2024

Asset Management Plan

This Asset Management Program was prepared by:

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

Key Statistics

Replacement cost of asset portfolio

$384 million

Target reinvestment rate

2.6%

Percentage of assets in fair or better condition

79%

Percentage of assets with assessed condition data

57%

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Executive Summary

Municipal infrastructure provides the foundation for the economic, social, and environmental health and growth of a community through the delivery of critical services. The goal of asset management is to deliver an adequate level of service in the most cost-effective manner. This involves the development and implementation of asset management strategies and long-term financial planning.

Scope

This AMP identifies the current practices and strategies that are in place to manage public infrastructure and makes 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.

This AMP include the following asset categories:

Asset Category

- Road Network
- Storm Network
- Water Network
- Sanitary Network
- Bridges & Culverts
- Facilities
- Fleet
- Machinery & Equipment
- Land Improvements

With the development of this AMP the Town has achieved compliance with O. Reg. 588/17 to the extent of the requirements that must be completed by July 1, 2024. There are additional requirements that must be met by July 1, 2025.

Findings

The overall replacement cost of the asset categories included in this AMP totals $384 million. 79% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 57% of assets weighted by replacement cost. For the remaining 43% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (asphalt and surface treated roads) and replacement only strategies (all other assets) 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 average annual capital requirement totals $10 million.

Annual Capital Requirements per Household

It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the Town. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

Recommendations

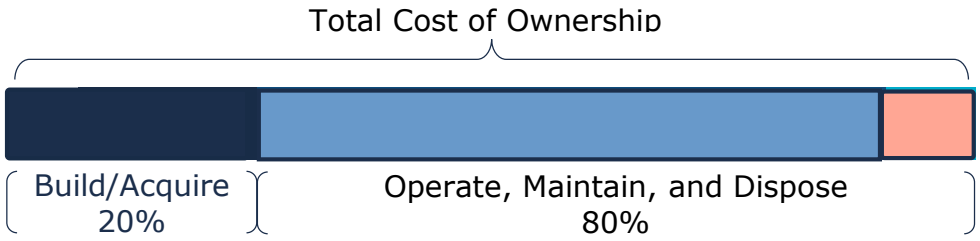
Recommendations to guide continuous refinement of the Town's asset management program. These include:

- Review data to update and maintain a complete and accurate dataset
- Develop a condition assessment strategy with a regular schedule
- Review and update lifecycle management strategies
- Development and regularly review short- and long-term plans to meet capital requirements
- Measure current levels of service and identify sustainable proposed levels of service

Overview of Asset Management

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 ratepayers receive from the asset portfolio.

The acquisition of capital assets accounts for only 10-20% of their total cost of ownership. The remaining 80-90% derives from operations and maintenance. This AMP focuses its analysis on the capital costs to maintain, rehabilitate and replace existing municipal infrastructure assets.



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

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.

Foundational Documents

In the municipal sector, ‘asset management strategy’ and ‘asset management plan’ are often used interchangeably. Other concepts such as ‘asset management framework’, ‘asset management system’, and ‘strategic asset management plan’ further add to the confusion; lack of consistency in the industry on the purpose and definition of these elements offers little clarity. To make a clear distinction between the policy, strategy, and the plan see the following sections for detailed descriptions of the document types.

Strategic Plan

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. Developing alignment with corporate goals and objectives through to service delivery and lifecycle management ensures the Town has line of sight to achieve their strategic objectives.

Asset Management Policy

An asset management policy represents a statement of the principles guiding the Town's approach to asset management activities. It aligns with the organizational strategic plan and provides clear direction to municipal staff on their roles and responsibilities as part of the asset management program.

The Town of Minto adopted Policy Number 3.3 "Strategic Asset Management Policy" on June 18th, 2019 in accordance with Ontario Regulation 588/17.

The policy provides a foundation for the development of an asset management program within the Town. It covers key components that define a comprehensive asset management policy:

- The policy's objectives dictate the use of asset management practices to ensure all assets meet the agreed levels of service in the most efficient and effective manner;
- the policy commits to, where appropriate, incorporating asset management in the Town's other plans;
- there are formally defined roles and responsibilities of internal staff and stakeholders; and
- the guiding principles include the use of a cost/benefit analysis in the management of risk.

As per Ontario Regulation 588/17, the Town will be updating its Strategic Asset Management Policy in 2024.

Asset Management Strategy

An asset management strategy 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 the Town plans to achieve asset management objectives through planned activities and decision-making criteria.

While not a static document, the strategy should not evolve and change frequently—unlike the asset management plan. The strategy provides a long-term outlook on the overall asset management program development and strengthening key elements of its framework.

The Town's Strategic Asset Management Policy contains many of the key components of an asset management strategy and may be expanded on in future revisions or as part of a separate strategic document.

Asset Management Plan

The asset management plan (AMP) presents the outcomes of the Town's asset management program and identifies the resource requirements needed to achieve a defined level of service. The AMP typically includes the following content:

- State of Infrastructure
- Asset Management Strategies
- Levels of Service
- Financial Strategies

The AMP is a living document that should be updated regularly as additional asset and financial data becomes available. This will allow the Town to re-evaluate the

state of infrastructure and identify how the organization's asset management and financial strategies are progressing.

The Town's last iteration of the AMP was completed in 2022. Since then, the asset inventory has been consolidated and staff continue to refine the central asset inventory and improve the Town's established asset management processes.

Key Concepts in Asset Management

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

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 or renew 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.

Lifecycle Activity	Description	Example (Roads)	Cost
Maintenance	Activities that prevent defects or deteriorations from occurring	Crack Seal	$
Rehabilitation/ Renewal	Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	Mill & Re-surface	$$
Replacement/ Reconstruction	Asset end-of-life activities that often involve the complete replacement of assets	Full Reconstruction	$$$

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 what effect these activities will have on the lifecycle of an asset, and their cost, will enable staff to make better recommendations.

The Town's approach to lifecycle management is described within each asset category outlined in this AMP. 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.

Risk Management Strategies

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. For example, a road with a high volume of traffic that provides access to critical services poses a higher risk than a low volume local 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. This AMP includes a high-level evaluation of asset risk and criticality through qualitative and quantitative methodologies.

Qualitative Approach to 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.

Quantitative Approach to Risk

Asset risk is defined using the following formula:

$$Risk = Probability\ of\ Failure \times Consequence\ of\ Failure$$

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. Consequences of failure can range from non-eventful to impactful.

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.

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.

Community Levels of Service

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, Water, Wastewater, Stormwater) the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP. 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.

Technical Levels of Service

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, the Province through O. Reg. 588/17, has provided technical metrics that are required. For non-core asset categories, the Town determined the technical metrics that will be used. There are 3 measures that are used for every asset category, and they are:

- Financial –targeted reinvestment rate compared to the actual current reinvestment rate.
- Performance – this is the average condition for the asset category.
- Risk – this is the average risk for the asset category

Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community, as well as proposed levels of service 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 levels of service have been established, the Town must identify a lifecycle management and financial strategy which allows these targets to be achieved.

Ontario Regulation 588/17

The Minto Asset Management Plan was developed 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.

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.

Requirement	2019	2022	2024	2025
Asset Management Policy	●		●	
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				●

Scope and Methodology

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 Categories

This asset management plan for the Town of Minto is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation—the second of three AMPs—requires analysis of all municipal assets.

The AMP summarizes the state of the infrastructure for the Town's asset portfolio, establishes current levels of service and the associated technical and customer oriented key performance indicators (KPIs), outlines lifecycle strategies for optimal asset management and performance, and provides financial strategies to reach sustainability for the asset categories listed below.

Asset Category	Source of Funding
Road Network	Tax Levy
Bridges & Culverts	
Facilities	
Land Improvements	
Fleet	
Machinery & Equipment	
Storm Water Network	
Water Network	User Rates
Sanitary Sewer Network	

Deriving 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. This AMP relies on two methodologies:

- **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 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.

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 in this AMP 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 data 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 it will require replacement. The SLR is calculated as follows:

$$Service\ Life\ Remaining\ (SLR) = In\ Service\ Date + Estimated\ Useful\ Life(EUL) - Current\ Year$$

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. The reinvestment rate is calculated as follows:

$$Target\ Reinvestment\ Rate = \frac{Annual\ Capital\ Requirement}{Total\ Replacement\ Cost}$$

$$Actual\ Reinvestment\ Rate = \frac{Annual\ Capital\ Funding}{Total\ Replacement\ Cost}$$

Deriving 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 Town's asset portfolio. The table below outlines the condition rating system used in this AMP to determine asset condition. This rating system is aligned with the Canadian Core Public Infrastructure Survey which is used to develop the Canadian Infrastructure Report Card. When assessed condition data is not available, service life remaining is used to approximate asset condition.

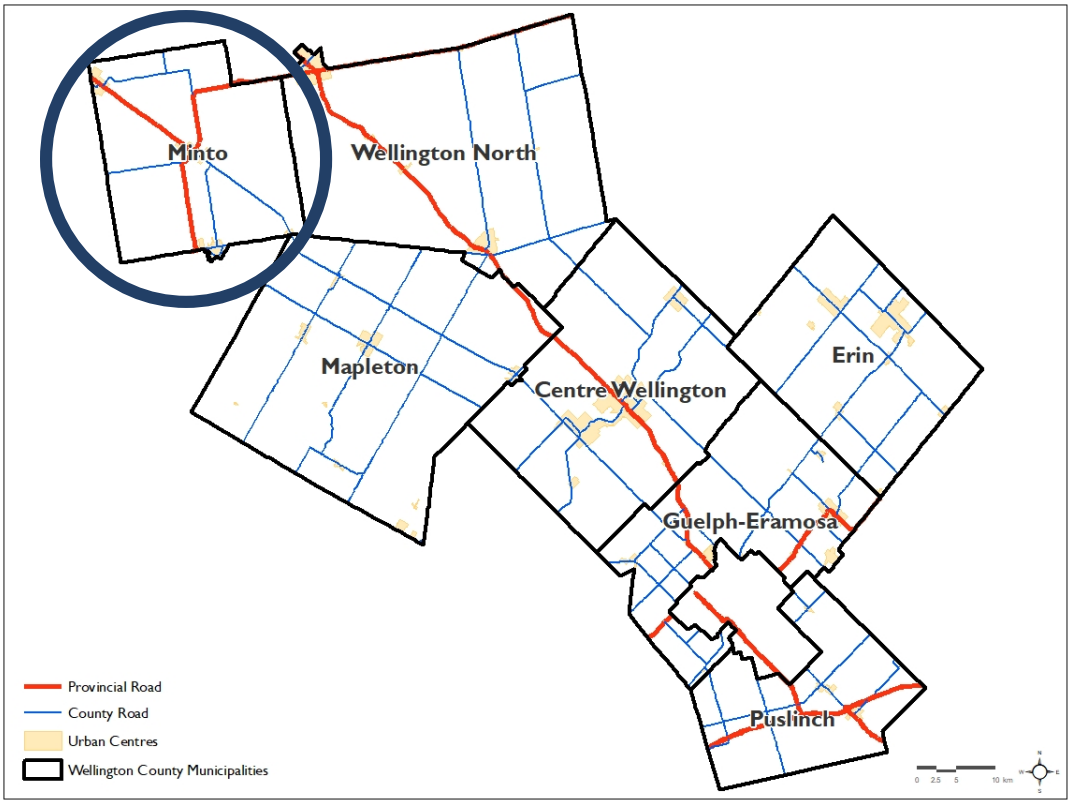
Condition	Description	Criteria	Service Life Remaining (%)
Very Good	Fit for the future	Well maintained, good condition, new or recently rehabilitated	80-100
Good	Adequate for now	Acceptable, generally approaching mid-stage of expected service life	60-80
Fair	Requires attention	Signs of deterioration, some elements exhibit significant deficiencies	40-60
Poor	Increasing potential of affecting service	Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration	20-40
Very Poor	Unfit for sustained service	Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable	0-20

The analysis in this AMP is based on assessed condition data only as available. In the absence of assessed condition data, asset age is used as a proxy to determine asset condition. Appendix E includes additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

Portfolio Overview

Community Profile

The Town of Minto is in northern Wellington County in midwestern Ontario, situated on the Maitland River. It is a rural municipality, with the benefit from the region's proximity to several major urban markets.



As with many rural Towns, Minto was created through the amalgamation of different communities in the late 1990s. Minto consists of Harriston, Palmerston, Clifford and surrounding areas. Noted for its numerous family-centred events and activities, throughout the community all year round. The Town relies on manufacturing, agriculture, construction, service-based and health care as the primary industries to drive its economy.

Census Characteristic	Town of Minto	Ontario
Population 2021	9,094	14,223,942
Population Change 2016-2021	5%	5.8%
Total Private Dwellings	3,885	5,929,250
Population Density	30.3/km2	15.9/km^2
Land Area	300.19 km2	892,411.76 km^2

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; moreover, during this period, Northern Canada experienced a 2.3°C increase. 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.

Climate Profile

The Town of Minto 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 Minto will likely experience the following trends:

Higher Average Annual Temperature:

- Between the years 1981 to 2010 the annual average temperature was 6.6 ºC
- Under a high emissions scenario, the annual average temperatures are projected to reach 8.5 ºC between the years 2021 to 2050 and around 12 ºC by the end of the century.

Increase in Average Annual Precipitation:

- Under a high emissions scenario, Minto is projected to experience a 7% increase in precipitation by the year 2050 and a 15% 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.

Integration Climate Change and Asset Management

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.

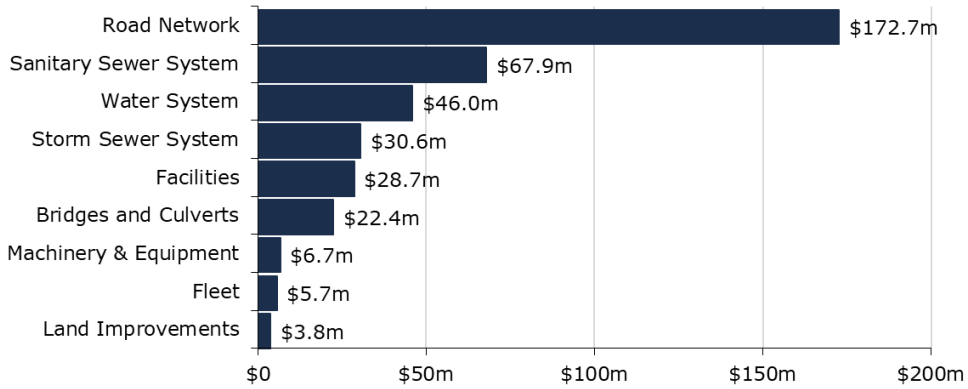
To achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices. The integration of asset management and climate change adaptation observes industry best practices and enables the development of a holistic approach to risk management.

State of the Infrastructure

Asset Category	Replacement Cost	Asset Condition	Annual Requirement
Road Network	$172,674,595	Fair (58%)	$4,107,666
Bridges and Culverts	$122,421,575	Good (73%)	$404,804
Storm Water Network	$30,594,719	Very Good (83%)	$408,698
Facilities	$28,650,125	Fair (57%)	$661,003
Land Improvements	$3,835,771	Poor (39%)	$285,642
Fleet	$5,665,937	Very Poor (15%)	$514,199
Machinery & Equipment	$6,668,907	Very Poor (13%)	$953,608
Water Network	$45,988,348	Good (75%)	$1,045,566
Sanitary Sewer Network	$67,853,148	Good (72%)	$1,609,794
Overall	**$384,353,125**	**Good (64%)**	**$9,990,980**

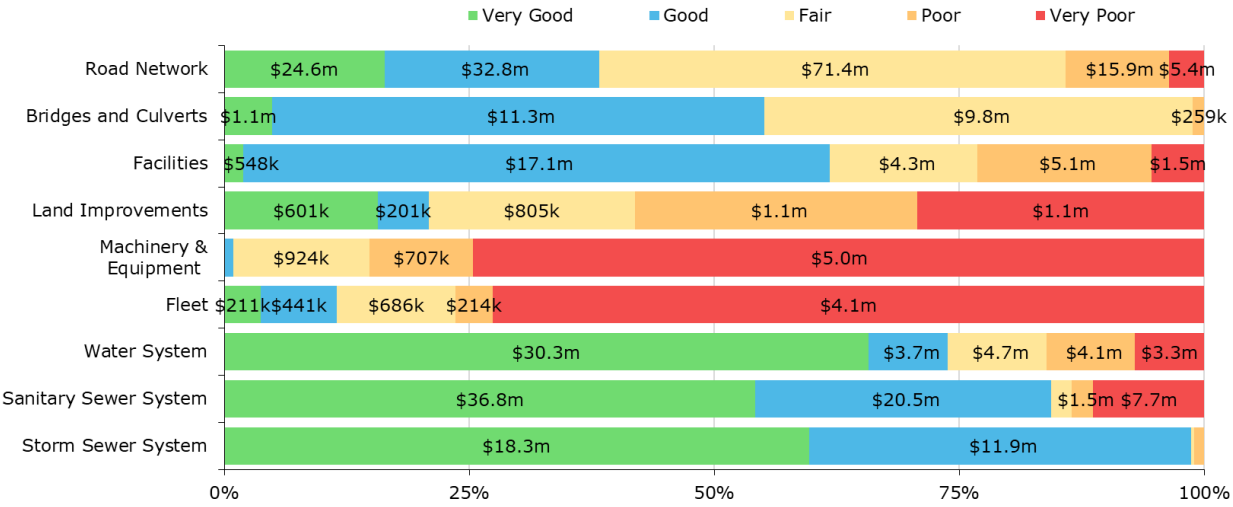
Total Replacement Cost of Asset Portfolio

The asset categories analysed in this AMP have a total replacement cost of over $384 million based on inventory data from the end of 2023. 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.



Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 79% of assets in Minto, based on replacement value, are in fair or better condition. This estimate relies on both age-based and field condition data.



This AMP relies on assessed condition data for 57% of assets; for the remaining portfolio, age is used as an approximation of condition.

Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

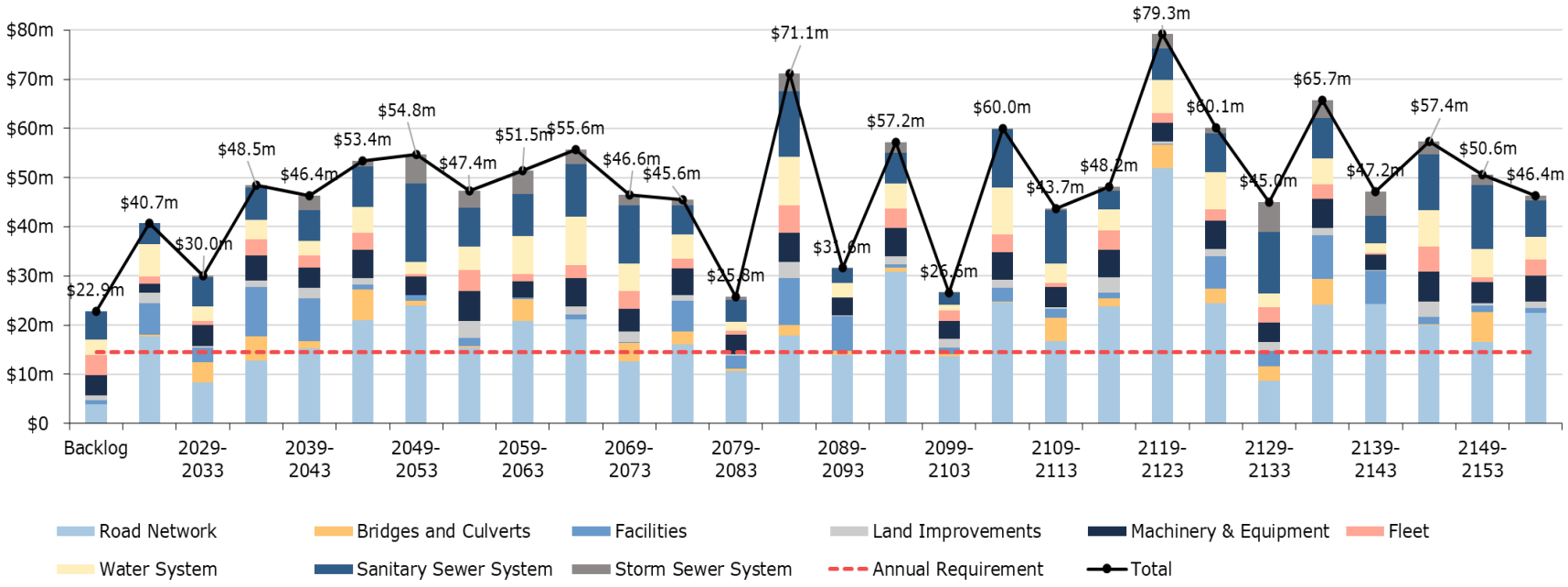
Asset Category	Asset Segment	% of Assets with Assessed Condition	Source of Condition Data
Road Network	All	83%	2021 Triton RNS
Bridges & Culverts	All	99%	2023 OSIM Report
Facilities	All	96%	Staff Assessements
Land Improvements	All	47%	Staff Assessements
Machinery & Equipment	All	95%	Staff Assessements
Fleet	All	91%	Staff Assessments
Water Network	All	8%	Staff Assessments
Sanitary Sewer Network	All	14%	Staff Assessments
Storm Water Network	All	0%	N/A

Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 18% of the Town's assets may require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix B.

Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Town can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 80 years.



Risk & Criticality

Qualitative Risk

The Town has noted key trends, challenges, and risks to service delivery that they are currently facing:

Climate Change and Extreme Events

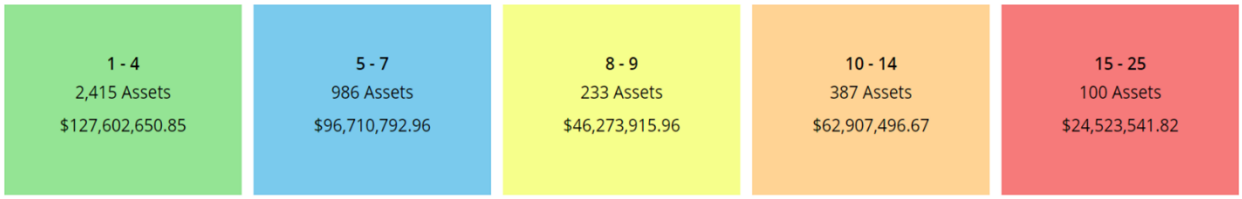
Climate change poses risks to buildings through increased freeze/thaw cycles causing structural damage, accelerated material deterioration. Uncertainty about extreme weather events complicates maintenance and planning, emphasizing the need for adaptation strategies and resilient design.

Asset Data and Information

Some of the asset data is pooled, missing in the inventory, and/or incomplete. Some of the asset data has not been consolidated into the Town's central asset inventory. This poses a risk and will lead to discrepancies when trying to manage assets and planning future work. Both short- and long-term planning requires the regular collection, storage and maintenance of infrastructure data to support asset management decision-making.

Quantitative Risk

The overall risk breakdown for Minto's asset inventory is portrayed in the figure below. Reviewing the list of very high-risk assets to evaluate how best to mitigate the level of risk the Town is experiencing will help advance Minto's asset management program.



This is a high-level model developed for the purposes of this AMP and municipal staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Road Network

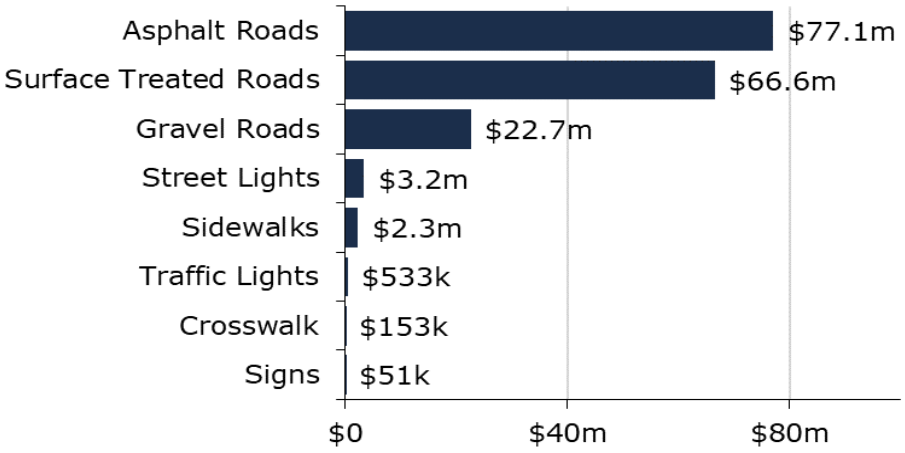
The road network is a critical component of the provision of safe and efficient transportation services, connecting the many hamlets and rural areas that comprise the Town. These assets represent the highest value asset categories in the Town's asset portfolio. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure.

The Roads and Drainage Division manages the Town's roads and roadside assets, through the maintenance, rehabilitation and construction of roads and supporting roadside infrastructure. The department is also responsible for winter snow clearing, ice control and snow removal operations.

Asset Inventory & Replacement Cost

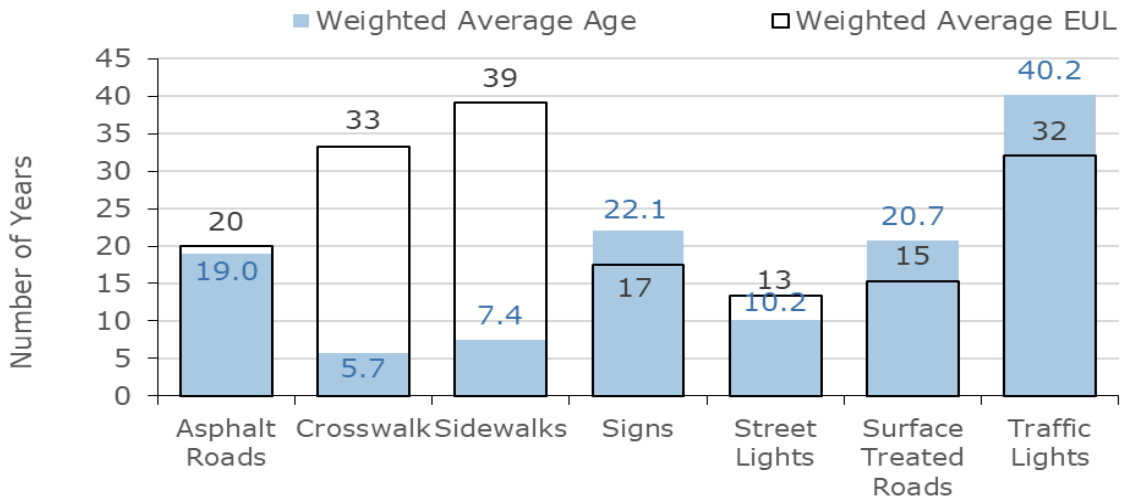
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Road Network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Asphalt Roads	105 km	Cost/Unit	$77,085,385
Crosswalk	3	CPI	$153,032
Gravel Roads	58 km	Cost/Unit	$22,682,668
Sidewalks	8 km	CPI	$2,324,402
Signs	3(pooled)	CPI	$50,564
Street Lights	1036	Cost/Unit	$3,232,320
Surface Treated Roads	98.6 km	Cost/Unit	$66,613,719
Traffic Lights	11	CPI	$532,505
			$172,674,595



Asset Condition & Age

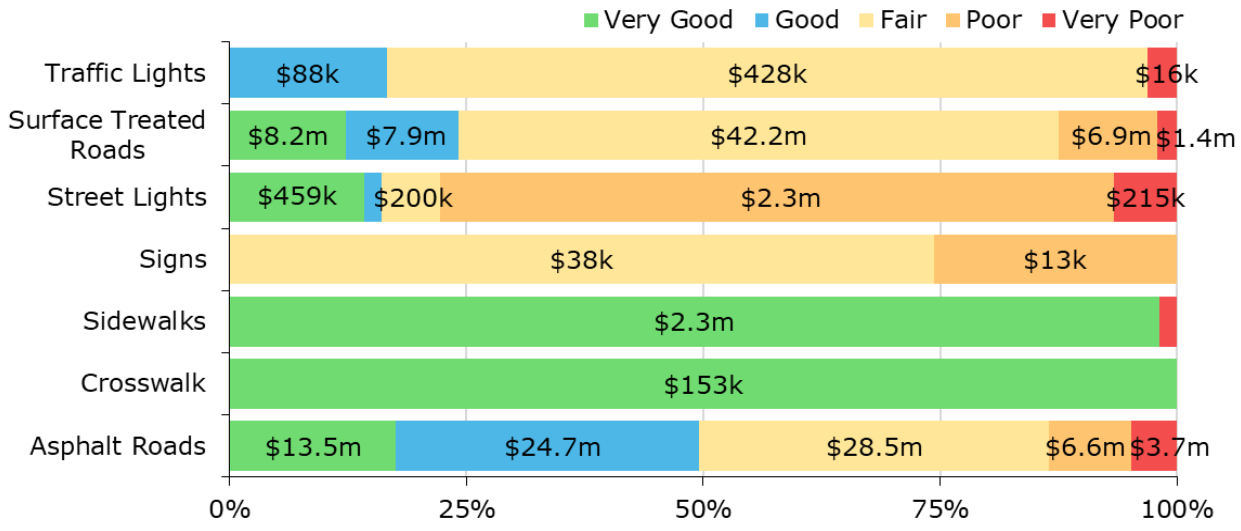
The graph below identifies the average age, and the estimated useful life for each asset segment. It is all weighted by replacement cost.



The Estimated Useful Life for road network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating.

Each asset's Estimated Useful Life should 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.

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



Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- A road needs study through an external consultant is conducted every 5 years. Staff also conduct visual inspections during road patrols.
- The most recent road needs study was prepared by Triton Engineering Ltd. in 2021.
- Routine road patrols are undertaken weekly, granular roads are also visually
- inspected during grading activities
- Other road network assets are inspected as per O. Reg. 239/02

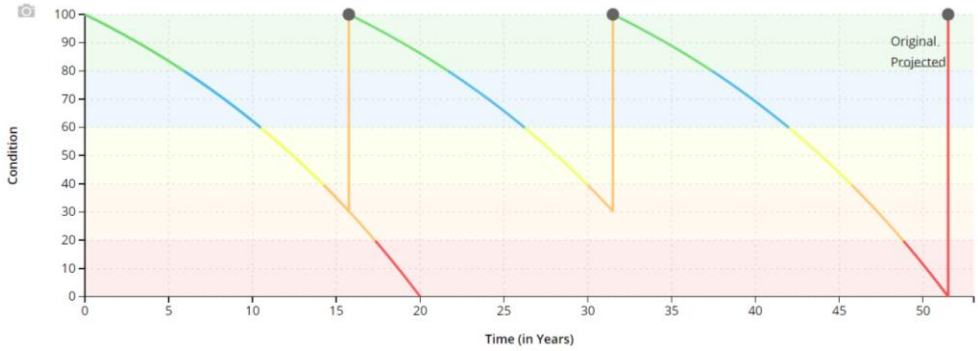
Lifecycle Management Strategy

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.

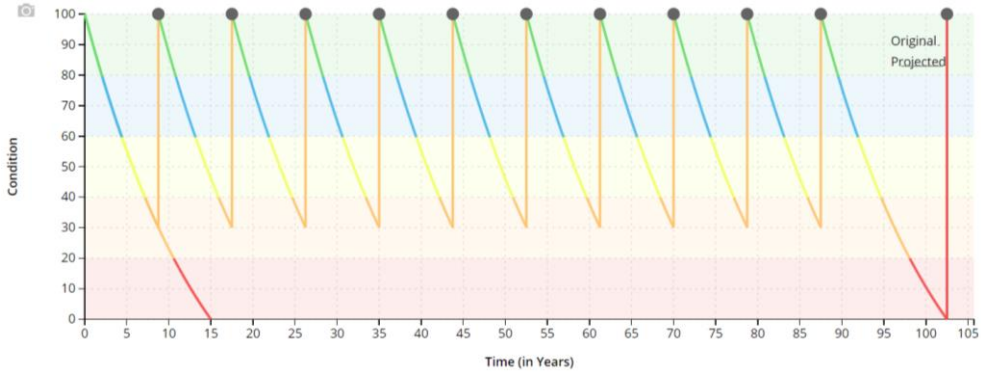
Activity Type	Description of Current Strategy
Maintenance	Pothole repairs are completed annually based on deficiencies identified through regular road patrols and feedback from the public.
	Seasonal maintenance activities include asphalt patching, graveling, and tree cutting.
	Summer maintenance activities include sidewalk repairs, grading, re-gravelling, applying dust suppressant, ditching, roadside mowing, tree trimming, brush cleanup, road sign installation/maintenance, and line painting.
	Winter maintenance activities include snow plowing, salting, and snow removal.
Rehabilitation	Rehabilitation activites include surface treatments, mill and resurfacing treatments.
	Road replacement prioritization is determined by consideration of growth, risk, condition, health and safety, and social impact.
Replacement	Road reconstruction projects (base and surface) are identified based on road condition, risk, and sub-surface asset requirements (storm sewer, sanitary sewer, water).

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of asphalt and surface treated roads. Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost.

Asphalt Roads		
Event Name	**Event Class**	**Event Trigger**
Mill and Resurface (Single)	Rehabilitation	30 Condition
Mill and Resurface (Double)	Rehabilitation	30 Condition
Full Reconstruction	Replacement	0% Condition

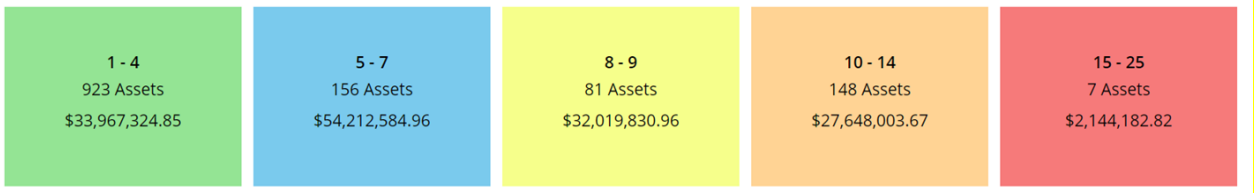


Surface Treated Roads		
Event Name	**Event Class**	**Event Trigger**
Surface Treatment (Single)	Rehabilitation	30 Condition
Repeated		
Full Reconstruction	Replacement	0% Condition



Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

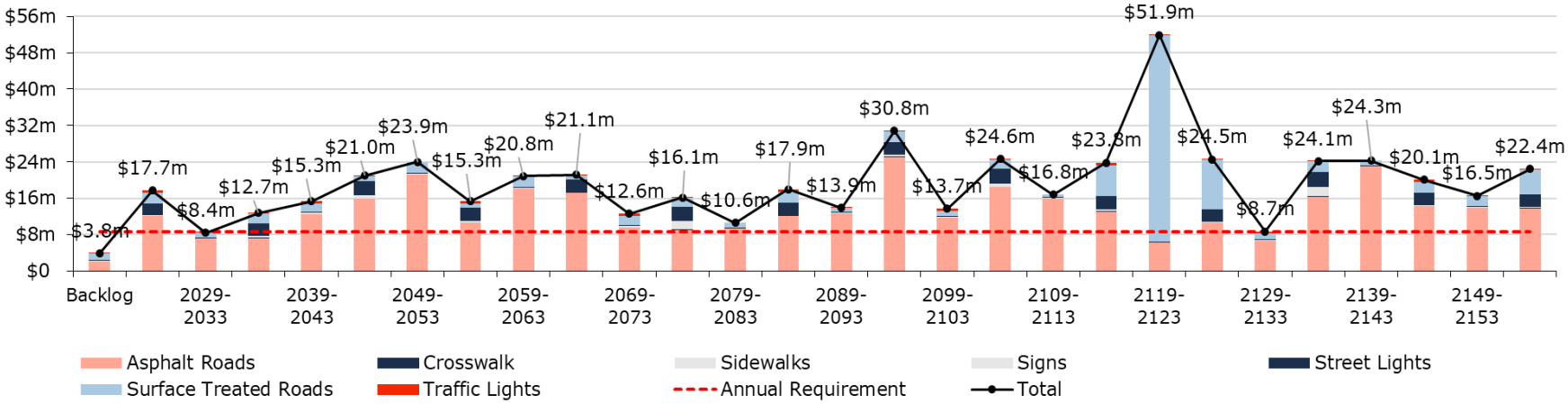


This is a high-level model developed for the purposes of this AMP and municipal staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for Paved Roads, and assuming the end-of-life replacement of all other assets in this category, the following graph forecasts capital requirements for the Road Network.

The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs to meet future capital needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the roads. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps, of the road network in the Town and its level of connectivity	See Appendix B
Quality	Description or images that illustrate the different levels of road class pavement condition	The Town completed a Road Needs Study report in May 2021 in coordination with Triton Engineering Limited. Every road segment receives a pavement condition index (PCI) rating (0-100). The rating incorporates pavement roughness measurements and surface distresses (type, quantity, severity). Ratings are categorized into 5 general qualitative descriptors as detailed below: 0 to 29 – Failed 30 to 49 – Poor 50 to 75 – Fair 75 to 85 – Good 85 to 100 – Very Good

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	0 km/km^2
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	0 km/km^2
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	1.64 km/km^2
Quality	Average pavement condition index for paved roads in the Town	60%
	Average surface condition for unpaved roads in the Town (e.g. excellent, good, fair, poor)	Fair
	Average condition rating	58% (all assets)
Performance	Average asset risk	7.04 (Low)
	Capital reinvestment rate	2.4%

Bridges & Culverts

Bridges and culverts are another critical component of the transportation services provided to the community.

The Roads and Drainage Division is responsible for the planning and managing of all bridges and structural culverts located across municipal roads with the goal of keeping structures in an adequate state of repair and minimizing service disruptions.

Based on the requirements outlined by the Ministry of Transportation, the most recent Ontario Structure Inspection (OSIM) was conducted in 2023 by Burgess Engineering Inc.

Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Bridges inventory.

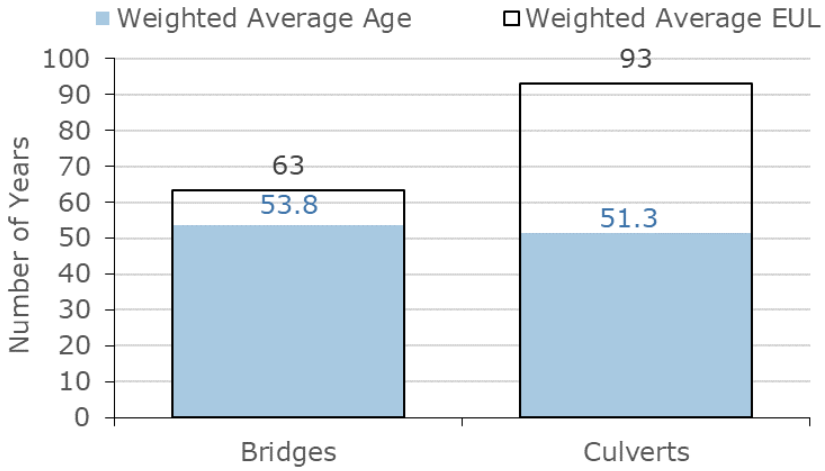
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Bridges	18	CPI Tables	$9,765,915
Culverts	47	CPI Tables	$12,655,660
			$22,421,575

Asset Condition & Age

The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.

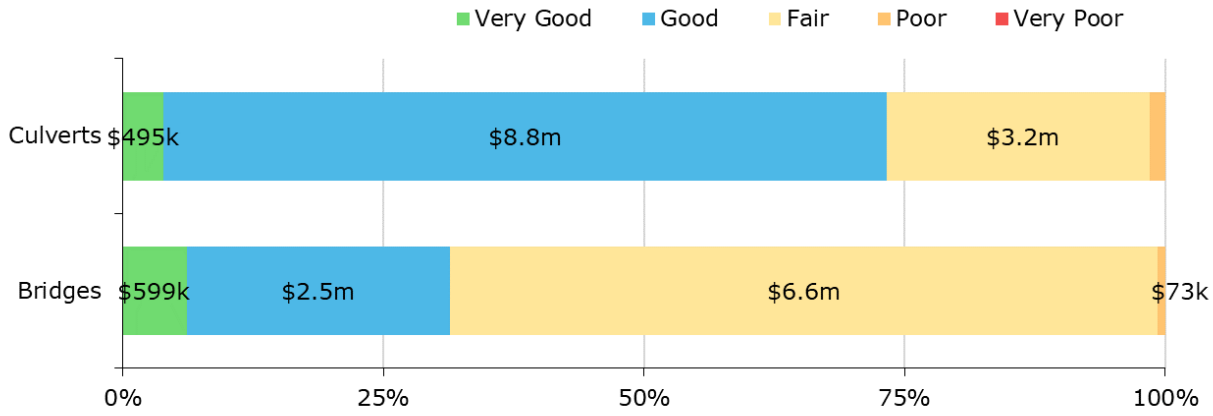
The Estimated Useful Life for bridges and culvert assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the

difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating.



Each asset's Estimated Useful Life should 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.

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



Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- Condition assessments of all bridges and culverts with a span greater than or equal to 3 meters are completed every 2 years in accordance with the Ontario Structure Inspection Manual (OSIM)
- The most recent bridge and culvert inspection was conducted in 2021 Burgess Engineering Inc.
- Bridge and culvert assets are visually inspected by municipal staff as needed

In this AMP and as per the OSIM reports, the bridge condition index (BCI) rating criteria is used to determine the current condition of assets and forecast future capital requirements:

Condition	BCI Rating
Very Good	90-100
Good	70-89
Fair	50-69
Poor	40-49
Very Poor	0-40

Lifecycle Management Strategy

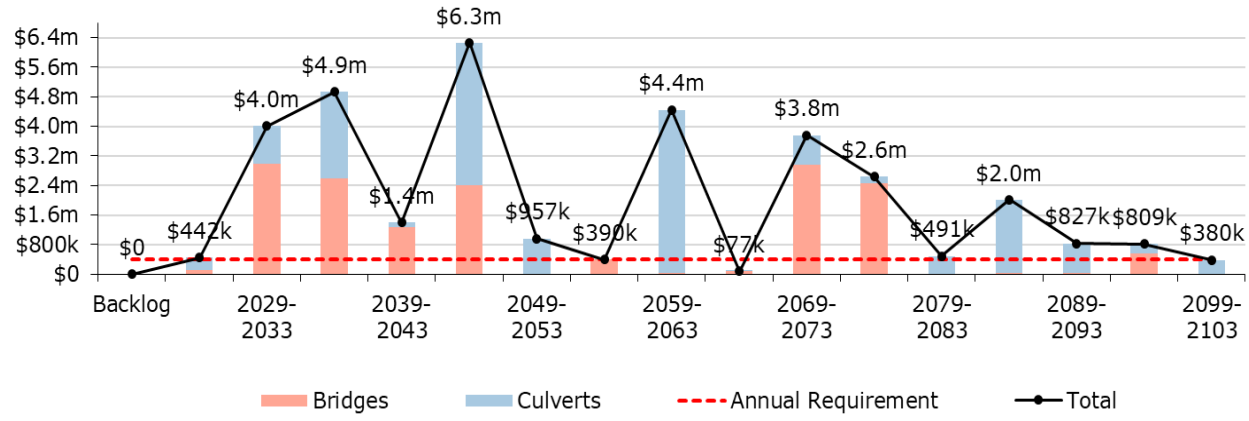
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Typical maintenance includes: • Obstruction removal • Cleaning and sweeping • Erosion control • Brush and tree removal
	Biennial OSIM based inspections include a list of recommended maintenance activities that the Town considers and completes according to cost and urgency.
Rehabilitation	Biennial OSIM based inspections include a capital needs list identifying recommended rehabilitation and replacement activities with estimated costs and activity schedule
Inspection	The most recent inspection report was completed in 2023 by Burgess Engineering Inc.

Forecasted Capital Requirements

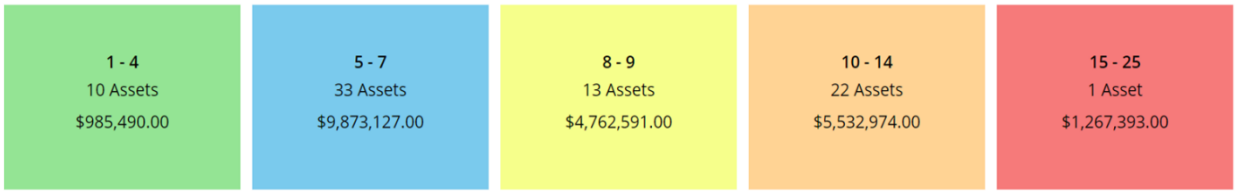
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the bridges and culverts. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

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 traffic on bridges and structural culverts is generally light, but certain rural structures do support heavy vehicle traffic, such as construction vehicles, agricultural machinery and equipment, and mennonite buggies. The following structures are currently closed: • Railway Bridge No. 1pedestrian The following structures are currently under rehabilitation: • O'Dwyer Culvert • O'Dwyer Bridge
Quality	Description or images of the condition of Bridges and Culverts and how this would affect use of the Bridges and Culverts	Good (BCI 70-100): Generally considered to be in good-excellent condition, and repair or rehabilitation work is not usually required within the next 5 years. Routine maintenance, such as sweeping, cleaning, and washing are still recommended. Fair (BCI 50-70): Generally considered to be in good-fair condition. Repair or rehabilitation work recommended is ideally scheduled to be completed within the next 5 years. Poor (BCI Less than 50): Generally considered poor with lower numbers representing structures nearing the end of their service life. The repair or rehabilitation of these structures is ideally best scheduled to be completed within approximately 1 year. However, if it is determined that the replacement of the structure would be a more viable, the structure can be identified for continued monitoring and scheduled for replacement within the short-term.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	% of bridges in the Municipality with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Municipality	70%
	Average bridge condition index value for structural culverts in the Municipality	71%
	Average condition rating	73%
Performance	Capital reinvestment rate	1.8%
	Average risk rating	9.2 (Moderate)

Storm Sewer Network

The Town is responsible for owning and maintaining a storm sewer network of storm mains, catch basins, maintenance holes and a retention pond.

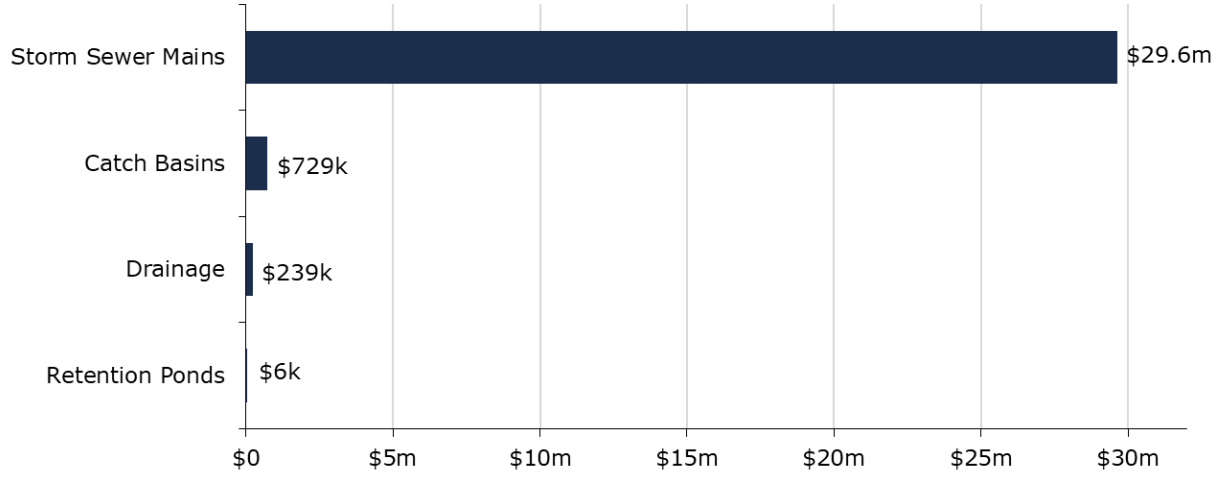
The Town's Roads and Drainage Division is responsible for planning and managing storm sewer infrastructure.

Storm sewer infrastructure generally poses the greatest uncertainty for municipalities, including Minto. Staff have expressed a lack of confidence in the current inventory but are working towards improving the accuracy and reliability to assist with long-term asset management planning.

Asset Inventory & Replacement Cost

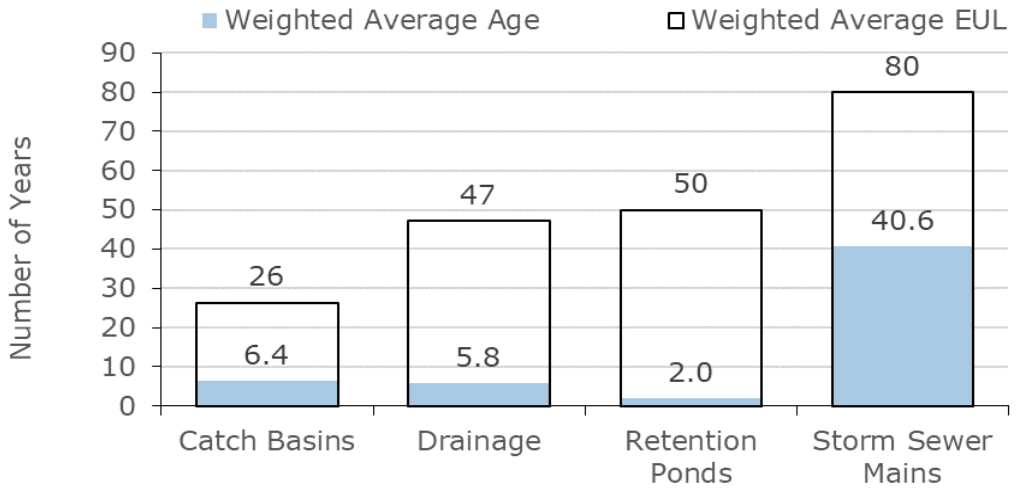
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's storm sewer network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Catch Basins	321	CPI Tables	$728,963
Drainage	876 m	CPI Tables	$239,163
Retention Ponds	1	CPI Tables	$6,040
Storm Sewer Mains	37 km	CPI Tables	$29,620,553
			$30,594,719



Asset Condition & Age

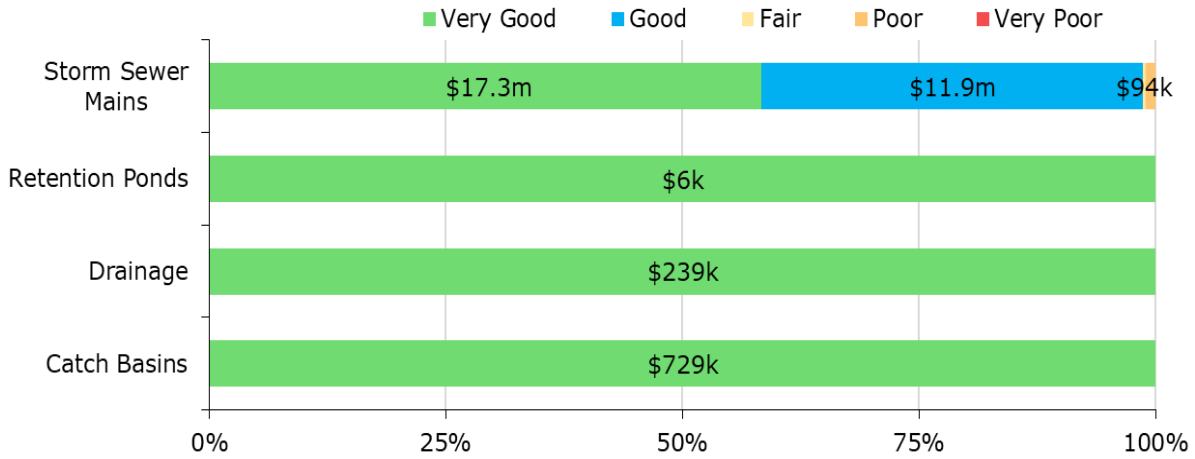
The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.



The Estimated Useful Life for storm sewer network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating.

Each asset's Estimated Useful Life should 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.

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



Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- There are no formal condition assessment programs in place for storm sewer infrastructure.
- Currently age-based estimates are used to determine asset condition, although confidence in the accuracy of these estimates is low.

Lifecycle Management Strategy

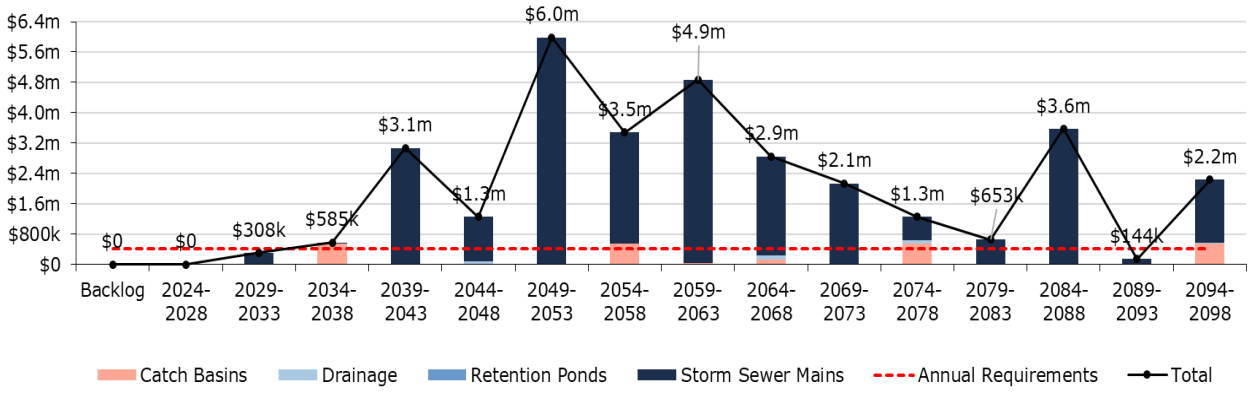
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities are completed to a lesser degree compared to other asset systems
	Primary activities include catch basin cleaning and storm main flushing planned for 2024
	All other maintenance activities are completed on a reactive basis when operational issues are identified (e.g., blockages, backups)
Replacement	Staff attempt to coordinate storm sewer capital projects with road reconstruction project to produce cost efficiencies

Forecasted Capital Requirements

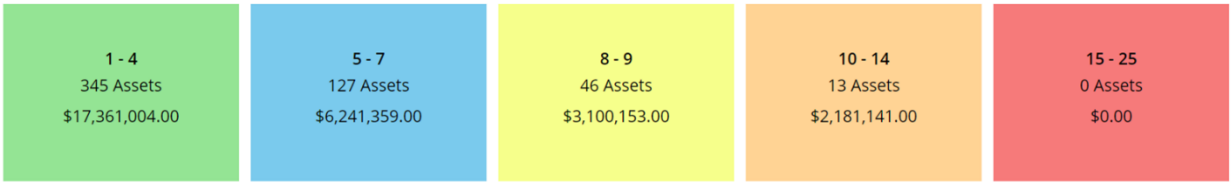
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the storm sewer network. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include map, of the relevant areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system	See Appendix B for a map that visuailizes the storm sewer network connectivity.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	% of properties in municipality resilient to a 100-year storm	33%
	% of the municipal storm sewer management system resilient to a 5-year storm	100%
Quality	Average condition rating	83%
Performance	Capital reinvestment rate	1.3%
	Average risk rating	4.34 (Very Low)

Facilities

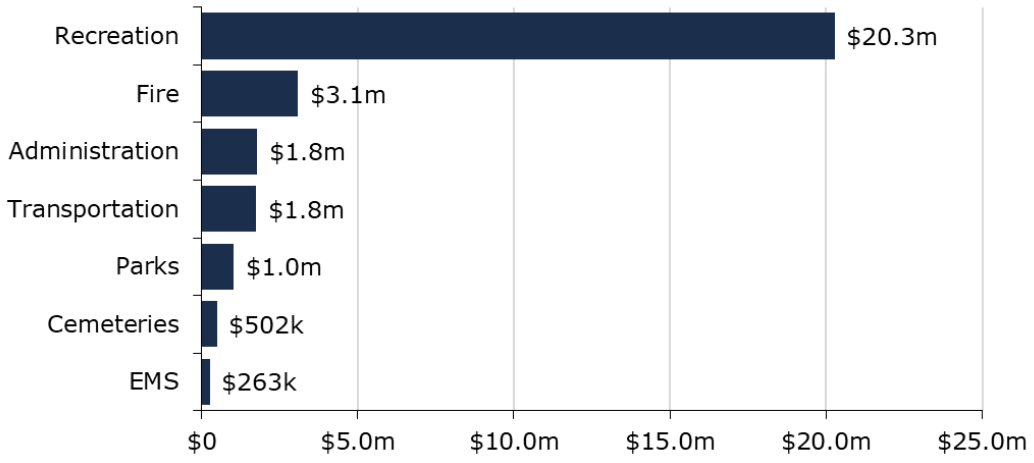
The Town of Minto owns and maintains several facilities and recreation centres that provide key services to the community. These include:

- Administrative office
- Cemeteries
- Fire halls and EMS
- Public works garages and storage sheds
- Recreation and parks

Asset Inventory & Replacement Cost

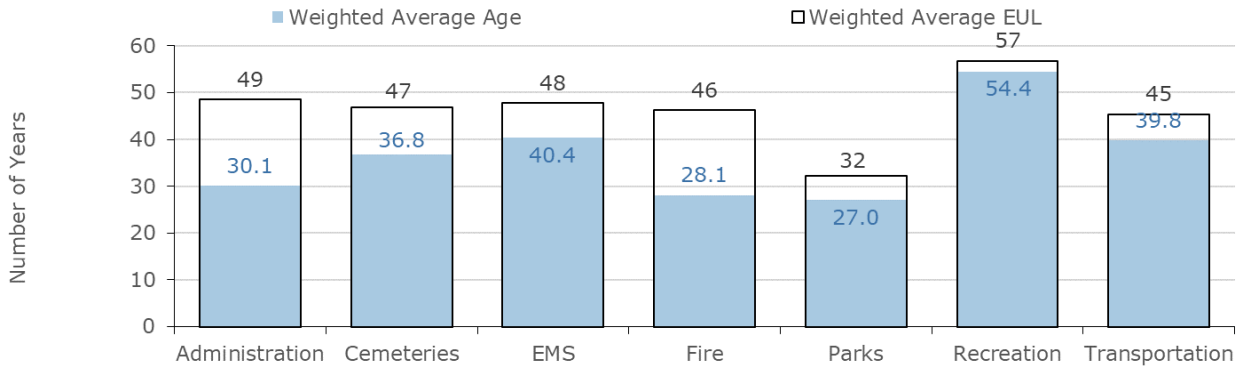
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's facilities inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Administration	2	CPI Tables	$1,769,578
Cemeteries	3	CPI Tables	$501,542
EMS	1	CPI Tables	$263,146
Fire	3	CPI Tables	$3,076,009
Parks	7	CPI Tables	$1,021,297
Recreation	11	CPI Tables	$20,266,994
Transportation	5	CPI Tables	$1,751,559
			$28,650,125



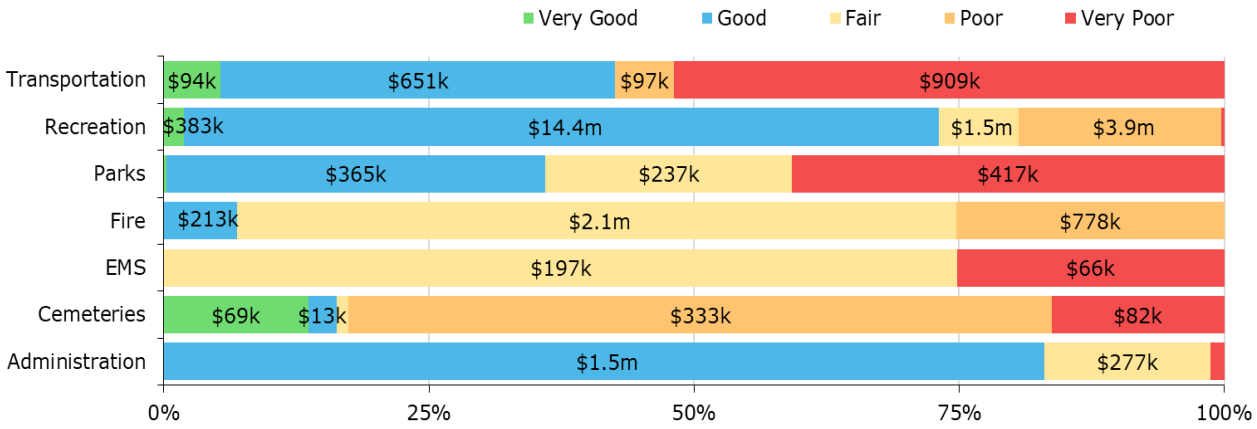
Asset Condition & Age

The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.



The Estimated Useful Life for facilities assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

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



To ensure that the Town's facilities 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 what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the facilities.

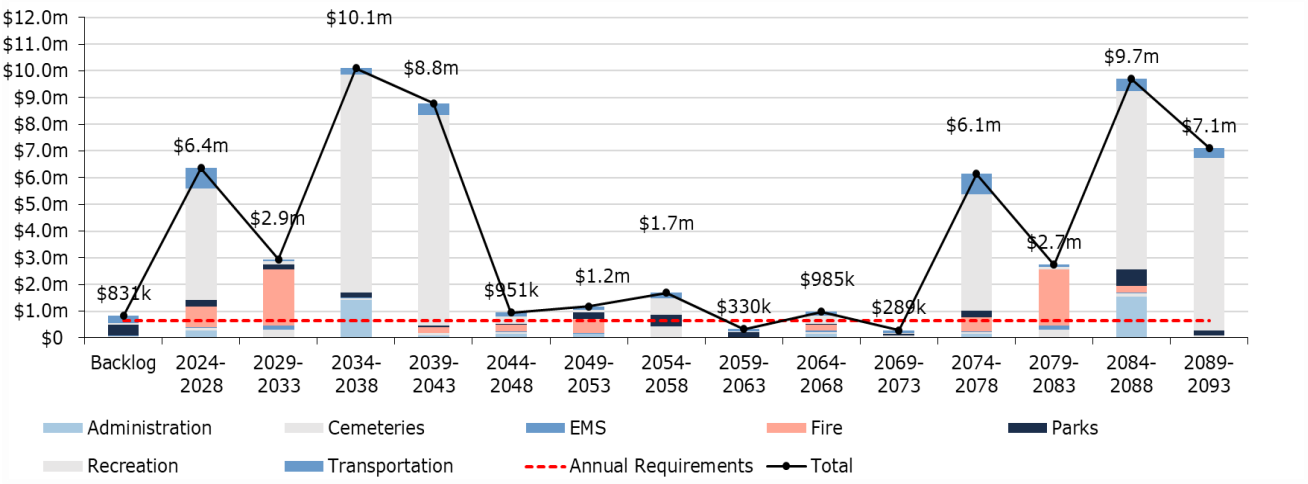
Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- There are no formal condition assessment programs in place for facilities
- Facilities receive internal inspections on an ad-hoc basis. The Town relies on internal resources to ensure that municipal buildings are in a state of adequate condition.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

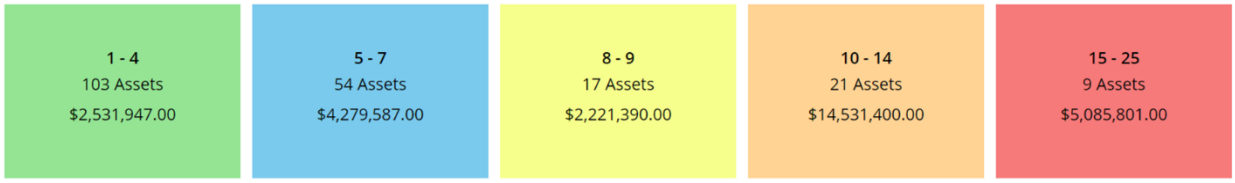
Lifecycle Management Strategies

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. The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Contractor Inspections, Staff inspections and HVAC maintenance.
Rehabilitation	Roof and HVAC replacements based on inspection results As identified through repairs and driven by capacity upgrades
Replacement	Only components are replaced, full facility replacement is due to growth or location change. 15-year plan was developed and is reviewed annually. Future BCA planned for 2025 -2027

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset



category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the facilities assets. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the municipal services supported by facilities	The Town owns 32 buildings supporting transportation services, recreation & parks, fire services, EMS, and administration

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Average Asset Risk	10.4 (High)
Quality	Average Condition Rating	57%
Performance	Capital Reinvestment Rate	2.3%

Land Improvements

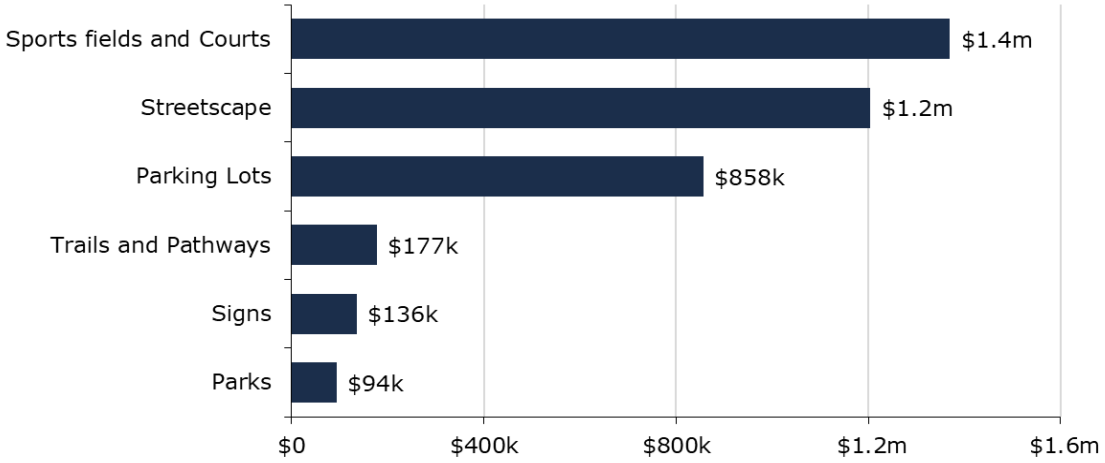
The Town of Minto owns a small number of assets that are considered Land Improvements. This category includes:

- Parks, playing fields
- Monuments and landscaping, trails, and other assets
- Parking lots and signs
- Streetscape

Asset Inventory & Replacement Cost

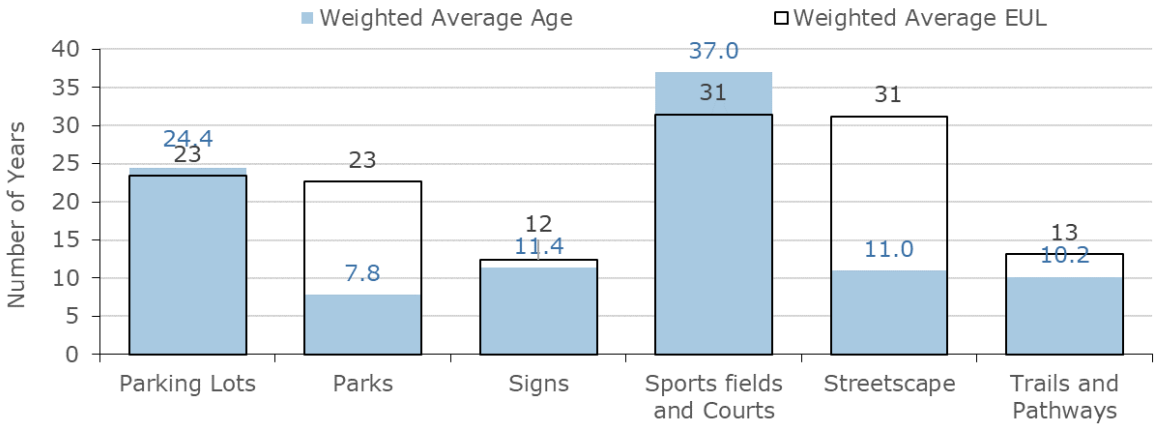
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Land Improvements inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Parking Lots	17	CPI	$857,823
Parks	10	CPI	$93,672
Signs	6	CPI	$135,511
Sports fields and Courts	23	CPI	$1,368,742
Streetscape	1128.96	CPI	$1,202,940
Trails and Pathways	42	CPI	$177,083
			$3,835,771



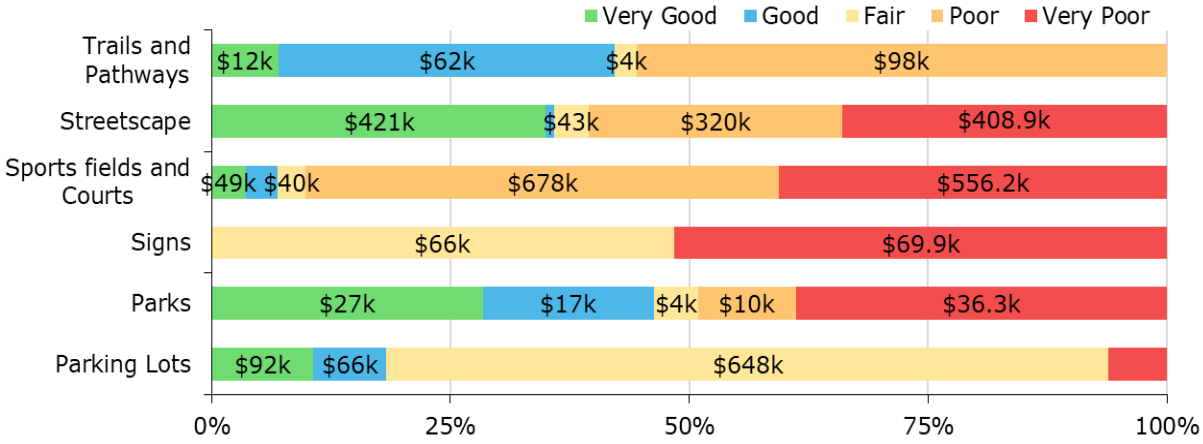
Asset Condition & Age

The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.



The Estimated Useful Life for Land Improvements assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining. Each asset's Estimated Useful Life should 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.

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



To ensure that the Town's land improvements 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 what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the land improvement assets.

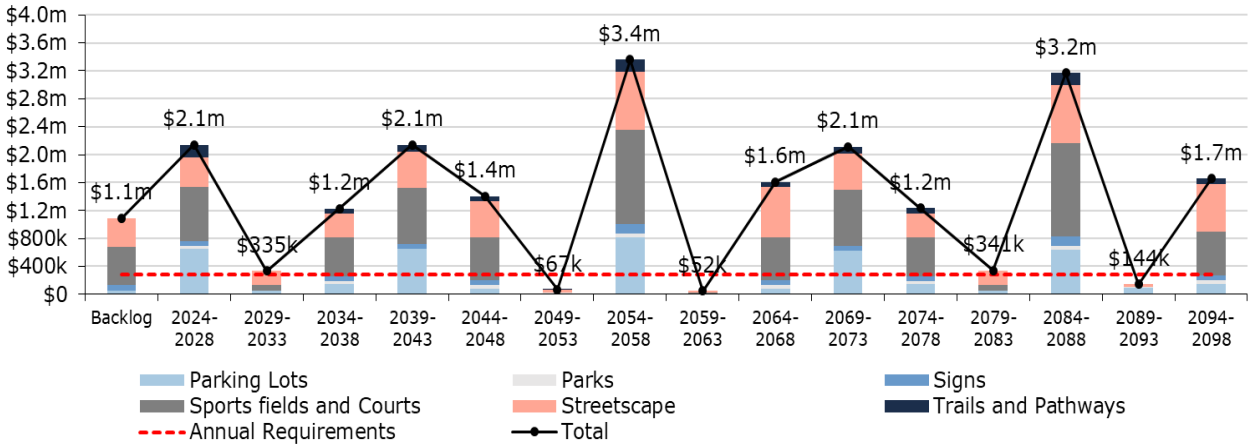
Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- While land improvement assets are monitored, except for playgrounds there are no formal condition assessment programs in place. Staff mostly rely on age to determine a proxy of condition.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

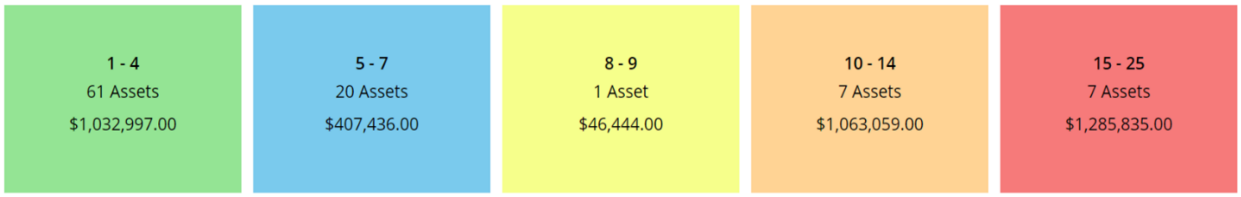
Lifecycle Management Strategies

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. The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Playground Structures Inspections weekly per CSA standard Trails and Sports fields
Replacement	Based on inspection results and based on lifecycle and staff recommendations

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the land improvement assets. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the municipal services supported by land improvement assets	Parks, playing fields, and related structures, monuments and landscaping, trails, parking lots and signs as well as streetscape

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Average Asset Risk	8.96 (Moderate)
Quality	Average Condition Rating	39%
Performance	Capital Reinvestment Rate	7.4%

Fleet

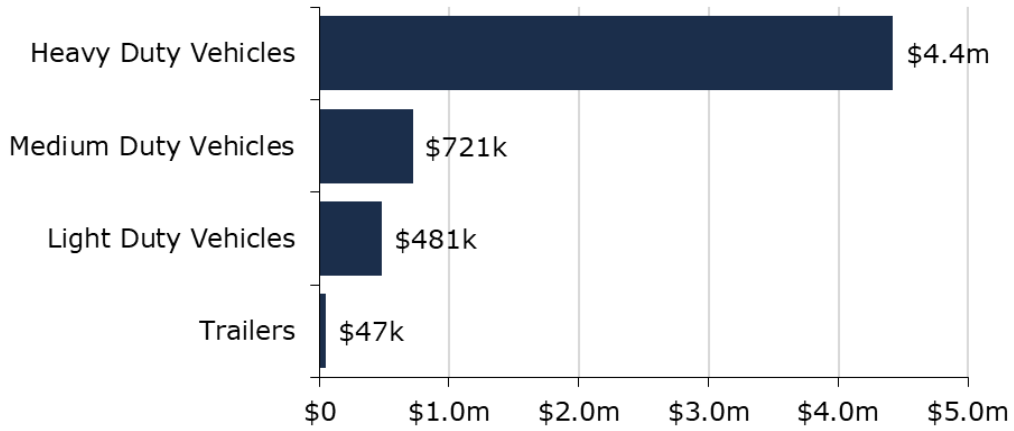
Fleet vehicles allow staff to efficiently deliver municipal services and personnel. Municipal fleet is used to support several service areas, including:

- fire rescue heavy duty vehicles to provide emergency services
- pick-up trucks or light duty to support the maintenance of the transportation network and address service requests for public works
- medium duty and trailers for parks and recreation operations
- heavy duty vehicles for winter control activities

Asset Inventory & Replacement Cost

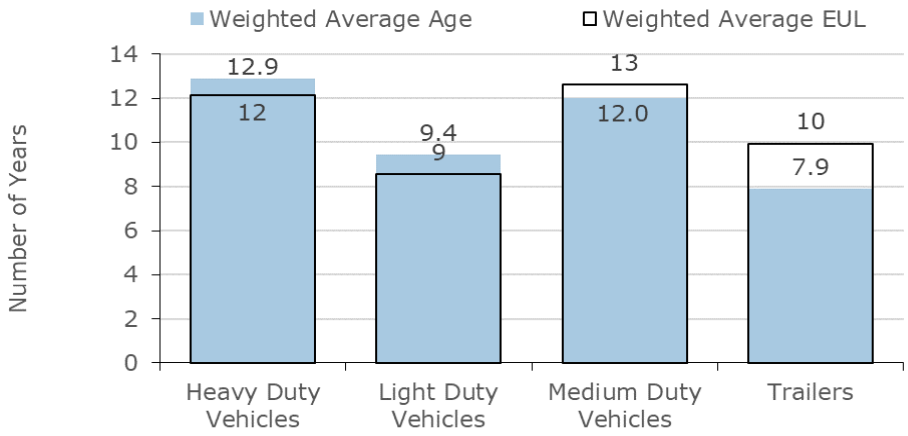
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's fleet asset category

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Heavy Duty Vehicles	22	CPI Tables	$4,416,285
Light Duty Vehicles	12	CPI Tables	$481,382
Medium Duty Vehicles	18	CPI Tables	$721,128
Trailers	4	CPI Tables	$47,142
			$5,665,937



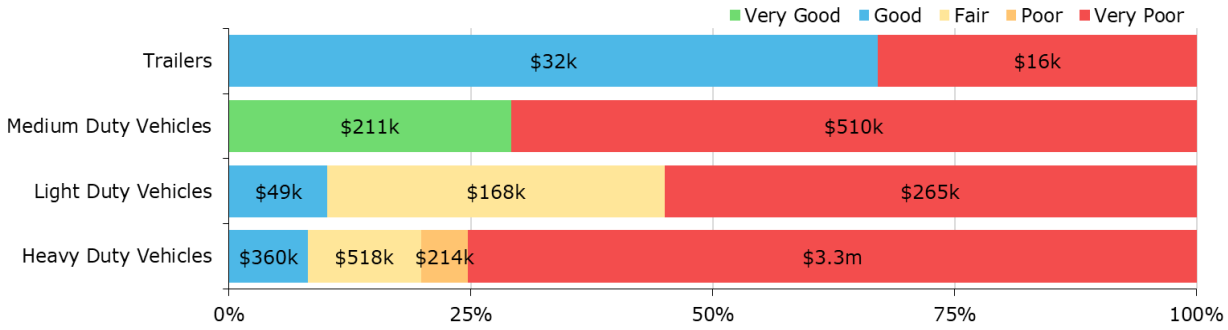
Asset Condition & Age

The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.



The Estimated Useful Life for fleet assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining. Each asset's Estimated Useful Life should 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.

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



To ensure that the Town's vehicles and equipment continue to provide an acceptable level of service, the Town should monitor the average condition of all assets.

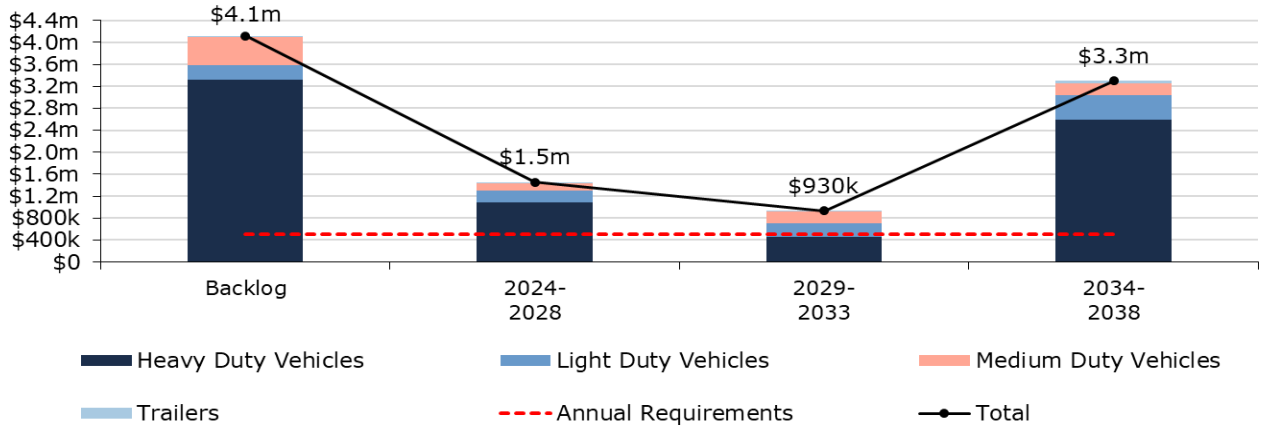
Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- Staff complete regular visual inspections of vehicles to ensure they are in state of adequate repair prior to operation
- Kilometers, purchase to repair ratio, and general condition of the asset, are used as proxies to determine remaining useful life and relative vehicle condition

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

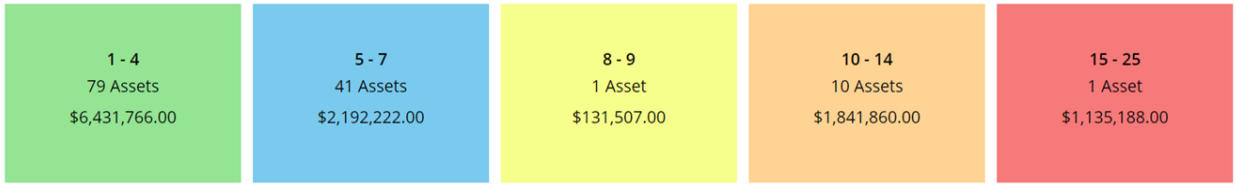
Lifecycle Management Strategies

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. The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Visual inspections completed and documented daily/weekly
Replacement	Pertinent vehicle attributes such as: age, kilometres and annual repair costs are taken into consideration when determining appropriate treatment options

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the land improvement assets. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the municipal services supported by fleet assets	Heavy duty vehicles to provide emergency services and winter control activities. Light duty to support the maintenance of the transportation network and address customer service requests. Medium duty and trailers for parks and recreation operations

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Average Asset Risk	13.97 (High)
Quality	Average Condition Rating	15%
Performance	Capital Reinvestment Rate	9.1%

Machinery & Equipment

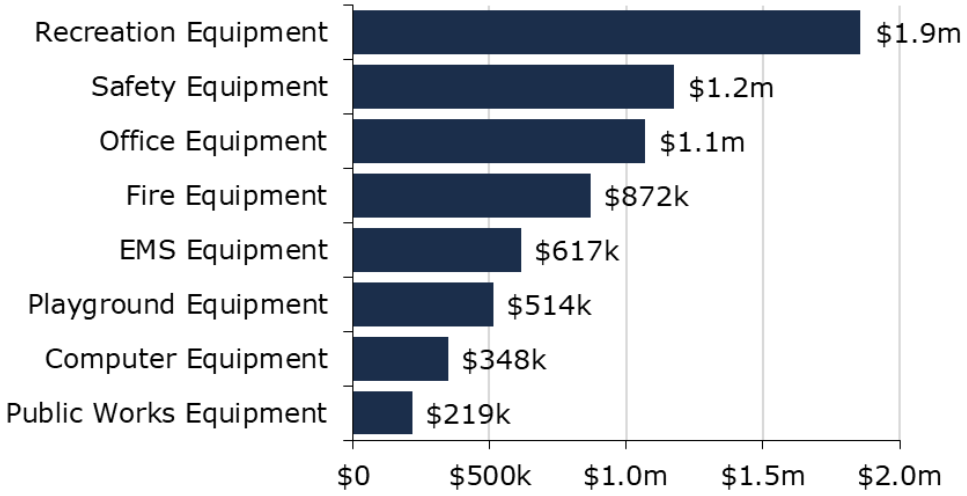
The Town of Minto owns and maintains numerous Machinery & Equipment that provide key services to the community. These include:

- Computer Equipment
- EMS Equipment
- Fire Equipment
- Office Equipment
- Playground Equipment
- Public Works Equipment
- Recreation Equipment
- Safety Equipment

Asset Inventory & Replacement Cost

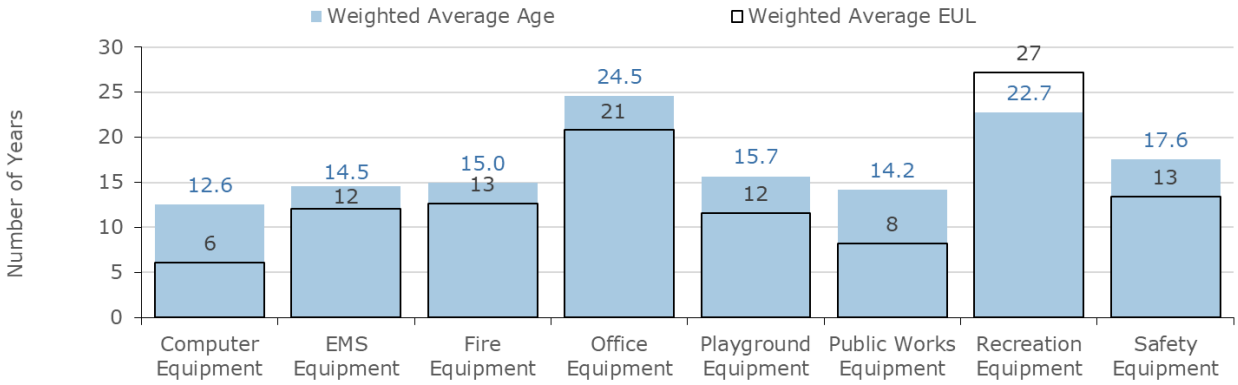
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's machinery and equipment inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Computer Equipment	144	CPI Tables	$348,385
EMS Equipment	183	CPI Tables	$616,836
Fire Equipment	137	CPI Tables	$871,917
Office Equipment	350	CPI Tables	$1,067,270
Playground Equipment	12	CPI Tables	$513,859
Public Works Equipment	10,099	CPI Tables	$219,045.00
Recreation Equipment	1018	CPI Tables	$1,857,239.00
			$6,668,907



Asset Condition & Age

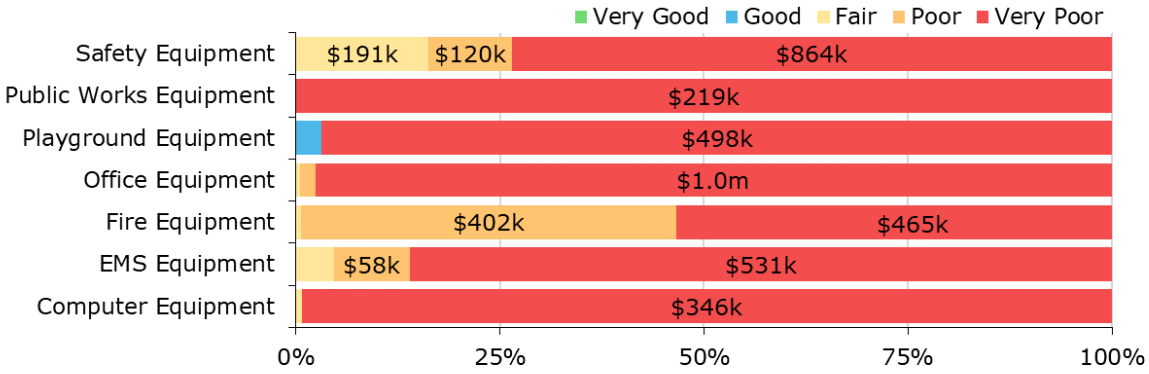
The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.



The Estimated Useful Life for machinery and equipment assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Each asset's Estimated Useful Life should 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.

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



To ensure that the Town's machinery and equipment 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 what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the machinery and equipment.

Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- Currently, there is no formal condition assessment program. (Age-based)
- Equipment receives inspections on an ad-hoc basis. The Town relies on internal resources to ensure that municipal machinery and equipment are in a state of adequate condition.

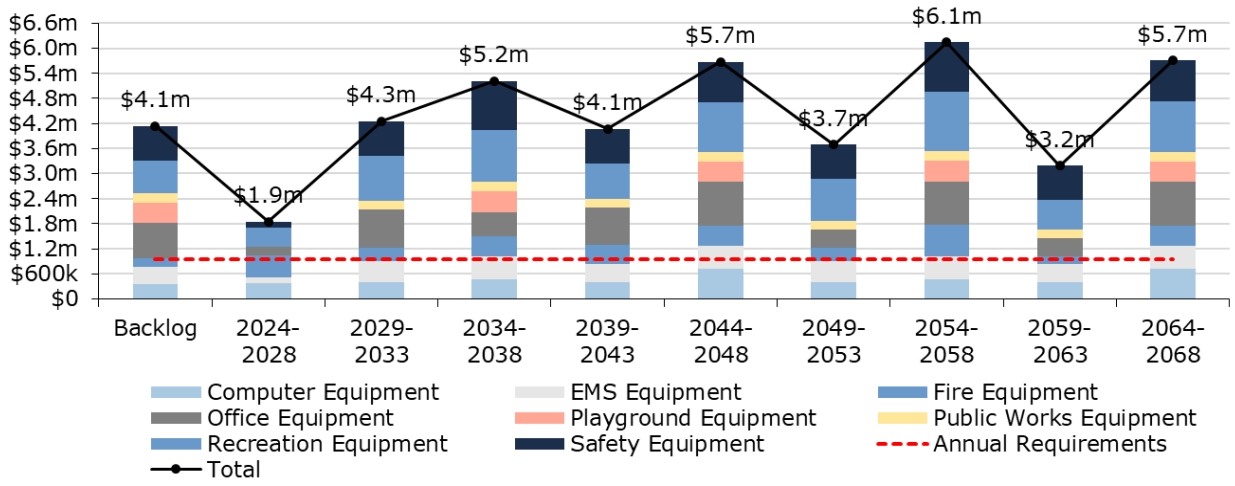
Lifecycle Management Strategy

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. The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities are completed according to manufacter's recommendations
Replacement	Pertinent attributes such as: age, manhours and annual repair costs are taken into consideration when determining appropriate treatment options

Forecasted Capital Requirements

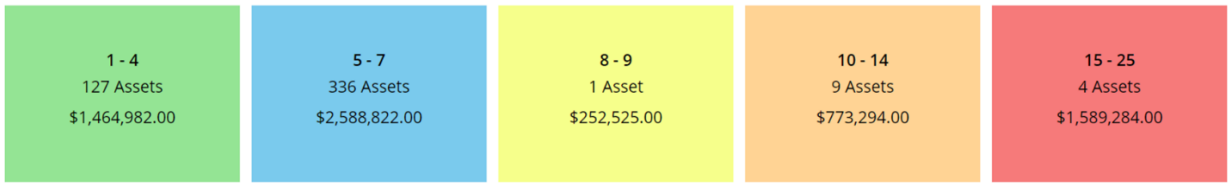
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the land improvement assets. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the municipal services supported by machinery and equipment	Machinery and equipment supports transportation services, fire and EMS as well as administration, recreation, parks and health services

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Average Asset Risk	9.93 (Moderate)
Quality	Average Condition Rating	13%
Performance	Capital Reinvestment Rate	14.3%

Water Network

The Town is responsible for providing water services to residents through the collection, storage and distribution of water.

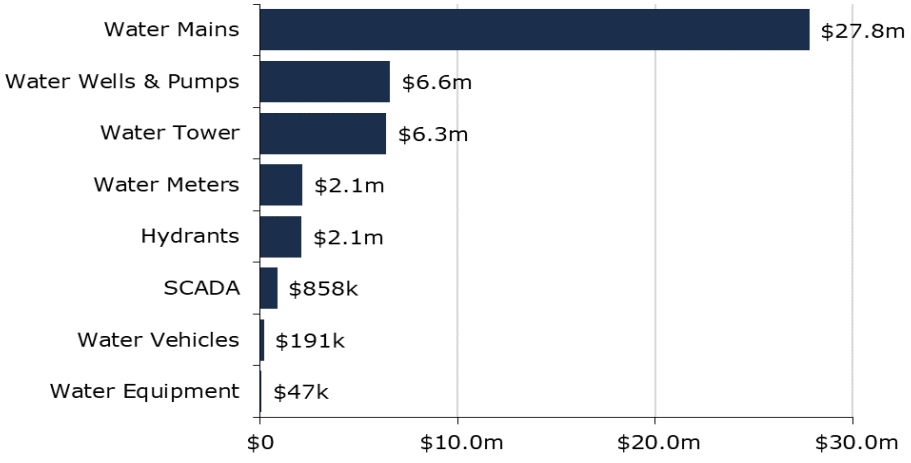
Water infrastructure is managed by the Water Division and consists of:

- 4 overall water systems located in Clifford, Harrison, Minto Pines and Palmerston;
- 53 km of water mains;
- 266 hydrants;
- 3 water towers
- 11 dry wells and eight well houses;
- vehicles, specialized machinery and equipment to support in the management and delivery of water services.
- SCADA systems

Asset Inventory & Replacement Cost

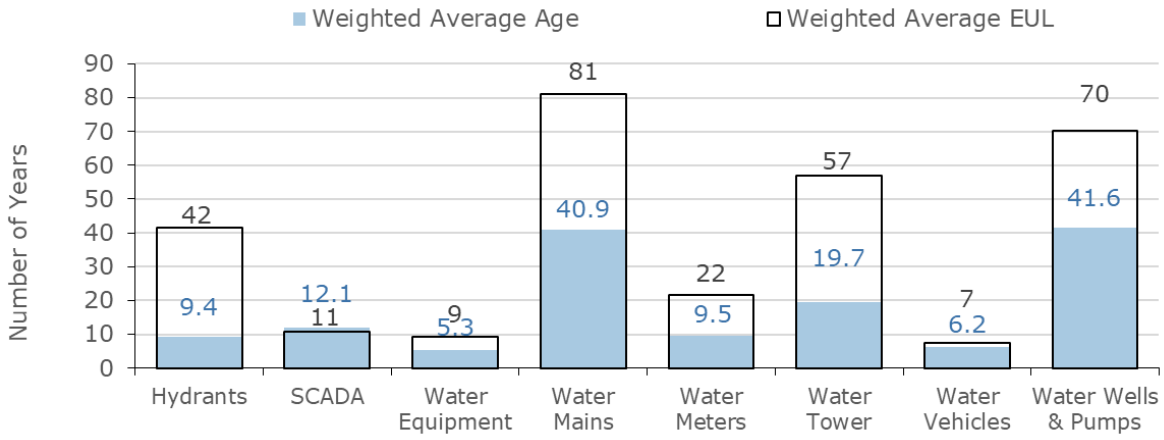
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Water Network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Hydrants	266	Cost/Unit	$2,061,000
SCADA	20	CPI Tables	$857,720
Water Equipment	45.00	CPI Tables	$47,227
Water Mains	53 km	Cost/Unit	$27,805,305
Water Meters	2326	CPI Tables	$2,118,323
Water Tower	22	CPI Tables	$6,347,584
Water Vehicles	5	CPI Tables	$191,000
Water Wells & Pumps	90	CPI Tables	$6,560,189
			$45,988,348



Asset Condition & Age

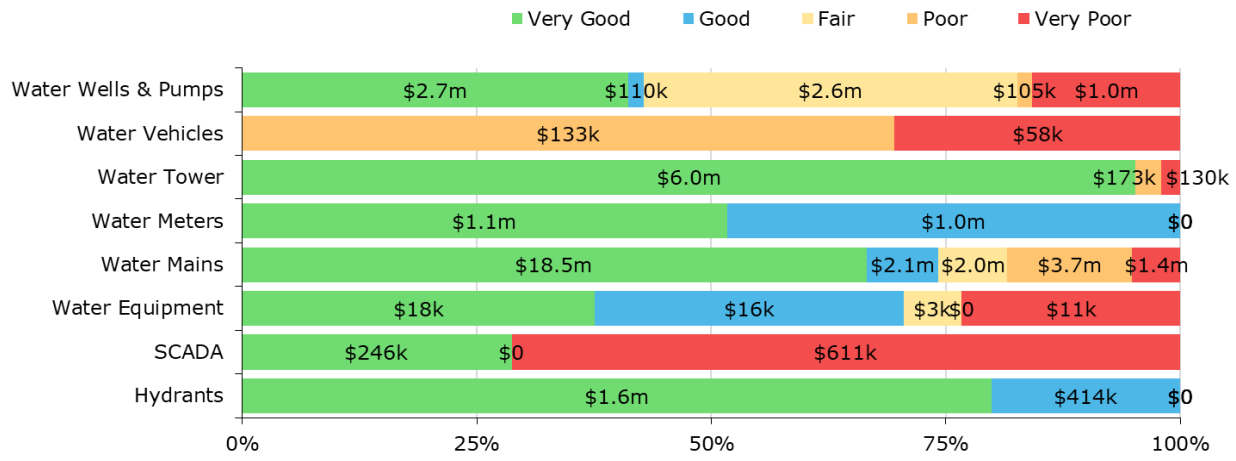
The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.



The Estimated Useful Life for water network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Each asset's Estimated Useful Life should 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.

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



To ensure that the Town'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 their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Water Network.

Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- Inspections as required under O. Reg. 170/3: Drinking Water Systems are conducted
- Wells and pumps are monitored under an established schedule;
- Staff rely on a variety of metrics including age, pipe material and diameter, location and number of infrastructure failures including watermain breaks, to determine the projected condition of linear assets

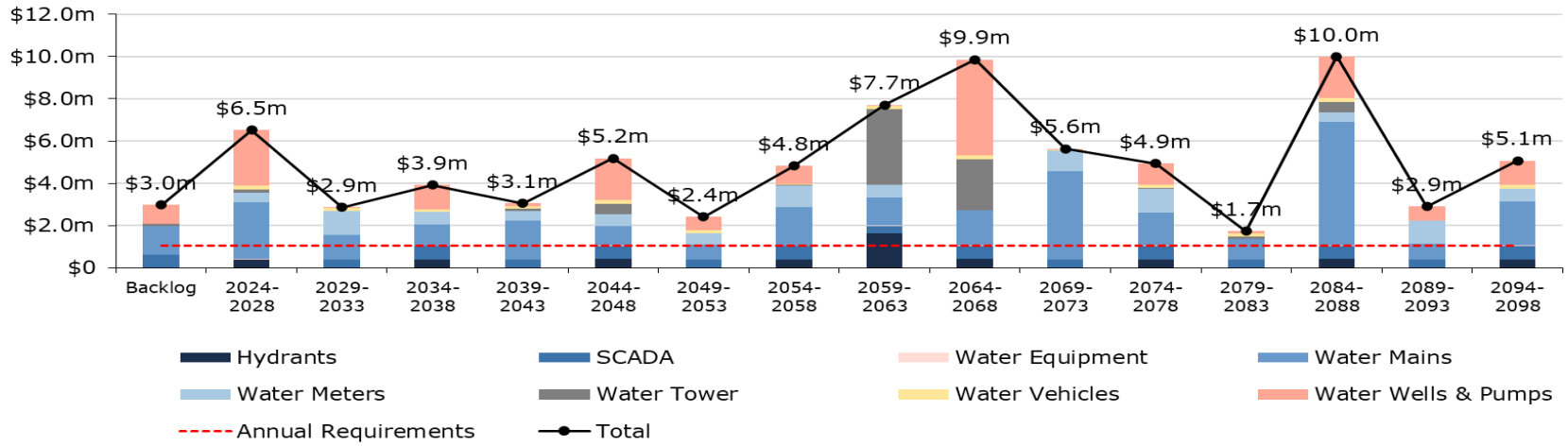
Lifecycle Management Strategy

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. The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Above ground operational valves undergo annual maintenance as part of preventative maintenance
	Wells and pumps are inspected and undergo maintenance under a formal schedule
	Main flushing of the entire network is conducted twice a year
	Periodic pressure testing occurs to identify deficiencies and potential leaks
Replacement	In the absence of mid-lifecycle rehabilitative activities, most mains are simply maintained with the goal of full replacement once service life is exceeded
	Water main replacement is prioritized based on an analysis of the main break rate, asset functionality and design capacity as well as any issues identified during maintenance activities
	Like other sub-surface infrastructure, Staff coordinate water replacement projects with road reconstruction projects to produce cost efficiencies

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
401 Assets	59 Assets	34 Assets	58 Assets	34 Assets
$31,566,305.00	$3,500,171.00	$1,745,891.00	$3,563,492.00	$3,671,492.00

This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the water network assets. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

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	The urban areas of Clifford, Harrison and Palmerston as well as the rural area of Minto Pines are all connected to the municipal water infrastructure. See Appendix B for a map that visualizes the connectivity of the municipal water system.
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	All areas serviced by the municipal water infrastructure have fire flow except for the Minto Pines subdivision which draws water from the ponds in the event of an emergency.
Reliability	Description of boil water advisories and service interruptions	Boil water advisories are rare. They are triggered by adverse water samples, watermain breaks, massive flooding or pump/equipment and maintenance failures. The highest risk system is a small rural area servicing 35 homes.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	% of properties connected to the municipal water system	70%
	% of properties where fire flow is available	65%
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	0.05
	Average Condition	75%
	# of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal water system	0
Performance	Capital reinvestment rate	2.3%
	Average Risk Rating	8.04 (moderate)

Sanitary Sewer Network

The Town is responsible for providing sanitary sewer services to residents through the collection, storage and treatment of sanitary sewage.

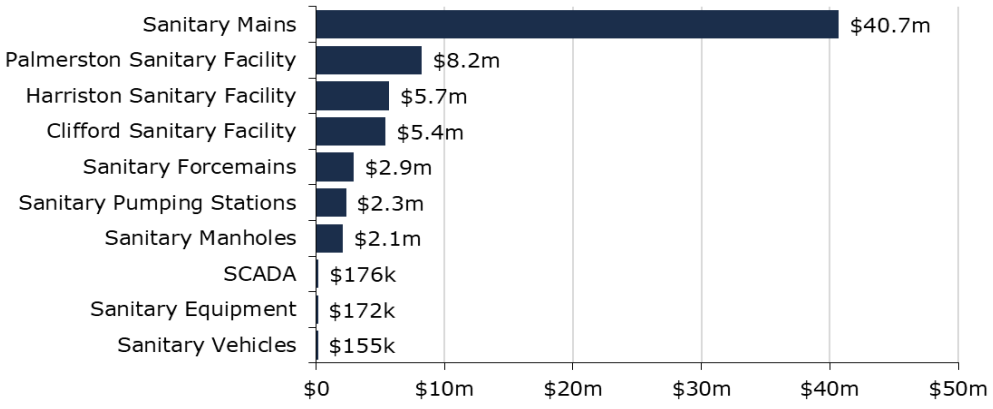
Sanitary sewer infrastructure is managed by the Wastewater Division and consists of:

- 3 sanitary treatment facilities in Clifford, Harrison, and Palmerston;
- 44 km of sanitary mains;
- 1.2 km of sanitary force mains;
- 172 maintenance holes;
- 5 lift stations;
- vehicles, specialized machinery and equipment to support in the management and delivery of sanitary sewer services.
- SCADA systems

Asset Inventory & Replacement Cost

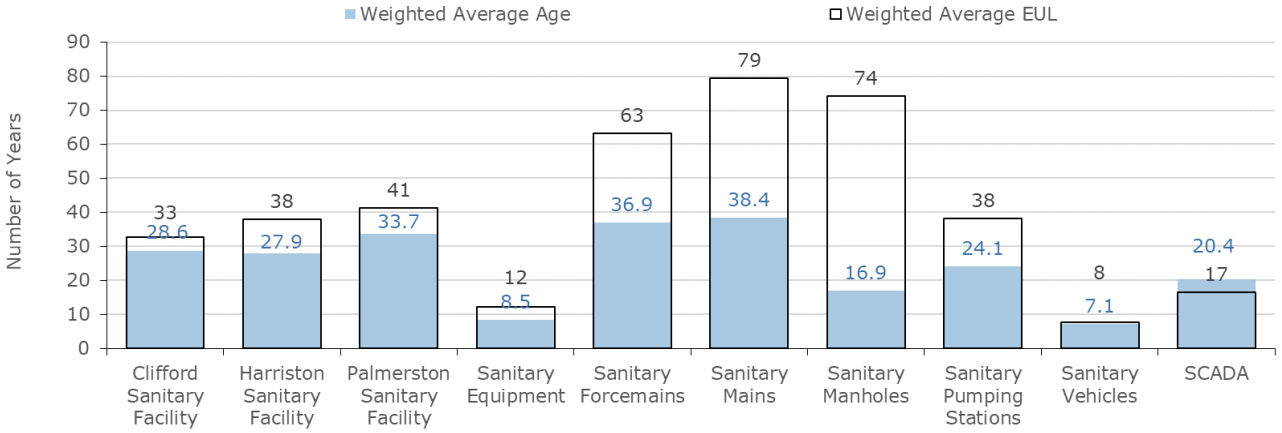
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Sanitary Sewer Network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Clifford Sanitary Facility	1	CPI Tables	$5,413,149
Harriston Sanitary Facility	1	CPI Tables	$5,658,800
Palmerston Sanitary Facility	1	CPI Tables	$8,239,827
Sanitary Equipment	25	CPI Tables	$172,168
Sanitary Force mains	1.2 km	CPI Tables	$2,924,769
Sanitary Mains	44 km	CPI Tables	$40,680,428
Sanitary Manholes	172	Cost/Unit	$2,095,170
Sanitary Pumping Stations	5	CPI Tables	$2,338,095
Sanitary Vehicles	4	CPI Tables	$155,210
SCADA		CPI Tables	$175,532
			$67,853,148



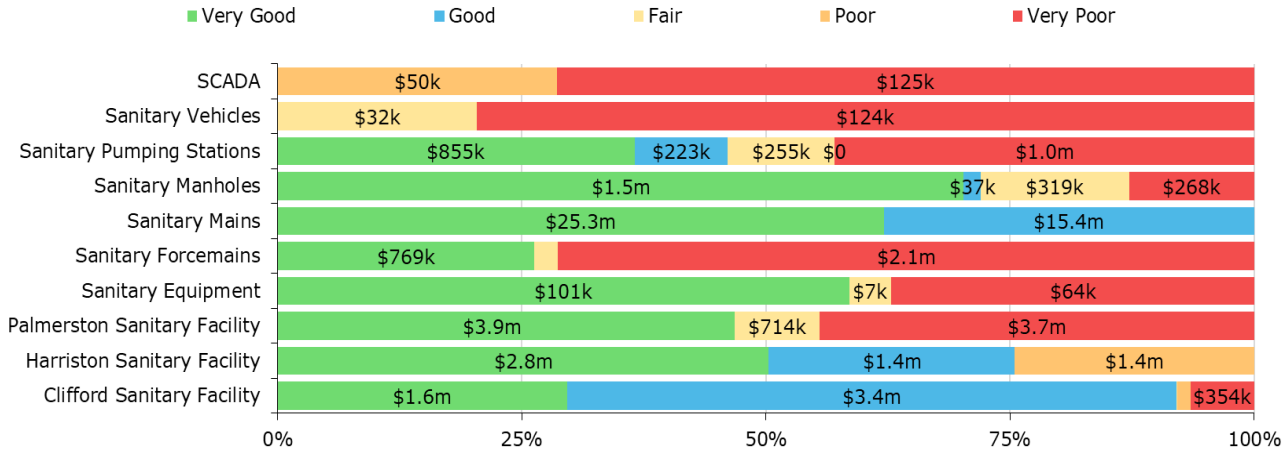
Asset Condition & Age

The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost.



The Estimated Useful Life for Sanitary Sewer Network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining. Each asset's Estimated Useful Life should 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.

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



To ensure that the Town's Sanitary Sewer 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 what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Sanitary Sewer Network.

Current Approach to Condition Assessment

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 more confidently. The following describes the Town's current approach:

- CCTV inspections are conducted on as-needed basis as well as in coordination with road and/or other subsurface construction projects
- Sanitary facilities are inspected under an established schedule and deficiencies are tracked through the Supervisory Control and Data Acquisition (SCADA) system
- Staff rely on a variety of metrics including age, pipe material and diameter, location, and available CCTV assessments to determine the projected condition of linear assets

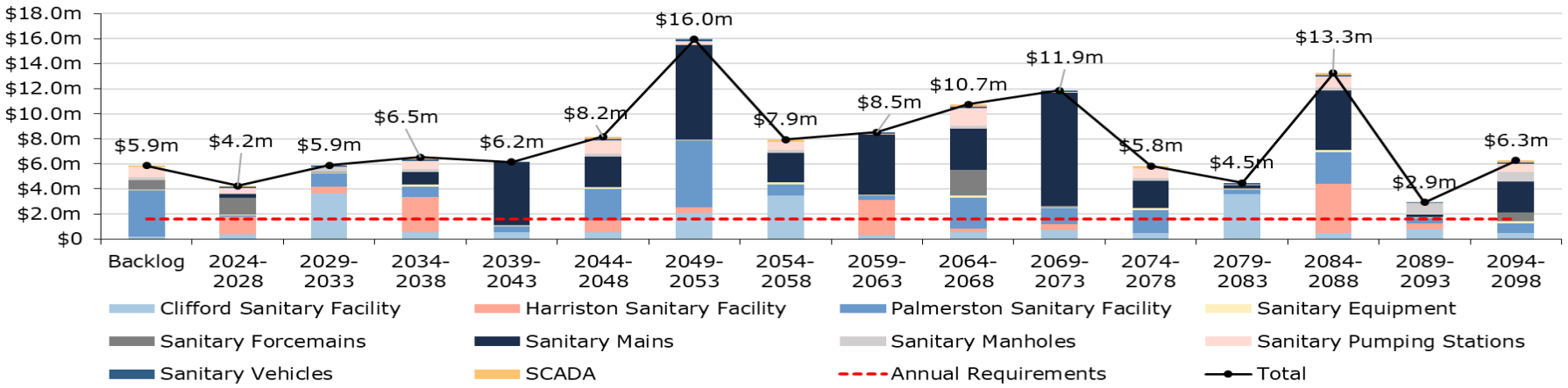
Lifecycle Management Strategy

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. 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. The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Inspection / Maintenance	Annual maintenance of mains that consists of main flushing, rodding and inspections
	Annual maintenance of manholes that consists of manhole inspection, lid replacement, lining and grouting
	Inspection and maintenance of sanitary facilities is determined from through the SCADA system
Rehabilitation	Trenchless re-lining has the potential to reduce total lifecycle costs
Replacement	Like other sub-surface infrastructure staff attempt to coordinate sanitary sewer capital projects with road reconstruction projects to produce cost efficiencies

Forecasted Capital Requirements

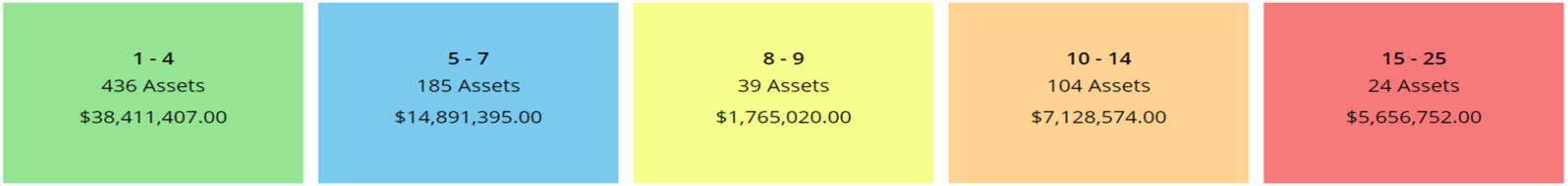
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

Risk & Criticality

The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Town's metrics to identify their current level of service for the sanitary sewer network assets. By comparing the cost, performance (average condition) and risk year-over-year, Minto 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. The tables that follow summarize Minto's current levels of service.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps, of the user groups or areas of the Town that are connected to the municipal sanitary sewer system	The urban areas of Clifford, Harrison and Palmerston are connected to the municipal sanitary sewer infrastructure. See Appendix B for a map that visualizes the sanitary sewer network connectivity.
	Description of how combined sewers in the municipal sanitary sewer system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	There are no combined sewers within the Town.
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches	
Reliability	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	Stormwater can enter sanitary sewers due to damaged sanitary mains or through indirect connections (e.g., weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and sewage that exceeds its designed capacity. In some cases, this can cause water and/or sewage to overflow backup into homes. the disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing storm water to the storm drain system can help to reduce the chance of this occurring. The Town follows a series of design standards that integrate servicing requirements and land use considerations when constructing or replacing sanitary sewers. These standards

Service Attribute	Qualitative Description	Current LOS
		have been determined with consideration of the minimization of sewage overflows and backups.
	Description of how sanitary sewers in the municipal sanitary sewer system are designed to be resilient to stormwater infiltration	Sealed maintenance holes and pipes according to municipal standards for installation and materials for infrastructure to ensure resilience against stormwater infiltration. The Town of Minto has spent several hundred thousand dollars in monitoring, investigating leaks and repairs over the last decade.
	Description of the effluent that is discharged from sewage treatment plants in the municipal sanitary sewer system	Effluent refers to water pollution that is discharged from a wastewater treatment plant, and may include suspended solids, total phosphorous and biological oxygen demand. The Environmental Compliance Approval (ECA) identifies the effluent criteria for municipal wastewater treatment plants.

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Sanitary Sewer Network.

Service Attribute	Technical Metric	Current LOS
Scope	% of properties connected to the municipal wastewater system	62%
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 sanitary sewer system	N/A
	# of connection-days per year having sanitary sewer backups compared to the total number of properties connected to the municipal sanitary sewer system	1
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal sanitary sewer system	1
	Average condition rating	72%
Performance	Average risk rating	6.22 (Low)
	Capital reinvestment rate	2.4%

Green Infrastructure Assets

Ontario Regulation 588/17 includes green infrastructure assets in the definition of Municipal Infrastructure Assets. Green infrastructure assets consist of natural or human-made elements that provide ecological and hydrological functions and processes, including natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces and green roofs. It is expected that while O Reg 588/17 encourages standardization and consistency, the uniqueness of Natural Assets will require municipalities to be flexible in creating plans unique to their circumstances.

Currently, Natural Assets are not included in the asset database of the Town of Minto. However, Minto staff are aware of the importance of municipally owned Natural Assets and the advantages of recognizing their value to the Town and its residents. This is increasingly important as the challenges and risks resulting from Climate Change have become more apparent. The goal is to value these assets at their replacement cost; however, this is difficult to quantify. There are currently no internationally recognized standards for these valuations. However, putting some kind of financial value on these assets can lead to better decisions when weighing short-term economic benefits against long-term environmental and social benefits. Several Canadian municipalities are taking the first steps to recognize the value of these assets. For example, the City of Mississauga has valued the worth of the share of municipally owned natural assets at $8,000 - $10,000 per property.

Staff have participated in the Natural Asset Management Roadmap Program, in conjunction with the Natural Assets Initiative, and the Climate Change and Green Infrastructure program under Asset Management Ontario. Local Conservation Authorities, the County of Wellington Planning and Climate Change departments and Wellington Source Water Protection have been consulted to obtain data regarding Minto Natural Assets. Considerable gaps in available information have been identified. A plan to gather more data with the goal of including these assets in the Asset Management Plan will be brought forward later in 2024

Impacts of 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 more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

Development Charges Background Study (2020)

In 2020, the Town of Minto retained Watson & Associates Economists Ltd. to undertake the D.C. study process and prepare a Development Charges Background Study, pursuant to Section 10 of the Development Charges Act, 1007 (DCA).

The following tables outline the population and employment forecasts allocated to the Town in the study:

Population Forecast from 2016 to 2040				
Municipality	**2016**	**2020**	**2030**	**2040**
Town of Minto	8,671	9,041	10,827	12,184

Employment Forecast from 2016 to 2040				
Municipality	**2016**	**2020**	**2030**	**2040**
Town of Minto	3,080	3,205	3,433	3,560

As a requirement of the Development Charges Act under subsection 10(2)(c), an analysis must be undertaken to assess the long-term capital and operating cost impacts for the capital infrastructure projects identified within the Development Charges.

The background study must also include an asset management plan that deals with all assets proposed to be funded, in whole or in part, by D.C.s. The asset management plan must show that the assets are financially sustainable over their full lifecycle.

Wellington County Official Plan (1999)

In 1999, Wellington County adopted the Official Plan in order to direct and guide the actions of local municipalities and the County in policy development and physical planning on a very broad basis.

For the Town of Minto, this plan serves as the upper tier Official Plan for the County. It establishes a vision in which planning, and stewardship protect and enhance a diverse landscape, lifecycle and a sense of community for the County.

The County is responsible for the allocation of growth to the local municipalities, which is based on a combination of local factors including: local planning policy; historic and recent growth trends; market demand; and the capacity to accommodate growth from land supply and servicing perspectives.

The most recent revision of the plan occurred in June of 2022.

Impact of Growth on Lifecycle Activities

By July 1, 2025, the Town's asset management plan 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.

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 AMP. 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 that are designed to, at a minimum, maintain the current level of service

Recommendations

Financial Strategies

1. Review feasibility of adopting a full-funding scenario that achieve 100% of average annual requirements for the asset categories analyzed.
2. Using risk frameworks and staff judgement to prioritize projects, particularly to aid in elimination of existing infrastructure backlogs

Although difficult to capture, inflation costs, supply chain issues, and fluctuations in commodity prices will also influence capital expenditures.

Asset Data

1. Continuously review, refine, and calibrate lifecycle and risk profiles to better reflect actual practices and improve capital projections. In particular:
   - the timing of various lifecycle events, the triggers for treatment, anticipated impacts of each treatment, and costs
   - the various attributes used to estimate the likelihood and consequence of asset failures, and their respective weightings
2. Asset management planning is highly sensitive to replacement costs. Periodically update replacement costs based on recent projects, invoices, or estimates, as well as condition assessments, or any other technical reports and studies. Material and labour costs can fluctuate due to local, regional, and broader market trends, and substantially so during major world events. Accurately estimating the replacement cost of like-for-like assets can be challenging. Staff judgement and historical data can help attenuate extreme and temporary fluctuations in cost estimates and keep them realistic.
3. Like replacement costs, an asset's established serviceable life can have dramatic impacts on all projections and analyses, including condition, long-range forecasting, and financial recommendations. Periodically reviewing and updating these values to better reflect in-field performance and staff judgement is recommended.

Risk and Levels of Service

1. Risk models can play an important role in identifying high-value assets, and developing an action plan which may include repair, rehabilitation, replacement, or further evaluation through condition assessments. As a result, project selection and the development of multi-year capital plans can become more strategic and objective. Initial models have been built into Citywide for all asset groups.
2. Available, data on current performance should be centralized and tracked to support any calibration of service levels ahead of O. Reg's 2025 requirements on proposed levels of service.

Appendix A: 10-year Capital Requirements

The following tables identify the capital cost requirements for each of the next 10 years to meet projected capital requirements and maintain the current level of service.

Road Network

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Asphalt Roads	$2.1m	$3.4m	$3.4m	$1.0m	$1.7m	$2.6m	$825k	$49k	$1.2m	$998k	$4.1m
Crosswalk	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sidewalks	$43k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Signs	$0	$0	$13k	$0	$0	$0	$0	$0	$38k	$0	$13k
Street Lights	$215k	$2.3m	$200k	$9k	$47k	$72k	$168k	$0	$0	$6k	$6k
Surface Treated Roads	$1.4m	$0	$1.2m	$296k	$334k	$494k	$226k	$39k	$0	$438k	$315k
Traffic Lights	$16k	$0	$428k	$0	$0	$77k	$0	$0	$0	$11k	$0
	$5.7m	$5.3m	$1.3m	$2.1m	$3.2m	$1.2m	$87k	$1.3m	$1.5m	$4.4m	$5.7m

Bridges & Culverts

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridges	$0	$28k	$0	$0	$0	$73k	$107k	$0	$1.4m	$1.4m	$35k
Culverts	$0	$0	$156k	$0	$186k	$0	$103k	$0	$114k	$791k	$0
	$0	$28k	$156k	$0	$186k	$73k	$210k	$0	$1.5m	$2.2m	$35k

Storm Water Network

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Catch Basins	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Drainage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Retention Ponds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Storm Sewer Mains	$0	$0	$0	$0	$0	$0	$0	$308k	$0	$0	$0
	$0	$0	$0	$0	$0	$0	$0	$308k	$0	$0	$0

Facilities											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Administration	$23k	$0	$0	$138k	$139k	$0	$0	$0	$0	$0	$4k
Cemeteries	$21k	$6k	$54k	$0	$28k	$12k	$314k	$0	$0	$0	$0
EMS	$39k	$27k	$0	$0	$0	$0	$0	$158k	$0	$0	$0
Fire	$0	$244k	$0	$535k	$0	$0	$0	$0	$0	$0	$2.1m
Parks	$417k	$0	$0	$9k	$228k	$3k	$0	$0	$181k	$0	$0
Recreation	$50k	$20k	$44k	$74k	$4.0m	$30k	$113k	$22k	$0	$0	$5k
Transportation	$281k	$726k	$0	$35k	$9k	$0	$5k	$0	$0	$0	$62k
	$831k	$1.0m	$98k	$791k	$4.4m	$45k	$432k	$180k	$181k	$0	$2.2m

Fleet											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Heavy Duty Vehicles	$3.3m	$214k	$309k	$569k	$0	$0	$20k	$0	$147k	$294k	$0
Light Duty Vehicles	$265k	$0	$168k	$49k	$0	$0	$112	$0	$206k	$39k	$0
Medium Duty Vehicles	$510k	$0	$0	$0	$0	$117k	$0	$0	$0	$222k	$0
Trailers	$16k	$0	$0	$32k	$0	$0	$0	$0	$1k	$0	$0
	$4.1m	$214k	$477k	$649k	$0	$117k	$20k	$0	$355k	$554k	$0

Machinery & Equipment											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Computer Equipment	$346k	$0	$0	$61k	$4k	$309k	$35k	$63k	$0	$309k	$0
EMS Equipment	$429k	$0	$102k	$0	$0	$28k	$429k	$0	$58k	$0	$0
Fire Equipment	$190k	$0	$275k	$0	$0	$271k	$190k	$0	$136k	$0	$0
Office Equipment	$848k	$149k	$50k	$0	$0	$0	$419k	$0	$21k	$473k	$0
Playground Equipment	$498k	0	0	0	0	0	3464	0	0	0	0
Public Works Equipment	$215k	$100	$4k	$0	$0	$0	$215k	$0	$0	$0	$0
Recreation Equipment	$790k	$167k	$48k	$101k	$5k	$123k	$692k	$15k	$0	$331k	$43k
Safety Equipment	$826k	$0	$38k	$0	$120k	$0	$826k	$0	$0	$0	$0
	$4.1m	$315k	$516k	$162k	$129k	$731k	$2.8m	$78k	$214k	$1.1m	$43k

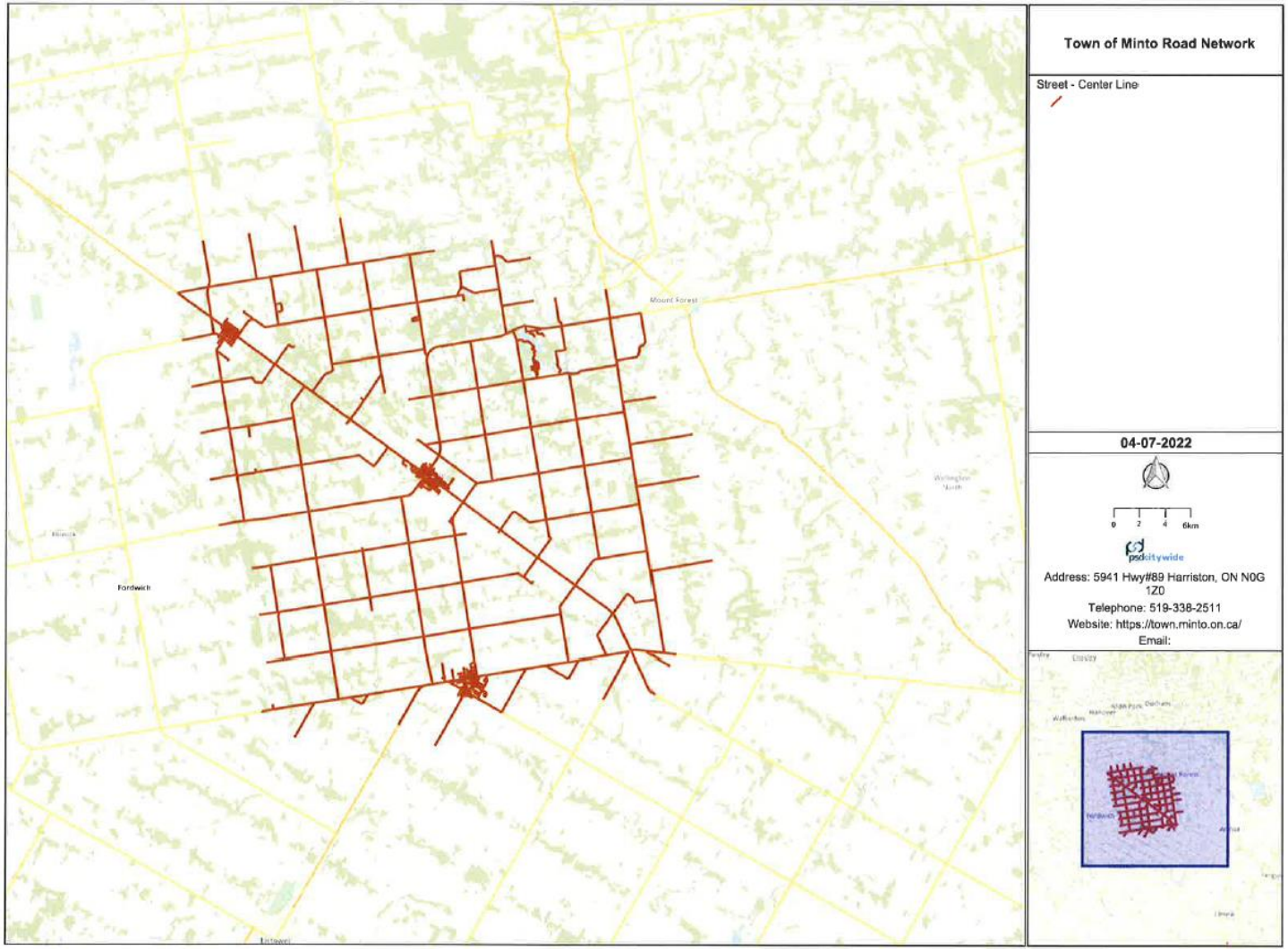
Land Improvements											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Parking Lots	$53k	$0	$622k	$0	$26k	$0	$52k	$0	$0	$0	$0
Parks	$6k	$0	$45k	$0	$0	$5k	$0	$0	$0	$0	$0
Signs	$70k	$0	$66k	$0	$0	$0	$812	$0	$0	$0	$0
Sports fields and Courts	$556k	$93k	$625k	$46k	$0	$15k	$5k	$0	$0	$71k	$0
Streetscape	$409k	$0	$363k	$0	$11k	$49k	$32k	$0	$0	$174k	$0
Trails and Pathways	$0	$0	$98k	$57k	$9k	$12k	$0	$0	$0	$0	$0
	$1.1m	$93k	$1.8m	$103k	$46k	$81k	$90k	$0	$0	$245k	$0

Water Network											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Hydrants	$0	$0	$0	$414k	$0	$0	$0	$0	$0	$0	$9k
SCADA	$611k	$0	$0	$0	$0	$0	$165k	$53k	$89k	$0	$66k
Water Equipment	$11k	$0	$2k	$0	$14k	$2k	$9k	$5k	$0	$20k	$0
Water Mains	$1.3m	$0	$84k	$0	$2.6m	$0	$0	$1.1m	$0	$41k	$0
Water Meters	$0	$0	$0	$0	$0	$451k	$573k	$0	$0	$0	$523k
Water Tower	$130k	$0	$173k	$1	$0	$1	$0	$1	$0	$0	$0
Water Vehicles	$2k	$56k	$101k	$32k	$0	$0	$0	$0	$58k	$101k	$0
Water Wells & Pumps	$888k	$147k	$150k	$6k	$13k	$2.3m	$3k	$14k	$20k	$0	$0
	$3.0m	$204k	$509k	$451k	$2.6m	$2.8m	$749k	$1.2m	$167k	$162k	$598k

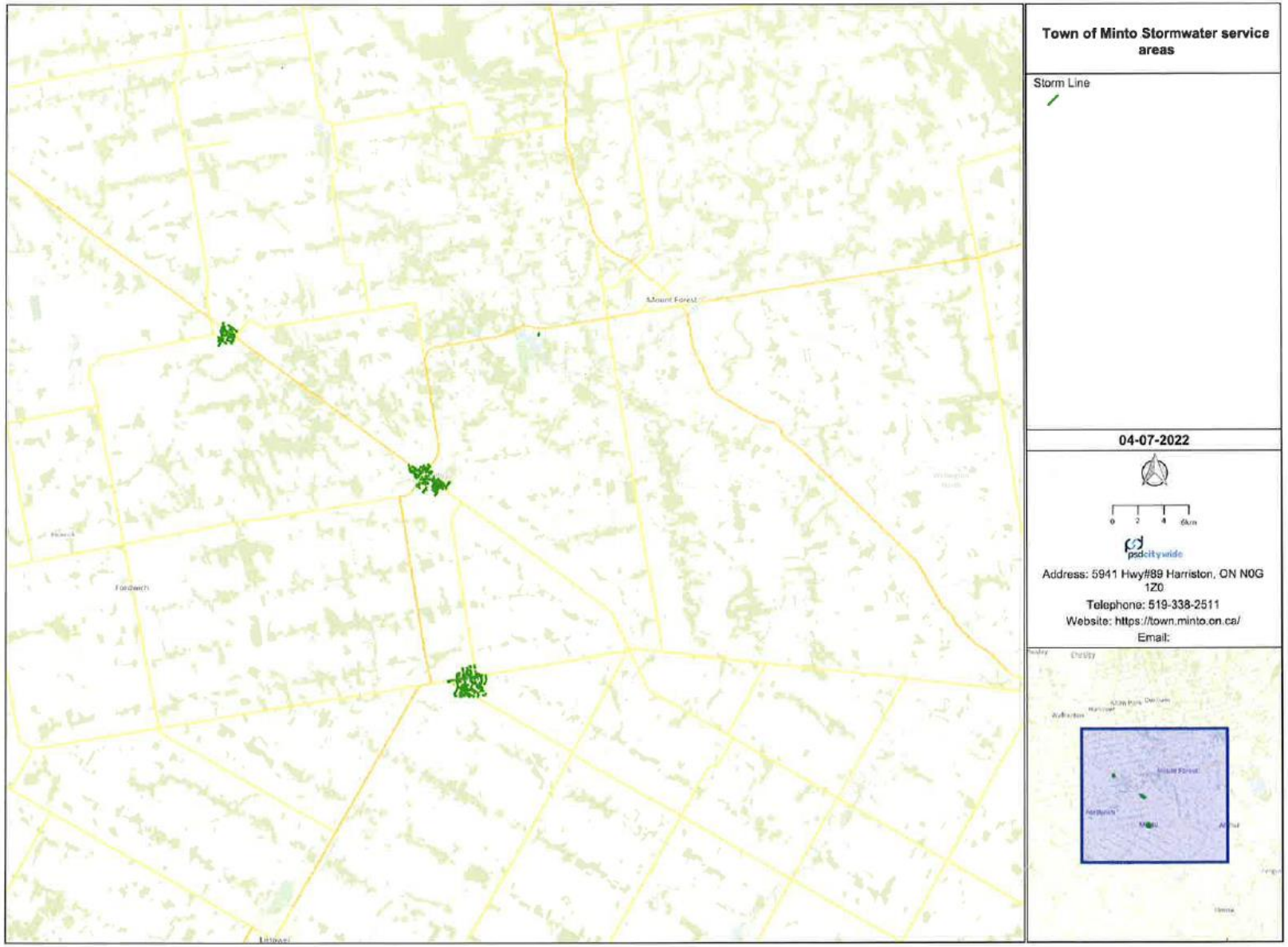
Sanitary Sewer Network											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Clifford Sanitary Facility	$193k	$236k	$22k	$30k	$22k	$51k	$563k	$29k	$41k	$3.0m	$22k
Harriston Sanitary Facility	$0	$0	$1.4m	$0	$0	$0	$0	$484k	$0	$0	$0
Palmerston Sanitary Facility	$3.7m	$13k	$22k	$36k	$27k	$37k	$888k	$77k	$42k	$38k	$27k
Sanitary Equipment	$64k	$7k	$0	$0	$3k	$68k	$62k	$0	$11k	$2k	$0
Sanitary Forcemains	$776k	$1.3m	$0	$0	$0	$0	$0	$0	$36k	$35k	$0
Sanitary Mains	$0	$0	$0	$0	$313k	$0	$0	$0	$0	$0	$0
Sanitary Manholes	$268k	$0	$0	$37k	$0	$0	$0	$4k	$0	$260k	$59k
Sanitary Pumping Stations	$772k	$233k	$0	$227k	$0	$0	$15k	$0	$24k	$0	$18k
Sanitary Vehicles	$18k	$106k	$0	$0	$0	$0	$32k	$0	$124k	$0	$0
SCADA	$125k	$50k	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$5.9m	$2.0m	$1.4m	$329k	$365k	$156k	$1.6m	$593k	$278k	$3.3m	$127k

Appendix B: Level of Service Maps

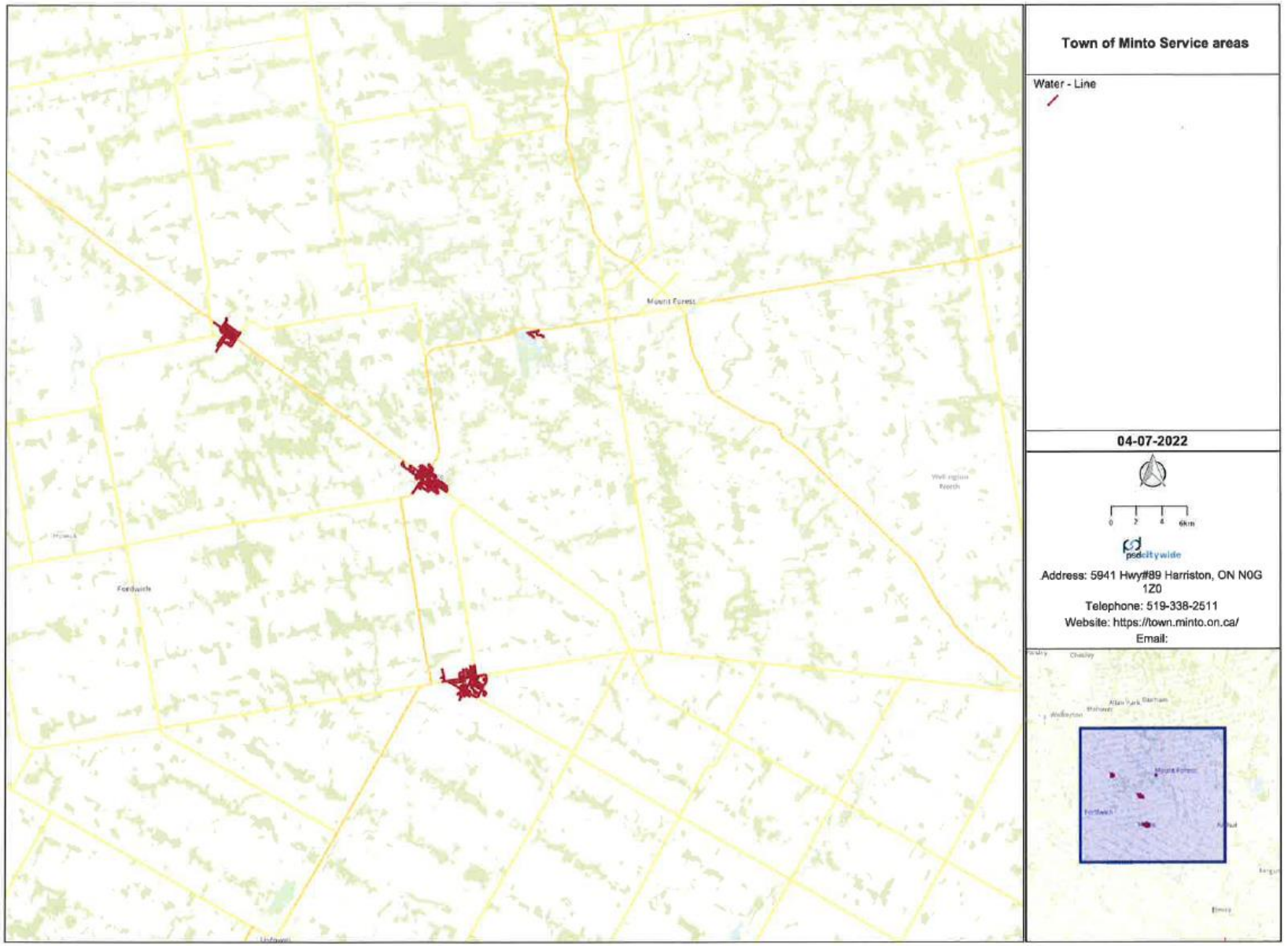
Road Network Map



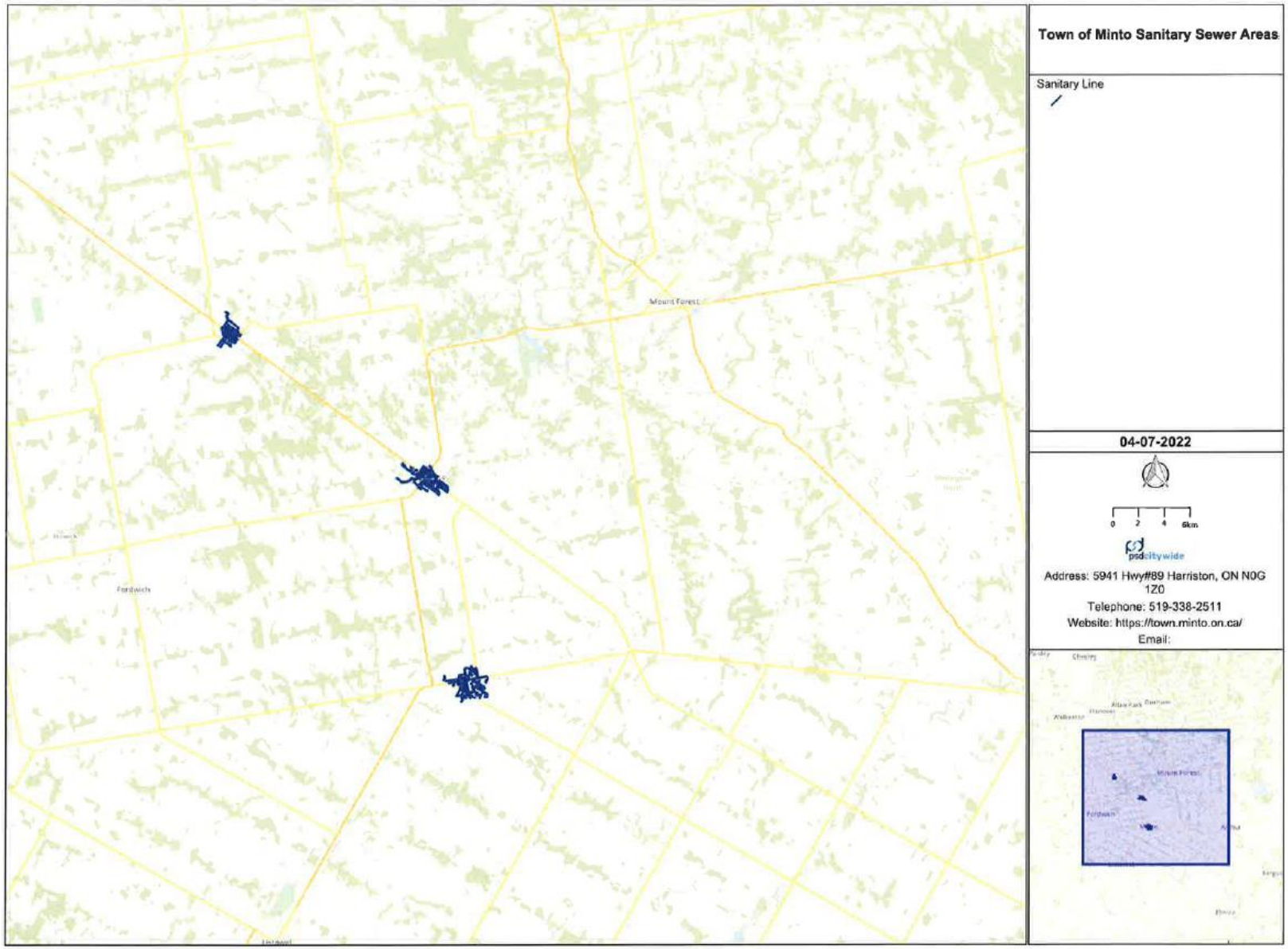
Storm Sewer Network Map



Water Network Map



Sanitary Sewer Network Map



Appendix C: Risk Rating Criteria

Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Roads, Bridges & Culverts	Condition	80%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	% Service Life Remaining	20%	>40%	1
			30 - 40%	2
			20 – 30%	3
			10 – 20%	4
			<10%	5
All Others	Condition	60%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	% Service Life Remaining	40%	>40%	1
			30 - 40%	2
			20 – 30%	3
			10 – 20%	4
			<10%	5

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Road Network (roads)	Economic (50%)	AMP Segment	Gravel	2
			Surface Treated	3
			Asphalt	4
	Operational (50%)	Roadside Environment	Rural	1
			Semi – Urban	3
			Urban	4
		AADT Ranges	0-49	1
			50-199	2
			200-399	3
			400-1000	4
		Speed Limit	20	1
			40	2
			60	3
			80	4
			100	5
Road Network (not roads)	Economic (50%)	Replacement Cost ($)	< 25,000	1
			25,000-70,000	2
			70,000-350,000	3
			350,000-700,000	4
			700,000<	5
	Operational (50%)	Roadside Environment	Rural	1
			Semi – Urban	3
			Urban	4
		AADT Ranges	0-49	1
			50-199	2
			200-399	3
			400-1000	4
		Speed Limit	20	1
			40	2
			60	3
			80	4
			100	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Bridges & Culverts	Economic (80%)	Replacement Cost ($)	< 25,000	1
			25,000-70,000	2
			70,000-350,000	3
			350,000-700,000	4
			700,000<	5
	Operational (20%)	Bridge AADT (#)	50	1
			100	2
			200	3
			300	4
			1200	5
Storm Sewer, Sanitary Sewer & Watermains	Economic (50%)	Diameter (mm)	250 / 150 / 100	1
			500 / 300 / 150	2
			750 / 450 / 200	3
			1000 / 600 / 300	4
			2000	5
	Operational (50%)	Material Type	PVC, PE	1
			Clay, Steel	3
			Concrete, AC	5
Non-Linear	Economic (50%)	Replacement Cost ($)	< 25,000	1
			25,000-70,000	3
			70,000-350,000	5
			350,000-700,000	4
			700,000<	5
	Operational (50%)	AMP Segment	Sanitary Vehicles, water meters	1
			Catch Basins, Manholes, hydrants	2
			Force mains	3
			Sanitary Facilities, Pump Stations, Water Tower	4
			Wells & Pumps	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Facilities	Economic (50%)	Replacement Cost ($)	< 25,000	1
			25,000-70,000	2
			70,000-350,000	3
			350,000-700,000	4
			700,000<	5
	Operational (50%)	Segment	Furniture	1
			Structure	2
			Electrical & Lighting, Foundation, Roof	3
			HVAC	4
			Refrigeration	5
All Others	Economic (100%)	Replacement Cost ($)	< 25,000	1
			25,000-70,000	2
			70,000-350,000	3
			350,000-700,000	4
			700,000<	5

Appendix D: Condition Assessment Guidelines

The foundation of good asset management practice is accurate and reliable data on the current condition of infrastructure. Assessing the condition of an asset at a single point in time allows staff to have a better understanding of the probability of asset failure due to deteriorating condition.

Condition data is vital to the development of data-driven asset management strategies. Without accurate and reliable asset data, there may be little confidence in asset management decision-making which can lead to premature asset failure, service disruption and suboptimal investment strategies. To prevent these outcomes, the Town's condition assessment strategy should outline several key considerations, including:

- The role of asset condition data in decision-making
- Guidelines for the collection of asset condition data
- A schedule for how regularly asset condition data should be collected

Role of Asset Condition Data

The goal of collecting asset condition data is to ensure that data is available to inform maintenance and renewal programs required to meet the desired level of service. Accurate and reliable condition data allows municipal staff to determine the remaining service life of assets, and identify the most cost-effective approach to deterioration, whether it involves extending the life of the asset through remedial efforts or determining that replacement is required to avoid asset failure.

In addition to the optimization of lifecycle management strategies, asset condition data also impacts the Town's risk management and financial strategies. Assessed condition is a key variable in the determination of an asset's probability of failure. With a strong understanding of the probability of failure across the entire asset portfolio, the Town can develop strategies to mitigate both the probability and consequences of asset failure and service disruption. Furthermore, with condition-based determinations of future capital expenditures, the Town can develop long-term financial strategies with higher accuracy and reliability.

Guidelines for Condition Assessment

Whether completed by external consultants or internal staff, condition assessments should be completed in a structured and repeatable fashion, according to consistent and objective assessment criteria. Without proper guidelines for the completion of condition assessments there can be little confidence in the validity of condition data and asset management strategies based on this data.

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When

engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project.

There are many options available to the Town to complete condition assessments. In some cases, external consultants may need to be engaged to complete detailed technical assessments of infrastructure. In other cases, internal staff may have sufficient expertise or training to complete condition assessments.

Developing a Condition Assessment Schedule

Condition assessments and general data collection can be both time-consuming and resource-intensive. It is not necessarily an effective strategy to collect assessed condition data across the entire asset inventory. Instead, the Town should prioritize the collection of assessed condition data based on the anticipated value of this data in decision-making. The International Infrastructure Management Manual (IIMM) identifies four key criteria to consider when making this determination:

1. **Relevance**: every data item must have a direct influence on the output that is required
2. **Appropriateness**: the volume of data and the frequency of updating should align with the stage in the asset's life and the service being provided
3. **Reliability**: the data should be sufficiently accurate, have sufficient spatial coverage and be appropriately complete and current
4. **Affordability**: the data should be affordable to collect and maintain