

2024

Transportation Services Asset Management Plan Current Levels of Service



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Contents

1.0	EXECUTIVE SUMMARY	5
1.1	The Purpose of the Plan.....	5
1.2	Asset Description	5
1.3	Levels of Service.....	6
1.4	Future Demand	6
1.5	Lifecycle Management Plan.....	6
1.6	Financial Summary.....	7
1.7	Asset Management Planning Practices.....	8
1.8	Monitoring and Improvement Program	8
2.0	INTRODUCTION	9
2.1	Assets Included in this Plan.....	9
2.2	Provincial Asset Management Requirements.....	9
2.3	Asset Management at the City of Kitchener	10
3.0	STATE OF LOCAL INFRASTRUCTURE	14
3.1	Background Data	14
3.2	Asset Registry Completeness & Assumptions.....	18
4.0	LEVELS OF SERVICE	20
4.1	Customer Research and Expectations	22
4.2	Strategic and Corporate Goals	22
4.3	Legislative Requirements.....	22
4.4	Customer Values and Community Levels of Service	23
4.5	Customer Levels of Service	24
4.6	Technical Levels of Service.....	25
5.0	FUTURE DEMAND	27
5.1	Demand Impact and Demand Management Plan	27
5.2	Asset Programs to meet Demand	27
5.3	Climate Change Adaptation	28
6.0	LIFECYCLE MANAGEMENT PLAN	29
6.1	Operations and Maintenance Plan	29
6.2	Renewal Plan	30
6.3	Summary of future renewal costs.....	32
6.4	Acquisition Plan	33
6.5	Disposal Plan.....	36

6.6	Non-Infrastructure Solutions	36
7.0	RISK MANAGEMENT PLAN	37
7.1	Critical Assets	37
7.2	Risk Assessment	37
7.3	Infrastructure Resilience Approach	39
7.4	Service and Risk Trade-Offs	39
8.0	FINANCIAL SUMMARY	40
8.1	Financial Sustainability and Projections	40
8.2	Funding Strategy	41
8.3	Valuation Forecasts	41
8.4	Key Assumptions Made in Financial Forecasts	41
8.5	Forecast Reliability and Confidence	42
9.0	PLAN IMPROVEMENT AND MONITORING	44
9.1	Status of Asset Management Practices	44
9.2	Improvement Plan	44
9.3	Monitoring and Review Procedures	45
10.0	REFERENCES	46

1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

This City of Kitchener Non-core Transportation Asset Management Plan (AM Plan) details information about infrastructure assets with actions required to maintain current levels of service in a cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required over a 10-year planning period. The AM Plan will link to a Long-Term Financial Plan which typically considers a 10-year planning period.

1.2 Asset Description

This plan covers the non-core infrastructure assets that provide transportation services. The largest portion of the asset mix are Streetlights & Poles with a replacement value of \$35.8M and Road and Pedestrian Islands & Traffic Calming with a replacement value of \$14.9M. These two categories of assets account for approximately 87% of the total replacement value of all transportation assets. Note that traffic signals and poles are not included in this AM Plan as they are owned and operated by the Region of Waterloo.

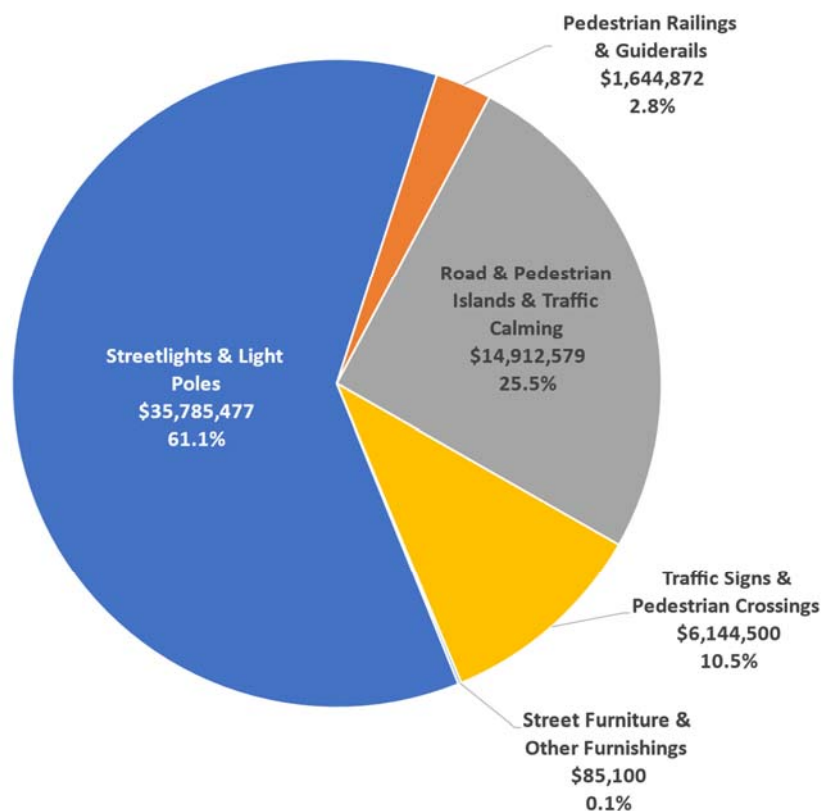
The infrastructure assets covered by this AM Plan are shown in Table 1.1.

Table 1.1: Assets covered by this Plan

Asset Category	Asset Types	Replacement Value
Streetlights & Poles	Streetlight, Streetlight Pole	\$35,785,477
Traffic Signs & Pedestrian Crossings	Traffic Signs, Pedestrian Crossings & Beacons	\$6,144,500
Pedestrian Railings & Guiderails	Guiderail, Railing	\$1,644,872
Road and Pedestrian Islands & Traffic Calming	Road Islands, Raised Crosswalks, Speed Humps, Pedestrian Pads	\$14,912,579
Street Furniture & Other Furnishings	Street Benches, Bollards	\$85,100
TOTAL		\$58,572,528

The above infrastructure assets have replacement value estimated \$58.6 million with a breakdown of this value shown in Figure 1.1.

Figure 1.1: Asset Valuation



1.3 Levels of Service

The allocation in the planned budget is insufficient to continue to provide the current level of service modelled in this AM Plan, for the planning period. However, service levels and associated targets will continue to be formalized and monitored for future iterations of the AM Plan.

1.4 Future Demand

The factors influencing future demand and the impacts they have on service delivery are created by:

- Population growth

These demands will be approached using a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand. Demand management practices may also include a combination of non-asset solutions, insuring against risks and managing failures.

- City to continue to forecast and manage developer provided non-core transportation assets to support lifecycle management and budgeting.

1.5 Lifecycle Management Plan

1.5.1 What does it Cost?

The forecasted lifecycle costs which are necessary to provide the services covered by this AM Plan includes operation, maintenance and renewal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10-year total outlays, which for the non-core transportation portfolio is estimated as \$32.6 million or \$3.26 million on average per year.

1.6 Financial Summary

1.6.1 Planned Budgets and Forecast Costs

Estimated available funding for the 10 year period is 30.1 million or \$3.01 million on average per year as per the Long-Term Financial plan or Planned Budget. This is 92% of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long-term financial plan can be provided. The Informed decision making depends on the AM Plan emphasizing the consequences of Planned Budgets on the service levels provided and risks.

The anticipated Planned Budget for non-core transportation leaves a shortfall of \$0.25 million on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

Figure 1.2: Lifecycle Summary

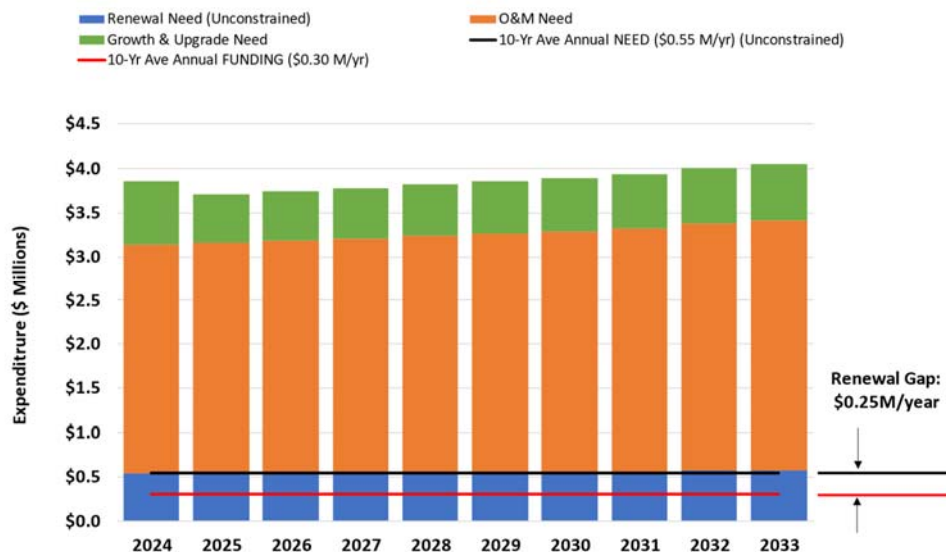


Figure Values are in current year (2023) dollars.

We plan to provide non-core transportation services for the following:

- Operation, maintenance, renewal and acquisition of transportation assets to meet service levels set by the City in annual budgets.
- New and expanded assets are included in the next 10-year planning period based on projects listed in the 2024 – 2033 Capital Plan.

1.6.2 Infrastructure Gap

We currently do **not** allocate enough budget to sustain these services at the proposed standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- Planned maintenance (preventive maintenance programs)
- Deferred renewal work (\$0.25 million per year)

1.6.3 Managing the Risks

Our present budget levels are insufficient to continue to manage risks in the medium term.

The main risk consequences are:

- An increase in unplanned repairs and associated service disruptions.

- Higher lifecycle management costs and deteriorating assets.
- Deteriorating assets may be unsafe and expose the City of Kitchener to potential liabilities.

We will endeavor to manage these risks within available funding by:

- Continue to apply a risk-based approach to capital planning to focus available funding on critical projects.
- Pursue available grants from higher levels of government.

1.7 Asset Management Planning Practices

Key assumptions made in this AM Plan are:

- Assumptions were made regarding the estimated service life of certain assets. The estimated service lives for Pedestrian Crossings, Street Benches and Bollards were assumed to be 15 years.
- Based on feedback provided by the City, 50% of the streetlight (lighting element) inventory is assumed to be in Very Good condition and the remaining 50% is assumed to be in Good condition due to a recent project undertaken by the City to replace all street light elements.

Assets requiring renewal are identified from the asset register method.

- The timing of capital renewals based on the asset register is applied by adding the useful life to the year of acquisition or year of last renewal; Or
- Alternatively, an estimate of renewal lifecycle costs is projected from external condition and may be supplemented with, or based on, expert knowledge.

This AM Plan is based on a low level of confidence information.

1.8 Monitoring and Improvement Program

The next steps resulting from this AM Plan to improve asset management practices are:

- City to formalize a condition assessment program to complete condition assessments for any assets currently listed in Unknown condition or assets that use age as a proxy for determining condition. This will help to inform more effective lifecycle needs and financial strategies for these assets.
- City to monitor and update replacement values of assets as they undertake renewal projects. Also, additional review of unit costs is recommended in future updates of replacement value.
- City to formalize levels of service and monitor performance on measures included in the AM Plan, on an annual basis or multi-year schedule. In the next AM Plan, per O.Reg. 588/17 requirements in 2025, set proposed service levels (targets). Additionally, review and update service levels (add or remove measures, and set targets) as required to reflect alignment with other city plans and studies.
- Conduct formal risk assessments to prioritize preventative maintenance activities, as well as renewal / capital investments.
- City to continue to develop and update 10-year forecast of lifecycle activities based on formalized/update levels of service, formal risk assessments and updated asset information (as applicable).

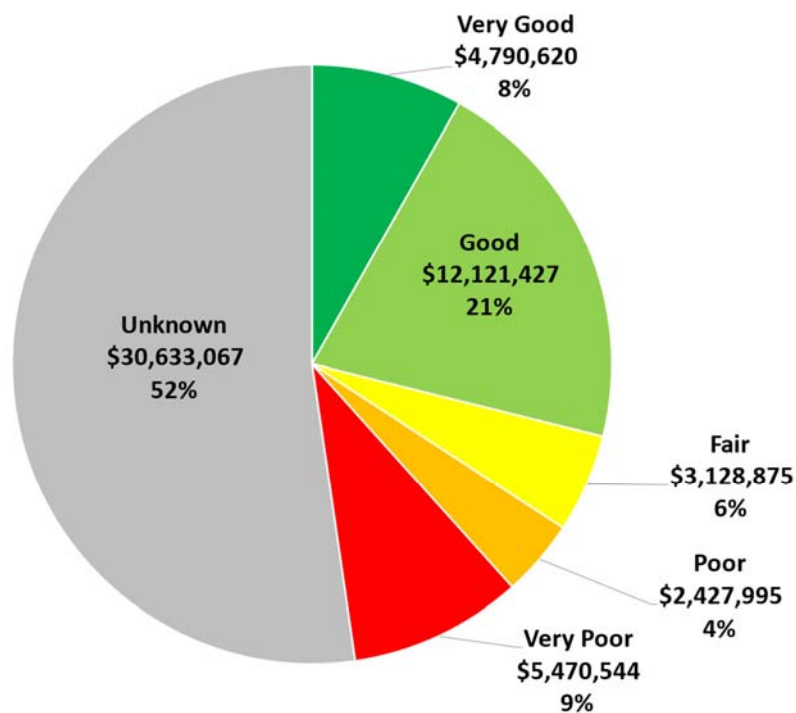
2.0 INTRODUCTION

The City of Kitchener (the City) is in Waterloo Region, in the heart of southwestern Ontario. The City covers an area of 137 square kilometers and has a population of approximately 270,000; making it the largest City in the Region and the Grand River Watershed alike. The City has been designated as a growth area through the Provincial Growth Plan: Places to Grow, and has seen significant population growth that is expected to continue through the next decade. The City owns and maintains assets that provide a wide range of services between City departments and to its residents. This Asset Management Plan (AM Plan) will communicate the requirements for the sustainable delivery of services through efficient management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period. The Plan has been prepared in accordance with Ontario Regulation 588/17 – Asset Management Planning for Municipal Infrastructure, under the Infrastructure for Jobs and Prosperity Act, 2015. The Regulation lays out the requirements for all AM Plans, as well as deadlines to meet to certain milestones. This iteration of the AM Plan meets requirements for Current Levels of Service.

2.1 Assets Included in this Plan

This AM Plan covers non-facilities, non-core transportation assets for which the City is responsible for lifecycle management. Any facilities associated with transportation services have been covered in the Facilities AM Plan. Additionally, core transportation assets are included in a separate Roads, Bridges and Culverts AM Plan. The infrastructure assets included in this plan have a total replacement value of \$58.6 million.

Figure 2.1 – City of Kitchener Non-Core Transportation Asset Condition and Value



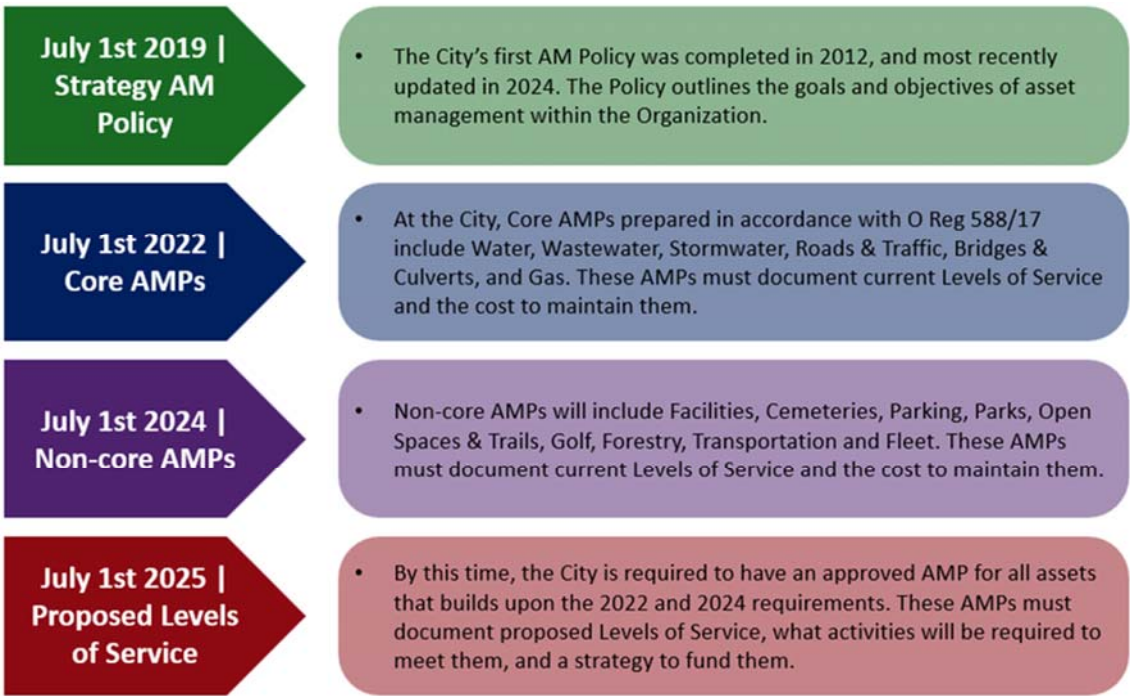
2.2 Provincial Asset Management Requirements

The Province of Ontario requires all municipalities that seek provincial infrastructure funding have an asset management plan, or plans, in place. To encourage a similar approach across municipalities, in 2012 the province introduced Building Together: Guide for Municipal Asset Management Plans, which defined the key components of an effective asset management plan.

More recently in 2017, the province approved O.Reg 588/17 – Asset Management Planning for Municipal Infrastructure, under the *Infrastructure for Jobs and Prosperity Act, 2015*. The Regulation mandates the

development of an asset management policy, asset management plans, and their content. Additionally, milestones are included for when municipalities must fulfill certain requirements, outlined below in Figure 2.2.

Figure 2.2 - O.Reg 588/17 Milestones



2.3 Asset Management at the City of Kitchener

The City of Kitchener has been practicing sound asset management planning for at least 15 years, starting with the introduction of Public Sector Accounting Board (PSAB) legislation. Since 2007, several efforts have resulted in well-established asset management programs and procedures, as well as the inclusion of a dedicated Asset Management Division in the City's corporate structure. Figure 2.3 below outlines some key milestones in the City's asset management journey. Kitchener City Council adopted the most recent Corporate Asset Management Strategy in 2016. The goals outlined in the strategy are to extend the useful life of all assets, in the most cost-effective way, while managing risk and meeting the agreed upon levels of service.

The AM Plan is a key tactical (medium-term) planning document that relies on input from strategic planning activities and informs shorter-term decision making. The AM Plan provides a framework to validate the City's budgeting processes and assist in prioritizing work activities, including capital projects, based on risk. It discusses levels of service that also support goals in the 2023 to 2026 Strategic Plan and lifecycle management strategies intended to reduce the overall cost of asset ownership.

Figure 2.3 - City of Kitchener Asset Management Timeline



2.3.1 Corporate Asset Management System

An asset management system should aim to achieve a line of sight between corporate strategic goals outlined in the strategic plan, and operational plans, policies and procedures, as illustrated in Figure 2.4. Two guiding documents in this system are the Asset Management Strategy and Asset Management Policy, most recently updated in 2016 and 2024, respectively. The Asset Management Policy defines the intent, scope and principles of asset management at the City of Kitchener, and who is responsible for enacting the policy. Section 5.3 – Climate Change Impacts of this AM plan discusses these impacts specific to the City and strategies to build and maintain assets through the lens of resiliency, sustainability, adaptation, and mitigation. The Asset Management Strategy defines how the principles of the policy will be put into practice and the three guiding principles of asset management at the City of Kitchener which are to:

- 1 Balance asset condition and levels of service,
- 2 Allocate financial resources among priorities and,
- 3 Shift how we do business – such as introducing programs to support the requirement for high-quality data services.

Figure 2.4 - City of Kitchener Asset Management System



In addition to the Asset Management Strategy and Policy, this AMP should be read in conjunction with other planning documents relevant to non-core assets, outlined in Table 2.1 below.

Table 2.1: Key Planning Documents

Key Planning Document	Document Description
2023-2026 Corporate Strategic Plan	The document outlines the strategic goals that are to be championed by Council and staff across the City.
Official Plan (2014)	The Official Plan is a legal document that contains goals, objectives and policies to manage and direct physical and land use change and their effects on the cultural, social, economic and natural environment within the City. This Plan provides a framework for decision-making and plays several essential roles in the future planning of the City.
Corporate Asset Management Strategy (2016)	The AM strategy outlines the Asset Management program at the City, the three guiding principles of where the program intends to go, and the value gained by forming consistent practices throughout the asset groups.
Corporate Asset Management Policy (2024) (currently being updated)	The Asset Management Policy defines the intent, scope and principles of asset management at the City of Kitchener, and who is responsible for enacting the policy.
Kitchener, Changing for Good - Corporate Climate Action Plan (2019)	The City's Corporate Climate Action Plan aims to achieve meaningful and measurable carbon emission reductions throughout its operation, while also adapting to impacts resulting from climate change.
Energy Conservation & Demand Management Plan (2019-2023)	Under Ontario Regulations 25/23, public sector agencies in Ontario must report annual energy consumption and develop a five - year conservation and demand management plan intended to reduce energy consumption and greenhouse gas emissions.
Development Charges Background Study (2022)	The DC Study includes preparing a development forecast, establishing historical service levels, determining the increase in need for services arising from development and appropriate shares of costs and attribution to development types (residential and non-residential).

Key stakeholders in the preparation and implementation of this AM Plan are shown in

Table 2.2

Table 2.2 - Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
City of Kitchener Elected Council	City Council are the overall owners of the City's assets. Council approves asset management policies and asset funding allocation through the annual corporate budget process. An overarching expectation of a standard of care is required by Council to ensure commitment to effective asset Management practices.
Corporate Leadership Team	The Leadership Team provides corporate oversight to the program to ensure that the goal and directions of the Corporate Asset Management program are maintained, and the program remains consistent with the overall Strategic Plan.
Asset Management Steering Committee	This committee provides leadership and strategic direction for supporting systems/processes specific to the delivery of asset/work management information for the City of Kitchener. Further, in support of the city-wide asset management strategies, the committee provides leadership and governance to the Asset Management Policy statement through the provision of information necessary for the long-range forecasts of asset investment needs, services levels, risks, costs and other performance measures.
Community Services	Community Services is a department of the City and is responsible for the operation and maintenance of community centres, swimming pools, arenas, sports facilities, as well as the Kitchener Fire Department stations.
Finance	The Finance division within Financial Services prepares an annual operating budget and 10-year capital forecast for Council's consideration. The annual budget helps identify the spending plans and priorities for the City for the upcoming year and is informed by the City's Strategic Plan, various master plans, and feedback from the community.

2.3.2 Asset Management Plan Methodology

The information presented in the AM Plan is based on O.Reg. 588/17 requirements, the Guide for Municipal Asset Management Plans, originally issued by the Ontario Ministry of Infrastructure, and leading asset management practices. Costs and replacement values in this AM Plan are estimated in 2023 dollars.

The AM Plan was developed by SLBC Inc. in collaboration with City staff through:

- Review of background materials available on the City's web site and provided by the City's project team including asset inventories, planning documents, and budgets
- Workshops with internal stakeholders
- Various interim meetings with the City's project team
- Numerous data and information transfers
- Review of interim outputs by the City's project team and other stakeholders, and incorporation of comments into the final AM Plan

3.0 STATE OF LOCAL INFRASTRUCTURE

3.1 Background Data

3.1.1 Asset inventory and valuation

A mix of assets support the delivery of the City's transportation services. The non-core transportation assets covered by this AM Plan are shown in Table 3.1.1. Core transportation assets are included in a separate Roads, Bridges and Culverts AM Plan. All table and figure values are shown in current year (2023) dollars.

The largest portion of the asset mix are Streetlights & Poles with a replacement value of \$35.8M and Road and Pedestrian Islands & Traffic Calming with a replacement value of \$14.9M. These two categories of assets account for approximately 87% of the total replacement value of all transportation assets. Note that traffic signals and poles are not included in this AM Plan as they are owned and operated by the Region of Waterloo.

Table 3.1.1: Assets covered by this Plan

Asset Category	Asset Types	Replacement Value
Streetlights & Poles	Streetlight, Streetlight Pole	\$35,785,477
Traffic Signs & Pedestrian Crossings	Traffic Signs, Pedestrian Crossings & Beacons	\$6,144,500
Pedestrian Railings & Guiderails	Guiderail, Railing	\$1,644,872
Road and Pedestrian Islands & Traffic Calming	Road Islands, Raised Crosswalks, Speed Humps, Pedestrian Pads	\$14,912,579
Street Furniture & Other Furnishings	Street Benches, Bollards	\$85,100
TOTAL		\$58,572,528

The asset valuation distribution for this AM Plan is shown in Figure 3.1.1 and the age profile of the assets included in this AM Plan are shown in Figure 3.1.2.

Figure 3.1.1: Asset Valuation

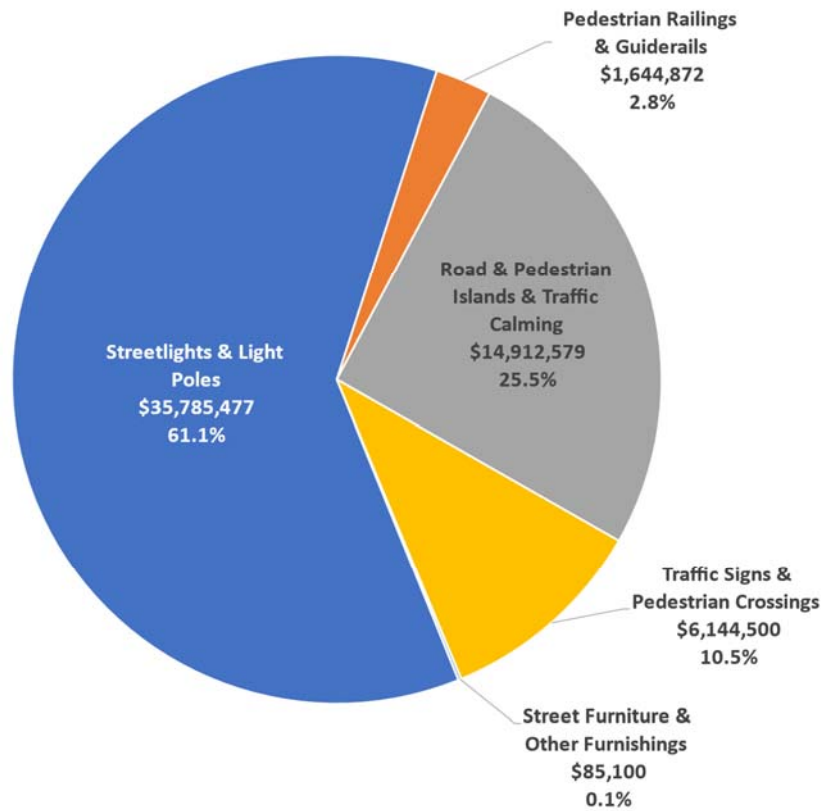
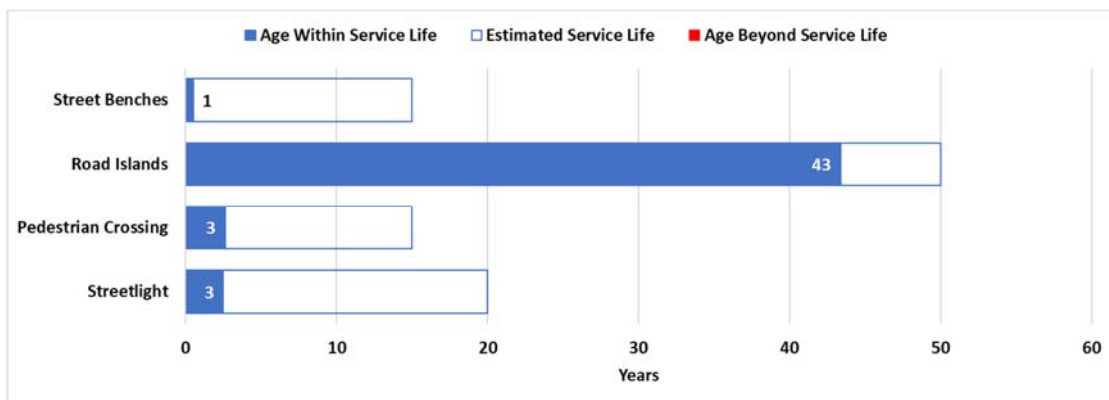


Figure 3.1.2: Asset Age Profile



Notes on the above Asset Age Profile:

- Streetlight Poles, Guiderails, Railings, Raised Crosswalks, Speed Humps, Bollards, Pedestrian Pads and Traffic Signs are not included because they are missing information on age and condition.
- Due to the lack of age and condition data, it is difficult to make a comprehensive assessment of the City's transportation assets. However, the remaining assets are still within their estimated service life.

3.1.2 Asset hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

The service hierarchy is shown in Table 3.1.2.

Table 3.1.2: Asset Service Hierarchy

Service Hierarchy	Service Level Objective
Streetlights & Poles	The primary objective of the City's streetlights and poles are to illuminate the roadways and sidewalks for the safety of drivers and pedestrians.
Traffic Signs & Pedestrian Crossings	The primary objective of the City's traffic signs and pedestrian crossings are to provide accurate information to drivers and pedestrians and direct traffic in a safe and efficient manner.
Pedestrian Railings & Guiderails	Pedestrian railings and guiderails provide safety for pedestrians by guiding pedestrian traffic aiding those with mobility issues.
Road and Pedestrian Islands & Traffic Calming	The primary objective of these assets is to provide effective traffic flow management. It also ensures pedestrian safety by reducing the speed of vehicles in certain residential and commercial areas.
Street Furniture & Other Furnishings	The primary objective of these assets is to enhance the walkability of the City and help to regulate road traffic.

3.1.3 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. Locations where deficiencies in service performance are known are detailed in Table 3.1.3.

Table 3.1.3: Known Service Performance Deficiencies

Location/Service Area	Service Deficiency
Curbside Management	The Complete Streets Kitchener program (2019) outlined the need to better design and manage curbside areas as they become highly contested as the City grows. It is crucial to provide designated delivery and ridesharing locations as well as managing parking more effectively. There is potential for a service deficiency in the future if left unaddressed.
Collision Analysis	The City of Kitchener Vision Zero Strategy (2021) outlined the City averages one fatality per year on their streets and data shows that vulnerable road users are disproportionately represented in injury of fatal collisions. Implementation of objectives in the Vision Zero Strategy are crucial for the safety of the residents.

The above service deficiencies were identified from the Complete Streets Kitchener program (2019), City of Kitchener Vision Zero Strategy (2021) and workshop correspondence with the City of Kitchener.

3.1.4 Asset condition

Assets can be inspected and monitored through various means. The City employs both internal staff and contractors to perform inspections of City owned assets. The results of these inspection programs provide the City with meaningful empirical data that can be used to gauge the condition of assets and needs for asset maintenance or renewal. The cost for these assessments can be found in the Operational costs shown in section 6.1 of this AM Plan.

Table 3.1.4: Assessments

Asset Category	Assessment Description	Frequency in Years
Traffic Calming	Formal Traffic Calming Review	Once per year

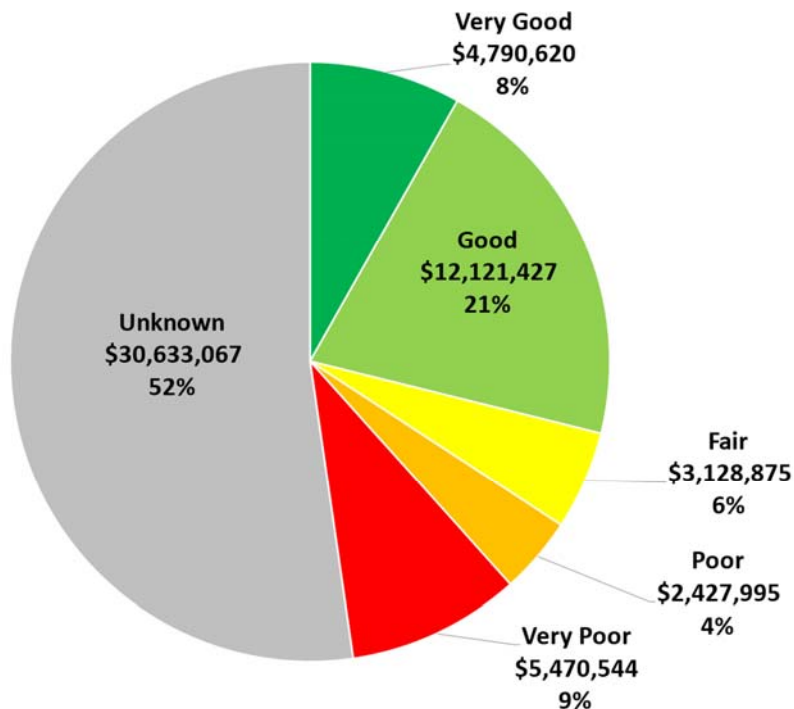
Condition is measured using a 1 – 5 grading system as detailed in Table 3.1.5. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level; however, for reporting in the AM Plan results are translated to a 1 – 5 grading scale for ease of communication.

Table 3.1.5: Condition Grading System

Condition Grading	Description of Condition
1 – Very Good	free of defects, only planned and/or routine maintenance required
2 – Good	minor defects, increasing maintenance required plus planned maintenance
3 – Fair	defects requiring regular and/or significant maintenance to reinstate service
4 – Poor	significant defects, higher order cost intervention likely
5 – Very Poor	physically unsound and/or beyond rehabilitation, immediate action required

The condition profile of our assets is shown in Figure 3.1.4.

Figure 3.1.4: Asset Condition Profile



All figure values are shown in current year (2023) dollars.

The condition assessment of the City's transportation assets provides some perspective on the overall reliability of its infrastructure. Due to the lack of age and condition data available from Enova regarding

streetlights & light poles (largest asset type by replacement value), it is difficult to provide a comprehensive analysis. The City will reassess needs once more comprehensive age or condition data is available for these assets with unknown condition.

3.2 Asset Registry Completeness & Assumptions

In compiling this AM Plan, a thorough review of the asset registries was performed. The purpose of this review was to identify whether all asset categories under the leadership and stewardship of the responsible stakeholders are represented in a singular or combined asset registry. The review also looks to ensure that for those registries that do exist, fields that are critical to the assets' lifecycle and financial management are populated with accurate values. These values will provide the basis for meaningful asset management planning.

The following categories have been employed to assess the completeness of asset registries:

Table 3.2: Asset Registry Rating Categories

Data Rating	Description
Good	Data based on sound records, procedures, investigations and analysis, documented properly but may have minor shortcomings. Dataset is complete and estimated to be accurate $\pm 10\%$.
Fair	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
Poor	Dataset may not exist or be fully complete, and most data is estimated or extrapolated

Table 3.3: Asset Registry Assessment

Asset Category	Completeness of Asset Registry	Completeness of Existing Asset Registry Fields					
		Defined LOS	Initial Construction Costs	Installation Year	Condition	Estimated Service Life	Description
Streetlights & Poles	Fair	Good	Good	Poor	Poor	Poor	Good
Traffic Signs & Pedestrian Crossings	Fair	Good	Good	Poor	Poor	Poor	Good
Pedestrian Railings & Guiderails	Fair	Good	Good	Poor	Poor	Poor	Good
Road and Pedestrian Islands & Traffic Calming	Fair	Good	Good	Fair	Fair	Fair	Good
Street Furniture & Other Furnishings	Fair	Good	Good	Fair	Fair	Fair	Good

Where asset registries are missing critical data or fields are found to be incomplete, there may be assumptions of the data that have to be made to complete this AM Plan. While these assumptions are listed below, they will be put into more context as needed through this AM Plan.

- Assumptions were made regarding the estimated service life of certain assets. The estimated service lives for Pedestrian Crossings, Street Benches and Bollards were assumed to be 15 years.
- Based on feedback provided by the City, 50% of the streetlight (lighting element) inventory is assumed to be in Very Good condition and the remaining 50% is assumed to be in Good condition due to a recent project undertaken by the City to replace all street light elements.

4.0 LEVELS OF SERVICE

In the State of Infrastructure Section, the value, age, and condition of the City's infrastructure assets were discussed. The Levels of Service (LOS) chapter builds on the State of Infrastructure by defining the performance the City's assets are intended to deliver over their service lives.

LOS are statements that describe the outputs and objectives the City intends to deliver to its residents, businesses, and other stakeholders. In general, LOS are guided by a combination of customer expectations, legislative requirements, internal policies and procedures, and affordability. Effective asset management requires that LOS be formalized and supported through a framework of performance measures, performance levels, and timeframes to achieve performance levels, such that the activities and costs to deliver the documented LOS can be determined.

Figure 4.1 shows the LOS framework and line of sight from higher-level Corporate priorities to detailed asset-specific Technical LOS. Corporate commitments and legislated LOS guide the development of Community LOS. The Community LOS outline the services that the assets need to deliver to the City's residents and businesses. Community LOS can be categorized into one of the following service attributes:

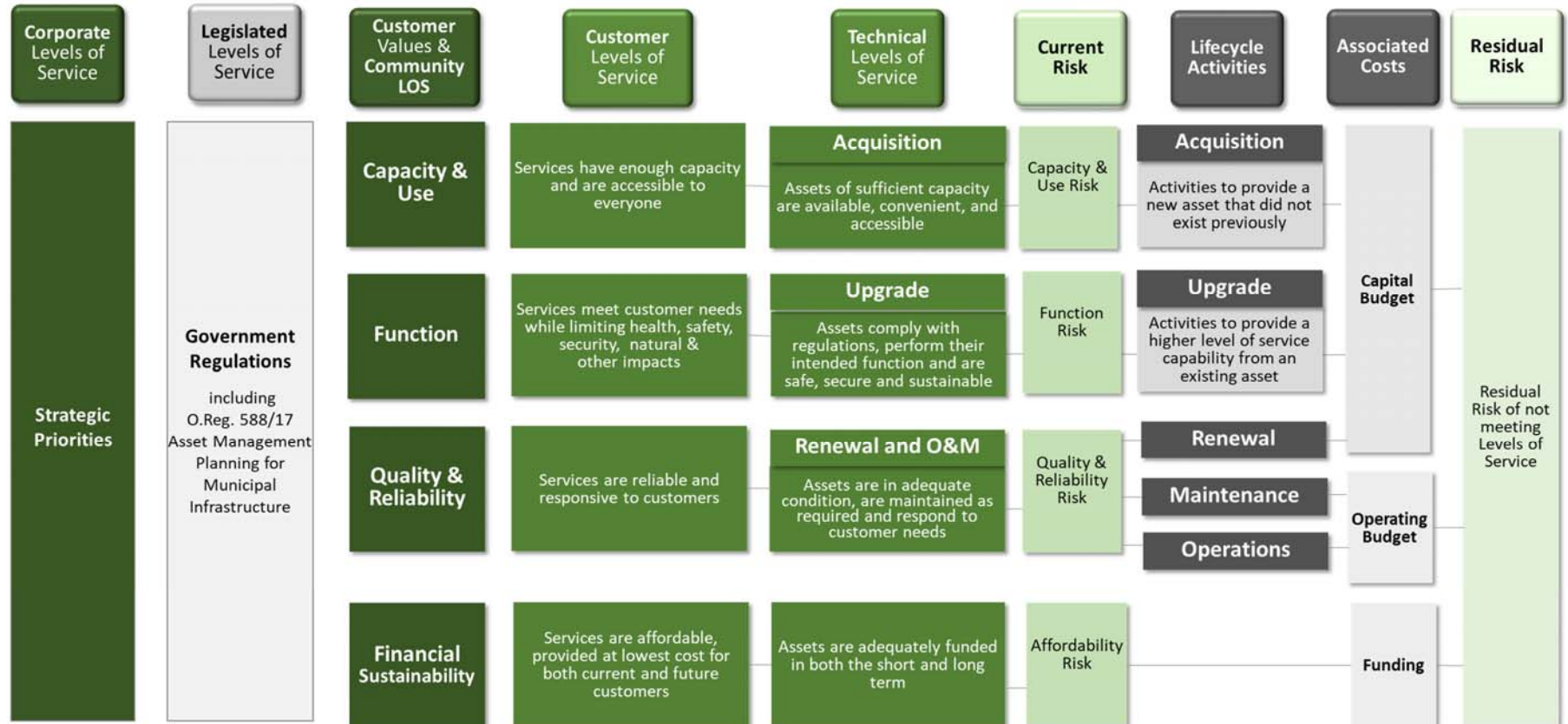
- **Capacity & Use:** Services have enough capacity and are available to customers
- **Function:** Services meet customer needs while limiting health, safety, security, natural and heritage impacts
- **Quality & Reliability:** Services are reliable and responsive to customers
- **Financial Sustainability:** Services are affordable and provided at the lowest cost

Community LOS are translated into Customer LOS, which measure services from a resident/business perspective, and Technical LOS that define asset performance levels. These LOS in turn define asset needs and drive the required lifecycle activities and associated funding to mitigate risks, as follows:

- Capacity & Use LOS inform **Acquisition** needs
- Function LOS inform **Upgrade** needs
- Quality & Reliability LOS inform **Renewal, Operations and Maintenance** needs
- Financial Sustainability LOS inform **Funding** needs

This Line of Sight shows how the day-to-day management of City assets supports the achievement of higher-level strategic priorities.

Figure 4.1: Levels of Service Framework



4.1 Customer Research and Expectations

This AM Plan is prepared to facilitate consultation prior to adoption of levels of service by the City of Kitchener. Future revisions of the AM Plan will incorporate customer consultation on service levels and costs of providing the service. This will assist Council and stakeholders in matching the level of service required, service risks and consequences with the customer's ability and willingness to pay for the service.

At this time, there is no research on customer expectations. This will be investigated for future updates of the AM Plan.

4.2 Strategic and Corporate Goals

This AM Plan is prepared under the direction of the Corporate Asset Management Strategy which is in alignment with the City of Kitchener's Strategic Plan (2023 – 2026). The City of Kitchener's Strategic Plan was developed with the consultation of residents, community organizations, businesses and councilors. Further to this, the AM Strategy supports the United Nations Sustainability Goals (SDGs) which outline the ways to achieve a better and more sustainable future for all.

The City's mission is:

"Proudly providing valued services for our community. Our promise to the community is that we'll deliver on the priorities that matter to them: people-friendly transportation, environmental leadership, a vibrant economy, a caring community and great customer service"

Strategic goals have been set by the City of Kitchener. The relevant goals and objectives and how these are addressed in this AM Plan are summarised in Table 4.2.

Table 4.2: Goals and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in the AM Plan
Building a Connected City Together	We live in all kinds of neighbourhoods and types of housing. We work together to ensure that we each have secure and affordable homes. We get around easily, sustainably and safely to the places and spaces that matter most to us.	Maintaining and enhancing the City's transportation infrastructure plays an important role in building a connected city. This infrastructure supports road networks and pedestrian travel which allows for efficient mobility of residents.
Stewarding a Better City Together	We, the City's employees, are stewards of Kitchener's present and its future. We're responsive, innovative, diverse and accountable public servants who work together efficiently to serve residents. We remove barriers and champion residents' collective vision for a better city and a better world.	Investing in infrastructure upgrades and innovations that promote safety and accessibility aligns with the goal of stewarding a better city together.

4.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Some of the legislative requirements that impact the delivery of the services provided by the City's non-core transportation assets are outlined in Table 4.3. This AM Plan is prepared in accordance with O.Reg 588/17 – Asset Management Planning for Municipal Infrastructure, which lays out the requirements for Asset Management Plans prepared by municipalities across Ontario and milestones that all municipalities are required to meet. This AM Plan meets the July 1st, 2024, requirements and establishes a framework for meeting the July 1st, 2025, requirements. Please note that this list of legislative requirements is not exhaustive.

Table 4.3: Legislative Requirements

Legislation	Requirement
Ontario Regulation 588/17	Establishes strategic, long-term, sustainable plans to manage core and non-core capital infrastructure assets by 2024. The Regulation requires: • Municipal governments to adopt AM Plans for all infrastructure assets including identifying levels of service and costs of maintaining services. • Municipal governments to set technical metrics and qualitative descriptions for each asset
The Accessibility for Ontarians with Disabilities Act, 2005 (AODA)	The purpose of the AODA is to develop, implement and enforce standards for accessibility related to goods, services, facilities, employment, accommodation and buildings.
Technical Standards and Safety Act, 2000	Facilities must comply with technical standards and safety regulations depending on the industry or equipment they include, such as street lights and traffic signals.
Ontario Regulation 239/02, Minimum Maintenance Standards (MMS)	Establishes minimum standards for road and highway maintenance for all municipalities. MMS regulations pertain to various elements of road repair and maintenance, such as the frequency of road inspections, weather monitoring, ice formation on roadways, snow accumulation, and sidewalk trip ledges.

4.4 Customer Values and Community Levels of Service

The LOS discussed in this AM Plan are focused on measures developed to support achievement of the City's higher level strategic priorities and key areas of investment.

This AM Plan summarizes the performance on the measures based on the most current data available. The City will determine targets (proposed service levels) per O.Reg.588/17 requirements for Proposed LOS by 2025 and will align service levels with information in other planning documents when determining these targets.

As discussed in Section 4.0, service levels are defined in three ways: community levels of service, customer levels of service and technical levels of service. Community LOS are qualitative statements categorized by service values and attributes.

Service Values and attributes indicate what aspects of the service is important to the customer.

Table 4.4: Service Values and Community LOS

Service Value	Service Attribute	Customer Satisfaction Measure	Community LOS (Customer Satisfaction Measure)
Capacity & Use	Capacity/Use	Is the service over or under used? do we need more or less of these assets?	Ensure adequate infrastructure to meet growing population and community needs
	Available	The service can be used/reached at convenient times	
	Scope	The service is broad enough that it serves the entire population	
Functional	Function	Services meet customer needs while limiting health, safety, security, natural and heritage impacts	Provide accessible infrastructure for inclusion and meeting diverse resident needs
	Safety	The service is provided in a manner that protects users from harm	
	Resilience	Considers future impacts such as climate change that may put stress on the system.	Upgrade and standardize outdoor lighting to LED technology.
Quality & Reliability	Quality	The standard to which the service is provided	Provide infrastructure in acceptable condition and cleanliness by following and providing proper maintenance standards and inspections
	Reliable	Consistently good in quality or performance - works when service users expect it to work	Maintain infrastructure proactively to minimize unexpected failures
Financial Sustainability	Affordable	How much does the service cost? Is it fair and is the service provided worth this cost?	Provide infrastructure management services in an efficient and cost-effective manner
	Efficient	Service is provided with maximum productivity and minimal wasted effort	

In the following sections for Customer and Technical LOS, under each relevant service value, there is a summary of the performance measure being used, the current and past performance, and the expected performance or trend based on the current budget allocation. It is important to note that not all service values are applicable to all asset categories. The trends that are identified show both the nature of the trend; up, down or on par, while identifying by colour if the trend is positive, neutral, or negative relative to the service that is being delivered. For example:



Indicates an upwards trend that is seen as positive in the delivery of the service relative to the target level of service.



Indicates an upwards trend that is seen as neutral in the delivery of the service relative to the target level of service.



Indicates an upwards trend that is seen as negative in the delivery of the service relative to the target level of service.

4.5 Customer Levels of Service

Customer Levels of Service can be identified as community expectations on certain services as well as how the more technical work activities are impacting customer experiences. The Customer Levels of Service performance measures highlight data that has direct impact on a citizen.

Table 4.5: Customer Level of Service Measures

Customer Focused Levels of Service							
Value of Service	Community LOS	Performance Measure	Target	Trend	2023	2022	2021
Quality & Reliability	Provide infrastructure in acceptable condition and cleanliness by following and providing proper maintenance standards and inspections	% of assets within service life (by replacement value)	Monitor Only	Not available	91.3*	Not available	Not available

*Note that the performance measure of assets within service life is not a comprehensive analysis as various assets are missing age and condition data and have been excluded from this calculation.

4.6 Technical Levels of Service

Operational or technical measures of performance are used to demonstrate delivery of customer service values (i.e., the achievement of Customer Levels of Service). These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

Acquisition	The activities to provide a new service that did not exist previously, or an expansion of an existing service.
Upgrade	The activities to provide a higher level of service than previously provided.
Operation	The regular activities to provide services.
Maintenance	The activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life.
Renewal	The activities that return the service capability of an asset up to that which it had originally provided.

In most cases, Technical LOS have been measured and reported on over the past three years. By comparing the LOS for the current year against that of previous years, a trend can be identified and qualified. It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on data availability, existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities and lifestyle trends will change over time. Table 4.6 shows the activities expected to be provided under the current 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan. Table 4.6 uses the same trend identifiers used in the previous section (4.5).

Table 4.6: Technical Levels of Service

Technical Focused Levels of Service						
Lifecycle Activity	Performance Measure	Target	Trend	2023	2022	2021
Operations	# of overall collisions on City-owned roads	Monitor Only	Future Metric	Not available	Not available	Not available
	# of Injury or Death collisions on City-owned roads	Monitor Only	Not available	Not available	101	77
Upgrade	# of permanent road safety improvements installed per year	Monitor Only	Future Metric	Not available	Not available	Not available
	% of street reconstruction projects having a Complete Streets Scorecard completed at the design stage (Complete Streets Guidelines)	100%	Future Metric	Not available	Not available	Not available
	% completion of recommendations from Cycling and Trails Master Plan	100%	Future Metric	Not available	Not available	Not available
	% completion of recommendations from Vision Zero Strategy	100%	Future Metric	Not available	Not available	Not available
Operations	% of regulatory signs passing sign reflectivity testing standards	100%	Future Metric	Not available	Not available	Not available

Sufficient data is currently unavailable for the technical levels of service listed above, however these metrics will continue to be monitored by the City for inclusion in future iterations of the AM Plan.

5.0 FUTURE DEMAND

5.1 Demand Impact and Demand Management Plan

Population growth and its geography can have major impacts on the scale of services delivered by the City and the assets that support service delivery. The City's approaches to accommodate growth needs are described in the Official Plan. The 2014 Official Plan provides policies for guiding and directing growth and development to enable the City's success of achieving the vision to be a complete and healthy community. This section focuses on the capital growth expenditures planned by the City to meet growing demands and manage the risks to the service levels. Growth also results in an increasing asset portfolio over the forecast period with associated impacts on the operating budget, discussed further in Section **Error! Reference source not found.** as part of the Lifecycle Strategy.

The population of the City of Kitchener and surrounding areas has been rapidly growing over the past few decades and is expected to continue to grow at a similar pace in the coming years. The City monitors trends in its population to ensure that the associated impacts on service levels are well understood and that strategies are developed to manage risks related to the additional demands due to growth and changes in demographics. The 2014 Official Plan sets out the estimated population and employment forecasts to 2031. Updated forecasts are provided in the City's 2022 Development Charge Study, which forecasts that the City's population will increase from 250,247 in 2021 to 309,120 in 2036 (the current population (2023) is estimated at 270,000). Employment was estimated at 99,662 jobs in 2021, and is expected to reach 123,825 jobs by 2036.

Demand drivers are circumstances that may impact future service delivery and use of assets. These drivers can include things such as population change, climate change, regulations, changes in demographics, seasonal factors, consumer preferences and expectations, technological changes, economic factors, environmental considerations, etc.

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 5.1.

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-infrastructure solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in Table 5.1. Further opportunities will be developed in future revisions of this AM Plan.

Table 5.1: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Population Growth	270,000 (2023)	309,120 (2036)*	As development in the City grows, new transportation assets will be added to the City's portfolio.	Continue to forecast and manage developer provided non-core transportation assets.

*2022 Development Charge Study

5.2 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in Section 6.4.

Acquiring new assets will commit the City of Kitchener to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 8).

5.3 Climate Change Adaptation

The impacts of climate change may have a significant impact on the assets under management and the services they provide. In the context of the Asset Management Planning process, climate change can be considered as both a demand driver and a risk.

The City of Kitchener's Corporate Climate Action Plan (CorCAP) is the City's guiding policy document on climate change in accord with the Region of Waterloo's "A Climate Action Plan for Waterloo Region". The City of Kitchener's mitigation and adaptation strategy for the Corporate Climate Action Plan is to lead by example with action on climate change to reduce corporate greenhouse gas emissions and promote inclusive environmental sustainability and resilience. This supports the City's corporate mission of 'proudly providing valued services for our community, and strategic goals of environmental leadership, by working to ensure we can safeguard the City's assets and stakeholders.¹

Currently, the City does not have any risks or opportunities related to managing the impact of climate change on their non-core transportation assets or services.

Additionally, the way in which we construct new assets should recognize that there is opportunity to build in resilience and adaptation to climate change impacts. Building Asset Resilience to Climate change for any facilities related to transportation services have been covered in the Facilities AM Plan.

¹ Kitchener Changing for Good, Our Climate Strategy Action Plan, Sec 1.1

6.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the City of Kitchener plans to manage and operate the assets at the agreed levels of service (Refer to Section 4) while managing life cycle costs.

6.1 Operations and Maintenance Plan

Operations include regular activities to provide services and may not have a direct impact to the overall health of the asset. Examples of typical operational activities include cleaning, asset inspection and supply of power.

Maintenance includes all actions necessary for retaining an asset as near as practicable in an appropriate condition including regular ongoing day-to-day work necessary to keep assets operating. As well, maintenance activities strive to ensure that the asset's degradation follows the expected lifecycle rather than accelerating towards an earlier disposal or replacement cycle. Examples of typical maintenance activities include minor repairs.

The trend in operations and maintenance budgets are shown in Table 6.1.

Table 6.1: Operations & Maintenance Budget Trends

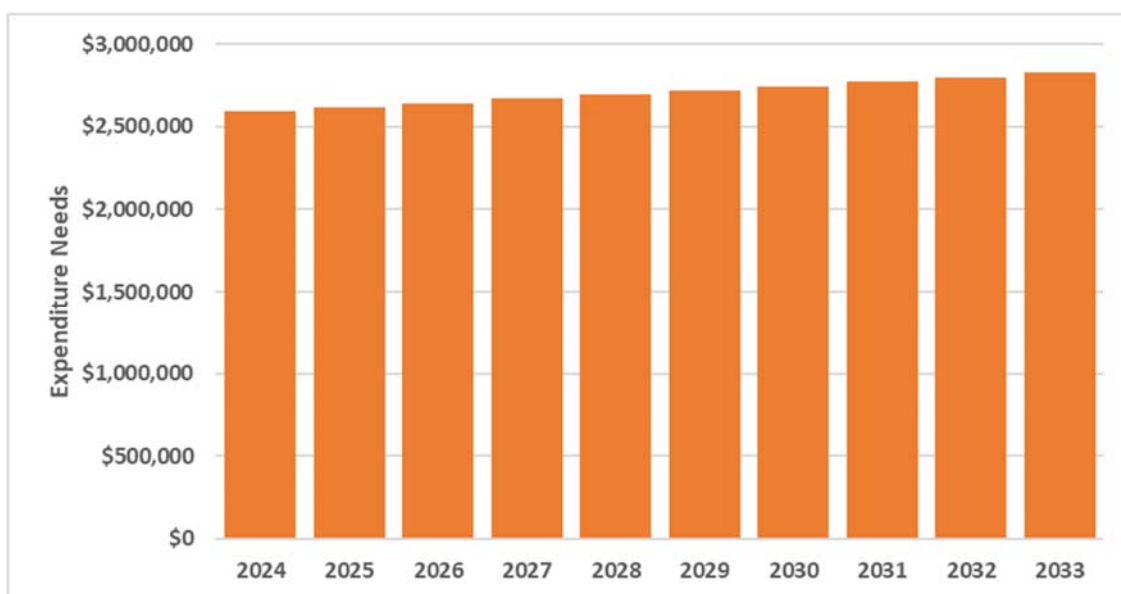
Year	Budget \$
2019	To be provided in future version of AM Plan
2020	To be provided in future version of AM Plan
2021	\$2,379,913
2022	\$2,496,395
2023	\$2,562,731
2024	\$2,594,272

Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this AM Plan. Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement.

Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset inventory. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. Figure 6.1 shows the forecast operations and maintenance costs.

Figure 6.1: Operations and Maintenance Summary



All figure values are shown in current year (2023) dollars.

The operations and maintenance costs are forecasted to increase over the next 10 years in line with the additional and expanded assets planned to be built.

6.2 Renewal Plan

Renewal is typically carried out through major capital work which does not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an acquisition resulting in additional future operations and maintenance costs.

Table 6.2.1: Renewal Activities

Renewal Activity	Budget
2019	To be provided in future version of AM Plan
2020	To be provided in future version of AM Plan
2021	To be provided in future version of AM Plan
2022	To be provided in future version of AM Plan
2023	To be provided in future version of AM Plan
2024	\$276,152

Assets requiring renewal are identified from one of two approaches in the Lifecycle Model.

- The first method uses Asset Register data to project the renewal costs (current replacement cost) and renewal timing, or
- The second method uses an alternative approach to estimate the timing and cost of forecast renewal work (i.e. condition modelling system, staff judgement, average network renewals, or other).

The useful lives of assets used to develop projected asset renewal forecasts are shown in Table 6.2.2.

Table 6.2.2: Useful Lives of Assets

Asset	Useful life
Streetlight	20
Streetlight Pole	50
Pedestrian Crossing & Beacon	15
Guiderail	50
Railing	50
Road Islands	50
Raised Crosswalk	50
Speed Hump	50
Bollards	15
Street Benches	15
Pedestrian Pads	50
Traffic Signs	15

The estimates for renewals in this AM Plan were based on the asset register data.

6.2.1 Renewal ranking criteria

Asset renewals are typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the expected service it was constructed to, or
- To ensure the infrastructure is of sufficient quality to meet the service requirements.

It is possible to prioritize renewals by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have a condition score that is less than the threshold to provide an expected level of service
- Have high use and subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.

The ranking criteria used to determine priority of identified renewal proposals is detailed in Table 6.2.1.1.

Table 6.2.1.1: Renewal Priority Ranking Criteria

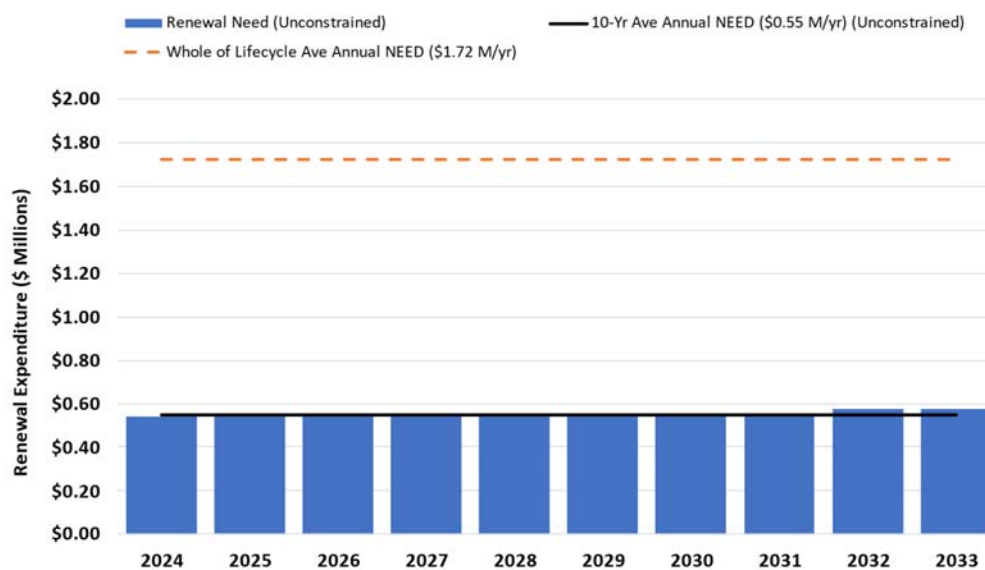
Criteria	Weighting
Consequence of Failure - Financial Impact - Health & Safety Impact - Service Delivery Impact - Environmental Impact	50%
Probability of Failure - Physical Condition Rating - Performance Rating	50%
Total	100%

6.3 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset inventory increases, renewal schedules are delayed and/or budgets are reprioritized. The forecast of renewal costs is based on the available inventory data and feedback provided by the City. Note that only Pedestrian Crossings and Streetlights & Poles have been included in the renewal forecast. The remaining assets are replaced as part of road reconstruction and these renewal amounts are paid for from the capital budget for Engineering Services. This analysis incorporates two separate renewal forecasting scenarios; the Unconstrained renewal forecast scenario (which replaces assets as needed at end of life) and the Maintain LOS renewal forecast scenario (which defers the replacement of certain assets in order to maintain the condition profile of assets over the course of the analysis period). However, for the purposes of this analysis, only one renewal forecast scenario (Unconstrained) was considered because it is necessary to maintain the current condition profile of non-core transportation assets. Additionally, based on feedback provided by the City, certain assets are funded through the operating budget and have been excluded from the renewal forecast.

The forecast costs associated with renewals are shown in Figure 6.3.

Figure 6.3: Forecast Renewal Costs



All figure values are shown in current year (2023) dollars.

Table 6.3: Forecast Renewal Activities (Unconstrained)

Year	Current Funding	Unconstrained Renewal Forecast
2024	\$276,152	\$541,928
2025	\$281,674	\$541,928
2026	\$287,313	\$541,928
2027	\$293,059	\$541,928
2028	\$298,920	\$541,928
2029	\$304,900	\$541,928
2030	\$311,000	\$541,928
2031	\$317,000	\$541,928
2032	\$323,000	\$576,928
2033	\$329,460	\$576,928
Annual Average	\$302,248	\$548,928

Assets with unknown condition (i.e. missing data on install date and staff reported condition) are forecasted using an average annual renewal amount (asset value / service life). For this reason, some of the renewal amounts in the chart above are consistent throughout the analysis period with the exception of certain assets which will need replacement at the end of their service life.

6.4 Acquisition Plan

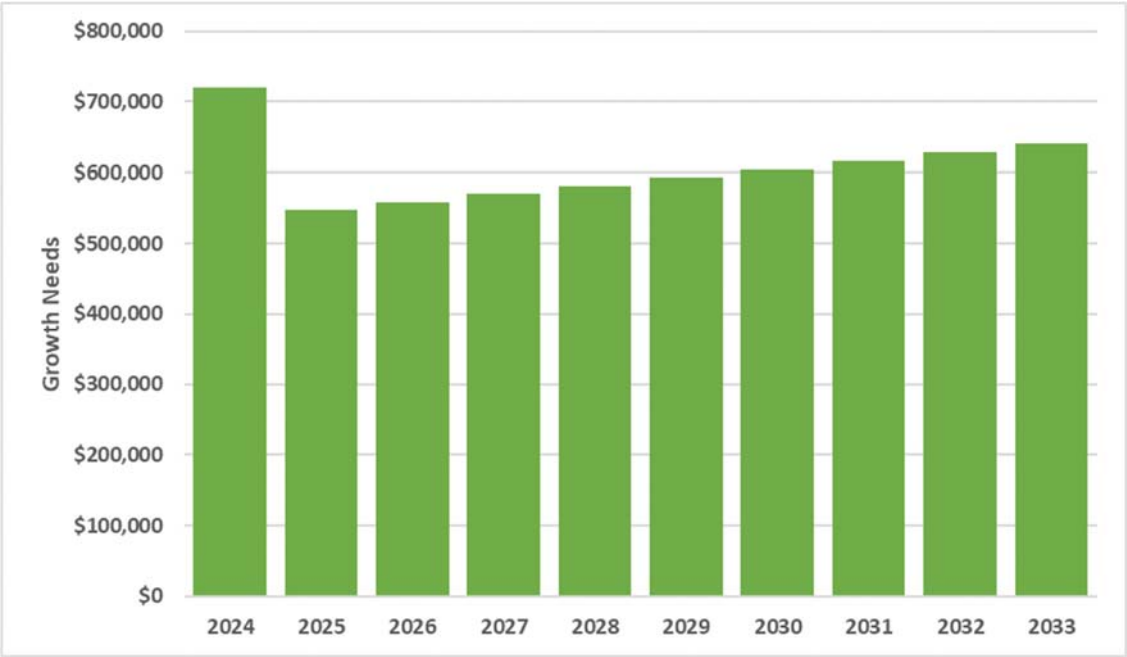
Acquisition reflects new assets that did not previously exist within the inventory. They may result from growth, demand, social or environmental needs. Assets may also be donated to the City of Kitchener through various means including subdivision development and expansion of existing services or the inclusion of new services.

6.4.1 Selection criteria

Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests; proposals identified by strategic plans or master plans; and partnerships with others. Potential upgrades and new works should be reviewed to verify that they are essential to the City's needs and fits long range planning. Proposed upgrades and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals by asset Leads can then be ranked by priority and available funds and scheduled in future works programs. Currently, no ranking criteria has been established for the acquisition of transportation assets, however this will be developed in future revision of this AM Plan.

The 2024 – 2033 Capital Plan contains three projects (Traffic Calming, Neighbourhood Speed Reduction and LED Lighting Conversion) which has been categorized as acquisition (growth and will serve as a basis for the City's growth needs. Forecast acquisition asset costs are summarized in Figure 6.4 and shown relative to the proposed acquisition budget.

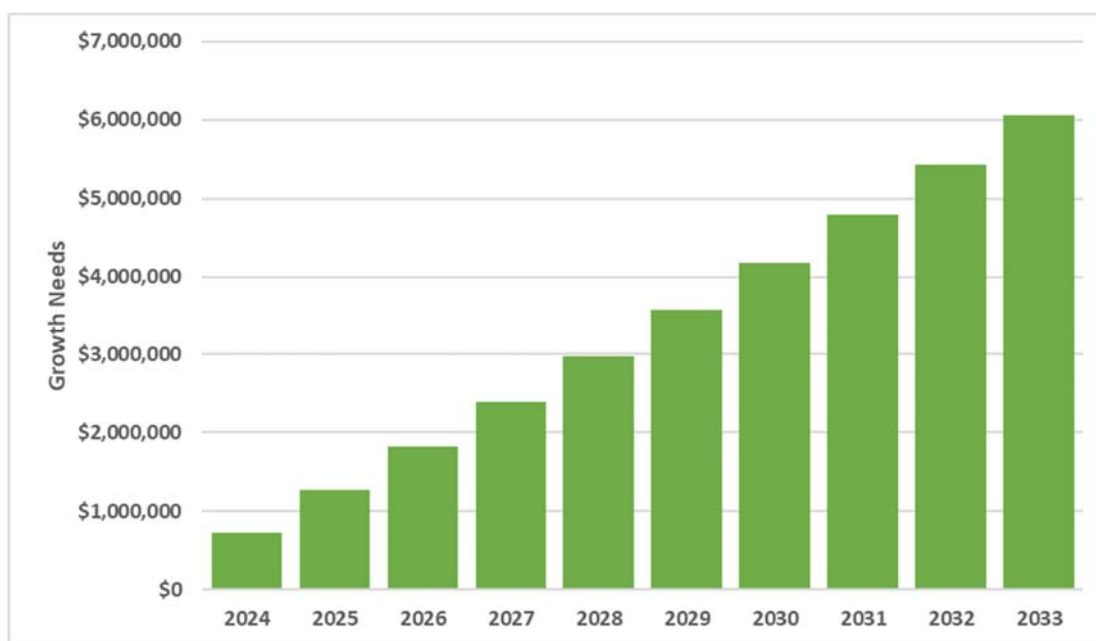
Figure 6.4: Yearly Acquisition Summary



All figure values are shown in current year (2023) dollars.

When the City introduces new assets, there must be a recognition for the need for future operational funding for service, maintenance and renewal costs. Future depreciation must be accounted for when reviewing long term sustainability, lifecycle and total cost of ownership. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by the asset steward. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 6.4.2.

Figure 6.5: Cumulative Acquisition Summary



All figure values are shown in current year (2023) dollars.

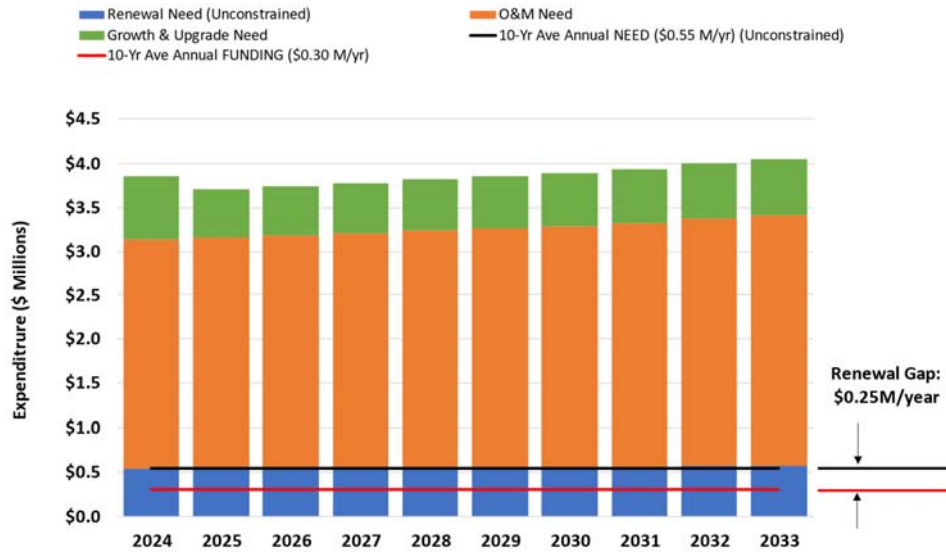
Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding. The City plans for growth such that there is sufficient community infrastructure and facilities to meet the current and projected needs of the population. Acquiring these new assets will commit the funding of ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required.

Summary of asset forecast costs

The financial projections from this asset plan are shown in Figure 6.6. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget. The 2024 – 2033 Capital Plan contains one project (Street Light Maintenance) which has been categorized as renewal and will serve as a basis for the City’s renewal budget when calculating the renewal gap.

The bars in the graphs represent the forecast costs needed to cost-effectively allocate the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

Figure 6.6: Lifecycle Summary



All figure values are shown in current year (2023) dollars.

The operating and maintenance needs covered by the Operating budget is required to increase annually as new assets are acquired. Though there is no current funding shortfall identified for acquisition needs, there is an average annual estimated gap of \$0.25 million for renewal needs.

6.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Currently, the City has no transportation assets which have been formally identified for decommissioning and disposal.

6.6 Non-Infrastructure Solutions

Non-Infrastructure solutions are infrastructure related costs that may not be associated with any one specific asset in the City's asset registry but are important in the planning and execution of the previous five asset lifecycle categories. Some of the non-infrastructure solutions can include the consultant costs in the creation of a master plan, working with partner organizations, customer surveys, restocking of maintenance vehicles, and inventory updates.

Table 6.6.: Non-Infrastructure Solutions Associated Project List

PROJECT NAME	TIMING	COST (10-yr Total)	SOURCE BUDGET
TRANS DEM MGMT INITIATIVES	2024 - 2033	\$2,591,020	2024 Capital Budget
SMALL SCALE TRAFFIC CALMING	2024 - 2033	\$196,129	2024 Capital Budget

It was noted by the City that the above initiatives are soft measures (such as transit passes) and will not be invested in physical assets.

7.0 RISK MANAGEMENT PLAN

The City of Kitchener is committed to identifying, assessing, and mitigating risks to ensure that corporate objectives are achieved. To this end, the City will maintain a long-term, robust Enterprise Risk Management strategy. Risk management is an integral part of management across the City. It forms part of strategic planning, business planning and project approval procedures. In addition, the policy assists in decision-making processes that will allocate resources to areas of highest risk. Identifying and managing risk is everyone's responsibility and is one component of good corporate governance².

7.1 Critical Assets

Critical assets are defined as those assets that provide life safety and public health and well-being to the community at large based on Provincial standards. Assets found in this category may be included for having a high consequence of failure causing significant loss or reduction of service directly impacting services to the community. Critical assets have been identified as having a consequence of failure rating of 4 or 5. Their typical failure mode, and the impact on service delivery, are summarized in Table 7.1. Failure modes may include physical failure, collapse or essential service interruption.

Table 7.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Streetlight Pole	Physical Failure	Interruption to service delivery and potential harm or injury to the public
Pedestrian Crossing & Beacon		

By identifying critical assets and failure modes the City can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted to minimize risks.

7.2 Risk Assessment

The City of Kitchener has adopted an impact criteria and risk category matrix that quantifies the impact and likelihood criteria and assigns a numerical value to the resulting score. All City risk registers will use this terminology to ensure consistency in understanding across the City's assets.

The risk registrar is an assessment process that identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, and development of a risk rating and evaluation of the risk. The City will develop a risk treatment plan for non-acceptable risks as part of future improvement.

An assessment of risks associated with service delivery identifies risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences. Consequence of failure is determined based on the average rating across the consequence categories in the following matrix:

² City of Kitchener, Corporate Risk Management (GOV-COR-016), p 2

Table 7.2 Consequence of Failure Rating Scale

Consequence Categories (Triple Bottom Line)		C1	C2	C3	C4	C5
		Insignificant	Minor	Moderate	Major	Extreme
Economic	Financial	Damages, losses, or fines of under \$30,000	Damages, losses, or fines of \$30,000-\$120,000	Damages, losses, or fines of \$120,000-\$500,000	Damages, losses, or fines of \$500,000-\$1,000,000	Damages, losses, or fines of over \$1,000,000
Social	Health & Safety	No obvious potential for injury or affects to health.	Potential for minor injury or affects to health of an individual.	Potential for serious injury or affects to health of one or more individuals with a possibility of short-term disability or hospitalization.	Potential for serious injury or affects to health of one or more individuals with a possibility of loss of a life.	Potential for death or multiple deaths with probable permanent damage.
%	Service Delivery	Small number of customers experience disruption or impact and no media exposure is experienced.	Localized service disruption or impact and minor or no media exposure is experienced.	Significant localized disruption or impact or there will likely be moderate local media exposure which may last several days.	Major or Critical service disruption or impact, or there will likely be significant, negative, local or provincial media exposure which may last several days.	City-wide or Critical service disruption or impact, or there will likely be significant, negative, national or international media exposure lasting several days or weeks.
Environmental	Environment	Asset degradation/failure has negligible impact on environment, emissions, and pollution.	Asset degradation/failure has minor impact to the environment including potential for increased emissions or pollution.	Asset degradation/failure has significant short-term impact to the environment including a likely increase of emissions or pollution.	Asset degradation/failure poses risk of environmental contamination and/or has significant long-term impact. Likely a substantial increase to emissions or pollution.	Asset degradation/failure poses significant risk to environment including a major long-term impact. Likely to result in contamination. May become of Provincial or Federal importance.

Probability of Failure of an asset is determined either by the physical condition or the performance ratings per the following tables:

Table 7.3 Probability of Failure Rating Scale

Physical Condition Rating		Performance Rating	
Score	Description	Score	Description
1	New / Very Good	1	Asset is functioning as intended with no issues identified
2	Good	2	Asset is functioning but could use minor maintenance
3	Fair	3	Asset is performing at a lower level than originally intended
4	Poor	4	Asset is performing to a much lower level than originally intended
5	Very Poor	5	Asset is not performing as originally intended

Critical risks are those assessed with a risk rating of High or Very High must have a mitigation plan. Due to the large portion of unknown assets in this AM Plan, the City does not currently have any non-core transportation assets which have a risk rating of High or Very High.

7.3 Infrastructure Resilience Approach

The resilience of our infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions we need to understand our capacity to 'withstand a given level of stress or demand', and to respond to possible disruptions to ensure continuity of service.

Resilience recovery planning, financial capacity, climate change risk assessment and crisis leadership are key components to consistency.

We do not currently measure our resilience in service delivery. This will be included in future iterations of the AM Plan.

7.4 Service and Risk Trade-Offs

The decisions made in balancing the costs and resource requirements for maintaining expected levels of service to addressing risk are based on the objective to achieve the optimum benefits from the available resources.

7.4.1 Potential Gaps

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Planned maintenance (preventive maintenance programs)
- Deferred renewal work (\$0.25 million per year)

7.4.2 Service trade-off

If there is forecasted work (operations, maintenance, renewal, acquisition or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- If some of the planned maintenance is not completed, this typically results in more unplanned service disruptions.
- Deferred capital renewal work may result in lower facility condition that does not meet user expectations and potential facility closures.

7.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may sustain or create risk consequences. These risk consequences include:

- An increase in unplanned repairs and associated service disruptions.
- Higher lifecycle management costs, deteriorating assets, and potential facility closures.
- Deteriorating assets may be unsafe and expose the City of Kitchener to potential liabilities.

These actions and expenditures are considered and included in the forecast costs, and where developed, the Risk Management Plan.

8.0 FINANCIAL SUMMARY

This section contains the financial requirements resulting from the information presented in the previous sections of this AM Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

8.1 Financial Sustainability and Projections

8.1.1 Sustainability of service delivery

Medium term – 10 year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall or surpluses.

The forecasted operations, maintenance and renewal costs over the 10 year planning period is \$3.26M on average per year.

The proposed (budget) operations, maintenance and renewal funding is \$3.01M on average per year giving a 10 year funding shortfall of \$0.25M per year. This indicates that approximately 92% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

8.1.2 Forecast Costs (outlays) for the long-term financial plan

Table 8.1.2 shows the forecast costs (outlays) required for consideration in the 10 year long-term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the AM Plan (including possibly revising the long-term financial plan).

We will manage the 'gap' by developing this AM Plan to provide guidance on future service levels and resources required to provide these services in consultation with the community.

Forecast costs are shown in current year (2023) dollar values.

Table 8.1.2: Forecast Costs (Outlays) for the Long-Term Financial Plan

Year	Acquisition	Operation & Maintenance	Renewal (Unconstrained)	Disposal
2024	\$720,862	\$2,594,272	\$302,248	\$0
2025	\$547,599	\$2,618,231	\$302,248	\$0
2026	\$558,553	\$2,642,670	\$302,248	\$0
2027	\$569,723	\$2,667,598	\$302,248	\$0
2028	\$581,118	\$2,693,024	\$302,248	\$0
2029	\$592,747	\$2,718,959	\$302,248	\$0
2030	\$604,607	\$2,745,413	\$302,248	\$0
2031	\$616,699	\$2,772,396	\$302,248	\$0
2032	\$629,034	\$2,799,919	\$302,248	\$0
2033	\$641,615	\$2,827,992	\$302,248	\$0

8.2 Funding Strategy

The proposed funding for assets is outlined in the City's budget and Long-Term financial plan.

The financial strategy of the City determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

8.3 Valuation Forecasts

8.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued by various methods based on available information.

Replacement Cost (Current) \$58.6 million

8.3.2 Valuation forecast

Asset values are forecast to increase as additional assets are added.

Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

8.4 Key Assumptions Made in Financial Forecasts

In compiling this AM Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions related to the financial forecasts made in this AM Plan are:

Acquisition Forecast:

- o Growth projects are based on projects and associated costs identified in the City's Capital Plan.

Renewal forecast:

- o Only Pedestrian Crossings and Streetlights & Poles have been included in the renewal forecast. The remaining assets would be replaced as part of road reconstruction and these renewal amounts would be captured as part of the capital budget for Engineering Services.
- o The potential impacts of climate change on state of good repair costs are not included.
- o The potential increases in lifecycle costs due to deferred renewal work are not included.
- o Any assets forecasted using an annuity (asset value / service life) or any assets that are funded through operating are assumed to be maintained in their current condition throughout the analysis period.

Operations & Maintenance Forecast

- o The potential impacts of climate change on maintenance costs are not included.
- o The current operating budget is increased based on the percentage increase in the asset portfolio (by replacement value) identified in the acquisition (growth) forecast.
- o Potential gaps in the operating budget, such as underfunding in the planned maintenance activities have not been quantified in this AM Plan.

8.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale³ in accordance with Table 8.5.1.

Table 8.5.1: Data Confidence Grading System

Confidence Grade	Description
A. Very High	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B. High	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C. Medium	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D. Low	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E. Very Low	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 8.5.2.

Table 8.5.2: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand Drivers	High	Population growth was updated in the City's 2022 Development Charges Study.
Growth Projections & Acquisition Forecast	Medium	Based on input from the City, all acquisition (growth) projects in the Capital Plan have been captured in determining the City's acquisition (growth) needs. However, only growth needs relating to Street Lighting and Pedestrian Crossings have been captured in the forecast.
Operation & Maintenance Forecast	Medium	Based on input from the City, all cost centres in the Operating Budget have captured in determining the City's operating and maintenance needs, however the forecast does not quantify current shortfalls such as underfunding for planned maintenance.
Renewal Forecast	Low	Asset values and estimated service lives are based on the best available data and feedback provided by the City, however a significant portion of asset data is missing age and condition.
Disposal forecast	N/A	Disposal strategy is to be developed in future iterations of the AM Plan.

The estimated confidence level for and reliability of data used for the financial analysis in this AM Plan is considered to be Low.

9.0 PLAN IMPROVEMENT AND MONITORING

9.1 Status of Asset Management Practices

9.1.1 Accounting and financial data sources

This AM Plan does not include the depreciation valuation and therefore does not utilize the City's accounting data source (Tangible Capital Asset data set).

9.1.2 Asset management data sources

This AM Plan utilizes asset management data. The source of the data is:

- Non-Core Master List of Assets
 - List of assets included within each service area.
 - 2023 current replacement values
 - Other asset attributes such as install year/date, asset ID, etc.
- Condition assessments provided by City staff as of the end of 2023.
- City of Kitchener 2024-2033 Capital Plan, including forecast of renewal, upgrade and growth projects

9.2 Improvement Plan

It is vital in any AM Plan to recognize areas of future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in Table 9.1.

Table 9.1: Improvement Plan

Task	Task	Responsibility	Prerequisite Task	Timeline
1	City to formalize a condition assessment program to complete condition assessments for any assets currently listed in Unknown condition or assets that use age as a proxy for determining condition. This will help to inform more effective lifecycle needs and financial strategies for these assets.	Transportation Services	None	2024 – 2025
2	City to monitor and update replacement values of assets as they undertake renewal projects. Also, additional review of unit costs is recommended in future updates of replacement value.	Transportation Services	None	2024 – 2025
3	City to formalize levels of service and monitor performance on measures included in the AM Plan, on an annual basis or multi-year schedule. In the next AM Plan, per O.Reg. 588/17 requirements in 2025, set proposed service levels (targets). Additionally, review and update service levels (add or remove measures, and set targets) as required to reflect alignment with other city plans and studies.	Transportation Services	None	2024 – 2025

4	Conduct formal risk assessments to prioritize preventative maintenance activities, as well as renewal / capital investments	Transportation Services	Align with corporate risk management framework	2024-2025
5	City to continue to develop and update 10-year forecast of lifecycle activities based on formalized/update levels of service, formal risk assessments and updated asset information (as applicable).	Transportation Services	None	2024 – 2025

9.3 Monitoring and Review Procedures

This AM Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The AM Plan will be reviewed and updated at a maximum of every 5 years to meet the requirements of O.Reg.588/17 and ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets.

10.0 REFERENCES

- United Nations, Managing Infrastructure Assets for Sustainable Development
- Kitchener Changing for Good, Our Climate Strategy Action Plan
- City of Kitchener, Corporate Risk Management (GOV-COR-016), p 2
- O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure
- City of Kitchener Complete Streets Program 2019
- City of Kitchener Vision Zero Strategy 2021
- City of Kitchener Development Charges Study 2022
- City of Kitchener Strategic Plan 2023-2026
- City of Kitchener Official Plan 2014