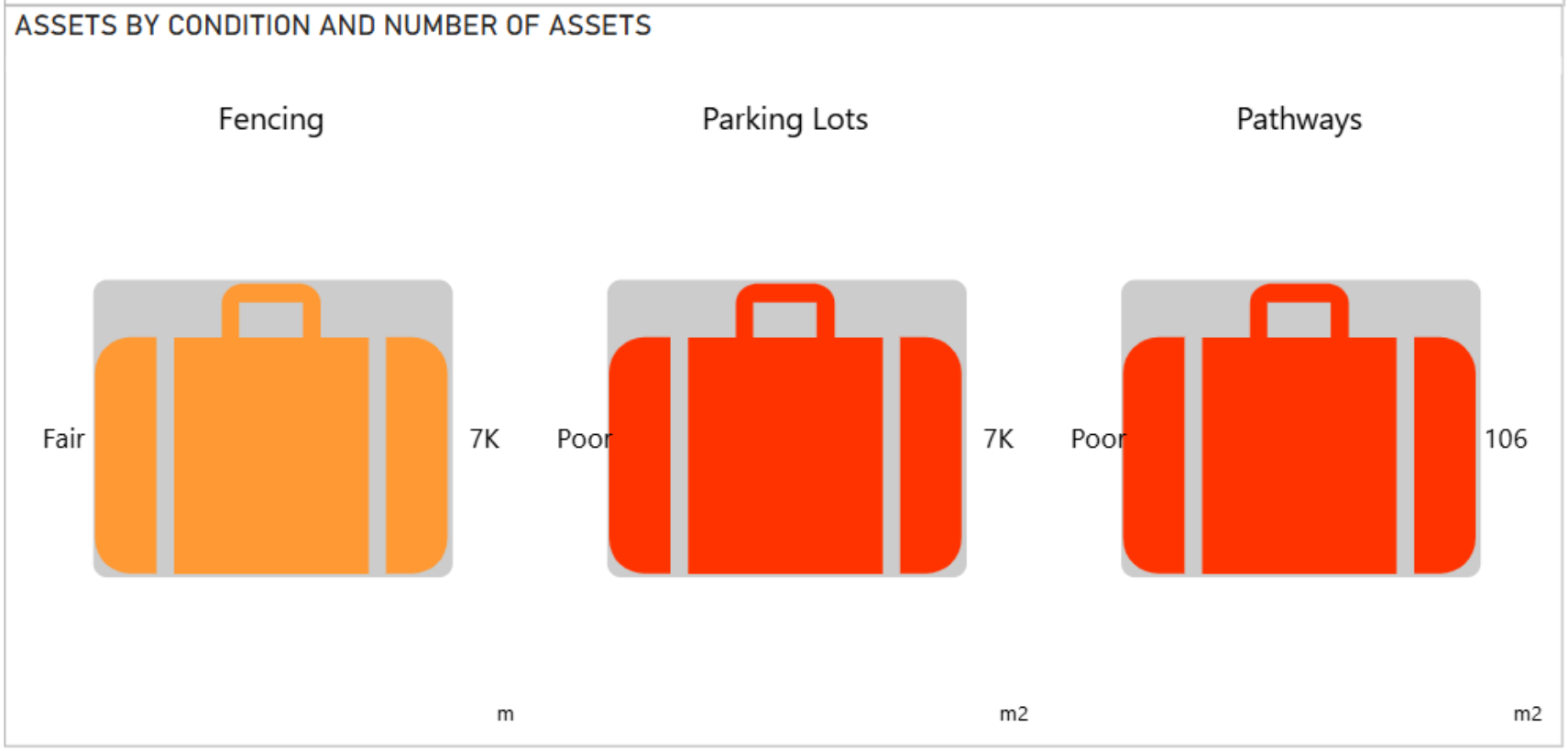

Figure 4 Groundside Assets Summary by Condition and Number of Assets

1.4. LIFECYCLE OF AIRPORT ASSETS

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

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

1.4.1 KEY LIFECYCLE STAGES OF AIRPORT 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 Airport assets specifically our general process is as follows:

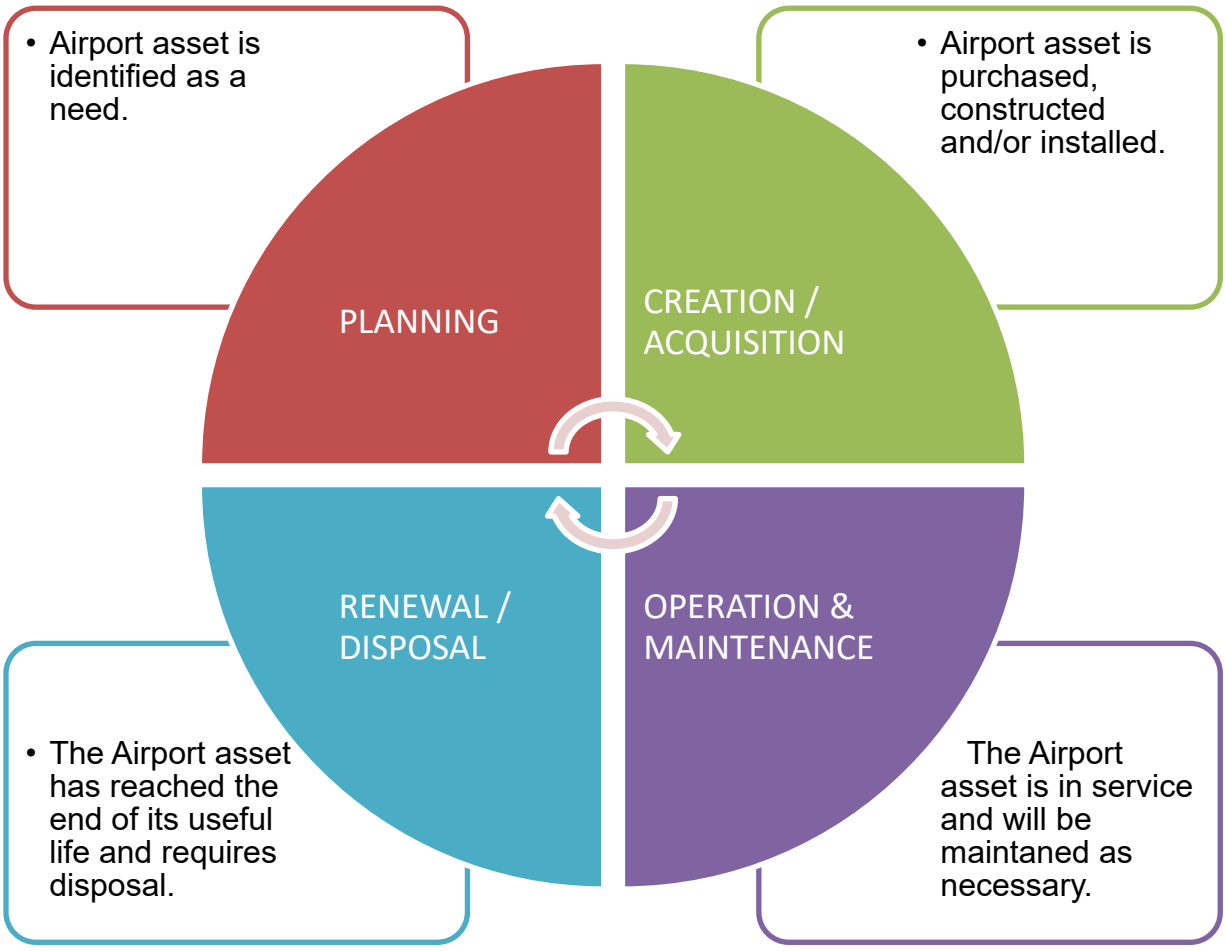

Figure 5: Lifecycle Stages of Airport Assets

1. **Planning** –The Airport 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 Airport 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 Airport asset has reached the end of its useful life, 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.

1.4.2 LIFECYCLE ACTIVITIES

A list of the planned Lifecycle Activities, annual cost, and frequency for each Airport Asset Type can be found in **Table 6** below. These activities are undertaken to maintain Airport assets and therefore maintain the current levels of service. In review of the 2024 customer levels of service survey, Airport assets are adequately meeting the service expectations of Airport asset users. However, due to a low response rate, it is difficult to make any conclusive decisions based on this initial survey. Therefore, these lifecycle activities will remain the same for the proposed levels of service. Further discussion regarding Airport proposed Levels of Service can be found in **Section1.5.5 Proposed Levels of Service Discussion**. Due to data limitations at this time, the City will maintain the lifecycle activities which have been performed in the past and activities listed will be updated as improved data becomes available.

Lifecycle activities occur on each of our Airport assets classes. Airport assets are maintained by City or Airport Operations (flying club) staff or by contractors and activities are currently tracked through a combination of email, excel and the City's customer relationship management system. Work tracking for the Airport Buildings is expected to migrate to the City's work management software. Data is then expected to improve over time after implementation into the new system is completed. The variance in cost for the same lifecycle activities for different asset types is partially attributable to whether the staff cost could be determined. The City will work to standardize the inclusion of staff costs in individual lifecycle activities in future iterations of the AMP.

Table 6: Lifecycle Activities for Airport Assets

Asset Type	Lifecycle Activity	Annual Cost*	Frequency	Completed by
Buildings	Building Operations Utilities	$45,500	Daily	Airport Operations/City Staff
	Inspections	$2,000	Annual/As Requested	Airport Operations/City Staff
	Repairs	$15,000	Based on removal activity	Contracted Service - Airport Operations
Fittings & Equipment	Cleaning	N/A	As Required	Airport Operations
	Repair	$10,600	As Required	Airport Operations
Airside Site Works	Line & Symbol Painting	$45,000	3 years	Contractor
	Obstacle Survey	$15,000	5 years	Contractor
	Tree Clearing/Maintenance	$2,000	As required	Contractor
	Crack Filling	$15,000	5 years	Contractor
	Bulb Replacement	$2,000	2-3 years	Airport Operations
	Inspections	$13,000	Daily – Instruments, Hangar Exteriors Other – Annual/As Required	Airport Operations
	Repair	$1,200	As Required	Airport Operations/Contractor
	Landscaping	$9,000	Seasonal - As Required	Airport Operations
	Winter Control	$100,000	Seasonal - As Required	Contrator
Groundside Site Works	Inspections	$2,000	Annual/As Required	Airport Operations
	Repair	$2,500	As needed	Contractor
	Line Painting	$5,000	3 years	Contractor
	Bulb Replacement	$1,000	As Required	Contractor
	Landscaping	$2,000	Seasonal - As Required	Airport Operations
	Winter Control	$5,000	Seasonal - As Required	Contrator

*2025 Annual Cost is typically based on an average of the 4 year cost estimates presented in the 2025 Operating Budget.

1.4.3 RISKS OF LIFECYCLE ACTIVITIES

The identified lifecycle activities in **Table 6** above are the current and proposed activities taken on by Airport Operations staff or hired contractors. Some risks associated with these activities include:

- **Short Term Operational Disruption –** Depending on the scope of maintenance or repair activities they could result in normal operations being unable to continue while the work is in progress. This can be mitigated by completing maintenance and repairs at the correct time of year, and by appropriately coordinating with tenants and airside users.
- **Safety Hazards to Property, Environment and People –** Even with proper safety protocols in place, a different approach is required for repairs on an active airside. Improperly conductive activities could pose risks to workers, aircraft and passengers/pilots.
- **Operator Error** – When operators are operating equipment, there is a risk of an operator related accident. This risk is mitigated by ensuring all operators are trained on equipment.

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

- **Long Term Operational Disruption** due to maintenance or repair activities being delayed until the scope has increased beyond the initial issue resulting in a more time consuming or costly repair**;**
- **Safety Hazards to Aircraft, Environment and People** due to undetected issues posing safety risks if inspections were not completed in a timely fashion or safety risks which were not removed promptly**;**
- **Regulatory Non-Compliance** due to failure to maintain instrumentation, lighting or runway pavement resulting in regulatory standards which are not met; and
- **Increased Cost** due to reactive actions which could have been prevented with preventative maintenance.

1.4.4 10 YEAR LIFECYCLE COSTS OF AIRPORT ASSETS

Figure 6 below outlines the 10 year lifecycle costs of Airport assets. This graph includes the lifecycle cost for the assets which support the Current Levels of Service (LOS) and the assets required to support the Proposed LOS.

Although there are a number of assets needing to be replaced over the 10 years, the average annual cost for Operation and Maintenance of Airport Assets is approximately equal to the capital cost for this infrastructure.

An update to the Airport Master Plan is currently planned for 2025. After this plan is completed it is anticipated that the capital costs will be updated.

Based on the information presented in **Figure 6**, the total annual average capital costs for the next 10 years needed to maintain the current LOS of these Airport assets are $1.5M. The total annual average capital costs for the next 10 years needed to achieve the proposed LOS are $0.4M. The average annual Operation and Maintenance costs to maintain the current level of service are $1.8M. The average annual additional Operation and Maintenance costs to maintain the proposed level of service are $0.

To determine the total estimated operating costs in a given year, the proposed LOS operating costs should be added to the current LOS operating costs. Therefore it is recommended that the City invest $1.9M in Airport assets annually for capital work to maintain the current LOS and achieve the proposed LOS. It is recommended that $1.8M be invested annually for operating costs to maintain the current LOS and achieve the proposed LOS.

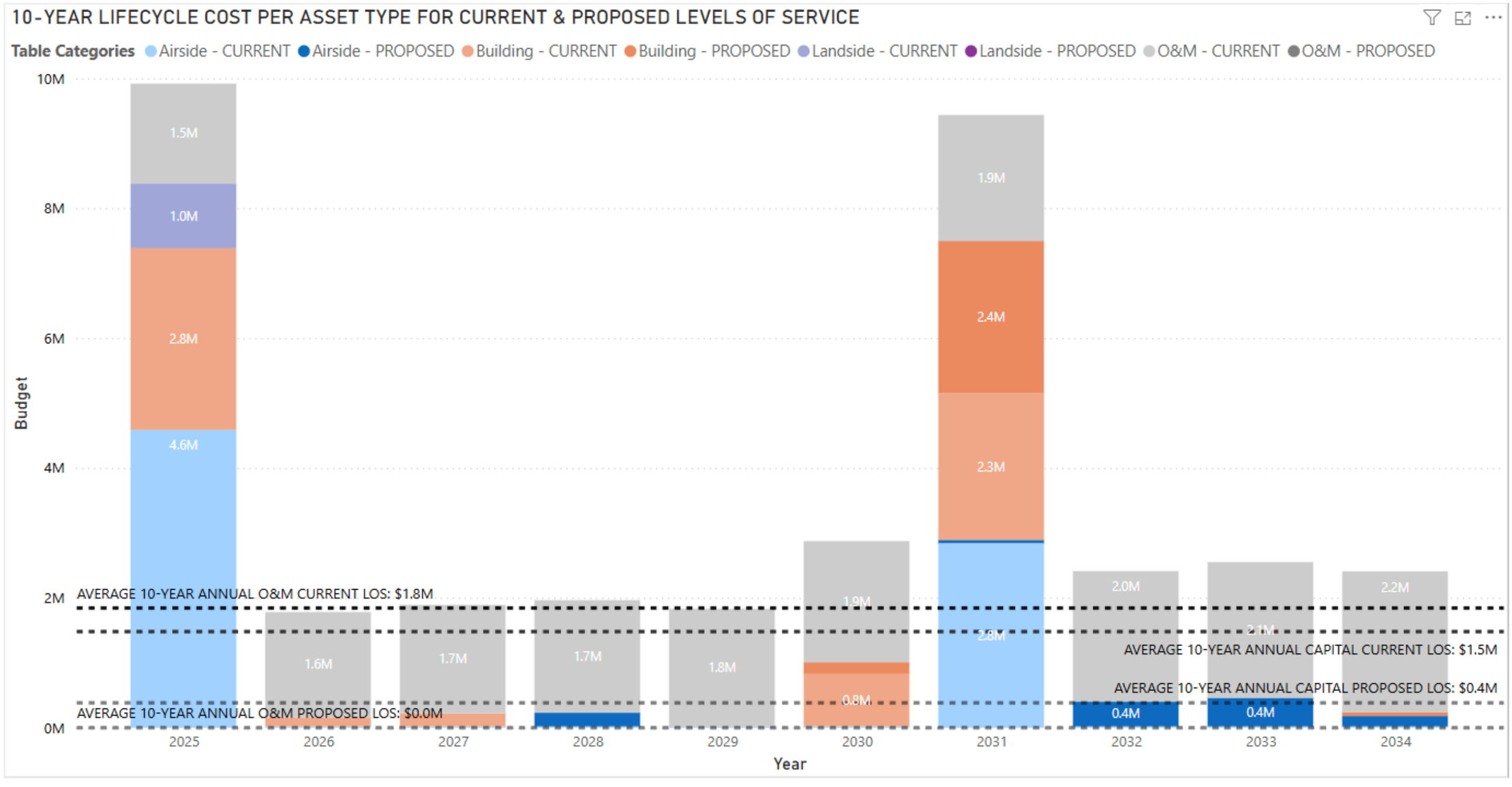

Figure 6: 10-Year Lifecycle Cost Per Airport Asset Type

Notes:

1. O&M costs are estimated based on the 2025 Preliminary Operating Budget and are inflated by 3.8% per year.
2. 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.
3. Assets with formal condition assessments which contained forecasting (i.e. buildings) were included based on the estimated replacement/repair year in those assessments.
4. Reimbursements and revenues are ignored in order to capture total cost/expenses.

Per **Figure 7** below, the existing 10-year forecast from 2025 – 2034, 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 $0.6M on Airport assets capital work annually, and as noted above, the required 10-year average amount is $1.9M to maintain the current LOS and achieve the proposed LOS for these assets. Therefore, there is an annual 10-year funding gap of $1.3M for Airport 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 Airport assets, on a single job or asset 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.

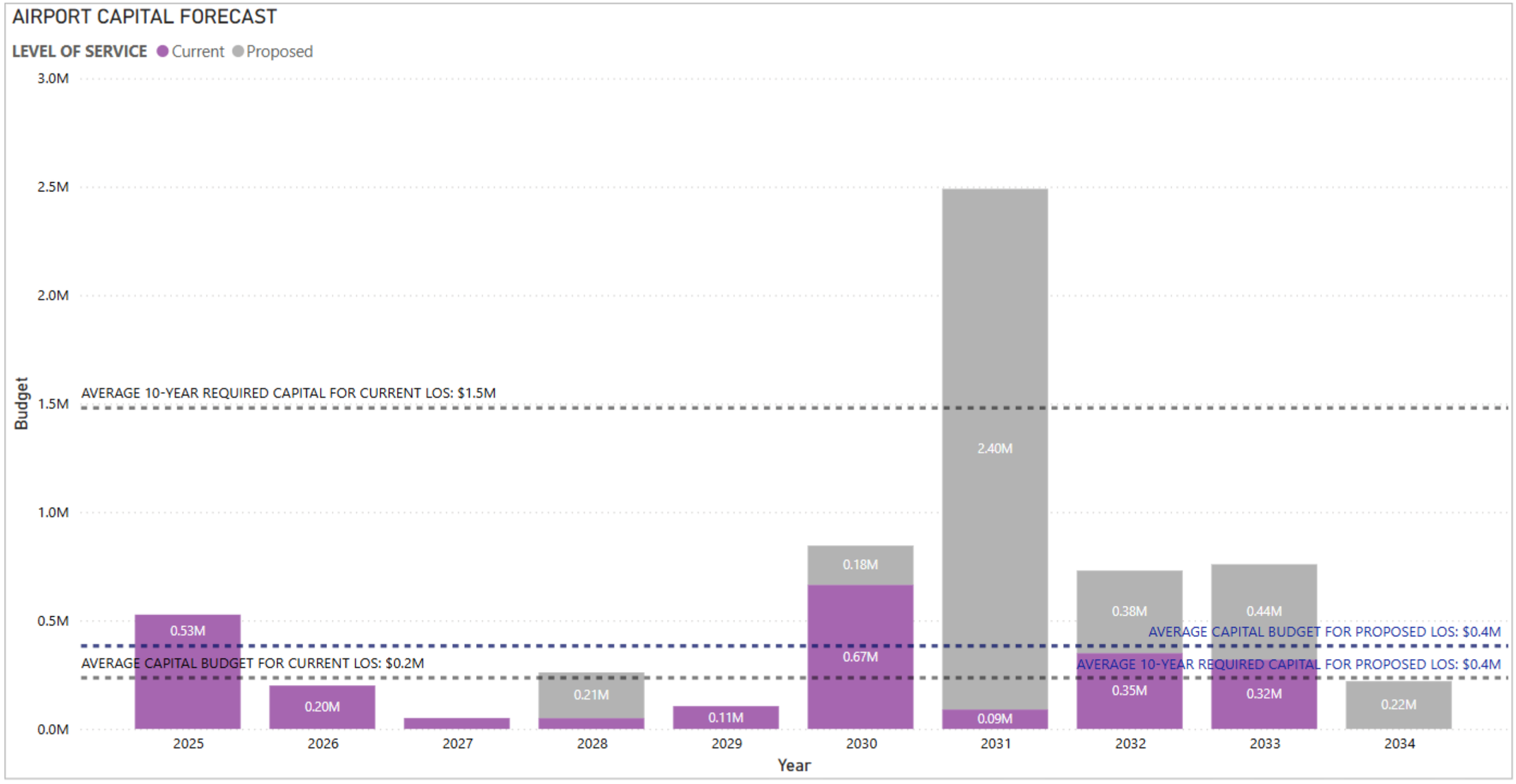

Figure 7: Existing Capital Budget Forecast from 2025 – 2034 for Airport Assets

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 Airport 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	Airport assets should be available to and easily accessed by the local population.
Quality	Airport assets should deliver their intended services at a certain quality.
Cost Efficiency	Airport assets should meet the needs of the user at an affordable cost to the City.
Safety	Airport assets should not endanger people or property.
Environmental Sustainability	Airport assets shall consider measures to improve energy and environmental performance.
Reliability	Airport assets should be available as needed.
Responsiveness	Requests for repair or access to Airport assets 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. Airport assets should be managed and utilized in a way that responds to market demands to ensure efficiency, revenue generation, and community benefit.

1.5.4. MUNICIPALLY DEFINED TECHNICAL LEVELS OF SERVICE

The technical levels of service for Airport 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. N/A indicates information which is Not Available for this AMP and will be reviewed for future iterations.

Table 8 Technical Levels of Service KPIs

			Proposed Future Performance											
Customer Level of Service	**Technical LOS**	**Units**	**2024 KPI**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**LOS Option**
Accessibility	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Quality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cost Efficiency	Annual Cost per sq. m of Active Runway	$ per sq.m	$21.24	$21.66	$22.10	$22.54	$22.99	$23.45	$23.92	$24.40	$24.89	$25.39	$25.89	Maintain
Safety	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Environmental Sustainability	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Reliability	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Responsiveness	Market Demand/Capacity of T Hangers	Number of T Hangers	47	84	84	84	84	84	96	96	96	96	96	Increase
	Market Demand/Capacity of Commercial Hanger Spaces	Number of Commercial Hanger Spaces	6	6	6	10	10	10	10	10	14	14	14	Increase

1.5.5. PROPOSED FUTURE LEVEL OF SERVICE TARGETS

For the purpose of this report and the discussion surrounding proposed future levels of service targets, there are three (3) possible options defined in **Table 9** including the risks associated with those options to the long term sustainability of the municipality.

Table 9 Technical Levels of Service KPIs

Level of Service Development Options	Description	Risk Associated with Options
Decrease Level of Service	ing the level of service should result in cost savings. E.g. Garbage can emptying at the Airport is decreased to once every two weeks.	In some circumstances, decreasing the level of service may have little impact to the overall customer experience. In others, decreasing the level of service may result in a decreased level of customer satisfaction and could lead to safety concerns and possible damage to the City's reputation. Decreasing the level of service too much for an extended period of time may result in higher costs for repairs or closure of certain assets over the long-term.
Maintain Level of Service	ing the level of service should maintain costs with increases anticipated to reflect inflation. Customer experience would also be anticipated to remain the same as well as the City's reputation. Costs would be anticipated to increase minimally over time due to inflation or growth factors. E.g. Garbage can emptying at the Airport is maintained at once per	If the current levels of service match customer expectation and regulatory requirement, maintaining them would typically be the recommended approach. However if the current levels of service do not match customer expectations or regulatory requirements, then maintaining them may not be the recommended approach. Similarly, City reputation may not match with what the City would prefer. If a low level of service is maintained for too long it may lead to health and safety concerns.
Increase Level of Service	Increasing the level of service should result in enhanced customer E.g. Garbage cans emptying at the Airport is increased to twice a week experience and City reputation.	Increasing service would involve increased costs. Increasing the level of service too much, for an extended period of time, may become financially unsustainable for the City.

Each of the technical levels of service have been examined to see if and/or how the proposed levels of service differ from the current levels of service:

The Annual Cost per sq. m of Active Runway is currently planned to increase with inflation (predicted to be 2% each year over the next ten (10) years) which will maintain the current level of service. This will allow the Airport to continue to provide service levels as the Airport expands to accommodate the demands from customers.

When considering the Market Demand/Capacity of T-Hangers, the airport will meet the current need by significantly increasing the number of T Hangers in 2025 from 47 to 84. Staff are proposing to maintain this level of service for five (5) years when another 12 T-Hangers are proposed. The needs of the airport and capacity will continue to be reviewed and will require engagement from customers to ensure needs are being met.

When considering the Market Demand/Capacity of Commercial Hanger Spaces, the airport is proposing to increase the number of Commercial Hanger Spaces from 6 to 10 in 2027. Staff are proposing to maintain this level of service for five (5) years when another 4 commercial spaces are proposed. The needs of the airport and capacity will continue to be reviewed and will require engagement from customers to ensure needs are being met.

It is important to note that customer preferences and expectations do not always align with internal technical targets. A consideration of this section is linking the customer and technical levels of service to determine areas where different levels of service could be proposed. As the 2024 survey had lower than anticipated engagement, it is difficult to make any conclusive decisions based on this initial survey. Airport Master Planning documents provide strategic direction as they relate to the provisioning and guidance for decision-making and should be referred to in conjunction with these survey results when considering any change in the level of service. Future iterations of the AMP will strive to improve the survey data confidence and allow for better alignment.

1.5.6. AFFORDABILITY AND ACHEIVABILITY CONFIDENCE

To determine whether the proposed levels of service are achievable and if the City can afford the proposed level of service **Table 10** has been developed to review confidence in the proposed levels of service.

Table 10 Affordability and Achievability Confidence

Customer Level of Service	Technical LOS	Achievability Confidence	Achievability Description	Affordability Confidence	Affordability Description
Accessibility	N/A	N/A	N/A	N/A	N/A
Quality	N/A	N/A	N/A	N/A	N/A
Cost Efficiency	Annual Cost per sq. m of Active Runway	Medium	An inflationary factor of 2.0% has been applied to the Annual Cost per sq. m of Active Runway across the ten (10) years shown in **Table 8**. This is seen as an achievable level of service as it's a moderate increase each year and should follow inflation. Staff have indicated that any increase in revenue from the development of new hanger spaces will be used to maintain this annual cost.	Low	The affordability confidence has been set to low as there are many unpredictable factors that may influence the Annual Cost per sq. m of Active Runway such as unplanned repairs or new Airport assets being installed/built. However, there may also be funding for projects received through grant programs or other sources which may assisting in maintaining or decreasing the annual costs. The Annual Cost per sq. m of Active Runway should continue to be reviewed with the next iteration of this plan.
Safety	N/A	N/A	N/A	N/A	N/A
Environmental Sustainability	N/A	N/A	N/A	N/A	N/A
Reliability	N/A	N/A	N/A	N/A	N/A
Responsiveness	Market Demand/Capacity of T-Hangers	Low	Low achievability has been selected for the Market Demand/Capacity of T-Hangers as Staff have indicated that the increase in T-Hanger spaces planned for 2025 will reach capacity before 2028. Market demand is anticipated to continue to increase but the Airport runways and taxiways will reach capacity.	Low	Low affordability has been selected as the airport reserve does not have sufficient funding to support a further increase in the number of T-hangers at this time. External sources of revenue, such as grants, will need to be obtained in order to achieve the proposed LOS.
	Market Demand/Capacity of Commercial Hanger Spaces	Low	Low achievability has been selected for the Market Demand/Capacity of Commercial Hanger Spaces as Market Demand is anticipated to increase at a faster rate than commercial hanger spaces can be built.	Low	Low affordability has been selected as the airport reserve does not have sufficient funding to support a further increase in the number of Commercial Hanger spaces at this time. External sources of revenue, such as grants, will need to be obtained in order to achieve the proposed LOS.

It is important to note that while the proposed service level change may appear affordable when viewed in isolation of this plan specifically, when it is examined in the context of the overall budget, these levels may not be achievable and would be considered unaffordable. As service level data continues to be collected, staff will also continue to review the achievability and affordability of the levels of service proposed within the future iterations of this plan.

1.5.7. LEVEL OF SERVICE LIFECYCLE COST CONSIDERATIONS

Proper consideration should be made for the most cost-effective methods that can be undertaken to achieve the lowest cost associated with a chosen level of service. **Table 11** below includes the lifecycle options available and the associated risks with the chosen options.

Table 11 Lifecycle Options and Associated Risks

Lifecycle Options	Description	Risks Associated if Undertaken	Risks Associated if Not Undertaken
Planning	Consideration is made regarding the asset involving City Master plans and the needs of internal and/or external customers.	Planning activities may extend project timeline.	If planning activities were not undertaken there is a risk of missing something that we needed
Operation & Maintenance	The asset is providing benefits to the community and operation and maintenance activities (see **Table 6**) are completed on the asset at specific time intervals to prevent premature failures of the asset.	Completing operation & maintenance activities may mean that there is limited or no access to the asset for a period of time.	If O&M activities were not undertaken the asset would have premature failures, become unsafe and would cost the City more to repair or would have to be closed/removed.
Repair	The asset or a portion of the asset is no longer functioning appropriately, and a repair is needed.	Completing repair activities may mean that there is limited or no access to the asset for a period of time.	If repair activities were not undertaken the asset would no longer function as it should and would affect service levels. The asset would eventually deteriorate and no longer function as intended.
Replace	The asset has reached the end of its useful life and needs to be replaced to maintain service levels.	Replacing the asset may mean limited or no access to the asset during a period of time.	If replacement activities were not undertaken the asset would no longer function as it should and would affect service levels. The asset would need to be closed and eventually removed.
Remove	The asset has reached the end of its useful life or is no longer required to meet the appropriate service level and is removed.	Removing the asset may lead to a reduction in service levels.	The asset may be unsafe and could lead to health and safety concerns if not removed.
Install New/Expand	A new asset or extension to an existing asset is purchased and installed.	Installing a new asset may lead to increase costs which could lower service levels.	If a new asset is not installed this may lead to an eventual reduction in service levels.

Note: The full lifecycle stages for these assets can be found in **Section 1.4.1** and the list of specific lifecycle activity options is located in **Section 1.4.2** of this AMP.

Depending on the level of service being considered, the most cost-effective method that should be undertaken to achieve the lowest cost associated with the specific level of service may actually be a combination of lifecycle activities. The combination selected will be based on that specific asset and the activities that are likely to give the lowest cost while maintaining the chosen service level.

The lowest costs for Annual Cost per sq. m of Active Runway lifecycle activities undertaken would be a combination of planning, operation and maintenance, and repair activities. When the asset has reached the end of its useful life, there would be a need for removal and/or replacement.

When considering the Market Demand/Capacity of T Hangers the lowest costs for lifecycle activities undertaken would be a combination of planning, operation and maintenance, and repair activities. When the asset has reached the end of its useful life, there would be a need for removal and/or replacement. As the Airport continues to work to meet the demands of its customers, there may be a need for installing new/expanding facilities.

When considering the Market Demand/Capacity of Commercial Hanger Spaces the lowest costs for lifecycle activities undertaken would be a combination of planning, operation and maintenance, and repair activities. When the asset has reached the end of its useful life, there would be a need for removal and/or replacement. As the Airport continues to work to meet the demands of its customers, there may be a need for installing new/expanding facilities.

It is important to note that customer preferences and expectations do not always align with internal technical targets. A consideration of this section is linking the customer and technical levels of service to determine areas where different levels of service could be proposed.

1.6. CURRENT & FUTURE ASSET PERFORMANCE

The current asset performance for Airport assets have been separated into three (3) categories for this section of the report:

- Energy Performance;
- Operating Performance; and
- Sustainability Performance

1.6.1 AIRPORT 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 City 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.

Under the CEMP, annual energy management data is reported, but has a reporting delay of two (2) years. **Table 12** contains data from the 2023 Corporate Energy Management Report which is available on the City's website. Information was not available for all buildings at the airport, partly due to not all buildings being heated and partly due to data gaps. Where buildings are serviced, additional information will be added in future years. The average Energy Use Intensity (GJ/sq m) for all City buildings is 11.2 GJ/sq m.

In addition runway lights are not LED and could benefit from an upgrade. To avoid optical variations being presented to landing traffic, all runway lights would need to be converted to LED at the same time. Energy usage for runway lights alone was not available; availability will be reviewed for future iterations of the AMP.

Table 12: Current Energy Performance of Airport Facilities*

Building	Address	Electricity (kWh)*	Natural Gas (m3)*	GHG Emissions (T CO2e)*	Source Energy Use Intensity (GJ/sq m)
190 Airport	51 York Rd	23,693.0	7,234.0	14.40	0.34

*Based on information provided in the 2023 Corporate Energy Management Report

1.6.2 AIRPORT ASSETS OPERATING PERFORMANCE

Table 13 contains criteria by which the City's Airport operating performance can be assessed. N/A in the table below indicates a metric which is currently unavilable. The City does not currently collect data regarding arriving and departing aircraft movements which means KPIs cannot easily be calculated based on aircraft volume at this time. The City will work to gather sufficient information to begin reporting on additional metrics in future iterations of the AMP.

Table 13: Airport Operating Performance

			Proposed Future Performance									
Criteria	**Current Performance or Proposed Measurement**	**Possible Improvement**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Design Aircraft meets current demand	Cessna Citation 560XL Max Range of 1,850nm (nautical miles) with limitation on weight during hot weather	Lengthen to accommodate larger aircraft if demands change in future.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Runway Capacity	Estimated saturation capacity of 56 to 60 movements	None required at this time	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aircraft Parking Weight Limit on Apron	During hot weather cannot park heavier aircraft for prolonged periods.	Design a section of apron to support larger, heavier aircraft	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Airside Signage meets current wayfinding needs	Airport staff recommend updating/replacement do not meet current requirements	Update/replace existing signage.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Groundside Parking	At or near capacity during peak periods.	Create additional parking near hangars so pilots do not use parking near terminal.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hangar Dimensions match Aircraft in use	Older hangers width and height are becoming an issue for modern composite aircraft and float based aircraft.	Plan to replace with larger hangar spaces.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Perimeter Gates and Fencing provide adequate security	Does not meet current needs as wildlife and public have access to airside in some areas.	Repair/Replace	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aircraft Tie Downs can secure aircraft not stored in hangars	Does not meet current needs. Frequently gets plow damage. Limits number of aircraft that can be stored at the airport impacting growth.	Replace	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

1.6.3 AIRPORT SUSTAINABILITY PERFORMANCE

To determine if the City is able to provide sustainable service delivery for the Airport assets, the **Asset Sustainability Index** (ASI) is utilized. It is calculated by taking the amount the City is proposing to spend on Levels of Service (LOS) and dividing it by the amount the City is projected as needing to spend to maintain the LOS. The ASI can be calculated for the Current LOS, the Proposed LOS or the combination of the two. It can be for Capital costs, Operating & Maintenance (O&M) costs or a combination of the two.

Table 14 shows the ASI for the various scenarios and the final combined for the different asset categories. The ASI is used as a high-level assessment of whether the City is accommodating asset renewals in an optimal and cost-effective manner based on timing and relative to financial constraints. It is also an indicator of the risk the City is accepting and targeted service levels it wishes to maintain.

Table 14 Asset Sustainability Index

	Current LOS	Proposed LOS	Combined LOS
Capital Costs	16%	100%	33%
O&M Costs*	N/A	N/A	N/A
Combined Costs	-	-	33%

* Due to the way the O&M costs are derived at this time, the ASI for O&M costs has not been included in this iteration of the AMP. It is expected to be included in future iterations as the O&M data tracking on an asset class specific basis improves.

To ease understanding the ASI is reported as a percentage:

- An ASI of 100% is considered to be the best as it indicates that expenditures match what is needed to sustain levels of service. This is more efficient as it preserves infrastructure for the lowest cost over time.
- Above 100% funding should be reviewed as it suggests that the City is spending more than necessary, which may be an inefficient distribution of resources. In some circumstances this may be appropriate on a temporary basis to reduce backlogs of overdue repairs and/or replacements.
- Below 100% indicates a funding shortfall, meaning the City is not investing enough to maintain levels of service. If not addressed, this gap can lead to declines in levels of service over time.

The Airport ASI of 33% is below the Combined LOS ASI for all assets of 61%.

1.7. DISCUSSION AND CONCLUSIONS

In conclusion, the City of Brantford operates and maintains many Airport assets. These assets are in overall Good condition with a total estimated replacement cost of approximately $82.3M. The asset inventory and condition data confidence for Airport is typically at a Low to Medium level which will improve with the Airport Master Plan proposed for 2025.

The lifecycle stages for Airport 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 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, or is underperforming and requires renewal or disposal.

Lifecycle activities are currently tracked through a combination of email, excel and the City's customer relationship management system. 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 $1.9M annually for capital Airport asset costs and will be spending an average of $1.8M on Operating and Maintenance activities. The City is currently proposing to spend an average of $0.6M annually on capital for Airport assets' state of good repair, resulting in a deficit of $1.3M per year from the forecasted capital need.

Current and Proposed Levels of Service have been identified for Airport Services assets. All Municipally defined Levels of Service will be following the Maintain or Increase option for the next 10 years. 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.

Considered in isolation the Proposed Levels of Service have a Low to Medium Confidence for Achievability and Affordability. This is mostly due to a need to obtain external funding sources when constructing new building assets. When examined in the context of the overall budget, these levels of service may not be achievable and may be considered unaffordable.

Asset performance is separated into operating and energy performance in the City's AMPs. Currently only one of the Airport buildings is tracked as part of the Corporate Energy Management report. In 2023 building 190 had a source energy use intensity of

0.34 GJ/sq m. This energy performance is better than the average source energy use intensity for all City buildings of 11.2 GJ/sq m.

The City does not currently collect data regarding arriving and departing aircraft movements which means KPIs cannot easily be calculated based on aircraft volume at this time. The 2016 Airport Master Plan included a number of operating performance aspects that could be improved including: adjusting the length of the runway to accommodate larger aircraft, designing a section of the apron to support larger, heavier aircraft for longer periods in the hotter months, updating and replacing existing signage, creating additional car parking, improving the fencing and upgrading the older hangar spaces to match the dimensions of modern aircraft. The performance aspects related to industry trends will need to be monitored over time to determine when projects are required to address the performance limitations. The aspects relating to current asset condition will be addressed through future capital projects.

For Sustainability performance, the Combined Capital Level of Service Asset Sustainability Index (ASI) is 33%. This is below the Combined Capital LOS ASI for all assets of 61%.

The next iteration of this Airport AMP document, due in 2030, will be revised to include updated and new information obtained over the next five years.