
# Town of East Gwillimbury

## 2024 Corporate Asset Management Plan

This Asset Management Plan was prepared by:


Empowering your organization through advanced asset management, budgeting & GIS solutions

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# Executive Summary

The Institute of Asset Management (IAM) defines asset management as "the balancing of costs, opportunities and risks against the desired performance of assets to achieve an organization's objective". This involves the development and implementation of asset management strategies and long-term financial planning.

The overall replacement cost of the asset categories owned by East Gwillimbury totals $2.24 billion. 93% of all assets analyzed have a fair or better condition rating. Condition data is frequently collected by staff and third-party consultants through field inspections or desktop assessments. Collection methodologies vary greatly for each asset segment. As such, staff must develop standards to convert annual deficiency reports and inspection data to condition ratings suitable for asset management reporting.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. Using a combination of proactive lifecycle strategies and replacement only strategies to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Town's 10-year forecasted average annual capital requirement totals $18.8 million. This is the cost to bring all assets to a state of good repair. Based on a historical analysis of sustainable capital funding sources, the Town is committing approximately $8.2 million towards capital projects or reserves per year. This means that the town is currently funding 44% of the 10-year forecasted average annual capital requirements.

East Gwillimbury also looked at the planning forecast to the year 2051 aligned with master planning studies and growth reports. This longer-term forecast shows an annual average capital requirement of $32.1 million. With approximately $8.2 million directed toward capital projects and reserves annually, this longer-term forecast shows that the Town is funding 26% of the average annual capital requirements to 2051.

Addressing annual infrastructure funding shortfalls is a difficult and long-term endeavor for municipalities. Considering the Town's current funding position, it will require many years to reach full funding for current assets. Short phase-in periods to meet these funding targets may place too high a burden on taxpayers too quickly, whereas a phase-in period beyond 20 years may see a continued deterioration of infrastructure, leading to larger backlogs.

In addition to annual needs, there is also an infrastructure backlog of $50.5 million, which is an industry term used to calculate the cost to replace assets that remain in

service beyond their estimated useful life. Note that some of the backlog represents prudence through strategic asset deferrals. Through careful preventative maintenance practices, many assets remain in fair or better condition beyond their useful life defined in the Tangible Capital Asset Policy. Targeted and consistent condition assessments are integral to refining long-term replacement and backlog estimates.

Risk frameworks and levels of service targets can then be used to prioritize projects and help select the right lifecycle intervention for the right asset at the right time—including replacement or full reconstruction. The Town of East Gwillimbury has developed preliminary risk models which are integrated with its asset register. These models can produce risk matrices that classify assets based on their risk profiles.

Most municipalities in Ontario, and across Canada, continue to struggle with meeting infrastructure demands. This challenge was created over many decades and will take many years to overcome. To this end, several recommendations should be considered, including:

- Continuous and dedicated improvement to the municipality's inventory datasets, which form the foundation for all analysis, including financial projections and needs.
- Continuous refinements to the risk and lifecycle models as additional data becomes available. This will aid in prioritizing projects and creating more strategic long-term capital budgets.
- Development of key performance indicators for all infrastructure programs to establish benchmark data to calibrate levels of service targets for 2025 regulatory requirements.

East Gwillimbury has taken important steps in building its asset management program, including developing a more complete and accurate asset register—a substantial initiative. Continuous improvement to this inventory will be essential in maintaining momentum, supporting long-term financial planning, and delivering affordable service levels to the community.

# 1 About this Document

The Town of East Gwillimbury Asset Management Plan (AMP) was developed by PSD Citywide Ltd. in accordance with Ontario Regulation 588/17 ("O. Reg 588/17"). It contains a comprehensive analysis of the Town's infrastructure portfolio. This is a living document that should be updated regularly as additional asset and financial data becomes available.

## 1.1 Ontario Regulation 588/17

As part of the *Infrastructure for Jobs and Prosperity Act, 2015*, the Ontario government introduced Regulation 588/17 - Asset Management Planning for Municipal Infrastructure. Along with creating better performing organizations, more livable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

*Table 1 Ontario Regulation 588/17 Requirements and Reporting Deadlines*

| Requirement | 2019 | 2022 | 2024 | 2025 |
|---|---|---|---|---|
| 1. Strategic Asset Management Policy | ✓ | | ✓ | |
| 2. Asset Management Plans | | ✓ | ✓ | ● |
| State of infrastructure for core assets | | ✓ | | |
| State of infrastructure for all assets | | | ✓ | ● |
| Current levels of service for core assets | | ✓ | | |
| Current levels of service for all assets | | | ✓ | |
| Proposed levels of service for all assets | | | | ● |
| Lifecycle costs associated with current levels of service | | ✓ | ✓ | |
| Lifecycle costs associated with proposed levels of service | | | | ● |
| Growth impacts | | ✓ | ✓ | ● |
| Financial strategy | | | | ● |

## 1.2 Limitations and Constraints

The asset management program development required substantial effort by staff, it was developed based on best-available data, and is subject to the following broad limitations, constraints, and assumptions:

- The analysis is highly sensitive to several critical data fields, including an asset's estimated useful life, replacement cost, quantity, and in-service date. Inaccuracies or imprecisions in any of these fields can have substantial and cascading impacts on all reporting and analytics.
- User-defined and unit cost estimates, based typically on staff judgment, recent projects, or established through completion of technical studies, offer the most precise approximations of current replacement costs. When this isn't possible, historical costs incurred at the time of asset acquisition or construction can be inflated to the present day. This approach, while sometimes necessary, can produce highly inaccurate estimates.
- In the absence of condition assessment data that meets the assessment methodology, age was used to estimate asset condition ratings. This approach can result in an over- or understatement of asset needs. This is most prevalent on assets with a long service life and minimal degradation, such as watermains, not including appurtenances (hydrants, valves, etc.) which are inspected annually, at a minimum. As a result, financial requirements generated through this approach can differ from those produced by staff.
- The risk models are designed to support objective project prioritization and selection. However, in addition to the inherent limitations that all models face, they also require availability of detailed asset data to ensure asset risk ratings are valid, and assets are properly stratified within the risk matrix. Missing attribute data can misclassify assets.

These limitations have a direct impact on most of the analysis presented, including condition summaries, age profiles, long-term replacement and rehabilitation forecasts, and shorter term, 10-year forecasts that are generated from Citywide, the Town's primary asset management system.

These challenges are quite common among municipalities and require long-term commitment and sustained effort by staff. As the Town's asset management program evolves and advances, the quality of future AMPs and other core documents that support asset management will continue to increase.

## 1.3 Scope

The scope of this document is to identify the current practices and strategies that are in place to manage public infrastructure and to make recommendations where they can be further refined. Through the implementation of sound asset

management strategies, the Town can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

| Asset Category | Source of Funding |
|---|---|
| Road Network | Tax Levy |
| Bridges & Culverts | |
| Facilities | |
| Land Improvements | |
| Machinery & Equipment | |
| Vehicles | |
| Stormwater Network | |
| Water Network | User Rates |
| Wastewater Network | |

# 2 Asset Management Overview

Municipalities are responsible for managing and maintaining a broad portfolio of infrastructure assets to deliver services to the community. The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value and levels of service the community receives from the asset portfolio.

Lifecycle costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An AMP is critical to this planning, and an essential element of the broader asset management program. The industry-standard approach and sequence to developing a practical asset management program begins with a Corporate Strategic Plan, followed by a Strategic Asset Management Policy and an Asset Management Roadmap, concluding with an AMP.

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan and various asset management documents. The strategic plan has a direct, and cascading impact on asset management planning and reporting.

## 2.1 Foundational Documents

### 2.1.1 Corporate Strategic Plan

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. At the beginning of each term, Council holds strategic planning exercises and discussions to identify major initiatives and administrative improvements it wishes to achieve during its tenure. Staff then identify the scope, resources, timing & other logistical matters associated with proposed initiatives. The Strategic Plan 2022-2026 was used in preparation of this AMP.

### 2.1.2 Strategic Asset Management Policy

A Strategic Asset Management Policy represents a statement of the principles guiding a municipality's approach to asset management activities. It aligns with the organization strategy set by Council and provides clear direction to municipal staff on their roles and responsibilities related to the asset management program.

The Town of East Gwillimbury adopted Policy No. 20-300-CP-001 "Strategic Asset Management Policy" on August 13, 2019, in accordance with Ontario Regulation 588/17. An updated Strategic Asset Management Policy is being presented to Council in 2024. The policy defines a corporate-wide asset management program that will promote "the adoption of industry best practices, continuous improvement protocols and lifecycle and risk management of all municipal infrastructure assets, with the goal of achieving the lowest total cost of ownership while meeting desired levels of service."

The policy also stipulates the need to develop an Asset Management Plan in accordance with Ontario Regulation 588/17 requirements. The Town must demonstrate an organization-wide commitment to good stewardship of municipal assets and to improve accountability and transparency to the community through the adoption of asset management practices.

The Town of East Gwillimbury additionally adopted Procedure No. 20-300-OP-002 "Strategic Asset Management Procedures" on August 13, 2019. This procedure defines the wide range of duties, responsibilities, and actions required to support the Town's asset management program.

### 2.1.3 Asset Management Roadmap

An Asset Management Roadmap outlines the translation of organizational objectives into asset management objectives and provides a strategic overview of the activities required to meet these objectives. It provides greater detail than the policy on how East Gwillimbury plans to achieve its asset management objectives through planned activities and decision-making criteria. See Appendix K: Roadmap for the activities identified in the roadmap.

### 2.1.4 Asset Management Plan

The Asset Management Plan is often identified as a key output within the strategy. The AMP has a sharp focus on the current state of the Town's asset portfolio, and its approach to managing and funding individual service areas or asset groups. It is tactical in nature and provides a snapshot in time.

## 2.2 Key Technical Concepts

Effective asset management integrates several key components, including data management, lifecycle management, risk management, and levels of service. These concepts are applied throughout this AMP and are described below in greater detail.

### 2.2.1 Asset Hierarchy and Data Classification

Asset hierarchy illustrates the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is filtered and interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Key category details are summarized at the asset segment level. The data hierarchy structure was updated for the 2024 AMP.

### 2.2.2 Replacement Costs

There are a range of methods to determine the replacement cost of an asset, and some are more accurate and reliable than others. The two methodologies are:

- **User-Defined Cost and Cost/Unit**: Based on costs provided by municipal staff which could include average costs from recent contracts; data from engineering reports and assessments; staff estimates based on knowledge and experience
- **Cost Inflation/CPI Tables**: Historical cost (original purchase price) of the asset is inflated based on Consumer Price Index or Non-Residential Building Construction Price Index

User-defined costs based on reliable sources are a reasonably accurate and reliable way to determine asset replacement costs. Cost inflation is typically used in the absence of reliable replacement cost data. It is a reliable method for recently purchased and/or constructed assets where the total cost is reflective of the actual costs that the Town incurred. As assets age, and new products and technologies become available, cost inflation becomes a less reliable method.

### 2.2.3 Estimated Useful Life and Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the Town expects the asset to be available for use and remain in service before requiring replacement or disposal. The EUL for each asset was assigned according to the knowledge and expertise of municipal staff and supplemented by existing industry standards when necessary.

By using an asset's in-service date and its EUL, the Town can determine the service life remaining (SLR) for each asset. Using condition data and the asset's SLR, the Town can more accurately forecast when assets will require replacement.

### 2.2.4 Asset Condition

An incomplete or limited understanding of asset condition can mislead long-term planning and decision-making. Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life.

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the municipality's asset portfolio. The analysis is based on assessed condition data (only as available). In the absence of assessed condition data, asset age is used to determine asset condition

### 2.2.5 Lifecycle Management Strategies

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment. Asset deterioration has a negative effect on the ability of an asset to fulfill its intended function, and may be characterized by increased cost, risk and even service disruption.

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

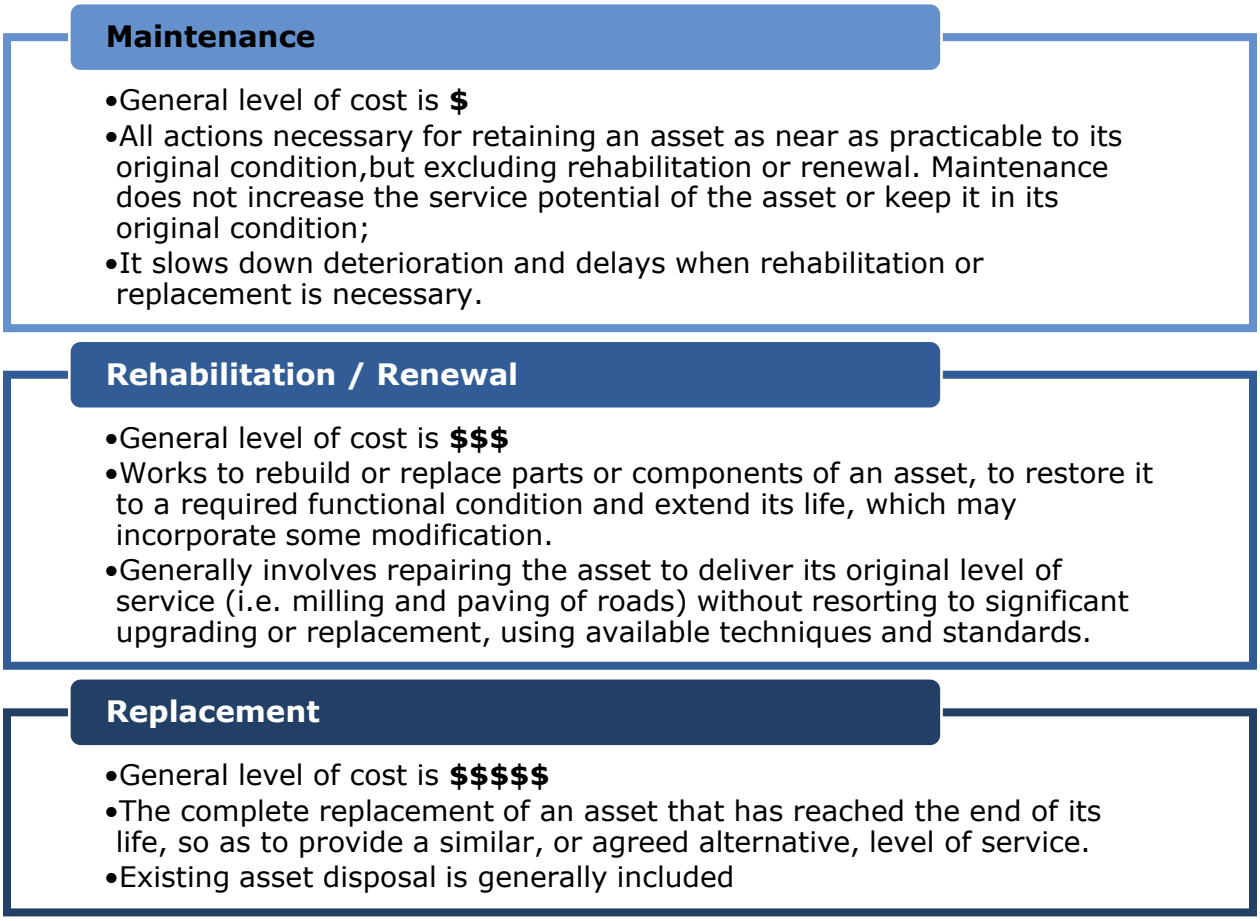
There are several field intervention activities that are available to extend the life of an asset. These activities can be generally placed into one of three categories: maintenance, rehabilitation, and replacement. The following table provides a description of each type of activity and the general difference in cost.

Depending on initial lifecycle management strategies, asset performance can be sustained through a combination of maintenance and rehabilitation, but at some point, replacement is required. Understanding the effect these activities will have on the lifecycle of an asset, and their cost, will enable staff to make better recommendations.

Figure 1 provides a description of each type of activity, the general difference in cost, and typical risks associated with each.

The Town's approach to lifecycle management is described within each asset category. Developing and implementing a proactive lifecycle strategy will help staff to determine which activities to perform on an asset and when they should be performed to maximize useful life at the lowest total cost of ownership.

*Figure 1 Lifecyle Management Typical Interventions*




### 2.2.6 Risk Management

Municipalities generally take a 'worst-first' approach to infrastructure spending. Rather than prioritizing assets based on their importance to service delivery, assets in the worst condition are fixed first, regardless of their criticality. However, not all assets are created equal. Some are more important than others, and their failure or disrepair poses more risk to the community than that of others.

By identifying the various impacts of asset failure and the likelihood that it will fail, risk management strategies can identify critical assets and determine where maintenance efforts and spending should be focused. This AMP includes a high-level evaluation of asset risk and criticality through quantitative and qualitative methodologies.

#### Quantitative Approach to Risk

Asset risk is defined using the following formula:

$$Risk = Probability\ of\ Failure\ (POF) \times Consequence\ of\ Failure\ (COF)$$

The probability of failure relates to the likelihood that an asset will fail at a given time. The probability of failure focuses on two highly imperative impacts for risk

assessment – structural and functional impacts. Structural impacts are related to the structural aspects of an asset such as load carrying capacity, condition, or breaks; whereas the functional impacts can include parameters, slope, traffic count, and other impacts that can affect the performance of an asset.

The consequence of failure describes the overall effect that an asset's failure will have on an organization's asset management goals. The consequences of failure can range from non-eventful to impactful. The consequence of failure parameters aims to align with the Triple Bottom Line approach – economic, social, environmental – to risk management as well as other fields including operational, health and safety, and strategic.

Each asset has been assigned a probability of failure score and consequence of failure score based on available asset data. These risk scores can be used to prioritize maintenance, rehabilitation, and replacement strategies for critical assets.

### Qualitative Approach to Risk

The qualitative risk assessment involves the documentation of risks to the delivery of services that a municipality faces given the current state of the infrastructure and asset management strategies. These risks can be understood as corporate level risks.

## 2.2.7 Levels of Service

A level of service (LOS) is a measure of what the Town is providing to the community and the nature and quality of that service. Within each asset category in this AMP, technical metrics and qualitative descriptions that measure both technical and community levels of service have been established and measured as data is available.

These metrics include the technical and community level of service metrics that are required as part of Ontario Regulation 588/17 as well as additional performance measures that the Town has selected in accordance with best practices defined by the International Infrastructure Management Manual (IIMM).

### Current and Proposed Levels of Service

The Town of East Gwillimbury is focused on measuring the current level of service provided to the community. Once current levels of service have been measured, the Town plans to establish proposed levels of service over a 10-year period, in accordance with Ontario Regulation 588/17.

Proposed levels of service should be realistic and achievable within the timeframe outlined by the Town. They should also be determined with consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals, and long-term sustainability. Once proposed levels of service have been established, and prior to July 2025, the Town must identify a lifecycle management and financial strategy within which these targets can be achieved.

### 2.2.8 Climate Change

Climate change can cause severe impacts on human and natural systems around the world. The effects of climate change include increasing temperatures, higher levels of precipitation, droughts, and extreme weather events. In 2019, Canada's Changing Climate Report (CCCR 2019) was released by Environment and Climate Change Canada (ECCC).

The report revealed that between 1948 and 2016, the average temperature increase across Canada was 1.7°C. The temperature increase in Canada has doubled that of the global average. If emissions are not significantly reduced, the temperature could increase by 6.3°C in Canada by the year 2100 compared to 2005 levels. Observed precipitation changes in Canada include an increase of approximately 20% between 1948 and 2012. By the late 21st century, the projected increase could reach an additional 24%. During the summer months, some regions in Southern Canada are expected to experience periods of drought at a higher rate. Extreme weather events and climate conditions are more common across Canada. Recorded events include droughts, flooding, cold extremes, warm extremes, wildfires, and record minimum arctic sea ice extent.

The changing climate poses a significant risk to the Canadian economy, society, environment, and infrastructure. The impacts on infrastructure are often a result of climate-related extremes such as droughts, floods, higher frequency of freeze-thaw cycles, extended periods of high temperatures, high winds, and wildfires. Physical infrastructure is vulnerable to damage and increased wear when exposed to these extreme events and climate variabilities. Canadian municipalities are faced with the responsibility to protect their local economy, citizens, environment, and physical assets.

### 2.2.9 Reinvestment Rate

As assets age and deteriorate, they require additional investment to maintain a state of good repair. The reinvestment of capital funds, through asset renewal or replacement, is necessary to sustain an adequate level of service. The reinvestment rate is a measurement of available or required funding relative to the total replacement cost. By comparing the actual vs. target reinvestment rate the Town can determine the extent of any existing funding gap.

# 3 Asset Portfolio

## 3.1 Community Profile

The Town of East Gwillimbury is in the Regional Municipality of York and is part of the Greater Toronto Area. East Gwillimbury is within the Lake Simcoe watershed with the East Holland River running directly through Town. The region has a diverse and vibrant environment making it a center for tourism and recreation and a beautiful place to live.

The region was initially established in the 1800s as part of the greater Toronto settling area. The Township and villages that made up the region experienced moderate growth as a center for transportation (particularly river transportation) and agriculture; however, the area became a notable community independent of the major City nearby. The bulk of the early settlement in East Gwillimbury was concentrated in the communities of: Sharon, Mt. Albert and Queensville.

By 1850, East Gwillimbury's population had grown to the extent that it was incorporated as a town. East Gwillimbury is named in honour of Elizabeth Simcoe, who was the wife of John Graves Simcoe, the first Lieutenant-Governor of Upper Canada. Elizabeth Simcoe's maiden name was Gwillim. Today, it remains a blend of urban and rural life with strong ties to the City of Toronto.

| Census Characteristic | Town of East Gwillimbury | Ontario |
|---|---|---|
| Population 2021 | 34,637 | 14,223,942 |
| Population Change 2016-2021 | 44.4% | 5.8 |
| Total Private Dwellings | 11,869 | 5,929,250 |
| Population Density | 141.4/km$^2$ | 15.9/km$^2$ |
| Land Area | 244.91 km$^2$ | 892,411.76 km$^2$ |

Like many municipalities in the greater Toronto area, the Town of East Gwillimbury is currently experiencing significant growth. Historically, the Town had experienced population growth slightly above the national average, however, from 2016 to 2021, the population increased at approximately 8.5 times the national average. According to the 2021 Census, East Gwillimbury is the fastest growing municipality in Canada.

### 3.1.1 Climate Profile

The Town of East Gwillimbury is part of the Greater Toronto Area in Southern Ontario within the Lake Simcoe watershed along the East Holland River. The Town is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change

Canada (ECCC) – the Town of East Gwillimbury may experience the following trends:

### Higher Average Annual Temperature:

- Between the years 1981 and 2010 the annual average temperature was 6.5°C
- Under a high emissions scenario, the annual average temperatures are projected to reach 9°C by the year 2050 and over 12°C by the end of the century.

### Increase in Total Annual Precipitation:

- Under a high emissions scenario, East Gwillimbury is projected to experience a 7% increase in precipitation by the year 2050 and a 14% increase by the end of the century.

### Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will change.
- In some areas, extreme weather events will occur with greater frequency and severity than others, especially those impacted by Great Lake winds.

## 3.1.2 Integrating Climate Change

To achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices. The integration of asset management and climate change adaptation observes industry best practices and enables the development of a holistic approach.

East Gwillimbury's Environmental Strategy is a robust set of actions that support the municipality's commitment to protect and restore the natural environment as the municipality grows. The Environmental Strategy has developed thematic areas of focus that help to consistently illustrate the Town's approach to advancing their environmental stewardship. The five thematic areas are land, water, air, biodiversity and empowerment.

These areas were used to develop a road map outlining the Town's successes and future steps forward. By focusing further on four categories: Policy, Legislation, Operations and Events and Education, the action plan provides a comprehensive view of the environmental initiatives in East Gwillimbury.

Asset management practices aim to deliver sustainable service delivery - the delivery of services to residents today without compromising the services and well-being of future residents. Climate change threatens sustainable service delivery by reducing the useful life of an asset and increasing the risk of asset failure. Desired levels of service can be more difficult to achieve because of climate change impacts such as flooding, high heat, drought, and more frequent and intense storms.

The Town has defined five vulnerability events and assessed the impact each would have on all municipal infrastructure. The events are as follows:

### Extreme Rainfall

This is defined as heavy rainfall of greater than 100mm in 24 hours. High-intensity storm events are expected to occur more frequently.

### Extreme Snowstorms

A blizzard with wind speeds at or above 56km/h causing blowing snow conditions where visibility is reduced, and snowdrifts accumulate.

### Extreme Freeze/Thaw

This is defined as an increased number of freeze thaw cycles annually. More extreme swing between temperature highs and lows over the winter season

### Extreme Winds

Maximum hourly wind speeds are increased annually. An increase in the number of days with wind gusts exceeding 100km/hour is expected.

### Extreme Heat

It is expected that there will be an increased number and length of heat waves (3 or more days above 30°C). An increased maximum daily and hourly temperature is expected.

The impact was then used to calculate the probability of asset failure on each asset. See section Risk Management for more details.

## 3.2 State of the Infrastructure

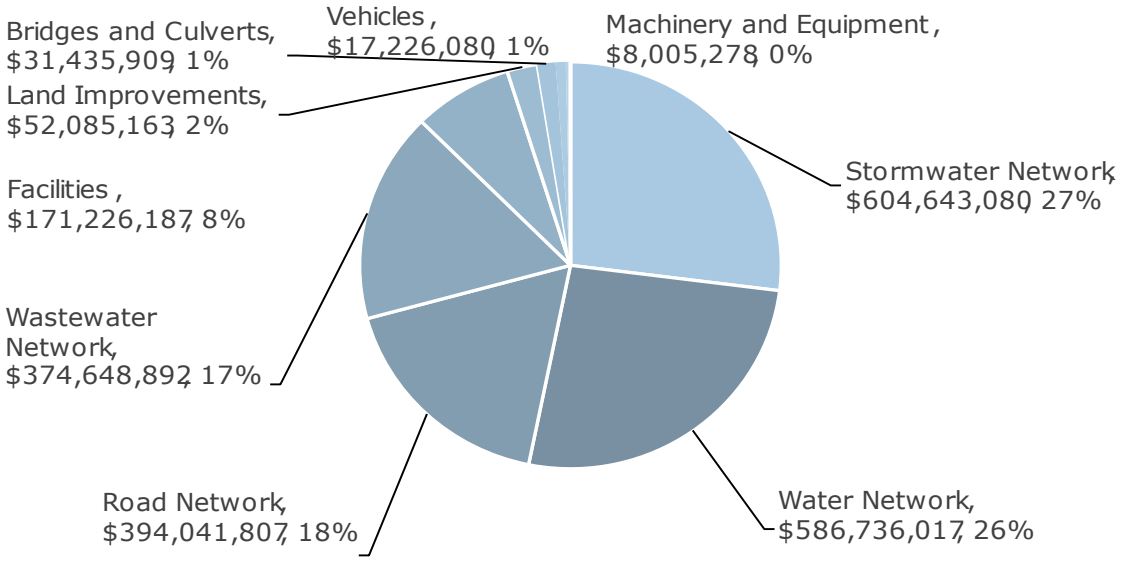
| Asset Category | Replacement Cost | Asset Condition | Financial Capacity | |
|---|---|---|---|---|
| Road Network | $394,041,807 | Good (71%) | Annual Requirement: | $4,652,626 |
| | | | Funding Available: | $2,704,365 |
| | | | Annual Deficit: | $1,948,261 |
| Bridges and Culverts | $31,435,909 | Good (70%) | Annual Requirement: | $893,078 |
| | | | Funding Available: | $235,162 |
| | | | Annual Deficit: | $657,916 |
| Stormwater Network | $604,643,080 | Very Good (84%) | Annual Requirement: | $8,551,719 |
| | | | Funding Available: | $0 |
| | | | Annual Deficit: | $8,551,719 |
| Facilities | $171,226,187 | Good (68%) | Annual Requirement: | $3,899,278 |
| | | | Funding Available: | $1,805,738 |
| | | | Annual Deficit: | $2,093,540 |
| Land Improvements | $52,085,163 | Very Good (86%) | Annual Requirement: | $1,630,861 |
| | | | Funding Available: | $0 |
| | | | Annual Deficit: | $1,630,861 |
| Vehicles | $17,226,080 | Fair (44%) | Annual Requirement: | $1,701,902 |
| | | | Funding Available: | $1,050,036 |
| | | | Annual Deficit: | $651,866 |
| Machinery and Equipment | $8,005,278 | Fair (58%) | Annual Requirement: | $937,030 |
| | | | Funding Available: | $279,498 |
| | | | Annual Deficit: | $657,532 |
| Water Network | $586,736,017 | Very Good (87%) | Annual Requirement: | $5,544,995 |
| | | | Funding Available: | $953,305 |
| | | | Annual Deficit: | $4,591,690 |
| Wastewater Network | $376,161,773 | Very Good (88%) | Annual Requirement: | $4,292,145 |
| | | | Funding Available: | $1,204,162 |
| | | | Annual Deficit: | $3,087,983 |
| **Overall** | $2,241,561,295 | Very Good (81%) | Annual Requirement: | $32,103,633 |
| | | | Funding Available: | $8,232,266 |
| | | | Annual Deficit: | $23,871,367 |

The table above shows a lack of funding for the Stormwater network and Land Improvements asset categories. The Stormwater Management Master Plan will inform the available stormwater funding for future AMPs. Beginning with the 2024 budget, $295,000 is being set aside for Land Improvements through the Parks Structure Reserve.

## 3.3 Inventory and Valuation

The total asset portfolio owned by East Gwillimbury has a replacement cost of $2.24 billion based on available inventory data. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

*Figure 2: Asset Portfolio Replacement Value Breakdown*




## 3.4 Asset Condition

The table below outlines the condition rating system used in this AMP to determine asset condition. This 5-tier rating system is aligned with the Canadian Core Public Infrastructure Survey which is used to develop the Canadian Infrastructure Report Card. Using a standardized system for all assets provides comparability across asset categories and with other municipalities that use the same standard.

*Table 2: Condition Definitions*

| Condition | Description | Criteria |
|---|---|---|
| **Very Good** | Fit for the future | Well maintained, good condition, new or recently rehabilitated |
| **Good** | Adequate for now | Acceptable, generally approaching mid-stage of expected service life |
| **Fair** | Requires attention | Signs of deterioration, some elements exhibit significant deficiencies |
| **Poor** | Increasing potential of affecting service | Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration |
| **Very Poor** | Unfit for sustained service | Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable |

When assessed condition data is not available, service life remaining is used to approximate asset condition.

The analysis in this AMP is based on assessed condition data that was translated to a condition rating within the asset inventory. The Town continues to develop assessment programs and procedures to develop inspection methodologies that align with AMP requirements. The conformance to AMP condition methodology is based on acceptable asset condition data inspections.

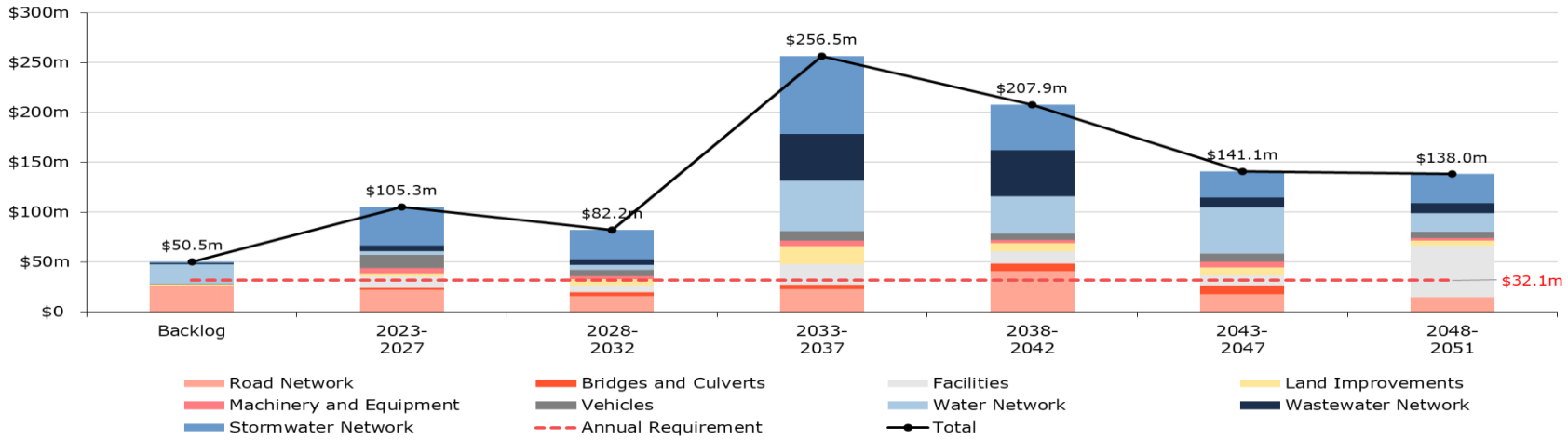
## 3.5 Lifecycle Management

Aging assets require maintenance, rehabilitation, and replacement. Figure 3 below illustrates the forecasted infrastructure replacement requirements for all asset categories analyzed to 2051. On average, $32.1 million is required each year to remain current with capital replacement needs for the Town's asset portfolio (red dotted line).

Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. This figure relies on age and available condition data, it looks at the replacement needs to the year 2051, it does not include the full lifecycle of the asset inventory. Based on the current replacement cost of the portfolio, estimated at $2.24 billion, representing an annual target reinvestment rate of 1.43%.

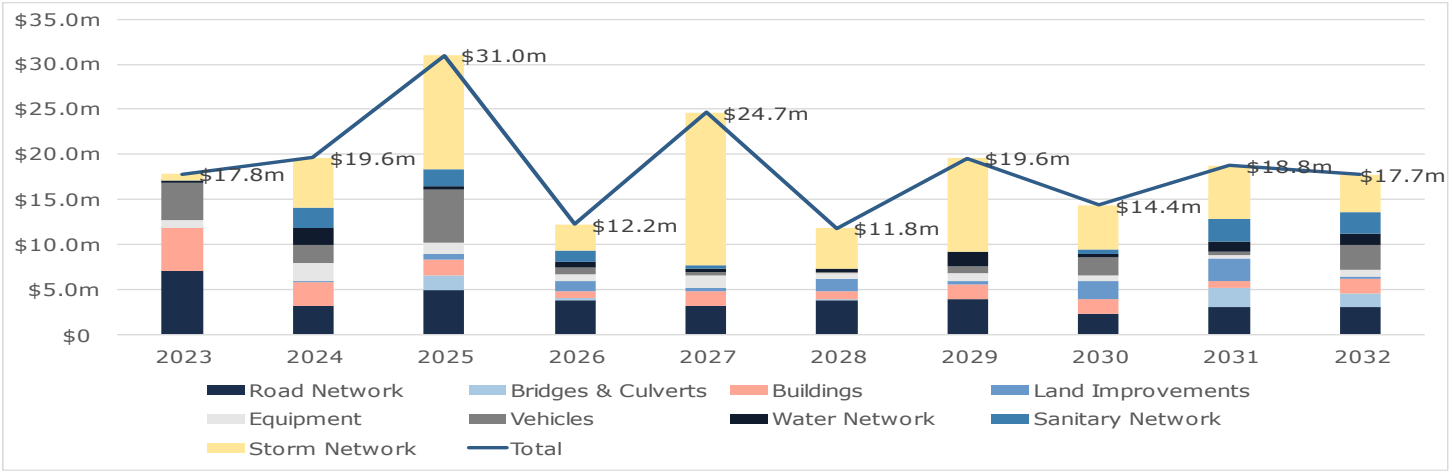
The chart also illustrates a backlog of $50.5 million, comprising assets that remain in service beyond their estimated useful life. These assets have been assessed by staff to not require immediate replacements or major renewals. Targeted and consistent condition assessments are integral to the asset management program.

*Figure 3: Forecasted Capital Requirements to the Year 2051*




Risk frameworks, proactive lifecycle strategies, and levels of service targets can be used to prioritize projects, continuously refine estimates for both backlog and ongoing capital needs and help select the right treatment for each asset. The 10-year forecast for all assets can be seen in the figure below, it looks at the replacement needs for the next 10 years and estimates the average annual requirement is $18.8 million to meet the needs for the next 10 years.

*Figure 4: 10-Year Forecasted Capital Requirements*



## 3.6 Risk Management

A risk assessment framework, when applied to asset management, should provide an asset risk rating to assist with the management of assets. This requires the development of quantitative and qualitative models that can leverage asset data and information.

A good risk model will analyse existing data then provide information and processes needed to help prioritize and allocate the available money and resources to the right asset at the right time. Municipalities generally take a 'worst-first' approach to infrastructure spending. Rather than prioritizing assets based on their importance to service delivery, assets in the worst condition are fixed first, regardless of their criticality. However, not all assets are created equal. Some are more important than others, and their failure or disrepair poses more risk to the community. For example, a road with a high volume of traffic that provides access to critical services poses a higher risk than a low volume rural road. These high-value assets should receive funding before others.

By identifying the various impacts of asset failure and the likelihood that it will fail, risk management strategies can identify critical assets, and determine where maintenance efforts, and spending, should be focused.

### 3.6.1 Qualitative Risk

The qualitative risk assessment involves the documentation of risks to the delivery of services that the municipality faces given the current state of the infrastructure and asset management strategies. These risks can be understood as corporate level risks. Municipal staff provided information related to the following potential risks:

*Table 3: Qualitative Risks in East Gwillimbury*

| | Risk Type | Description |
|---|---|---|
| | Asset Data Confidence | The asset data available to support asset management planning is not all in one master location where there would be confidence of the most up to date data is available. |
| | Lifecycle Management Strategies | Lifecycle management strategies are not proactive but are under development. |
| | Organizational Cognizance/Capacity | Training is needed for staff to have the knowledge and capacity to engage in informed asset management practices. |
| | Infrastructure Design/Installation | There are concerns with the past design and/or materials used for some types of infrastructure |
| | Aging Infrastructure | Significant portions of the infrastructure are reaching the end of their useful lives. |

| | Risk Type | Description |
|---|---|---|
|  | Climate Change & Extreme Weather Events | Climate and extreme weather events have an impact on infrastructure service life as well as functionality |
|  | Growth | Community growth is expected to continue as the fasted growing community in Ontario |
|  | Infrastructure Re-investment | Current levels of investment in infrastructure need to be look at to ensure they are meeting lifecycle requirements and maintaining a good state of repair |

The qualitative risks identified can guide information and data gathering in the future.

### 3.6.2 Quantitative Risk

A high-level evaluation of asset risk and criticality was performed. Each asset has been assigned a probability of failure score and consequence of failure score based on available asset data. These risk scores can be used to prioritize maintenance, rehabilitation, and replacement strategies for critical assets.

Risk is a product of two variables: the probability that an asset will fail, and the resulting consequences of that failure event. It can be a qualitative measurement, (low, medium, high) or quantitative measurement (1-5), that can be used to rank assets and projects, identify appropriate lifecycle strategies, optimize short- and long-term budgets, minimize service disruptions, and maintain public health and safety.

#### Probability of Failure

Several factors can help decision-makers estimate the probability or likelihood of an asset's failure, including its condition, age, previous performance history, and exposure to extreme weather events.

East Gwillimbury has defined the probability of asset failure through 2 parameters: Condition and Climate Vulnerability. See section Asset Condition for details as well as the appendix for each asset category for condition scales and definitions. Climate vulnerability was assessed by defining 5 events and their impact on the municipal infrastructure.

The scale used to rate the impact of the climate vulnerabilities is as follows:

1. No noticeable impact.
2. Minor impacts on service life and/or capacity.
3. Significant deterioration or reduction in capacity.
4. Exceeds service capacity or loss of functionality.
5. Loss of assets.

The probability of asset failure was then modelled utilizing 80% asset condition and 20% climate impact. This weighting was determined to incorporate the impact of a severe climate event by increasing the impacted assets' probability of failure, without overriding the condition value.

### Consequence of Failure

Estimating criticality also requires identifying the types of consequences that the organization and community may face from an asset's failure, and the magnitude of those consequences. Consequences of asset failure will vary across the infrastructure portfolio; the failure of some assets may result primarily in high direct financial cost but may pose limited risk to the community. Other assets may have a relatively minor financial value, but any downtime may pose significant health and safety hazards to residents. See the Appendix for more details on each asset category including the definitions and the developed consequences of failure.

### Overall Risk Summary

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within East Gwillimbury's infrastructure inventory based on available data.

*Figure 5: Risk Summary*


# 4 Growth

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the Town to effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure. Increases or decreases in demand can affect assets needs and the appropriate level of service to meet the needs of the community.

## 4.1 Official Plan

The Official Plan establishes the vision for long-term growth and development within the Town. The Plan provides policy guidance on land uses for parks, employment, housing, and other uses and informs the long-term objectives for core infrastructure and public services such as transportation, water, and wastewater.

The Town of East Gwillimbury adopted an updated Official Plan in 2022. The vision of the plan is to develop a sustainable community and ensure that growth does not place an undue financial burden on the residents of the Town. The Official Plan is

developed in accordance with the Provincial Policy Statement (2005), the Provincial Growth Plan "Places to Grow", the Lake Simcoe Protection Plan, Green Energy & Economy Act and Greenbelt Plan.

The Plan is also structured to conform to the Region of York Official Plan, the Region's comprehensive infrastructure master plans and Planning for Regional Growth. York Region approved a new Official Plan in 2022. Population and employment growth projections for the Town of East Gwillimbury were defined and utilized in the most recent version of the Town's Official Plan. York Region's population is projected to increase from 1.2 million residents to over 2 million residents by 2051. The Official Plan provides a regional analysis of this growth along with policy objectives to support efficient growth and a diversified economy for all municipalities within its borders.

## 4.2 Infrastructure Master Plans

The Town of East Gwillimbury has developed several key master plans that serve as guiding documents for municipal services with the expected growth. The master plans are deemed to be an integral component of the Town's Official Plan. East Gwillimbury has a Water and Wastewater Master Plan (2009) updated in 2024, Transportation Master Plan (2010) updated in 2024, and Stormwater Management Master Plan (2009) that is scheduled to be updated in 2026. These plans will be regularly reviewed and updated.

The Water and Wastewater Master Plan was developed with significant residential and employment growth in mind. The target residential and employment population projections utilized in this study are 140,730 and 63,068 respectively. The Plan states that with expected growth, the previous water supply proposals will not be sufficient; the proposed water storage capacity must meet the Ministry of Environment, Conservation and Parks (MECP)'s requirements for peak equalization, fire and emergency uses. The Plan also states that the Region's wastewater collection and treatment system will require expansion to accommodate growth in East Gwillimbury.

The updated Transportation Master Plan identifies the long-term transportation goals as well as specific solutions requiring further study. Some of the study subjects are already defined, such as public and stakeholder engagement, multimodal networks, managing peak travel demand, and community-oriented traffic control.

The Stormwater Management Master Plan (SWMMP) is intended to prepare a practical framework that balances infrastructure and development requirements with economic, social, and environmental constraints. The Plan provides input to improve the management of stormwater for both existing and planned development. The Plan includes an assessment which found that a general increase in peak flow will occur due to the proposed development. A post-to-pre approach

(post-development infiltration must be equal to the pre-development infiltration) will be required and in some cases an over-control approach may be needed. The Town is preparing an updated Storm Water Management Master Plan (SWMMP) that will investigate and recommend opportunities in new and existing areas to prevent flooding, reduce phosphorus loading on Lake Simcoe, mitigate erosion, maintain/improve water quality, and explore opportunities for sustainable stormwater funding sources.

The Master Plans for core infrastructure indicate that the Town must integrate notable considerations for population and employment growth in new developments. Further studies may be required to update the plans and strategies to improve growth management.

## 4.3 Growth Trends and Demand Drivers

Historically, the Town has experienced population growth above the national average. According to the 2021 Census, East Gwillimbury is the fastest growing municipality in Canada with over 44% population growth between 2016 and 2021. Population and employment in the Town are expected to continue to increase at significant rates.

This AMP relies on growth projections that were identified as part of East Gwillimbury's 2022 Official Plan review. The following table summarizes population and employment projections.

| Type | Location | Current | 2031 | 2041 | 2051 |
|---|---|---|---|---|---|
| Population | Central Growth Area | 24,500 | 45,300 | 68,000 | 113,600 |
| | Mount Albert | 6,000 | 8,000 | 8,000 | 8,000 |
| | Rural Area | 6,000 | 6,000 | 6,000 | 6,000 |
| | **TOTAL** | **36,500** | **59,300** | **82,000** | **127,600** |
| Employment | Central Growth Area | 8,300 | 14,300 | 23,500 | 40,800 |
| | Mount Albert | 1,000 | 1,500 | 2,000 | 2,000 |
| | Rural Area | 1,000 | 1,000 | 1,000 | 1,000 |
| | **TOTAL** | **10,300** | **16,800** | **26,500** | **43,800** |

The Town of East Gwillimbury is projected to experience significant growth; population growth of 62% between 2021 and 2031 and 250% growth between

2021 and 2051. Employment is projected to follow a similar growth trend as population with 63% growth between 2021 and 2031 and 325% growth between 2021 and 2051.

As stated in the Official Plan, the Town will continue to support a wide range of employment opportunities and a diverse economy within its borders. East Gwillimbury is committed to diversifying commercial land use while also supporting the existing rural/agricultural economy.

## 4.4 Impact of Growth

Planning for forecasted population growth may require the expansion of existing infrastructure and services. As growth-related assets are constructed or acquired, they should be integrated into the Town's asset management plan. While the addition of residential units will add to the existing assessment base and offset some of the costs associated with growth, the Town will need to review the lifecycle costs of growth-related infrastructure. These costs should be considered in long-term funding strategies designed to maintain the current level of service.

By July 1, 2025, the Town's AMP must include a discussion of how the assumptions regarding future changes in population and economic activity informed the preparation of the lifecycle management and financial strategy. In this asset management plan, high-level analysis has been conducted to determine infrastructure and service needs that will result from projected growth. This analysis includes consideration of new acquisitions and the related capital and operations and maintenance costs as well as potential staffing demands.

Of specific note, availability of wastewater allocation to service new development demand is limited. York Region's Upper York Sewage Solution, proposed for 2031, is the preferred solution to expand treatment capability for East Gwillimbury. Growth projections outlined in this plan are subject to the timing of this solution coming on-line and could change based on the solution determined.

### 4.4.1 Infrastructure Acquisition

Population and employment growth in East Gwillimbury is projected to necessitate significant development and asset acquisition. Municipal staff used population growth projections and the existing inventory to predict the amount of linear assets that may be required to support growth. See the appendix for more details in each asset category growth management section.

### 4.4.2 Impacts on Operating

Each department is expected to require additional staffing to support growth and new development in the Town. Some divisions already have limited staffing to manage existing assets. Newly acquired assets will require more staff resources to undertake the planning, lifecycle management, and administration needed to maintain the desired level of service.

# 5 Levels of Service

A level of service (LOS) is a measure of what the Town is providing to the community and the nature and quality of that service. Within each asset category in this AMP, technical metrics and qualitative descriptions that measure both technical and community levels of service have been established and measured as data is available. These measures include a combination of those that have been outlined in O. Reg. 588/17 in addition to performance measures identified by the Town as worth measuring and evaluating. The Town measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service.

## 5.1 Strategic Plan

East Gwillimbury's strategic focus is on sustainability. Sustainability is defined by supporting the ability of current and future generations to thrive, while ensuring a balance between economic growth, environmental stewardship, and social well-being. Our efforts are focused on finding ways to improve, enhance, and do better.

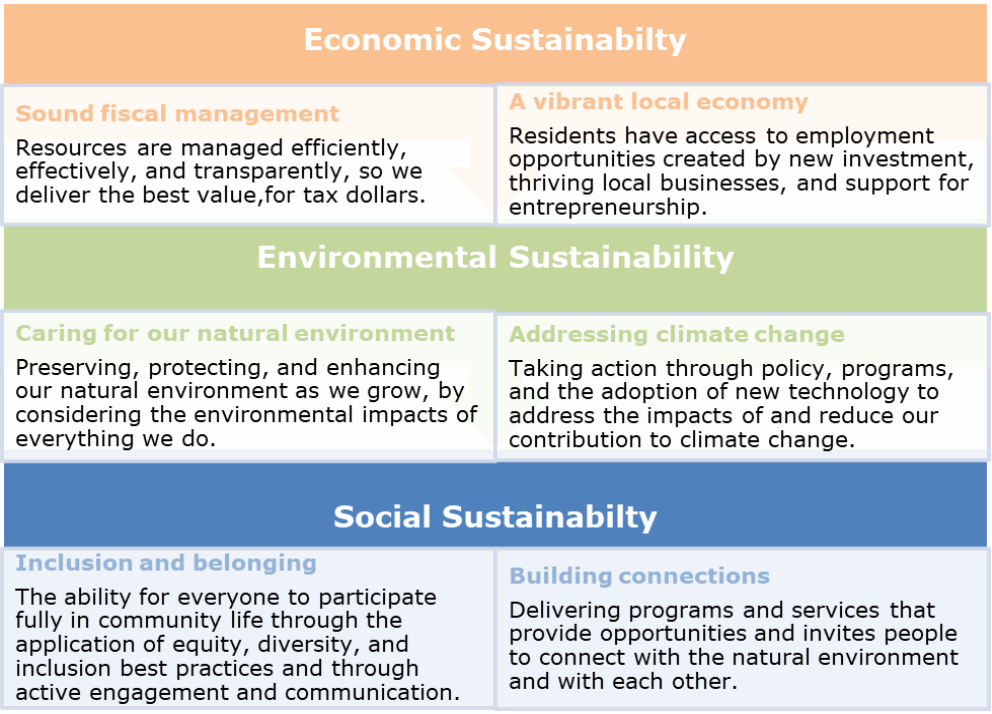
*Figure 6: Strategic Plan Pillars*


The decisions made by the Town are all examined through a sustainability lens, ensuring the Town's actions reflect a balanced focus on environmental stewardship, social well-being, and economic growth. To help define the intent of the pillars, Figure 7 below provides more details.

### 5.1.1 Our Vision and Core Purpose

East Gwillimbury's vision is to be a resilient, sustainable, and welcoming community that connects residents to each other, services, and opportunities. The core purpose is to deliver value for tax dollars, while providing quality services that the community wants and needs.

*Figure 7: Defining Sustainability Pillars*




### 5.1.2 Strategic Priorities

Strategic plan priorities were identified with key deliverables to ensure the plan has achievable outcomes. The priorities are:

**Quality programs and services** – provide value for tax dollars through the delivery of programs and services that support our economic, environmental, and social goals.

**Responsible growth** – ensure responsible and balanced growth management.

**Environmental stewardship** – preserve and protect our natural environment as we grow.

**Build complete communities** – build complete communities that support the ability for residents to connect to amenities, services, employment, and each other.

**Culture of municipal excellence** – foster a culture of service excellence, engagement, and transparency.

The strategic plan was developed by Council to guide the direction of the Town for the 2022 – 2026 term of council. It provides overall direction to guide decisions, projects and initiatives undertaken by the Town.

### 5.1.3 Core Values

Leveraging the strategic plan's sustainability lens and strategic priorities as a guide to developing and measuring service delivery, core values were identified that align staff work practices with community expectations.

*Figure 8: Service Delivery Values*


## 5.2 Community Service Levels

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (roads, bridges and culverts, water, wastewater, stormwater) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required. For non-core asset categories, the Town has determined the qualitative descriptions that will be used to determine the community level of service provided. These descriptions can be found in the Levels of Service subsection within each asset category.

## 5.3 Technical Service Levels

Technical levels of service are a measure of key technical attributes of the service being provided to the community. These include mostly quantitative measures and tend to reflect the impact of the Town's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories (roads, bridges and culverts, water, wastewater, stormwater) the province, through O. Reg. 588/17, has provided technical metrics that are required. For non-core asset categories, the Town has determined the technical metrics that will be used to determine the technical level of service provided. These metrics can be found in the Levels of Service subsection within each asset category in the appendices.

## 5.4 Current and Proposed Service Levels

East Gwillimbury is focused on measuring the current LOS provided to the community. Once the current LOS have been measured and trended, the Town plans to establish proposed LOS over a 10-year period, in accordance with O. Reg. 588/17.

Proposed levels of service should be realistic and achievable within the timeframe outlined by the Town. They should also be determined with consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals, and long-term sustainability.

Once proposed LOS have been established, and prior to July 2025, East Gwillimbury must identify lifecycle management and financial strategies which allow these targets to be achieved.

# 6 Financial Impacts

Each year, the Town of East Gwillimbury makes important investments in its infrastructure's maintenance, renewal, rehabilitation, and replacement to ensure assets remain in a state of good repair. However, spending needs typically exceed fiscal capacity. In fact, most municipalities continue to struggle with annual infrastructure deficits. Achieving full-funding for infrastructure programs will take many years and should be phased-in gradually to reduce the burden on the community.

This financial strategy is designed for the municipality's existing asset portfolio and is premised on two key inputs: the average annual capital requirements and the average annual funding typically available for capital purposes. The annual requirements are based on the replacement cost of assets and their serviceable life, and where available, lifecycle modeling. This figure is calculated for each individual asset and aggregated to develop category-level values.

The annual funding typically available is determined by averaging historical capital expenditures on infrastructure, inclusive of any allocations to reserves for capital purposes.

Only reliable and predictable sources of funding are used to benchmark funds that may be available in any given year. The funding sources include:

- Revenue from taxation allocated to reserves for capital purposes
- Revenue from water and wastewater rates allocated to capital reserves
- The Canada Community Benefits Fund (CCBF), formerly the Federal Gas Tax Fund
- The Ontario Community Infrastructure Fund (OCIF)

Although provincial and federal infrastructure programs can change with evolving policy, CCBF and OCIF are considered permanent and predictable revenue sources.

## 6.1 Current Infrastructure Financial Requirements

The annual requirements represent the amount the Town should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability.

Table 4 outlines the 10-year forecasted average annual capital requirements for existing assets in each asset category. Based on a replacement cost of $2.24 billion, the 10-year annual capital requirements total $18.8 million for all the asset categories analysed. The average annual capital requirement to 2051 totals $32.1M.

The table also illustrates the system-generated, equivalent target reinvestment rate (TRR), calculated by dividing the 10-year forecasted annual capital requirements by the total replacement cost of each category. The cumulative target reinvestment for these categories is estimated at 0.8%. The target reinvestment rate to 2051 is 1.43%.

*Table 4 Average Annual Capital Requirements*

| Asset Category | Replacement Cost | 10-YR Forecasted Annual Capital Requirements | Target Reinvestment Rate |
|---|---|---|---|
| Road Network | $394,041,807 | $3.80m | 1.0% |
| Bridges and Culverts | $31,435,909 | $0.58m | 1.8% |
| Facilities | $171,226,187 | $1.80m | 1.1% |
| Land Improvements | $52,085,163 | $0.87m | 1.7% |
| Machinery and Equipment | $8,005,278 | $0.93m | 11.6% |
| Vehicles | $17,226,080 | $1.90m | 11.1% |
| Water Network | $586,736,017 | $0.84m | 0.1% |
| Wastewater Network | $374,648,892 | $1.10m | 0.3% |
| Stormwater Network | $604,643,080 | $6.80m | 1.1% |
| **Total** | **$2,240,048,414** | **$18.80m** | **0.8%** |

The 2016 version of the report card also contained recommended reinvestment rates that can also serve as benchmarks for municipalities. The CIRC suggest that, if increased, these reinvestment rates can "stop the deterioration of municipal infrastructure." The report card contains both a range for reinvestment rates that outlines the lower and upper recommended levels, as well as current municipal averages.

Table 5 summarizes how current capital funding levels compare with funding required for each asset category. At existing levels, the Town is funding 44% of its 10-year forecasted annual capital requirements for all infrastructure analyzed. This creates a total annual funding deficit of $10.5 million.

*Table 5 Current Funding Position vs Required Funding*

| Asset Category | 10-YR Forecasted Annual Capital Requirements | Annual Funding Available | Annual Funding Deficit |
|---|---|---|---|
| Road Network | $3.80m | $2.70m | $1.1m |
| Bridges and Culverts | $0.58m | $0.24m | $0.34m |
| Facilities | $1.80m | $1.80m | $0.02m |
| Land Improvements | $0.87m | $0 | $0.87m |
| Machinery and Equipment | $0.93m | $0.28m | $0.65m |
| Vehicles | $1.90m | $1.10m | $0.87m |
| Water Network | $0.84m | $0.95m | -$0.11m |
| Wastewater Network | $1.10m | $1.20m | -$0.06m |
| Stormwater Network | $6.80m | $0 | $6.8m |
| **Total** | **$18.80m** | **$8.2m** | **$10.5m** |

## 6.2 Estimated Growth Financial Requirements

The Town's annual net operating costs will increase because of the capital programs proposed under this DC background study. The Town regularly conducts long-term financial analyses of its operating and capital programs to ensure long-term sustainability and affordability in maintaining service levels as the Town grows. This demonstrates the Town's commitment to ensuring the long-term financial sustainability of future capital projects prior to their approval.

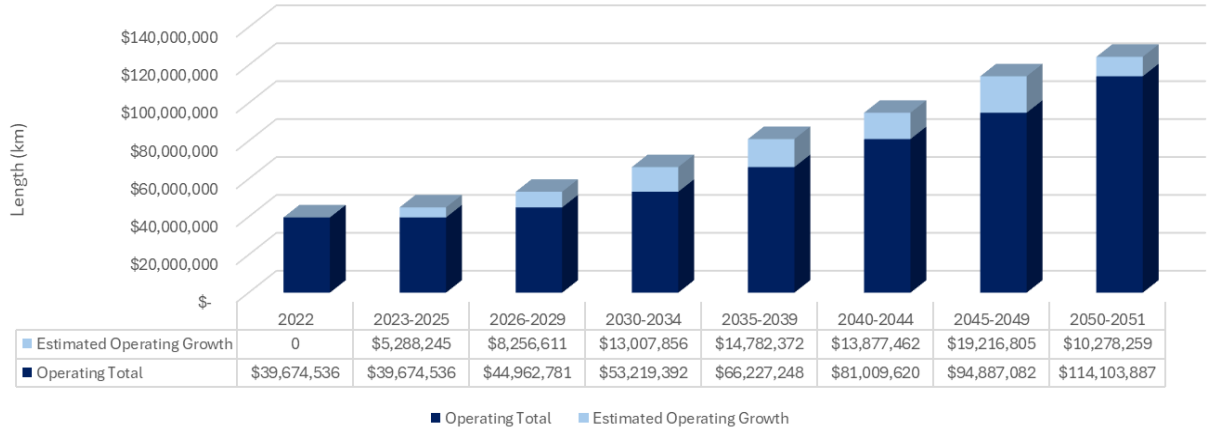
### 6.2.1 Operating Estimates

*Table 6: Operating Expenses by Service*

| Services | Service Level Trending | | | | |
|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 |
| **General Government** | | | | | |
| Operating Spending | $ 8,382,299 | $ 5,273,672 | $ 6,726,648 | $ 7,372,824 | $ 8,685,924 |
| **Protection Services** | | | | | |
| Operating Spending | $ 4,605,343 | $ 5,190,212 | $ 5,330,359 | $ 5,471,097 | $ 5,945,310 |
| **Transportation Services** | | | | | |
| Operating Spending | $ 5,513,067 | $ 6,556,067 | $ 4,805,475 | $ 5,937,177 | $ 5,837,544 |
| **Environmental Services** | | | | | |
| Operating Spending | $ 6,555,560 | $ 8,586,056 | $ 9,013,268 | $ 9,935,697 | $ 11,061,070 |
| **Recreation and Cultural Services** | | | | | |
| Operating Spending | $ 6,436,431 | $ 7,660,913 | $ 6,731,662 | $ 8,093,148 | $ 8,144,688 |
| **Total** | | | | | |
| Operating Spending | $ 31,492,700 | $ 33,266,920 | $ 32,607,412 | $ 36,809,943 | $ 39,674,536 |

The figure below shows that utilizing the 5-year average of operating expenses by service area the estimated operating expenses increase based on maintaining current levels of service.

*Figure 9: Operating Estimates based on Population Growth*




| | 2022 | 2023-2025 | 2026-2029 | 2030-2034 | 2035-2039 | 2040-2044 | 2045-2049 | 2050-2051 |
|---|---|---|---|---|---|---|---|---|
| Estimated Operating Growth | 0 | $5,288,245 | $8,256,611 | $13,007,856 | $14,782,372 | $13,877,462 | $19,216,805 | $10,278,259 |
| Operating Total | $39,674,536 | $39,674,536 | $44,962,781 | $53,219,392 | $66,227,248 | $81,009,620 | $94,887,082 | $114,103,887 |

### 6.2.2 Capital Estimates

From the Development Charges background study, the capital expenditures estimated to be required are summarized in the table below.

| Asset Category | Estimated Expense | Timeline |
|---|---|---|
| Facilities | $178,992,400 | 2023 - 2032 |
| Land Improvements | $60,210,655 | 2023 - 2032 |
| Vehicles | $9,170,000 | 2023 - 2032 |
| Machinery and Equipment | $3,412,400 | 2023 - 2032 |
| Roads and Related | $363,451,298 | 2023 - 2051 |
| Water Network | $56,599,461 | 2023 - 2051 |
| Wastewater Network | $227,309,660 | 2023 - 2051 |
| **Total** | **$899,145,874** | |

# 7 Recommendations

In November 2021, East Gwillimbury engaged PSD Citywide to develop an Asset Management Roadmap. This report summarizes the Town's current state of the asset management program, identifies gaps, and provides recommendations for program improvement spanning 2021 to 2025. Asset management maturity was assessed through a survey and staff correspondences, considering the maturity of data, asset management strategies, and information systems.

Strategic recommendations identified in general, include, further inventory data refinement, documentation and revisions to asset management strategies, and improvements to the inventory systems. Future requirements of Ontario Regulation 588/17 will require the Town to determine suitable, "proposed" levels of service.

Assets that are not assessed through technical studies are regularly inspected by staff or consultants to meet regulatory requirements or best management practices. These inspection methodologies have not yet been converted to a suitable % assessed metric as staff continue to search for best management

practices that meet the needs of the industry and asset management reporting requirements. Staff should continue to work with partners to ensure future condition assessments are aligned with best management practices and included in the inventory.

The proposed levels of service may require the Town to develop new lifecycle strategies and determine impacts on financial requirements and resulting strategy. Recommendations to meet these future Ontario Regulation 588/17 requirements are documented in the Town's Asset Management Roadmap 2021-2025.

Refer to Appendix K: Roadmap for the roadmap summary, timelines, and resources of the improvement plan.

The effectiveness of the AMP can be measured in the following ways:

- The accuracy of the forecasted costs identified in this plan as compared to those costs identified in the long-term financial plan
- The degree to which the existing and projected service levels and service risks and residual risks are incorporated into the Strategic Plan and business plans
- The number of infrastructure project business cases that utilize levels of service reporting and risk to identify and justify the business need of the infrastructure project.

The 2025 requirements of O. Reg. 588/17 will require the Town to develop a financial strategy that states the funding requirements to achieve the desired or "proposed" levels of service, funding available from sustainable funding sources, and identifies the gap between the funding need and funding available. To this end:

- The Town should identify all available sustainable funding sources.
- The Town should calculate a funding shortfall, defined as the difference between funding needs and sustainable funding available; and
- Finally, the Town should consider several options to close the gap. These options can consider changes to tax and rate increases, multiple funding horizons, reallocating budgets between asset categories, alternative asset lifecycle, holding and management strategies and acceptable residual levels of risk.

# Appendix A: Levels of Service

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| General Government | 0299 | Corporate Management | Facilities | Corporate Services | Reliable | Average Condition | 59.5 | 54.6 | 49.4 | 45.1 | 38.8 |
| | | | | | Sustainable | Average Risk | 8.6 | 8.9 | 9.3 | 9.8 | 10.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 11,838,802 |
| | | | | | | Annual Requirement | | | | | $ 346,859 |
| | | | | Engineering and Public Works | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 0.1 | 100.0 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 31,343,675 |
| | | | | | | Annual Requirement | | | | | $ 854,070 |
| | | | | Parks, Recreation and Culture | Reliable | Average Condition | 44.2 | 93.5 | 92.3 | 90.8 | 88.7 |
| | | | | | Sustainable | Average Risk | 2.5 | 4.5 | 4.5 | 4.6 | 4.8 |
| | | | | | Affordable | Replacement Cost | | | | | $ 1,567,407 |
| | | | | | | Annual Requirement | | | | | $ 39,053 |
| | | | Machinery and Equipment | Corporate Services | Reliable | Average Condition | 22.5 | 36.2 | 50.7 | 59.3 | 65.0 |
| | | | | | Sustainable | Average Risk | 0.7 | 1.1 | 1.4 | 1.9 | 3.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 632,815 |
| | | | | | | Annual Requirement | | | | | $ 164,069 |
| | | | | Engineering and Public Works | Reliable | Average Condition | 73.8 | 68.9 | 63.2 | 56.5 | 48.4 |
| | | | | | Sustainable | Average Risk | 4.3 | 4.3 | 4.3 | 6.1 | 6.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 16,500 |
| | | | | | | Annual Requirement | | | | | $ 825 |
| | | | | Parks, Recreation and Culture | Reliable | Average Condition | 96.8 | 93.7 | 89.3 | 83.5 | 76.0 |
| | | | | | Sustainable | Average Risk | 1.2 | 1.2 | 1.2 | 1.2 | 2.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 15,000 |
| | | | | | | Annual Requirement | | | | | $ 1,500 |
| | | | Vehicles | Light Duty Vehicle | Reliable | Average Condition | 93.4 | 86.6 | 76.6 | 61.9 | 37.1 |
| | | | | | Sustainable | Average Risk | 2.1 | 2.1 | 3.3 | 3.3 | 5.9 |
| | | | | | Affordable | Replacement Cost | | | | | $ 65,000 |
| | | | | | | Annual Requirement | | | | | $ 9,286 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 45,479,198 |
| | | | | | | Total Annual Requirement | | | | | $ 1,415,661 |
| | | | | | | Capital Spending | $ 7,991,081 | $ 1,461,889 | $ 452,340 | $ 1,224,424 | $ 22,898,594 |
| | | | | | | Operating Spending | $ 8,382,299 | $ 5,273,672 | $ 6,726,648 | $ 7,372,824 | $ 8,685,924 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Protective Services | 0410 | Fire | Facilities | Fire and Emergency Services | Reliable | Average Condition | 94.1 | 96.0 | 95.4 | 94.7 | 93.6 |
| | | | | | Sustainable | Average Risk | 5.3 | 5.3 | 5.4 | 5.4 | 5.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 25,646,734 |
| | | | | | | Annual Requirement | | | | | $ 540,599 |
| | | | Machinery and Equipment | Corporate Services | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 0.0 | 98.6 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 27,000 |
| | | | | | | Annual Requirement | | | | | $ 9,000 |
| | | | | Fire and Emergency Services | Reliable | Average Condition | 37.1 | 40.1 | 39.4 | 37.2 | 34.9 |
| | | | | | Sustainable | Average Risk | 0.9 | 1.1 | 1.4 | 1.6 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 2,543,992 |
| | | | | | | Annual Requirement | | | | | $ 265,118 |
| | | | Vehicles | Fire Truck | Reliable | Average Condition | 54.5 | 67.7 | 65.4 | 71.5 | 67.8 |
| | | | | | Sustainable | Average Risk | 6.6 | 8.1 | 8.5 | 9.7 | 10.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 11,013,530 |
| | | | | | | Annual Requirement | | | | | $ 834,235 |
| | | | | Light Duty Pick-up | Reliable | Average Condition | 61.6 | 52.9 | 65.1 | 72.4 | 80.9 |
| | | | | | Sustainable | Average Risk | 1.5 | 2.1 | 2.4 | 3.0 | 2.7 |
| | | | | | Affordable | Replacement Cost | | | | | $ 713,000 |
| | | | | | | Annual Requirement | | | | | $ 101,857 |
| | | | | Light Duty Vehicle | Reliable | Average Condition | 98.6 | 97.2 | 95.4 | 93.0 | 90.1 |
| | | | | | Sustainable | Average Risk | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 21,550 |
| | | | | | | Annual Requirement | | | | | $ 1,437 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 39,965,806 |
| | | | | | | Total Annual Requirement | | | | | $ 1,752,246 |
| | | | | | | Capital Spending | $ 27,621 | $ 1,708,449 | $ 110,889 | $ 1,005,383 | $ 99,097 |
| | | | | | | Operating Spending | $ 4,284,571 | $ 4,870,416 | $ 4,921,811 | $ 5,033,698 | $ 5,443,634 |
| | 0460 | Provincial Offences | Vehicles | Light Duty Pick-up | Reliable | Average Condition | 48.8 | 96.6 | 92.1 | 85.0 | 74.2 |
| | | | | | Sustainable | Average Risk | 0.9 | 1.8 | 1.8 | 2.4 | 2.4 |
| | | | | | Affordable | Replacement Cost | | | | | $ 170,000 |
| | | | | | | Annual Requirement | | | | | $ 24,286 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 170,000 |
| | | | | | | Total Annual Requirement | | | | | $ 24,286 |
| | | | | | | Capital Spending | $ - | $ 48,776 | $ - | $ - | $ - |
| | | | | | | Operating Spending | $ 320,772 | $ 319,796 | $ 408,548 | $ 437,399 | $ 501,676 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Transporation Services | 0611 | Roads - Paved | Machinery and Equipment | Corporate Services | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 99.8 | 98.2 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 3,338 |
| | | | | | | Annual Requirement | | | | | $ 417 |
| | | | | Engineering and Public Works | Reliable | Average Condition | 94.0 | 89.8 | 84.1 | 76.8 | 67.2 |
| | | | | | Sustainable | Average Risk | 2.4 | 2.4 | 2.4 | 4.0 | 4.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 201,000 |
| | | | | | | Annual Requirement | | | | | $ 20,100 |
| | | | Road Network | HCB Roads | Reliable | Average Condition | 74.9 | 74.5 | 74.4 | 77.6 | 82.2 |
| | | | | | Sustainable | Average Risk | 4.4 | 4.7 | 4.9 | 5.1 | 4.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 232,074,721 |
| | | | | | | Annual Requirement | | | | | $ 4,255,458 |
| | | | | LCB Roads | Reliable | Average Condition | 63.7 | 57.8 | 53.3 | 47.8 | 67.9 |
| | | | | | Sustainable | Average Risk | 6.0 | 6.7 | 7.5 | 8.0 | 5.7 |
| | | | | | Affordable | Replacement Cost | | | | | $ 78,532,467 |
| | | | | | | Annual Requirement | | | | | $ 1,717,874 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 310,811,526 |
| | | | | | | Total Annual Requirement | | | | | $ 5,993,849 |
| | | | | | | Capital Spending | $ 1,294,564 | $ 1,426,238 | $ 4,124,392 | $ 2,818,400 | $ 2,722,034 |
| | | | | | | Operating Spending | $ 292,733 | $ 785,434 | $ 1,423,292 | $ 2,674,906 | $ 2,371,919 |
| | 0613 | Roads - Bridges and Culverts | Bridges and Culverts | Pedestrian Bridges | Reliable | Average Condition | 91.35265203 | 97.9 | 78.4 | 77.8 | 76.7 |
| | | | | | Sustainable | Average Risk | 2.8 | 3.0 | 4.8 | 4.8 | 4.8 |
| | | | | | Affordable | Replacement Cost | | | | | $ 2,960,000 |
| | | | | | | Annual Requirement | | | | | $ 39,467 |
| | | | | Road Bridges | Reliable | Average Condition | 83.4 | 82.6 | 69.4 | 68.9 | 67.4 |
| | | | | | Sustainable | Average Risk | 6.4 | 6.7 | 9.4 | 9.4 | 9.4 |
| | | | | | Affordable | Replacement Cost | | | | | $ 17,627,475 |
| | | | | | | Annual Requirement | | | | | $ 240,188 |
| | | | | Road Culverts (<3m) | Reliable | Average Condition | 67.0 | 66.5 | 77.9 | 77.2 | 75.5 |
| | | | | | Sustainable | Average Risk | 5.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 1,525,000 |
| | | | | | | Annual Requirement | | | | | $ 30,500 |
| | | | | Road Culverts (>3m) | Reliable | Average Condition | 70.9 | 84.1 | 78.4 | 0.0 | 0.0 |
| | | | | | Sustainable | Average Risk | 5.5 | 6.2 | 0.0 | 0.0 | 0.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 9,123,434 |
| | | | | | | Annual Requirement | | | | | $ 182,469 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 31,235,909 |
| | | | | | | Total Annual Requirement | | | | | $ 492,623 |
| | | | | | | Capital Spending | $ - | $ - | $ - | $ 1,521,505 | $ 2,072,756 |
| | | | | | | Operating Spending | $ 68,019 | $ 60,435 | $ - | $ 67,188 | $ 9 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Transporation Services | 0614 | Roads - Traffic Operations & Roadside | Machinery and Equipment | Engineering and Public Works | Reliable | Average Condition | 46.9 | 61.5 | 58.3 | 52.4 | 60.5 |
| | | | | | Sustainable | Average Risk | 2.7 | 3.7 | 3.8 | 4.2 | 5.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 1,830,066 |
| | | | | | | Annual Requirement | | | | | $ 137,254 |
| | | | Road Network | Road Barriers | Reliable | Average Condition | 78.3 | 84.5 | 82.3 | 81.5 | 82.9 |
| | | | | | Sustainable | Average Risk | 2.0 | 1.9 | 2.0 | 2.0 | 2.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 3,628,232 |
| | | | | | | Annual Requirement | | | | | $ 120,941 |
| | | | | Road Signs | Reliable | Average Condition | 17.4 | 25.7 | 27.6 | 76.2 | 67.7 |
| | | | | | Sustainable | Average Risk | 3.3 | 3.5 | 3.6 | 1.8 | 2.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 247,280 |
| | | | | | | Annual Requirement | | | | | $ 24,728 |
| | | | | Sidewalks | Reliable | Average Condition | 78.4 | 81.2 | 82.5 | 86.1 | 85.3 |
| | | | | | Sustainable | Average Risk | 2.7 | 2.7 | 3.0 | 3.1 | 3.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 39,752,737 |
| | | | | | | Annual Requirement | | | | | $ 883,394 |
| | | | Vehicles | Heavy Duty Truck | Reliable | Average Condition | 81.4 | 78.4 | 74.3 | 83.3 | 75.8 |
| | | | | | Sustainable | Average Risk | 3.7 | 3.7 | 4.3 | 5.3 | 6.6 |
| | | | | | Affordable | Replacement Cost | | | | | $ 2,620,000 |
| | | | | | | Annual Requirement | | | | | $ 262,000 |
| | | | | Light Duty Pick-up | Reliable | Average Condition | 92.3 | 85.2 | 74.6 | 57.4 | 31.8 |
| | | | | | Sustainable | Average Risk | 1.8 | 2.3 | 2.3 | 4.0 | 4.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 185,000 |
| | | | | | | Annual Requirement | | | | | $ 26,429 |
| | | | | Light Duty Vehicle | Reliable | Average Condition | 0.0 | 29.5 | 58.3 | 56.5 | 53.2 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.6 | 1.2 | 1.2 | 1.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 220,000 |
| | | | | | | Annual Requirement | | | | | $ 27,571 |
| | | | | Medium Duty Truck | Reliable | Average Condition | 35.9 | 44.3 | 52.0 | 45.2 | 34.1 |
| | | | | | Sustainable | Average Risk | 3.1 | 5.1 | 6.0 | 6.6 | 7.3 |
| | | | | | Affordable | Replacement Cost | | | | | $ 570,000 |
| | | | | | | Annual Requirement | | | | | $ 92,679 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 49,053,315 |
| | | | | | | Total Annual Requirement | | | | | $ 1,574,995 |
| | | | | | | Capital Spending | $ 4,249,676 | $ 406,652 | $ 2,246,216 | $ 1,252,086 | $ 2,316,194 |
| | | | | | | Operating Spending | $ 3,969,393 | $ 4,192,439 | $ 2,255,073 | $ 1,935,849 | $ 2,162,590 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Transporation Services | 0621 | Winter Control - except sdwk | Machinery and Equipment | Engineering and Public Works | Reliable | Average Condition | 0.0 | 0.0 | 31.5 | 31.2 | 98.9 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.4 | 0.4 | 1.7 |
| | | | | | Affordable | Replacement Cost | | | | | $ 54,320 |
| | | | | | | Annual Requirement | | | | | $ 5,432 |
| | | | Vehicles | Plow Truck | Reliable | Average Condition | 69.7 | 95.4 | 92.0 | 87.2 | 80.9 |
| | | | | | Sustainable | Average Risk | 3.9 | 5.2 | 5.2 | 5.2 | 7.7 |
| | | | | | Affordable | Replacement Cost | | | | | $ 250,000 |
| | | | | | | Annual Requirement | | | | | $ 25,000 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 304,320 |
| | | | | | | Total Annual Requirement | | | | | $ 30,432 |
| | | | | | | Capital Spending | $ - | $ - | $ 17,120 | $ - | $ 37,832 |
| | | | | | | Operating Spending | $ 649,500 | $ 960,744 | $ 549,169 | $ 643,873 | $ 675,211 |
| | 0650 | Street Lighting | Road Network | Streetlights | Reliable | Average Condition | 82.1 | 80.0 | 85.1 | 85.1 | 83.8 |
| | | | | | Sustainable | Average Risk | 1.5 | 1.5 | 1.6 | 1.7 | 1.7 |
| | | | | | Affordable | Replacement Cost | | | | | $ 39,806,370 |
| | | | | | | Annual Requirement | | | | | $ 1,990,318 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 39,806,370 |
| | | | | | | Total Annual Requirement | | | | | $ 1,990,318 |
| | | | | | | Capital Spending | $ 164,401 | $ - | $ 1,111,847 | $ 464,058 | $ 1,075,883 |
| | | | | | | Operating Spending | $ 533,422 | $ 557,015 | $ 577,941 | $ 615,361 | $ 627,815 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Environmental Services | 0811 | Wastewater Collection/ Conveyance | Wastewater Network | Manholes | Reliable | Average Condition | 80.2 | 88.9 | 88.0 | 86.9 | 85.9 |
| | | | | | Sustainable | Average Risk | 1.2 | 1.3 | 1.3 | 1.4 | 1.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 28,314,312 |
| | | | | | | Annual Requirement | | | | | $ 566,286 |
| | | | | Pumping Stations | Reliable | Average Condition | 82.6 | 99.0 | 98.7 | 98.4 | 97.9 |
| | | | | | Sustainable | Average Risk | 4.5 | 5.4 | 5.4 | 5.4 | 5.4 |
| | | | | | Affordable | Replacement Cost | | | | | $ 9,077,286 |
| | | | | | | Annual Requirement | | | | | $ 226,932 |
| | | | | Sewer Services | Reliable | Average Condition | 89.0 | 95.1 | 95.1 | 94.6 | 94.2 |
| | | | | | Sustainable | Average Risk | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 19,867,918 |
| | | | | | | Annual Requirement | | | | | $ 331,132 |
| | | | | Wastewater Mains | Reliable | Average Condition | 83.7 | 90.6 | 90.3 | 89.6 | 88.7 |
| | | | | | Sustainable | Average Risk | 1.6 | 1.8 | 1.8 | 1.8 | 1.9 |
| | | | | | Affordable | Replacement Cost | | | | | $ 308,721,362 |
| | | | | | | Annual Requirement | | | | | $ 5,990,932 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 365,980,878 |
| | | | | | | Total Annual Requirement | | | | | $ 7,115,282 |
| | | | | | | Capital Spending | $ 1,085,325 | $ - | $ 7,416,730 | $ 2,673,358 | $ 4,150,277 |
| | | | | | | Operating Spending | $ 2,386,071 | $ 3,292,679 | $ 3,848,133 | $ 4,844,790 | $ 4,465,678 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Environmental Services | 0821 | Urban Storm Sewer System | Stormwater Network | Catch Basins | Reliable | Average Condition | 78.7 | 88.0 | 87.3 | 86.5 | 85.3 |
| | | | | | Sustainable | Average Risk | 1.3 | 1.4 | 1.4 | 1.5 | 1.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 35,268,779 |
| | | | | | | Annual Requirement | | | | | $ 705,376 |
| | | | | Culverts | Reliable | Average Condition | 90.2 | 71.6 | 71.7 | 70.7 | 68.6 |
| | | | | | Sustainable | Average Risk | 1.8 | 2.8 | 2.9 | 2.9 | 2.9 |
| | | | | | Affordable | Replacement Cost | | | | | $ 33,168,026 |
| | | | | | | Annual Requirement | | | | | $ 663,361 |
| | | | | Dry & Wet Ponds | Reliable | Average Condition | 78.3 | 88.4 | 87.5 | 87.8 | 86.7 |
| | | | | | Sustainable | Average Risk | 5.0 | 5.6 | 5.7 | 6.0 | 6.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 37,593,596 |
| | | | | | | Annual Requirement | | | | | $ 751,872 |
| | | | | Soakaway Pits | Reliable | Average Condition | 0.0 | 86.7 | 100.0 | 99.9 | 99.8 |
| | | | | | Sustainable | Average Risk | 0.0 | 1.0 | 1.1 | 1.1 | 1.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 618,570 |
| | | | | | | Annual Requirement | | | | | $ 12,371 |
| | | | | Storm Mains | Reliable | Average Condition | 78.9 | 88.7 | 87.8 | 87.0 | 85.9 |
| | | | | | Sustainable | Average Risk | 2.5 | 2.8 | 2.9 | 2.9 | 3.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 436,354,506 |
| | | | | | | Annual Requirement | | | | | $ 8,727,090 |
| | | | | Storm Maintenance Holes | Reliable | Average Condition | 80.1 | 89.8 | 89.0 | 88.5 | 87.5 |
| | | | | | Sustainable | Average Risk | 1.5 | 1.6 | 1.6 | 1.7 | 1.7 |
| | | | | | Affordable | Replacement Cost | | | | | $ 41,721,344 |
| | | | | | | Annual Requirement | | | | | $ 834,427 |
| | | | | Storm Services | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 19,201,859 |
| | | | | | | Annual Requirement | | | | | $ 326,201 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 603,926,680 |
| | | | | | | Total Annual Requirement | | | | | $ 12,020,697 |
| | | | | | | Capital Spending | $ 1,877,426 | $ - | $ 7,904,765 | $ 3,648,175 | $ 5,133,370 |
| | | | | | | Operating Spending | $ - | $ - | $ 1,611 | $ 61,376 | $ 54,687 |
| | 0822 | Rural Storm Sewer System | Stormwater Network | Headwalls | Reliable | Average Condition | 83.5 | 87.7 | 88.5 | 88.4 | 87.4 |
| | | | | | Sustainable | Average Risk | 1.2 | 1.3 | 1.3 | 1.3 | 1.4 |
| | | | | | Affordable | Replacement Cost | | | | | $ 716,400 |
| | | | | | | Annual Requirement | | | | | $ 14,328 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 716,400 |
| | | | | | | Total Annual Requirement | | | | | $ 14,328 |
| | | | | | | Capital Spending | $ - | $ - | $ 171,457 | $ - | $ 52,226 |
| | | | | | | Operating Spending | $ - | $ - | $ 35,113 | $ 98,050 | $ 41,514 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Environmental Services | 0832 | Water Distribution/Transmission | Machinery and Equipment | Corporate Services | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 99.8 | 98.2 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 3,338 |
| | | | | | | Annual Requirement | | | | | $ 417 |
| | | | | Engineering and Public Works | Reliable | Average Condition | 31.1 | 27.8 | 22.6 | 24.2 | 31.0 |
| | | | | | Sustainable | Average Risk | 0.9 | 1.0 | 1.3 | 1.4 | 0.9 |
| | | | | | Affordable | Replacement Cost | | | | | $ 158,065 |
| | | | | | | Annual Requirement | | | | | $ 16,753 |
| | | | Vehicles | Light Duty Pick-up | Reliable | Average Condition | 48.8 | 46.7 | 93.2 | 87.1 | 77.6 |
| | | | | | Sustainable | Average Risk | 0.9 | 0.9 | 1.8 | 2.4 | 2.4 |
| | | | | | Affordable | Replacement Cost | | | | | $ 180,000 |
| | | | | | | Annual Requirement | | | | | $ 25,714 |
| | | | | Light Duty Vehicle | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 95,000 |
| | | | | | | Annual Requirement | | | | | $ 13,571 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Environmental Services | 0832 | Water Distribution/Transmission | Water Network | Automatic Flushing Devices | Reliable | Average Condition | 93.8 | 96.5 | 95.8 | 94.9 | 93.8 |
| | | | | | Sustainable | Average Risk | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 378,550 |
| | | | | | | Annual Requirement | | | | | $ 12,618 |
| | | | | Bulk Water Filling Station | Reliable | Average Condition | 100.0 | 99.9 | 99.7 | 99.3 | 98.9 |
| | | | | | Sustainable | Average Risk | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 93,430 |
| | | | | | | Annual Requirement | | | | | $ 3,114 |
| | | | | Curb Stops | Reliable | Average Condition | 81.8 | 92.6 | 92.4 | 92.8 | 91.5 |
| | | | | | Sustainable | Average Risk | 1.1 | 1.2 | 1.2 | 1.1 | 1.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 3,472,488 |
| | | | | | | Annual Requirement | | | | | $ 115,750 |
| | | | | Hydrants | Reliable | Average Condition | 79.4 | 90.4 | 90.7 | 89.9 | 88.9 |
| | | | | | Sustainable | Average Risk | 1.2 | 1.3 | 1.2 | 1.3 | 1.3 |
| | | | | | Affordable | Replacement Cost | | | | | $ 20,969,602 |
| | | | | | | Annual Requirement | | | | | $ 698,987 |
| | | | | Sampling Stations | Reliable | Average Condition | 86.7 | 85.5 | 86.7 | 90.0 | 88.4 |
| | | | | | Sustainable | Average Risk | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 331,674 |
| | | | | | | Annual Requirement | | | | | $ 11,056 |
| | | | | Water Chambers | Reliable | Average Condition | 81.3 | 92.3 | 91.1 | 91.7 | 90.3 |
| | | | | | Sustainable | Average Risk | 1.1 | 1.2 | 1.2 | 1.2 | 1.3 |
| | | | | | Affordable | Replacement Cost | | | | | $ 13,109,960 |
| | | | | | | Annual Requirement | | | | | $ 438,952 |
| | | | | Water Mains | Reliable | Average Condition | 79.1 | 86.8 | 86.1 | 85.0 | 83.8 |
| | | | | | Sustainable | Average Risk | 1.9 | 2.0 | 2.0 | 2.1 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 272,193,341 |
| | | | | | | Annual Requirement | | | | | $ 3,274,607 |
| | | | | Water Meters | Reliable | Average Condition | 43.6 | 72.1 | 83.2 | 97.1 | 95.7 |
| | | | | | Sustainable | Average Risk | 0.5 | 0.8 | 0.9 | 1.1 | 1.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 3,576,224 |
| | | | | | | Annual Requirement | | | | | $ 238,415 |
| | | | | Water Service Connections | Reliable | Average Condition | 81.8 | 92.3 | 91.8 | 91.3 | 90.6 |
| | | | | | Sustainable | Average Risk | 1.4 | 1.5 | 1.5 | 1.5 | 1.6 |
| | | | | | Affordable | Replacement Cost | | | | | $ 250,692,502 |
| | | | | | | Annual Requirement | | | | | $ 4,178,208 |
| | | | | Water Valves | Reliable | Average Condition | 82.4 | 91.9 | 91.5 | 91.4 | 90.0 |
| | | | | | Sustainable | Average Risk | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 |
| | | | | | Affordable | Replacement Cost | | | | | $ 21,918,246 |
| | | | | | | Annual Requirement | | | | | $ 730,608 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 587,172,420 |
| | | | | | | Total Annual Requirement | | | | | $ 9,758,772 |
| | | | | | | Capital Spending | $ 1,684,035 | $ 1,686,530 | $ 4,549,699 | $ 2,484,748 | $ 3,054,497 |
| | | | | | | Operating Spending | $ 4,169,489 | $ 5,293,377 | $ 5,103,301 | $ 4,815,258 | $ 6,499,191 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Environmental Services | 0898 | Other - Vehicles & Machinery | Machinery and Equipment | Corporate Services | Reliable | Average Condition | 0.0 | 98.6 | $ 87 | 55.3 | 0.0 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 1.2 | 2.8 | 0.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 21,000 |
| | | | | | | Annual Requirement | | | | | $ 7,000 |
| | | | | Engineering and Public Works | Reliable | Average Condition | 0.0 | 0.0 | 99.7 | 97.7 | $ 93 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 1.9 | 1.9 | $ 2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 14,506 |
| | | | | | | Annual Requirement | | | | | $ 2,072 |
| | | | Vehicles | Light Duty Pick-up | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 0.0 | $ - |
| | | | | | Sustainable | Average Risk | 6.3 | 6.3 | 6.3 | 6.3 | $ 6 |
| | | | | | Affordable | Replacement Cost | | | | | $ 75,000 |
| | | | | | | Annual Requirement | | | | | $ 15,000 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 110,506 |
| | | | | | | Total Annual Requirement | | | | | $ 24,072 |
| | | | | | | Capital Spending | $ - | $ - | $ - | $ - | $ - |
| | | | | | | Operating Spending | $ - | $ - | $ - | $ - | $ - |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Recreation & Cultural Services | 1610 | Parks | Land Improvements | Fencing | Reliable | Average Condition | 36.7 | 39.2 | 44.0 | 51.1 | 57.7 |
| | | | | | Sustainable | Average Risk | 3.7 | 4.0 | 4.2 | 4.3 | 4.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 4,335,497 |
| | | | | | | Annual Requirement | | | | | $ 171,545 |
| | | | | Landscaping & Natural Capital | Reliable | Average Condition | 69.2 | 87.8 | 92.2 | 94.1 | 99.0 |
| | | | | | Sustainable | Average Risk | 0.7 | 0.9 | 0.9 | 1.0 | 1.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 10,479,167 |
| | | | | | | Annual Requirement | | | | | $ 178,372 |
| | | | | Lights, Fixtures & Electrical | Reliable | Average Condition | 27.0 | 52.6 | 56.5 | 59.1 | 71.0 |
| | | | | | Sustainable | Average Risk | 1.5 | 1.9 | 2.0 | 1.9 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 3,277,000 |
| | | | | | | Annual Requirement | | | | | $ 109,233 |
| | | | | Park Furnishings | Reliable | Average Condition | 48.6 | 63.7 | 68.2 | 74.0 | 78.6 |
| | | | | | Sustainable | Average Risk | 1.3 | 1.6 | 1.8 | 1.9 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 1,490,933 |
| | | | | | | Annual Requirement | | | | | $ 77,111 |
| | | | | Park Shelters & Structures | Reliable | Average Condition | 55.0 | 68.8 | 80.5 | 84.3 | 96.0 |
| | | | | | Sustainable | Average Risk | 1.9 | 2.4 | 2.8 | 3.1 | 3.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 2,434,352 |
| | | | | | | Annual Requirement | | | | | $ 52,587 |
| | | | | Parklands, Paths, Trails & Parking Lots | Reliable | Average Condition | 37.2 | 43.9 | 50.4 | 69.8 | 75.2 |
| | | | | | Sustainable | Average Risk | 3.7 | 4.2 | 4.4 | 5.4 | 5.6 |
| | | | | | Affordable | Replacement Cost | | | | | $ 21,200,568 |
| | | | | | | Annual Requirement | | | | | $ 903,883 |
| | | | | Playground Equipment | Reliable | Average Condition | 51.6 | 61.1 | 62.1 | 69.8 | 66.3 |
| | | | | | Sustainable | Average Risk | 4.5 | 5.3 | 6.3 | 7.4 | 8.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 1,900,000 |
| | | | | | | Annual Requirement | | | | | $ 126,667 |
| | | | | Sport Fields & Courts | Reliable | Average Condition | 50.7 | 60.8 | 71.4 | 70.6 | 72.7 |
| | | | | | Sustainable | Average Risk | 4.0 | 4.4 | 4.7 | 4.8 | 5.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 6,933,225 |
| | | | | | | Annual Requirement | | | | | $ 241,243 |
| | | | | Water Features | Reliable | Average Condition | 45.6 | 49.8 | 47.6 | 45.2 | 78.2 |
| | | | | | Sustainable | Average Risk | 1.2 | 1.2 | 1.2 | 1.2 | 1.6 |
| | | | | | Affordable | Replacement Cost | | | | | $ 24,600 |
| | | | | | | Annual Requirement | | | | | $ 984 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Recreation & Cultural Services | 1610 | Parks | Machinery and Equipment | Engineering and Public Works | Reliable | Average Condition | 94.4 | 92.0 | 88.7 | 84.5 | 79.2 |
| | | | | | Sustainable | Average Risk | 1.8 | 1.8 | 1.8 | 2.5 | 2.5 |
| | | | | | Affordable | Replacement Cost | | | | | $ 32,000 |
| | | | | | | Annual Requirement | | | | | $ 2,600 |
| | | | | Parks, Recreation and Culture | Reliable | Average Condition | 30.4 | 31.6 | 51.9 | 50.2 | 52.9 |
| | | | | | Sustainable | Average Risk | 3.1 | 3.5 | 4.1 | 4.4 | 4.6 |
| | | | | | Affordable | Replacement Cost | | | | | $ 1,374,407 |
| | | | | | | Annual Requirement | | | | | $ 124,755 |
| | | | Vehicles | Light Duty Pick-up | Reliable | Average Condition | 89.3 | 83.5 | 76.0 | 66.1 | 52.7 |
| | | | | | Sustainable | Average Risk | 1.8 | 1.8 | 2.9 | 2.9 | 4.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 90,000 |
| | | | | | | Annual Requirement | | | | | $ 9,000 |
| | | | | Light Duty Vehicle | Reliable | Average Condition | 66.7 | 90.3 | 82.0 | 68.9 | 46.9 |
| | | | | | Sustainable | Average Risk | 1.5 | 2.1 | 3.0 | 3.0 | 5.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 98,000 |
| | | | | | | Annual Requirement | | | | | $ 15,600 |
| | | | | Medium Duty Truck | Reliable | Average Condition | 57.5 | 53.9 | 48.3 | 77.2 | 62.3 |
| | | | | | Sustainable | Average Risk | 1.7 | 2.2 | 2.2 | 4.4 | 5.4 |
| | | | | | Affordable | Replacement Cost | | | | | $ 325,000 |
| | | | | | | Annual Requirement | | | | | $ 46,429 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 53,994,748 |
| | | | | | | Total Annual Requirement | | | | | $ 2,060,008 |
| | | | | | | Capital Spending | $ 221,964 | $ 516,591 | $ 2,694,042 | $ 824,196 | $ 93,075 |
| | | | | | | Operating Spending | $ 1,921,444 | $ 2,486,406 | $ 2,092,630 | $ 3,027,431 | $ 2,677,545 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Recreation & Cultural Services | 1620 | Recreation Programs | Machinery and Equipment | Parks, Recreation and Culture | Reliable | Average Condition | 97.2 | 95.4 | 93.0 | 90.1 | 86.6 |
| | | | | | Sustainable | Average Risk | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| | | | | | Affordable | Replacement Cost | | | | | $ 80,000 |
| | | | | | | Annual Requirement | | | | | $ 5,333 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 80,000 |
| | | | | | | Total Annual Requirement | | | | | $ 5,333 |
| | | | | | | Capital Spending | $ - | $ - | $ - | $ - | $ - |
| | | | | | | Operating Spending | $ 1,147,516 | $ 1,502,800 | $ 680,410 | $ 856,806 | $ 1,329,434 |
| | 1634 | Rec. Fac. - All Other | Facilities | Corporate Services | Reliable | Average Condition | 5.3 | 2.5 | 2.3 | 2.0 | 1.6 |
| | | | | | Sustainable | Average Risk | 0.8 | 1.0 | 1.0 | 1.0 | 1.0 |
| | | | | | Affordable | Replacement Cost | | | | | $ 28,963 |
| | | | | | | Annual Requirement | | | | | $ 3,558 |
| | | | | Parks, Recreation and Culture | Reliable | Average Condition | 56.6 | 55.4 | 52.6 | 49.8 | 46.8 |
| | | | | | Sustainable | Average Risk | 10.0 | 10.2 | 10.4 | 10.8 | 10.8 |
| | | | | | Affordable | Replacement Cost | | | | | $ 99,657,811 |
| | | | | | | Annual Requirement | | | | | $ 2,089,106 |
| | | | Machinery and Equipment | Corporate Services | Reliable | Average Condition | 99.1 | 97.2 | 94.3 | 90.1 | 84.6 |
| | | | | | Sustainable | Average Risk | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| | | | | | Affordable | Replacement Cost | | | | | $ 21,617 |
| | | | | | | Annual Requirement | | | | | $ 2,162 |
| | | | | Parks, Recreation and Culture | Reliable | Average Condition | 56.6 | $ 50 | 76.6 | 68.2 | 59.9 |
| | | | | | Sustainable | Average Risk | 1.3 | 2.2 | 2.6 | 3.3 | 4.3 |
| | | | | | Affordable | Replacement Cost | | | | | $ 161,901 |
| | | | | | | Annual Requirement | | | | | $ 20,449 |
| | | | Vehicles | Light Duty Pick-up | Reliable | Average Condition | 71.7 | 68.4 | 88.7 | 81.6 | 71.4 |
| | | | | | Sustainable | Average Risk | 1.3 | 1.3 | 1.8 | 2.6 | 2.6 |
| | | | | | Affordable | Replacement Cost | | | | | $ 240,000 |
| | | | | | | Annual Requirement | | | | | $ 30,214 |
| | | | | Medium Duty Truck | Reliable | Average Condition | 0.0 | 0.0 | 99.7 | 97.7 | 93.4 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 2.8 | 2.8 | 2.8 |
| | | | | | Affordable | Replacement Cost | | | | | $ 210,000 |
| | | | | | | Annual Requirement | | | | | $ 30,000 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 100,320,293 |
| | | | | | | Total Annual Requirement | | | | | $ 2,175,489 |
| | | | | | | Capital Spending | $ 542,507 | $ 176,176 | $ 609,052 | $ 1,368,573 | $ 2,044,270 |
| | | | | | | Operating Spending | $ 1,942,436 | $ 2,218,324 | $ 2,357,236 | $ 2,433,371 | $ 2,393,136 |

| Services | | | Assets | | | Technical Levels of Service | Service Level Trending | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| Recreation & Cultural Services | 1640 | Library | Machinery and Equipment | Library | Reliable | Average Condition | 0.0 | 0.0 | 0.0 | 0.0 | 16.8 |
| | | | | | Sustainable | Average Risk | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| | | | | | Affordable | Replacement Cost | | | | | $ 562,714 |
| | | | | | | Annual Requirement | | | | | $ 102,469 |
| | | | All | | Affordable | Total Replacement Cost | | | | | $ 562,714 |
| | | | | | | Total Annual Requirement | | | | | $ 102,469 |
| | | | | | | Capital Spending | $ 165,645 | $ 223,615 | $ 95,376 | $ 20,964 | $ 94,730 |
| | | | | | | Operating Spending | $ 1,425,035 | $ 1,453,383 | $ 1,601,386 | $ 1,775,540 | $ 1,744,573 |

# Appendix B: Facilities

## State of the Infrastructure

The Town of East Gwillimbury owns and maintains several facilities that provide key services to the community. These include:

- administrative offices
- fire stations
- public works garages and storage sheds
- community centres
- parks
- libraries & museums

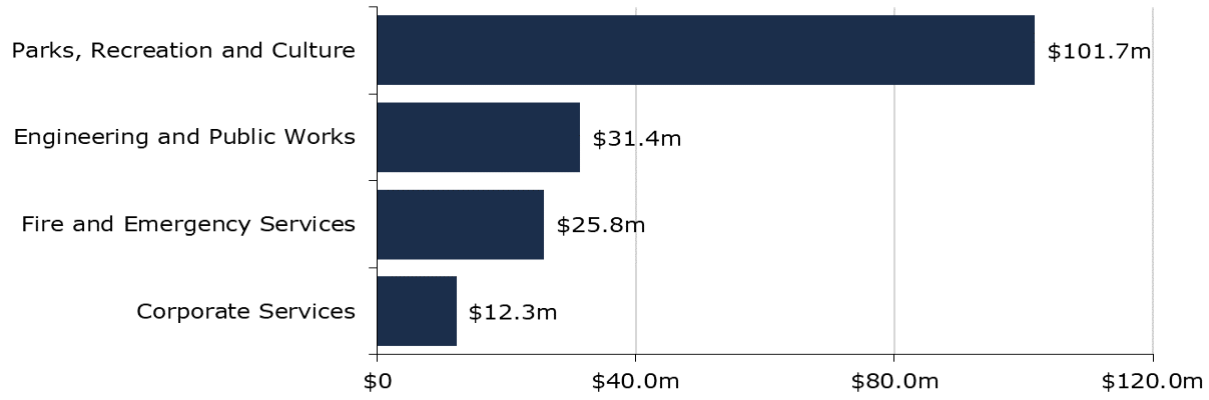
The state of the infrastructure for the facilities is summarized in the following table.

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $171,226,187 | Good (68%) | Annual Requirement: | $3,899,278 |
| | | Funding Available: | $1,805,738 |
| | | Annual Deficit: | $2,093,540 |

## Inventory and Valuation

The graph below displays the total replacement cost of each asset segment in East Gwillimbury's buildings inventory.

*Figure 10 Facilities Replacement Cost*

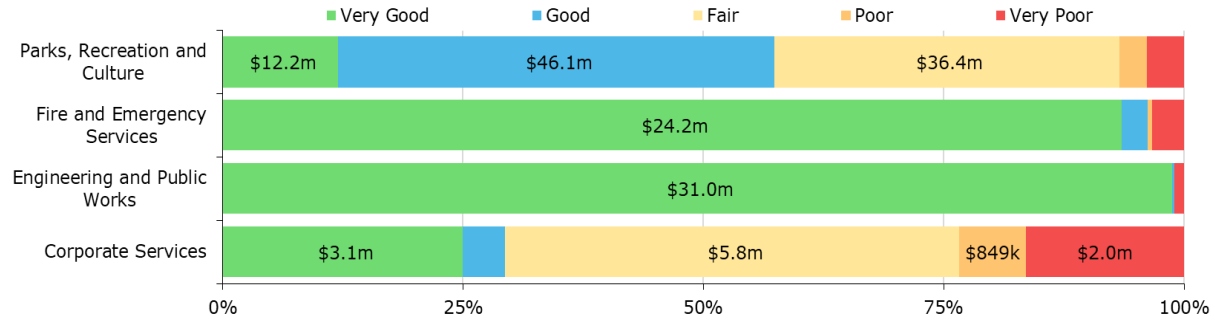



Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

# Asset Condition

These assets are now componentized in detail which improves the accuracy of projections. The graph below visually illustrates the average condition for each asset segment on a scale of very good to very poor.

*Figure 11 Facilities Condition Breakdown*




Facility inspections are conducted to comply with Health and Safety standards. Regulatory obligations are being met and public safety is not impacted by the condition of Town facilities.

To ensure that the municipal buildings continue to provide an acceptable level of service, the Town should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine the best combination of maintenance, rehabilitation, and replacement activities is required to increase the overall condition. Each asset's estimated useful life should also be reviewed to determine whether adjustments need to be made to better align with the observed service life.

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets.

# Lifecycle Management

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Maintenance of buildings is dealt with on a case-by-case basis. There are lists of preventative maintenance contracts and routine Health and Safety checks are performed.

A 10-year capital plan is in place based on updates to the building condition assessment completed previously and used to componentize the facilities in the Town.

## Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that East Gwillimbury should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements to the year 2051. The forecasted requirements trend line represents the average capital requirements to 2051 at $3.9 million.

*Figure 12 Facilities Forecasted Capital Replacement Requirements to 2051*

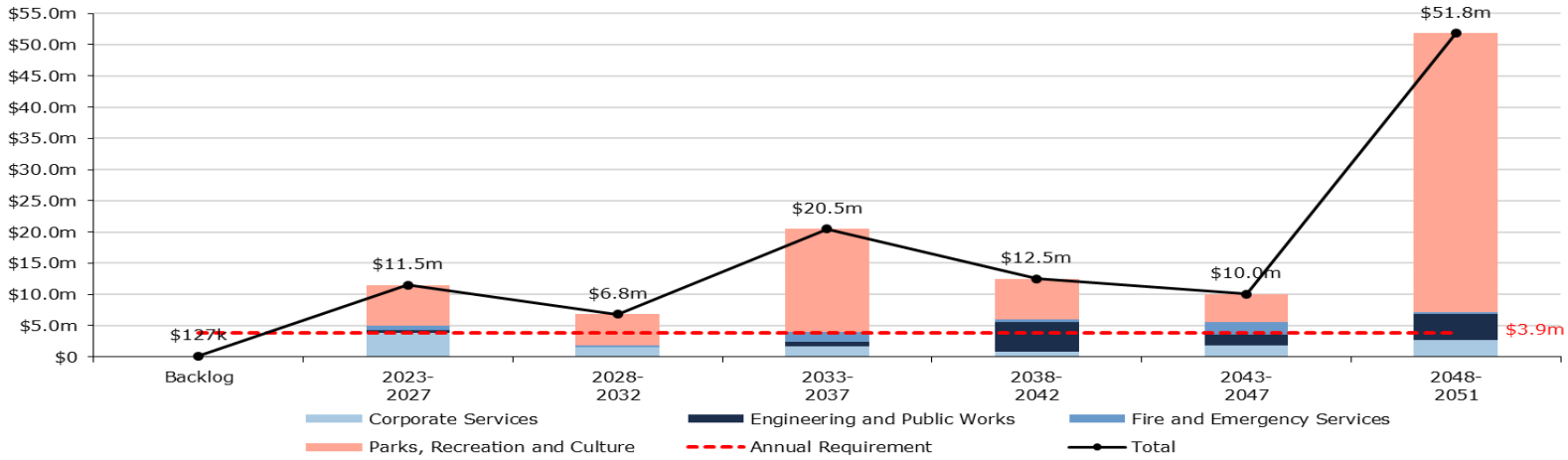



Table 7 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

*Table 7 Buildings System-Generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Corporate Services | **$5.3m** | $1.9m | $0.6m | $1.1m | $0.06m | $0.1m | $190k | $0.4m | $0.5m | $0.3m | $0.05m |
| Engineering and Public Works | **$470k** | $0.0m | $0.0m | $0.34m | $0.0m | $0.0m | $0.0m | $0.08m | $0.0m | $0.0m | $0.0m |
| Fire and Emergency Services | **$1.0m** | $0.6m | $0.09m | $0.08m | $0.0m | $0.0m | $0.06m | $0.0m | $0.1m | $0.0m | $0.0m |
| Parks, Recreation and Culture | **$11.5m** | $2.2m | $1.9m | $0.25m | $0.6m | $1.5m | $0.7m | $1.2m | $1.1m | $0.4m | $1.6m |

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within facilities based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

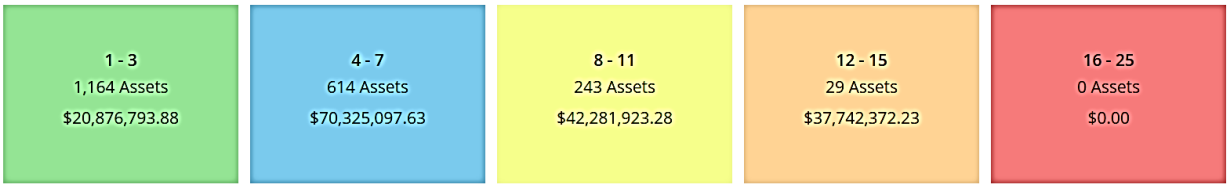
| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for facilities was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 100% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |
| Operational (40%) | Component Group | 100% | Furnishings, Exterior, Site Improvement | 1 |
| | | | Interior Finishes, Site Mechanical, Site Electrical | 2 |
| | | | Interior, Staircases, Equipment, Special Construction | 3 |
| | | | Exterior Closures & Enclosures, Roofing, Plumbing, HVAC, Electrical, Conveyance | 4 |
| | | | Foundations, Basement Construction, Superstructure, Fire Protection | 5 |
| Service Delivery (20%) | Service | 100% | Community & Recreation | 2 |
| | | | Administration | 3 |
| | | | Fire & Protection | 5 |
| | | | Operations Centre | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 13 Facilities Risk Matrix*




The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

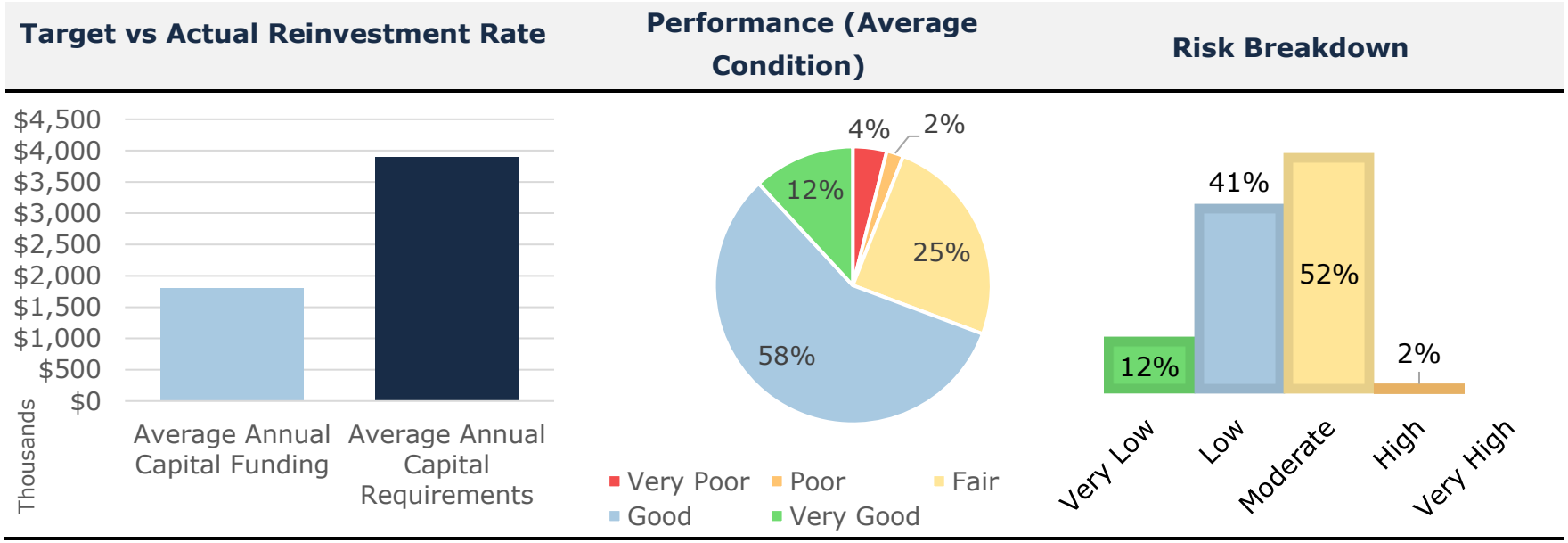
Growth of population within the Town results in a need to acquire new facility infrastructure. Between DC bylaw and developer contributed assets, the core infrastructure is expected to more than double by 2051, with significant growth occurring between years 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

From 2023 to 2032 there is estimated to be $178,992,400 in growth relative to facilities based on maintaining the current levels of service.

# Levels of Service

By comparing the cost, performance (average condition) and risk year-over-year, the Town will be able to evaluate how their services/assets are trending.  The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 14: Facilities Strategic Levels of Service*




## Community Levels of Service

The qualitative descriptions that determine the community levels of service provided by municipal facilities are based on the types of facilities outlined below:

- administrative offices – general government services
- Fire – emergency services
- public works garages and storage sheds – roadway and winter control services
- community centres – recreation and cultural services

## Technical Levels of Service

The quantitative metrics that determine the technical level of service provided by East Gwillimbury are going to be the analysis of reinvestment rates, average condition and average asset risk levels. These can be seen by service area in Appendix A: Levels of Service.

# Appendix C: Land Improvements

## State of the Infrastructure

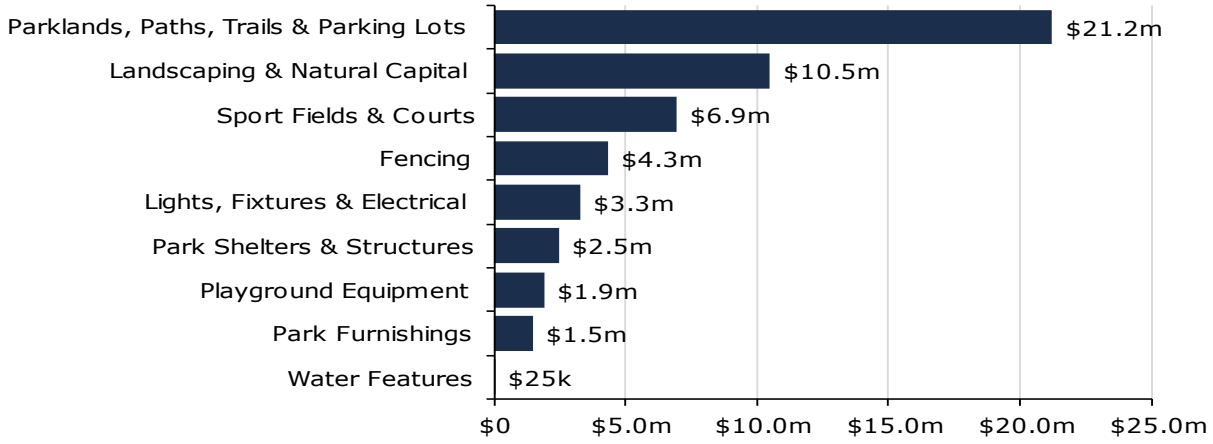
East Gwillimbury owns several assets that are considered Land Improvements, which include park and sports field assets like ball diamonds, soccer fields, playground equipment, water features and courts. Other assets that are also included in land improvements are landscaping and natural capital, park lighting and fencing. The state of the infrastructure for the land improvements is summarized in the following table.

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $52,085,163 | Very Good (86%) | Annual Requirement: | $1,630,861 |
| | | Funding Available: | $0 |
| | | Annual Deficit: | $1,630,861 |

## Inventory and Valuation

The graph below displays the total replacement cost of each asset segment in the Town's land improvement inventory.

*Figure 15 Land Improvements Replacement Cost*




Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

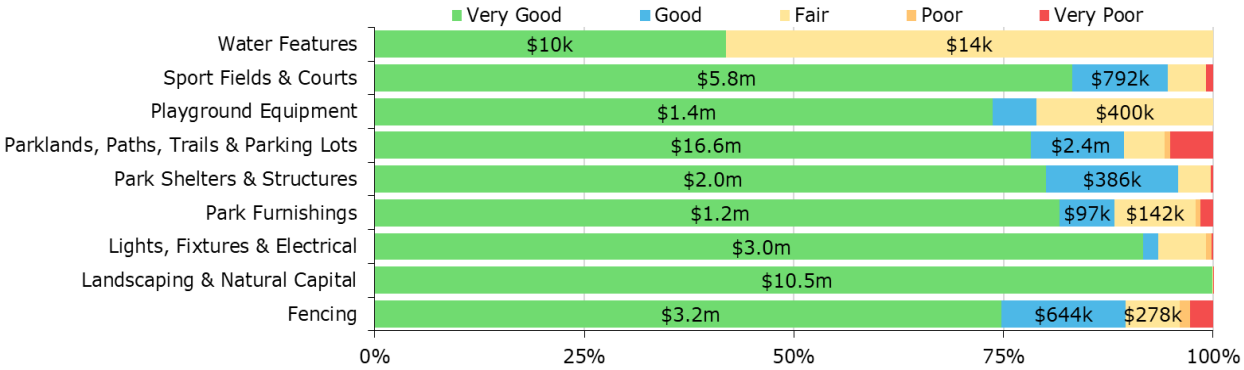
## Asset Condition

To ensure that the Town's land improvements and parks continue to provide an acceptable level of service, East Gwillimbury should monitor the average condition

of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine the combination of maintenance, rehabilitation, and replacement activities required to increase the overall condition.

The graph below visually illustrates the average condition for each asset segment on a scale of Very Good to Very Poor.

*Figure 16 Land Improvements Condition Breakdown*




Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The current approach varies significantly due to the varied assets included in this category; Town staff have worked on improving the inventory values by assessing asset conditions.

## Lifecycle Management

To ensure that municipal assets are performing as expected and meeting the needs of residents, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Most maintenance is done through external contracting, and staff perform routine maintenance. Rehabilitation and replacements are performed reactively, with asset failure. Playground structures are monitored and are proactive replacement is scheduled to meet health and safety requirements of the Canadian Standards Association (CSA).

## Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that should be allocated towards funding rehabilitation and replacement needs. The following graph identifies the forecasted capital requirements to the year 2051. The forecasted requirements trend line represents the average annual capital requirements which are $1.6 million.

*Figure 17 Land Improvements Forecasted Capital Replacement Requirements to 2051*

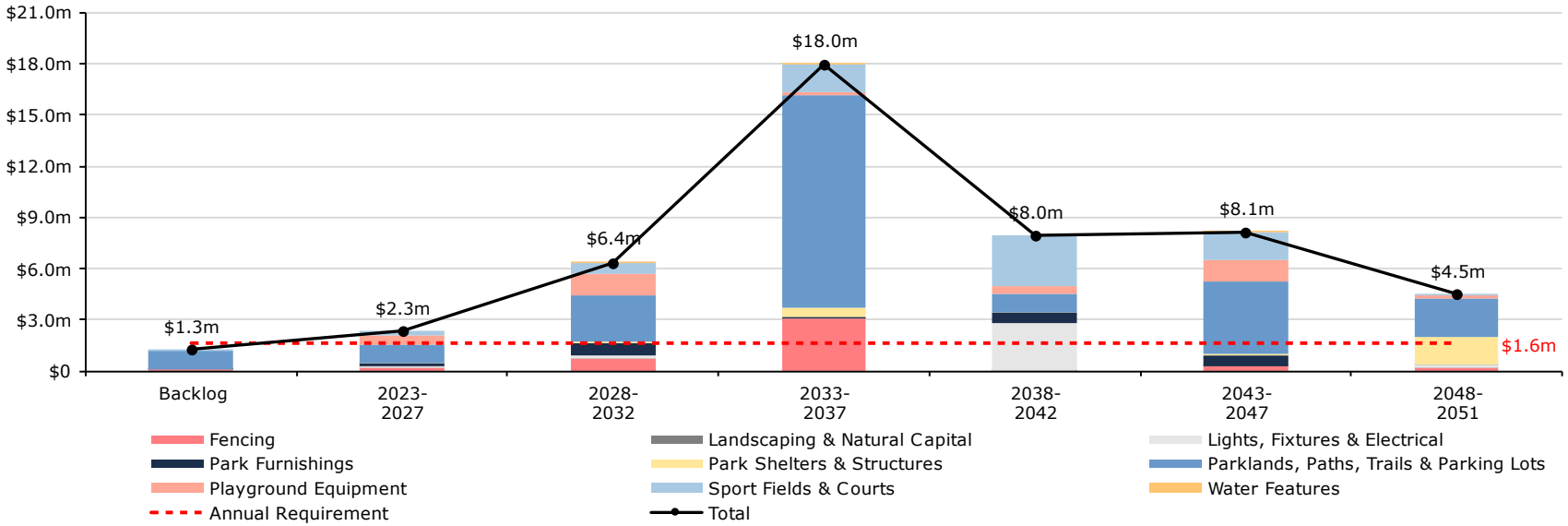



Table 8 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

*Table 8 Land Improvements System-Generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fencing | **$0.95m** | $0 | $0.03m | $0.03m | $0.16m | $0.02m | $0.1m | $0 | $0.62m | $0 | $0 |
| Landscaping & Natural Capital | **$0.01m** | $0.07m | $0.44m | $0 | $0.09m | $0 | $0.01m | $0 | $0.24m | $0 | $0 |
| Lights, Fixtures & Electrical | **$0.27m** | $0 | $0.02m | $0 | $0 | $0.03m | $0 | $0.16m | $0.01m | $0.05m | $0 |
| Park Furnishings | **$0.91m** | $0 | $0.02m | $0.08m | $0 | $0.06m | $0 | $0.04m | $0 | $0.7m | $0 |
| Park Shelters & | **$0.1m** | $0 | $0 | $0.01m | $0 | $0 | $0 | $0.08m | $0.01m | $0 | $0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Structures | | | | | | | | | | | |
| Parklands, Paths, Trails & Parking Lots | **$3.8m** | $0 | $0.1m | $0.15m | $0.71m | $0.16m | $1.2m | $0.05m | $1.1m | $0.3m | $0.02m |
| Playground Equipment | **$1.8m** | $0 | $0 | $0.4m | $0 | $0.1m | $0 | $0 | $0 | $1.3m | $0 |
| Sport Fields & Courts | **$0.91m** | $0 | $0 | $0 | $0.26m | $0 | $0.07m | $0 | $0.17m | $0.2m | $0.2m |
| Water Features | **$0.01m** | $0 | $0 | $0 | $0 | $0 | $0.01m | $0 | $0 | $0 | $0 |

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within land improvements, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

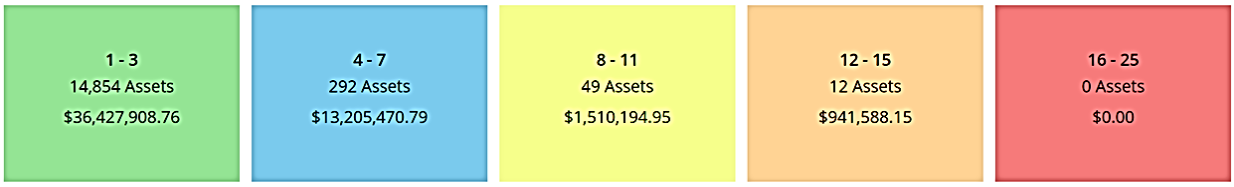
| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 100% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |
| Operational (40%) | Component Type | 80% | Furniture, Seating, Receptacles, Trees, Planters, Garden, Irrigation | 1 |
| | | | Bike Parks, Skate Parks, Dog Parks | 2 |
| | | | Sports Fields, Courts & Surfaces | 3 |
| | | | Active Transportation, Fencing, Signs, Entry Features | 4 |
| | | | Barriers, Structures, Retaining Walls | 5 |
| | LI Asset Type | 20% | Hard Assets | 1 |
| | | | Green Assets | 5 |
| Service Delivery (20%) | Park Classification | 100% | Parkettes | 1 |
| | | | Neighbourhood Parks | 3 |
| | | | Community Parks | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 18 Land Improvements Risk Matrix*




The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

Growth of population within the Town results in a need to acquire new land improvements and park infrastructure. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

From 2023 to 2032 there is estimated to be $60,210,655 in growth relative to land improvements based on maintaining the current levels of service.

# Levels of Service

By comparing the cost, performance (average condition) and risk year-over-year, the Town will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

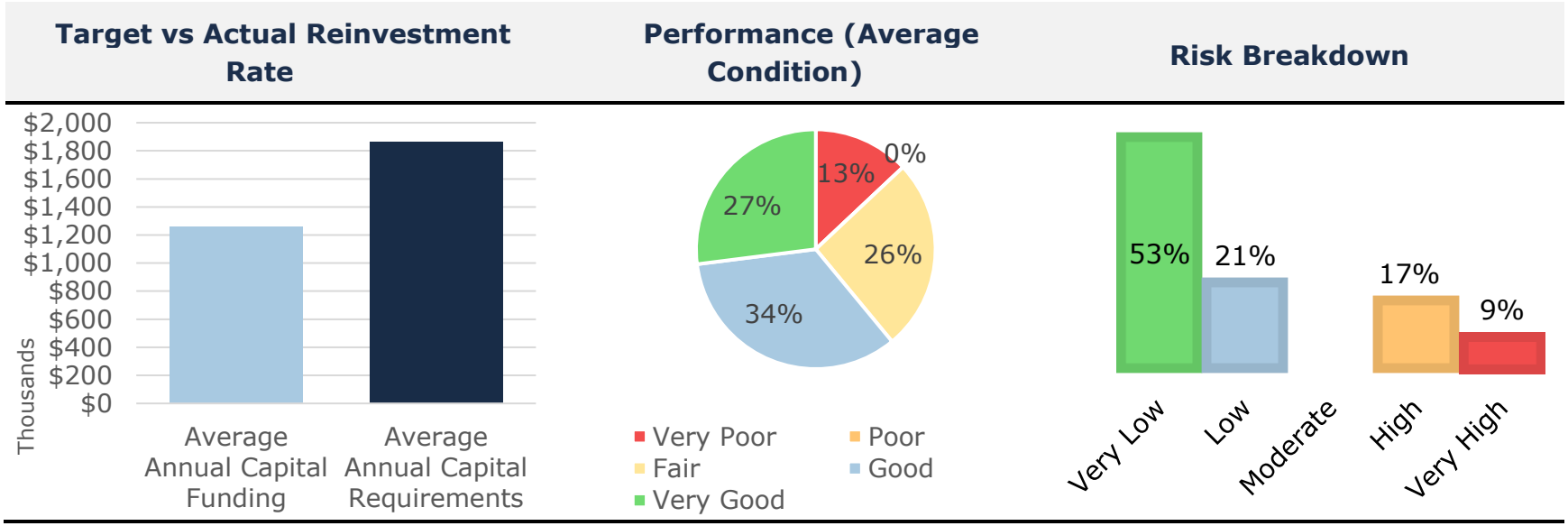



*Figure 19: Land Improvements Strategic Levels of Service*

## Community Levels of Service

The qualitative descriptions that determine the community levels of service provided by land improvements are based on the Town providing reliable, sustainable, and affordable park services.

## Technical Levels of Service

The quantitative metrics that determine the technical level of service provided by East Gwillimbury are going to be the analysis of reinvestment rates, average condition, and average asset risk levels. These can be seen by service area in Appendix A: Levels of Service.

# Appendix D: Vehicles

## State of the Infrastructure

Vehicles support the delivery of municipal services through the support of several service areas, including:

- Plow vehicles for winter control activities
- Recreation vehicles to provide park management
- Admin vehicles for building permit and inspection services
- Fire Trucks for emergency or protective services

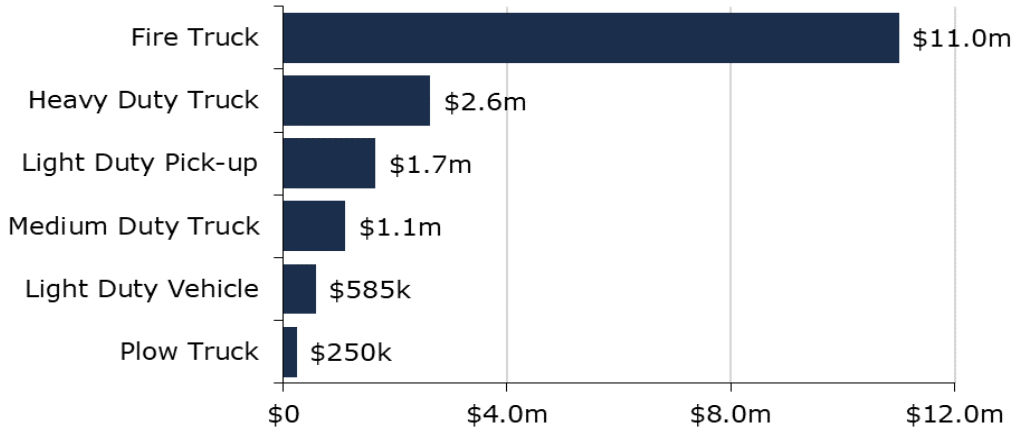
The state of the infrastructure for the vehicles is summarized in the following table.

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $17,226,080 | Fair (44%) | Annual Requirement: | $1,701,902 |
| | | Funding Available: | $1,050,036 |
| | | Annual Deficit: | $651,866 |

## Inventory and Valuation

The graph below displays the total replacement cost of each asset segment in the vehicle inventory.

*Figure 20 Vehicle Replacement Costs*

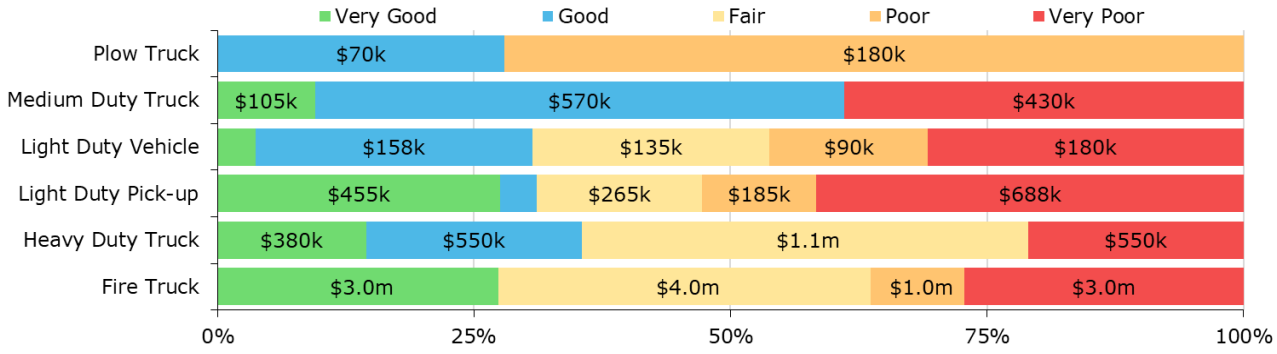



Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

# Asset Condition

The graph below visually illustrates the average condition for each asset segment on a scale of very good to very poor.

*Figure 21 Vehicles Condition Breakdown*




To ensure that the Towns's vehicles continue to provide an acceptable level of service, the average condition of all assets should be monitored. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the vehicles.

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The current approach is staff complete regular visual inspections of vehicles to ensure they are in a state of adequate repair prior to operation.

# Lifecycle Management

The condition or performance of assets will deteriorate over time. To ensure vehicles are performing as expected, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Lifecycle replacement model is put into a 10-year capital plan which is reviewed annually to determine the best interventions to use based on mileage, time, and manufacturer's recommendations.

## Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs. The following graph identifies the forecasted capital requirements to the year 2051.

The forecasted requirements trend line represents the average annual capital requirements at $1.7 million.

*Figure 22 Vehicle Forecasted Capital Replacement Requirements to 2051*

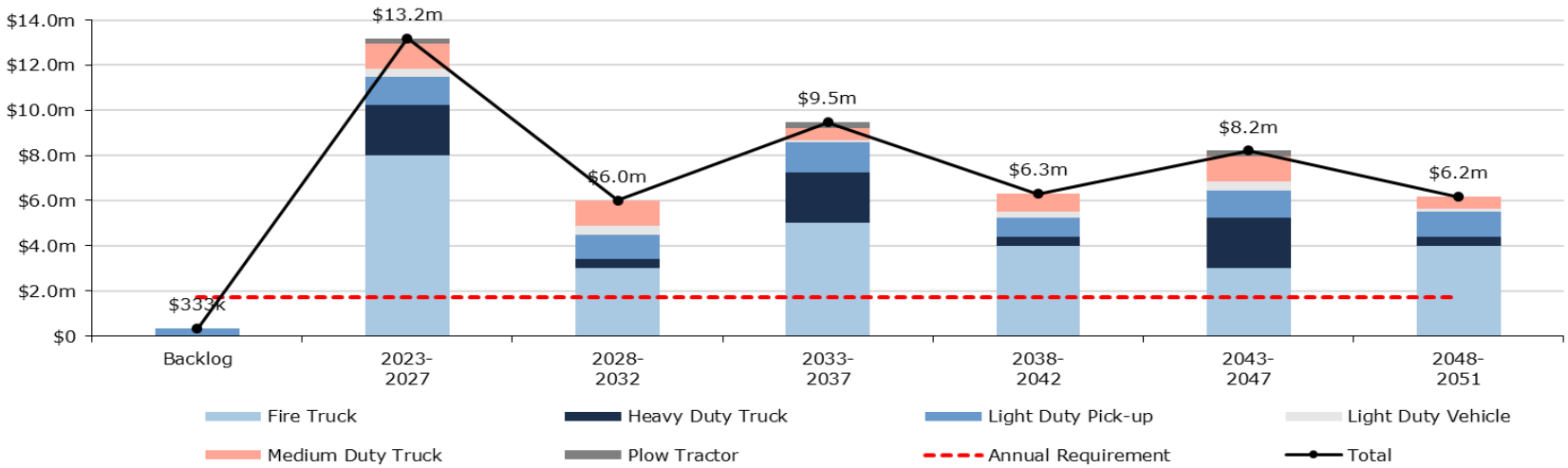



Table 9 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

*Table 9 Vehicles System-Generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fire Truck | **$11.0m** | $3.0m | $1.0m | $4.0m | $0 | $0 | $0 | $0 | $1.0m | $0.01m | $2.0m |
| Heavy Duty Truck | **$2.6m** | $0.55m | $0 | $1.1m | $0.55m | $0 | $0 | $0.38m | $0 | $0 | $0 |
| Light Duty Pick-up | **$2.3m** | $0.27m | $0.54m | $0.06m | $0 | $0.36m | $0.17m | $0.33m | $0.28m | $0.27m | $0.06m |
| Light Duty Vehicle | **$0.1m** | $0.09m | $0.23m | $0.16m | $0 | $0 | $0 | $0.1m | $0.11m | $0.16m | $0.13m |
| Medium Duty Truck | **$2.2m** | $0.32m | $0.12m | $0.57m | $0.11m | $0 | $0 | $0 | $0.54m | $0 | $0.57m |
| Plow Truck | **$0.25m** | $0 | $0.18m | $0 | $0.07m | $0 | $0 | $0 | $0 | $0 | $0 |

These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the municipality's capital expenditure forecasts.

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within vehicles, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for vehicles was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 100% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |
| Operational (40%) | Component Type | 100% | Light Duty | 1 |
| | | | Heavy Duty | 3 |
| | | | Fire, Snow Removal | 5 |
| Service Delivery (20%) | Impact on Service | 100% | Light Duty Pick Up Trucks | 1 |
| | | | Light Duty Vehicle | 2 |
| | | | Medium Duty Trucks | 3 |
| | | | Heavy Duty Trucks | 4 |
| | | | Fire Trucks, Plow Trucks | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 23 Vehicles Risk Matrix*


The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

Growth of population within the Town results in a need to acquire new vehicles. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

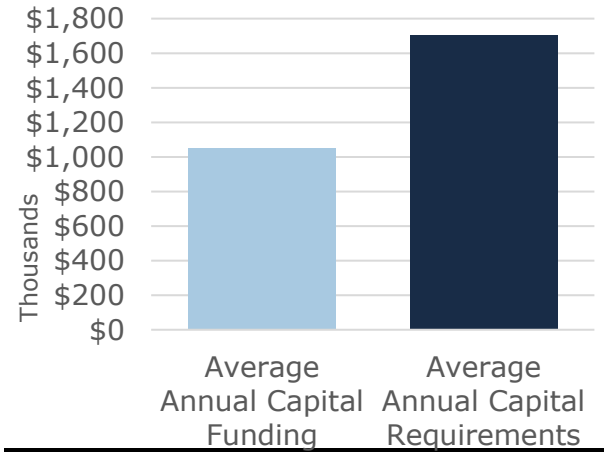
From 2023 to 2032 there is estimated to be $9,170,000 in growth relative to vehicles based on maintaining the current levels of service.

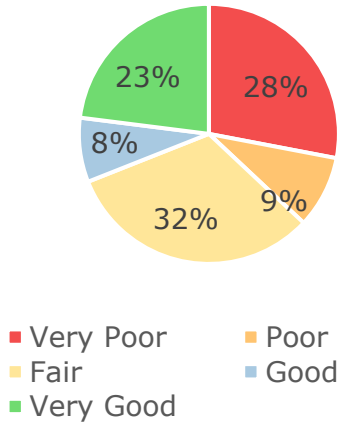
# Levels of Service

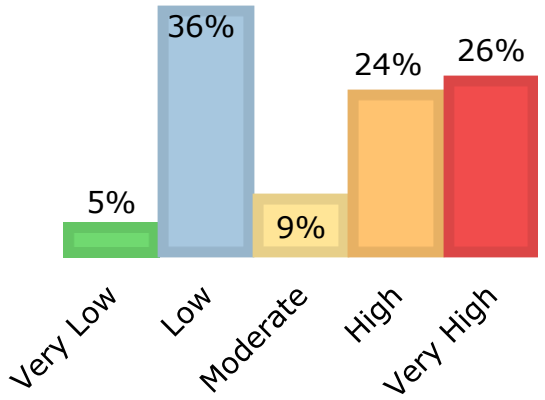
By comparing the cost, performance (average condition) and risk year-over-year, the Town will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 24: Vehicles Strategic Levels of Service*

| Target vs Actual Reinvestment Rate | Performance (Average Condition) | Risk Breakdown |
|---|---|---|




## Community Levels of Service

The qualitative descriptions that determine the community levels of service provided by vehicles are through ensuring that they are reliable, sustainable, and affordable to meet the needs of the community.

## Technical Levels of Service

The quantitative metrics that determine the technical level of service provided by East Gwillimbury are going to be the analysis of reinvestment rates, average condition, and average asset risk levels. These can be seen by service area in Appendix A: Levels of Service.

# Appendix E: Machinery and Equipment

## State of the Infrastructure

To maintain the quality stewardship of East Gwillimbury's infrastructure and support the delivery of services, municipal staff own and employ various types of equipment. This includes:

- Computers, furniture and phone systems to support all municipal services
- Engineering and Public Works equipment to support roadway maintenance
- Fire equipment to support emergency services
- Library, Parks and Recreation equipment to support recreation programs

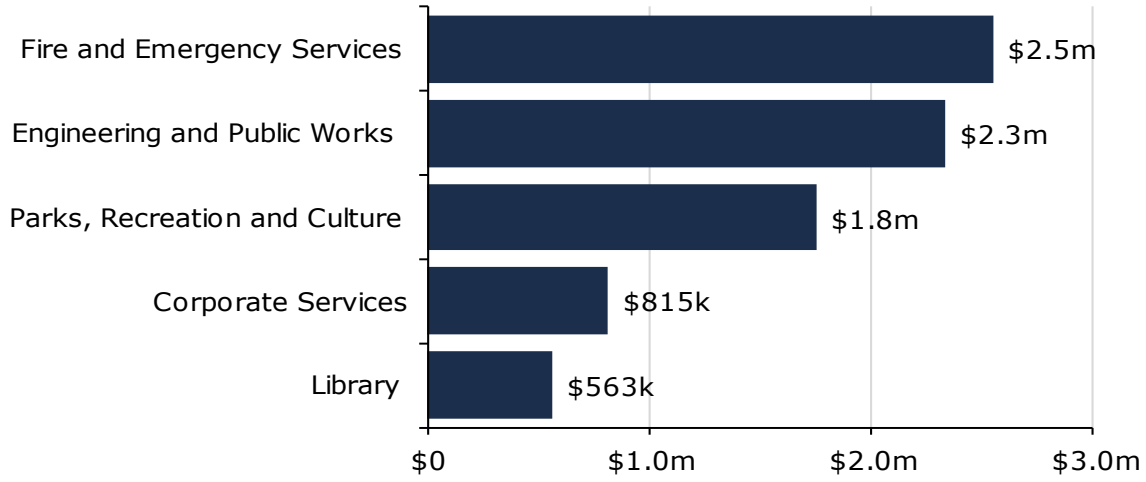
The state of the infrastructure for equipment is summarized in the following table.

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $8,005,278 | Fair (58%) | Annual Requirement: | $937,030 |
| | | Funding Available: | $279,498 |
| | | Annual Deficit: | $657,532 |

## Inventory and Valuation

The graph below displays the total replacement cost of each asset segment in the Town's machinery and equipment inventory.

*Figure 25 Machinery and Equipment Replacement Costs*

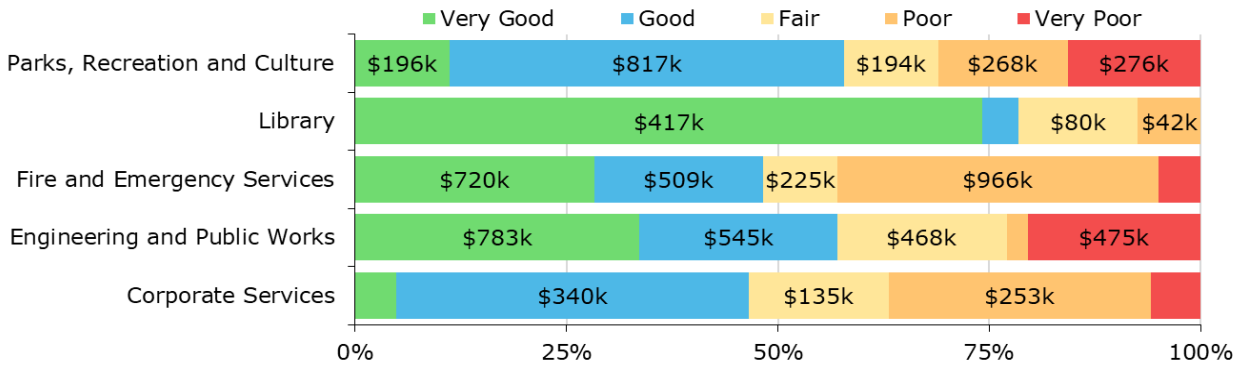



Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent capital requirements.

# Asset Condition

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.

*Figure 26 Machinery and Equipment Condition Breakdown*




To ensure that the Towns's machinery and equipment continues to provide an acceptable level of service, East Gwillimbury should continue to monitor the average condition. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition.

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The current approach is varied because of the broad range of types of equipment included in this category.

# Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meet the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Machinery and equipment have identified lifecycles and through use and staff recommendations is replaced on the schedule developed. Maintenance is performed based on manufacturer's recommendations for equipment with regulatory requirements, for example fire equipment.

## Forecasted Capital Requirements

The following graph identifies the forecasted capital requirements to the year 2051. The forecasted requirements trend line represents the average annual capital requirements at $919 thousand.

*Figure 27 Machinery and Equipment Forecasted Capital Replacement Requirements to 2051*

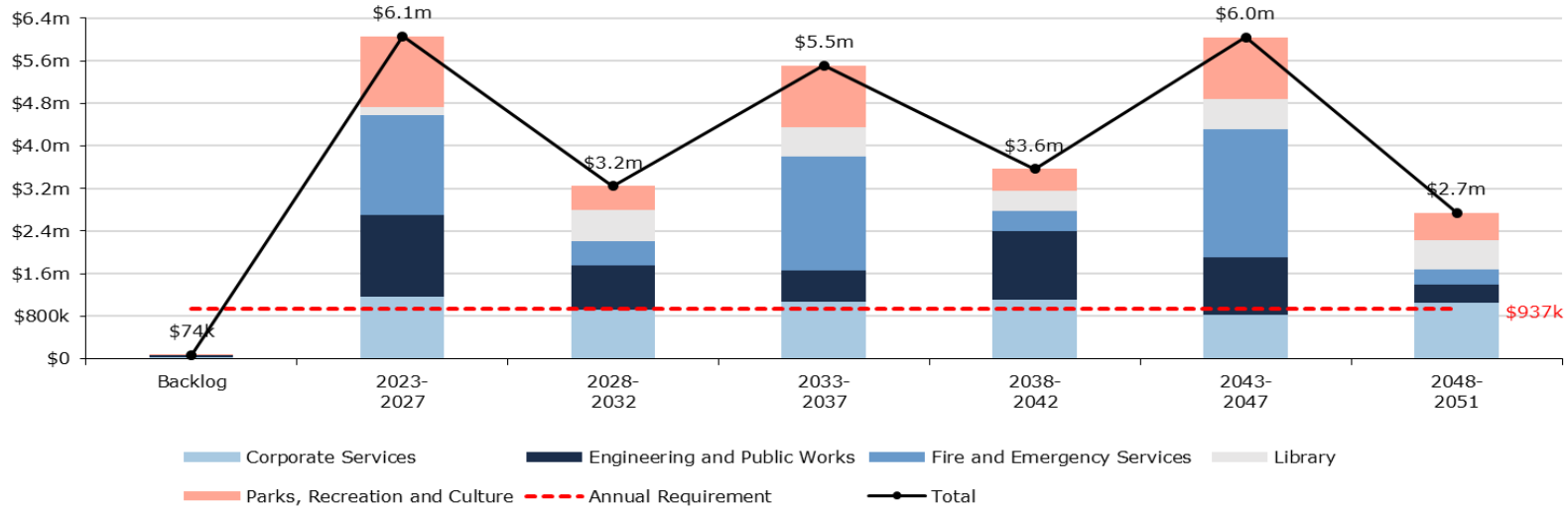



Table 10 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

*Table 10 Machinery and Equipment System-Generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Corporate Services | **$2.1m** | $0.03m | $0.49m | $0.23m | $0.03m | $0.38m | $0.08m | $0.08m | $0.45m | $0.11m | $0.2m |
| Engineering and Public Works | **$2.4m** | $0.44m | $0.07m | $0.46m | $0.1m | $0.47m | $0.19m | $0.09m | $0.03m | $0m | $0.52m |
| Fire and Emergency Services | **$2.3m** | $0.11m | $1.0m | $0.24m | $0.17m | $0.34m | $0.07m | $0.12m | $0.09m | $0.18m | $0.01m |
| Library | **$0.73m** | $0 | $0.12m | $0.03m | $0 | $0.01m | $0.2m | $0.19m | $0.13m | $0.01m | $0.02m |

These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Town's capital expenditure forecasts.

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within machinery and equipment, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for machinery and equipment was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 100% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |
| Operational (40%) | Equipment Type | 50% | Other Equipment | 1 |
| | | | Motorized Equipment | 3 |
| | | | Emergency Equipment (Fire, Snow Removal, Personal Protection) | 5 |
| | Redundancy | 50% | Redundancy | 1 |
| | | | No Redundancy | 2 |
| Service Delivery (20%) | Impact on Service | 100% | Light Duty Pick Up Trucks | 1 |
| | | | Light Duty Vehicle | 2 |
| | | | Medium Duty Trucks | 3 |
| | | | Heavy Duty Trucks | 4 |
| | | | Fire Trucks, Plow Trucks | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 28 Machinery and Equipment Risk Matrix*


The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

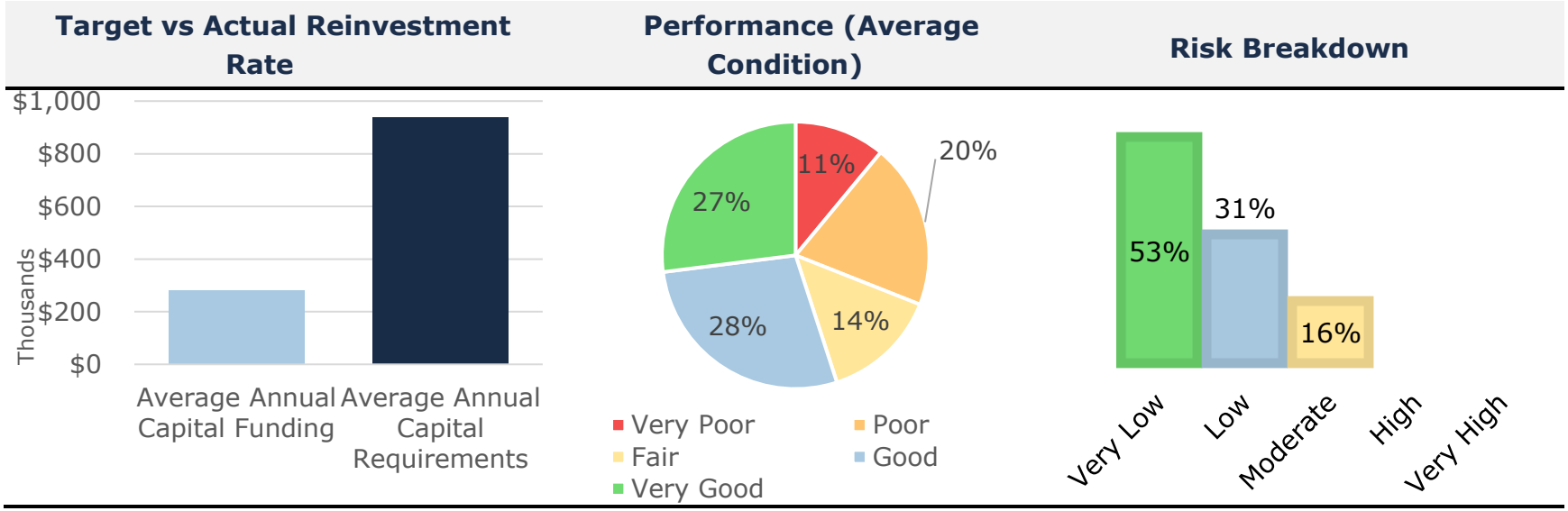
Growth of population within the Town results in a need to acquire new machinery and equipment. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

From 2023 to 2032 there is estimated to be $3,412,400 in growth relative to machinery and equipment based on maintaining the current levels of service.

# Levels of Service

By comparing the cost, performance (average condition) and risk year-over-year, East Gwillimbury will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 29: Machinery and Equipment Strategic Levels of Service*




## Community Levels of Service

The qualitative descriptions that determine the community levels of service provided by machinery and equipment are by ensuring that they are reliable, sustainable, and affordable to meet the needs of staff and the community.

## Technical Levels of Service

The quantitative metrics that determine the technical level of service provided by East Gwillimbury are going to be the analysis of reinvestment rates, average condition, and average asset risk levels. These can be seen by service area in Appendix A: Levels of Service.

# Appendix F: Road Network

## State of the Infrastructure

East Gwillimbury's road network comprises the third largest share of its infrastructure portfolio, with a current replacement cost of $394 million, distributed primarily between asphalt roads and surface treated roads.

The Town also owns and manages other supporting infrastructure and capital assets, including sidewalks, road signs, road barriers and streetlights.

The state of the infrastructure for the road network is summarized below.

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $394,041,807 | Good (71%) | Annual Requirement: | $4,652,626 |
| | | Funding Available: | $2,704,365 |
| | | Annual Deficit: | $1,948,261 |

## Inventory and Valuation

The figure below displays the replacement cost of each asset segment in the Town's road inventory.

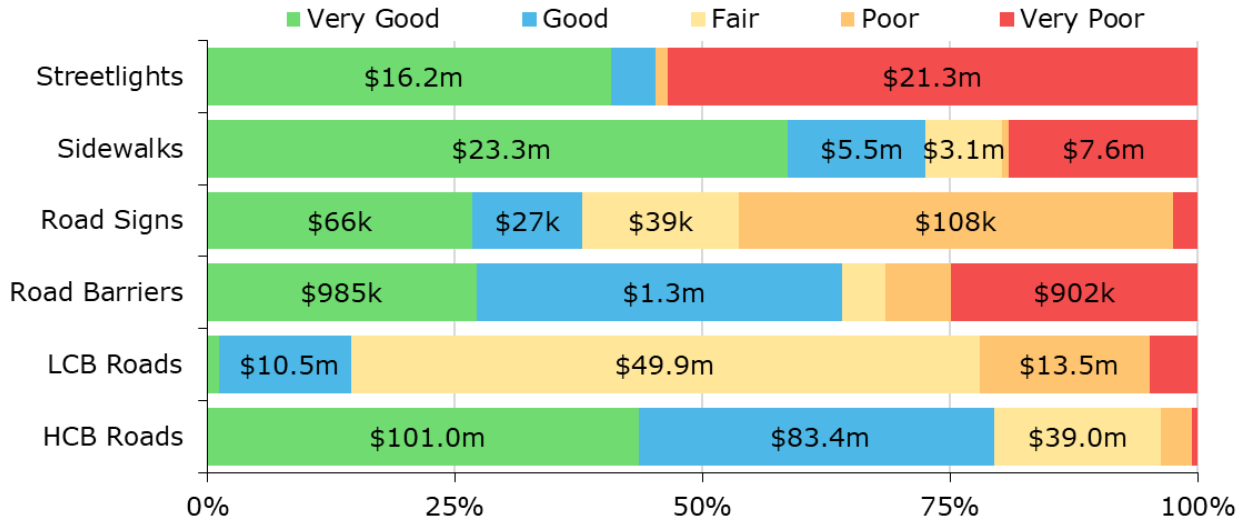
*Figure 30 Road Network Replacement Value*


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

# Asset Condition

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.

*Figure 31 Road Network Condition Breakdown*




To ensure that East Gwillimbury's roads continue to provide an acceptable level of service, the municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation, and replacement activities is required to increase the overall condition of the roads.

Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The Town's current approach is described below.

The condition of roads is collected every two years by an external consultant, utilizing a detailed visual inspection of the entire network. A pavement condition index (PCI) and surface distress index (SDI) are calculated from observed defects, geometry and drainage, and rideability.

Streetlights, barriers, sidewalks, signs, and signals are assessed through a combination of age-based conditions, where the useful life and age is used to estimate deterioration, inspection records where defects are noted, and engineering studies. Road network assets are being inspected regularly, in compliance with industry standards and regulatory requirements.

# Lifecycle Management

Infrastructure assets provide the Town value by enabling the delivery of key services. Over time these assets will deteriorate, which will lower the service they provide. The road network is organized into functional classes and maintenance classes, which determine the level of maintenance they require, the type of traffic they can accommodate, speed limit, and volume of traffic.

Asphalt and surface treated roads are triggered for rehabilitation and replacement via the decision trees developed by Stantec's PMS. Results were obtained by running the model over a 50-year period with an unconstrained budget and optimized for cost effectiveness. This scenario best accounts for the current levels of service, as it determines the rehabilitation program for lifecycle needs at the lowest cost option.

The renewal and replacement strategy for asphalt roads uses a combination of pavement preservation techniques, thin asphalt milling and resurfacing, full asphalt milling and resurfacing and reconstruction. Surface treated roads are generally resurfaced on a regular cycle when the pavement condition index drops below 55. Specific triggers for these activities are dependent on numerous factors, including pavement condition index, surface distress index, roadside class, and material.

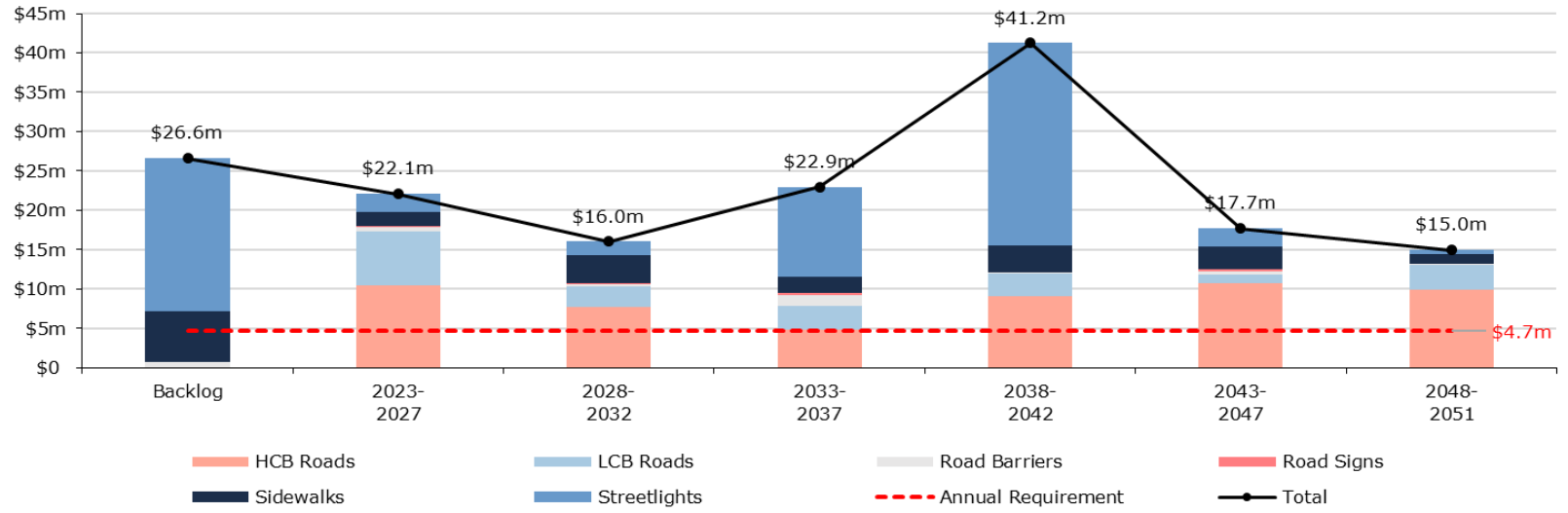
## Forecasted Capital Requirements

Figure 32 illustrates the forecasted infrastructure rehabilitation and replacement requirements for the Town's road network to 2051.

East Gwillimbury's average forecasted annual requirements (red dotted line) total $4.7 million for all assets in the road network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Table 11 below summarizes the projected cost of lifecycle activities (rehabilitation and replacement) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

*Figure 32 Road Network Forecasted Capital Replacement Requirements to 2051*




These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Town's capital expenditure forecasts.

*Table 11 Road Network System-generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HCB Roads | **$18.2m** | $2.2m | $1.7m | $3.6m | $2.2m | $0.84m | $1.3m | $2.3m | $1.0m | $1.2m | $1.9m |
| LCB Roads | **$9.4m** | $1.7m | $0.37m | $1.3m | $1.6m | $2.0m | $0.44m | $0.97m | $0.46m | $0.19m | $0.46m |
| Road Barriers | **$0.87m** | $0.21m | $0.24m | $0 | $0 | $0.09m | $0.07m | $0.11m | $0.1m | $0.05m | $0 |
| Road Signs | **$0.25m** | $0.01m | $0.14m | $0.01m | $0.01m | $0.02m | $0.06m | $0 | $0.01m | $0 | $0.01m |
| Sidewalks | **$5.3m** | $1.2m | $0.2m | $0.04m | $0.03m | $0.3m | $0.63m | $0.04m | $0.56m | $1.6m | $0.73m |
| Streetlights | **$4.1m** | $1.8m | $0.49m | $0 | $0 | $0 | $1.3m | $0.42m | $0.06m | $0 | $0 |

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within the road network, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

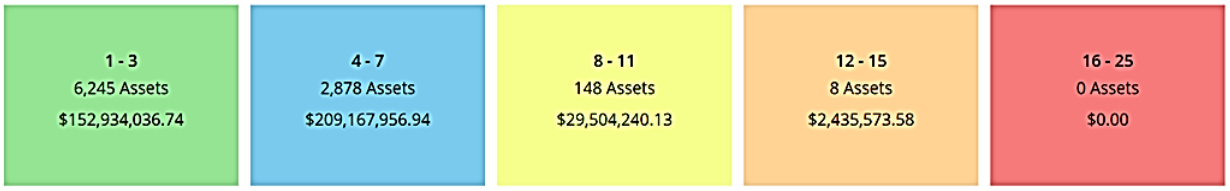
| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for Road network were calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Asset Segment 2024 AMP | 60% | Gravel | 2 |
| | | | LCB | 3 |
| | | | HCB | 4 |
| | ENV_RS | 20% | R | 1 |
| | | | S | 3 |
| | | | U | 4 |
| | Drainage | 10% | OD | 1 |
| | | | SS | 4 |
| | Adjacent to Bridge | 10% | No | 1 |
| | | | Yes | 5 |
| Operational (40%) | CLASS_MMS | 50% | 6 | 1 |
| | | | 5 | 2 |
| | | | 4 | 3 |
| | | | 3 | 4 |
| | | | 1, 2 | 5 |
| | CLASS_RS | 50% | 600, 500, LNWY | 1 |
| | | | L/R | 2 |
| | | | LCI, C/R | 3 |
| | | | CCI | 4 |
| Service Delivery (20%) | Road Use (Risk) | 100% | Normal | 1 |
| | | | Transit Route | 3 |
| | | | Bridge Adjacent, Trucking Route | 4 |
| | | | Downtown | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 33 Road Network Risk Matrix*




The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

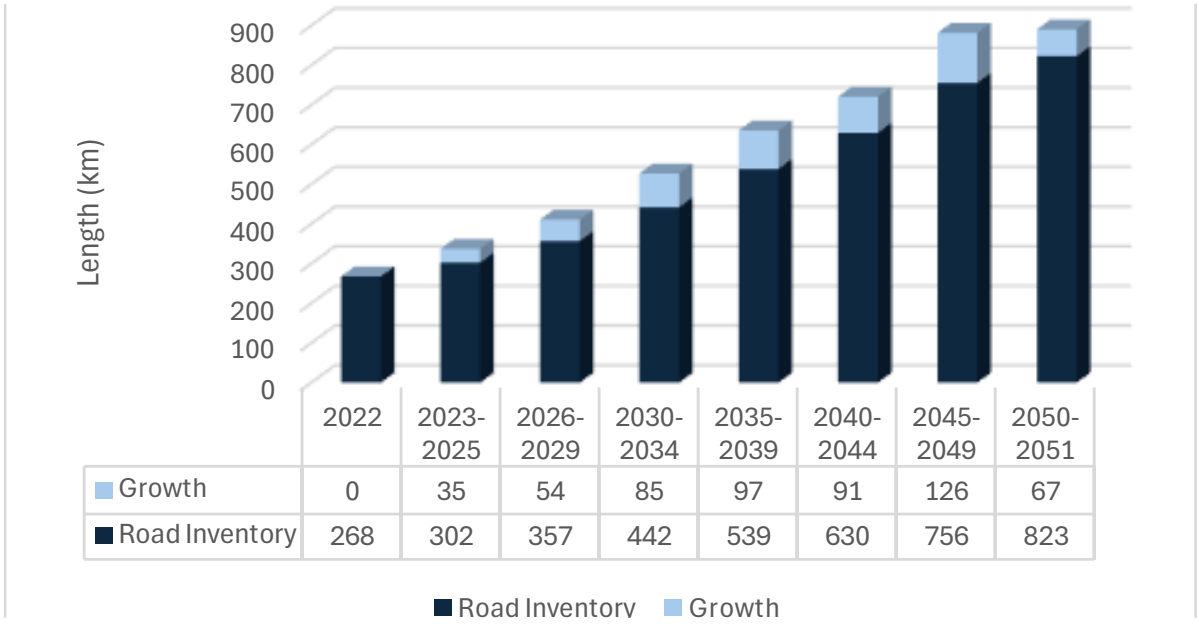
## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

Growth of population within the Town results in a need to acquire new road network infrastructure. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

*Figure 34: Road Network Growth Estimate*

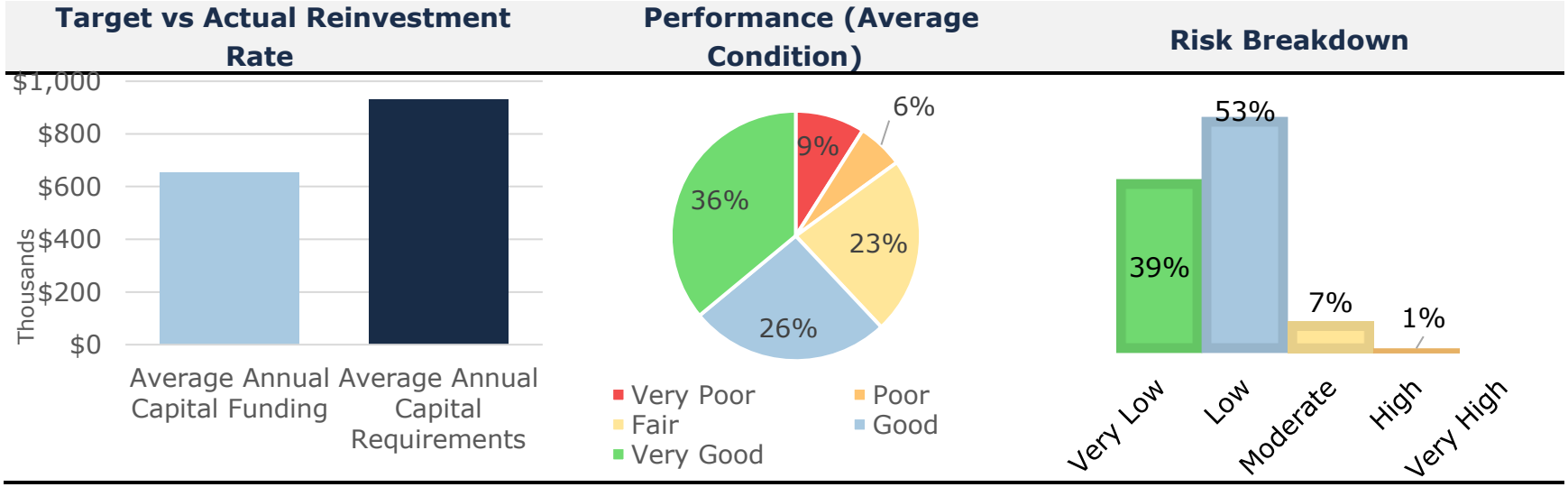



| | 2022 | 2023-2025 | 2026-2029 | 2030-2034 | 2035-2039 | 2040-2044 | 2045-2049 | 2050-2051 |
|---|---|---|---|---|---|---|---|---|
| Growth | 0 | 35 | 54 | 85 | 97 | 91 | 126 | 67 |
| Road Inventory | 268 | 302 | 357 | 442 | 539 | 630 | 756 | 823 |

# Levels of Service

By comparing the cost, performance (average condition) and risk year-over-year, East Gwillimbury will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 35: Road Network Strategic Levels of Service*




The tables that follow summarize East Gwillimbury's current levels of service with respect to prescribed KPIs under Ontario Regulation 588/17.

## Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the road network.

*Table 12 Ontario Regulation 588/17 Road Network Community Levels of Service*

| Service Attribute | Qualitative Description | Current LOS |
|---|---|---|
| Scope | Description, which may include maps, of the road network in the municipality and its level of connectivity | See Figure 36: Road Network by Class |
| Quality | Description or images that illustrate the different levels of road class pavement condition | See Figure 37: Images of Pavement Condition for the description of road condition |

## Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the road network.

*Table 13 Ontario Regulation 588/17 Road Network Technical Levels of Service*

| Service Attribute | Technical Metric | Current LOS |
|---|---|---|
| Scope | Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km$^2$) | 0 |
| | Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km$^2$) | 0.472 |
| | Lane-km of local roads (MMS classes 5 and 6) per land area (km/km$^2$) | 1.488 |
| Quality | Average pavement condition index for paved roads | 77.5 (Good) |
| | Average surface condition for unpaved roads (e.g. excellent, good, fair, poor) | N/A |

*Figure 36: Road Network by Class*

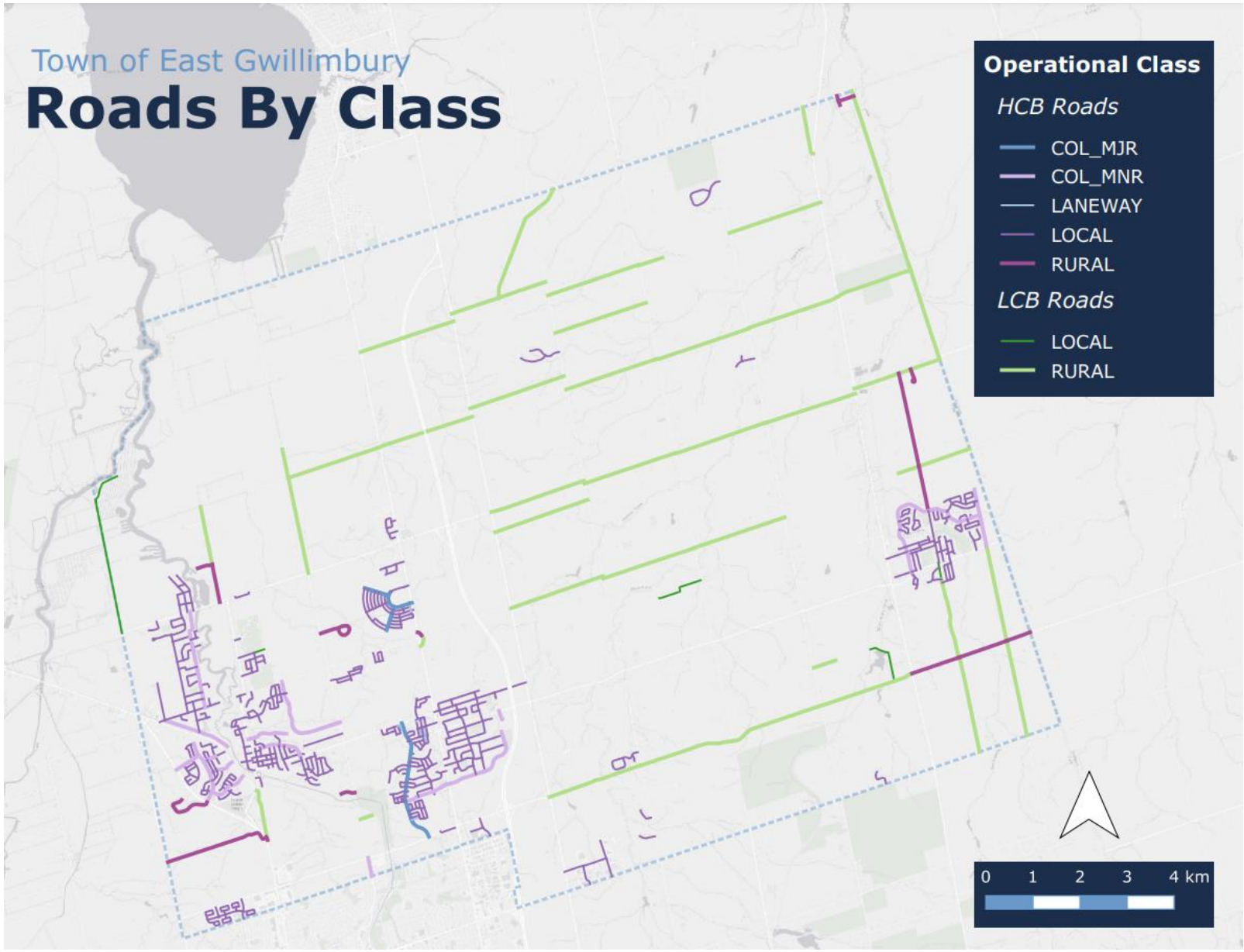
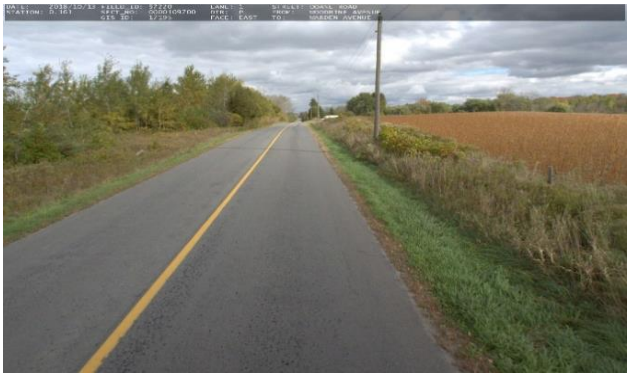


*Figure 37: Images of Pavement Condition*

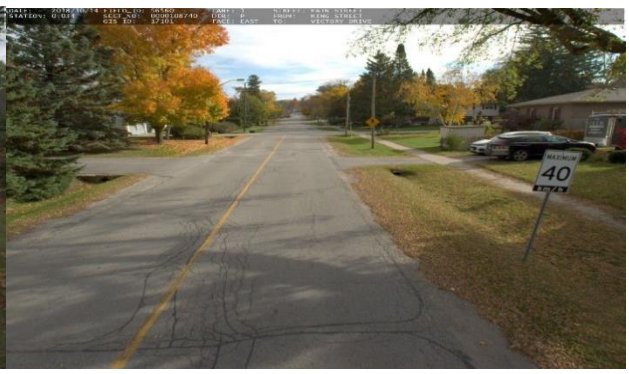
Very Good


Good

Fair


Poor

Very Poor

# Appendix G: Bridges and Culverts

## State of the Infrastructure

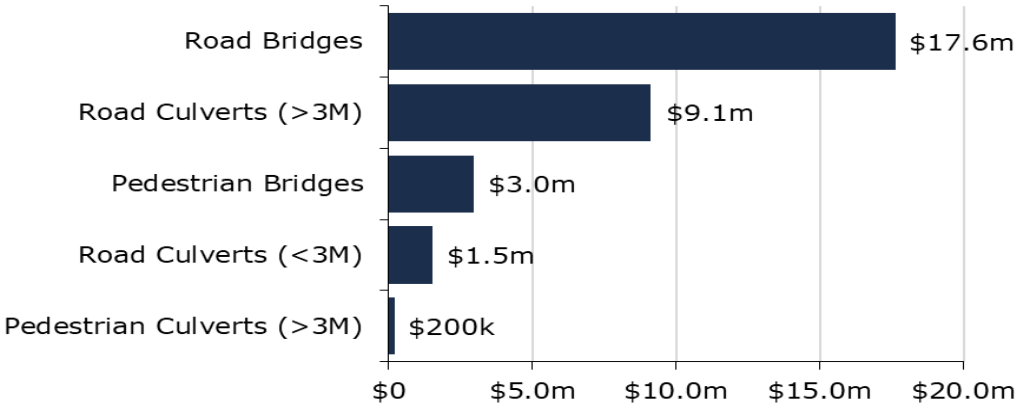
Bridges and culverts (B&C) represent the combination of road and pedestrian bridges and culverts greater than 3m as well as less than 3m. The state of the infrastructure for bridges and culverts is summarized in the following table.

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $31,435,909 | Good (70%) | Annual Requirement: | $893,078 |
| | | Funding Available: | $235,162 |
| | | Annual Deficit: | $657,916 |

## Inventory and Valuation

Figure 38 below displays the replacement cost of each asset segment in the Town's bridges and culverts inventory.

*Figure 38 Bridges & Culverts Replacement Cost*



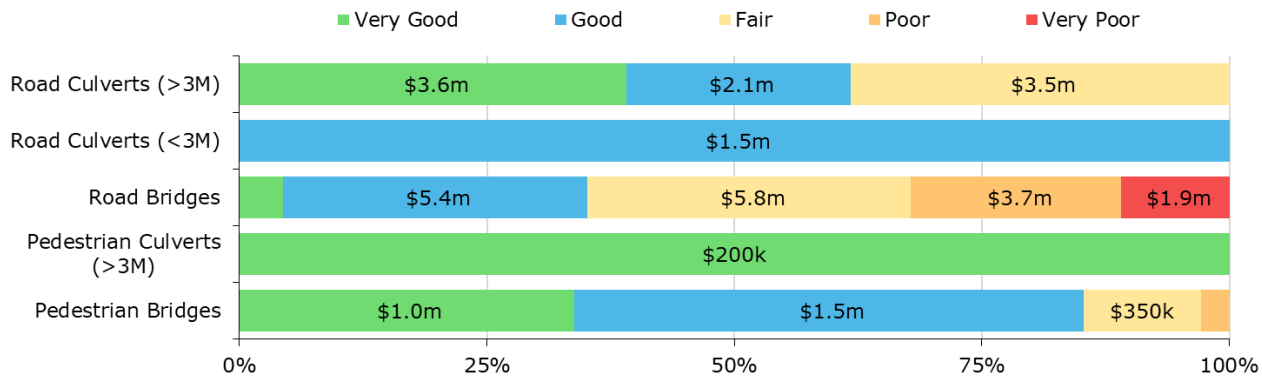

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed. This can be included in the Ontario Structures Inspection Manual (OSIM) inspections as the replacement cost is part of the calculation for the bridge condition index (BCI).

## Asset Condition

To ensure that the Town's bridges and culverts continue to provide an acceptable level of service, the staff should monitor the average condition of all assets. Accurate and reliable condition data allows staff to determine the remaining

service life of assets and identify the most cost-effective approach to managing assets. The condition of bridges and structural culverts is established via biennial inspections, which produce a bridge condition index (BCI) score for each structure, as well as detailed condition information on each structure element.

*Figure 39 B&C Condition Breakdown*




Bridges and structural culvert deficiencies are documented in detail as part of the biennial OSIM inspection process. Loading and dimensional restrictions and criticality of deficiencies are identified for each structure. The condition scale for bridges and culverts utilized is from 0 to 100 from Very Poor to Very Good.

*Table 14: Bridges and Culvert Condition Scale*

| Condition Category | BCI Range | Description |
|---|---|---|
| Very Good | 80 - 100 | Bridges/culverts in very good condition do not require any corrective maintenance or rehabilitation. Structures are fully operational. |
| Good | 70 - 80 | Bridges good condition may require some corrective maintenance. Bridges/culverts are fully operational. |
| Fair | 50 - 70 | Bridges in fair condition would have some deficiencies and may require minor to major rehabilitation. These bridges are typically fully operational, but in some cases can have restrictions placed. |
| Poor | 35 - 50 | Bridges in poor condition require major rehabilitation or replacement. These bridges may have load or dimensionality restrictions placed on them. In some cases, these structures could be closed. |
| Very Poor | 0 - 35 | Bridges in very poor condition require major rehabilitation or replacement. These bridges likely have load or dimensionality restrictions placed on them. In many cases, these structures could be closed. |

# Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Bridge and culvert renewals are scheduled as per the cost estimates and timelines recommended by the latest OSIM inspection report for road and pedestrian bridges and culverts.

## Forecasted Capital Requirements

Figure 40 illustrates the forecasted infrastructure rehabilitation and replacement requirements for the Towns's bridges and culverts to the year 2051. These projections are based on asset replacement costs, age analysis, and condition data.

East Gwillimbury's forecasted average annual requirements to 2051(red dotted line) for bridges and culverts total $893 thousand. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

OSIM condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including rehabilitation and replacement activities.

*Figure 40 B&C Forecasted Capital Replacement Requirements to 2051*

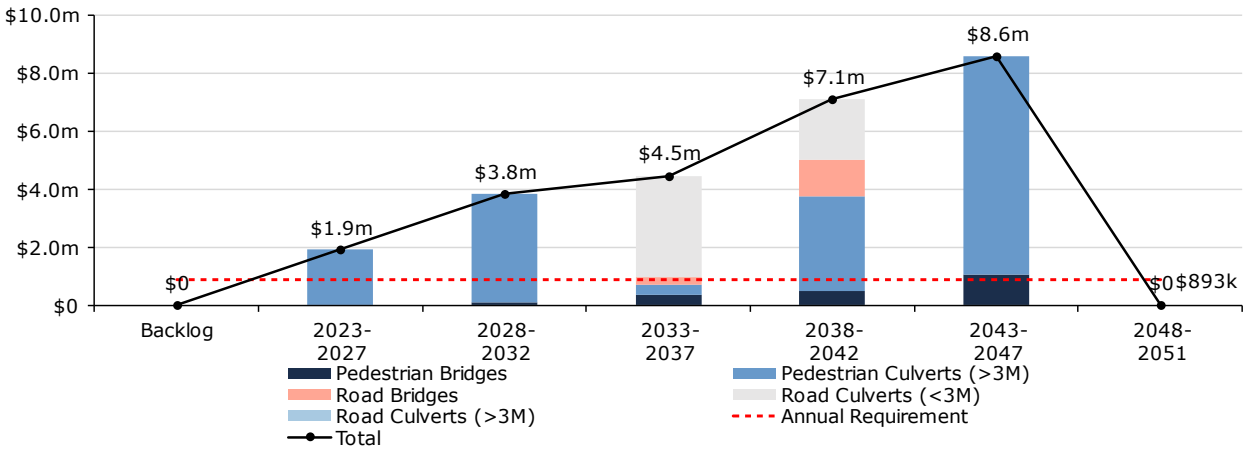



Table 15 below summarizes the projected cost of lifecycle activities (as previously described) that may need to be undertaken over the next 10 years to support current levels of service.

*Table 15 B&C System-generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pedestrian Bridges | **$0.08m** | $0 | $0 | $0 | $0 | $0 | $0.08m | $0 | $0 | $0 | $0 |
| Pedestrian Culverts (>3M) | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Road Bridges | **$5.7m** | $0 | $0 | $1.6m | $0.33m | $0 | $0 | $0 | $0 | $2.2m | $1.5m |
| Road Culverts (<3M) | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Road Culverts (>3M) | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |

These projections are generated in Citywide and rely on the data available in the asset register. Assessed condition data and replacement costs were used to assist in forecasting replacement needs for bridges and structural culverts.

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within the bridges and culvert category, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for bridges and culverts was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 60% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |
| | ENV_RS | 20% | R | 1 |
| | | | S | 3 |
| | | | U | 4 |
| | Drainage | 20% | OD | 1 |
| | | | SS | 4 |
| Operational (40%) | AADT (Risk) | 50% | 1 - 199 | 1 |
| | | | 200 - 399 | 2 |
| | | | 400 - 999 | 3 |
| | | | 1000 - 1999 | 4 |
| | | | 2000+ | 5 |
| | Roadside Design Class (Risk) | 50% | Unopened road allowance | 1 |
| | | | Rural, Local | 2 |
| | | | collector | 3 |
| | | | arterial | 4 |
| | | | highway | 5 |
| Service Delivery (20%) | Land Use (Risk) | 20% | Open Space, Agriculture | 1 |
| | | | Residential | 2 |
| | | | business | 3 |
| | | | Industrial, Institutional | 4 |
| | | | Critical Land Use | 5 |
| | Detour Length (Risk) | 80% | <5km | 1 |
| | | | 5 - 10 km | 2 |
| | | | >= 10 km | 3 |
| | | | Only 1 alternate route | 4 |
| | | | No possible alternate route | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 41 Bridges and Culvert Risk Matrix*


The identification of high-risk assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

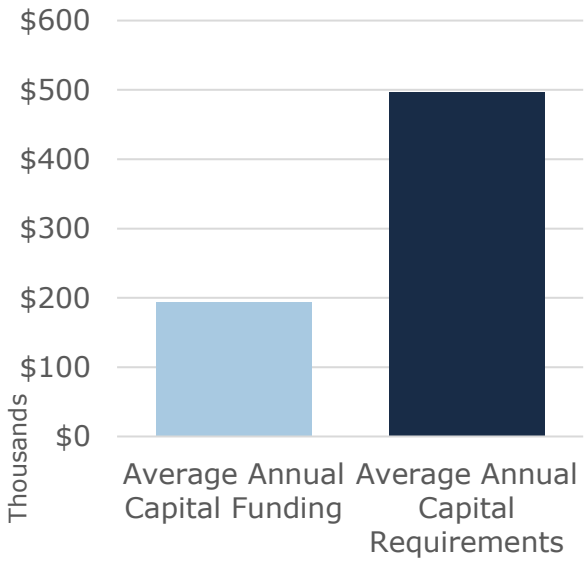
Growth of population within the Town results in a need to acquire new bridges and culvert infrastructure. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

## Levels of Service

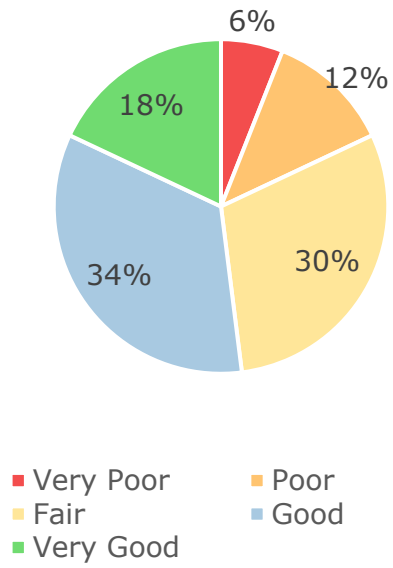
The following graphs identify the Town's metrics to identify their current level of service for bridges and culverts. By comparing the cost, performance (average condition) and risk year-over-year East Gwillimbury will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 42: B&C Strategic Levels of Service*

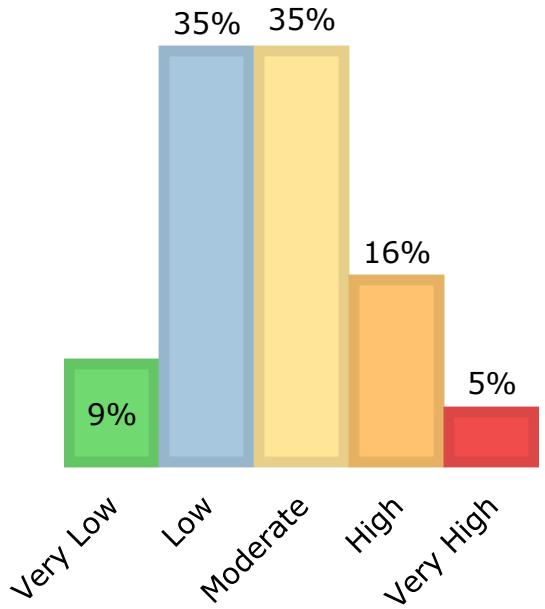
**Target vs Actual Reinvestment Rate**




**Performance (Average Condition)**




**Risk Breakdown**




The metrics included below are the technical and community level of service metrics that are required as part of O. Reg. 588/17.

## Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by bridges and culverts.

*Table 16 Ontario Regulation 588/17 B&C Community Levels of Service*

| Service Attribute | Qualitative Description | Current LOS |
|---|---|---|
| Scope | Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists) | The Town's bridges support a range of traffic types, including heavy and light vehicles, pedestrians and cyclists. They are used as part of major transportation routes that accommodate all types of travel including emergency response, transportation of goods/services, and personal travel. See Figure 43: Bridges and Culverts Site Location Map |
| Quality | Description or images of the condition of bridges and how this would affect use of the bridges | See Figure 44: Images of Bridge and Culvert Condition |
| | Description or images of the condition of culverts and how this would affect use of the culverts | See Figure 44: Images of Bridge and Culvert Condition |

## Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by bridges and culverts.

*Table 17 Ontario Regulation 588/17 B&C Technical Levels of Service*

| Service Attribute | Technical Metric | Current LOS |
|---|---|---|
| Scope | % of bridges in the municipality with loading or dimensional restrictions | 17% |
| Quality | Average bridge condition index value for bridges | 68.8 |
| | Average bridge condition index value for structural culverts | 70.9 |

*Figure 43: Bridges and Culverts Site Location Map*

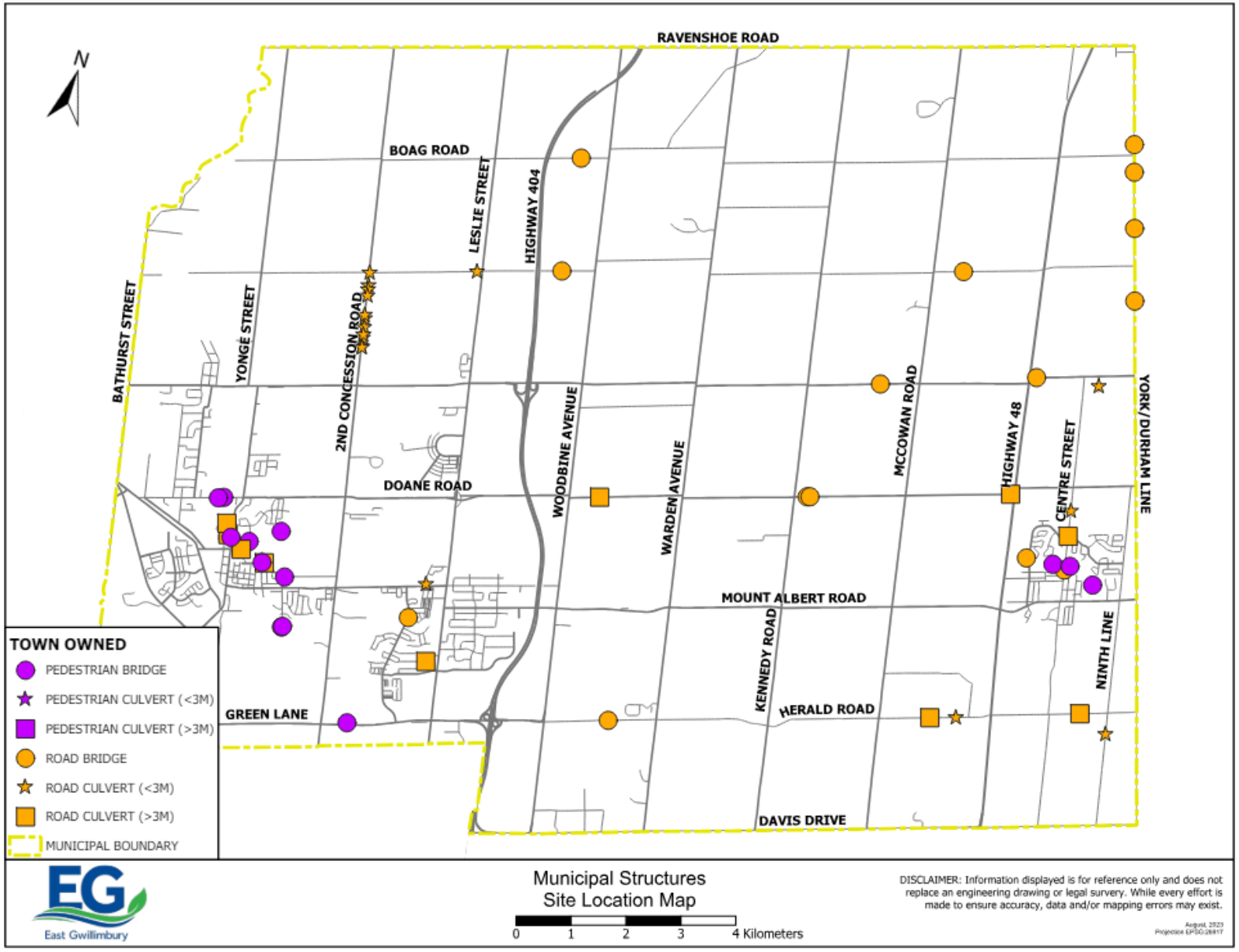
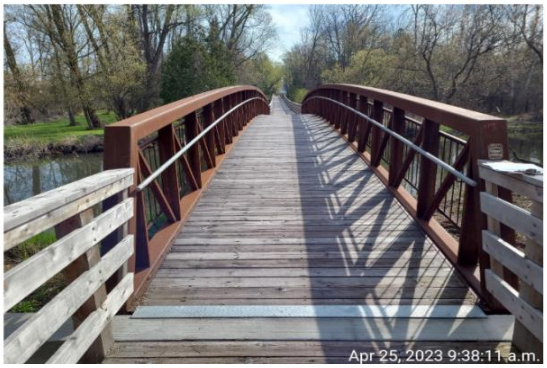


*Figure 44: Images of Bridge and Culvert Condition*

**Very Good -** Oriole Drive Pedestrian Bridge


**Good -** Herald Road Culvert

**Fair -** Pony Hill Bridge

**Poor -** Marles Bridge


# Appendix H: Stormwater Network

## State of the Infrastructure

East Gwillimbury's stormwater network is the largest category of all the municipal infrastructure. The state of the infrastructure for the stormwater network is summarized in the following table.

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $604,643,080 | Very Good (84%) | Annual Requirement: | $8,551,719 |
| | | Funding Available: | $0 |
| | | Annual Deficit: | $8,551,719 |

## Asset Inventory and Valuation

The graph below displays the replacement cost of each asset segment in the Town's stormwater network inventory.

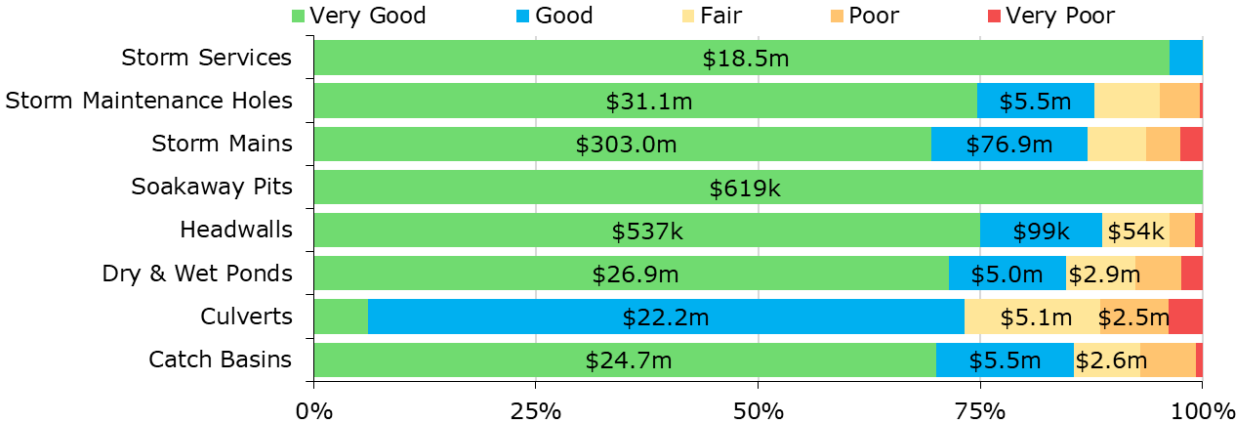
*Figure 45 Stormwater Network Replacement Cost*


Storm services include foundation drain collector (FDC) sewer service and storm service.

## Asset Condition

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale. To ensure that the Towns's stormwater network continues to provide an acceptable level of service, the Town should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine the combination of activities required to increase the overall condition of the stormwater network.

*Figure 46 Stormwater Network Condition Breakdown*




Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Results from culvert inspections have been transformed to a 1 – 5 condition rating scale. Stormwater mains are assessed for defects, and a condition score can be developed if a rating criterion is determined. There is no industry standard for converting asset condition to the 5-tier condition rating of very good to very poor, so staff should develop an internal methodology to adopt.

Some storm ponds have been assessed for sediment loads, in which case assessed ponds have a condition score equal to the % sediment fill. Storm ponds and other assets that have not been assessed rely on age-based conditions.

Age-based condition is calculated by prorating the age of the asset over its useful life. These condition ratings are transformed to a 0 – 100 condition rating scale, spread across five condition increments: very poor, poor, fair, good, very good.

## Lifecycle Management

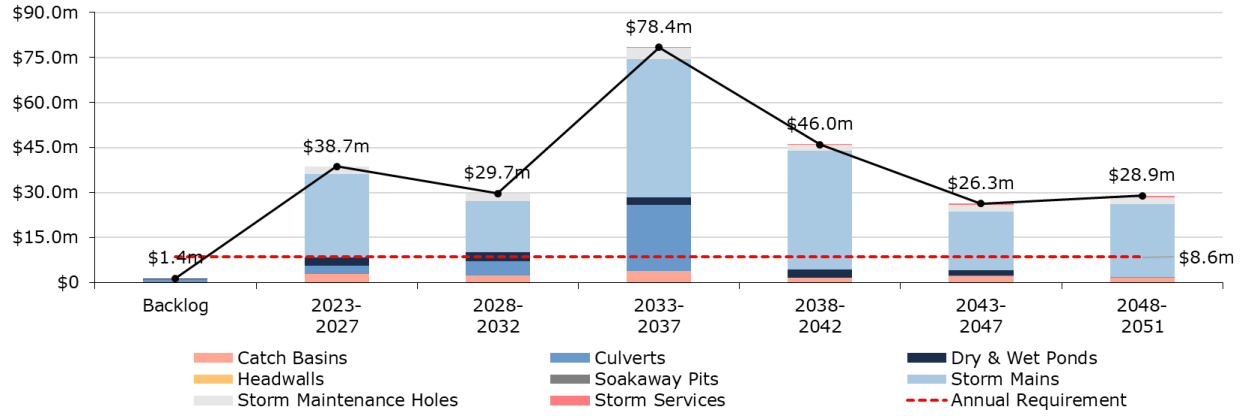
To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Historically, the Town has inspected 10% of the piped storm sewer network per year using a closed-circuit television (CCTV). This work includes the gravity mains and manholes, but not the laterals. In addition to the network-wide inspection, sewer mains are inspected prior to capital work, and those that are contributing to inflow and infiltration are inspected. Approximately 30% of catch basins and oil grit separators are inspected and cleaned each year. Culverts are inspected annually for blockages and other defects.

## Forecasted Capital Requirements

Figure 47 illustrates the forecasted infrastructure replacement requirements for the Town's stormwater infrastructure to the year 2051. East Gwillimbury's forecasted average annual requirements (red dotted line) total $8.6 million for all stormwater network assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. These projections and estimates are based on asset replacement costs and age analysis.

*Figure 47 Stormwater Network Forecasted Capital Replacement Requirements to 2051*




It is unlikely that all mains will need to be replaced as forecasted. Coordinated projects, along with camera inspection data, will help drive replacements and rehabilitations.

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register, which was limited to asset age, replacement cost, and useful life.

*Table 18 Stormwater Network System-Generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Catch Basins | **$5.1m** | $259k | $1.1m | $0.21mk | $0.85m | $0.38m | $0.99m | $0.05m | $0.31m | $0.34m | $0.58m |
| Culverts | **$7.8m** | $136k | $17k | $1.1m | $0.04m | $1.5m | $0.31m | $2.0m | $1.3m | $0.06m | $1.3m |
| Dry & Wet Ponds | **$5.5m** | $111k | $1.3m | $0.26m | $0.93m | $0 | $1.4m | $0.27m | $308k | $0.53m | $0.43m |
| Headwalls | **$0.08m** | $6k | $3k | $0 | $0.02m | $0.01m | $0.01m | $0.01m | $3k | $0 | $0.02m |
| Soakaway Pits | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Storm Mains | **$44.8m** | $0 | $2.2m | $11.0m | $0.07m | $14.5m | $1.6m | $7.8m | $2.2m | $4.2m | $1.2m |
| Storm Maintenance Holes | **$5.1m** | $0.15m | $0.88m | $0.03m | $0.95m | $0.55m | $0.21m | $0.19m | $0.78m | $0.73m | $0.62m |

Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Town's capital expenditure forecasts.

## Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within the stormwater network category, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for storm mains and services was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Size (mm) | 100% | 0-200 | 1 |
| | | | 201-399 | 2 |
| | | | 400-599 | 3 |
| | | | 600-999 | 4 |
| | | | 1,000+ | 5 |
| Operational (40%) | Proximity to ESA or Public Recreation Areas | 40% | non-sensitive area | 1 |
| | | | within 30m buffer Public Recreation Area | 2 |
| | | | within 30m buffer of wet course, within 30m buffer of wetland | 3 |
| | In Easement (Yes/No) | 40% | No | 1 |
| | | | Yes | 5 |
| | Pressurized | 20% | No | 1 |
| | | | Yes | 5 |
| Service Delivery (20%) | Road Use (Risk) | 100% | Normal | 1 |
| | | | Transit Route | 3 |
| | | | Bridge Adjacent Trucking Route | 4 |
| | | | Downtown | 5 |

The consequences of failure for storm ponds was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 100% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |
| Operational (40%) | SWM Facility Type | 100% | Dry pond, Wet pond | 1 |
| | | | Underground Storage | 5 |
| Service Delivery (20%) | SWM_TYPE | 100% | Quantity Control | 3 |
| | | | Quality and Quantity control | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 48 Stormwater Network Risk Matrix*


The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

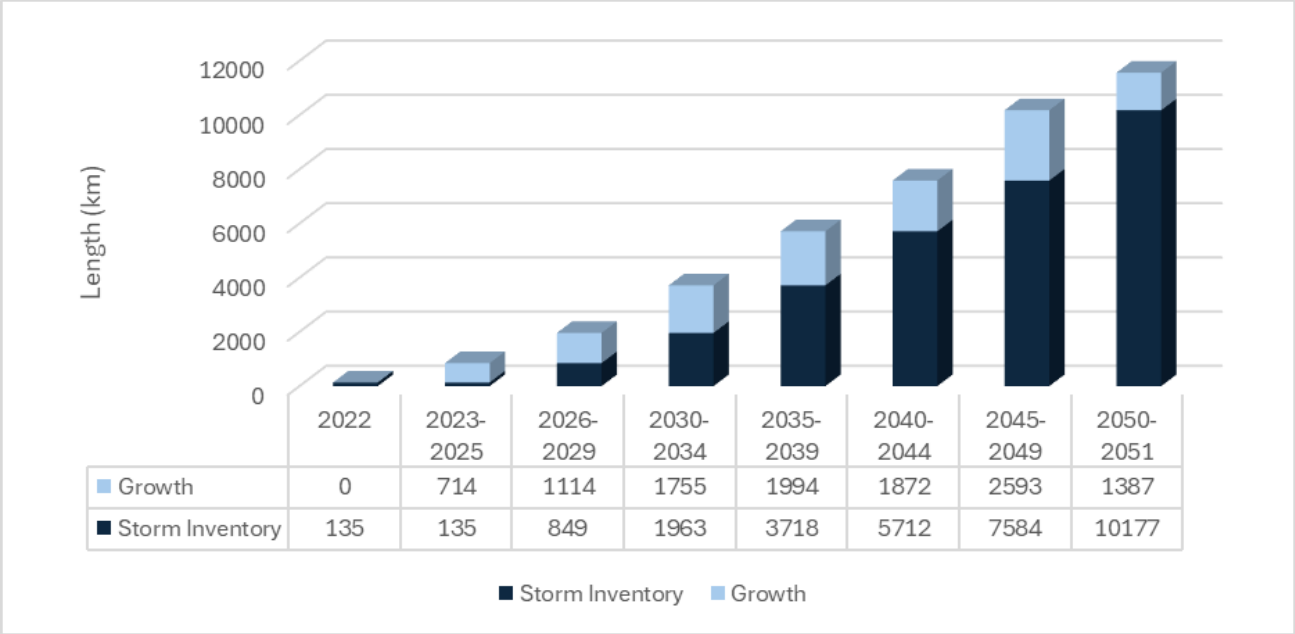
## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

Growth of population within the Town results in a need to acquire new stormwater infrastructure. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between years 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

*Figure 49: Stormwater Network Growth Estimate*

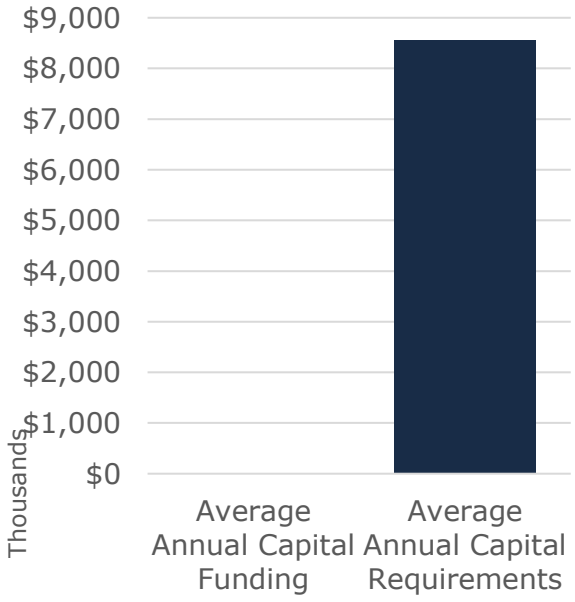


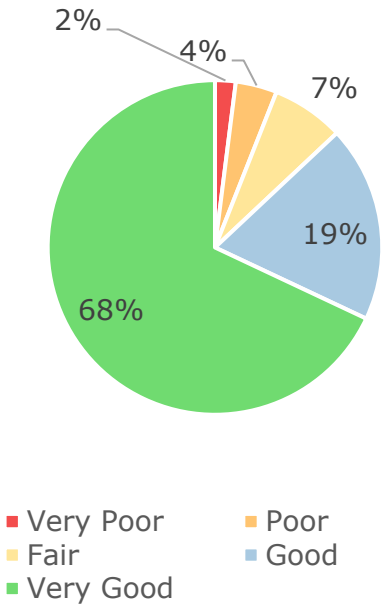
## Levels of Service

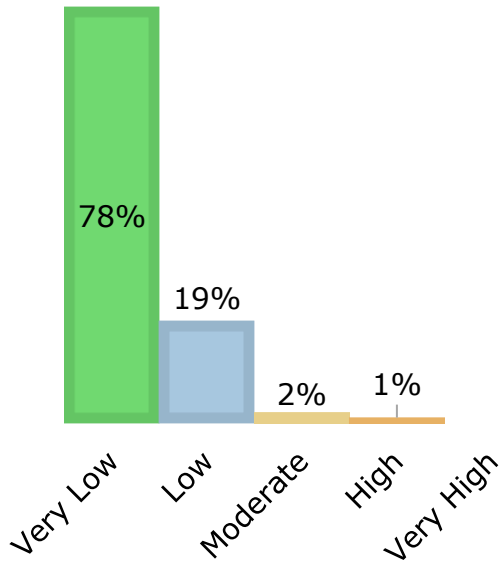
The following tables identify East Gwillimbury's metrics to identify the current level of service for the stormwater network. By comparing the cost, performance (average condition) and risk year-over-year the Town will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 50: Stormwater Network Strategic Levels of Service*

| Target vs Actual Reinvestment Rate | Performance (Average Condition) | Risk Breakdown |
|---|---|---|



## Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the stormwater network.

*Table 19 Ontario Regulation 588/17 Stormwater Network Community Levels of Service*

| Service Attribute | Qualitative Description | Current LOS |
|---|---|---|
| Scope | Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater management system | See Figure 51 Stormwater Ponds Map |

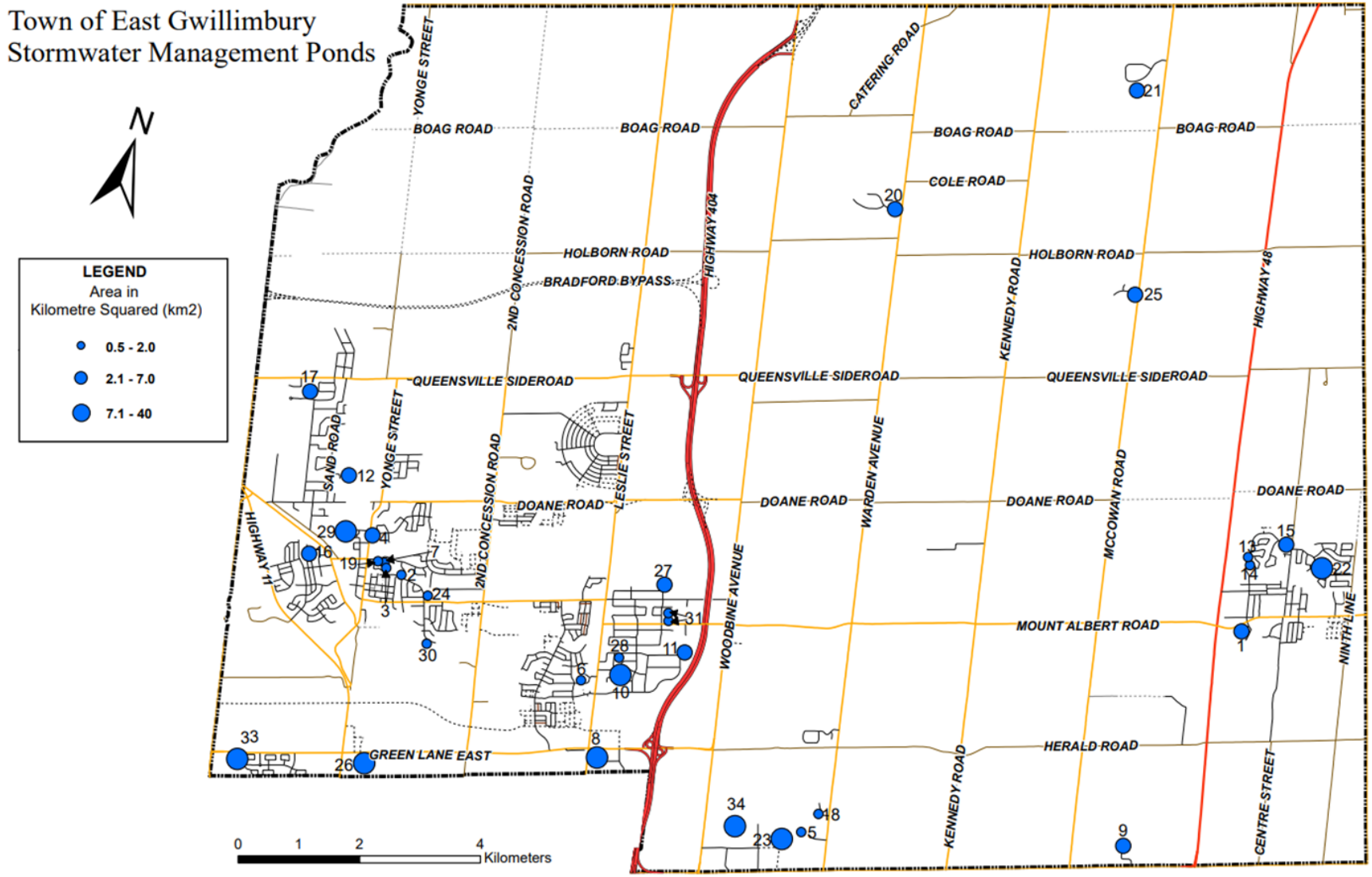
## Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the stormwater network.

*Table 20 Ontario Regulation 588/17 Stormwater Network Technical Levels of Service*

| Service Attribute | Technical Metric | Current LOS |
|---|---|---|
| Scope | % of properties in the municipality that are resilient to a 100-year storm | 99.35% |
| | % of the municipal stormwater management system resilient to a 5-year storm | 100% |

*Figure 51 Stormwater Ponds Map*



# Appendix I: Water Network

## State of the Infrastructure

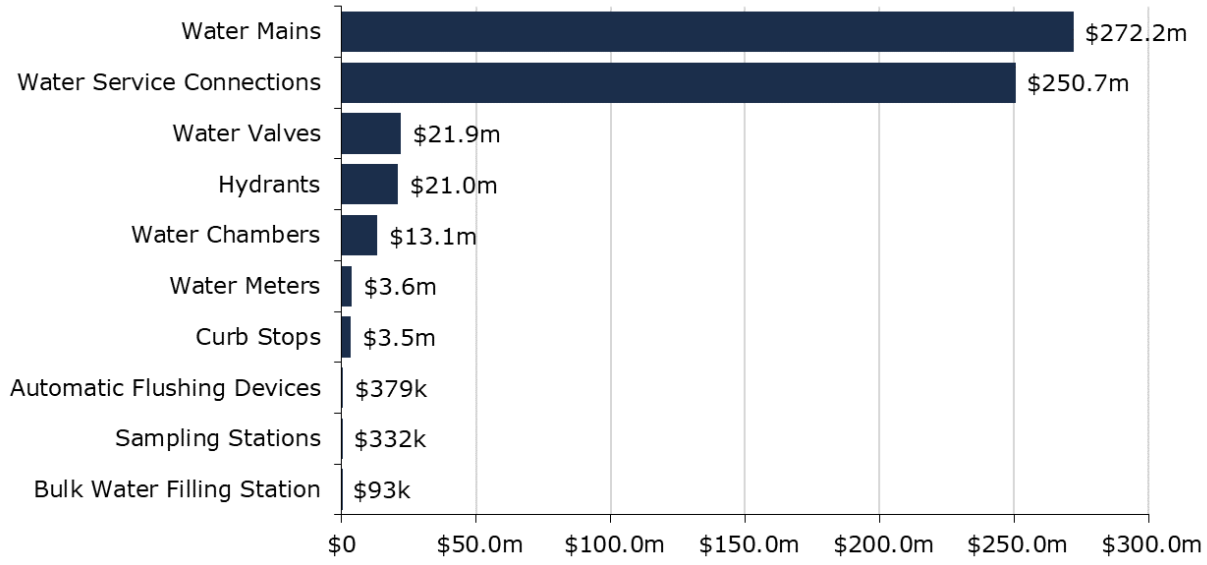
East Gwillimbury's water network is supplied by the Region of York treated water and is otherwise managed by the Town consisting of water distribution assets. The state of the infrastructure for the water network is summarized in the following table:

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $586,736,017 | Very Good (87%) | Annual Requirement: | $5,544,995 |
| | | Funding Available: | $953,305 |
| | | Annual Deficit: | $4,591,690 |

## Inventory and Valuation

The graph below displays the replacement cost of each asset segment in the Town's water network inventory.

*Figure 52 Water Network Replacement Cost*



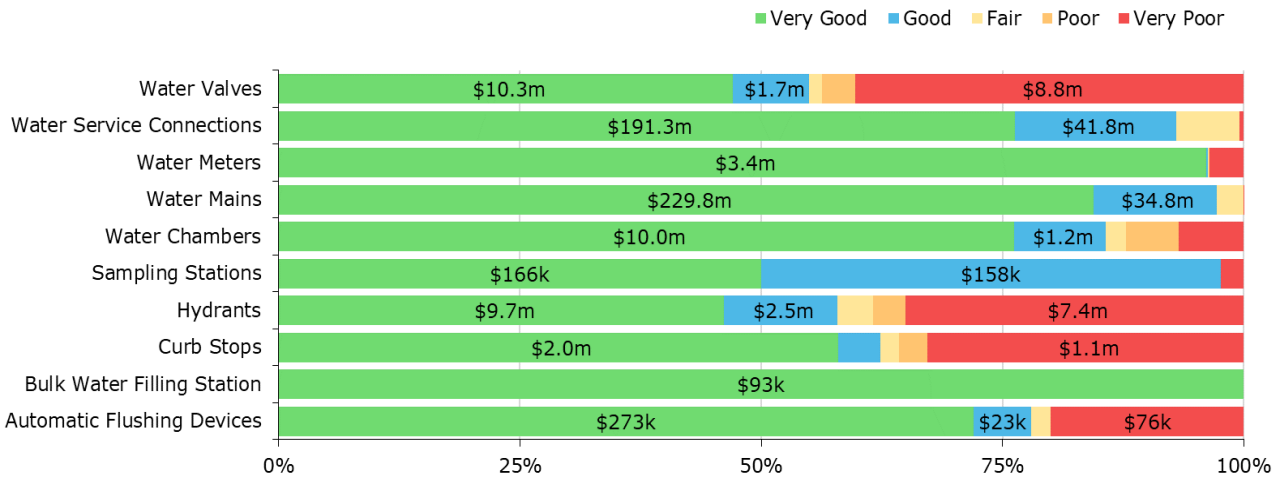

## Asset Condition

To ensure that East Gwillimbury's water network continues to provide an acceptable level of service, the Town should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate the lifecycle management

strategy to determine what combination of activities is required to increase the overall condition of the water network.

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.

*Figure 53 Water Network Condition Breakdown*




Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. For watermains the estimated useful life was extended based on an industry review based on material. The estimated useful lives used are as follows:

| Material | Current Estimated Useful Life | Updated Estimated Useful Life |
|---|---|---|
| PVC – Polyvinyl Chloride | 60 | 90 |
| AC – Asbestos Cement | 50 | 75 |
| DI – Ductile Iron | 60 | 60 |
| HDPE – High Density Polyethylene | 60 | 80 |

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Water network assets are all assessed based on age and service life as it is not feasible to assess condition in any other manner. Industry standard it to use age to assess condition of water network assets. Staff monitor and record breaks, hydrant issues, and valve issues, but these are not translated into an overall condition rating.

# Lifecycle Management

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Annually, the Town completes a review of hazardous events and their risks which may occur in the system. Every three years the Town undertakes a full risk assessment and an emergency preparedness field exercise. Additionally, the Town assesses the functioning of the water system through inspections and operational activities, such as valve turning, water meter repairs, and hydrant maintenance. Auto-flushers are inspected monthly as part of a new program to monitor water loss within the system.

Renewal and replacement for the water network is a combination of reactive and proactive approaches. Due to the DWQMS regulations the network is highly monitored and maintained, therefore the increased oversight allows staff to fix upcoming problems proactively. However, projects such as the high-risk asbestos cement watermain replacements remain in the queue, providing a reactive approach if a break were to occur. There are currently no mid-life rehabilitation events proactively scheduled, rather, water assets are replaced at the end of their useful life.

## Forecasted Capital Requirements

Figure 54 illustrates the 20-year forecasted infrastructure replacement requirements for the Town's water network portfolio. East Gwillimbury's 20-year forecasted average annual requirements (red dotted line) total $9.6 million for all water network assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on current asset records, their replacement costs, and age analysis only.

*Figure 54 Water Network Forecasted Capital Replacement Requirements to 2051*

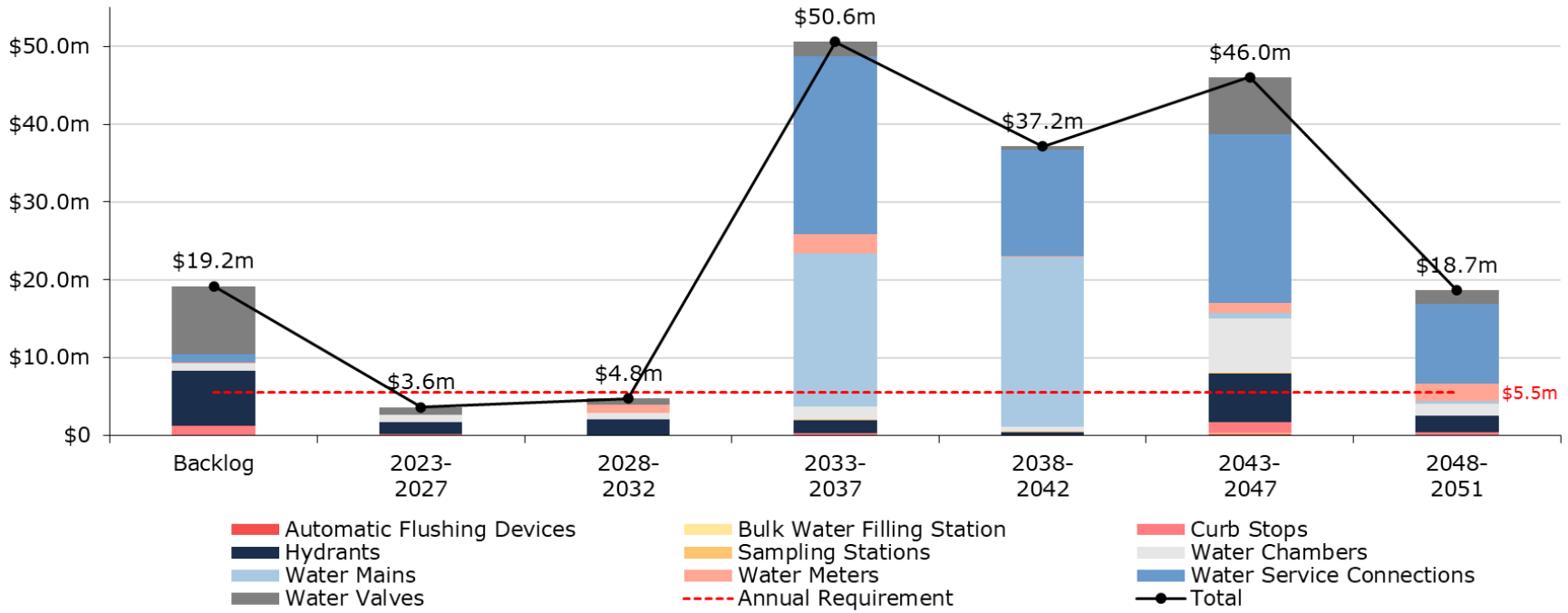


Table 21 below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register, which was limited to asset age, replacement cost, and useful life.

*Table 21 Water Network System-Generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Automatic Flushing Devices | **$15k** | $0 | $0 | $0 | $0 | $8k | $0 | $0 | $8k | $0 | $0 |
| Bulk Water Filling Station | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Curb Stops | **$0.24m** | $0.92m | $0.08m | $0.03m | $0.05m | $0.01m | $0 | $0 | $0 | $0.06m | $0 |
| Hydrants | **$3.5m** | $0.25m | $0.6m | $0.1m | $0.37m | $0.17m | $0.25m | $1.2m | $0.13m | $0.25m | $0.22m |
| Sampling Stations | **$0.01m** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0.01m | $0 |
| Water Chambers | **$1.7m** | $0 | $0.62m | $0.1m | $0.15m | $0.1m | $0.04m | $0.26m | $0.12m | $0.29m | $0.02m |
| Water Mains | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Water Meters | **$1.1m** | $0.01m | $0 | $0 | $0.74m | $0.74m | $0 | $0 | $0.74m | $0.14m | $0.98m |
| Water Service Connections | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Water Valves | **$1.8m** | $0 | $0.61m | $0.14m | $0.15m | $0.11m | $0.05m | $0.26m | $0.18m | $0.29m | $0.01m |

Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Town's capital expenditure forecasts.

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within the water network category, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for watermains and services was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Size (mm) | 60% | 0-50 | 1 |
| | | | 51-150 | 2 |
| | | | 151-300 | 3 |
| | | | 301-450 | 4 |
| | | | 451+ | 5 |
| | CROSSING_TYPE | 40% | Normal | 1 |
| | | | Watercourse, railway | 5 |
| Operational (40%) | MATERIAL | 50% | COPPER, DI, HDPE, PE, PVC, TWPVC | 1 |
| | | | AC | 5 |
| | In Easement (Yes/No) | 50% | No | 1 |
| | | | Yes | 5 |
| Service Delivery (20%) | Road Use (Risk) | 100% | Normal | 1 |
| | | | Transit Route | 3 |
| | | | Bridge Adjacent, Trucking Route | 4 |
| | | | Downtown | 5 |

The consequences of failure for all other components other than watermain and services was calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 100% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 55 Water Network Risk Matrix*


The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

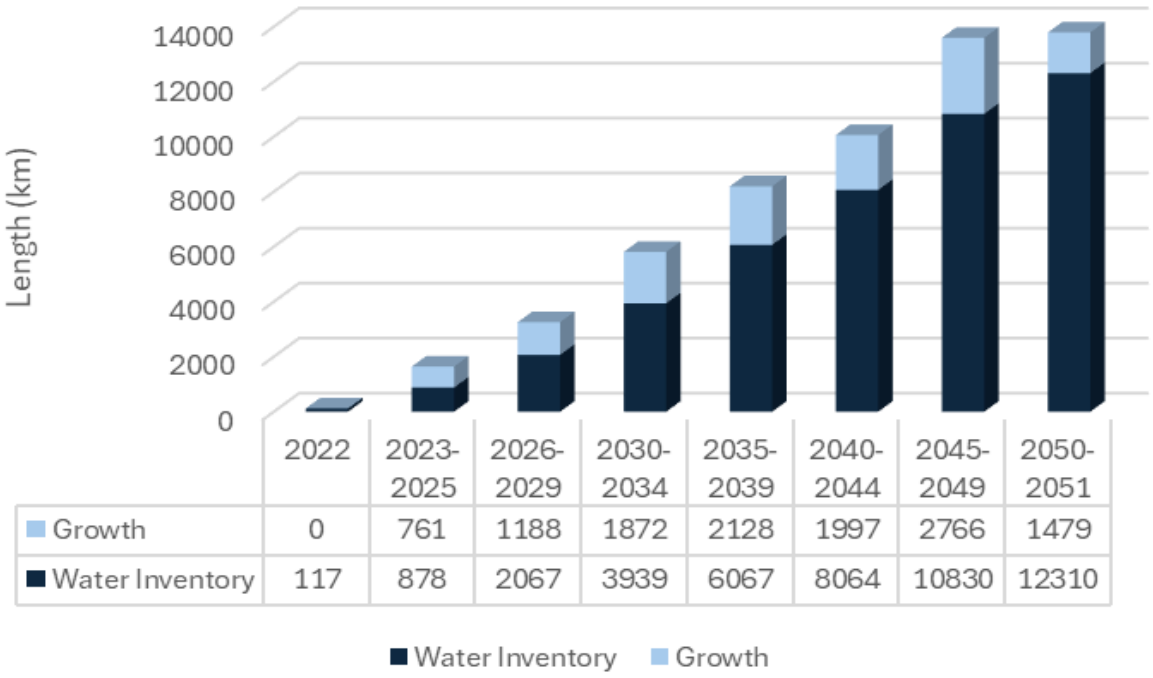
## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

Growth of population within the Town results in a need to acquire new water network infrastructure. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

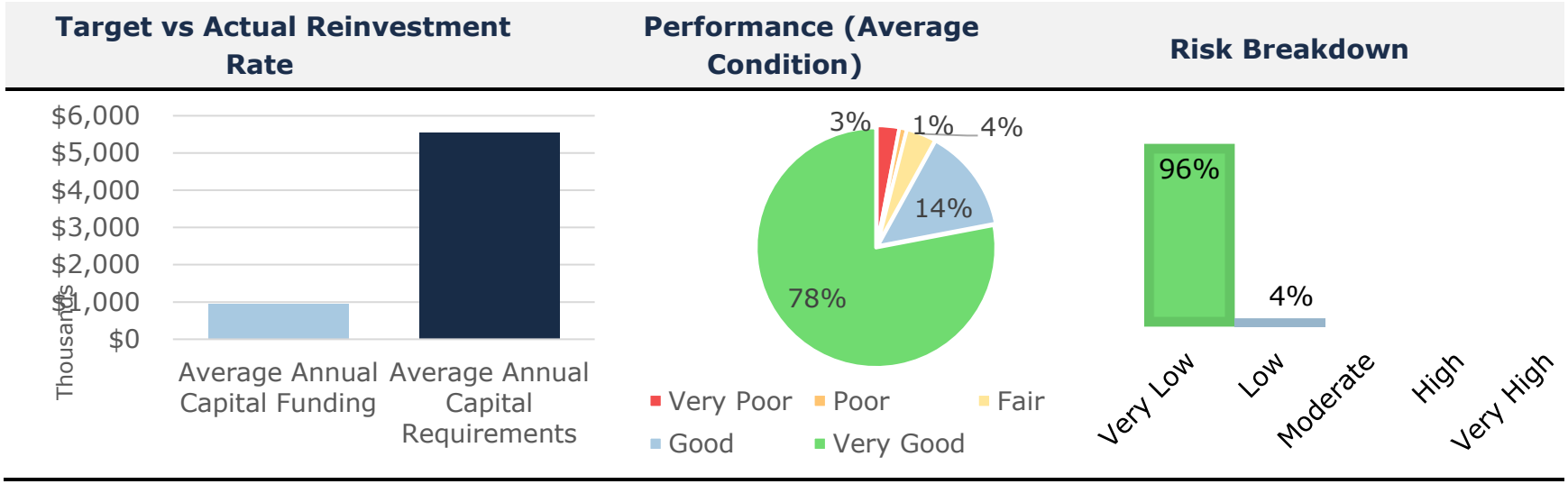
*Figure 56: Water Network Growth Estimate*




## Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the water network. By comparing the cost, performance (average condition) and risk year-over-year East Gwillimbury will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 57 Water Network Strategic Levels of Service*



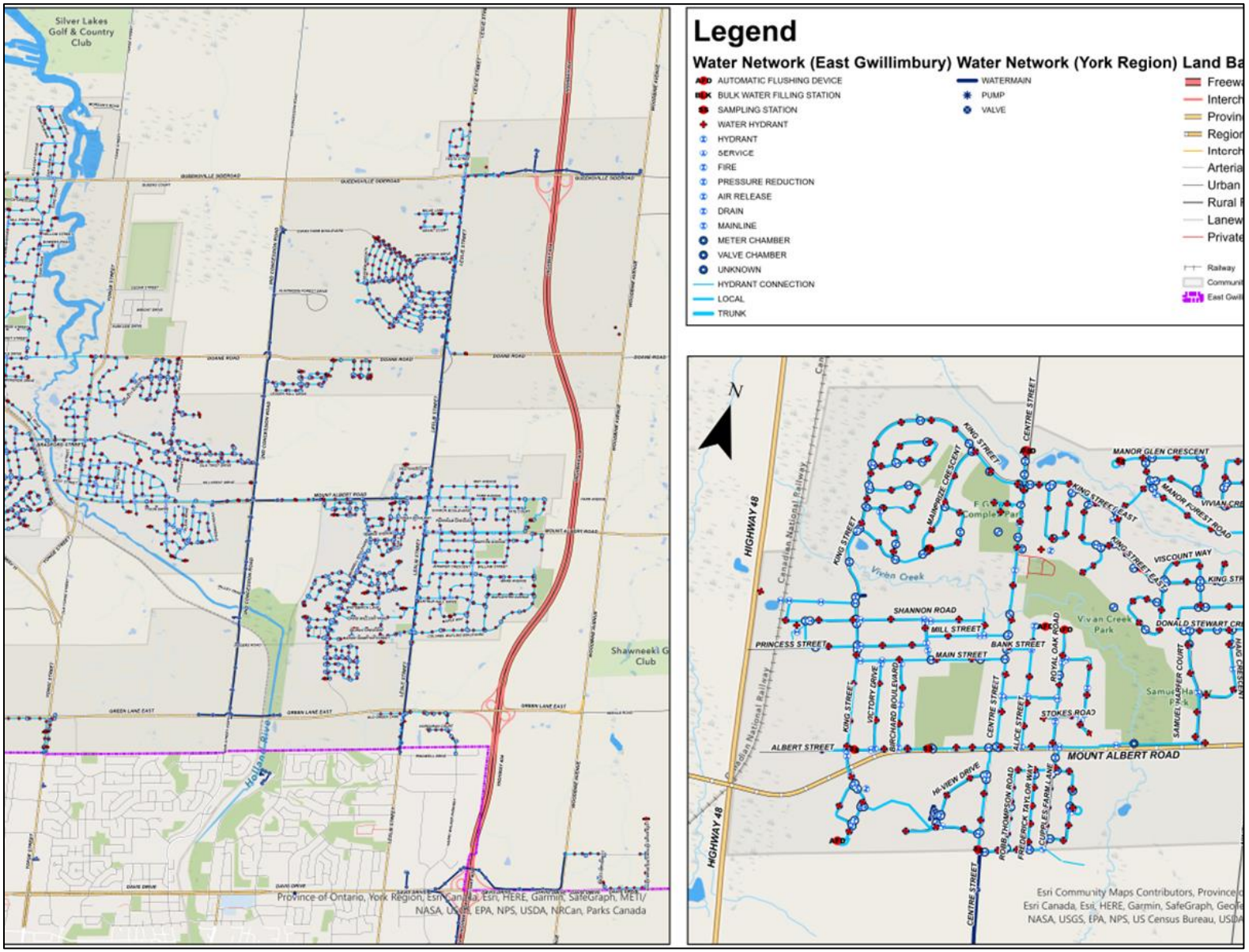

## Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by water network.

*Table 22 Ontario Regulation 588/17 Water Network Community Levels of Service*

| Service Attribute | Qualitative Description | Current LOS |
|---|---|---|
| Scope | Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system | See Figure 58 |
| | Description, which may include maps, of the user groups or areas of the municipality that have fire flow | Fire flow is available where water system exists |
| Reliability | Description of boil water advisories and service interruptions | N/A |

*Figure 58 Water Network Map*



## Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the water network.

*Table 23 Ontario Regulation 588/17 Water Network Technical Levels of Service*

| Service Attribute | Technical Metric | Current LOS |
|---|---|---|
| Scope | % of properties connected to the municipal water system | 71% |
| | % of properties where fire flow is available | 100% |
| Reliability | # of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system | 0 |
| | # of connection-days per year where water is not available to water main breaks compared to the total number of properties connected to the municipal water system | 2 |

# Appendix J: Wastewater Network

## State of the Infrastructure

East Gwillimbury's wastewater network is collected and treated by the Region of York and is otherwise managed by the Town consisting of wastewater collection assets. The state of the infrastructure for the wastewater network is summarized in the following table:

| Replacement Cost | Condition | Financial Capacity | |
|---|---|---|---|
| $376,161,773 | Very Good (87%) | Annual Requirement: | $4,292,145 |
| | | Funding Available: | $1,204,162 |
| | | Annual Deficit: | $3,087,983 |

## Inventory and Valuation

The graph below displays the replacement cost of each asset segment in the Town's wastewater network inventory.

*Figure 59 Wastewater Network Replacement Cost*

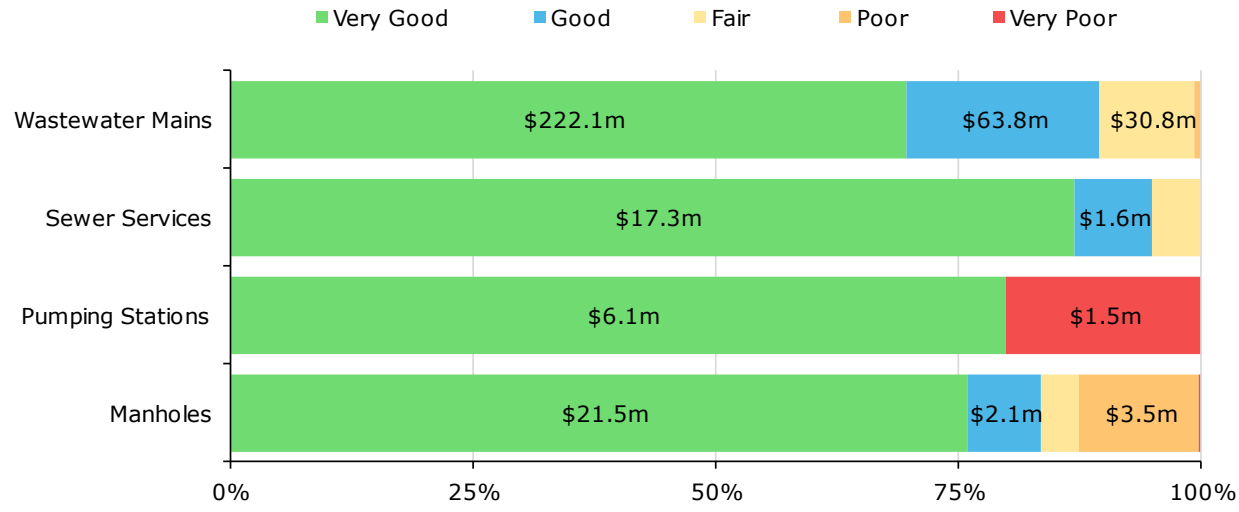

## Asset Condition

To ensure that East Gwillimbury's wastewater network continues to provide an acceptable level of service, the Town should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate the lifecycle

management strategy to determine the combination of activities required to increase the overall condition.

The graph below visually illustrates the average condition for each asset segment on a scale of very good to very poor.

*Figure 60 Wastewater Network Condition Breakdown*




Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Wastewater network assets are all assessed based on age and service life. The CCTV program of wastewater mains is currently underway by a third-party contractor. Staff are developing condition criterion for the assessments so condition data can be attached to inventory assets.

## Lifecycle Management

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Historically, the Town has inspected 50% of the wastewater network per year using a closed-circuit television (CCTV). This work includes the gravity mains and manholes, but not the laterals. The Town is currently reviewing its sewer inspection program to determine the appropriate inspection frequency going forward. In addition to the network-wide inspection, sewer mains are inspected prior to capital work, and those contributing to inflow and infiltration are inspected.

Pumping stations are inspected/monitored multiple times per week with maintenance identified as needed.

Generally, renewal and replacement of the piped system is done reactively. However, there are opportunities to coordinate proactive replaced along with renewing roads. Wastewater pumping stations receive regular maintenance as per manufacturer recommendations. Findings from inspections are used to proactively replace components of pumping stations, however, pumping stations are relatively new and have not experienced significant renewal activities.

## Forecasted Capital Requirements

Figure 61 illustrates the forecasted infrastructure replacement requirements for the Town's wastewater network portfolio to the year 2051. East Gwillimbury's forecasted average annual requirements (red dotted line) total $4.3 million for all wastewater network assets to 2051. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on current asset records, their replacement costs, and age analysis only.

*Figure 61 Wastewater Network Forecasted Capital Replacement Requirements to 2051*

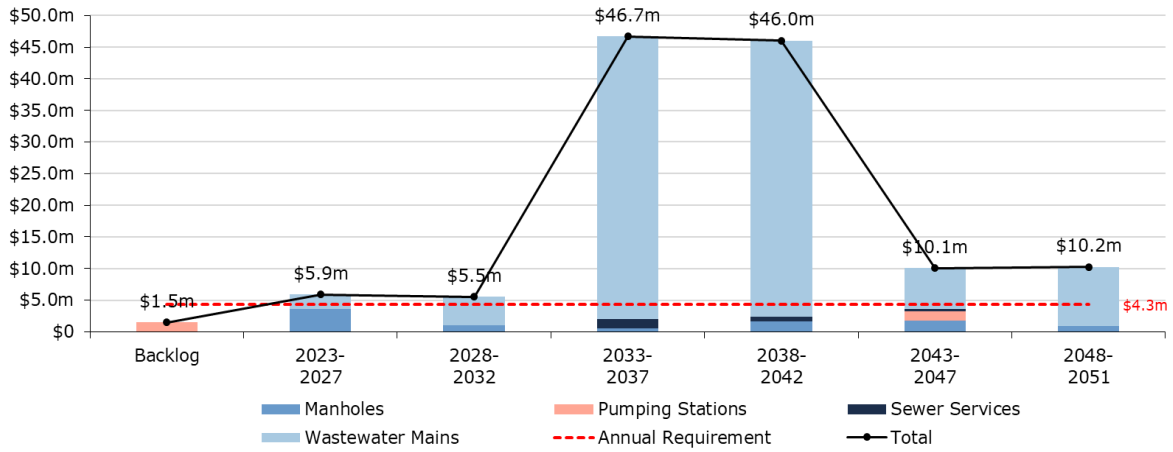



Table 24 below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register, which was limited to asset age, replacement cost, and useful life.

*Table 24 Water Network System-Generated 10-Year Capital Costs*

| Segment | Total | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manholes | **$4.7m** | $0.03m | $2.3m | $0 | $1.2m | $0.09m | $0 | $0 | $0.55m | $0.33m | $0.17m |
| Pumping Stations | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Sewer Services | **$0** | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Wastewater Mains | **$6.7m** | $0 | $0 | $1.9m | $0 | $0.33m | $0 | $0 | $0 | $2.3m | $2.2m |

Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Town's capital expenditure forecasts.

# Risk Management

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within the wastewater network category, based on available inventory data.

## Risk Criteria

The probability of failure was calculated using the following:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Structural (80%) | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Climate Change (20%) | Extreme Rainfall | 20% | 1 - 5 | 1 - 5 |
| | Extreme Snow | 20% | 1 - 5 | 1 - 5 |
| | Freeze / Thaw | 20% | 1 - 5 | 1 - 5 |
| | Extreme Wind | 20% | 1 - 5 | 1 - 5 |
| | Extreme Heat | 20% | 1 - 5 | 1 - 5 |

The consequences of failure for wastewater mains and services were calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Size (mm) | 80% | 0-200 | 1 |
| | | | 201-399 | 2 |
| | | | 400-599 | 3 |
| | | | 600-999 | 4 |
| | | | 1,000+ | 5 |
| | MATERIAL | 20% | POLYVINYL CHLORIDE POLYETHYLENE | 1 |
| | | | ASBESTOS | 5 |
| Operational (40%) | Proximity to ESA or Public Recreation Areas | 40% | non-sensitive area | 1 |
| | | | within 30m buffer Public Recreation Area | 2 |
| | | | within 30m buffer of water course, within 30m buffer of wetland | 3 |
| | In Easement (Yes/No) | 40% | No | 1 |
| | | | Yes | 5 |
| | Pressurized | 20% | No | 1 |
| | | | Yes | 5 |
| Service Delivery (20%) | Road Use (Risk) | 100% | Normal | 1 |
| | | | Transit Route | 3 |
| | | | Bridge Adjacent, Trucking Route | 4 |
| | | | Downtown | 5 |

The consequences of failure for pumping stations calculated using the following criteria:

| Criteria | Risk Criteria | Criteria Weighting | Value/Range | Risk Score |
|---|---|---|---|---|
| Financial (40%) | Replacement Cost | 100% | <25,000 | 1 |
| | | | 25,000 - 150,000 | 2 |
| | | | 150,000 - 500,000 | 3 |
| | | | 500,000 - 1,000,000 | 4 |
| | | | >1,000,000 | 5 |
| Operational (40%) | Proximity to ESA or Public Recreation Areas | 100% | non-sensitive area | 1 |
| | | | within 30m buffer Public Recreation Area | 2 |
| | | | within 30m buffer of water course, within 30m buffer of wetland | 3 |
| Service Delivery (20%) | Households Serviced | 100% | 0-500 | 1 |
| | | | 501-1,000 | 2 |
| | | | 1,001-2,000 | 3 |
| | | | 2,001-4,000 | 4 |
| | | | >4,001 | 5 |

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

*Figure 62 Wastewater Network Risk Matrix*


The identification of critical assets allows the Town to determine risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

# Growth Management

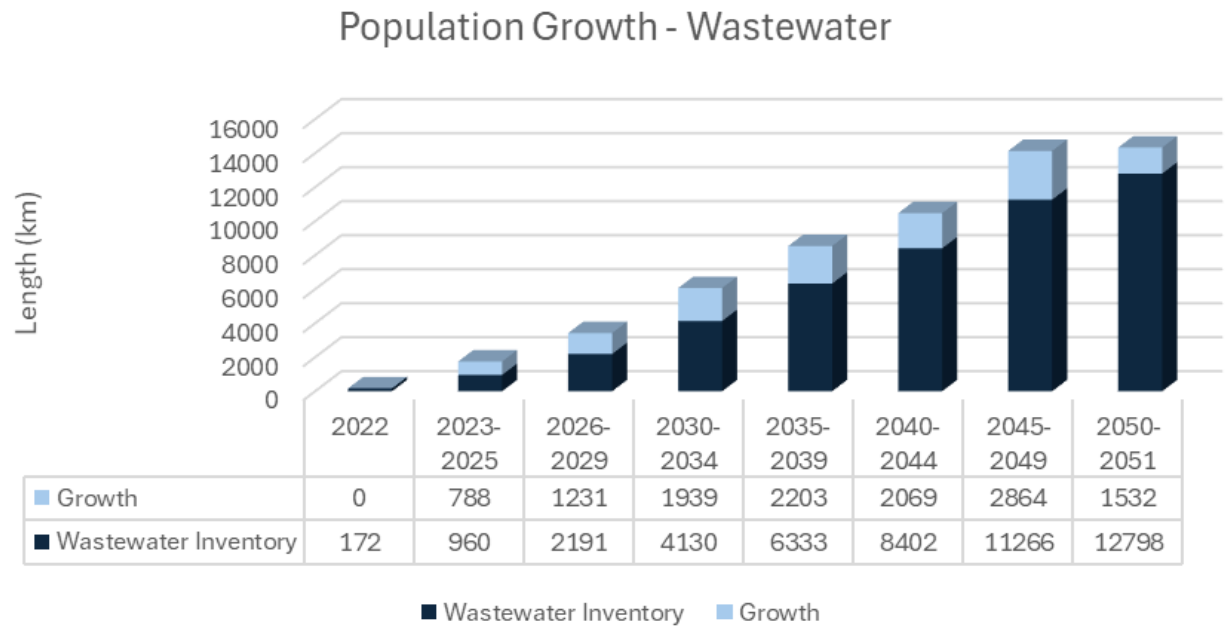
## Trends

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

## Population and Economic Growth Forecasts

Growth of population within the Town results in a need to acquire new wastewater network infrastructure. Between DC bylaw and developer contributed assets, the core infrastructure is expected to nearly double by 2051, with significant growth occurring between 2026 and 2040. This growth generally follows the expected population growth. Growth outlined in the DC Background study estimates increases because of growth to maintain current levels of service.

*Figure 63: Wastewater Network Growth Estimate*

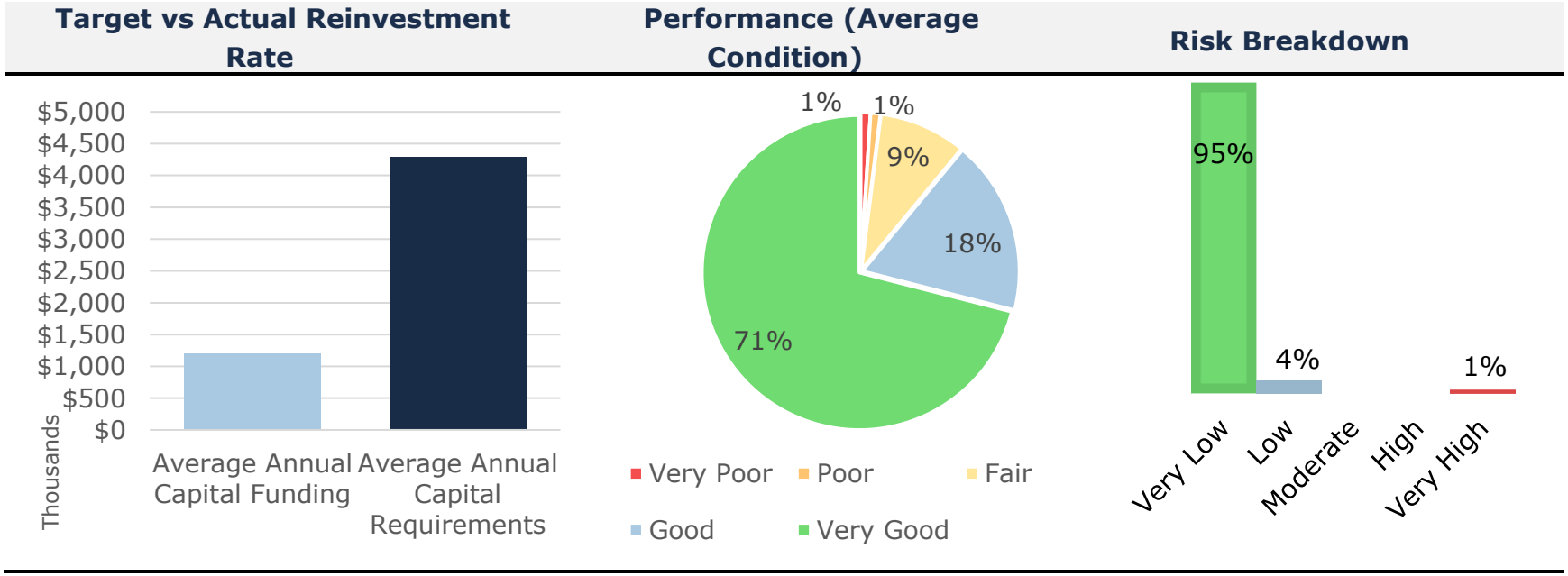



| | 2022 | 2023-2025 | 2026-2029 | 2030-2034 | 2035-2039 | 2040-2044 | 2045-2049 | 2050-2051 |
|---|---|---|---|---|---|---|---|---|
| Growth | 0 | 788 | 1231 | 1939 | 2203 | 2069 | 2864 | 1532 |
| Wastewater Inventory | 172 | 960 | 2191 | 4130 | 6333 | 8402 | 11266 | 12798 |

## Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the wastewater network. By comparing the cost, performance (average condition) and risk year-over-year the East Gwillimbury will be able to evaluate how their services/assets are trending. The Town will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

*Figure 64 Wastewater Network Strategic Levels of Service*



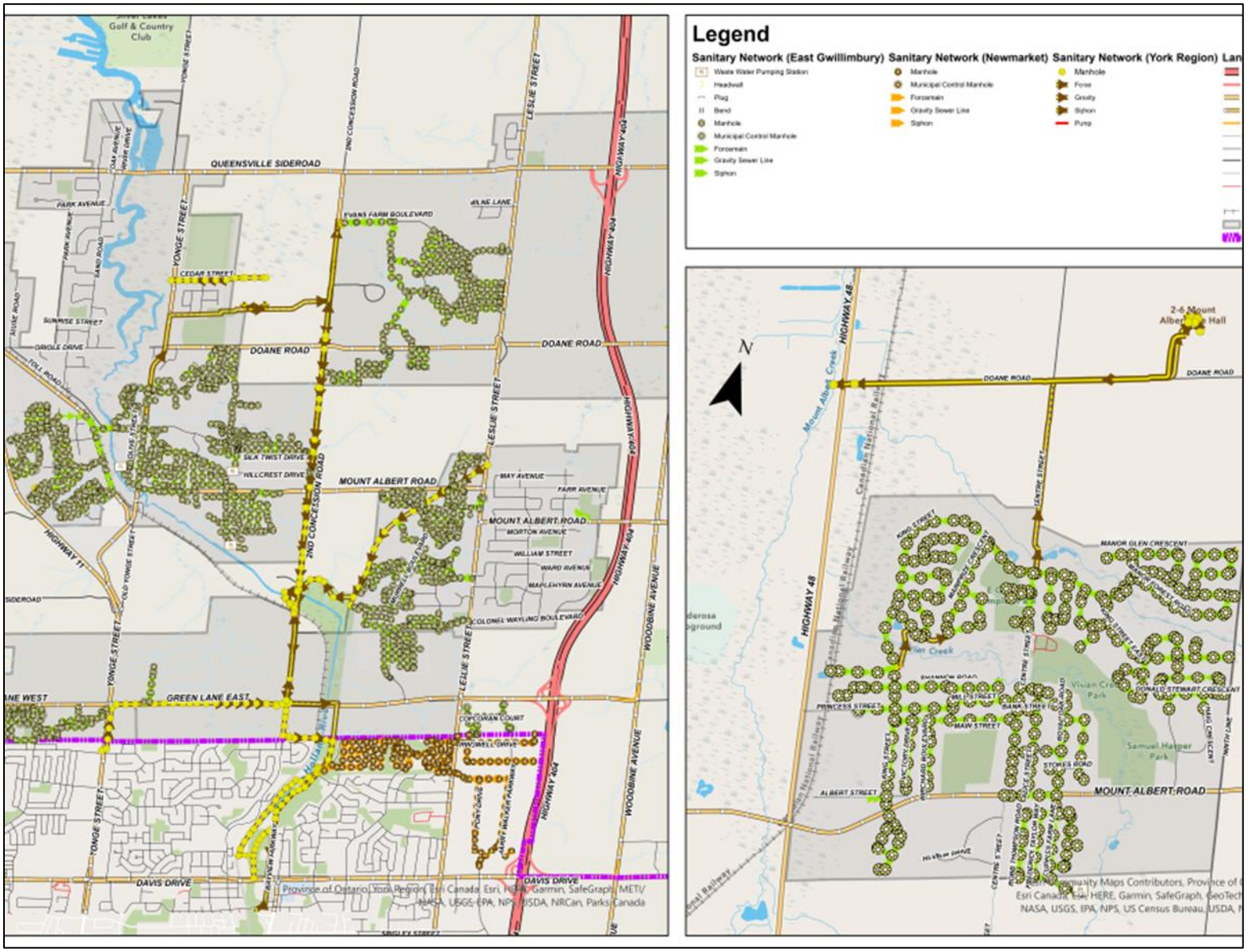
## Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by wastewater network.

*Table 25 Ontario Regulation 588/17 Wastewater Network Community Levels of Service*

| Service Attribute | Qualitative Description | Current LOS |
|---|---|---|
| Scope | Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system | See Figure 65 |
| Reliability | Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes | N/A |
| | Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches | N/A |
| | Description of how stormwater can get into wastewater mains in the municipal wastewater system, causing sewage to overflow into streets or backup into homes | No known cross-connections by design. Infiltration of groundwater to pipes occurs through pipe defects. |
| | Description of how wastewater mains in the municipal wastewater system are designed to be resilient to stormwater infiltration | Modern wastewater system is built at a standard to seal it from infiltration. I&I is no present in new areas, and mostly an issue with older areas. |
| | Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system | Sewage Treatment is managed by York Region |

*Figure 65 Wastewater Network Map*



## Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the wastewater network.

*Table 26 Ontario Regulation 588/17 Wastewater Network Technical Levels of Service*

| Service Attribute | Qualitative Description | Current LOS |
|---|---|---|
| Scope | % of properties connected to the municipal wastewater system | 54% |
| Reliability | # of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system | N/A |
| | # of connection-days per year having wastewater backups compared to the total number of properties connected to the municipal wastewater system | 0 |
| | # of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system | N/A |

# Appendix K: Roadmap

| Roadmap Tasks | | 2022 | | | | 2023 | | | | 2024 | | | | 2025 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| **2.0 Asset Management Plan (2024 Compliant)** | | | | | | | | | | | | | | | |
| 2.0: Asset Management Readiness Assessment | All | | | | | | | | | | | | | | |
| 2.1: Conduct a data gap analysis (non-core) | PRC, CS, EPW, FES, Library | | | | | | | | | | | | | | |
| 2.2: Componentize complex facilities | PRC | | | | | | | | | | | | | | |
| 2.3: Develop condition scores (non-core) | PRC, CS, EPW, FES, Library | | | | | | | | | | | | | | |
| 2.4: Update replacement costs (core & non-core) | PRC, CS, EPW, FES, Library | | | | | | | | | | | | | | |
| 2.5: Document condition assessment strategies (non-core) | PRC, CS, EPW, FES, Library | | | | | | | | | | | | | | |
| 2.6: Document asset management strategies (non-core) | PRC, CS, EPW, FES, Library | | | | | | | | | | | | | | |
| 2.7: Develop risk models (non-core) | PRC, CS, EPW, FES, Library | | | | | | | | | | | | | | |
| 2.8: Document Technical and Community LOS metrics (non-core) | PRC, CS, EPW, FES, Library | | | | | | | | | | | | | | |
| 2.9: Update the Growth Strategy (non-core) | All | | | | | | | | | | | | | | |
| 2.10: Accounting of Costs to Deliver the Current LOS (non-core) | Finance, CS | | | | | | | | | | | | | | |
| 2.11: Document Sustainable Funding Sources (non-core) | Finance | | | | | | | | | | | | | | |
| 2.12: Update the financial strategy (non-core) | Finance, CS | | | | | | | | | | | | | | |
| 2.13: Update the AMP for 2024 compliance | CS | | | | | | | | | | | | | | |
| 2.14: Council endorsement of the AMP (non-core) | Council | | | | | | | | | | | | | | |

| **3.0 Asset Management Plan (2025 Compliant)** | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.0: Asset Management Readiness Assessment | All | | | | | | | | | | | | | | | | |
| 3.1: Update the Asset inventory | All | | | | | | | | | | | | | | | | |
| 3.2: Assess the public's expectations | CS | | | | | | | | | | | | | | | | |
| 3.3: Determine and document the proposed LOS options | All | | | | | | | | | | | | | | | | |
| 3.4: Document the proposed lifecycle strategy options | All | | | | | | | | | | | | | | | | |
| 3.5: Assess increases in demand caused by growth | All | | | | | | | | | | | | | | | | |
| 3.6: Accounting of Costs to Deliver the Proposed Level of Service | Finance, CS | | | | | | | | | | | | | | | | |
| 3.7: Document Sustainable Funding Sources | Finance | | | | | | | | | | | | | | | | |
| 3.8: Conduct Scenario Analysis to Revise Proposed Levels of Service | All | | | | | | | | | | | | | | | | |
| 3.9: Review Scenario Analysis with Council | CS, Finance, Council | | | | | | | | | | | | | | | | |
| 3.9: Update the Financial Strategy | Finance, CS | | | | | | | | | | | | | | | | |
| 3.11: Review the proposed financial strategy with Council | CS, Finance, Council | | | | | | | | | | | | | | | | |
| 3.12: Update the AMP for 2025 compliance | CS | | | | | | | | | | | | | | | | |
| 3.13: Council endorsement of the Asset Management Plan | Council | | | | | | | | | | | | | | | | |

# Appendix L: Definitions of Key Terms

| Term | Definition |
|---|---|
| Asset Condition Assessment | The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action. It is a crucial part of asset management to determine remaining useful life and an assets capability to meet performance requirements. |
| Asset Register | Record of asset data and information considered worthy of separate identification and accountability. |
| Backlog | Industry term used to calculate the cost to replace assets that remain in service beyond their estimated useful life. |
| Community Service Level | A service level that specifies the level of service that is to be provided to the community. |
| Critical Asset | A critical asset is an asset for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets. |
| Funding Gap | The difference between;<br>a. The amount of funds required annually for satisfactory operation, maintenance & renewal of an asset over the useful life, and<br>b. The amount of funds currently being spent on the asset annually |
| Level of Service (LOS) | Parameters or a combination of parameters, which reflect social, political, environmental and economic outcomes that the organization delivers. |
| Lifecycle | Stages involved in the management of an asset. These could include acquisition, rehabilitation, replacement, and disposal. |
| Replacement Value | The cost, in today's dollars, to replace an existing asset with another like asset that performs the same function and purpose. |
| Risk | A combination of the likelihood and consequence of an unforeseen event occurring. |
| Target Reinvestment Rate | Annual capital requirement divided by total replacement cost |
| Technical Service Level | A service level associated with the physical characteristics of an asset. |
| Upgrade | Is capital works carried out on an existing asset to provide a higher level of service. |
| Useful Life | The period over which a depreciable asset is expected to be useful for, or the number of production or similar units (i.e. intervals, cycles) that is expected to be obtained from the asset. |