THE DISTRICT MUNICIPALITY OF MUSKOKA



2024 Asset Management Plan

State of Infrastructure Report

Image: Rendering of the new Fairvern LTC Home in Huntsville

June 19,2024

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A. Executive Summary

Asset management is a structured approach to managing assets that involves balancing costs, risks, and service levels in alignment with community expectations and regulatory requirements. It improves public understanding of local challenges and financial constraints and demonstrates sound stewardship of public resources by promoting transparency in identifying infrastructure investment priorities in an objective manner.

Asset management is a cyclical process that includes engaging the community to help Council determine community expectations regarding desired service levels; staff collecting and updating asset data on costs, risks, and existing service levels to make recommendations to Council; and Council establishing fiscally sustainable target service levels in alignment with the Strategic Plan for The District Municipality of Muskoka (District).Successful asset management implementation at the District requires active coordination and collaboration between multi-disciplinary staff across all departments and service areas.

Guided by the District's Strategic Asset Management Policy that outlines key principles and provides a mechanism for adopting a consistent and coordinated approach to asset management, staff developed the District's 2024 Asset Management Plan internally to describe the current state of infrastructure that the District owns, operates, and maintains to provide services to the community, in compliance with the phased requirements of Ontario Regulation 588/17.

Core assets as defined by O. Reg. 588/17 include roads, bridges, major culverts, water, wastewater, and stormwater assets. Non-core assets support services that tend to be unique to each municipality and help define the quality of life for residents. The assets included in this iteration of the asset management plan include all core and non-core municipal infrastructure assets that support ten (10) service areas:

Transportation Services	**Water Services**	**Wastewater Services**	**Waste Management and Environmental Services**	**Corporate Fleet**
Facilities and Support Services *(including community, non-profit and affordable housing)*	**Muskoka Paramedic Services**	**Long-Term Care**	**Muskoka Airport**	**Information Technology Services**

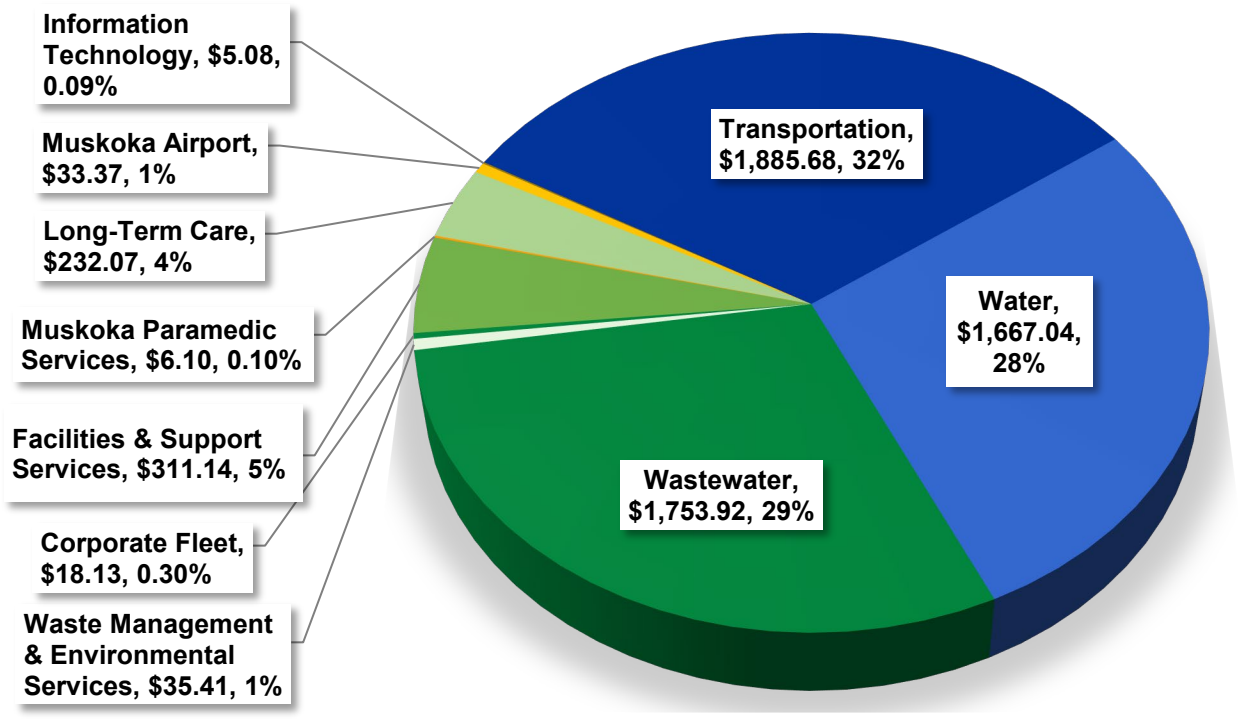
The 2024 asset management plan supports the following Strategic Plan Objectives:

- Service Alignment – Modernize municipal services and deliver them in the way that makes the most sense i.e. best value, efficiency, and outcomes for residents.
- Service Excellence – Improve how we communicate, create better customer experiences, and encourage residents to provide input and share their ideas.
- Future Thinking – Plan and invest so that we have the services and infrastructure our residents and communities need now and in the future.

Current State of Infrastructure

The District Municipality of Muskoka manages a large and diverse portfolio of infrastructure assets with an estimated replacement cost of $5.95 billion (in 2023) that supports ten distinct service areas. Water and wastewater assets with a combined valuation of $3.4 billion consist of 57% of the total portfolio while transportation assets with a valuation of $1.9 billion are 32% of the total portfolio. Overall core assets are almost 90% of the total portfolio as depicted in Figure A-1.

Figure A1: Current Replacement Value ($ Millions) of District Infrastructure as of 2023

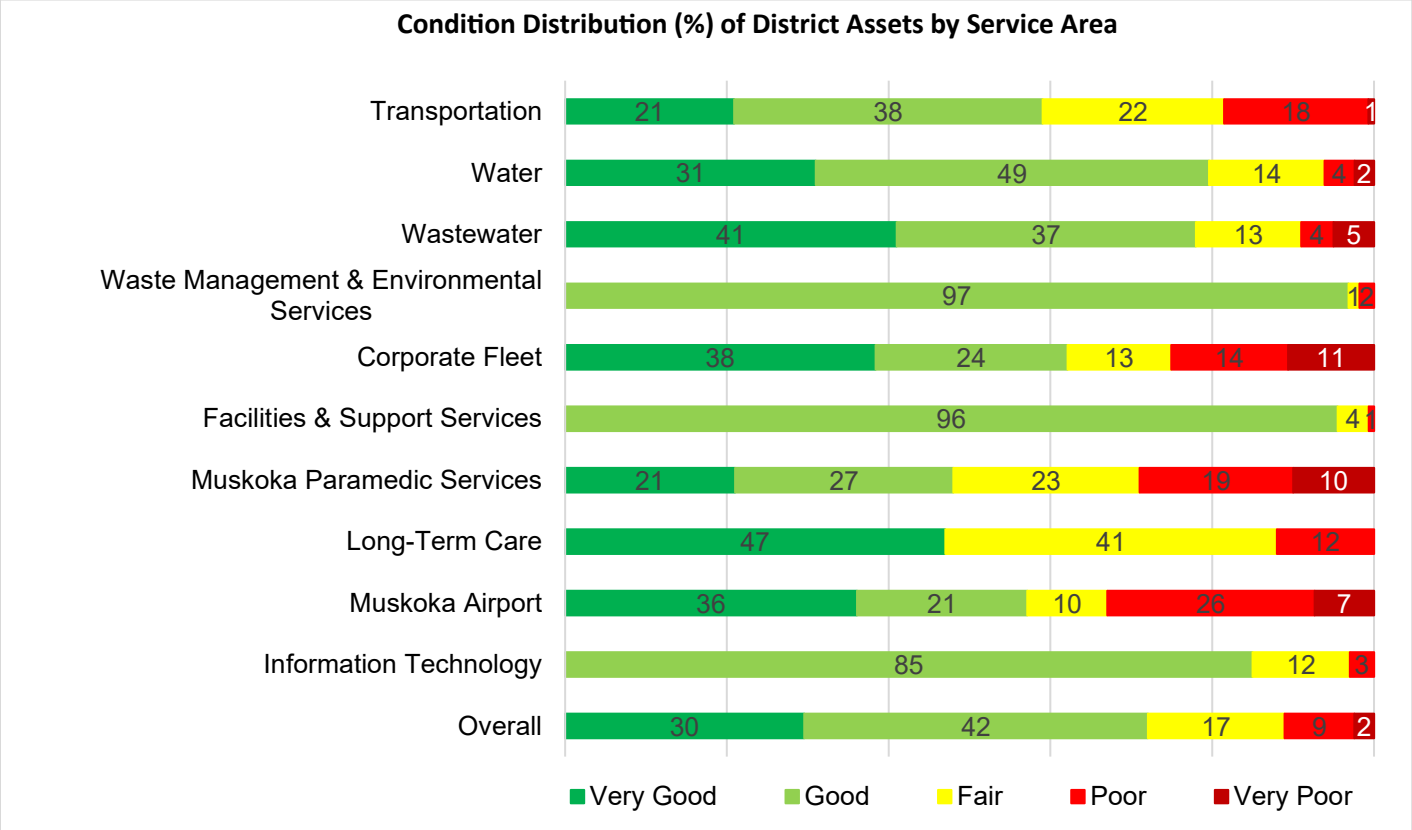


Total Service Areas 2023 Replacement Value: $ 5.95 Billion

Utilizing the most recent information available to determine replacement cost, age of assets, third-party inspections, and staff assessments, demonstrates that almost 89% of District assets are in fair or better condition with a valuation of almost $5.3 billion while 11% of District assets are in poor to very poor condition with a valuation of $656 million. Since less than 30% of assets have formal condition assessments, the majority of assessments are subjective or based on expected useful service life. As a result, these figures are likely to change as the work set out in the Strategic Action Plans is executed.

The condition profile of District's infrastructure assets is shown in Figure A-2.

Figure A2: Condition Distribution of District Assets by Service Area Weighted by Replacement Value



Out of the assets rated in poor to very poor condition, transportation services assets make up $349M of the total value, followed by wastewater services at $158M and water services $102M as shown in Table A1.1. These assets need to be prioritized for proactive maintenance, rehabilitation, and replacement. The $656 million associated with the replacement cost of assets that are currently in poor to very poor condition is in addition to funds required to sustain all other assets in a state of good repair. There are various factors that will influence and be critical in addressing the infrastructure deficit, some of which include staffing, materials, availability of contracted service providers such as construction contractors, consultants, etc.

Table A1.1: Valuation and Distribution of Assets in Poor to Very Poor Condition by Service Area

Service Areas	Valuation of Assets in Poor to Very Poor Condition	2023 Replacement Value	% of Assets in Poor to Very Poor Condition by Replacement Value
Transportation	$349 Million	$1,886 Million	18.5%
Wastewater	$158 Million	$1,754 Million	9.0%
Water	$102 Million	$1,667 Million	6.1%
Long-Term Care	$28 Million	$232 Million	12.0%
Muskoka Airport	$11 Million	$33 Million	33.0%
Corporate Fleet	$4.6 Million	$18 Million	25.1%
Facilities and Support Services	$2 Million	$311 Million	0.6%
Muskoka Paramedic Services	$1.8 Million	$6 Million	29.0%
Waste Management and Environmental Services	$0.6 Million	$35 Million	1.8%
Information Technology	$0.1 Million	$5 Million	3.0%
All Service Areas	**$656 Million**	**$5,948 Million**	**11.0%**

In addition to physical condition, asset performance was also rated by staff to capture existing service levels by evaluating assets in terms of operational functionality, capacity to meet demand, operational resiliency, and environmental resiliency. Performance metrics provide additional insights for budgeting and long-term financial planning that otherwise would not have been captured and highlighted by condition of assets. The overall condition and combined performance of District assets is rated as good though there are capacity challenges identified for housing assets and long-term care homes. Other service areas such as water, wastewater, corporate fleet, and the Muskoka Airport can also benefit from improvements in operational resiliency. Table A1.2 below provides a summary of condition and performance of District assets.

Table A1.2: Overall Average Condition and Performance of Assets by Service Area Weighted by Replacement Value

Service Areas	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Transportation	Good	Good	Good	Good	Good	Good
Water	Good	Good	Good	Fair	Good	Good
Wastewater	Good	Good	Good	Good	Good	Good
Waste Management and Environmental Services	Good	Good	Good	Good	Fair	Good
Corporate Fleet	Good	Fair	Fair	Fair	Good	Fair
Facilities and Support Services	Good	Fair	Poor	Poor	Fair	Fair
Muskoka Paramedic Services	Fair	Fair	Good	Good	Good	Good
Long-Term Care	Good	Good	Poor	Good	Good	Fair
Muskoka Airport	Good	Fair	Fair	Fair	Good	Fair
Information Technology	Good	Good	Good	Good	Very Good	Good
Overall	**Good**	**Good**	**Good**	**Good**	**Good**	**Good**

The District implemented a new enterprise risk management framework to conduct a cross-departmental risk assessment for identifying short-term and long-term asset investment priorities. The framework will improve understanding of the current and future state of the District's infrastructure and validate the selection of reasonable and sustainable service level targets.

Risk is defined as a product of likelihood and consequence of asset failure. Likelihood of failure score is based on condition and overall performance of assets. Consequence of failure score is based on criticality of assets and is determined by factoring potential health and safety implications for staff and the public, impact of service disruption, financial impact, environmental impact as well as reputational impact to the District in the case of an asset failure.

At existing service levels, typically assets with relatively higher current risk scores are prioritized first but once the District has established future target service levels, variance between current risk and target risk will also be used to identify the scope of intervention required as shown in Table A1.3.

Table A1.3: Risk Ratings and Intervention Criteria

Risk Level	Current Risk Score Range	Timing of Intervention (Budgeting Priority)	Scope of Intervention (Budgeting Needs)
Low Risk	< 21	Lower Priority	Low Amount of Estimated Funds Required to Address Variance from Target Risk
Moderate Risk	21 – 59	Status Quo	Moderate Amount of Estimated Funds Required to Address Variance from Target Risk
High Risk	60 - 99	Higher Priority	High Amount Estimated Funds Required to Address Variance from Target Risk
Extreme Risk	> 99	Top Priority	High Amount of Estimated Funds Required to Address Variance from Target Risk

The overall condition risk and combined performance risk for the District is moderate based on current service levels provided to the community. However, there are opportunities for redistribution/reallocation of funds between service areas as some service areas have relatively higher risk scores than others. For example, Long-Term Care, Transportation, and Muskoka Paramedic Services have relatively higher condition risk scores. From a combined performance perspective, Facilities and Support Services have a relatively higher risk score. Additionally, there are cases where funding requirements for some asset classes within a service area need to be prioritized over other asset classes based on their current risk scores. Details of current risk ratings are provided in Table A1.4.

Table A1.4: Current Risk Ratings by Service Area Weighted by Replacement Value

Service Areas	Condition Risk	Operational Functionality Risk	Capacity to Meet Demand Risk	Operational Resiliency Risk	Environmental Resiliency Risk	Combined Performance Risk
Transportation	45	42	38	46	40	42
Water	36	37	36	49	40	41
Wastewater	37	42	37	42	41	41
Waste Management and Environmental Services	38	40	38	38	51	42
Corporate Fleet	19	25	25	25	17	23
Facilities and Support Services	37	50	67	58	57	58
Muskoka Paramedic Services	44	43	37	37	32	38
Long-Term Care	46	52	84	42	42	55
Muskoka Airport	38	47	47	47	34	43
Information Technology	23	23	18	17	14	18
Overall Risk Score	**40**	**42**	**40**	**46**	**41**	**42**
Overall Risk Level	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**

In terms of accuracy and completeness of existing asset data on cost, risks and service levels, the overall data confidence is moderate. Transportation assets such as roads, bridges and major culverts with predefined condition inspection cycles and capital investment needs studies conducted frequently have more reliable condition data.

As noted in Table A-1.5, 90% of the transportation assets have assessed condition data while all other service areas strictly rely on age of assets and staff assessments to determine current condition and performance of assets. Overall, only 28% of District assets have assessed condition data. Staff noted that vertical infrastructure such as District facilities and water/wastewater treatment plants can also benefit from having assessed condition data for better forecasting of future maintenance and capital investment needs.

Replacement value estimation methodologies used by District staff include per unit costing based on recently completed capital projects and/or consultant reports, staff estimates, comparative analysis with other municipalities managing similar assets, current market values, and inflating historical costs sourced from accounting data. Typically, linear infrastructure assets have reliable data on current replacement values sourced from recent contracts. Other assets with short lifecycles such as fleet and equipment are replaced more frequently and therefore have better quality data on replacement values.

Table A1.5: Data Collection Methodology and Confidence Rating by Service Area

Service Areas	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Transportation	High	90% Assessed Condition, 10% Staff Assessments, Age of Assets	100% Staff Assessment	Per Unit Costing, Staff Estimates, Inflating Historical Costs
Water	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Staff Estimates Comparative Analysis
Wastewater	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Comparative Analysis
Waste Management and Environmental Services	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Corporate Fleet	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Facilities and Support Services	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Muskoka Paramedic Services	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
Long-Term Care	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
Muskoka Airport	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Inflating Historical Costs
Information Technology	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Overall	**Moderate**	**28% Assessed Condition, 72% Staff Assessments, Age of Assets**	**100% Staff Assessment**	**Per Unit Costing, Market Values, Comparative Analysis, Staff Estimates, Inflating Historical Costs**

2024 Asset Management Plan: State of Infrastructure Report Recommendations

The recommendations being made through this report are based on the findings from the 2024 Asset Management Plan study. The Asset Management (AM) team recognizes that the District is already making progress on some of the items identified below.

- Review current service levels and the associated costs to provide services to establish fiscally sustainable target service levels for all service areas by July 01, 2025, to meet next phase of O. Reg. 588/17 requirements.
- Establish a decision support system integrated with multi-year budgeting to address priority investment needs based on risk assessment and future variance between current condition and performance (current service levels) and target condition and performance (target service levels).

- Collect and maintain data on asset whole lifecycle activities and costs for all asset classes in the District's work order management system to facilitate deterioration modeling using available tools and technology for future predictive analysis.

- Establish a condition assessment program for all core assets and facilities based on industry best practices.

- Develop a roadmap to improve data confidence including setting out the resources required to implement the program as part of the annual budgeting process.

- Promote collaboration and knowledge sharing between service areas and multi-disciplinary subject matter experts across the District for improved mutual understanding of current state of infrastructure.

- District staff continue to work collaboratively to address any gaps in current service levels to achieve sustainable service delivery as part of its continuous improvement process.

Introduction To 2024 AMP



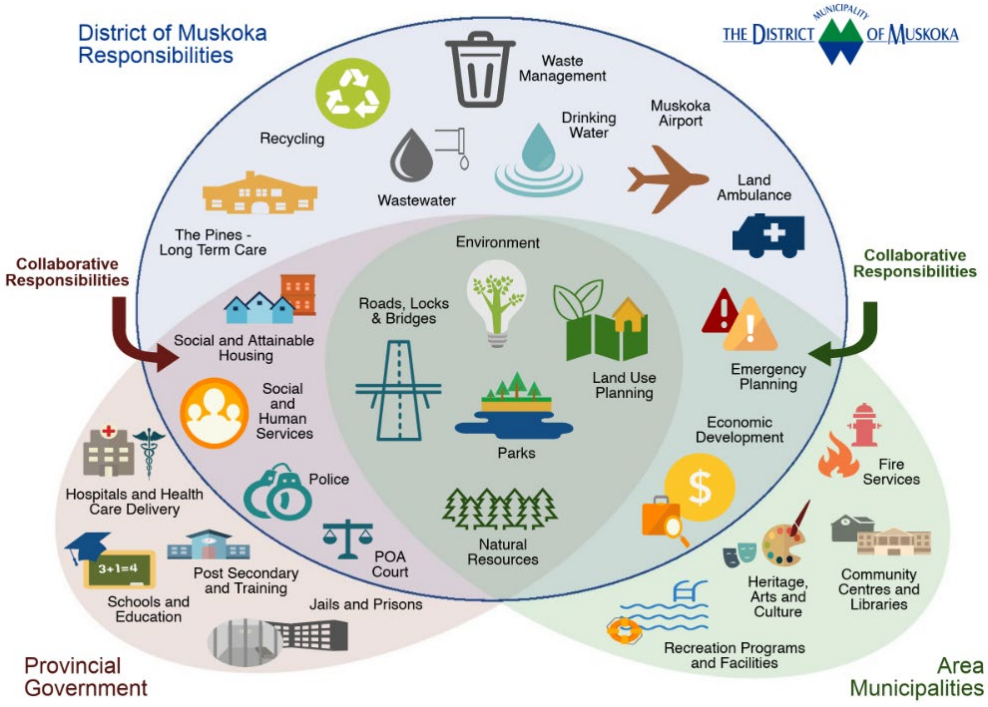
B. Introduction

Overview

The District Municipality of Muskoka (District), with a year-round population of 66,674 and a seasonal population of 84,000 in 2021, is located just north of the Greater Golden Horseshoe, a region of Ontario. Encompassing an area of 4,765 square kilometers, including more than 650 lakes over 8 hectares in size, and 38 wetlands designated as Provincially Significant, it is not surprising that Muskoka is Ontario's premier cottaging destination, attracting over 3.2 million visitors annually.

The District is made up of six area municipalities (three towns and three townships) and is responsible for delivering critical public services and programs to the community through the ten distinct service areas of transportation, wastewater, water, facilities and support services, long-term care, waste management and environmental services, Muskoka airport, corporate fleet, Muskoka paramedic services and information technology services. Services provided by the District include police, waste collection, roads maintenance and snow removal using a combination of District staff (in some cases) and contractors. Both levels of local government work together to align services and achieve cost-efficiencies which best serve residents, business owners, and visitors to Muskoka as shown in Figure B1.

Figure B1: Division of Responsibilities between the District of Muskoka, Area Municipalities, and the Province.



Asset management is the coordinated activity of an organization to realize value from assets. It considers all asset types, and includes all activities involved in an asset's lifecycle from planning and acquisition/creation; operational and maintenance activities, rehabilitation, and renewal; to replacement or disposal and any remaining liabilities. It is a structured approach to managing assets that involves balancing costs, risks, and service levels in alignment with community expectations and regulatory requirements. In simpler terms, it is about making strategic decisions so that the District is doing the right work, on the right asset, at the right time, for the right cost.

Historically, the District has viewed asset management from a lens of "managing assets" which involved specific activities such as maintaining asset inventories for accounting purposes, performing condition assessments for major transportation assets and forecasting capital needs to plan for future replacement of assets. While these activities are important, it does not provide a holistic view of the District as a steward for infrastructure delivery. In recent years, the District has developed a comprehensive asset management program and continues to build internal capacity to answer the following questions:

- What infrastructure services do we provide to our community?
- What infrastructure assets are required to provide these services?
- Who is responsible for managing the lifecycle activities of these assets?
- What data attributes need to be collected for these assets?
- What condition are the assets in? Are they performing as expected?
- How do we define or measure current service levels?
- How do we integrate climate change mitigation and adaptation?
- What are the potential consequences of an asset failure?
- How do we determine capital investment needs?
- How do we implement a corporate risk management framework to identify cross-departmental priorities?
- Are our current service levels fiscally sustainable?
- How do we set target service levels backed by a financial strategy?

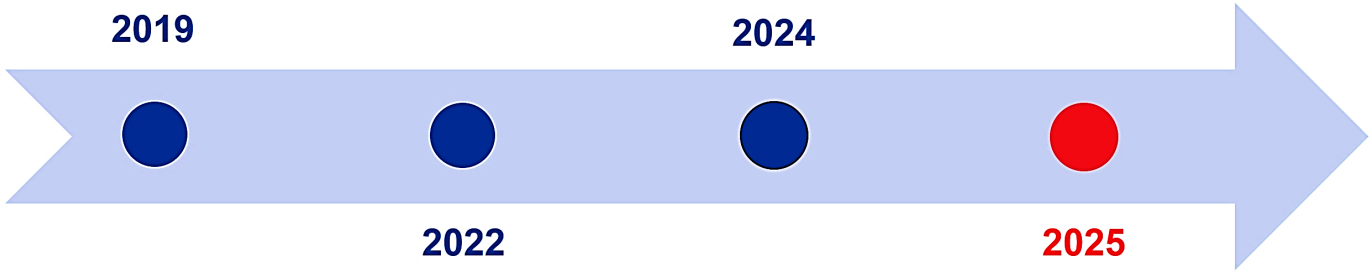
Legislative Context for the Asset Management Plan

In 2017 the Province of Ontario enacted Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17), under the Infrastructure for Jobs and Prosperity Act, to support improvements in municipal asset management. It reflects the Province's commitment to guide investments in public infrastructure and builds on consultations with the municipal sector, including the District, which were conducted in 2016.

This regulation was introduced because the Province recognized that many Ontario municipalities were facing similar challenges with existing infrastructure degrading faster than it was being repaired or replaced. The goal of the regulation is to standardize asset management plans, share best practices among municipalities, and improve infrastructure planning in municipalities.

O. Reg. 588/17 requires all Ontario municipalities to develop an asset management (AM) plan by July 1, 2024 for all infrastructure assets that captures current service levels and key performance indicators; information on current replacement costs, average age, condition, and condition assessment protocols; and asset lifecycle activities required to maintain current service levels. The District has met this requirement through its 2024 Asset Management Plan and replaces previous asset management plans developed in 2022 for core assets and in 2018 for all assets. A brief snapshot of the timelines and phased asset management requirements is shown in Figure B2.

Figure B2: Phased Asset Management Requirements of O. Reg. 588/17



AM Policy

- Guiding Principles
- Role of Council and Staff
- AM Governance Structure
- Integration with Budgeting
- Community Engagement
- Climate Change Lens

AMP Core Assets

- Inventory of Assets
- Current Service Levels
- Total Cost to Maintain Current Service Levels
- Growth Implications

AMP All Assets

- Inventory of Assets
- Current Service Levels
- Total Cost to Maintain Current Service Levels
- Growth Implications

AMP All Assets + FS

- Establish Target Service Levels based on Sustainability and Affordability
- Conduct Risk Assessments
- Lifecycle Management Activities
- Financial Strategy (FS) for next 10 years

To continue to meet and exceed the phased requirements of O. Reg. 588/17, the District has implemented continuous improvement protocols and fosters an enabling environment for staff to:

- Develop and maintain complete and accurate financial, risk and performance data on all District infrastructure assets;
- Adopt corporate asset condition rating and performance rating criteria;
- Conduct risk assessments to document potential consequences of service failures for cross-departmental ranking of local infrastructure asset priorities and consequences of asset failures and their potential direct impacts to service levels;
- Manage current and future asset lifecycle activities while leveraging opportunities to apply a climate change mitigation, resiliency, and adaptation lens in a fiscally responsible manner;
- Identify existing service levels and set sustainable target service levels while balancing costs, risks, community expectations and regulatory requirements;
- Integrate asset management into multi-year budgeting and long-term financial planning; and
- Facilitate the integration of asset management with other council approved plans and studies such as:
    - 2023-2026 Strategic Plan and Corporate Action Plan;
    - Official Plan and Master Plans;
    - Water and Wastewater Master Servicing Strategy;
    - Development Charges Background Study;
    - Annual Operating and Capital Budgets;
    - New Leaf Climate Action Plan, Corporate Green House Gas (GHG) Mitigation Plan, Regional Climate Change Adaptation Plan, Energy Conservation and Demand Management Plan, Integrated Watershed Management Study; Community Energy and Emissions Reduction Plan and;
    - Any other planning documents and studies developed to support strategic priorities of the District.

Asset Management Governance Structure

Asset Management Governance as presented in Figure B3 ensures that municipal assets are planned, built, and maintained appropriately over the long-term. It defines roles and responsibilities of Council and staff from all departments and service areas directly or indirectly involved in the acquisition, operation, maintenance, rehabilitation, replacement, and decommissioning and/or retirement of infrastructure assets that are either owned, leased, or managed by the District.

In Fall 2023, the District updated its Strategic Asset Management Policy to incorporate a new asset management governance structure consisting of a steering committee led by two executive co-leads, the Commissioner of Finance and Corporate Services and the Commissioner of Engineering and Public Works as sponsors and champions of District's asset management program. The new governance structure (shown in figure B3) also defines the role of Council in stewardship of the District's infrastructure and establishes a collaborative relationship between the corporate asset management administration team, and the corporate asset management working group for making continuous progress in asset management. The following passages outline various roles and responsibilities.

District Council is responsible for:

- Approving the asset management policy, asset management plan and setting goals for the asset management program;
- Fostering an asset management culture and maintaining adequate organizational capacity to support the asset management program;
- Approving target service levels and capital investment priorities by taking into consideration recommendations in the asset management plan;
- Conducting an annual review of progress of asset management and its implementation with every budget cycle; and
- Prioritizing effective stewardship of assets in adoption and ongoing review of policy and budgets.

Executive Co-Leads (Commissioner of Finance and Corporate Services and Commissioner of Engineering and Public Works) are the sponsors and champions of the District's asset management program and are responsible for making recommendations to District Council regarding the allocation of resources required for continuous progress in asset management and its successful implementation in all departments and service areas.

The Corporate Asset Management Steering Committee consists of the Executive Co-Leads and other Commissioners and Directors or delegates from all departments and service areas at the District. The Steering Committee is responsible for:

- Providing corporate oversight and direction to ensure the asset management program's alignment with the District's strategic priorities and regulatory requirements;
- Endorsing the corporate asset management roadmap, asset management policy, and asset management plan along with corporate asset management strategies and frameworks to ensure a consistent and standardized approach to asset management at the District;
- Reviewing progress in implementation of the corporate asset management roadmap to identify challenges and propose potential solutions; and
- Reviewing sustainability of current service levels across the District.

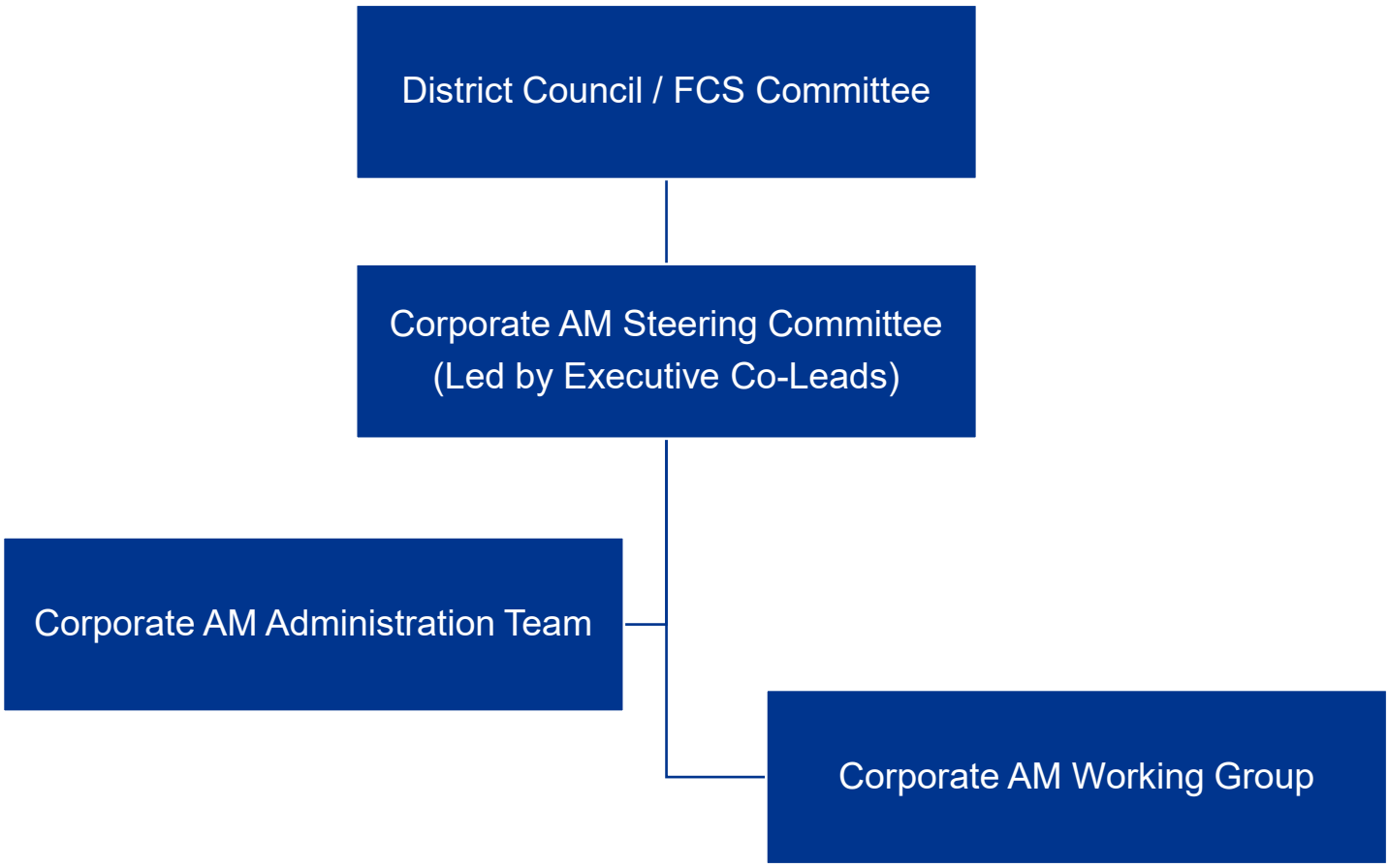
The Corporate Asset Management Administration Team serves as a liaison between the Asset Management Steering Committee and the Asset Management Working Group, and is responsible for:

- Developing and implementing the corporate asset management roadmap in collaboration with the Asset Management Working Group;
- Developing and updating policies, strategies, frameworks, and the corporate asset management plan while providing updates and seeking endorsements from the Asset Management Steering Committee;
- Engaging and coordinating with technical leads from all departments and service areas to document existing processes and business needs, leverage available technology tools, identify and address data gaps, identify current service levels, conduct risk assessments and develop financial strategies while taking into consideration asset whole lifecycle costing, applying a climate change mitigation and adaptation lens, and make incremental progress in adopting international best practices in asset management at the District;
- Participate in corporate, departmental, and divisional forums to report and provide updates on asset management activities; and
- Advancing opportunities to improve coordination of efforts between cross-functional teams within the District, and between the District and other levels of government to establish the District as a leader in asset management.

The Corporate Asset Management Working Group consists of technical leads or delegates from all service areas and divisions involved in the acquisition, operation, maintenance, rehabilitation, replacement, and decommissioning and/or retirement of infrastructure assets that are either owned, leased, or managed by the District. The working group is responsible for:

- Providing support and direction for asset management practices within their department by collecting, storing, and maintaining asset data inventory on costs, risks, and existing service levels by leveraging corporate technology solutions to ensure adoption of a coordinated and consistent approach towards asset management at the District; and
- Proactively collaborating with the Asset Management Administration Team to operationalize asset management activities and to adopt asset management policy, corporate asset management strategies and frameworks to assist in the development of the asset management plan.

Figure B3: District's Asset Management Governance Structure



Asset Management Maturity Assessment

To assess and document current asset management maturity of the District, staff used the Federation of Canadian Municipality's (FCM) Asset Management Readiness Scale (AMRS) to measure progress made in the five AMRS competency areas of policy and governance, people and leadership, data and information, planning and decision-making, and contribution to the asset management practice. Each of the five competency areas is organized on a progressive scale of five levels and further broken down into different outcome areas that describe milestones which are already completed or need to be targeted for improvement.

The following tables demonstrate our current state of asset management and list opportunities for improvement.

Policy and Governance

This competency helps create a policy structure that lays out asset management goals and how they will be achieved, leading to organizational alignment and commitment. By developing this competency, the District is putting in place policies and objectives related to asset management, bringing those policies to life through a strategy and roadmap, and then measuring progress and monitoring implementation over time.

Table B1.1: Asset Management Maturity Assessment - Policy and Governance

POLICY AND GOVERNANCE				
Outcome Areas	**Current State**	**Milestones Completed**	**Target State**	**Future Milestones**
Policy and objectives	Level 3	Senior management is committed to formalizing an AM program. We manage assets and services in accordance with our AM policy and organizational objectives.	Level 5	We continue to validate and refine our corporate, service and AM objectives based on the evolving needs of our community.
Strategy and Roadmap	Level 2	We have a draft roadmap that outlines our approach for the next 1 to 3 years. We follow our roadmap and continually improve our AM practices. We document improvements to our AM practices.	Level 5	We have a roadmap that details the actions for implementing our AM strategy over the next 3 to 5 years. We are achieving our AM policy objectives. The necessary workflows, documents, and reporting tools are in place.
Measurement and Monitoring	Level 3	We are collecting baseline data on our current AM practices. We have established performance measures to monitor our asset management progress, outcomes, and the benefits to our community.	Level 5	We use performance measures to monitor AM progress, outcomes, and benefits. We monitor performance and use the feedback to prioritize and make ongoing refinements and improvements to AM practices.

People and Leadership

Asset management requires integration of multiple perspectives. At a minimum, the District's asset management team should be a representation of people who understand finance, decision-making, and the planning and operations of each relevant service area. By developing this competency, the District is setting up cross-functional teams with clear accountability and ensuring adequate resourcing and commitment from senior management and elected officials to advance asset management.

Table B1.2: Asset Management Maturity Assessment - People and Leadership

PEOPLE AND LEADERSHIP				
Outcome Areas	**Current State**	**Milestones Completed**	**Target State**	**Future Milestones**
Cross-functional Teams	Level 4	Our AM team works within our organization to lead, communicate, and support AM improvements and organizational changes. Our AM team is permanent and tasked with guiding and supporting AM across the organization on an ongoing basis.	Level 5	Our AM team guides and supports the ongoing improvement of AM within the organization.
Accountability	Level 3	Our AM team is accountable for implementing our AM program. We have operationalized AM roles and responsibilities across our organization. We document improvements to our AM practices.	Level 5	AM roles and responsibilities are included in staff job descriptions. We document changes to AM roles and responsibilities as needed to support our evolving requirements.
Resourcing and Commitment	Level 3	Council champions AM as a core business function and has approved funding to continue AM roadmap activities.	Level 5	Council funds ongoing AM monitoring and enhancement. Council demonstrates commitment to ongoing improvement of AM practices.

Data and Information:

This competency helps improve data management practices across the District. By developing this competency, the District is collecting and using asset data, performance data and financial information to support effective asset management planning and decision-making.

Table B1.3: Asset Management Maturity Assessment - Data and Information

DATA AND INFORMATION				
Outcome Areas	**Current State**	**Milestones Completed**	**Target State**	**Future Milestones**
Asset Data	Level 3	We have a consolidated, basic inventory of all assets. We have defined lifecycle investment requirements for critical assets. We have standardized condition rating systems defined for all asset groups. We have asset condition information on all assets.	Level 5	We have expanded inventory data for all assets. We have evaluated the lifecycle investment requirements associated with all assets.
Performance Data	Level 3	We have defined level of service measurements for all service areas.	Level 5	We continually improve how we collect data on level of service performance. We communicate the results from our level of service measurement program to staff and council regularly.
Financial Information	Level 3	We have capital (new and renewal) and O and M expenditure data for most assets. We understand the cost of sustaining current levels of service for all critical assets.	Level 5	We can demonstrate the gaps between forecasted infrastructure needs and current spending levels. We understand the trade-offs between investment and the level of service we deliver and use this to optimize our financial plans.

Planning and Decision Making

This competency helps implement asset management, by ensuring that asset management policies, objectives and information are consistently informing organizational plans. By developing this competency, the District is documenting and standardizing how the organization sets asset management priorities, conducts capital, operations and maintenance (O and M) planning, and determines budgets.

Table B1.4: Asset Management Maturity Assessment - Planning and Decision Making

PLANNING AND DECISION MAKING				
Outcome Areas	**Current State**	**Milestones Completed**	**Target State**	**Future Milestones**
Documentation and Standardization	Level 3	We have a structured asset planning approach, but application is inconsistent. We set priorities using criteria based on organizational goals and objectives.	Level 5	We employ a consistent structured asset planning approach for all services. We adapt our planning approach and criteria to align with evolving organizational goals and objectives.
Asset Management Plans	Level 4	Our AM plans include basic needs forecasting and risk management strategies for critical assets. Our AM plans are based on both short- and long-term priorities. They balance short-term service objectives with longer-term goals and risks.	Level 5	Our individual AM plans are integrated across services. Our AM plans include needs forecasts and risk management strategies for most assets. Plans address risks to both service and business goals.
Budgets and Financial Planning	Level 3	We prepare an annual capital budget based on an annual assessment of current needs. We have a 5-year capital plan and update it annually.	Level 5	We prepare multi-year needs-based capital and operating budgets that are based on our short- and mid-term needs. We update our long-term financial plan (at least 10-year) annually and understand the risks associated with our investment gap.

Contribution to Asset Management Practice

This competency helps build overall asset management practice by ensuring that internal stakeholders are well-informed, and that the District stays current with, and contributes to, leading practices, training, and education. By developing this competency, the District is supporting staff in asset management training, sharing knowledge internally to communicate the benefits of asset management, and participating in external knowledge sharing.

Table B1.4: Asset Management Maturity Assessment - Contribution to Asset Management Practice

CONTRIBUTION TO ASSET MANAGEMENT PRACTICE				
Outcome Areas	**Current State**	**Milestones Completed**	**Target State**	**Future Milestones**
Training and Development	Level 3	We provide all staff with basic AM awareness training. Some staff undergo training on advanced AM concepts specific to their roles and responsibilities. Staff and council are able to communicate the value of AM in their own words.	Level 5	Council, management, and staff receive role-appropriate AM training to establish needed capacity across the organization. We train select staff members as internal experts to support the ongoing development of organizational capacity. Proactive, role-based training serves as a support for career development and succession planning.
Internal Communication and Knowledge Sharing	Level 3	A culture of knowledge sharing exists and is supported by a mix of formal and informal initiatives. We disseminate AM knowledge resources within the organization. Staff leverage internal and industry knowledge and leading practice resources.	Level 5	We capture AM knowledge, and it flows freely throughout the organization.
External Communication and Knowledge Sharing	Level 4	We are actively involved in AM organizations and present at AM events. We share information with our peers on our experience, innovations and lessons learned.	Level 5	We rely on the data from our AM program to explain decisions to the public. We are a thought leader on AM within the municipal sector.

Asset Management Strategies



C. Asset Management Strategies

Condition Rating

Condition information is required to support decisions on the timing of possible interventions to improve or maintain the levels of service at a desired standard and to avoid failures. Asset condition is a useful indicator to understand the extent of asset deterioration and remaining life of assets.

At The District Municipality of Muskoka (District), condition ratings were assigned to all assets across each service area using its Corporate Condition Rating Criteria. All asset condition scores were aligned a five-point rating scale that provides a sound basis for assessment and allows for benchmarking condition data presented in this asset management plan. This rating system is aligned with Statistics Canada's Canadian Core Public Infrastructure Survey used to develop the Canadian Infrastructure Report Card. A description of the five-point rating scale is provided in Table C1.1.

Table C1.1: Description of Condition Rating Scale

Condition Rating	General Description of Assets
Very Good	• Fully functional and fit for future. • New or recently rehabilitated. • No or insignificant defects or wear. • Requires regular maintenance only.
Good	• Fully functional and adequate for now. • Minor defects and deficiencies. • Increased regular maintenance may be required.
Fair	• Requires attention. • Showing signs of deterioration. • Moderate defects, deficiencies or wear. • Additional maintenance required at times.
Poor	• Increasing potential defects affecting service. • Approaching end of service life. • Significant defects, deficiencies or wear. • Increasingly frequent reactive maintenance. • Significant renewal or rehabilitation may be required.
Very Poor	• Unfit for sustained service and beyond rehabilitation. • Shows signs of advanced deterioration. • Severe defects, deficiencies or wear. • Maintenance is high and usually reactive.

Corporate condition rating criteria provides a standardized descriptive framework that allows comparative benchmarking across asset portfolios. Table C1.2 below outlines the corporate condition rating criteria used by staff to determine asset condition. The District has implemented condition assessment programs with scheduled timelines for transportation assets such as road, bridge and major culvert assets captured through pavement condition index (PCI) and bridge condition index (BCI). For asset categories, where assessed condition data is not available, age of the asset and remaining useful service life (RUSL) is used to determine condition.

Table C1.2: Corporate Condition Rating Criteria

Condition Rating	Very Good	Good	Fair	Poor	Very Poor
Roads	PCI: 100 – 85	PCI: 84 – 66	PCI: 65 – 46	PCI: 45 – 20	PCI: 19 – 0
Bridges	BCI > 80	BCI: 80 – 70	BCI: 69 – 60	BCI: 59 – 40	BCI < 40
Major Culverts	BCI > 80	BCI: 80 – 70	BCI: 69 – 60	BCI: 59 – 40	BCI < 40
Watermains	RUSL > 20 years	RUSL: 11 to 20 years	RUSL: 6 to 10 years	RUSL: 1 to 5 years	RUSL < 1 year
Sewers	RUSL > 20 years	RUSL: 11 to 20 years	RUSL: 6 to 10 years	RUSL: 1 to 5 years	RUSL < 1 year
Age of Assets	RUSL > 80%	RUSL: 55% to 80%	RUSL: 25% to 54%	RUSL: 5% to 24%	RUSL < 5%
Staff Assessment	Refer to Descriptions in Table C1.3	Refer to Descriptions in Table C1.3	Refer to Descriptions in Table C1.3	Refer to Descriptions in Table C1.3	Refer to Descriptions in Table C1.3

In cases where age does not provide a realistic determination of asset condition, departmental staff assigned condition ratings to their portfolio of assets based on general description. In order to assess District facilities, asset specific descriptions for assets that are typically in very good, good, fair, poor or very poor condition were used. For fleet and equipment, staff assessments are exclusively used to determine assessed condition when age-based methods are not used. Table C1.3 provides details on staff assessment of asset condition.

Table C1.3: Staff Assessment of Asset Condition

Condition Rating	General Description	Facilities Specific Description
Very Good	• Fully functional and fit for future. • New or recently rehabilitated. • No or insignificant defects or wear. • Requires regular maintenance only.	• Fully functional. • All components and equipment are well maintained. • New appearance. • No visible evidence of deterioration • Minor aesthetic improvements required like painting. • Regular maintenance only. • No or very few public complaints.
Good	• Fully functional and adequate for now. • Minor defects and deficiencies. • Increased regular maintenance may be required.	• Fully functional. • All components and equipment operate with some minor wear and tear. • Limited and manageable component and equipment failure may occur. • Showing minor wear and tear and minor deterioration of surfaces. • Improvements such as painting, carpet replacement, caulking and minor roof repair may be necessary. • Increased regular maintenance may be required. • Few and minor public complaints.
Fair	• Requires attention. • Showing signs of deterioration. • Moderate defects, deficiencies, or wear. • Additional maintenance required at times.	• Beginning to show wear. • Component and equipment failures are more frequent. • Appearance affected by minor cracking, staining or minor leakage. • Minor damage to wall/ceiling finishes. • Improvements such as replacements of specific system components such as boilers and windows or interior renovations. • Regular maintenance is essential with additional maintenance required at times. • More frequent and moderate levels of public complaints.
Poor	• Increasing potential of affecting service. • Approaching end of service life. • Significant defects, deficiencies, or wear. • Increasingly frequent reactive maintenance. • Significant renewal or rehabilitation may be required.	• Obvious and increasing wear and deterioration. • Frequent component and equipment failures. • Occasional building shut down is possible. • Appearance affected by cracking, staining or breakdowns with finishes of poor quality and often damaged. • Replacements of major systems such as HVAC, plumbing, building envelop is required. • Increasingly frequent reactive maintenance in addition to regular maintenance activities. • High and frequent levels of public complaints.
Very Poor	• Unfit for sustained service and beyond rehabilitation. • Shows signs of advanced deterioration. • Severe defects, deficiencies, or wear. • Maintenance is high and usually reactive.	• Very worn and obviously increasing levels of deterioration. • Component and equipment failure occurring frequently. • Occupant health and safety concerns. • Occasional building shut down likely to occur. • Appearance affected by cracking, staining or breakdowns with finishes badly marked and damaged. • Replacement of multiple building systems required such as mechanical and electrical systems, structural and architectural elements. • Building may not be cost effective to restore. • Maintenance is high and almost completely reactive. • Public complaints high and very difficult to manage.

Assets in poor to very poor condition are more likely to fail, leading to service disruptions or failures. However, these assets may not necessarily always pose a health and safety risk to our community. Rather, these are assets that may not be performing as intended, may be experiencing higher than average rehabilitation and/or maintenance costs due to condition, or may be deemed to be at the end of their useful life. When warranted, assets in poor to very poor condition are considered for immediate replacement or significant rehabilitation. District staff are committed to balance replacement with increased maintenance to realize cost efficiencies and deliver best value to ratepayers and taxpayers.

Performance Rating

In addition to condition of assets, performance of assets was rated by staff by evaluating operational functionality, capacity to meet demand, operational resiliency, and environmental resiliency by adopting a Corporate Performance Rating Criteria developed by Asset Management Ontario (AMONTario), a community of practice, as part of AMO and FCM's asset management technical assistance program for 80+ Ontario municipalities. These performance metrics provide additional insights for developing maintenance strategies, building resiliency to climate change, budgeting asset lifecycle activities with growth implications, and long-term financial planning that otherwise would not have been captured and highlighted by condition of assets alone.

Table C1.4 provides definitions of the performance metrics staff reported on for all infrastructure assets across the District.

Table C1.4: Corporate Performance Rating Criteria

FACTORS	PERFORMANCE RATING CRITERIA
Operational Functionality	• Does the asset meet design and/or safety requirements? • Are there any operational problems? • Are there any required or desirable elements missing?
Capacity to Meet Demand	• Does the asset fully meet current or future demand with expected service requirements?
Operational Resiliency	• Do we have back-up systems, spare capacity, alternative supplies? • Is there adequate protection or security from acts of vandalism, trespassing, theft, assault or terrorism?
Environmental Resiliency	• Is the asset vulnerable to local climate hazards identified through available climate data projections: Extreme Temperatures, Extreme Rainfall, Seasonal Flooding and Changes in Freeze-Thaw Cycles?

The following tables (C1.5 to C1.8) describe the corporate performance rating criteria used by staff to determine asset performance in terms of operational functionality, capacity to meet demand, operational resiliency, and environmental resiliency.

Table C1.5: Corporate Performance Rating Criteria - Operational Functionality

Performance Rating	Description of Operational Functionality
Very Good	• Fully meets or exceeds minimum service requirements in a fully efficient and effective manner. • Exceeds minimum current design and/or safety requirements. • No operational problems experienced. • No desirable elements are missing, and all required elements are present.
Good	• Meets current minimum service requirements. • Meets minimum current design and/or safety requirements. • Occasional operational problems may be experienced. • A few desirable elements may be missing, but all required elements are present.
Fair	• Just meets/essentially satisfies the current minimum service requirements. • Just meets minimum current design and/or safety requirements possibly with some added monitoring, extra controls, or maintenance. • Operational problems may occur more frequently. • A few desirable elements and one or two required elements are missing.
Poor	• Limited ability to meet minimum service requirements with performance frequently below minimum efficiency requirements. • Below minimum current design and/or safety requirements. Significant monitoring, extra controls or maintenance actions may be required to maintain services. • Significant operational problems are evident and occur frequently with perceivable and possibly moderate affects to services. • Several desirable elements and one or two required elements are missing.
Very Poor	• Ability to meet minimum service requirements is deficient and unsustainable with performance significantly and continuously below minimum efficiency requirements. • Fails minimum current design and/or safety requirements. • Active monitoring, extra controls or maintenance actions are not practical or feasible to maintain services. • Operational problems are serious, ongoing, and severely affecting services. • Many desirable and several required elements are missing.

Table C1.6: Corporate Performance Rating Criteria - Capacity to Meet Demand

Performance Rating	Description of Capacity to Meet Demand
Very Good	• Capacity fully meets or exceeds current demand and minimum service requirements.
Good	• Capacity meets current demand and minimum service requirements.
Fair	• Capacity just meets or essentially satisfies current demand and minimum service requirements with no room to accommodate potential increase in future demand.
Poor	• Capacity is frequently below demand and/or minimum service requirements.
Very Poor	• Capacity is significantly and continuously below demand and/or minimum service requirements.

Table C1.7: Corporate Performance Rating Criteria - Operational Resiliency

Performance Rating	Description of Operational Resiliency
Very Good	• Fully meets or exceeds the minimum emergency or service safeguard requirements for back-up systems, spare capacity, alternative supply, or system/asset security. • Maximum protection or security from acts of vandalism, trespassing, theft, assault, or terrorism.
Good	• Meets the minimum emergency or service requirements for back-up systems, spare capacity, alternative supply, or system/asset security. • Adequate protection or security from acts of vandalism, trespassing, theft, assault, or terrorism
Fair	• Provides acceptable but limited emergency or service requirements for back-up systems, spare capacity, alternative supply, or system/asset security. • Reasonable but limited protection or security from acts of vandalism, trespassing, theft, assault, or terrorism.
Poor	• Provides partial but inadequate emergency or service requirements for back-up systems, spare capacity, alternative supply, or system/asset security. • Partial protection or security from acts of vandalism, trespassing, theft, assault, or terrorism.
Very Poor	• Provides marginal or no emergency or service requirements for back-up systems, spare capacity, alternative supply, or system/asset security. • Marginal or no protection or security from acts of vandalism, trespassing, theft, assault, or terrorism.

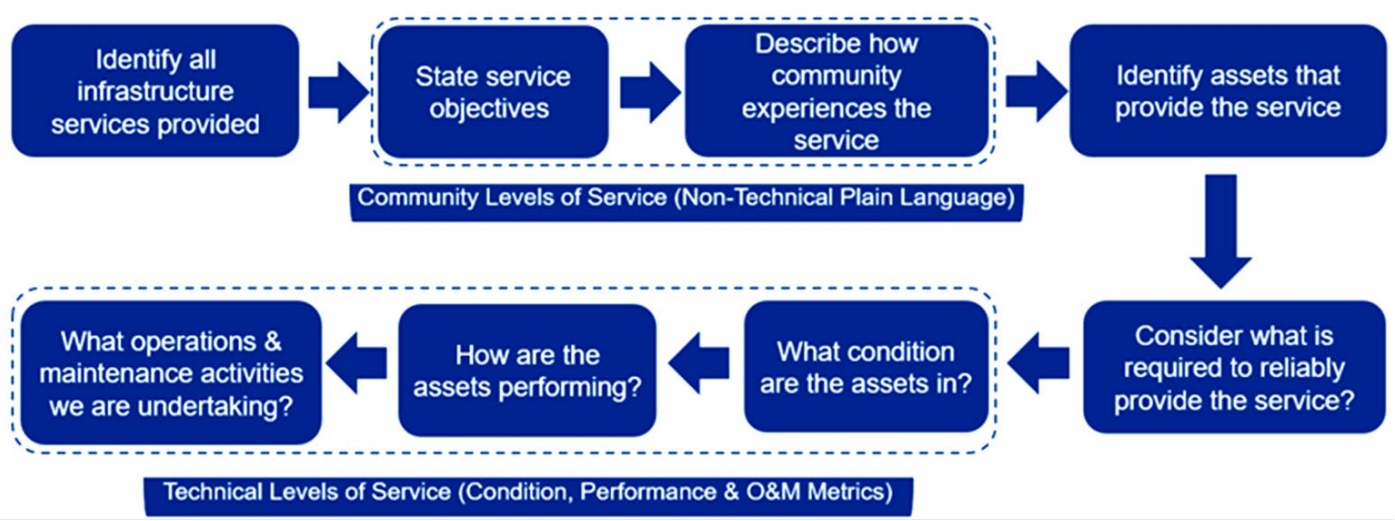
Table C1.8: Corporate Performance Rating Criteria - Environmental Resiliency

Performance Rating	Description of Environmental Resiliency
Very Good	• Assets are fully resilient to all environmental hazards.
Good	• Assets are adequately resilient to all environmental hazards.
Fair	• Assets are resilient to environmental hazards with some limitations.
Poor	• Asset resiliency to environmental hazards is partially lacking.
Very Poor	• Asset resiliency to environmental hazards is mostly or completely lacking.

Service Levels

Service levels are one of the key pillars of asset management and is an indicator of quality of services provided to the community. Staff's approach to identifying current service levels includes documenting public facing community service levels by stating service objectives and describing how the community experiences the service in easy to understand plain language. Additionally, technical service levels were documented by assessing physical condition and performance of infrastructure assets based on corporate condition and performance rating criteria along with capturing the type and frequency of operations and maintenance activities undertaken by staff to support service levels. This process, based on AMONTario's service level framework, is illustrated in Figure C1.

Figure C1: District of Muskoka's Approach to Documenting Current Service Levels



In addition to capturing current community service levels and technical service levels that include condition and performance metrics with O and M activities, staff has also reported on some other metrics or key performance indicators prescribed by O. Reg. 588/17 for core infrastructure assets supporting transportation, water, and wastewater services. Table C1.9 contains the list of these additional metrics.

Table C1.9: Additional KPIs Prescribed by O. Reg. 588/17

Transportation	Water	Wastewater
• Number of lane-kilometres of Arterial, Collector and Local Roads as a proportion of square kilometres of total land area. • Paved Roads – Average PCI. • Bridges – Average BCI. • Structural Culverts – Average BCI. • Percentage of bridges with no load restrictions. • Percentage of bridges with no vertical clearance restrictions. • Percentage of bridges with minimum one traffic lane (horizontal clearance restrictions).	• Percentage of properties connected to the municipal water system. • Percentage of properties where fire flow is available. • Number 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. • Number of connection-days per year lost due to water main breaks compared to the total number of properties connected to the municipal water system. • Water plant operations cost per mega litre of water treated. • Energy consumed (kWh) per mega litre (ML) of water treated.	• Percentage of properties connected to the municipal wastewater systems. • Number of connection-days lost per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater collection systems. • Number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system. • Wastewater plant operations cost per mega litre of wastewater treated. • Energy consumed (kWh) per mega litre (ML) of wastewater treated

Risk Management

To provide sustainable service levels, municipalities must ensure that assets supporting these services are managed in a structured and objective manner that balances service levels, risk, affordability to taxpayers and fiscal sustainability of the organization. AMONTario has created an enterprise risk management framework and staff have used it to assess asset management risks for the District. A cross-departmental risk assessment was completed and included the evaluation of short-term and long-term asset investment priorities to inform reasonable and sustainable future service level targets.

Risk is defined as a product of likelihood of failure and consequences of asset failure. The first component of risk (i.e. likelihood of failure score) is based on condition rating and performance rating of an asset as shown in Table C1.10. The better the condition or performance of an asset is, the lower will be the likelihood of condition or performance failure.

Table C1.10: Assigning Likelihood of Failure (LOF) Scores

Condition Rating	Condition LOF	LOF Score	Performance Rating	Performance LOF	LOF Score
Very Good	Very Unlikely	1	Very Good	Very Unlikely	1
Good	Unlikely	2	Good	Unlikely	2
Fair	Possible	3	Fair	Possible	3
Poor	Likely	4	Poor	Likely	4
Very Poor	Very Likely	5	Very Poor	Very Likely	5

While condition and performance are an indication for likelihood of failure of an asset, this does not always directly translate into a prioritized intervention due to competing priorities and limited financial resources. The second component of risk captures consequence of failure and provides additional insights on the relative importance of an asset across the District. It is determined by factoring potential health and safety implications for staff and the public, impact of service disruption, financial impact, environmental impact as well as reputational impact in the event of an asset failure.

Using asset criticality or consequence of asset failure in conjunction with its condition and performance, provides an objective assessment of risk. Tables C1.11 to C1.15 describe the methodology used to assign consequence of failure scores to different asset classes.

Table C1.11: Assigning Consequences of Failure Scores – Health and Safety Implications

	Consequence Severity Ratings				
	Insignificant (Score of 1)	**Minor (Score of 2)**	**Moderate (Score of 3)**	**Major (Score of 4)**	**Catastrophic (Score of 5)**
Health and Safety	• Negligible or no injury or illness. • No medical attention required.	• Minor injury or short-lived illness. • Medical attention may be required.	• Moderate injuries or illness. • Short stay hospital treatment may be required.	• Significant injuries requiring hospitalization. • Potential short-term disability.	• Serious injuries leading to long-term disability. • Loss of life.

Table C1.12: Assigning Consequences of Failure Scores – Reputational Impact

	Consequence Severity Ratings				
	Insignificant (Score of 1)	**Minor (Score of 2)**	**Moderate (Score of 3)**	**Major (Score of 4)**	**Catastrophic (Score of 5)**
Reputational Impact	• Negligible or no local media/social media attention.	• Minor local media or social media coverage for few days with potential complaints from residents.	• Moderate local media or social media covering lasting few weeks. • Several complaints by residents. Informal public discussions with member(s) of Council.	• Significant media/social media attention lasting up to several weeks. • Ongoing complaints by residents, formal public meeting, or delegation to Council. • Lasting loss of public confidence in Council decision-making. Possible calls in the media and/or community for changes in staff or Council.	• Extensive media/social media attention. • Several formal public meetings and/or several delegations to Council. • Long-term or permanent loss of public confidence. Calls in the media and/or community for an independent public inquiry.

Table C1.13: Assigning Consequences of Failure Scores – Service Disruption

	Consequence Severity Ratings				
	Insignificant (Score of 1)	**Minor (Score of 2)**	**Moderate (Score of 3)**	**Major (Score of 4)**	**Catastrophic (Score of 5)**
Service Disruption	• Negligible interruption of services limited to less than 25 households, tenants (social hosing) or road users in one area municipality. • Negligible impact on response time for paramedic services. Only non-essential services are affected for up to a few hours.	• Minor interruption of services affecting up to 100 households, tenants (social housing) or road users in one area municipality. • Minor impact on response time for paramedic services. • Non-essential services are affected for up to one day. Essential services are affected for up to a few hours.	• Moderate interruption of services affecting up to 500 households, tenants (social housing) or road users in one area municipality. • Moderate impact on response time for paramedic services. • Non-essential services are affected for up to a week. Essential services are affected for up to a day.	• Significant interruption of services affecting up to 1,000 households, tenants (social housing) or road users in multiple area municipalities. • Significant impact on response time for paramedic services. • Non-essential services are affected for up to a few weeks. • Essential services are affected for several days. Possible compliance breach resulting in issuance of corrective orders by external agencies.	• Extensive interruption of services in 3 or more area municipalities affecting more than 1,000 households, tenants (social housing) or road users. • Paramedic services not able to meet legislated response times • Non-essential services are affected for several weeks. • Essential services are affected for a few weeks. • Possible compliance breach resulting in issuance of corrective orders, sanctioning actions, or removal of operating licence by external agencies.

Table C1.14: Assigning Consequences of Failure Scores – Financial Impact

	Consequence Severity Ratings				
	Insignificant (Score of 1)	**Minor (Score of 2)**	**Moderate (Score of 3)**	**Major (Score of 4)**	**Catastrophic (Score of 5)**
Financial Impact	• Minimal avoidable operating or capital costs, revenue losses or fines under $10,000 related to operating or performance inefficiencies or deferred maintenance or rehabilitation. • Minor disruption and redistribution of approved capital budget. • Minimal increases/additions to operating funds resulting in insignificant changes to operating plans.	• Minor avoidable operating or capital costs and/or revenue losses between $10,000 and $200,000 related to operating or performance inefficiencies or deferred maintenance or rehabilitation. • Approval of modest amounts of additional funds from capital reserves to avoid changes to approved capital budget. • Modest disruption and redistribution of approved capital budget. Modest increases/additions to operating funds requiring some minor changes to operating plans.	• Moderate avoidable operating or capital costs and/or revenue losses between $200,000 and $1 Million related to operating or performance inefficiencies or deferred maintenance or rehabilitation. • Approval of moderate amounts of additional funds from capital reserves. • Moderate disruption and redistribution of financing in the approved capital budget. Moderate increases/additions to operating funds requiring some notable changes to operating plans.	• Significant avoidable operating or capital costs and/or revenue losses between $1,000,000 and $3.5 Million related to operating or performance inefficiencies or deferred maintenance or rehabilitation. • Approval of significant amounts of additional funds from capital reserves. • Substantial disruption and redistribution of financing in the approved capital budget. Significant increases/additions to operating funds requiring some sizeable changes to operating plans.	• Extensive avoidable operating or capital costs and/or revenue losses over $3.5 Million related to operating or performance inefficiencies or deferred maintenance or rehabilitation. • Approval of substantial amounts of additional funds from capital reserves. • Major disruption and redistribution of financing in the approved capital budget resulting in long-term deferment or cancellations of approved capital projects. Substantial increases/additions to operating funds requiring some significant or major changes to operating plans. External borrowing may be required.

Table C1.15: Assigning Consequences of Failure Scores – Environmental Impact

	Consequence Severity Ratings				
	Insignificant (Score of 1)	Minor (Score of 2)	Moderate (Score of 3)	Major (Score of 4)	Catastrophic (Score of 5)
Environmental Impact	• Negligible or no damage to the environment • Very short-term (<1 month) or no environmental impact.	• Minor damage affecting a localized area that can be restored easily. • Short-term (1 to 6 months) impact to the environment. Broader affects to the environment or community are negligible.	• Moderate reversible damage affecting a significant area. • Medium-term (6 months to 1 year) impact. • Possible warning from environmental agencies. Full cleanup difficult; may have some noticeable affects to the broader environment or community.	• Significant damage affecting a large area; long-term (over 1 year) impact. • Provincial or federal permits may be required; warnings issued and possible fines from environmental agencies. Full cleanup very difficult; impacts are noticeable to the community and have impacts on the broader environment.	• Extensive damage affecting a widespread area with permanent impact. • Contamination of environmentally sensitive areas with warnings, fines, and monitoring actions from environmental agencies. Impacts are significant to the community and have considerable impacts on the broader environment.

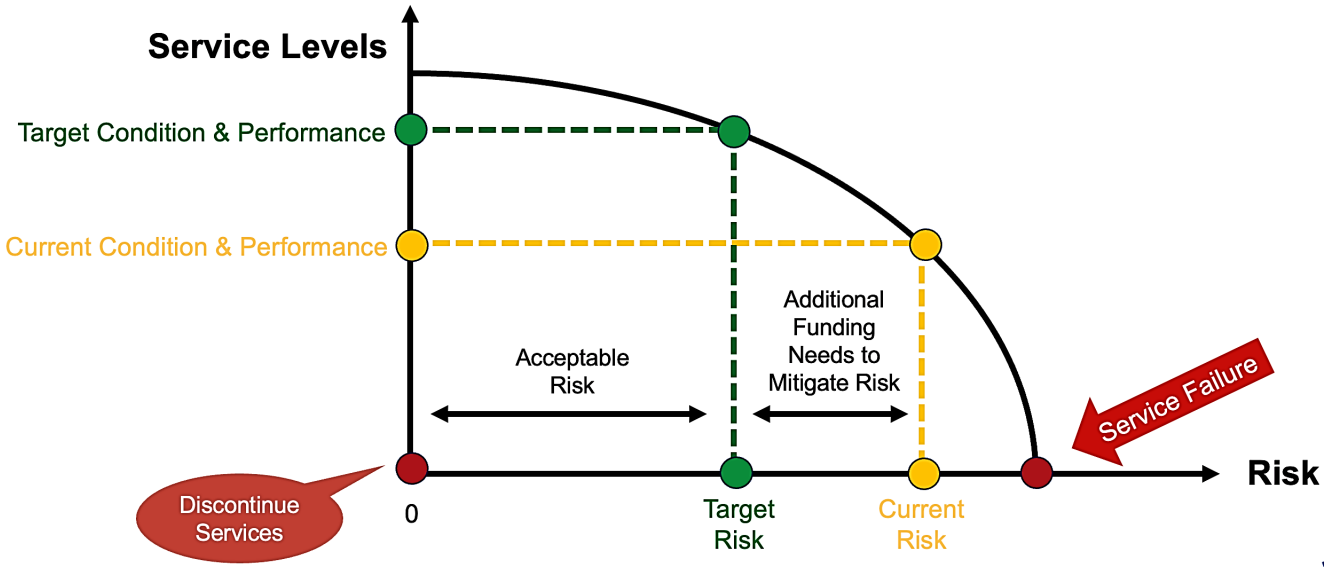
The sum of all consequence of failure scores for an asset represents the criticality of the asset. Information on criticality of assets can help the District make informed decisions regarding frequency of condition inspection cycles, establishing maintenance schedules, determining appropriate contribution to capital reserves, as well as replacement prioritization of assets that are more critical to the District. Table C1.16 distinguishes between low, moderate and high criticality assets with some suggested lifecycle management activities for consideration.

Table C1.16: Criticality of District Assets

Criticality Level	Criticality Range	Suggested Lifecycle Management Activities
Low Criticality	Up to 10	• Continue routine maintenance. • May be acceptable in some cases to allow assets/components to break/fail before replacement.
Moderate Criticality	11 - 19	• Ensure proper maintenance protocols are followed. • May need to plan for failure and have ready access to critical spare components.
High Criticality	20 and above	• More frequent inspections and proactive maintenance with planned emergency standard operating procedures.

Traditionally, municipalities manage or treat risk by outsourcing operations to a third party, insuring against losses and reducing the impact of potential service failure through contingency planning to deal effectively with consequences. Within the scope of asset management, current risk is estimated based on the current condition and performance of assets can be reduced to an acceptable level by reducing the current likelihood of asset failure. This can be achieved by setting higher target service levels corresponding to acceptable target level of risk with implications on future capital and operating budgets as illustrated in Figure C2. Generally, any improvement in service levels will lead to a lower risk but this can only be achieved by allocating additional funds to service areas or reallocating funds between service areas.

Figure C2: Relationship between Service Levels and Risk



As part of the District's enterprise risk management framework, staff have determined five distinct risk ratings based on asset criticality, current physical condition and performance of assets. These risks are identified as: condition, operational functionality, capacity to meet demand, operational resiliency and environmental resiliency. This provides greater insight than the traditional risk models that only capture condition and criticality of assets.

At existing service levels, typically municipalities prioritize assets with relatively higher current risk ratings but once the District establishes future target service levels in alignment with phased 2025 asset management plan requirements under O. Reg. 588/17, variance between current risk and target risk will also be used to identify the scope of intervention required in terms of budgeting needs as shown in Table C1.17.

Table C1.17: Prioritization and Intervention Criteria Based on Variance from Target Risk

Risk Level	Current Risk Score Range	Timing of Intervention (Budgeting Priority)	Scope of Intervention (Budgeting Needs)
Low Risk	< 21	Lower Priority	Low Amount of Estimated Funds Required to Address Variance from Target Risk
Moderate Risk	21 – 59	Status Quo	Moderate Amount of Estimated Funds Required to Address Variance from Target Risk
High Risk	60 - 99	Higher Priority	High Amount of Estimated Funds Required to Address Variance from Target Risk
Extreme Risk	> 99	Top Priority	High Amount of Estimated Funds Required to Address Variance from Target Risk

Climate Change Integration

Extreme weather events can have a direct impact on District infrastructure assets. Extreme rainfall, for example, can exceed capacity of culverts and storm sewer systems more frequently. It can also lead to flooding of wastewater facilities, changes in source water quality, changes to wastewater influent characteristics that can lead to increased maintenance and repair costs, or untreated discharge associated with wastewater treatment. Extreme temperatures will make tenants residing in District community and affordable housing facilities more vulnerable due to lack of air conditioning in the summer. The consideration of these potential impacts in asset management offers an opportunity to facilitate informed capital investment decisions.

At the District, climate change is integrated with asset management as part of its service level framework and enterprise risk management framework in alignment with best practices, regulatory requirements, and strategic objectives of Council. To foster an enabling environment for integration of climate change mitigation with asset management, staff identified and leveraged opportunities to incorporate climate change mitigation goals as part of community service levels.

For integrating climate change resilience and adaptation with asset management, staff developed a basic understanding of anticipated climate changes using the available and recent climate data projections Climate Atlas Report to identify assets vulnerable to local climate hazards such as extreme heat, extreme rainfall, seasonal flooding, and changes in freeze-thaw cycles. This helped staff document potential climate change implications on service levels through capturing performance of assets in terms of environmental resiliency and assigning environmental resiliency risk ratings to all District infrastructure assets that also consider potential impacts to the environment if an asset does fail.

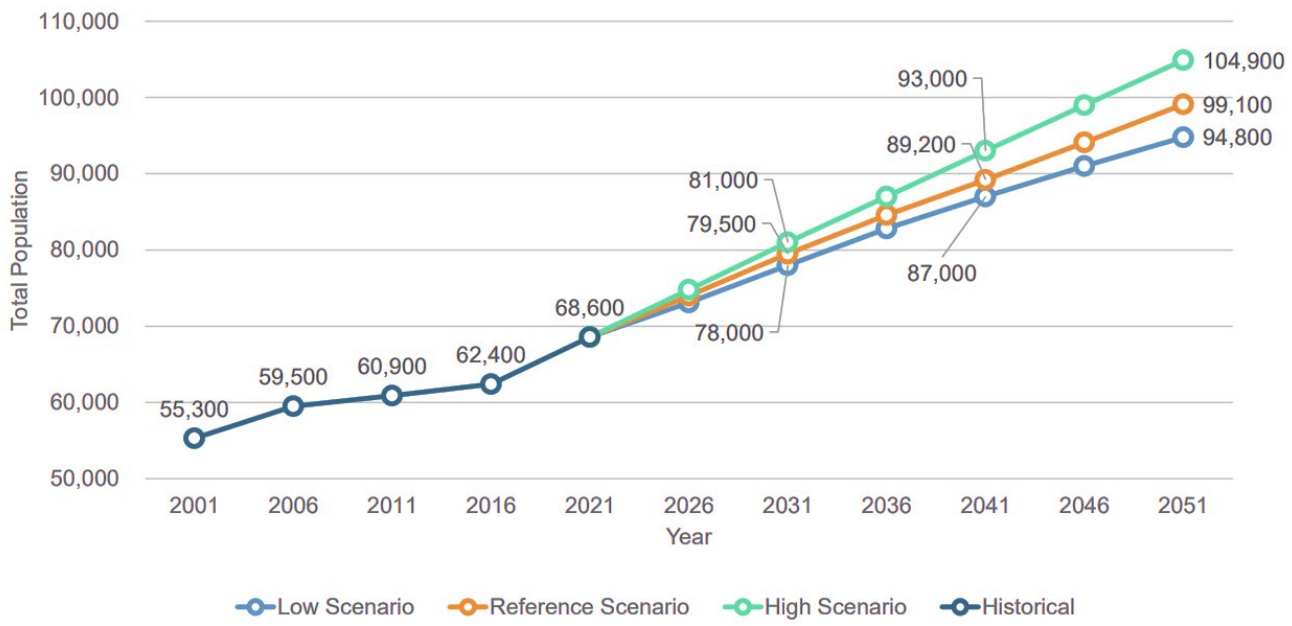
Demand Forecasting and Growth

Growth drives critical infrastructure demand for most infrastructure services. As such, the District must not only account for the lifecycle cost for its existing asset portfolio, but those of any anticipated and forecasted capital projects associated specifically with growth. Factors influencing the future demands of District infrastructure include anticipated change in population, demographics, socio-economic factors, community preferences and climate change. Future demands will be managed using a combination of interventions to manage, upgrade or expand existing assets, acquire new assets, and to incorporate changes in operations and maintenance activities.

As presented in Staff Report CPS-2-2024-2 to the Community and Planning Services Committee, the District is undertaking Growth Strategy Update to provide updated background information to meet requirements of the Provincial Policy Statement and respond to observed growth trends. Phase 1 of the growth study on future growth projections has been completed using an established modelling methodology that accounts for a variety of demographic and economic trends as well as supply and demand factors such as building permit activity, census information, servicing capacity, vacant land supply, and existing development approvals.

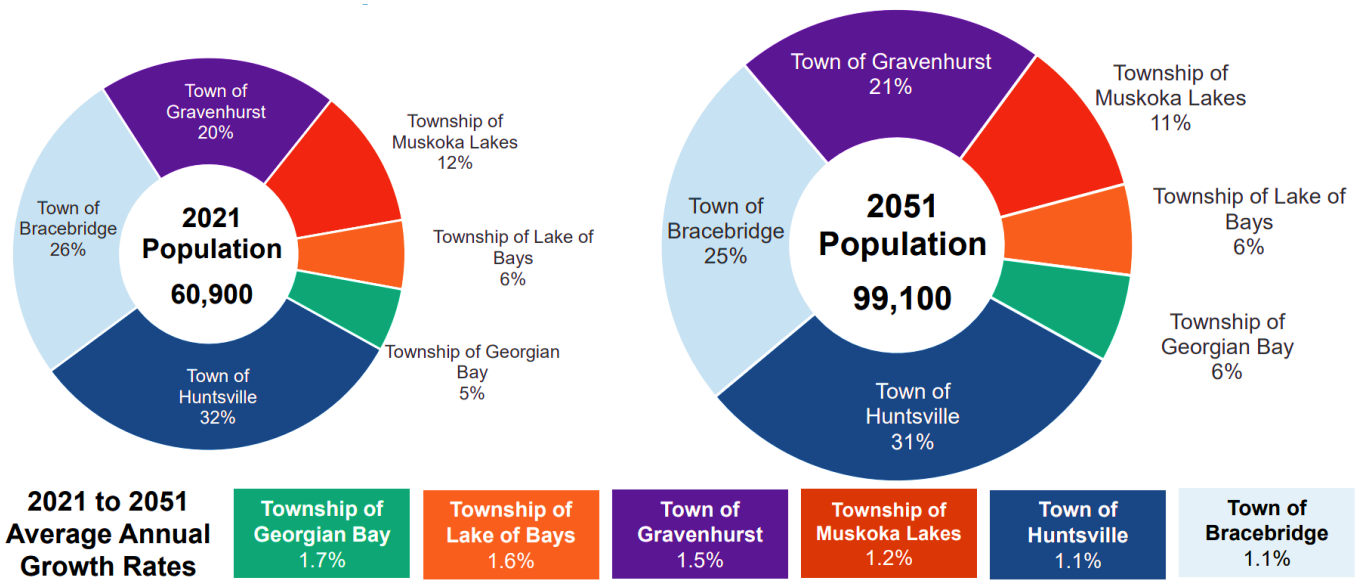
In addition, consideration was given to Muskoka's unique circumstances as a second home community near the Greater Toronto Area, as well as to recent trends in seasonal conversions and increased work-from-home abilities. A summary of three long-term population growth forecasts for the District has been prepared, including low, medium, and high growth scenarios as shown in Figure C3.

Figure C3: Long-Term Population Growth Forecast (2021 – 2051)



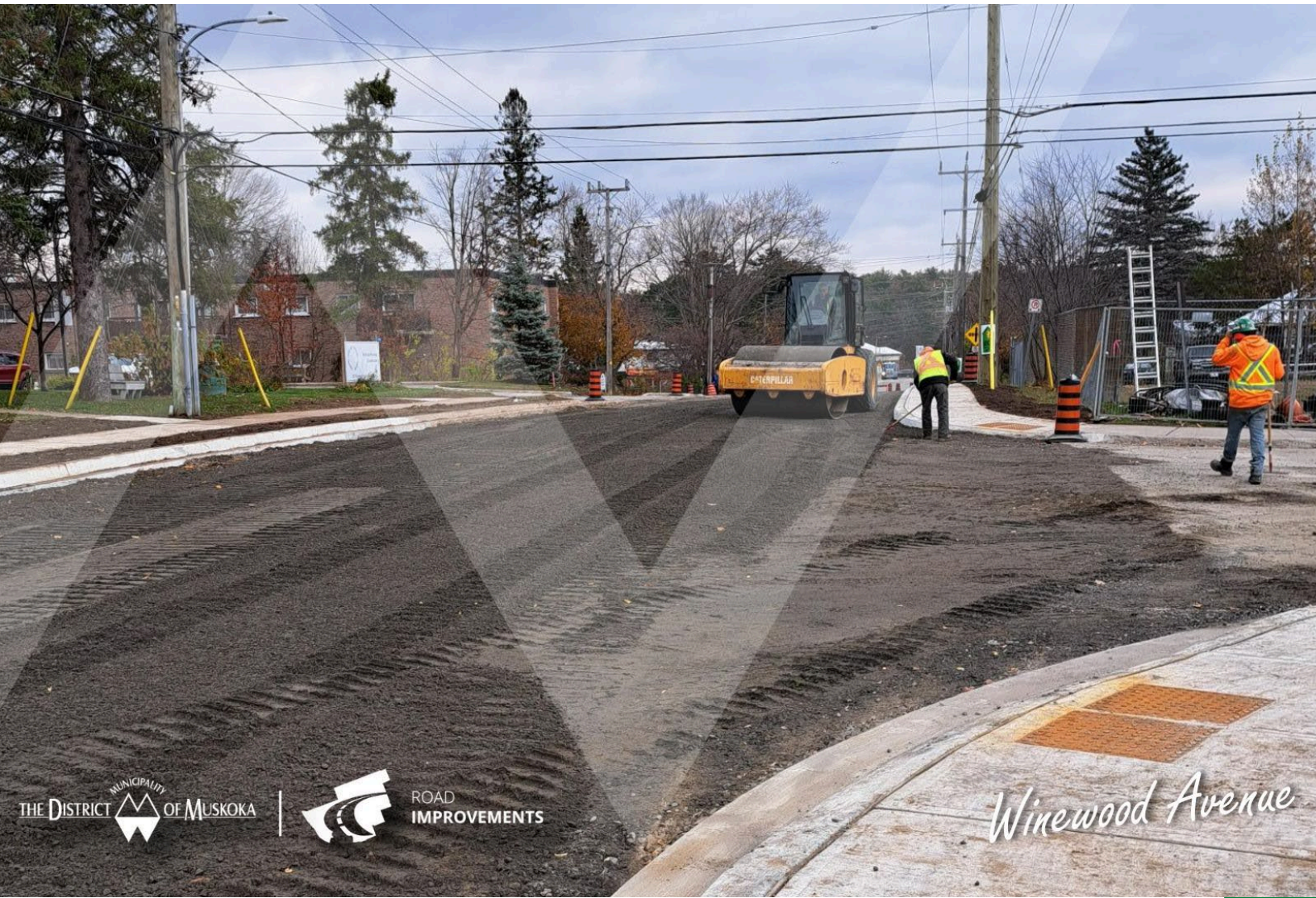
Over the forecasted period, the District is expected to grow to 99,100 residents by 2051, representing an average annual growth rate of 1.2%. Based on the medium growth scenario (most likely scenario), permanent population allocations were estimated for all lower-tier municipalities in the District as shown in Figure C4. This will help the District better plan for anticipated changes in demand for both tax and rate support infrastructure services in collaboration with the area municipalities.

Figure C4: Anticipated Permanent Population Allocations (2021 – 2051)



The projections and allocations will be used in the District's Development Charges Background Study and other corporate initiatives including the updating of the Muskoka Official Plan and master plans.

Transportation Services



D. Transportation Services

Service Objective:

The District is committed to providing and maintaining a safe and reliable regional road network that meets the desired service requirements.

HIGH

Data Confidence

GOOD

Overall Condition

MODERATE (45)

Condition Risk Score

GOOD

Overall Performance

MODERATE (42)

Performance Risk Score

$1,886M

(2023)

Replacement Value

$95M

(2023)

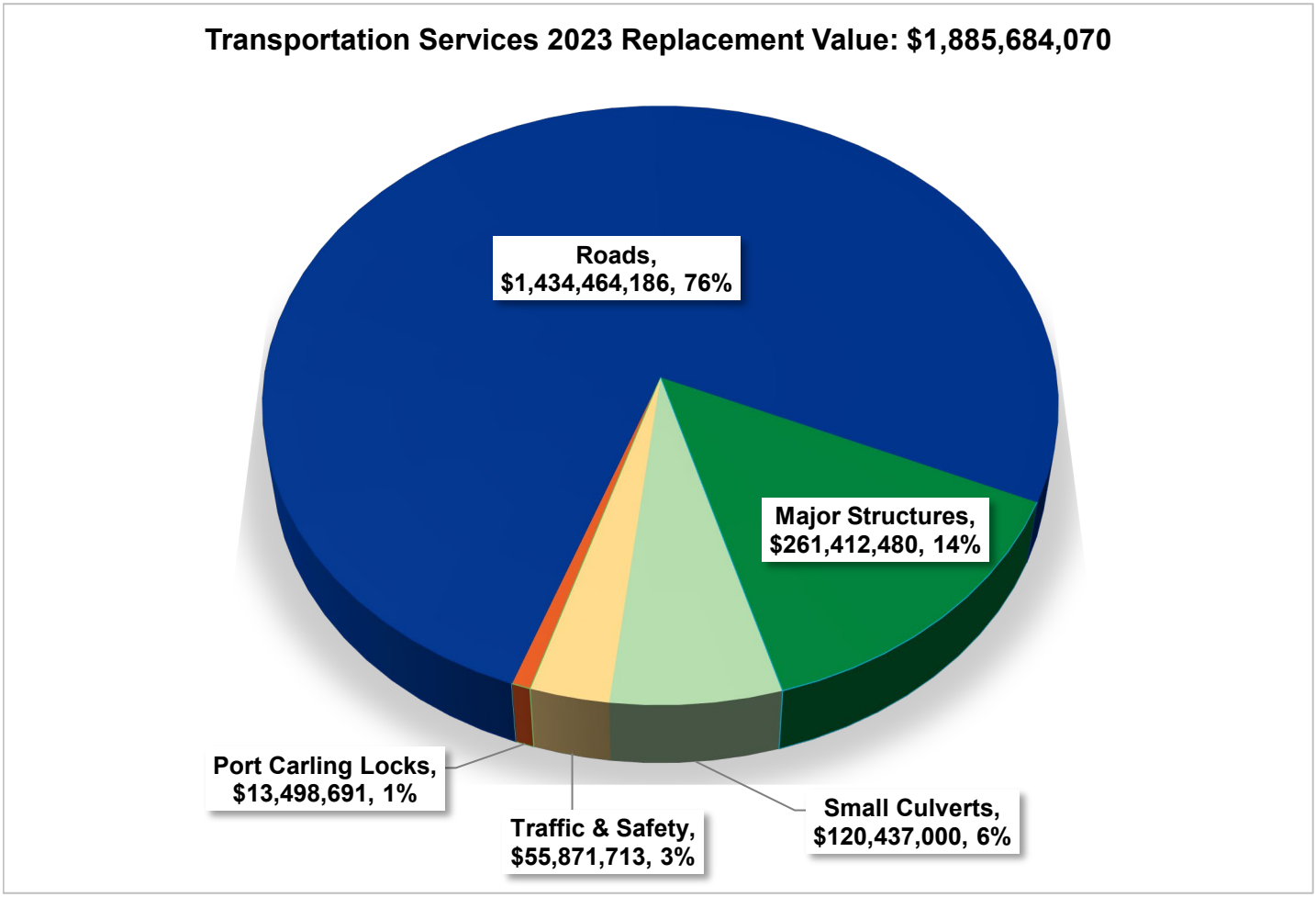
Total Cost for Service Delivery

Current State of Infrastructure

Transportation services is comprised of five service divisions: roads, major structures, small culverts, traffic and safety assets, and Port Carling locks. District roads and bridges enable the efficient movement of people and goods as well as support transient traffic passing through the District, while the Port Carling locks allows passage of marine vessels between lakes Rosseau and Muskoka. In addition to passenger vehicles, District transportation assets also support public transit, commercial truck traffic, movement of agricultural equipment, products and animals, and reliable emergency vehicle access to all areas of the District.

The transportation services asset portfolio has a total replacement value of almost $1,886 million, the largest proportion (32%) of the total replacement value of all District infrastructure. If all road assets were to be replaced, it would cost approximately $1.434 million. The replacement value for major structures is estimated to be $261 million, whereas small culverts are estimated to be $120 million. Figure D1 provides an overview of each service division in transportation services by replacement value.

Figure D1: Transportation Services 2023 Replacement Value by Service Division



The 1,467 lane kilometres of our road network is further classified by asset class into arterial, collector and local roads. The asset class is based on the *Classification of Highways* table in *O.reg 239/02 Minimum Maintenance Standards for Municipal Highways*, where class 1 and 2 are arterial, class 3 and 4 are collector, and class 5 and 6 are local. Major structures include 51 bridges, 47 major culverts, and a retaining wall. Small culverts include 2,154 centerline and 3,507 entrance culverts. Figure D2 provides and overview of the replacement value by asset class. Traffic and safety assets include guide rails, traffic control devices, traffic calming signage, regulatory signage, and roadside barriers. Assets under Port Carling locks include large and small locks system, and the James Bartleman Park. Table D1.1 illustrates key attributes of all assets supporting transportation services.

Table D2: Transportation Service 2023 Replacement Value by Asset Class

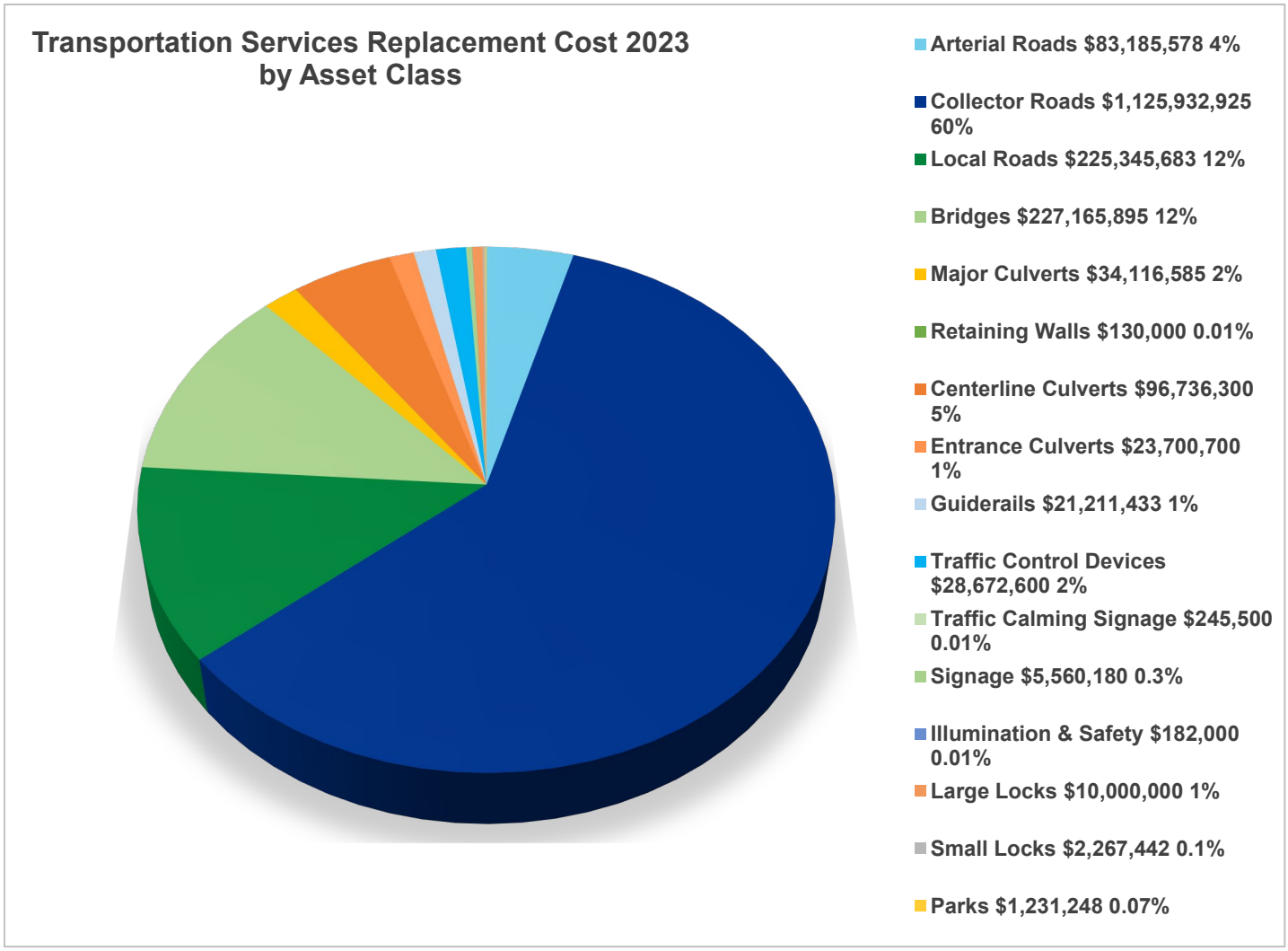
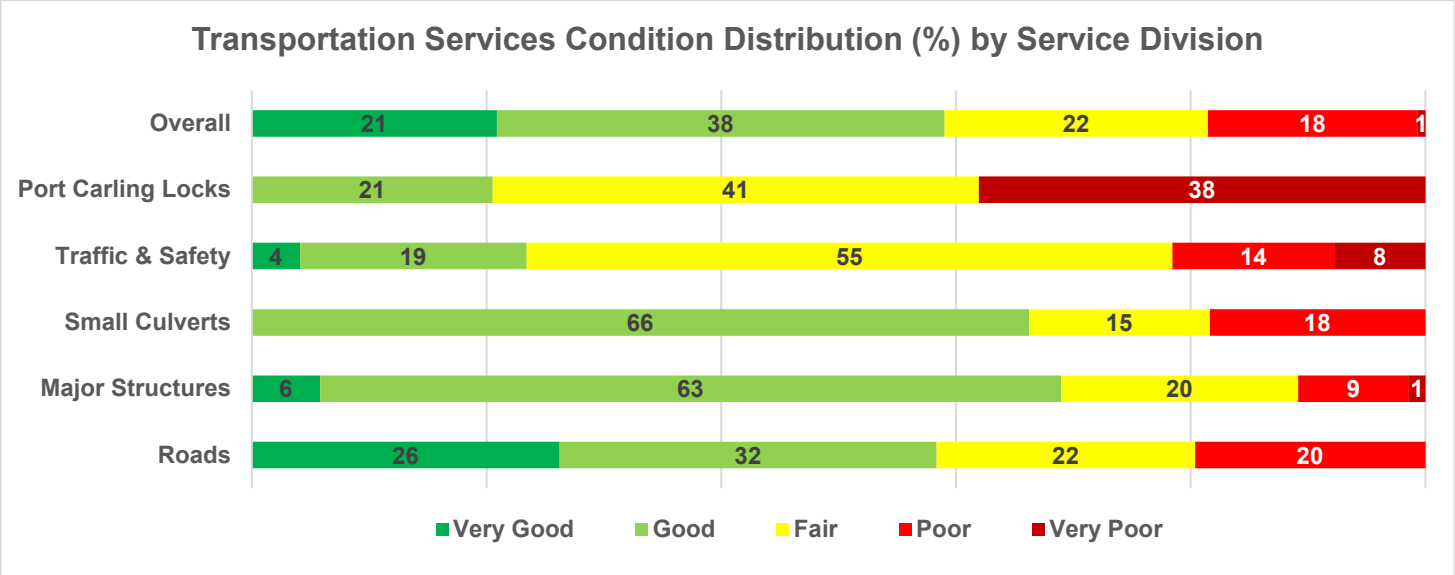


Table D1.1: Transportation Service to Assets Hierarchy

Service Area	Service Division	Asset Class	Quantity	Unit	2023 Replacement Value
Transportation Services	Roads	Arterial Roads	85	Length (lane km)	$83,185,578
		Collector Roads	1,144	Length (lane km)	$1,125,932,925
		Local Roads	238	Length (lane km)	$225,345,683
	Major Structures	Bridges	51	Each	$227,165,895
		Major Culverts	47	Each	$34,116,585
		Retaining Walls	1	Each	$130,000
	Small Culverts	Centerline Culverts	2,154	Each	$96,736,300
		Entrance Culverts	3,507	Each	$23,700,700
	Traffic and Safety	Guiderails	100	Length (km)	$21,211,433
		Traffic Control Devices	73	Each	$28,672,600
		Traffic Calming Signage	48	Each	$245,500
		Signage	18,050	Each	$5,560,180
		Illumination and Safety	32	Each	$182,000
	Port Carling Locks	Large Locks	1	Each	$10,000,000
		Small Locks	1	Each	$2,267,442
		Parks	1	Each	$1,231,248
					$1,885,684,070

Overall, 81% of transportation assets are in fair or better condition. The other 19% of transportation assets that are in poor to very poor condition include 285 lane kilometres of roads, 7 bridges, 11 major culverts, retaining wall and assets associated with Port Carling locks. The condition distribution of transportation assets weighed by replacement cost is shown in Figure D3.

Figure D3: Transportation Assets Condition Distribution (%) by Service Division



Current Service Levels

District staff have documented current service levels associated with transportation assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well current operating and maintenance activities. Transportation community service levels consist of the following:

- Roads are safe for traffic and in a state of good repair.
- Roads are maintained at or above minimum maintenance standards.
- Roads support all modes of transportation and facilitate emergency vehicles.
- Roads are adequate to meet current and future traffic demands.
- Roads are safe and accessible year-round based on regulatory requirements.
- Complaints from residents and/or businesses are promptly addressed in accordance with the minimum maintenance standards and District policies.
- Bridges and culverts are accessible for designated users and modes of transport.
- Traffic signal timing is programed to promote the appropriate traffic flow.
- Traffic assets support safe road conditions.
- Small Locks are open 24/7 at the beginning of June while large locks are open seasonally according to community needs.

Overall, average condition and combined performance of transportation services assets is good. However, there are some asset performance related issues identified in terms of operational functionality, operational resiliency and environmental resiliency. Operational functionality and operational resiliency of local roads and small locks are rated as fair by staff. Environmental resiliency of major culverts and locks are also rated as fair. Future target service levels will determine the type of required interventions to improve performance of transportation assets as needed. Table D1.2 provides the average condition and performance of transportation assets weighted by replacement value by asset class.

Table D1.2: Transportation Technical Service Levels – Average Condition and Performance Weighted by Replacement Value

Service Division	Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Roads	Arterial Roads	Fair	Very Good	Good	Good	Good	Good
	Collector Roads	Good	Good	Good	Good	Good	Good
	Local Roads	Good	Fair	Good	Fair	Good	Good
Major Structures	Bridges	Good	Good	Good	Good	Good	Good
	Major Culverts	Good	Good	Good	Good	Fair	Good
Small Culverts	Centerline Culverts	Good	Good	Good	Good	Good	Good
	Entrance Culverts	Good	Good	Good	Good	Good	Good
Traffic and Safety	Guiderails	Fair	Fair	Good	Good	Good	Good
	Traffic Control Devices	Fair	Good	Good	Good	Good	Good
	Traffic Calming Signage	Good	Good	Good	Good	Good	Good
	Signage	Good	Good	Good	Good	Good	Good
	Illumination and Safety	Fair	Good	Good	Good	Good	Good
Port Carling Locks	Large Locks	Poor	Good	Good	Good	Fair	Good
	Small Locks	Fair	Fair	Good	Fair	Fair	Fair
	Parks	Fair	Good	Good	Good	Good	Good
Overall Condition and Performance		**Good**	**Good**	**Good**	**Good**	**Good**	**Good**

Table D1.3 provides a few examples of the current operation and maintenance activities undertaken by transportation services staff to support current service levels. Additional metrics required by O. Reg. 588/17 are listed in Table D1.4. A map of District's road network by condition rating is also provided in Appendix N1.

Table D1.3: Transportation Technical Service Levels – Operating and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
Pavement Condition Index (PCI) Assessment	Transition from Structural Adequacy to PCI
Road Patrolling	Fully Meet Minimum Maintenance Standards (MMS)
Line Painting	100% of roads every year or as needed
Ditch Cleaning and/or Regrading	Spot Repairs as needed
Sweeping	Once a year
Snow Removal	Fully Meet MMS
Surface Repairs	Fully Meet MMS
Minor road base repair	As required
Catch Basins / Maintenance Holes Cleaning and inspection	Every year
Catch Basins / Maintenance Holes Repairs	As required
Brushing / Clearing	Every 10 years (as needed)
Roadside and Corridor Maintenance	Fully Meet MMS
Shoulder Drop-off Repairs	Fully Meet MMS
Ditch Cleaning/Regrading	Every 10 years (as needed)
Conduct OSIM inspections on all bridges and major culverts	Every 2 years
Staff to inspect minor culverts to determine condition	Every 5 years
Bridge Deck Spalls Repair	Fully Meet MMS
Bridge Deck Surface Discontinuities Repair	Fully Meet MMS
Frequency of staff inspection of traffic control signal systems and sub-systems	Fully Meet MMS
Frequency of staff inspection of VACTS and School Clocks	Yearly
Frequency of staff inspection of regulatory or warning signs	Fully Meet MMS
Operation, maintenance and repair of locks, docks and park facilities	As needed
Grounds maintenance including trees and gardens	As needed
Maintenance of walkway and signs	As needed
Operation of lift bridge	Appointment Based

Table D1.4: Transportation Additional Metrics Required by O. Reg. 588/17

Additional Metrics Required by O. Reg. 588/17	2023
Number of lane-kilometres of Arterial, Collector and Local Roads as a proportion of square kilometres of land area of the District	0.37 lane-km / km2
Paved Roads – Average PCI (Converted from Structural Adequacy Scores)	68
Bridges – Average BCI	72
Structural Culverts – Average BCI	69
Percentage of bridges with no load restrictions	98%
Percentage of bridges with no vertical clearance restrictions	100%
Percentage of bridges with minimum one traffic lane (horizontal clearance restrictions)	100%

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Table D1.5 provides the asset criticality and consequence of failure scores by asset class. Bridges and major culverts have acquired a high criticality rating due to the potential for adverse impact in nearly every category. Service disruption and health and safety are of particular concern as a critical failure has potential for immediate physical injury and these assets if disrupted typically require long detours. Bridges and large culverts are inspected every two years as per O. Reg. 104/97.

Table D1.5: Transportation Assets Criticality and Consequence of Failure Scores

Service Division	Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
Roads	Arterial Roads	Moderate	5	5	3	3	3	19
	Collector Roads	Moderate	5	5	3	3	3	19
	Local Roads	Moderate	5	5	3	3	2	18
Major Structures	Bridges	High	5	5	5	3	5	23
	Major Culverts	High	5	5	4	3	4	21
Small Culverts	Centerline Culverts	Moderate	5	4	3	2	2	16
	Entrance Culverts	Moderate	5	2	2	1	1	11
Traffic and Safety	Guiderails	Low	5	1	2	1	1	10
	Traffic Control Devices	Moderate	5	1	4	1	2	13
	Traffic Calming Signage	Low	5	1	1	1	2	10
	Signage	Low	5	1	1	1	2	10
	Illumination and Safety	Low	5	1	1	1	1	9
Port Carling Locks	Large Locks	Moderate	1	3	5	2	4	15
	Small Locks	Moderate	2	1	4	2	3	12
	Parks	Low	2	1	3	1	1	8

Table D1.6 illustrates the condition risk rating, all performance risk ratings and a combined performance risk rating. Transportation services are moderate or low risk with bridges, major culverts and arterial roads being close to the upper limit of moderate. Though most of the assets have moderate risk, there are some potential budget implications in terms of reallocation of resources within the transportation assets portfolio. Assets that have a relatively higher risk score such as bridges, arterial roads, major culverts and large locks should be prioritized for maintenance and replacement based on future target service levels.

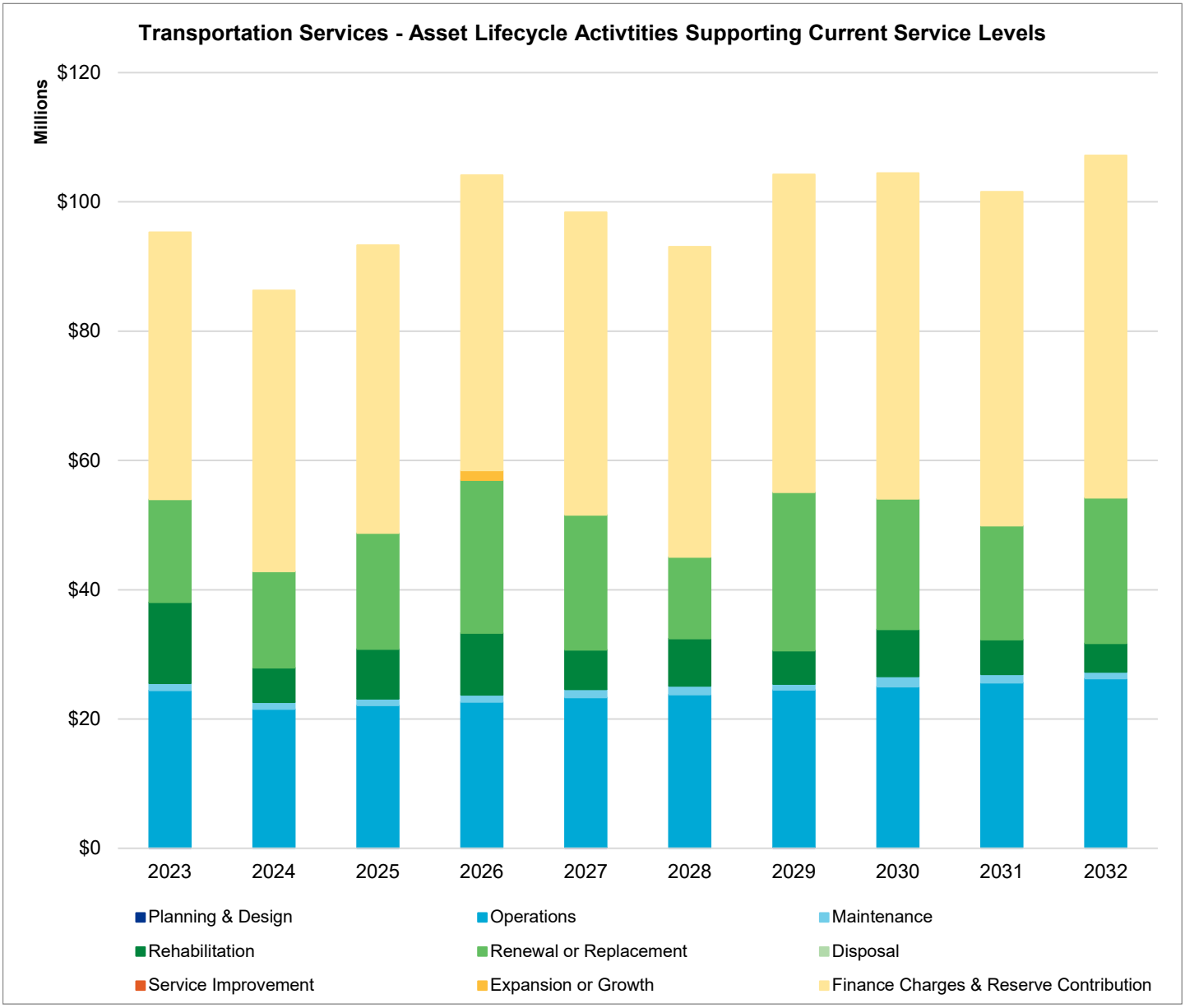
Table D1.6: Transportation Assets Current Risk Ratings Weighed by Replacement Cost

Service Division	Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Roads	Arterial Roads	53	20	38	38	38	34
	Collector Roads	44	42	38	47	41	42
	Local Roads	41	48	36	55	38	44
Major Structures	Bridges	55	48	46	46	46	47
	Major Culverts	52	43	42	47	51	46
Small Culverts	Centerline Culverts	40	40	40	40	32	38
	Entrance Culverts	29	29	29	29	22	27
Traffic and Safety	Guiderails	30	27	20	20	20	22
	Traffic Control Devices	42	37	26	36	26	31
	Traffic Calming Signage	23	20	20	20	20	20
	Signage	21	20	20	20	20	20
	Illumination and Safety	27	18	18	27	18	20
Port Carling Locks	Large Locks	57	30	30	30	45	34
	Small Locks	38	36	24	36	36	33
	Parks	20	16	16	16	16	16
Overall Risk		**45**	**42**	**38**	**46**	**40**	**42**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide transportation services at current service levels was $95 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contribution to reserves. Operating costs include materials, supplies, and purchased services including activities such as winter maintenance and roadside vegetation management. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $988 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure D4.

Figure D4: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows transportation services staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All major assets under transportation services have high data confidence ratings with reliable condition and performance data, and appropriate current replacement values based on pricing estimates received in 2023 for ongoing projects with similar scope. Table D1.7 describes the methodology used to assess asset condition and performance and to estimate replacement values.

Table D1.7: Transportation Data Collection Methodology and Confidence Rating

Service Division	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Roads	High	100% Assessed Condition	100% Staff Assessment	Per Unit Costing
Major Structures	High	100% Assessed Condition	100% Staff Assessment	Per Unit Costing
Small Culverts	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Staff Estimates
Traffic and Safety	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Staff Estimates
Port Carling Locks	Low	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates, Inflating Historical Costs
Overall	High	90% Assessed Condition, 10% Staff Assessments, Age of Assets	100% Staff Assessment	Per Unit Costing, Staff Estimates, Inflating Historical Costs

Changes are being made to the condition assessments for highway surfaces. For the summer of 2024, the District has engaged a consultant to undertake automated pavement assessments that use automated pavement scanning technology which will produce a Pavement Condition Index (PCI) based on industry standards. This approach will increase accuracy and repeatability through use of technology, and uniformity with other municipalities.

Having the resources to implement improvement plans is key to successful asset management. Capital project implementation staff such as project managers and contracts support staff positions are being added to the roster to improve the ability to efficiently implement capital projects. This allows the planned investments to take place when they are needed to maintain District networks in accordance with this plan. Furthermore, ensuring adequate staffing resources ensures appropriate oversight of contracted service providers to safeguard District interests.

Additionally, multi-year budgets are being implemented to spend resources more efficiently. By approving multi-year budgets for multi-year projects, the entire project cost is no longer required upfront, freeing up capital for other improvements.

Water Services



E. Water Services

Service Objective:

The District is committed to ensuring a consistent supply of safe, high-quality drinking water.

MODERATE

Data Confidence

GOOD

Overall Condition

MODERATE (36)

Condition Risk Score

GOOD

Overall Performance

MODERATE (41)

Performance Risk Score

$1,667M

(2023)

Replacement Value

$27M

(2023)

Total Cost for Service Delivery

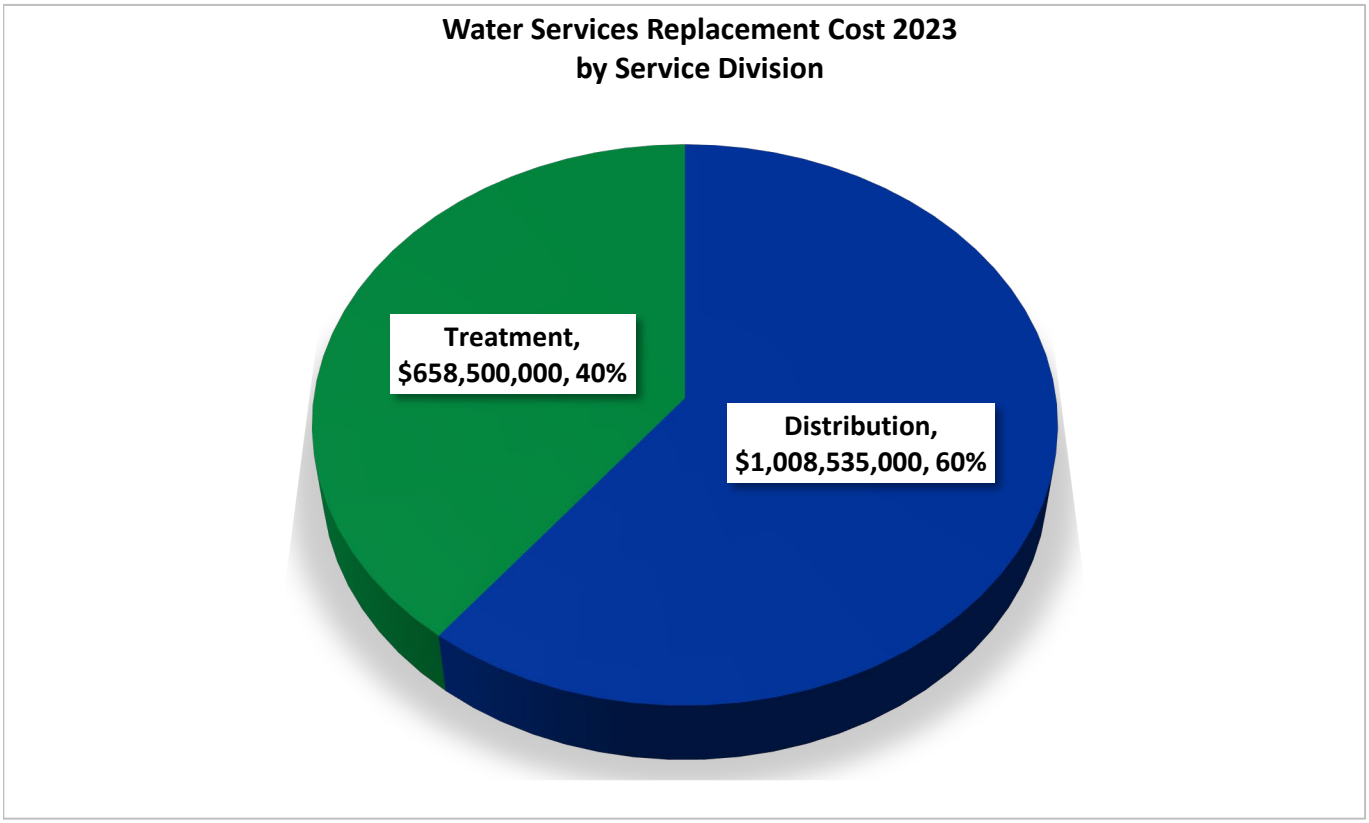
Current State of Infrastructure

The District owns and maintains nine drinking water systems serving the communities of Gravenhurst, Huntsville, MacTier, Port Carling, Port Severn, Port Sydney, Bala, Baysville, and Bracebridge. Generally, all areas that are connected to the water systems have fire flow available, excepting Port Sydney and Hidden Valley. To ensure safe drinking water, the District's drinking water systems operate under a Quality Management System as legislated under the Safe Drinking Water Act, 2002, and regulated by the Ontario Ministry of the Environment, Conservation, and Parks. Water quality is tested regularly, as required by applicable regulations, and the results of this testing are reported annually.

The water services portfolio has a total replacement value of $1,667 million or 28% of the total replacement value of District assets. This service area is divided into two service divisions, treatment, and distribution. The Treatment Division includes treatment plant assets which treat source water and produce potable water. These assets have an estimated replacement value of $658 million. The Distribution Division includes assets required to collect water from the source, treatment plants, distribution mains, storage facilities and booster pumping stations. These assets have an estimated replacement value of $1,009 million.

Figure E1 provides an overview of each service division in water services by replacement value.

Figure E1: Water Services 2023 Replacement Value by Service Division



The distribution service division consists of 358 kms of watermains, 3 booster pumping stations (two are low-lift stations separately identified from plants), 7 storage reservoirs and 5 elevated tanks. The treatment service division consists of 9 water treatment plants. Figure E2 provides an overview of asset class division in water services by replacement value. Table E1.1 illustrates key attributes of all assets supporting water services.

Figure E2: Water Services 2023 Replacement Value by Asset Class

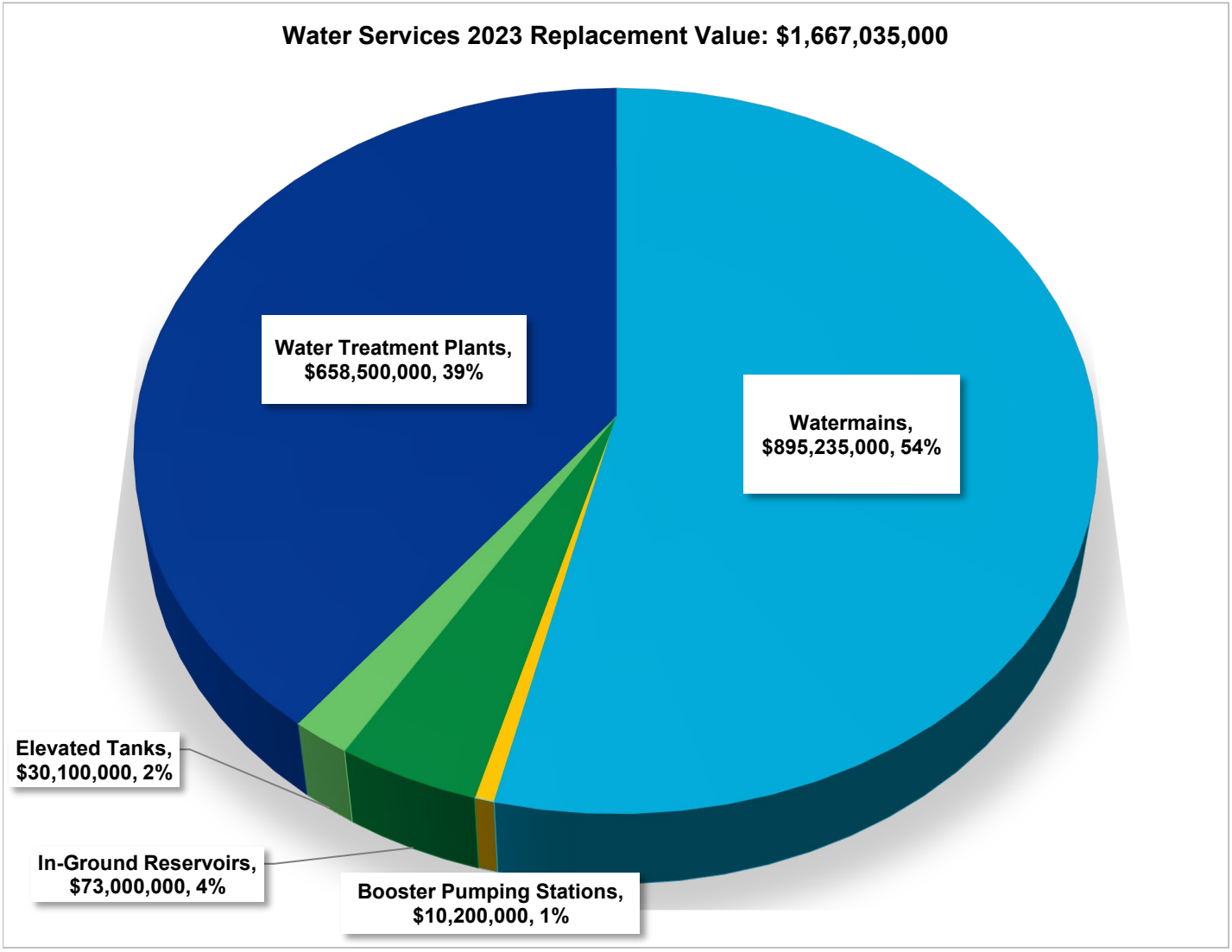
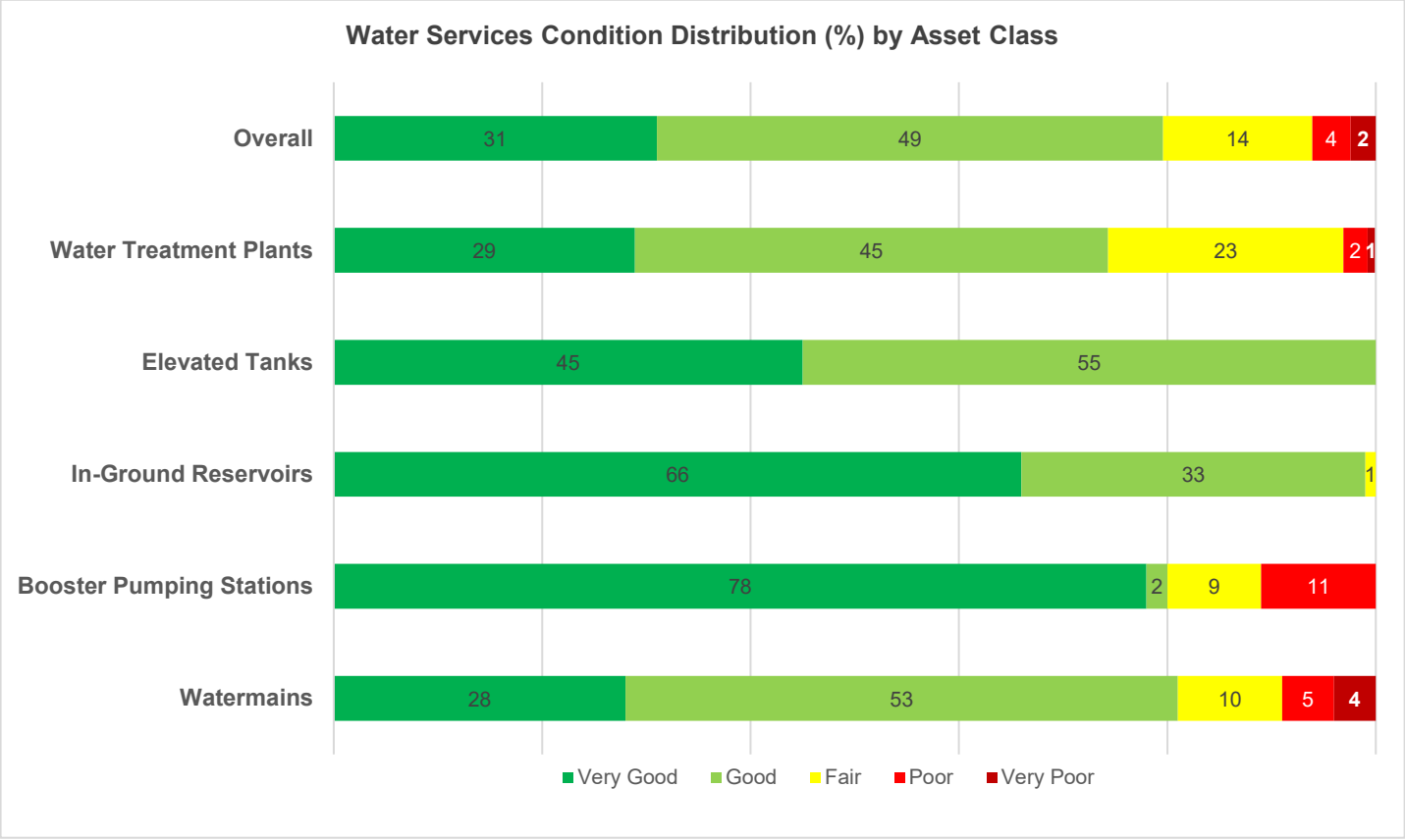


Table E1.1: Water Service to Assets Hierarchy

Service Area	Service Division	Asset Class	Quantity	Unit	Average Age in Years	2023 Replacement Value
Water Services	Distribution	Watermains	358	Length (km)	36	$895,235,000
		Booster Pumping Stations	3	Each	22	$10,200,000
		In-Ground Reservoirs	7	Each	25	$73,000,000
		Elevated Tanks	5	Each	32	$30,100,000
	Treatment	Water Treatment Plants	9	Each	29	$658,500,000
						$1,667,035,000

Appendix N2 and N3 illustrates the water distribution systems and water treatment plant locations throughout the District. Overall, 94% of water assets are in fair or better condition. The remaining 6% of water assets that are in poor to very poor condition include 29 kms of watermains and various assets associated with booster pumping stations and treatment plants in Bala, MacTier, Port Carling and Port Severn. Condition distribution of water assets weighed by replacement cost is shown in Figure E3.

Figure E3: Water Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff have documented current service levels associated with water assets by identifying community service levels and technical service levels that include capturing both asset condition and performance metrics as well current operating and maintenance activities. Water community service levels consist of the following:

- Provide consistent and reliable water supply.
- Ensure safe and aesthetically pleasing water quality.
- Water system is efficiently designed and managed.
- Water system is kept in a good condition.
- Complaints from residents and/or businesses are promptly addressed.
- Water system provides adequate fire protection.

The overall condition and combined performance of water distribution and treatment assets is rated as good. However, there were some performance related issues identified with the control systems at the treatment plants in Baysville, Bracebridge and Huntsville with operational resiliency rated as poor while environmental resiliency for the treatment plant in Port Severn was also rated as poor due to overland runoff control. Future target service levels will determine the type of required interventions to improve performance of water treatment facilities as needed. Table E1.2 provides the average condition and performance of water assets weighted by replacement value by asset class.

Table E1.2: Water Technical Service Levels – Average Condition and Performance

Service Division	Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Distribution	Watermains	Good	Good	Good	Good	Good	Good
	Booster Pumping Stations	Good	Good	Good	Good	Good	Good
	In-Ground Reservoirs	Very Good	Good	Good	Good	Good	Good
	Elevated Tanks	Good	Good	Good	Good	Good	Good
Treatment	Water Treatment Plants	Good	Good	Good	Fair	Good	Good
Overall Condition and Performance		**Good**	**Good**	**Good**	**Fair**	**Good**	**Good**

Table E1.3 provides a few examples of the current operations and maintenance activities undertaken by water services staff to support current service levels. Additional metrics required by O. Reg. 588/17 are listed in Table E1.4.

Table E1.3: Water Technical Service Levels – Operating and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
Flush cul-de-sacs and dead ends	Annually
Exercise valves	Every 6 years
Operate air release valves	Annually
Hydrant Maintenance	Every year
Major Equipment Testing and Inspection	Annually
Clear well Inspection	Per Ministry regulations
Chemical Application	Ontario Drinking Water Quality Standards
Inspect Intake Pipe	Every 5 years
Contact tank	Per Ministry regulations
Water Sampling	Per Ministry regulations

Table E1.4: Water Additional Metrics Required by O. Reg. 588/17

Additional Metrics Required by O. Reg. 588/17	2023
Percentage of properties connected to the municipal water system	19.3%
Percentage of properties where fire flow is available	18.9%
The number 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
The number of connection-days per year lost due to water main breaks compared to the total number of properties connected to the municipal water system	210
Water plant operations cost per mega litre of water treated	$764.5
Energy consumed (kWh) per mega litre (ML) of water treated	TBD *(Data not available until end of May 2024)*

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Table E1.5 provides the asset criticality and consequence of failure scores by asset class. Water towers and water treatment plants have acquired high criticality ratings of 20 and 22 respectively due to the potential for adverse impact in nearly every consequence of failure category with emphasis on the potential for significant health consequences.

Table E1.5: Water Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
Watermains	Moderate	3	5	3	2	3	16
Booster Pumping Stations	Moderate	5	5	3	1	3	17
In-Ground Reservoirs	Moderate	3	5	4	3	4	19
Elevated Tanks	High	3	5	4	4	4	20
Water Treatment Plants	High	5	4 to 5	4 to 5	2	5	20 to 22

Table E1.6 illustrates the condition risk rating, all performance risk ratings, and a combined performance risk rating for all water assets. The water treatment plants have received a high-risk rating due to their operational resiliency risk driven by the potential for component failure and lack of associated redundancies. Though most of the water assets have moderate risk, there are some potential budget implications in terms of reallocation of resources within the water assets portfolio. Assets that have a relatively higher risk score such as treatment plants and elevated tanks need to be prioritized for maintenance and capital investment based on future target service levels.

Table E1.6: Water Assets Current Risk Ratings Weighted by Replacement Cost

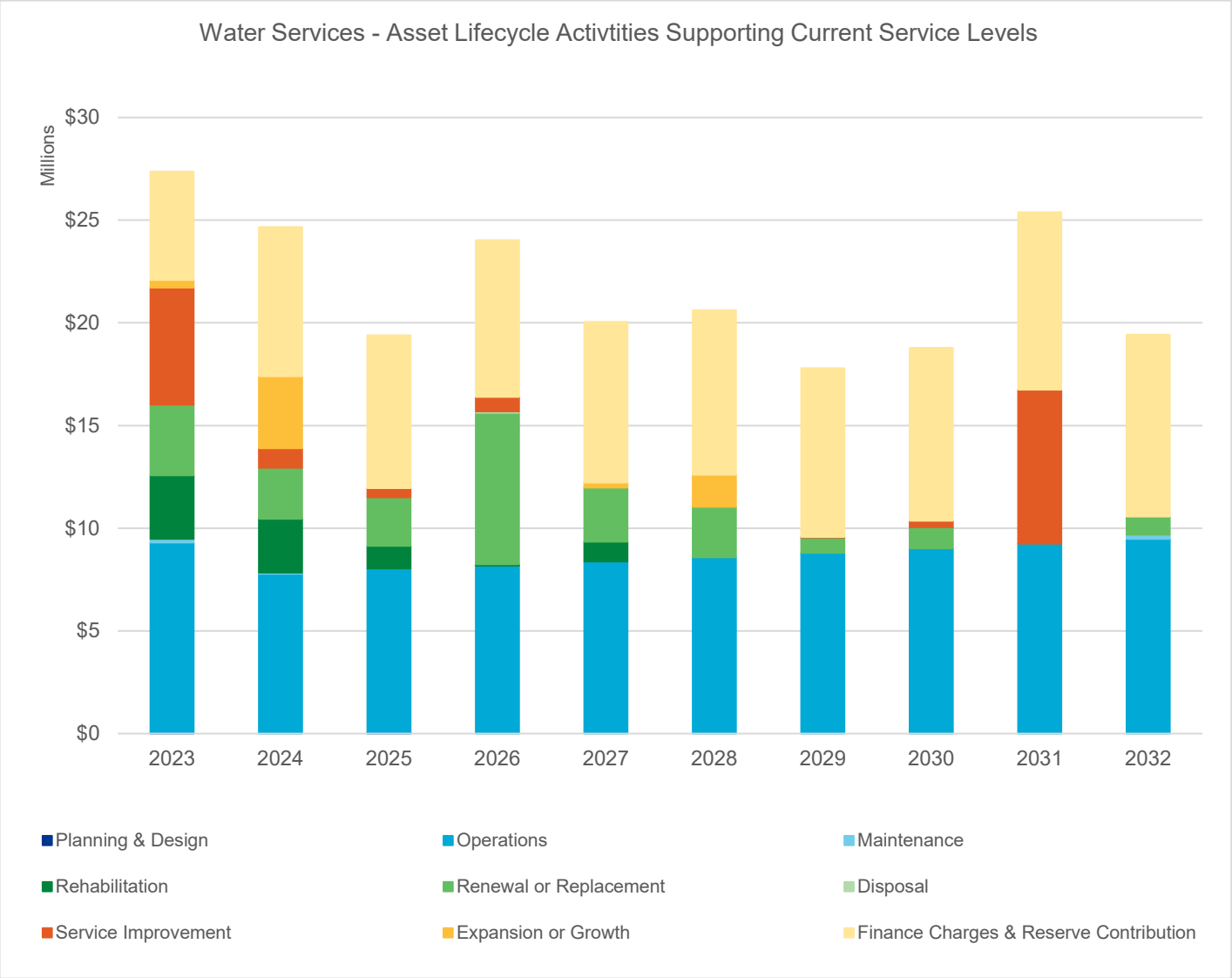
Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Watermains	33	32	32	32	32	32
Booster Pumping Stations	26	34	34	34	34	34
In-Ground Reservoirs	26	38	38	38	38	38
Elevated Tanks	31	40	40	40	40	40
Water Treatment Plants	43	44	41	75	51	53
Overall Risk	**36**	**37**	**36**	**49**	**40**	**41**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide water services at current service levels is $27 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contribution to reserves. Operating costs include supplies, materials such as process chemicals, and purchased services including laboratory analysis and facilities maintenance. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $217 million.

This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure E4.

Figure E4: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows water services staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All water assets have moderate data confidence rating. Table E1.7 describes the methodology used to assess asset condition and performance and to estimate replacement values of water assets.

Table E1.7: Water Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Watermains	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Staff Estimates
Booster Pumping Stations	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
In-Ground Reservoirs	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Elevated Tanks	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Water Treatment Plants	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Overall	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Staff Estimates Comparative Analysis

There are ongoing improvements to the Drinking Water Quality Management System (DWQMS) for the preservation of public health. This system provides a framework for operation and maintenance of the drinking water system and provides supporting documentation on its performance. It is aimed at providing safe drinking water, meeting, or exceeding regulatory requirements and continuous drinking water system improvements. Improvements include:

- Procedures for documentation
- Implementation of Cityworks computerized maintenance management system (CMMS) to streamline work orders, documentation and scheduling of maintenance and reliability tracking
- Cyber security
- Risk assessments and mitigation planning
- Backflow prevention program
- Updating of Standard Operating Procedures (SOP)

PLC/SCADA migration is also underway to reduce risk and enhance efficiency. Programmable Logic Controls (PLC) and Supervisory Control and Data Acquisition (SCADA) systems are original to most facilities and generally past their expected useful lives. Maintenance of these systems has become more difficult in recent years as faults increase due to age and parts are becoming hard or impossible to find. There is also an increased cyber security risk. This poses a significant risk as these "nerve center" assets can cause shutdowns. New District PLC and SCADA standards have been implemented and future upgrades will reflect these changes. In addition to reducing risk, the upgraded systems will allow for better efficiencies which in turn reduces operating costs and stress on equipment.

Wastewater Services



F. Wastewater Services

Service Objective:

The District is committed to protecting the environment by properly managing and treating wastewater and providing safe, dependable, and efficient wastewater services.

MODERATE

Data Confidence

GOOD

Overall Condition

MODERATE (37)

Condition Risk Score

GOOD

Overall Performance

MODERATE (41)

Performance Risk Score

$1,754M

(2023)

Replacement Value

$32M

(2023)

Total Cost for Service Delivery

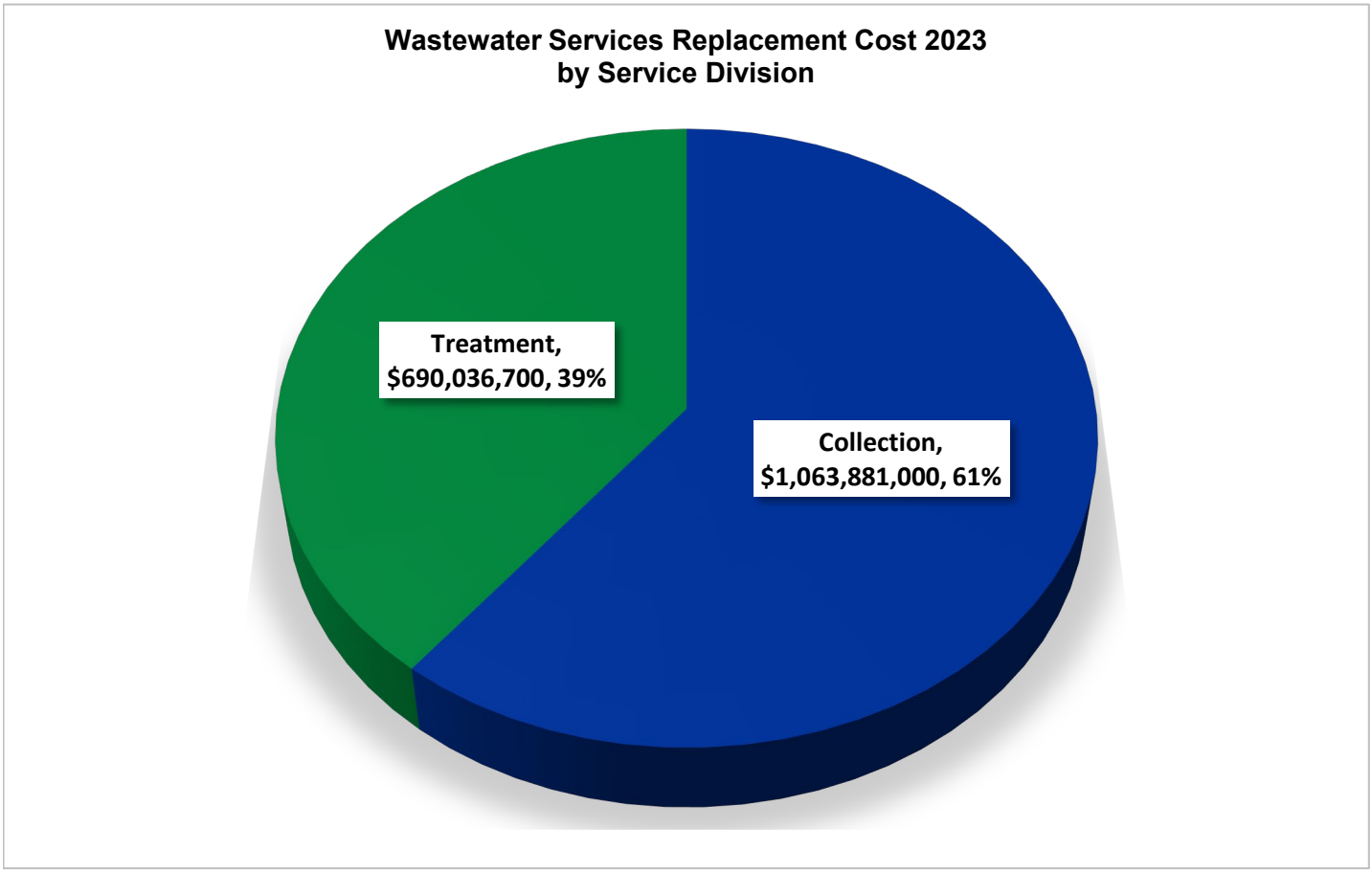
Current State of Infrastructure

The District owns and maintains nine wastewater systems, serving the communities of Bala, Baysville, Bracebridge, Gravenhurst, Huntsville, MacTier, Port Carling, and Port Severn. District facilities are operated in accordance with Environmental Compliance Approvals (ECAs) as issued by the Ministry of Environment, Conservation and Parks (MECP). In accordance with O. Reg. 588/17 a description of the effluent that is discharged from each wastewater treatment facility is provided in the ECA for each facility.

The wastewater services portfolio has a total replacement value of $1,754 million or 29% of the total replacement value of District assets. This service area is divided in to two service divisions, collection, and treatment. Collection, with a replacement value of $1,064 million, is supported by assets required to convey wastewater from the user to the treatment plants and includes gravity sewers, forcemains, maintenance holes and sewage pumping stations. Treatment, with a replacement value of $690 million is supported by assets associated with treatment of wastewater, this includes treatment plants and septage lagoons.

Figure F1 provides an overview of each service division in wastewater services by replacement value.

Figure F1: Wastewater Services 2023 Replacement Value by Service Division



The collection service division consists of 323 kms of sewer mains with gravity mains making up 228 kms and forcemains 95 kms. Sewage conveyance is also provided through 3,300 maintenance holes and moved along by 72 sewage pumping stations. The treatment service division consists of 9 wastewater treatment plants and 8 lagoon facilities. Figure F2 provides an overview of asset class division in wastewater services by replacement value. Table F1.1 illustrates key attributes of all assets supporting wastewater services.

Figure F2: Wastewater Services 2023 Replacement Value by Asset Class

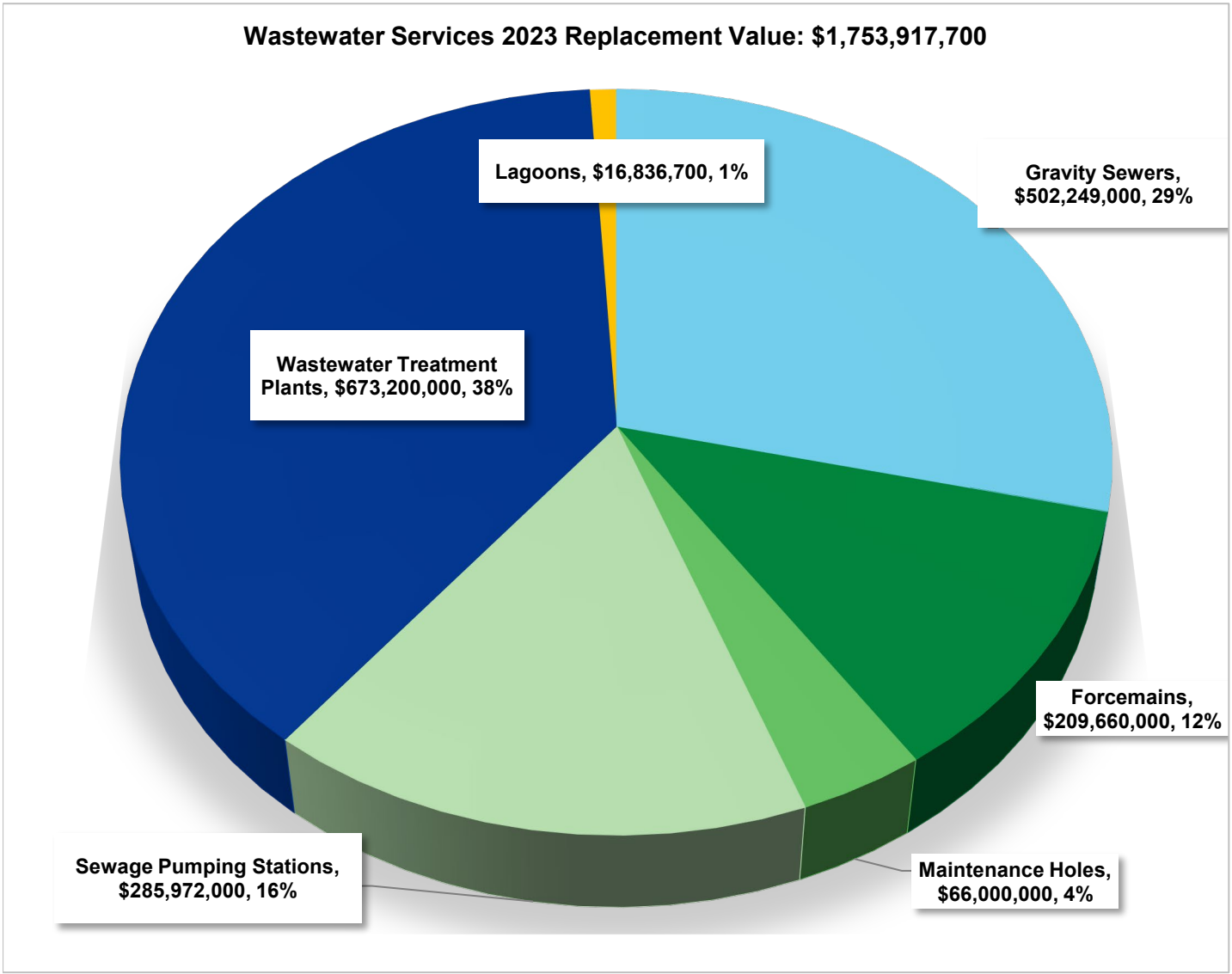
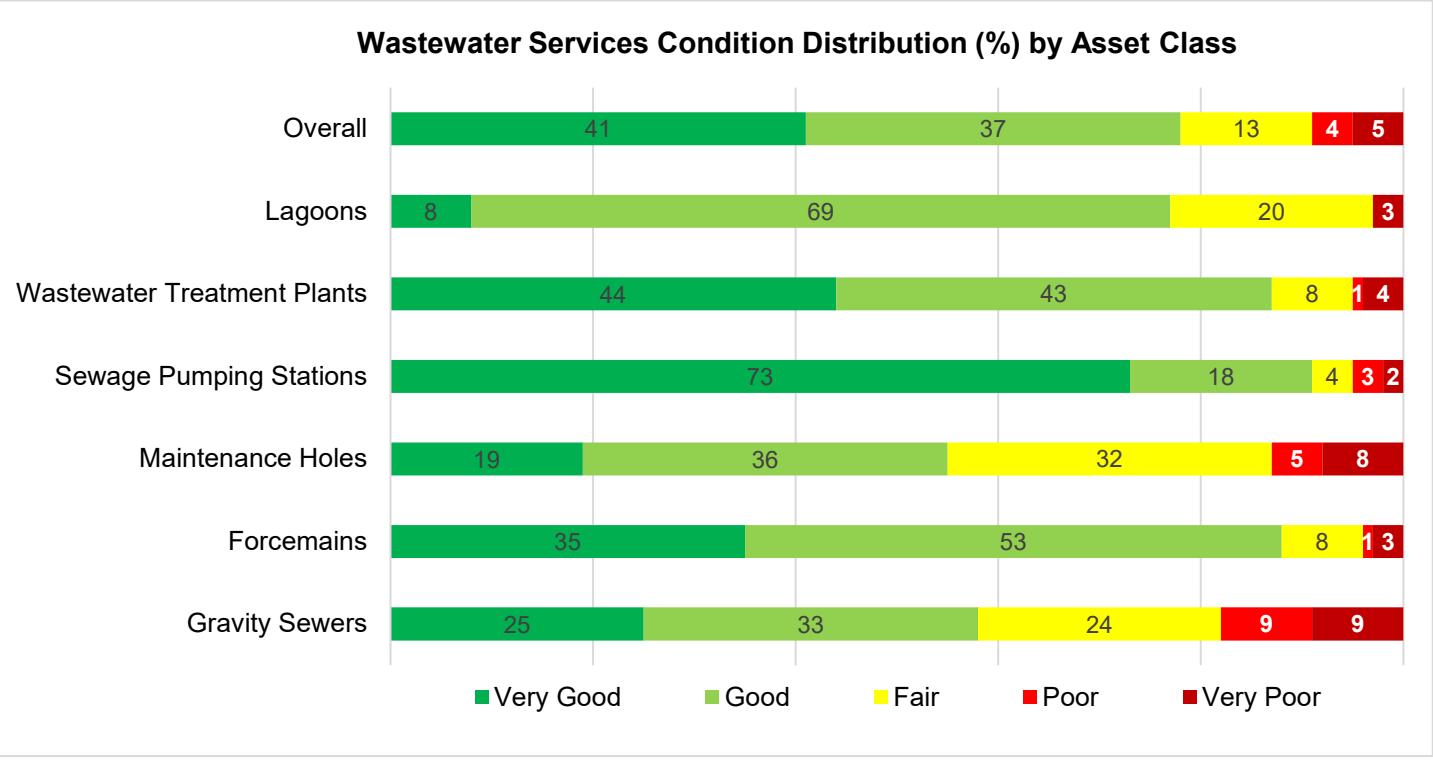


Table F1.1: Wastewater Service to Assets Hierarchy

Service Area	Service Division	Asset Class	Quantity	Unit	Average Age in Years	2023 Replacement Value
Wastewater Services	Collection	Gravity Sewers	228	Length (km)	42	$502,249,000
		Forcemains	95	Length (km)	42	$209,660,000
		Maintenance Holes	3,300	Each	34	$66,000,000
		Sewage Pumping Stations	72	Each	32	$285,972,000
	Treatment	Wastewater Treatment Plants	9	Each	26	$673,200,000
		Lagoons	8	Each	Data Not Available	$16,836,700
						$1,753,917,700

Appendix N4 and N5 illustrates the wastewater collection systems and the wastewater treatment plant locations throughout the District. Overall, 91% of wastewater assets are in fair or better condition. The remaining 9% of wastewater assets that are in poor to very poor condition include 41 kms of gravity sewers, 4 kms of forcemains, 230 maintenance holes, 5% of sewage pumping stations and other assets associated with treatment plants in Bala, Gravenhurst, Huntsville, MacTier, and Port Severn. The Huntsville Mountview treatment plant is rated as very poor, but it is soon to be decommissioned. Condition distribution of wastewater assets weighed by replacement cost is shown in Figure F3.

Figure F3: Wastewater Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff has documented current service levels associated with wastewater assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well current operating and maintenance activities. Wastewater community service levels consist of the following:

- Wastewater is fully treated before being discharged to the environment
- System capacity is adequate to carry all wastewater flows
- Wastewater system is efficiently designed and managed
- Wastewater system is kept in good, efficient operating condition
- Carbon-rich treatment by-products are processed for fertilizer by another party
- Odor control is managed wherever possible

The overall condition and combined performance of wastewater collection and treatment assets is rated as good. However, there were some performance related issues identified for the control systems at the treatment plant in Gravenhurst with operational functionality rated as poor while environmental resiliency for treatment plants in Bala, Baysville, Port Severn and Huntsville was rated as fair. Future target service levels will determine the type of required interventions to improve performance of water treatment facilities as needed. Table F1.2 provides the average condition and performance of wastewater assets weighted by replacement value by asset class.

Table F1.2: Wastewater Technical Service Levels – Average Condition and Performance

Service Division	Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Collection	Gravity Sewers	Good	Good	Good	Good	Good	Good
	Forcemains	Good	Good	Good	Good	Good	Good
	Maintenance Holes	Good	Good	Good	Good	Good	Good
	Sewage Pumping Stations	Very Good	Good	Good	Good	Good	Good
Treatment	Wastewater Treatment Plants	Good	Good	Fair	Good	Fair	Good
	Lagoons	Good	Good	Good	Good	Fair	Good
Overall Condition and Performance		**Good**	**Good**	**Good**	**Good**	**Good**	**Good**

Table F1.3 provides examples of the current operations and maintenance activities undertaken by wastewater services staff to support current service levels. Additional metrics required by O. Reg. 588/17 are listed in Table F1.4.

Table F1.3: Wastewater Technical Service Levels – Operating and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
CCTV Inspections	Each pipe every 10 years min.
Maintenance hole inspections	Each maintenance hole every 10 years min.
Pipe Flushing	Each pipe every 10 years min.
Air release valves	Annually
Pipe Swabbing (Low Pressure Sewer)	Every 10 years
Drawdown Testing	Annually
Major Equipment Testing and Inspection	Annually
Plant Operating Activities	O. Reg 129/04; Licensing of Sewage Works Operators

Table F1.4: Wastewater Additional Metrics Required by O. Reg. 588/17

Additional Metrics Required by O. Reg. 588/17	2023
Percentage of properties connected to the municipal wastewater systems	17.0%
The number of connection-days lost per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater collection systems	24
The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	11%
Wastewater plant operations cost per mega litre of wastewater treated	$996.5
Energy consumed (kWh) per mega litre (ML) of wastewater treated	TBD *(Data not available until end of May 2024)*

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Table F1.5 provides the asset criticality and consequence of failure scores by asset class. Wastewater treatment plants have acquired a high criticality rating due to the potential for adverse impact in every consequence of failure category.

Table F1.5: Wastewater Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
Gravity Sewers	Moderate	3	3	3	4	4	17
Forcemains	Moderate	3	4	3	4	4	18
Maintenance Holes	Moderate	3	3	3	4	4	17
Sewage Pumping Stations	Moderate	3	3	4	4	4	18
Wastewater Treatment Plants	High	2 to 3	4 to 5	4 to 5	4	5	20 to 22
Lagoons	Moderate	2	3	2	4	4	15

Table F1.6 illustrates the condition risk rating, all performance risk ratings, and a combined performance risk rating for all wastewater assets. Though most wastewater assets have moderate risk, there are some potential budget implications in terms of reallocation of resources within the wastewater assets portfolio. The wastewater treatment plants have notably higher operational functionality risk due to issues with the design of an older treatment plant in Gravenhurst; higher operational resiliency risk driven by the potential for component failure and lack of associated redundancies; and higher environmental resiliency risk due to the potential of inflow overwhelming facilities during extreme runoff events. These assets need to be prioritized for maintenance and capital investment based on future target service levels.

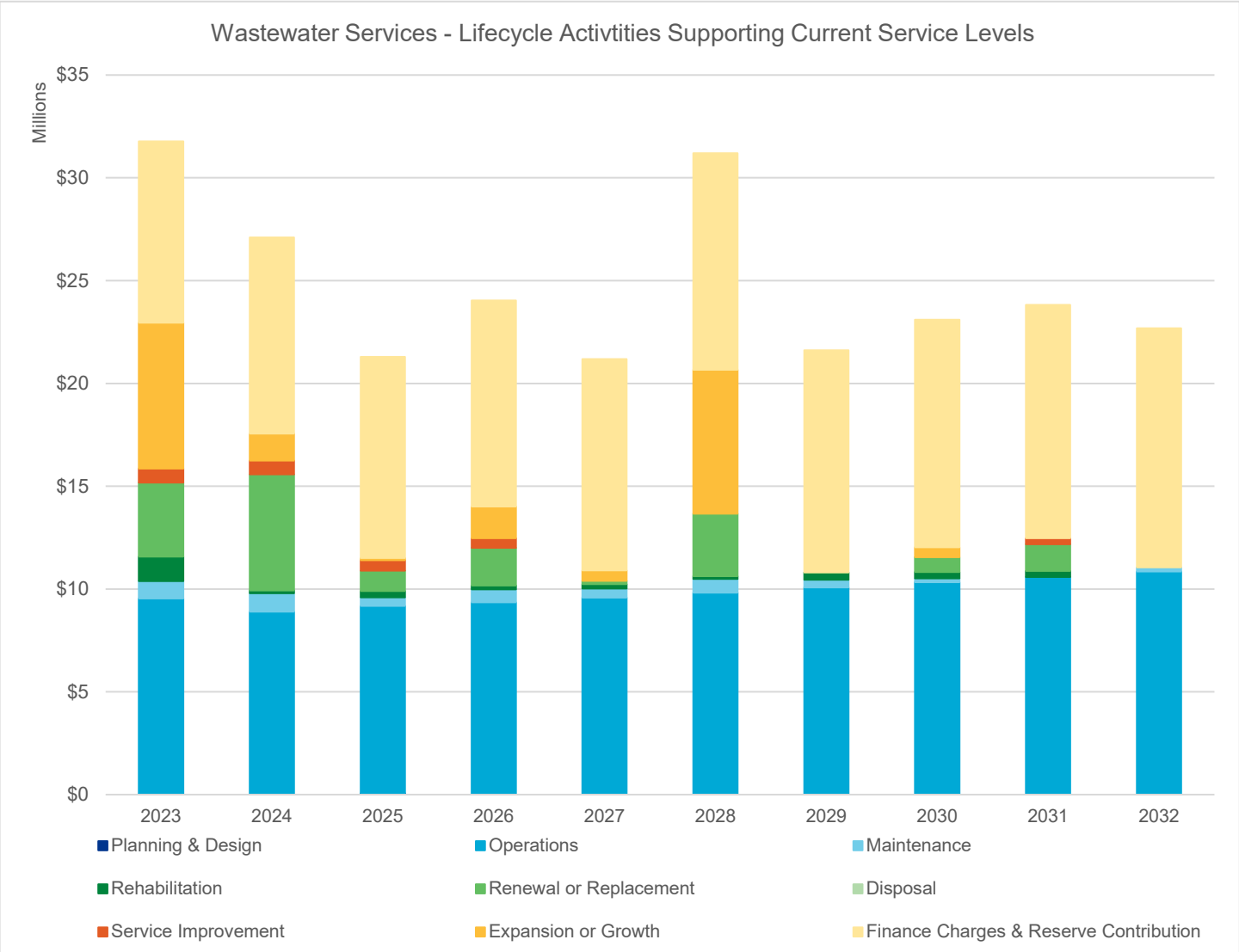
Table F1.6: Wastewater Assets Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Gravity Sewers	41	34	34	34	34	34
Forcemains	33	36	36	36	36	36
Maintenance Holes	42	34	34	34	34	34
Sewage Pumping Stations	26	36	36	36	36	36
Wastewater Treatment Plants	38	54	41	54	50	50
Lagoons	33	30	30	30	45	34
Overall Risk	**37**	**42**	**37**	**42**	**41**	**41**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide wastewater services at current service levels was $32 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contribution to reserves. Operating costs include supplies, materials such as process chemicals, and purchased services including biosolids processing, facilities maintenance, and sewer flushing. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $248 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure F4.

Figure F4: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows water services staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All wastewater assets have moderate data confidence rating. Table F1.7 describes the methodology used to assess asset condition and performance and to estimate replacement values of wastewater assets.

Table F1.7: Wastewater Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Gravity Sewers	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Staff Estimates
Forcemains	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Maintenance Holes	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Sewage Pumping Stations	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Wastewater Treatment Plants	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Lagoons	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Staff Estimates Comparative Analysis
Overall	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Per Unit Costing, Staff Estimates Comparative Analysis

To reduce the burden on wastewater treatment facilities, the District is increasing focus on reducing sanitary sewer inflow (overland runoff through maintenance hole lids, and roof leaders) and infiltration (leakage of groundwater into the system) which will enhance operational efficiency, improve product quality and decrease risk:

- Through disconnection of private sump pumps and roof leaders from the municipal sewer system to reduce inflow.
- Maintenance hole rehabilitation program to reduce infiltration which can include replacement or relining of maintenance holes.
- Review of maintenance holes which may be inundated by storm water during large storm events or the spring freshet and implementing solutions to reduce the impact on the wastewater system.

Enhanced monitoring at District septage receival sites which service properties not connected to municipal sewer mains is planned. The District is initiating a study to rationalize septage receiving service. Current receival is via an honour system and monitoring and enforcement are two areas currently recognized as needing improvement to eliminate illegal dumping.

PLC/SCADA migration to reduce risk and enhance efficiency – Programmable Logic Controls (PLC) and Supervisory Control and Data Acquisition (SCADA) systems are original to most facilities and past their expected useful lives. Maintenance of these systems has become more difficult in recent years as faults increase due to age and parts are becoming hard or impossible to find. There is also an increased cyber security risk due to outdated programming. This poses a significant risk as these "nerve center" assets can cause shutdowns. New District PLC and SCADA standards have been implemented and future upgrades will reflect these changes.

Waste Management and Environmental Services



G. Waste Management and Environmental Services

Service Objective:

Provide reliable and convenient solid waste collection, diversion and disposal while ensuring environmental and fiscal sustainability.

MODERATE

Data Confidence

GOOD

Overall Condition

MODERATE (38)

Condition Risk Score

GOOD

Overall Performance

MODERATE (42)

Performance Risk Score

$35M

(2023)

Replacement Value

$26M

(2023)

Total Cost for Service Delivery

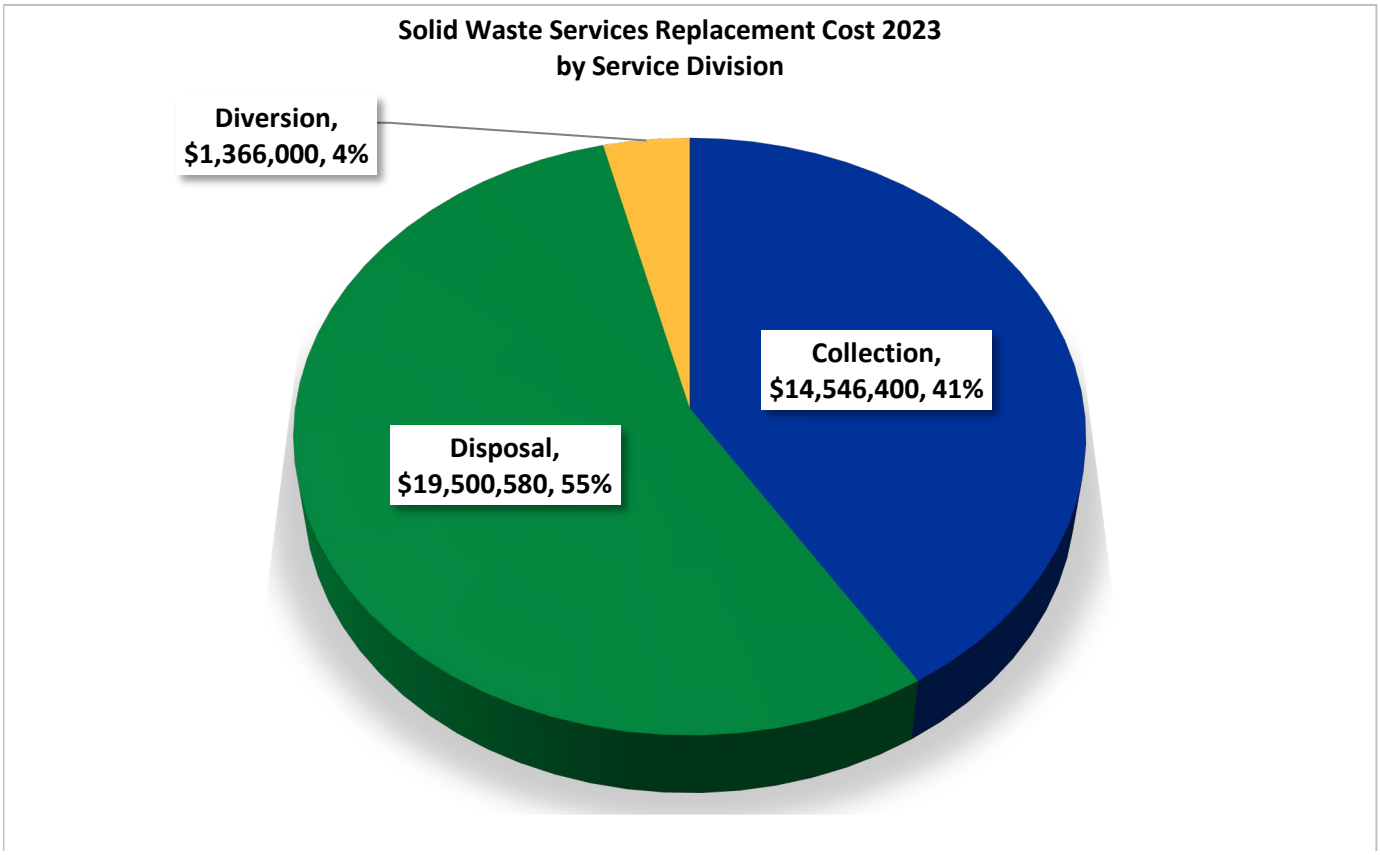
Current State of Infrastructure

Waste Management and Environmental Services comprises of four service divisions: collection, disposal, diversion, and environmental monitoring and remediation. District waste management services enable the efficient and safe management of solid waste generated by the community. Services provided by the Environmental Monitoring and Remediation group are focused on mitigating the impacts of active and closed landfill sites on the environment.

The waste management and environmental services portfolio has a total replacement value of $35.4 million or less than 1% of the total replacement value of District assets. Collection division, with a replacement value of $14.5 million, is comprised of facilities such as transfer stations, drop-off depots, unstaffed bin sites and a hazardous waste facility. Disposal division, with a replacement value of $19.5 million, is compromised of assets associated with the active landfill (this figure includes active cells only). Diversion division, with a replacement value of $1.4 million, is compromised of assets associated with composting facilities and the diversion building. Assets associated with the environmental monitoring and remediation division are all closed and historic landfills that have no replacement value.

Figure G1 provides an overview of each service division in waste management and environmental services by replacement value.

Figure G1: Waste Management and Environmental Services 2023 Replacement Value by Service Division



The collection service division consists of 10 transfer stations, 1 hazardous waste depot, 3 non-hazardous waste depots and 501 waste collection bins. Disposal division consists of 1 active landfill. Diversion service division has two 2 composting facilities and 1 diversion building, while environmental monitoring and remediation division maintains 37 closed and historic landfills. Figure G2 provides an overview of asset class division in wastewater services by replacement value Table G1.1 illustrates key attributes of all assets supporting waste management and environmental services.

Figure G2: Waste Management and Environmental Services 2023 Replacement Value by Asset Class

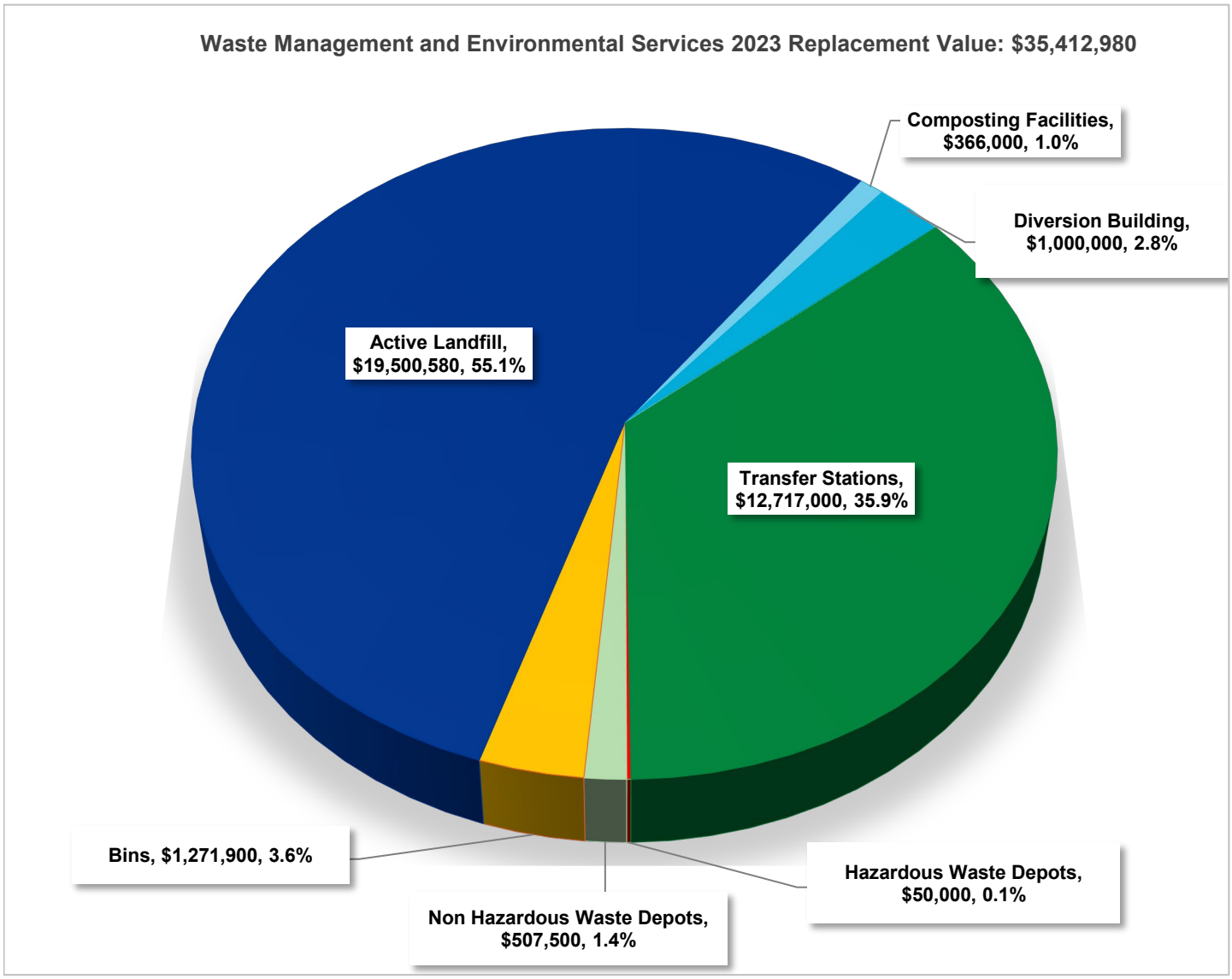
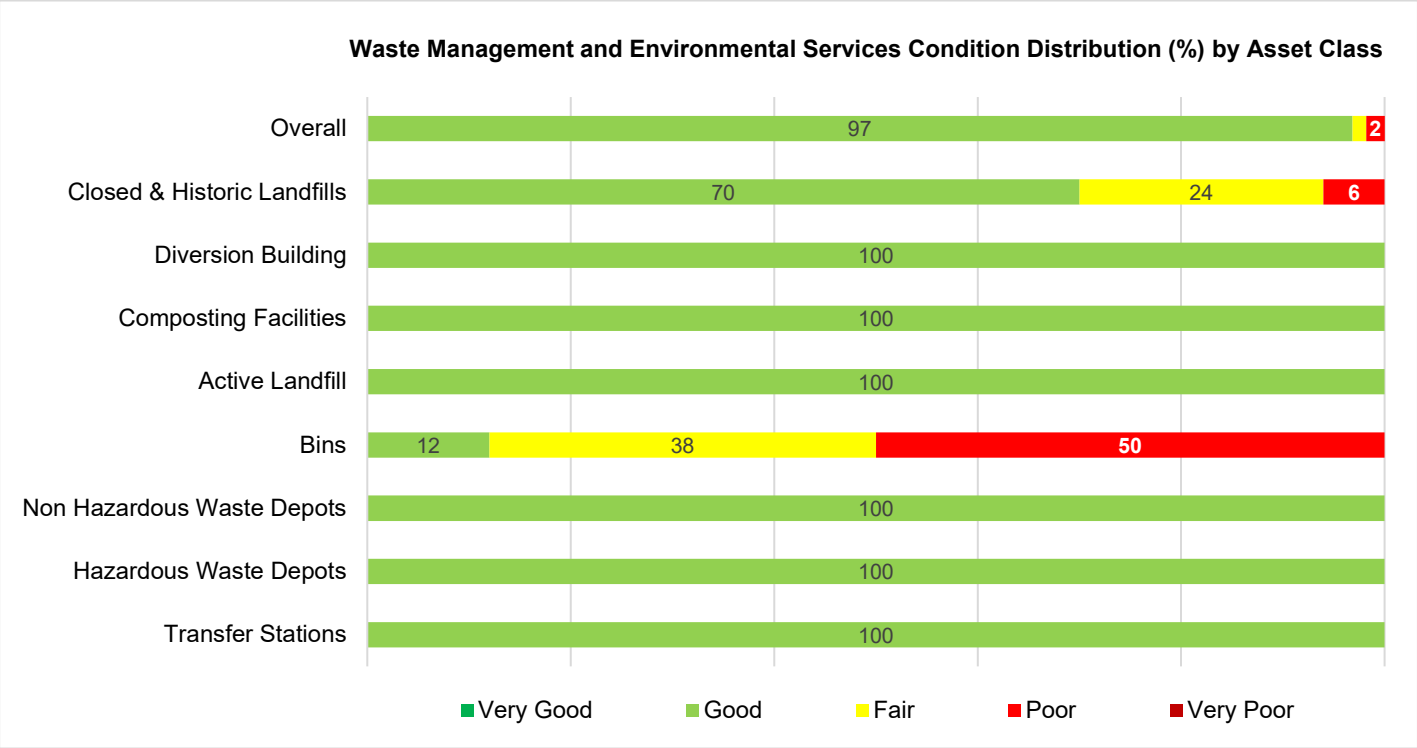


Table G1.1: Waste Management and Environmental Services: Service to Assets Hierarchy

Service Division	Asset Class	Quantity	Unit	2023 Replacement Value
Collection	Transfer Stations	10	Each	$12,717,000
	Hazardous Waste Depots	1	Each	$50,000
	Non-Hazardous Waste Depots	3	Each	$507,500
	Bins	501	Each	$1,271,900
Disposal	Active Landfill	1	Each	$19,500,580
Diversion	Composting Facilities	2	Each	$366,000
	Diversion Building	1	Each	$1,000,000
Environmental Monitoring and Remediation	Closed and Historic Landfills	37	Each	$0
				$35,412,980

Appendix N6 illustrates the location of landfill, transfer stations and waste depots throughout the District. Overall, 98% of waste management and environmental services assets are in fair or better condition. The remaining 2% that are in poor condition include bins and closed and historic landfills including the leachate collection system at the closed Eveleigh landfill site in Muskoka Lakes. Condition distribution of waste management and environmental services assets weighed by replacement cost is shown in Figure G3.

Figure G3: Waste Management and Environmental Services Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff have documented current service levels associated with waste management and environmental services assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well as current operating and maintenance activities. The community service levels consist of the following:

- Curbside collection of recycling and green: weekly throughout the year
- Two (2) curbside collection events for leaf and yard waste (spring and fall)
- Operating and maintaining the active landfill within the requirements of ECA while ensuring hours of operation meet the needs of our community
- Provide cost-effective, efficient, environmentally responsible waste management services through continued improvements to organics and recycling diversion
- Maintaining closed landfills to meet regulatory requirements and ensure safe operating practices for public and staff operations

The overall condition and combined performance of waste management and environmental services is rated as good. However, there were some performance related issues identified at active and closed landfills as well as composting facilities and the diversion building with environmental resiliency rated as fair. Future target service levels will determine the type of required interventions to improve environmental resilience of assets. Table G1.2 provides the average condition and performance of assets weighted by replacement value by asset class.

Table G1.2: Waste Management and Environmental Technical Service Levels – Average Condition and Performance

Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Transfer Stations	Good	Fair	Good	Good	Good	Good
Hazardous Waste Depots	Good	Good	Good	Good	Good	Good
Non-Hazardous Waste Depots	Good	Good	Good	Good	Good	Good
Bins	Fair	Fair	Fair	Good	Good	Fair
Active Landfill	Good	Good	Good	Good	Fair	Good
Composting Facilities	Good	Good	Fair	Good	Fair	Good
Diversion Building	Good	Good	Good	Fair	Fair	Good
Closed and Historic Landfills	Good	Very Good	Very Good	Very Good	Fair	Good
Overall Condition and Performance	**Good**	**Good**	**Good**	**Good**	**Fair**	**Good**

Table G1.3 provides a few examples of the current operations and maintenance activities undertaken by staff to support current service levels.

Table G1.3: Waste Management and Environmental Technical Service Levels – Operating and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
Diversion rate for curbside collection	47%
Diversion rate for transfer stations	32%
Diversion rate for bin sites and depot	23%
Diversion rate for lakeside waste collection	31%
Maintenance of access roads	As Required
% of facilities operating within Environmental Compliance Approval ("ECA") requirements	100%
Inspection of closed landfills	Annual
Remediation of closed landfills	As Required
Monitoring of closed landfills	As Required

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Table G1.4 provides the asset criticality and consequence of failure scores by asset class. The active landfill has acquired a high criticality rating due to its potential for adverse environmental impact, financial consequences, and reputational impact. All other assets have moderate criticality except bins and closed and historic landfills that have low criticality.

Table G1.4: Waste Management and Environmental Services Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
Transfer Stations	Moderate	2	3	4	3	4	16
Hazardous Waste Depots	Moderate	2	3	2	4	3	14
Non-Hazardous Waste Depots	Moderate	2	3	2	3	3	13
Bins	Low	2	1	1	1	2	7
Active Landfill	High	3	4	5	5	5	22
Composting Facilities	Moderate	3	4	3	4	4	18
Diversion Building	Moderate	3	4	3	3	4	17
Closed and Historic Landfills	Moderate	3	1	3	4	3	14

Table G1.5 illustrates the condition risk rating, all performance risk ratings, and a combined performance risk rating for all assets. The active landfill has received a high risk rating due to its susceptibility to extreme weather events. Though all other assets have moderate risk, there are some potential budget implications in terms of reallocation of resources within the waste management and environmental services portfolio of assets. Assets that have a relatively higher risk score that support diversion and disposal divisions need to be prioritized for maintenance and capital investment based on future target service levels.

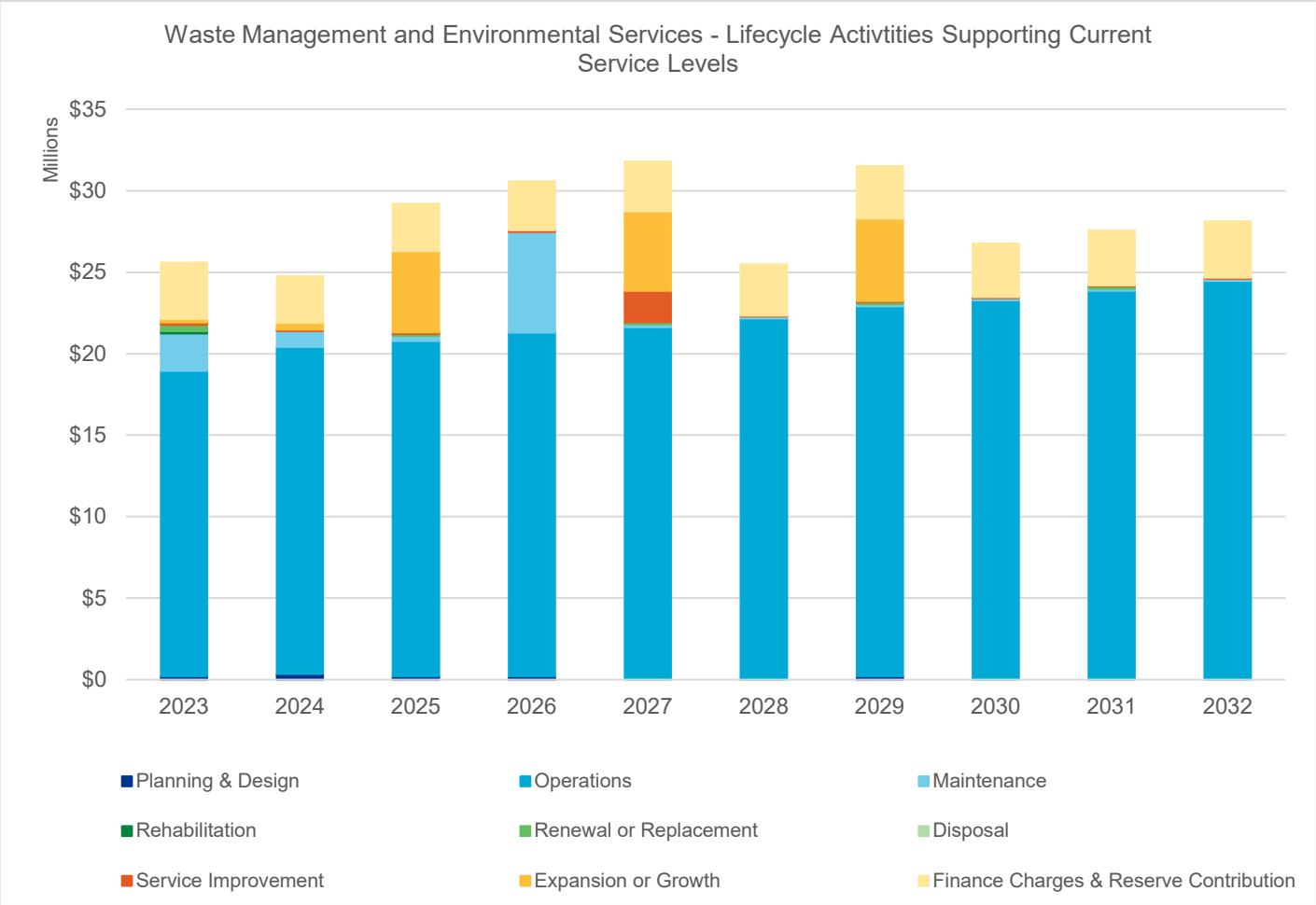
Table G1.5: Waste Management and Environmental Services Assets Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Transfer Stations	32	37	32	32	32	33
Hazardous Waste Depots	28	28	28	28	28	28
Non-Hazardous Waste Depots	26	26	26	26	26	26
Bins	24	20	21	14	14	17
Active Landfill	44	44	44	44	66	50
Composting Facilities	36	36	54	36	54	45
Diversion Building	34	34	34	51	51	43
Closed and Historic Landfills	33	14	14	14	30	18
Overall Risk	**38**	**40**	**38**	**38**	**51**	**42**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide waste management and environmental services at current service levels was $26 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contribution to reserves. Operating costs include materials, supplies, and purchased services including curbside collection, and monitoring and site security. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $281 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure G4.

Figure G4: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All assets have moderate data confidence rating. Table G1.6 describes the methodology used to assess asset condition and performance and to estimate replacement values of waste management and environmental services assets.

Table G1.6: Wastewater Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Transfer Stations	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Hazardous Waste Depots	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Non-Hazardous Waste Depots	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Bins	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Active Landfill	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Composting Facilities	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Diversion Building	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Closed and Historic Landfills	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs
Overall	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Staff Estimates, Comparative Analysis, Inflating Historical Costs

Future improvement opportunities include:

- Development of a master plan: The District is developing a solid waste master plan to look at all options available to the District for improvements such as disposal capacity optimization, diversion options, management of organics, public education and alternate technologies.
- Increasing waste diversion: The target diversion rate of 60% in the District's solid waste strategy will be pursued through programs such as green bin collection expansion, curbside audits, and other opportunities to be further explored through the solid waste master plan.
- Asset life extension through increase of compaction density at the active landfill: a new compactor has been purchased to better consolidate waste materials within the existing site and extend the life of the current landfill.

Corporate Fleet Services



H. Corporate Fleet Services

Service Objective:

Corporate Fleet and equipment are safe and adequate to fully support the delivery of services.

VERY HIGH

Data Confidence

GOOD

Overall Condition

LOW (19)

Condition Risk Score

FAIR

Overall Performance

MODERATE (23)

Performance Risk Score

$18M

(2023)

Replacement Value

$4M

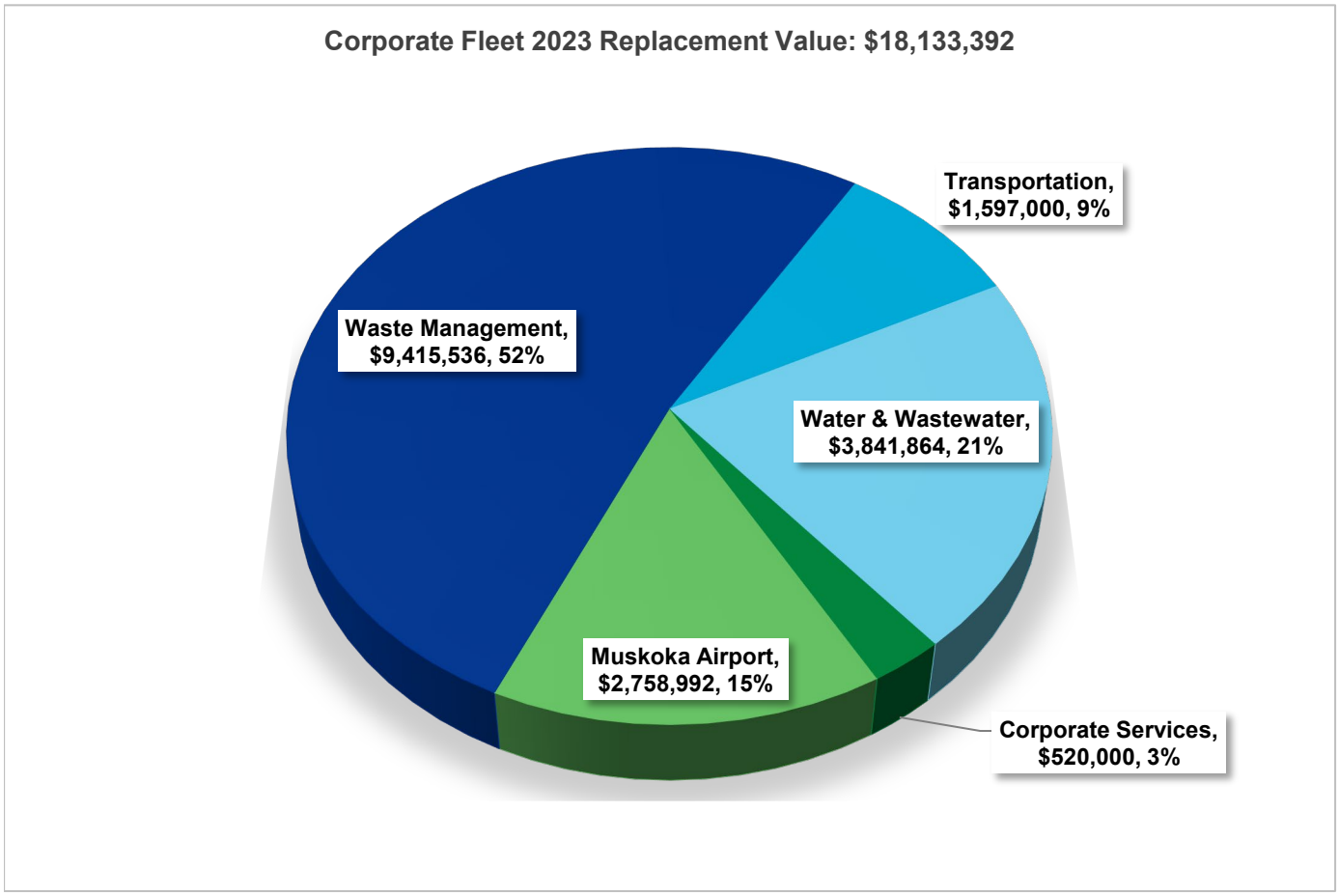
(2023)

Total Cost for Service Delivery

Current State of Infrastructure

Corporate fleet services currently manage 100 different fleet assets supporting six distinct service areas with a total replacement value of $18 million. This excludes fleet assets directly associated with Muskoka Paramedic Services. The assets highlighted in this section are managed by way of a centralized fleet management approach where all operating and capital expenses included in the corporate fleet budget are recovered from each service area that utilizes corporate fleet assets. Corporate fleet staff work with the managers in each service area to ensure the appropriate number and type of fleet assets are budgeted for and subsequently procured to meet the necessary service level provided by each department. Figure H1 provides an overview of replacement valuation of corporate fleet assets used by different service areas. Having a well functioning and well maintained fleet is integral to service delivery for these areas.

Figure H1: Corporate Fleet 2023 Replacement Value by Service Areas



Corporate fleet assets are further classified by asset class for passenger vehicles, light duty vehicles, medium duty vehicles, heavy duty vehicles, utility vehicles, and corporate fleet equipment. Corporate fleet equipment represents the largest value (60%) of the total portfolio followed by light duty vehicles (27%). Figure H2 provides an overview of the replacement valuation of corporate fleet assets by asset class.

Figure H2: Corporate Fleet 2023 Replacement Value by Asset Class

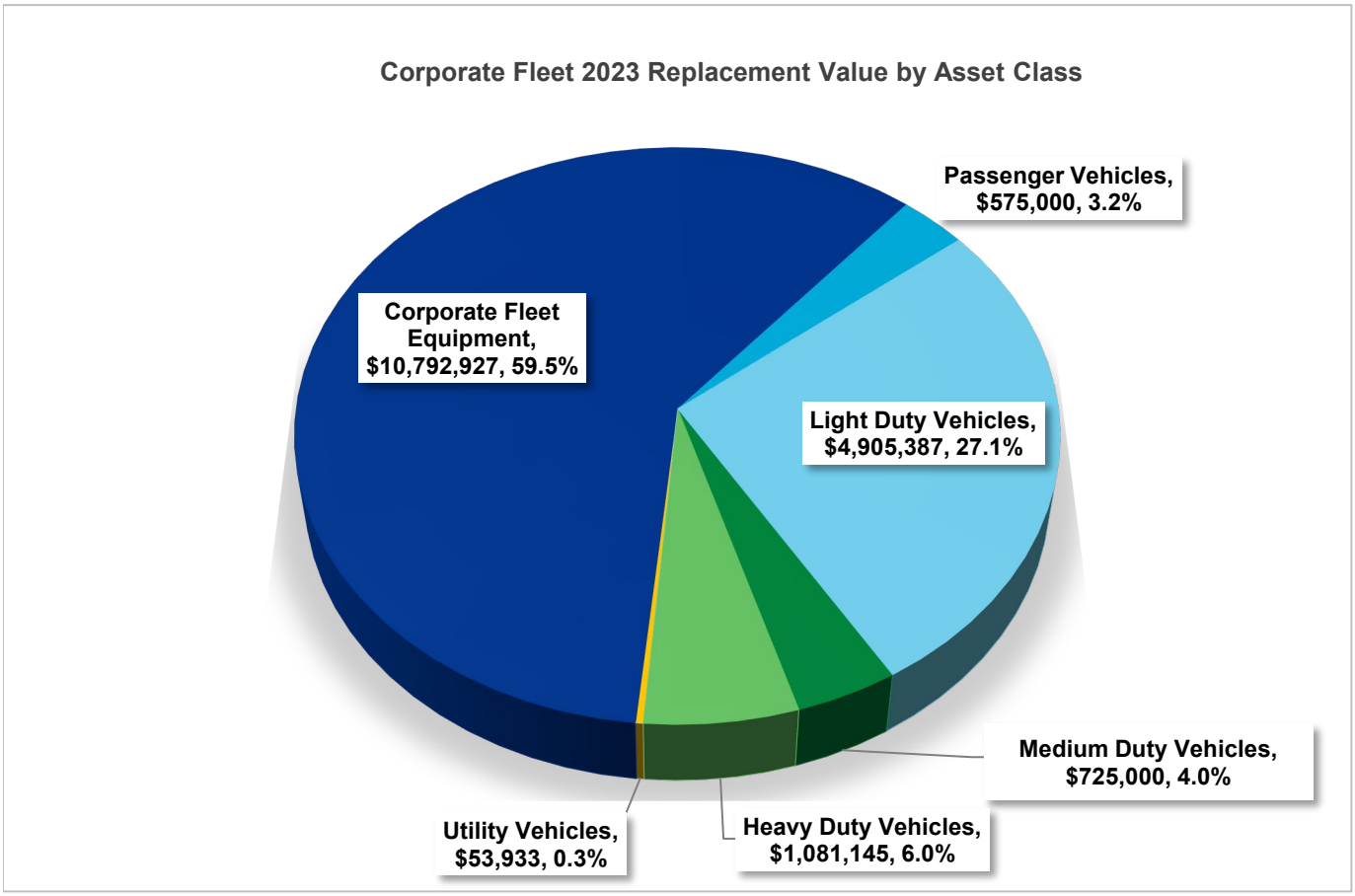


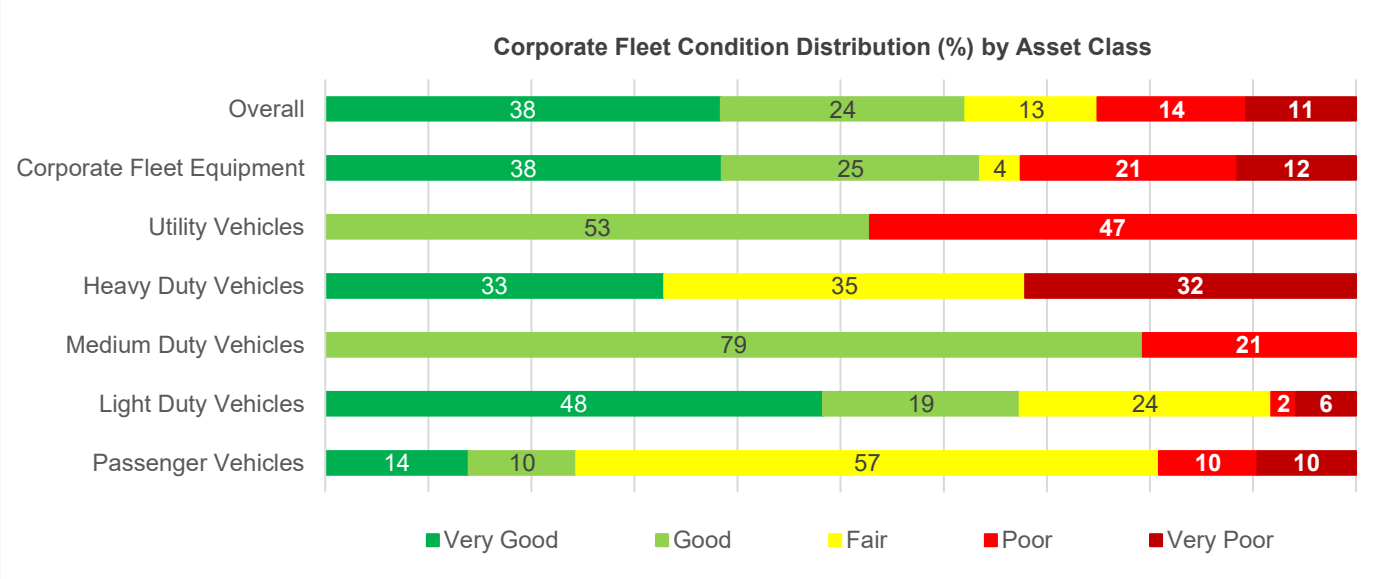
Table H1.1 provides the Corporate fleet service to assets hierarchy which includes the current quantity of assets and replacement values by asset class.

Table H1.1: Corporate Fleet Service to Assets Hierarchy

Service Areas	Internal Service Provider	Asset Class	Quantity	Unit	Average Age in Years	2023 Replacement Value
Transportation, Water, Wastewater, Waste Management, Muskoka Airport, Corporate Services	Corporate Fleet Services	Passenger Vehicles	9	Each	7	$575,000
		Light Duty Vehicles	54	Each	4	$4,905,387
		Medium Duty Vehicles	3	Each	4	$725,000
		Heavy Duty Vehicles	9	Each	12	$1,081,145
		Utility Vehicles	2	Each	9	$53,933
		Corporate Fleet Equipment	23	Each	8	$10,792,927
						$18,133,392

Overall, 75% of the corporate fleet assets are in fair or better condition while 25% of the assets are in poor to very poor condition consisting of 8 fleet equipment assets, 6 light duty vehicles, 2 heavy duty vehicles, 2 passenger vehicles and 1 utility vehicle. Some of these assets have reached the end of their useful life and are planned for disposal and replacement in years 2024 and 2025. The condition distribution of corporate fleet assets weighted by replacement value is shown in Figure H3.

Figure H3: Corporate Fleet Services Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff has documented current service levels associated with corporate fleet assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well current operating and maintenance activities. Corporate fleet community service levels consist of the following:

- Fleet and equipment are kept in good condition with GHG emissions minimized
- Fleet and equipment are modern and fuel efficient
- Fleet quality and availability fully meet service requirements
- There are adequate vehicles and equipment assets to maintain services year-round

Overall, corporate fleet assets condition is good while overall combined performance of assets is fair. Sound maintenance practices allow corporate fleet services to extend the lives of these assets and maintain their serviceability throughout their lifecycle. Additionally, when, and where appropriate the District is updating fleet assets to take advantage of hybrid and emerging technologies. Table H1.2 provides the average condition and performance of corporate fleet assets weighted by replacement value by asset class.

Table H1.2: Corporate Fleet Technical Service Levels – Average Condition and Performance

Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Passenger Vehicles	Fair	Fair	Fair	Fair	Good	Fair
Light Duty Vehicles	Good	Fair	Fair	Fair	Good	Fair
Medium Duty Vehicles	Good	Fair	Fair	Fair	Good	Fair
Heavy Duty Vehicles	Fair	Fair	Fair	Fair	Good	Fair
Utility Vehicles	Fair	Good	Fair	Fair	Good	Good
Corporate Fleet Equipment	Good	Fair	Fair	Fair	Good	Fair
Overall Condition and Performance	**Good**	**Fair**	**Fair**	**Fair**	**Good**	**Fair**

Corporate fleet services run a preventative maintenance program that meets or exceeds the Ministry of Transportation regulatory requirements. Table H1.3 provides a few examples of current operations and maintenance activities undertaken by corporate fleet services staff to support current service levels.

Table H1.3: Corporate Fleet Technical Service Levels – Operations and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
Compliance to preventative maintenance	100% of PM's on-time
Inspections and servicing performed	Manufacturer's recommended intervals
Percentage of fleet passing legislated MTO safety inspections	100%

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Criticality for corporate fleet assets is low for most assets except for light duty vehicles used by roads, water and wastewater services as consequence of failure for these assets is relatively higher in terms of service disruption and health and safety implications. Table H1.4 provides the asset criticality and consequence of failure scores by asset class.

Table H1.4: Corporate Fleet Services Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
Passenger Vehicles	Low	1	1	2	1	1	6
Airport Light Duty Vehicles	Low	2	2	2	1	1	8
Solid Waste Light Duty Vehicles	Low	1	2	2	1	1	7
Roads Light Duty Vehicles	Moderate	4	4	2	1	1	12
Water and Wastewater Light Duty Vehicles	Moderate	4	4	2	1	1	12
Medium Duty Vehicles	Low	1	3	2	1	1	8
Heavy Duty Vehicles	Low	1	3	3	1	1	9
Utility Vehicles	Low	1	1	2	1	1	6
Corporate Fleet Equipment	Low	1	1	3	1	1	7

The overall condition risk for corporate fleet is low while the overall performance risk is moderate suggesting the need for additional funding to improve performance of assets in alignment with future target service levels. In terms of condition, heavy duty vehicles followed by light duty vehicles for water, wastewater and roads have the highest condition risk within the corporate fleet portfolio and need to be prioritized for maintenance and replacement. From an operational functionality, capacity to meet demand and operational resiliency perspective, light duty vehicles for roads, water and wastewater have relatively higher performance risk. Table H1.5 provides the current condition risk rating, current performance risk ratings, and combined performance risk ratings weighted by replacement value for corporate fleet assets.

Table H1.5: Corporate Fleet Services Assets Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Passenger Vehicles	17	18	18	18	12	17
Airport Light Duty Vehicles	8	24	24	24	16	22
Solid Waste Light Duty Vehicles	16	21	21	21	14	19
Roads Light Duty Vehicles	22	36	36	36	24	33
Water and Wastewater Light Duty Vehicles	24	36	36	36	24	33
Medium Duty Vehicles	19	24	24	24	16	22
Heavy Duty Vehicles	27	27	27	27	18	25
Utility Vehicles	18	12	18	18	12	15
Corporate Fleet Equipment	17	21	21	21	14	19
Overall Risk	**19**	**25**	**25**	**25**	**17**	**23**

Current and Planned Asset Lifecycle Activities

Fleet assets are managed by way of a centralized fleet management approach where all operating and capital expenses included in the corporate fleet budget are recovered from each service area that utilizes corporate fleet assets. Operating costs include materials and supplies and purchased services, which includes fleet maintenance. In 2023, the total cost to provide corporate fleet services at current service levels was $4 million that includes asset lifecycle costs associated with operations and replacement as well as finance charges and contribution to reserves. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $49 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure H4.

Figure H4: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows corporate fleet staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All corporate fleet assets have a very high data confidence rating with reliable condition and performance data, and accurate estimated replacement values. Table H1.6 describes the methodology used to assess asset condition and performance and to estimate replacement values.

Table H1.6: Corporate Fleet Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Passenger Vehicles	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Light Duty Vehicles	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Medium Duty Vehicles	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Heavy Duty Vehicles	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Utility Vehicles	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Corporate Fleet Equipment	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Overall	Very High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values

Future improvement opportunities include:

- Implementing the recommendations as highlighted in the 2024 Fleet Decarbonization study as per the recommendations in report FCS-3-2024-2 for the replacement of fleet assets that are scheduled for future renewal.

Facilities and Support Services



I. Facilities and Support Services

Service Objective:

Provide prompt, efficient, and effective property management services while ensuring municipal buildings are safe, accessible, comfortable, and welcoming to the public and staff.

MODERATE

Data Confidence

GOOD

Overall Condition

MODERATE (37)

Condition Risk Score

FAIR

Overall Performance

MODERATE (58)

Performance Risk Score

$311M

(2023)

Replacement Value

$30M

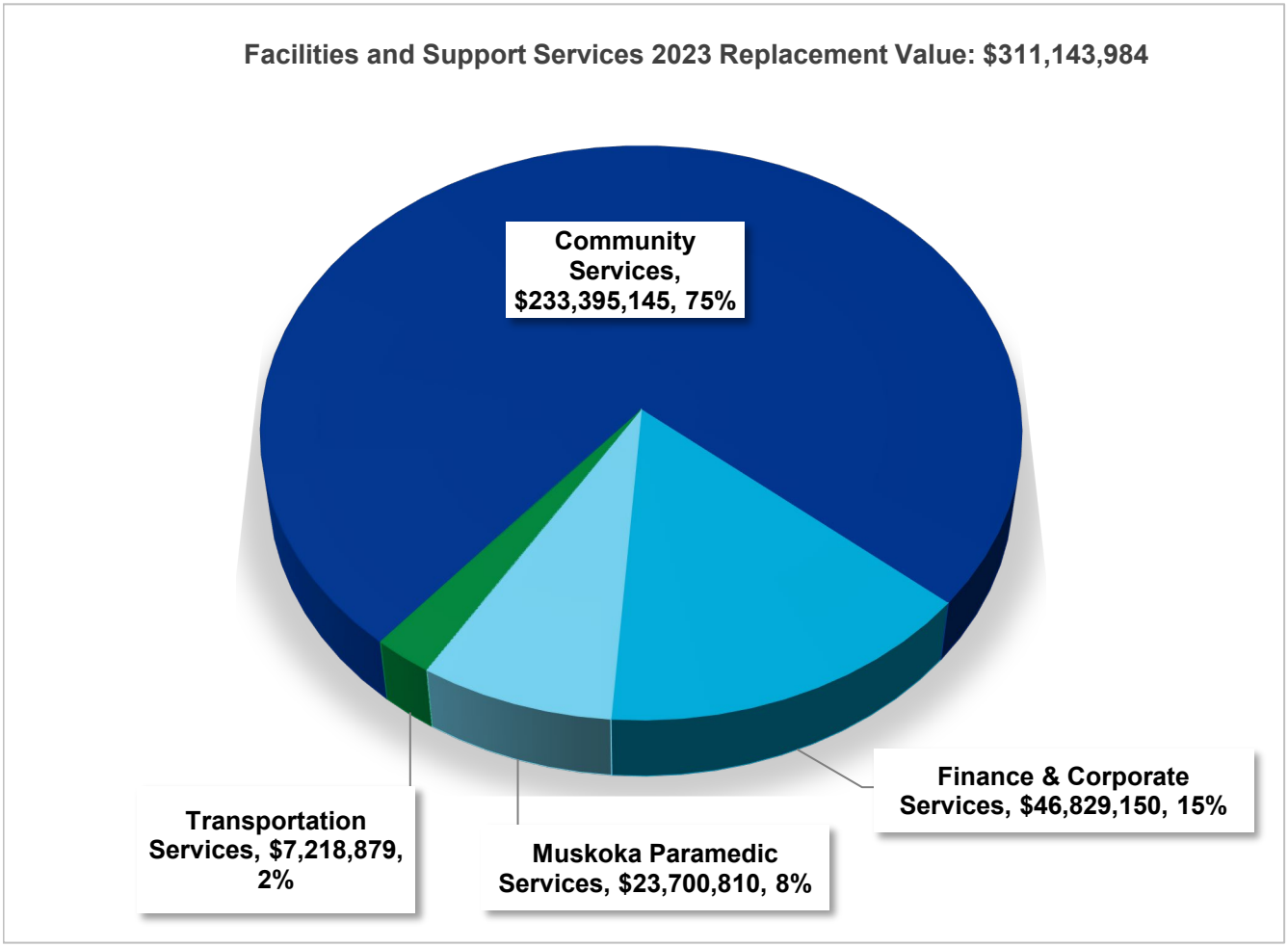
(2023)

Total Cost for Service Delivery

Current State of Infrastructure

Facilities and Support Services is responsible for the maintenance, operation, capital repair and replacement of District building assets with a total replacement value of $311 million. Facilities and Support Services provide building maintenance and operations for Community Services (including Muskoka Municipal Non-Profit Housing Corporation), Finance and Corporate Services, Muskoka Paramedic Services, and Transportation Services. Figure I1 provides an overview of the replacement value by service areas.

Figure I1: Facilities and Support Services 2023 Replacement Value by Service Areas



The assets are further classified by asset class for District Community Housing, District Affordable Housing, MMNPHC Community Housing, MMNPHC Affordable Housing, Corporate facilities, Paramedic stations, roads maintenance facilities, and highway signs. Figure I2 provides and overview of the replacement value by asset class.

Figure I2: Facilities and Support Services 2023 Replacement Value by Asset Class

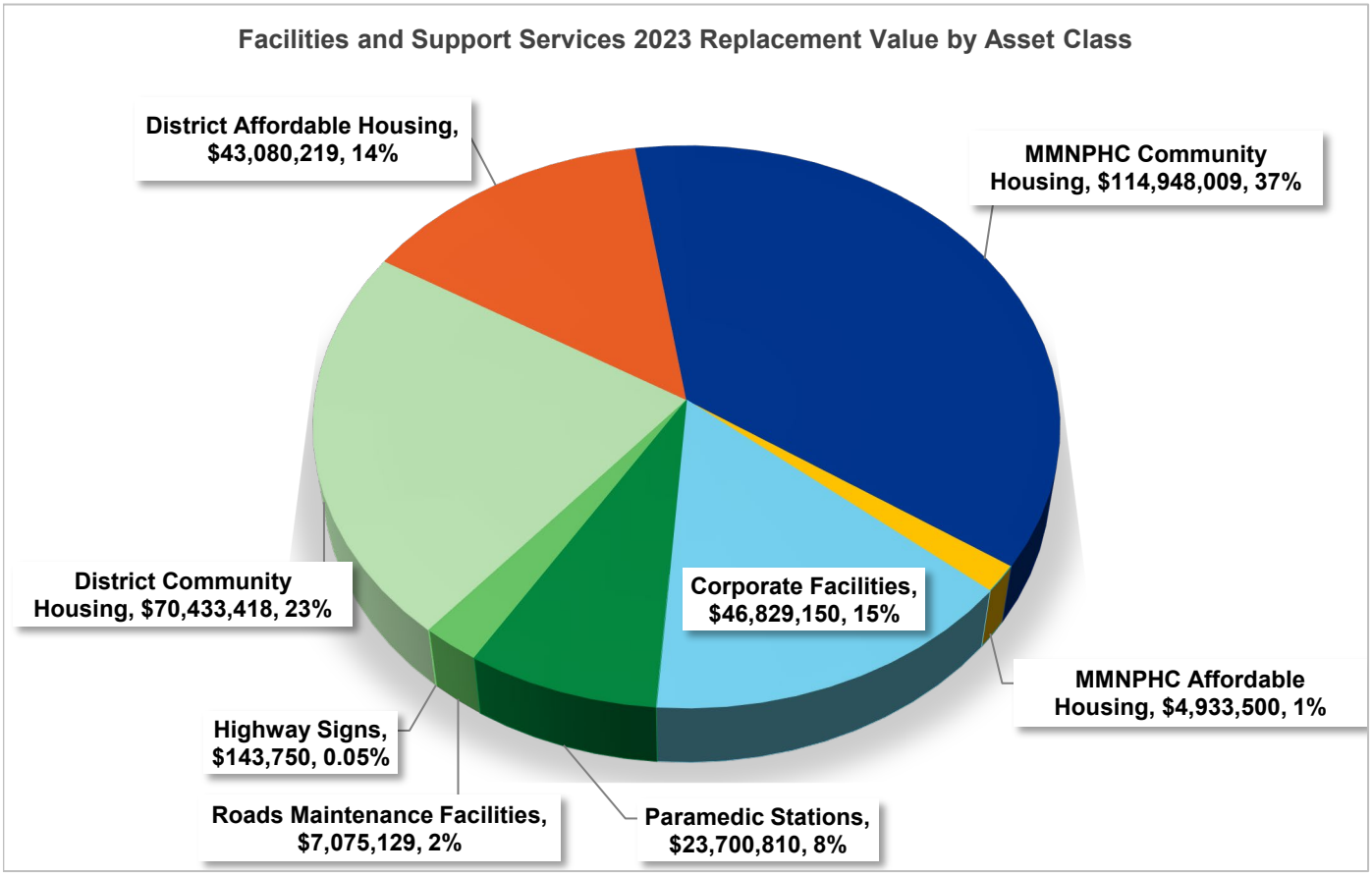


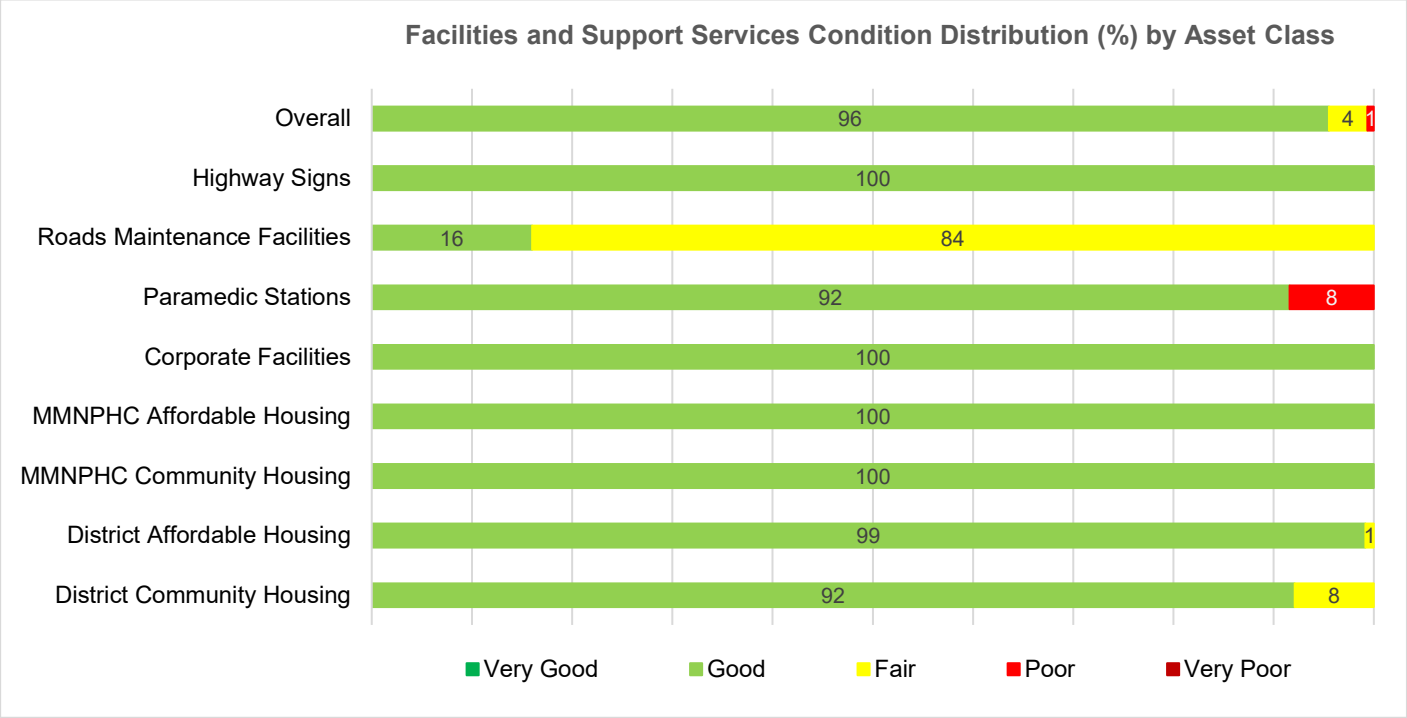
Table I1.1 provides the Facilities and Support Services service to assets hierarchy which includes the current quantity of assets and replacement values by asset class.

Table I1.1: Facilities and Support Services Service to Assets Hierarchy

Service Areas	Internal Service Provider	Asset Class	Quantity	Unit	Average Age in Years	2023 Replacement Value
Community Services	Facilities and Support Services	District Community Housing	12	Each	50	$70,433,418
		District Affordable Housing	5	Each	10	$43,080,219
		MMNPHC Community Housing	7	Each	34	$114,948,009
		MMNPHC Affordable Housing	1	Each	5	$4,933,500
Finance and Corporate Services		Corporate Facilities	2	Each	16	$46,829,150
Muskoka Paramedic Services		Paramedic Stations	5	Each	12	$23,700,810
Transportation Services		Roads Maintenance Facilities	2	Each	43	$7,075,129
		Highway Signs	5	Each	13	$143,750
						$311,143,984

Overall, all Facilities and Support Services assets are in fair or better condition except for Port Carling paramedic station which is a leased facility. The condition distribution of Facilities and Support Services assets weighted by replacement value is shown in

Figure I3: Facilities and Support Services Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff has documented current service levels associated with Facilities and Support Services assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well current operating and maintenance activities. The community service levels consist of the following:

- Facilities are safe, clean, and presentable, and maintained in an appropriate state of repair to fully meet the service requirements
- Leverage opportunities to improve energy efficiency of existing facilities by retrofitting infrastructure components as they are scheduled for replacement
- Improve waste diversion practices at housing facilities

Overall, average condition of Facilities and Support Services assets is good while overall combined performance of assets is fair. However, there are some asset performance related issues identified in terms of capacity to meet demand, operational resiliency, and environmental resiliency. Most of the assets supporting community services particularly District community housing assets and MMNPHC community housing assets are rated poorly by staff in these performance categories. Table I1.2 provides the average condition and performance of Facilities and Support Services assets weighted by replacement value by asset class.

Table I1.2: Facilities and Support Services Technical Service Levels – Average Condition and Performance

Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
District Community Housing	Good	Fair	Poor	Poor	Poor	Poor
District Affordable Housing	Good	Good	Poor	Poor	Fair	Fair
MMNPHC Community Housing	Good	Fair	Poor	Poor	Poor	Poor
MMNPHC Affordable Housing	Good	Good	Poor	Good	Fair	Fair
Corporate Facilities	Good	Fair	Fair	Fair	Good	Fair
Paramedic Stations	Good	Good	Fair	Good	Good	Good
Roads Maintenance Facilities	Fair	Good	Good	Good	Fair	Good
Highway Signs	Good	Good	Good	Fair	Good	Good
Overall Condition and Performance	**Good**	**Fair**	**Poor**	**Poor**	**Fair**	**Fair**

Table I1.3 provides a few examples of current operations and maintenance activities undertaken by Facilities and Support Services staff to support current service levels.

Table I1.3: Facilities and Support Services Technical Service Levels – Operations and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
Building maintenance and repairs	As Required
Elevator maintenance testing and inspection	As Per Regulatory Requirements
Mechanical and electrical testing and inspection	As Per Regulatory Requirements
Fire, life safety, access and security testing and inspection	As Per Regulatory Requirements
Grounds maintenance and custodial cleaning	As Required

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Criticality for all Facilities and Support Services assets is moderate except for Bracebridge paramedic station as consequence of failure for these assets is relatively higher in terms of service disruption, financial impact, reputational impact and health and safety implications. Table I1.4 provides the asset criticality and consequence of failure scores by asset class.

Table I1.4: Facilities and Support Services Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
District Community Housing	Moderate	5	1 to 2	4 to 5	2	4	16 to 18
District Affordable Housing	Moderate	5	1 to 2	3 to 5	2	3 to 4	14 to 18
MMNPHC Community Housing	Moderate	5	1 to 3	5	2	4	17 to 19
MMNPHC Affordable Housing	Moderate	5	1	5	2	4	17
Corporate Facilities	Moderate	4	3 to 4	5	2	4	18 to 19
Paramedic Stations	Moderate	4 to 5	4 to 5	4 to 5	2	3 to 4	17 to 21
Roads Maintenance Facilities	Moderate	4	2	4 to 5	2	2	14 to 15
Highway Signs	Low	1	1	1 to 2	1	1	5 to 6

The overall condition risk for Facilities and Support Services is moderate but the combined performance risk is a concern. The performance risk associated with capacity to meet demand is high, while the performance risk associated with operational resiliency and environmental resiliency is currently moderate but projected to increase to high at current service levels unless the required interventions are made based on future target service levels. Table I1.5 provides the current condition risk rating, current performance risk ratings, and combined performance risk ratings weighted by replacement value.

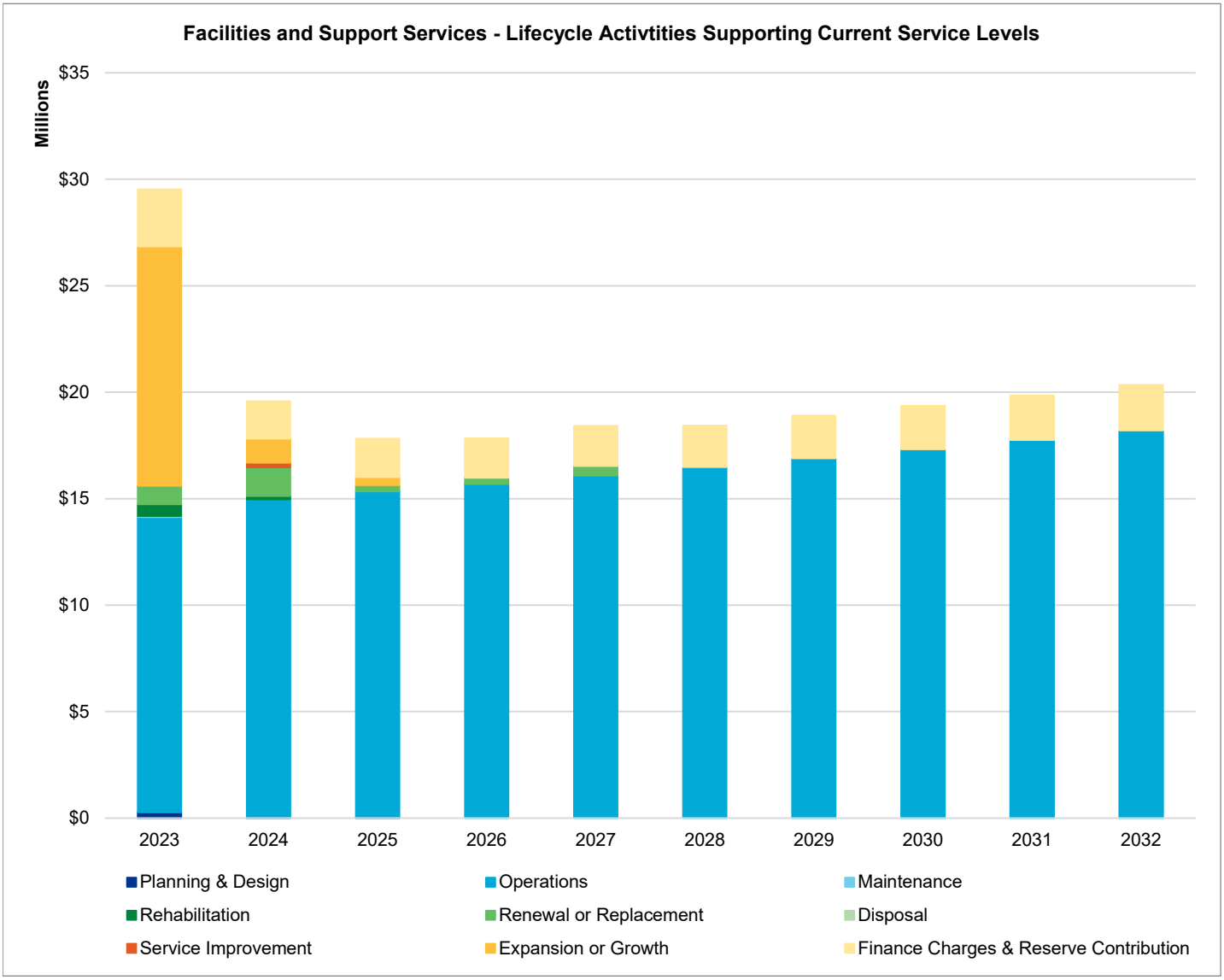
Table I1.5: Facilities and Support Services Assets Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
District Community Housing	36	53	70	67	65	64
District Affordable Housing	36	36	71	41	36	46
MMNPHC Community Housing	37	55	74	72	74	69
MMNPHC Affordable Housing	34	34	68	34	51	47
Corporate Facilities	37	56	56	43	37	48
Paramedic Stations	42	40	46	39	40	41
Roads Maintenance Facilities	41	29	29	29	35	30
Highway Signs	12	12	12	17	12	13
Overall Risk	**37**	**50**	**67**	**58**	**57**	**58**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide Facilities and Support Services at current service levels was $29.5 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, replacement, service improvement, growth as well as finance charges and contribution to reserves. Operating costs include materials and supplies and purchased services including building and grounds maintenance. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $200 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure I4.

Figure I4: Facilities and Support Services 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows Facilities and Support Services staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All Facilities and Support Services assets have moderate data confidence rating. Table I1.6 describes the methodology used to assess asset condition and performance and to estimate replacement values.

Table I1.6: Facilities and Support Services Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
District Community Housing	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
District Affordable Housing	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
MMNPHC Community Housing	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
MMNPHC Affordable Housing	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Corporate Facilities	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Paramedic Stations	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Roads Maintenance Facilities	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Highway Signs	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Overall	**Moderate**	**100% Age of Assets, Staff Assessment**	**100% Staff Assessment**	**Market Values**

Future improvement opportunities include:

- Improve and report on practices based on the finding of planned building condition assessments and green house gas (GHG) emission audits.

Muskoka Paramedic Services



J. Muskoka Paramedic Services

Service Objective:

Provide professional emergency pre-hospital and non-urgent medical care to the residents and visitors of Muskoka

HIGH

Data Confidence

GOOD

Overall Condition

MODERATE (44)

Condition Risk Score

GOOD

Overall Performance

MODERATE (44)

Performance Risk Score

$6M

(2023)

Replacement Value

$17M

(2023)

Total Cost for Service Delivery

Current State of Infrastructure

Muskoka Paramedic Services provides professional emergency and non-urgent medical care to the residents and visitors of Muskoka. The Muskoka Paramedic Services asset portfolio has a total replacement value of $6 million. The assets are classified by asset class for emergency response vehicles, administrative vehicles, paramedic equipment, communications equipment, and clinical equipment. Emergency response vehicles represent the largest value (57% of the total portfolio, followed by Paramedic equipment (27%). Figure J1 provides and overview of the replacement value by asset class.

Figure J1: Muskoka Paramedic Assets 2023 Replacement Value

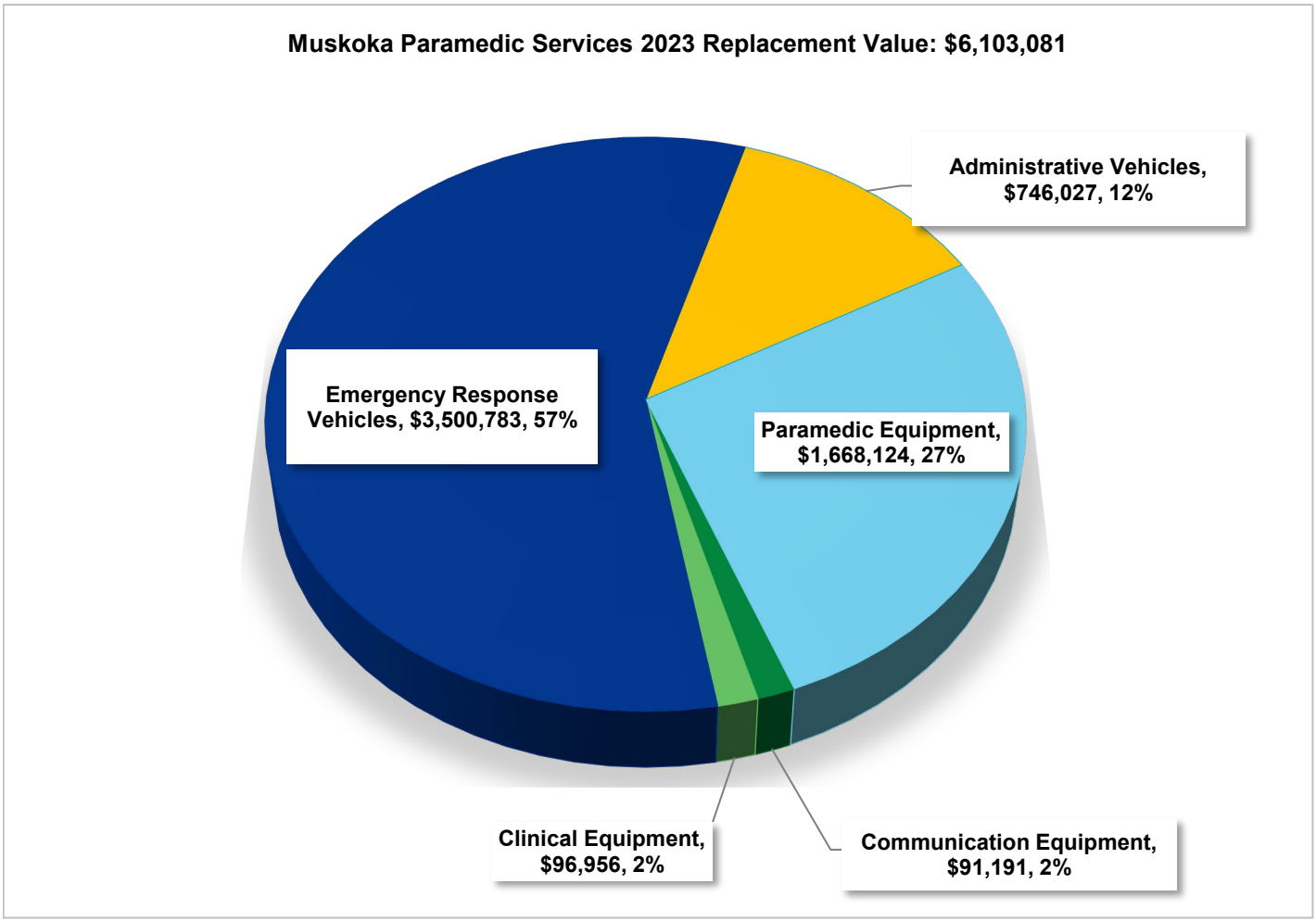


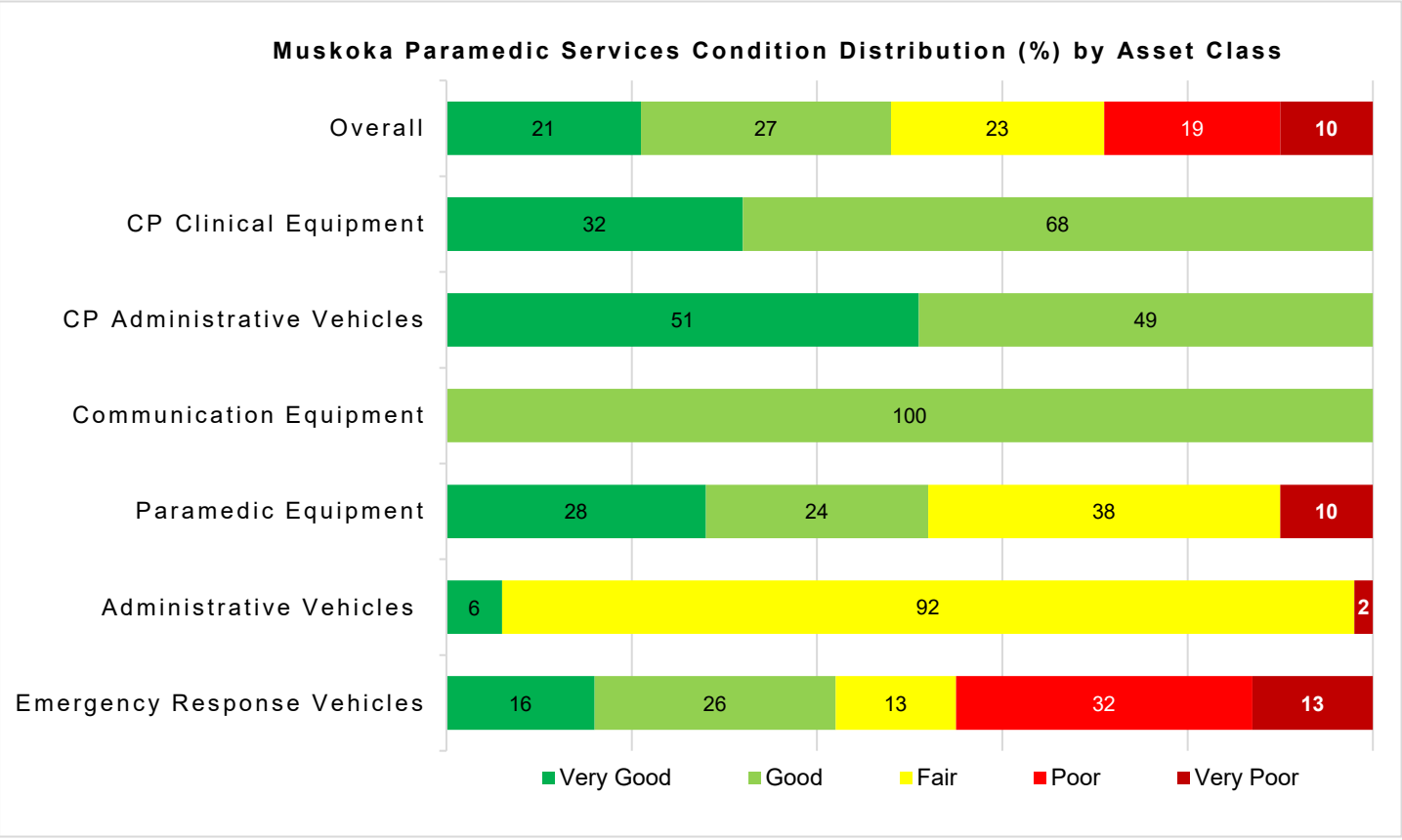
Table J1.1 provides the Muskoka Paramedic Services assets to hierarchy which includes the current quantity of assets and replacement values by asset class.

Table J1.1: Muskoka Paramedic Services: Service to Assets Hierarchy

Service Division	Asset Class	Quantity	Unit	Average Age in Years	2023 Replacement Value
Paramedic Services	Emergency Response Vehicles	16	Each	4	$3,500,783
	Administrative Vehicles	5	Each	6	$377,558
	Paramedic Equipment	83	Each	3	$1,668,124
	Communication Equipment	15	Each	3	$91,191
Community Paramedicine	CP Administrative Vehicles	7	Each	2	$368,469
	CP Clinical Equipment	9	Each	2	$96,956
					$6,103,081

Overall, 71% of Muskoka Paramedic Services assets are in fair or better condition while 29% of the assets are in poor to very poor condition consisting of 7 ambulances, several assets associated with paramedic equipment and 1 administrative vehicle. Condition distribution of Muskoka Paramedic Services assets weighted by replacement value is shown in Figure J2.

Figure J2: Muskoka Paramedic Services Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff has documented current service levels associated with Muskoka Paramedic Services assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well current operating and maintenance activities. The community service levels consist of the following:

- Provide 24/7 professional emergency service response
- Provide quality paramedic and communications equipment and reliable vehicles while fully meeting service requirements
- Provide the opportunity to keep people in their homes longer by assisting them to keep healthy and connect them with services, filling in gaps in care plans while focusing on quality of life and overall health

The overall condition of assets supporting Muskoka Paramedic Services assets is rated as fair while combined performance of assets is rated as good. Staff has identified opportunities to improve current condition and operational functionality of existing assets from fair to good. Future target service levels will determine the type of maintenance activities and capital investment required to improve both condition and performance, as needed. Table J1.2 provides the average condition and performance of Muskoka Paramedic Services assets weighted by replacement value by asset class.

Table J1.2: Muskoka Paramedic Services Technical Service Levels – Average Condition and Performance

Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Emergency Response Vehicles	Fair	Fair	Good	Good	Good	Good
Administrative Vehicles	Fair	Fair	Fair	Fair	Good	Fair
Paramedic Equipment	Good	Good	Fair	Fair	Good	Good
Communication Equipment	Good	Fair	Fair	Fair	Good	Fair
CP Administrative Vehicles	Very Good	Good	Good	Good	Good	Good
CP Clinical Equipment	Good	Good	Good	Good	Good	Good
Overall Condition and Performance	**Fair**	**Fair**	**Good**	**Good**	**Good**	**Good**

Table J1.3 provides a few examples current operations and maintenance initiatives undertaken by Muskoka Paramedic Services staff to support current service levels.

Table J1.3: Muskoka Paramedic Services Technical Service Levels – Operations and Maintenance Initiatives

Operations and Maintenance Initiatives	Current Service Levels
Adhere to strict and consistent fleet and equipment preventative maintenance programs	True
Ensure availability of highly trained Community Paramedics that assist in proactively managing people's health to avoid transportation to the hospital	True
Ensure availability of highly trained Paramedics that swiftly and safely respond in times that meet or exceed legislative standards and transport patients to the hospital	True

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. The asset criticality for Muskoka Paramedic Services assets is moderate for most assets except for administrative vehicles which has a low criticality. Table J1.4 provides the asset criticality and consequence of failure scores by asset class.

Table J1.4: Muskoka Paramedic Services Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
Emergency Response Vehicles	Moderate	5	5	3	1	4	18
Administrative Vehicles	Low	2	1	2	1	1	7
Paramedic Equipment	Moderate	5	5	2	1	3	16
Communication Equipment	Moderate	5	5	2	1	3	16
CP Administrative Vehicles	Moderate	3	3	2	1	2	11
CP Clinical Equipment	Moderate	3	3	2	1	2	11

The overall condition and performance risk for Muskoka Paramedic Services assets is moderate with emergency response vehicles being close to the upper limit of moderate. Table J1.5 provides the current condition risk rating, current performance risk ratings, and combined performance risk ratings weighted by replacement value for Muskoka Paramedic Services assets. Though most of the assets have moderate risk, there are some potential budget implications in terms of reallocation of resources within the Muskoka Paramedic services asset portfolio. Assets that have a relatively higher risk score such as emergency response vehicles, paramedic equipment and communication equipment need to be prioritized for maintenance and capital investment based on future target service levels.

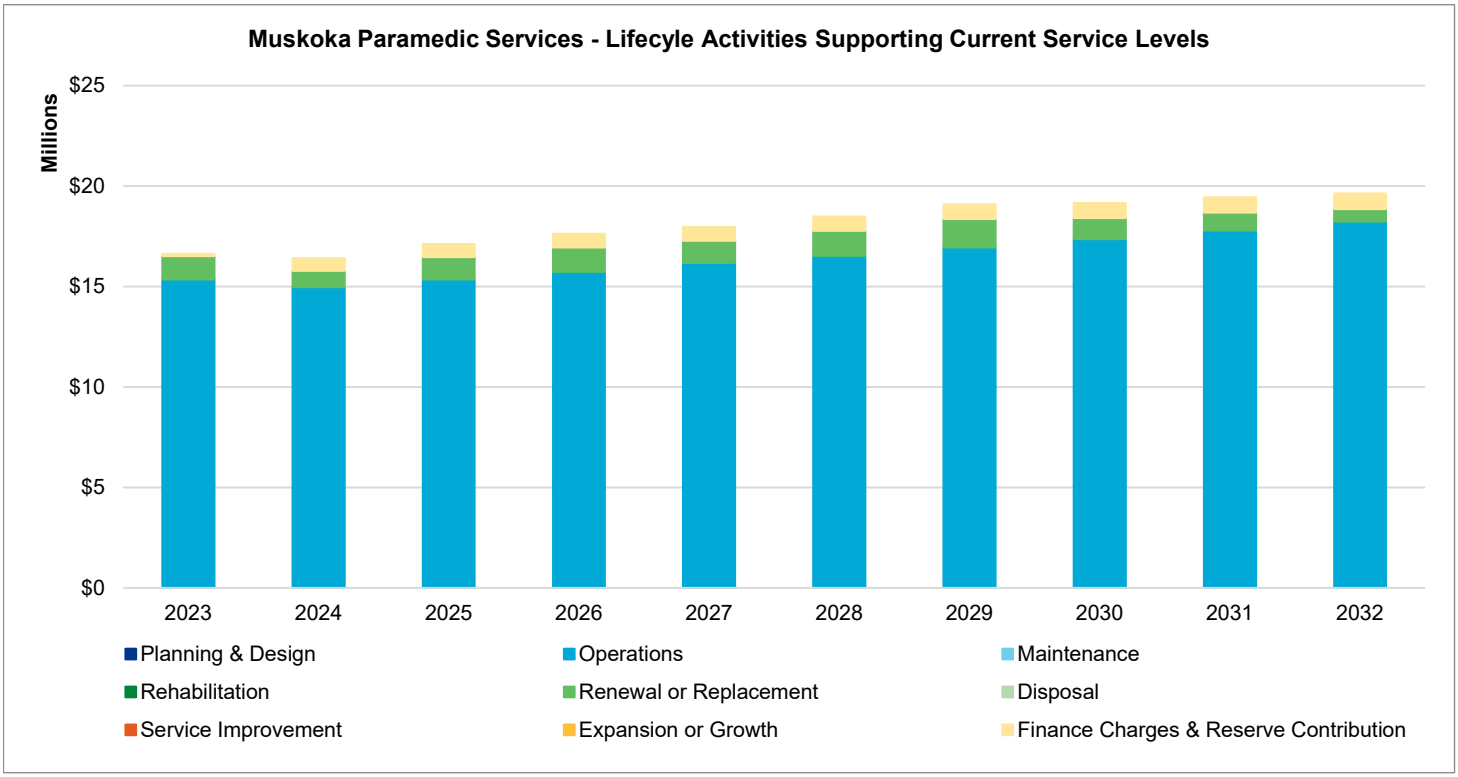
Table J1.5: Muskoka Paramedic Services Assets Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Emergency Response Vehicles	54	54	36	36	36	41
Administrative Vehicles	20	21	21	21	14	19
Paramedic Equipment	38	32	48	48	32	40
Communication Equipment	32	48	48	48	32	44
CP Administrative Vehicles	16	22	22	22	22	22
CP Clinical Equipment	18	22	22	22	22	22
Overall Risk	**44**	**43**	**37**	**37**	**32**	**38**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide Muskoka Paramedic Services at current service levels was $17 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contribution to reserves. Operating costs include materials, supplies and purchased services including fleet maintenance. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $182 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure J3.

Figure J3: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All Paramedic Services assets have a high data confidence rating. Table J1.6 describes the methodology used to assess asset condition and performance and to estimate replacement values.

Table J1.6: Muskoka Paramedic Services Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Emergency Response Vehicles	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
Administrative Vehicles	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
Paramedic Equipment	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
Communication Equipment	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
CP Administrative Vehicles	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
CP Clinical Equipment	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
Overall	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs

Future improvement opportunities include:

- Implementing the recommendations as highlighted in the 2022-2032 Paramedic Services Resources and Facilities Master Plan as per the recommendations in report HS-9-2023-1 for the replacement of paramedic assets that are scheduled for future renewal in alignment with the master plan.

Long-Term Care Homes



K. Long-Term Care Homes

Service Objective:

Reliable provision of support and services to residents and their families in accordance with the Fixing Long Term Care Act.

MODERATE

Data Confidence

GOOD

Overall Condition

MODERATE (46)

Condition Risk Score

FAIR

Overall Performance

MODERATE (55)

Performance Risk Score

$232M

(2023)

Replacement Value

$33M

(2023)

Total Cost for Service Delivery

Current State of Infrastructure

The District owns and operates two long-term care homes: The Pines and Fairvern. The Long-Term Care asset portfolio has a total replacement value of $232 million. Figure K1 provides an overview of replacement values.

Figure K1: Long-Term Care Assets 2023 Replacement Value

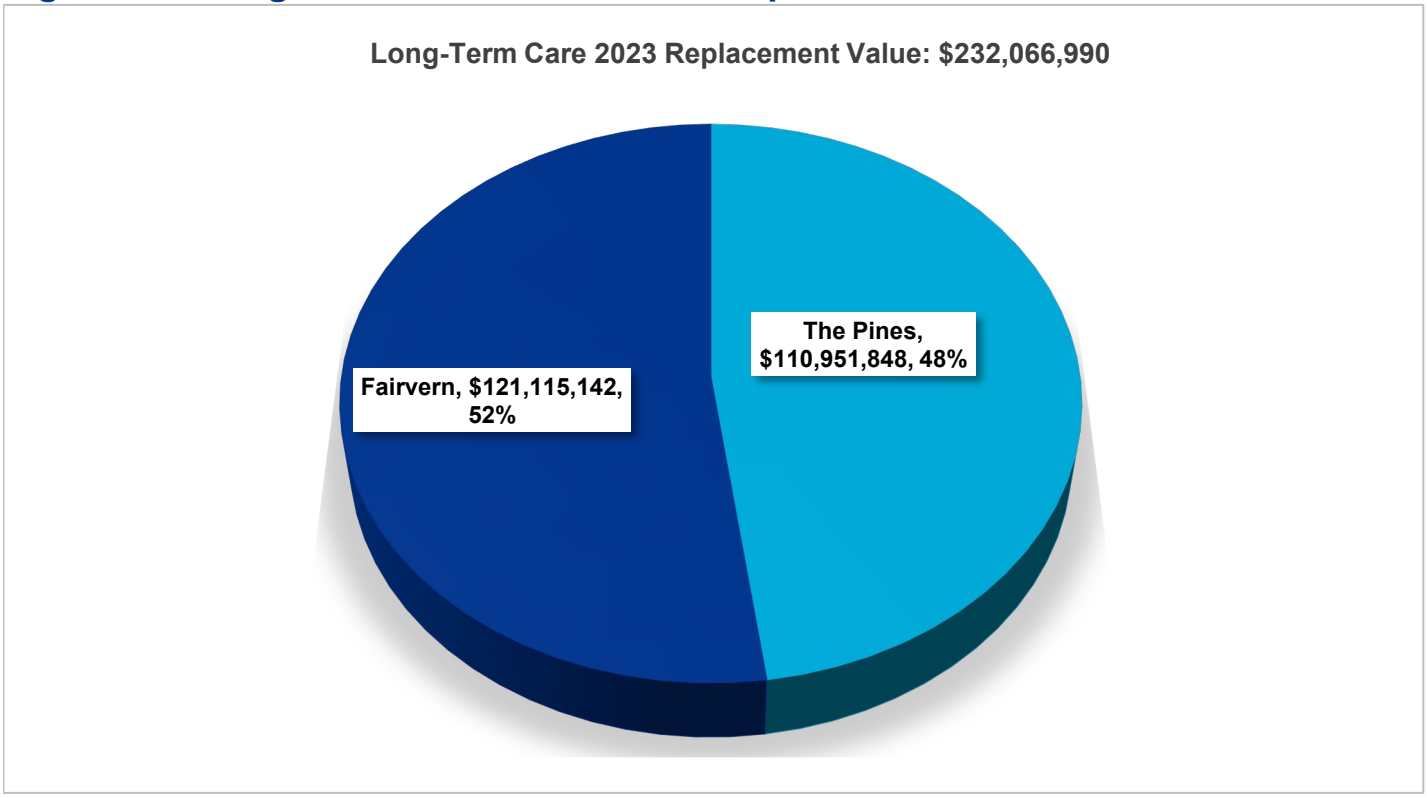


Table K1.1 provides the long-term care service to assets hierarchy which includes the number of current licensed beds for The Pines, number of future licensed beds for the new Fairvern home, and replacement values by parent asset.

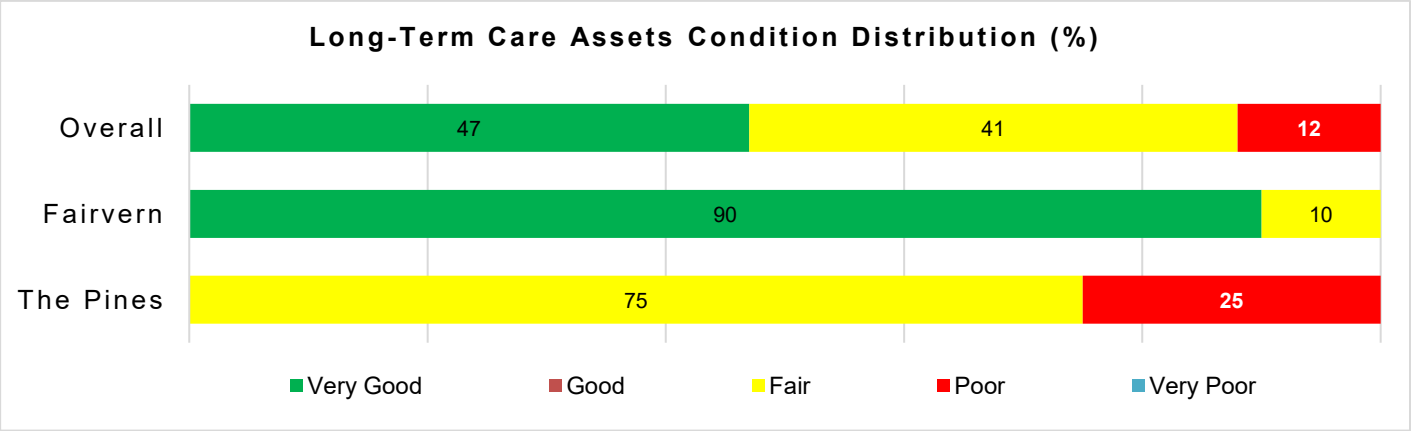
Table: K1.1: Long-Term Care: Service to Asset Hierarchy

Service Area	Service Division	Asset Class	Parent Asset	# Licensed Beds	Unit	Average Age in Years	2023 Replacement Value
Health Services	Long-Term Care	Long-Term Care Homes	The Pines	160 (2023)	Each	19	$110,951,848
			Fairvern	76 (2023) Expected at 160 (in 2026)	Each	New Asset Starting 2026	$121,115,142*
							$232,066,990

* Estimated for the New Fairvern Long-Term Care Home.

Overall, 88 % of long-term care assets are in fair or better condition while 12% are in poor condition consisting of mechanical and HVAC assets at The Pines. The condition distribution of long-term care assets weighted by replacement value is shown in Figure K2.

Figure K2: Long-Term Care Assets Condition Distribution (%)



Current Service Levels

District staff has documented current service levels associated with long-term care by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well current operating and maintenance activities. Our community service levels consist of the following:

- Continue to focus on recruitment and retention to ensure that residents have the staff in-place to meet exceptional person-centered care
- Ensuring that all staff feel healthy, engaged, and supported, recognizing the desire to ensure a positive impact for the residents
- Ensuring the home has the most up to date technologies, equipment, and support to ensure staff are efficient and able to give time back to the residents
- Maintain the building site in an acceptable condition with appropriate interior appearance and curb appeal

The overall condition of assets supporting long-term care is rated as good, while the combined performance of assets is rated as fair due to current capacity challenges and long waitlists for both long-term care homes. Table K1.2 provides the average condition and performance of long-term care homes weighted by replacement value.

Table: K1.2: Long-Term Care Technical Service Levels – Average Condition and Performance

Long-Term Care Homes	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
The Pines	Fair	Fair	Poor	Good	Good	Fair
Fairvern	Very Good	Good	Poor	Good	Good	Good
Overall Condition and Performance	**Good**	**Good**	**Poor**	**Good**	**Good**	**Fair**

Table K1.3 provides a few examples of the current operations and maintenance activities undertaken by long-term care staff to support current service levels.

Table: K1.3: Long-Term Care Technical Service Levels – Operations and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
Interior Painting	As Needed
Alarm Inspections	Annually
Fire Alarm Testing (Kitchen Hoods / Sprinklers)	Annually
Custodial Cleaning	Daily
Elevators Inspection and Licensing	Annually
HVAC Inspections	As per MHLTC requirements
Gas Appliance Inspections	As per MHLTC requirements
Electrical Inspections	As per ESSA requirements
Medical Lifting Equipment Inspections	Annually
Generators Inspection - Run Test	Monthly
Generators Inspection - Visual	Weekly
Fuel Inspection	Annually

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Criticality for both long-term care homes is high in terms of health and safety, financial impact and reputational impact. Table K1.4 provides information on asset criticality and consequence of failure scores.

Table K1.4: Long-Term Care Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
The Pines	High	5	4	5	2	5	21
Fairvern	High	5	4	5	2	5	21

The overall condition and performance risk for long-term care homes is moderate. Table K1.5 provides the current condition risk rating, current performance ratings, and combined performance risk ratings weighted by replacement value. The Pines has a higher risk score and as such, needs to be prioritized for maintenance and capital investment based on future target service levels.

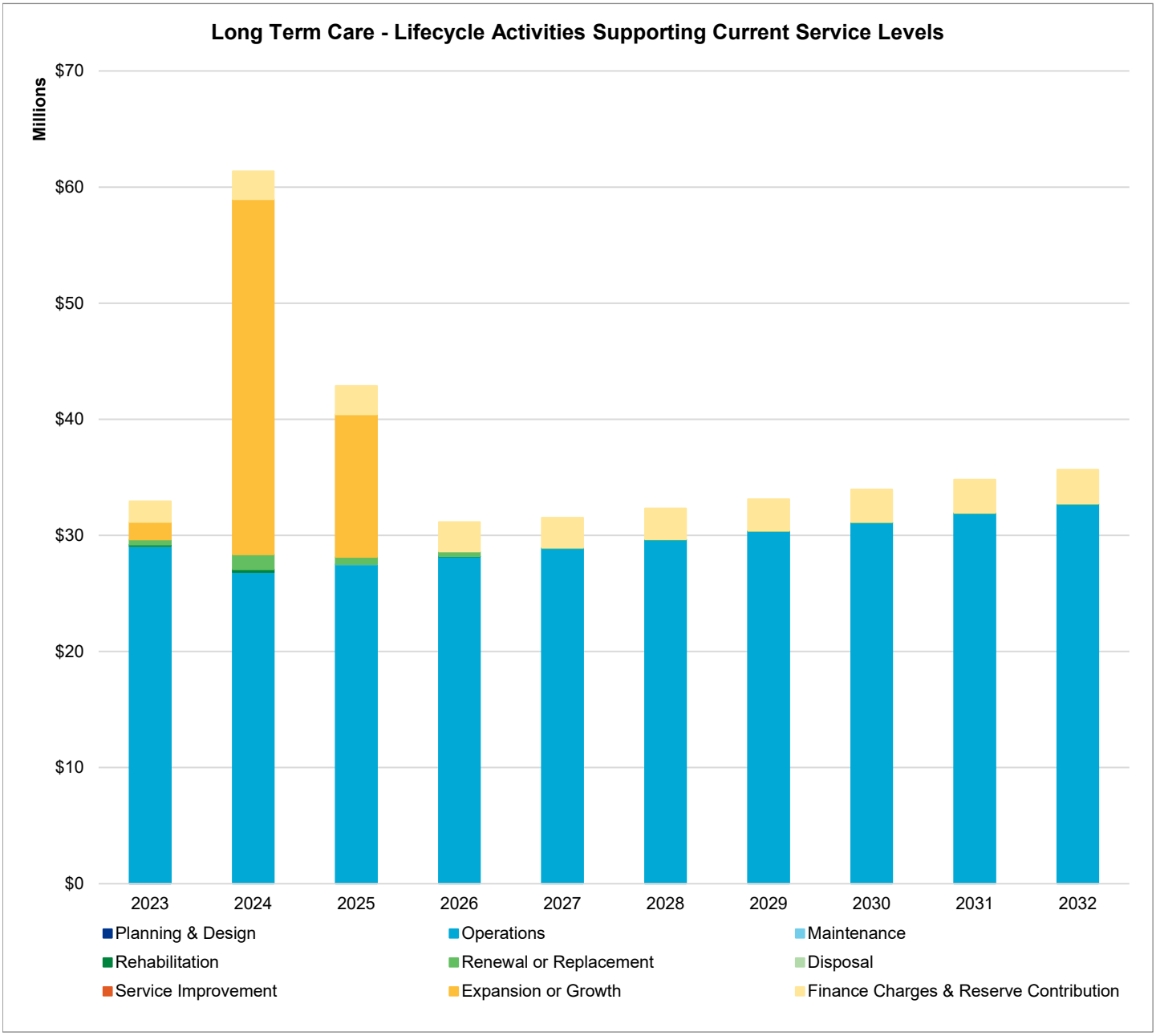
Table K1.5: Long-Term Care Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
The Pines	68	63	84	42	42	58
Fairvern	25	42	84	42	42	53
Overall Risk	**46**	**52**	**84**	**42**	**42**	**55**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide long-term care at current service levels was $33 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contribution to reserves. Operating costs include materials, supplies, and purchased services. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $370 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure K3.

Figure K3: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows long-term care staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All existing long-term care assets have a moderate data confidence rating, whereas the new Fairvern LTC Home will have a high data confidence rating upon completion. Table K1.6 describes the methodology used to assess asset condition and performance and to estimate replacement values.

Table K1.6: Long-Term Care Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
The Pines	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs
Fairvern	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Overall	High	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values, Inflating Historical Costs

Muskoka Airport (YQA)



L. Muskoka Airport (YQA)

Service Objective:

Operate safe and efficient air transportation facilities that serve the needs of Muskoka residents, businesses, and tourists.

MODERATE

Data Confidence

GOOD

Overall Condition

MODERATE (38)

Condition Risk Score

FAIR

Overall Performance

MODERATE (43)

Performance Risk Score

$33M

(2023)

Replacement Value

$5M

(2023)

Total Cost for Service Delivery

Current State of Infrastructure

The Muskoka Airport is currently managed through the District's administrative department, guided by a seven-member Airport Governance Board. The Muskoka Airport provides a vital link to the air transportation industry in the Muskoka area. The Muskoka Airport asset portfolio has a total replacement value of $33 million. The assets are classified by asset class for groundside infrastructure, airfield manoeuvring surfaces, terminal building, structures, and equipment. Figure L1 provides an overview of the replacement value by asset class.

Figure L1: Muskoka Airport 2023 Replacement Value

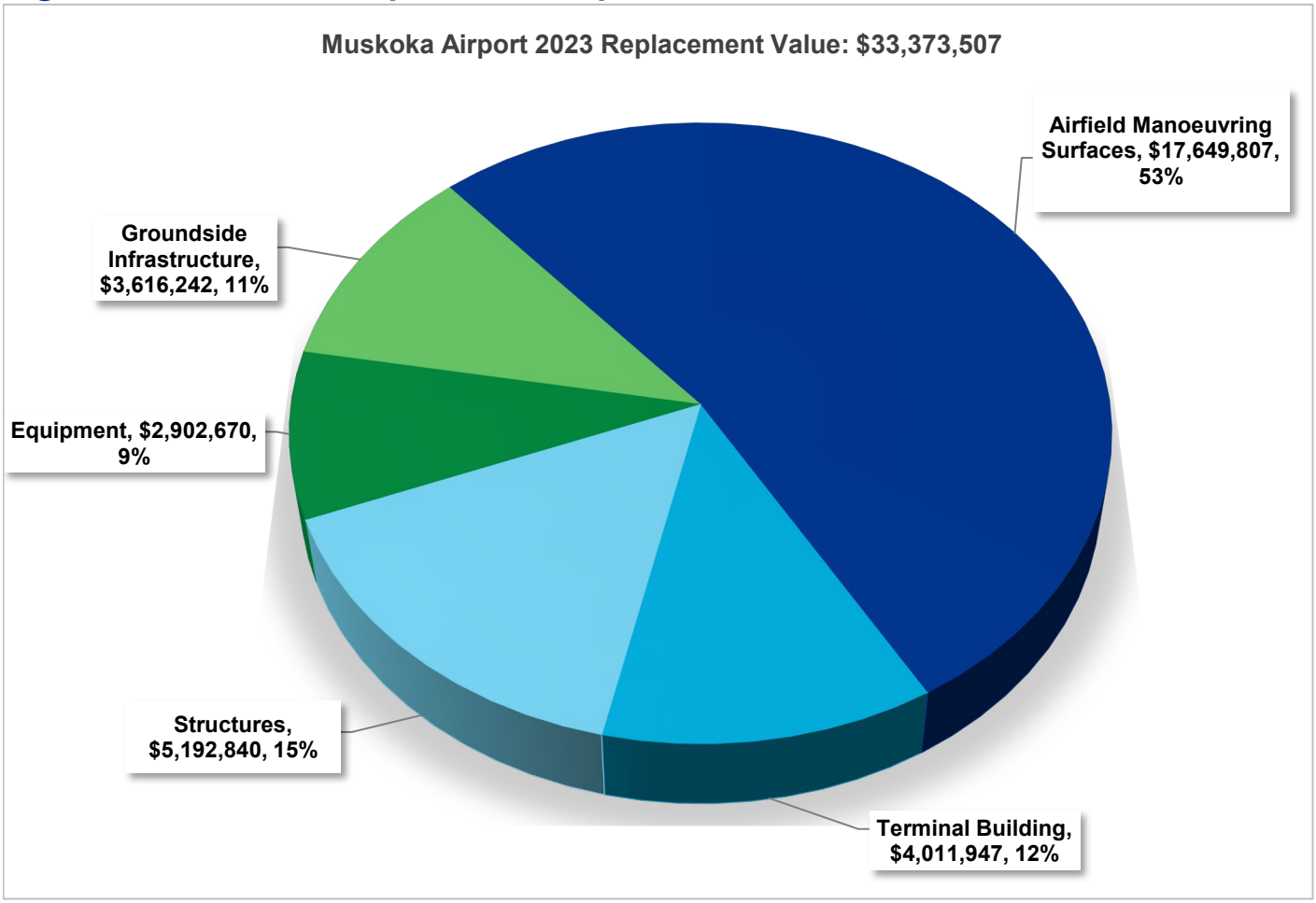


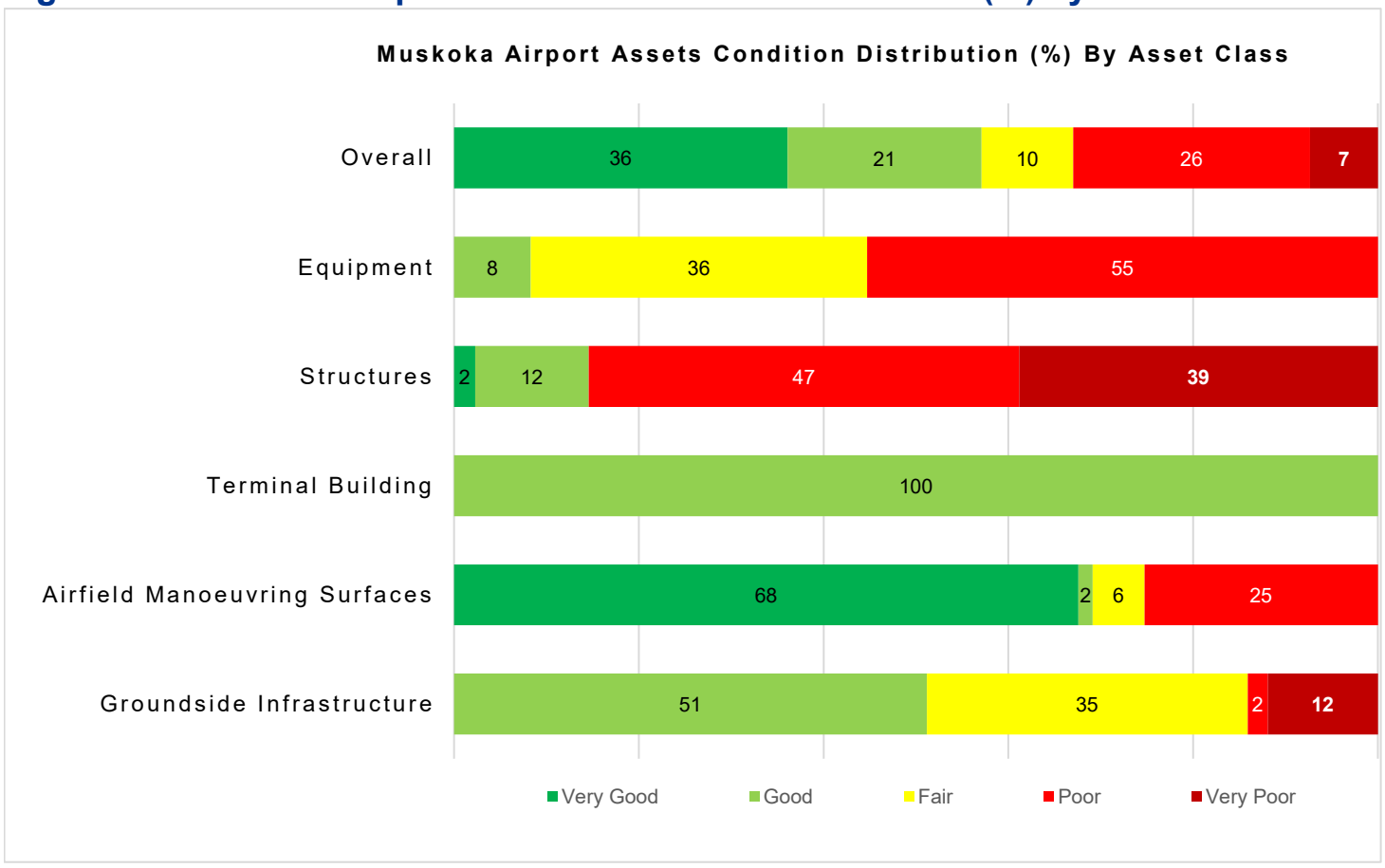
Table L1.1 provides the Muskoka Airport service to assets hierarchy which includes the current quantity of assets and replacement values by asset class.

Table: L1.1: Muskoka Airport Service to Assets Hierarchy

Service Area	Asset Class	Quantity	Unit	Average Age in Years	2023 Replacement Value
Muskoka Airport	Groundside Infrastructure	19	Each	11	$3,616,242
	Airfield Manoeuvring Surfaces	18	Each	12	$17,649,807
	Terminal Building	1	Each	16	$4,011,947
	Structures	8	Each	57	$5,192,840
	Equipment	10	Each	33	$2,902,670
					$33,373,507

Overall, 67% of the Muskoka Airport assets are in fair or better condition while 33% of the assets are in poor to very poor condition consisting of several assets associated with airfield manoeuvring surfaces, equipment, groundside infrastructure, as well as four structures including maintenance garage building, generator building, cold storage building, and the airport house at the south end. The condition distribution of Muskoka Airport assets weighted by replacement value is shown in Figure L2.

Figure L2: Muskoka Airport Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff has documented current service levels associated with Muskoka Airport assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well current operating and maintenance activities. The community service levels consist of the following:

- Airport facilities meet users' needs without interruption of services
- Airport infrastructure is maintained to meet Transport Canada's regulatory requirements
- Adequate parking and terminal space available at all times
- Airport infrastructure meets all accessibility standards

Overall, Muskoka Airport assets are in good condition while overall combined performance is fair. Table L1.2 provides the average condition and performance of corporate fleet assets weighted by replacement value by asset class. Groundside infrastructure and equipment generally is in fair condition while condition of structures is rated as poor. Other asset classes can also benefit from improvement in performance in terms of operational functionality and operational resiliency. Future target service levels will determine the type of required interventions to improve performance of Muskoka Airport assets, as needed.

Table L1.2: Muskoka Airport Technical Service Levels – Average Condition and Performance

Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Groundside Infrastructure	Fair	Good	Good	Good	Good	Good
Airfield Manoeuvring Surfaces	Good	Fair	Fair	Fair	Good	Fair
Terminal Building	Good	Good	Good	Good	Good	Good
Structures	Poor	Fair	Fair	Fair	Good	Fair
Equipment	Fair	Fair	Fair	Fair	Fair	Fair
Overall Condition and Performance	Good	Fair	Fair	Fair	Good	Fair

Table L1.3 provides a few examples of the current operations and maintenance activities undertaken by Muskoka Airport staff to support current service levels.

Table L1.3: Muskoka Airport Technical Service Levels – Operations and Maintenance Activities

Operations and Maintenance Activities	Current Service Levels
Line Painting as per the Canadian Aviation Regulations (CARs).	Meet CARs
Airfield lighting requirements as per the Canadian Aviation Regulations (CARs).	Meet CARs
Obstacle limitation surfaces to be complied with Canadian Aviation Regulations (CARs).	Meet CARs

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. Criticality for Muskoka Airport airfield manoeuvring surfaces is high as the consequence of failure for these assets is high in terms of health and safety, service disruption and financial impact. Criticality for terminal building, structures, and equipment is moderate, while groundside infrastructure is low. Table L1.4 provides the asset criticality and consequence of failure scores for Muskoka Airport by asset class.

Table L1.4: Muskoka Airport Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
Groundside Infrastructure	Low	1	2	2	2	2	9
Airfield Manoeuvring Surfaces	High	5	5	5	1	4	20
Terminal Building	Moderate	2	3	4	2	3	14
Structures	Moderate	1	4	3	3	2	13
Equipment	Moderate	1	4	3	2	3	13

The overall condition and performance risk for the Muskoka Airport is moderate. The airfield manoeuvring surfaces performance risk is high in terms of operational functionality, capacity to meet demand, and operational resiliency. Though most other assets have moderate risk, there are some potential budget implications in terms of reallocation of resources within the Muskoka Airport asset portfolio. Assets that have a relatively higher risk score need to be prioritized for maintenance and capital investment based on future target service levels. Table L1.5 provides the current condition risk rating, current performance risk ratings, and combined performance risk ratings weighted by replacement value.

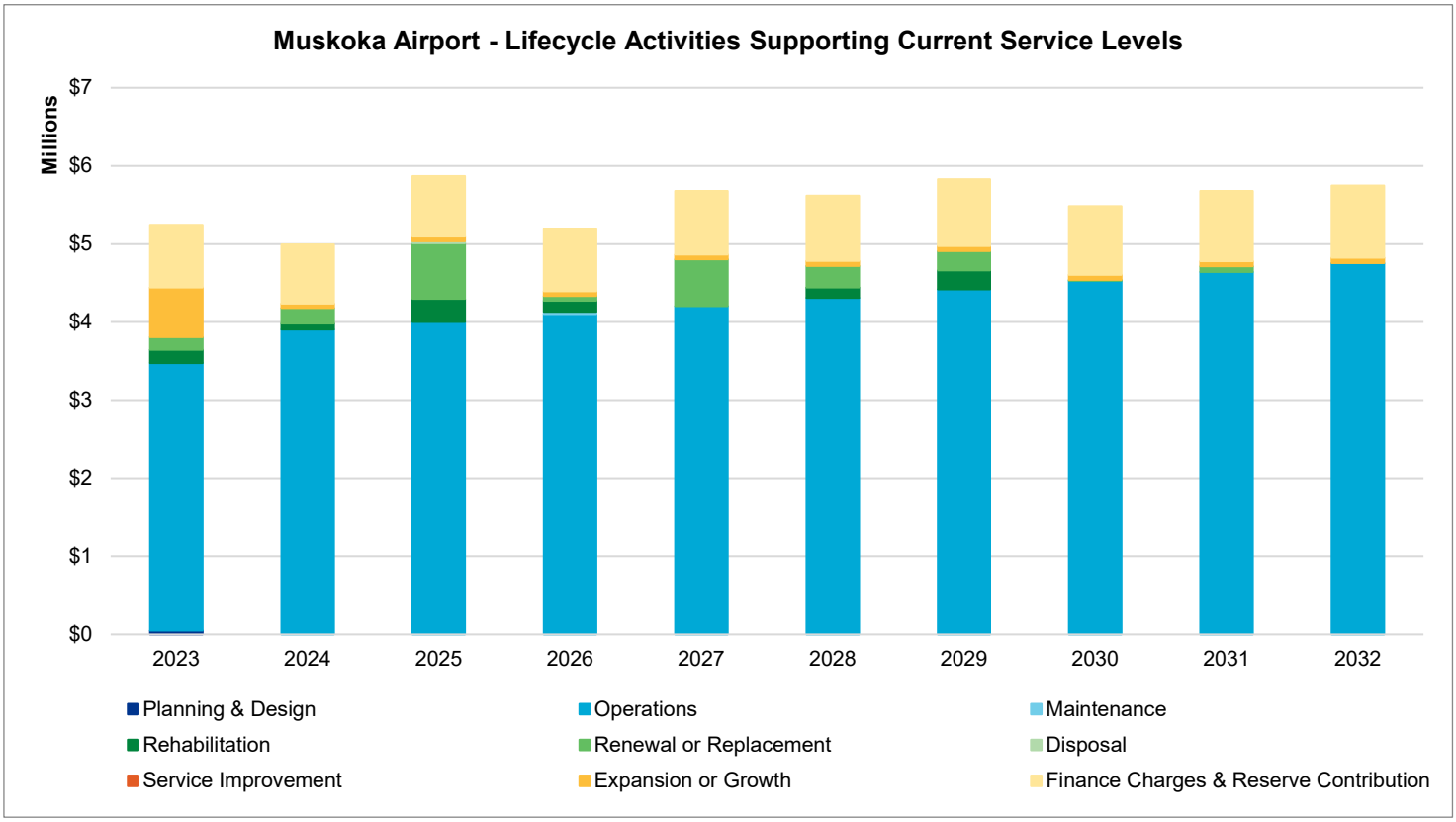
Table L1.5: Muskoka Airport Assets Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
Groundside Infrastructure	25	18	18	18	18	18
Airfield Manoeuvring Surfaces	38	60	60	60	40	55
Terminal Building	28	28	28	28	28	28
Structures	53	39	39	39	26	36
Equipment	45	39	39	39	39	39
Overall Risk	**38**	**47**	**47**	**47**	**34**	**43**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide Muskoka Airport services at current service levels was $5 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contribution to reserves. Operating costs include materials, supplies, and purchased services. Over the next ten years, the cumulative cost to maintain current service levels is projected to be over $55 million which includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure L3.

Figure L3: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

Accurate and reliable condition, performance and valuation data allows Muskoka Airport staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All Muskoka Airport assets have a moderate data confidence rating. Table L1.6 describes the methodology used to assess asset condition and performance and to estimate replacement values.

Table L1.6: Muskoka Airport Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
Groundside Infrastructure	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Inflating Historical Costs
Airfield Manoeuvring Surfaces	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Inflating Historical Costs
Terminal Building	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Inflating Historical Costs
Structures	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Inflating Historical Costs
Equipment	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Inflating Historical Costs
Overall	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Inflating Historical Costs

In the context of making further progress in asset management, it is essential for Muskoka Airport staff to engage an engineering firm to conduct a comprehensive assessment of the airport's runways, taxiways, and aprons. This detailed assessment will provide a more precise understanding of the associated costs pertaining to these surfaces.

Information Technology Services



M. Information Technology Services (ITS)

Service Objective:

Plan, build, sustain and secure the enterprise architecture, software applications, computer equipment and telecommunications networks for users in support of municipal service delivery.

MODERATE
Data Confidence

GOOD
Overall Condition

MODERATE
(23)
Condition Risk Score

GOOD
Overall Performance

LOW
(18)
Performance Risk Score

$5M
(2023)
Replacement Value

$4.8M
(2023)
Total Cost for Service Delivery

Current State of Infrastructure

The Information Technology Services asset portfolio has a total replacement value of $5 million. The assets are classified by asset class for end user devices, IT infrastructure, and applications and software. Figure M1 provides an overview of the replacement value by asset class.

Figure M1: Information Technology Services 2023 Replacement Value by Asset Class

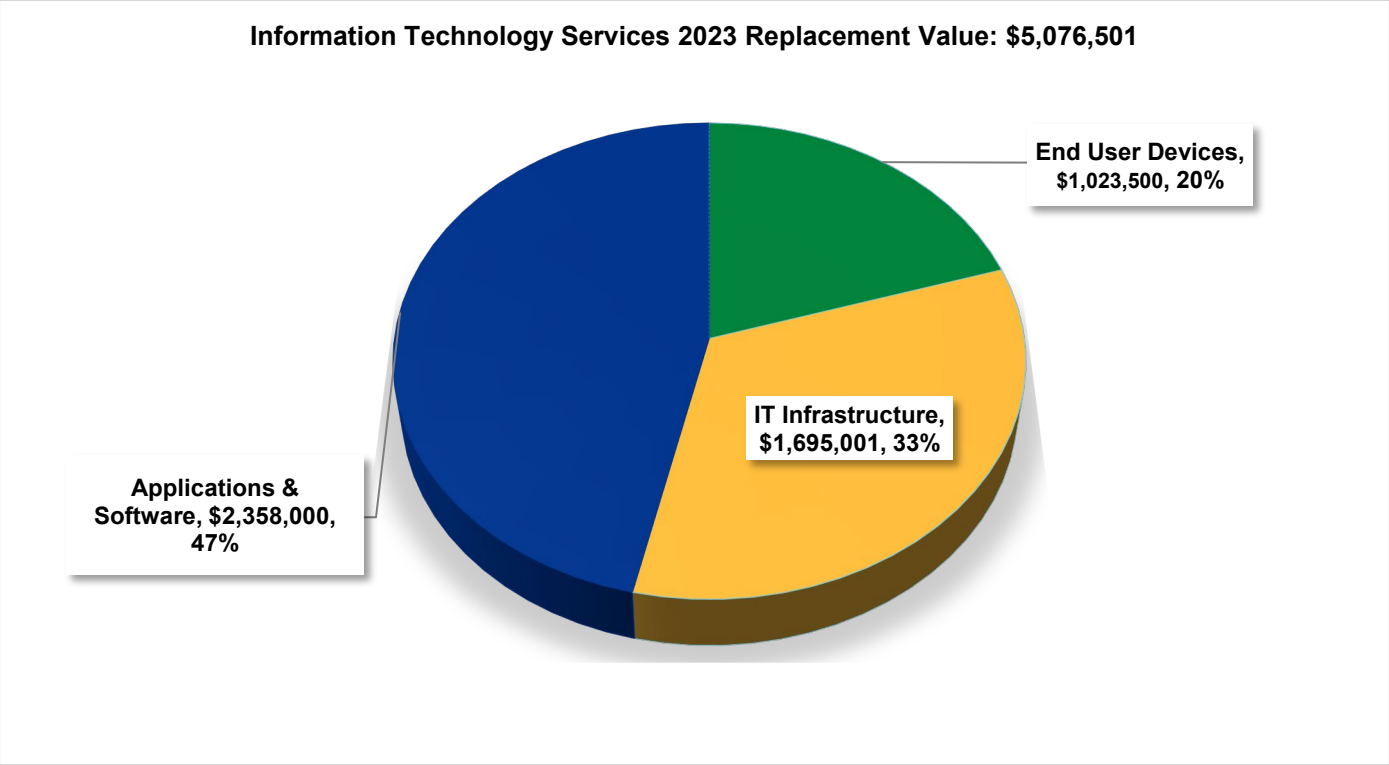


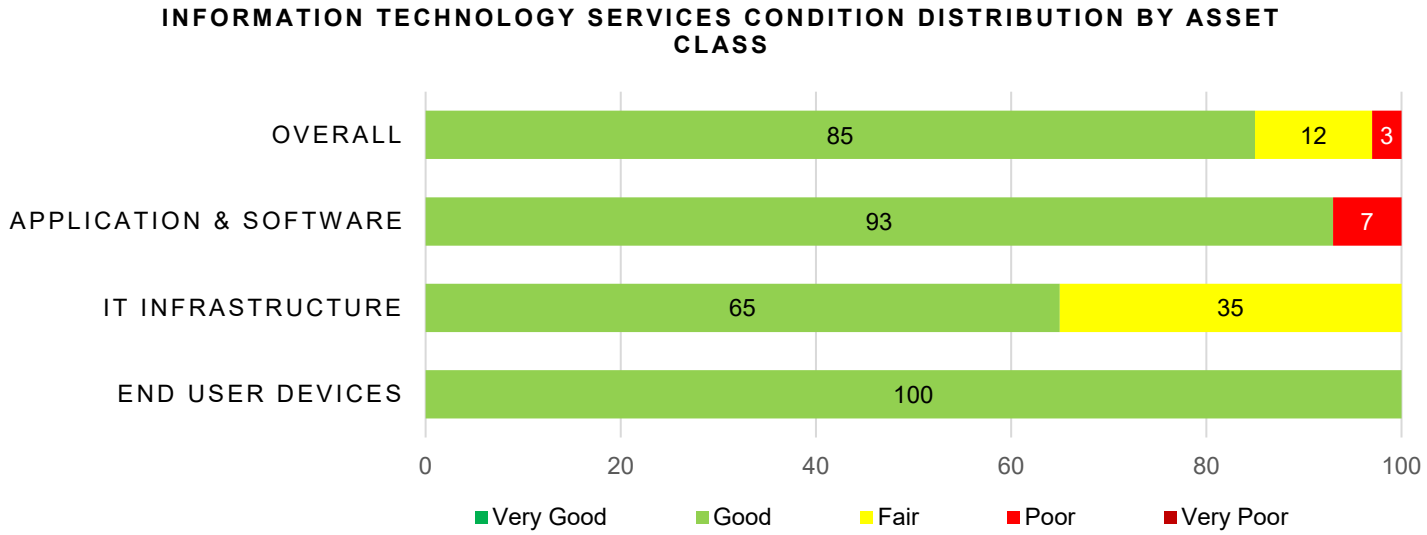
Table M1.1 provides the Information Technology Services to assets hierarchy which includes the current quantity of assets and replacement values by asset class.

Table: M1.1: Information Technology Service to Assets Hierarchy

Service Area	Service Division	Asset Class	Quantity	Unit	2023 Replacement Value
Corporate Services	Information Technology Services	End User Devices	1,285	Each	$1,023,500
		IT Infrastructure	447	Each	$1,695,001
		Application and Software	8+	Each	$2,358,000
					$5,076,501

Overall, 97% of Information Technology Services assets are in fair or better condition while 3% of the assets are in poor condition consisting of assets associated with applications and software. The condition distribution of Information Technology Services assets weighted by replacement value is shown in Figure M2.

Figure M2: Information Technology Services Assets Condition Distribution (%) by Asset Class



Current Service Levels

District staff has documented current service levels associated with Information Technology Services assets by identifying community service levels and technical service levels that includes capturing both asset condition and performance metrics as well as current operating and maintenance activities. The community service levels consist of the following:

- Availability of applications/software meet the needs of the division
- Maintain equipment at a minimum condition rating of good and a moderate risk of failure
- Reliable and available communication systems and networks
- Ensure backup capacity for all critical assets

Overall, the condition and combined performance of Information Technology Services assets is good. Table M1.2 provides the average condition and performance of Information Technology Services assets weighted by replacement value by asset class.

Table: M1.2: Information Technology Technical Service Levels – Average Condition and Performance

Asset Class	Average Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
End User Devices	Good	Good	Good	Good	Very Good	Good
IT Infrastructure	Good	Good	Good	Good	Good	Good
Application and Software	Good	Good	Very Good	Very Good	Very Good	Very Good
Overall Condition and Performance	**Good**	**Good**	**Good**	**Good**	**Very Good**	**Good**

Table M1.3 provides a couple examples of the current operations and maintenance activities undertaken by Information Technology Services staff to support current service levels.

Table: M1.3: Information Technology Technical Service Levels – Lifecycle Activities

Lifecycle Activities	Current Service Levels
Maintenance and repairs are performed	As Needed
IT assets are replaced	At End of Estimated Useful Life

Current Risk Ratings

The identification of critical assets allows the District to determine appropriate risk mitigation strategies and treatment options. The asset criticality for Information Technology Services assets is mostly moderate except end user devices which is low. Table M1.4 provides the asset criticality and consequence of failure scores by asset class.

Table M1.4: Information Technology Services Assets Criticality and Consequence of Failure Scores

Asset Class	Asset Criticality	Health and Safety	Service Disruption	Financial Impact	Environmental Impact	Reputational Impact	Total Score
End User Devices	Low	1	2	1	1	1	6
IT Infrastructure	Moderate	1	5	3	1	1	11
Applications and Software	Moderate	1	5	4	1	1	12

The overall condition risk for Information Technology Services is moderate while the overall performance risk is low. Table M1.5 provides the current condition risk rating, current performance risk ratings, and combined performance risk ratings weighted by replacement value. Though most of Information Technology Services assets are moderate to low risk, there are some potential budget implications in terms of reallocation of resources within the Information Technology Services assets portfolio. Assets that have a relatively higher risk score need to be prioritized for maintenance and capital investment based on future target service levels.

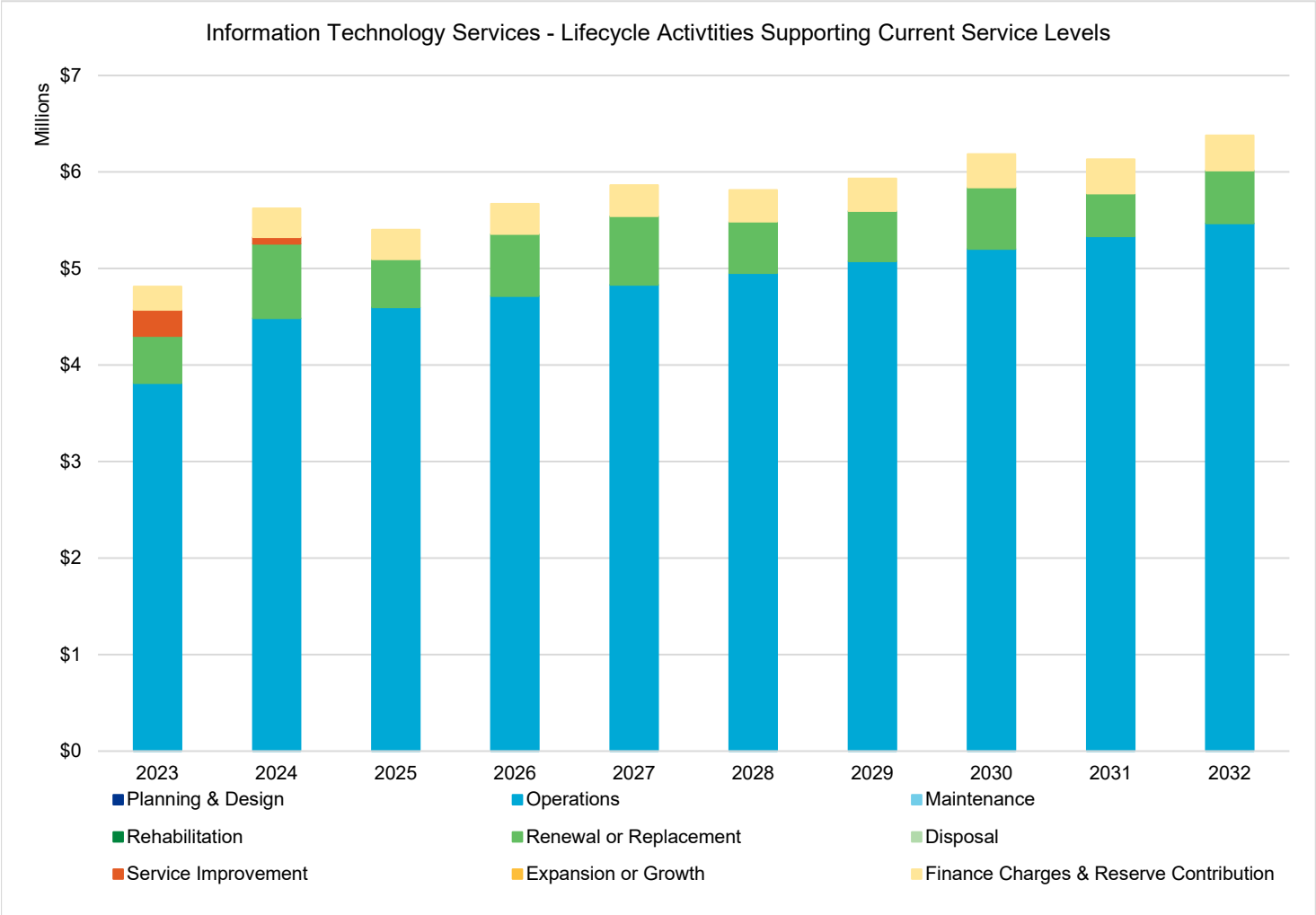
Table M1.5: Information Technology Services Assets Current Risk Ratings

Asset Class	Condition	Operational Functionality	Capacity to Meet Demand	Operational Resiliency	Environmental Resiliency	Combined Performance
End User Devices	12	12	12	12	6	11
IT Infrastructure	26	27	27	23	22	25
Applications and Software	26	25	15	15	12	17
Overall Risk	**23**	**23**	**18**	**17**	**14**	**18**

Current and Planned Asset Lifecycle Activities

In 2023, the total cost to provide Information Technology Services at current service levels was $5 million which includes asset lifecycle costs associated with planning and design, operations, maintenance, rehabilitation, renewal, or replacement as well as finance charges and contributions to reserve. Operating costs include materials and supplies and purchased services which includes software maintenance. Over the next ten years the cumulative cost to maintain current service levels is projected to be over $58 million. This includes planned asset lifecycle activities as well as future operating costs, finance charges and contribution to reserves with an annual projected increase of 2.5% until 2032 as shown in Figure M3.

Figure M3: 2023-2032 Total Cost for Providing and Maintaining Current Service Levels



Future Improvement Opportunities

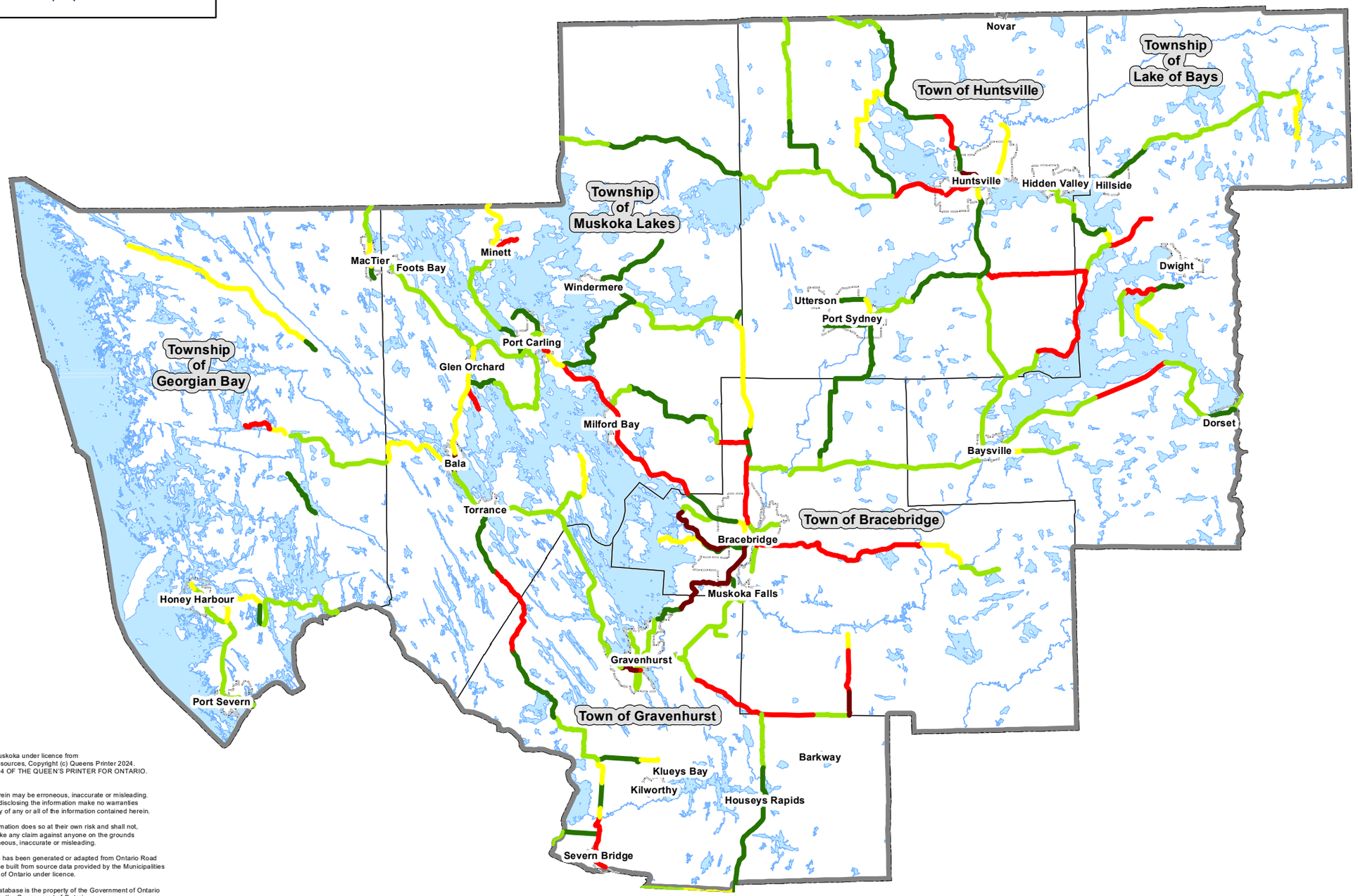
Accurate and reliable condition, performance and valuation data allows Information Technology Services staff to determine the remaining service life of assets more confidently and identify the most cost-effective approach to managing assets. All Information Technology Services assets have moderate data confidence rating. Table M1.6 describes the methodology used to assess asset condition and performance and to estimate replacement values.

Table M1.6: Information Technology Data Collection Methodology and Confidence Rating

Asset Class	Data Confidence Rating	Condition Data	Performance Data	Estimated Replacement Value
End User Devices	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
IT Infrastructure	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Applications and Software	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values
Overall	Moderate	100% Age of Assets, Staff Assessment	100% Staff Assessment	Market Values

N. Appendices

N1 . District of Muskoka - Roads by Condition Rating



Legend

Roads

By Structural Adequacy

- Very Poor
- Poor
- Fair
- Good
- Very Good

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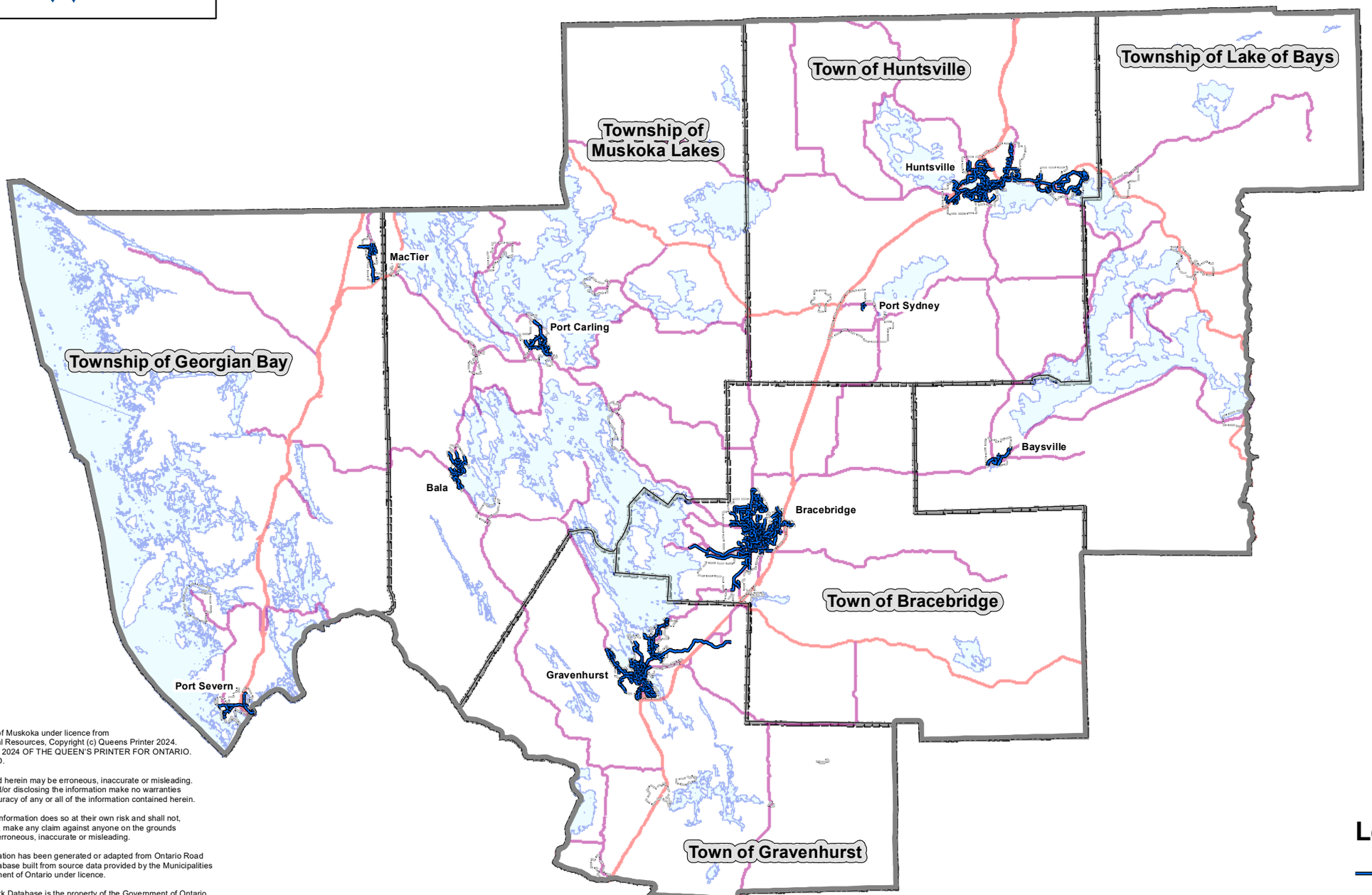
N2. District of Muskoka - Water Distribution



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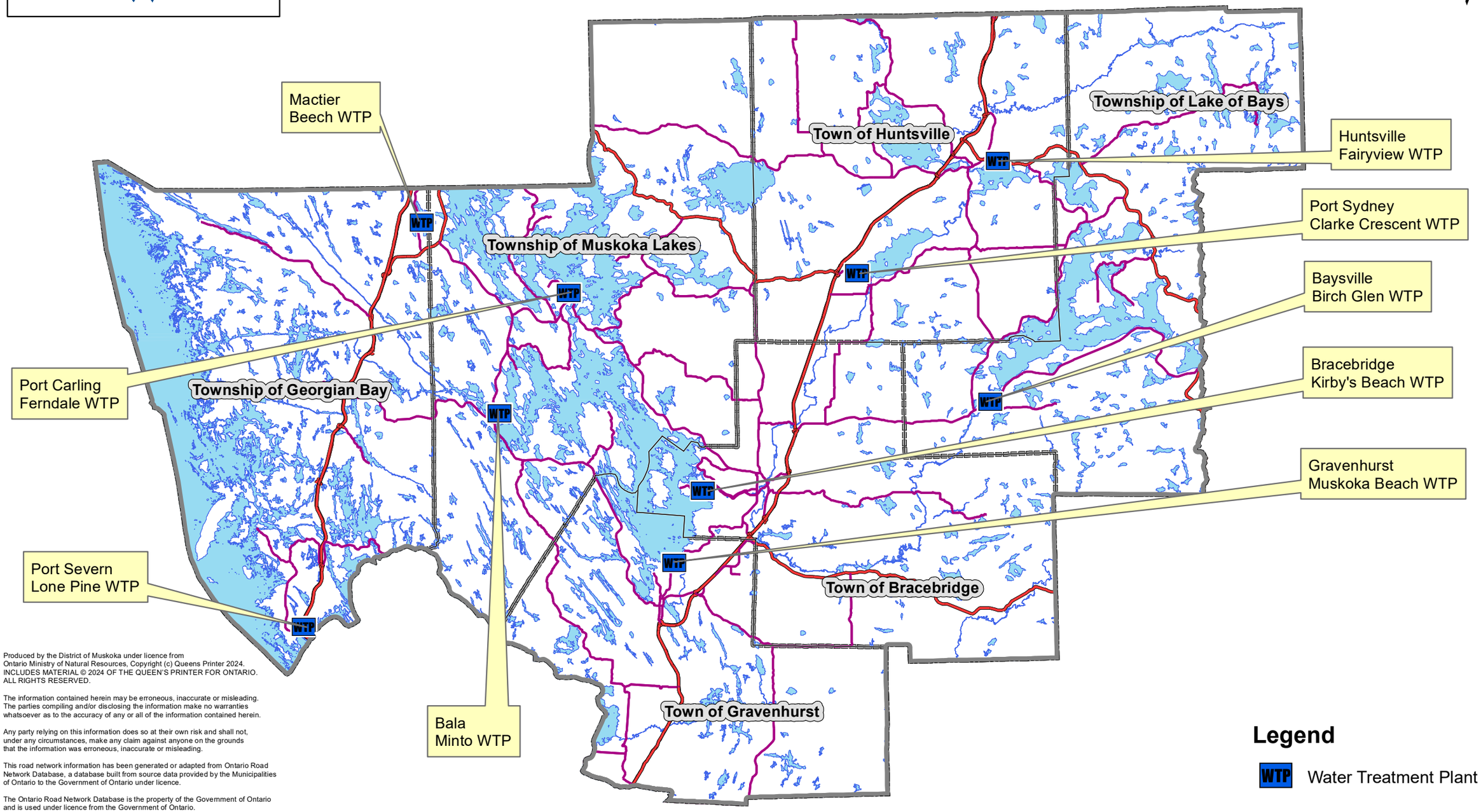
Legend

Water Distribution

N3. District of Muskoka - Water Treatment Plants



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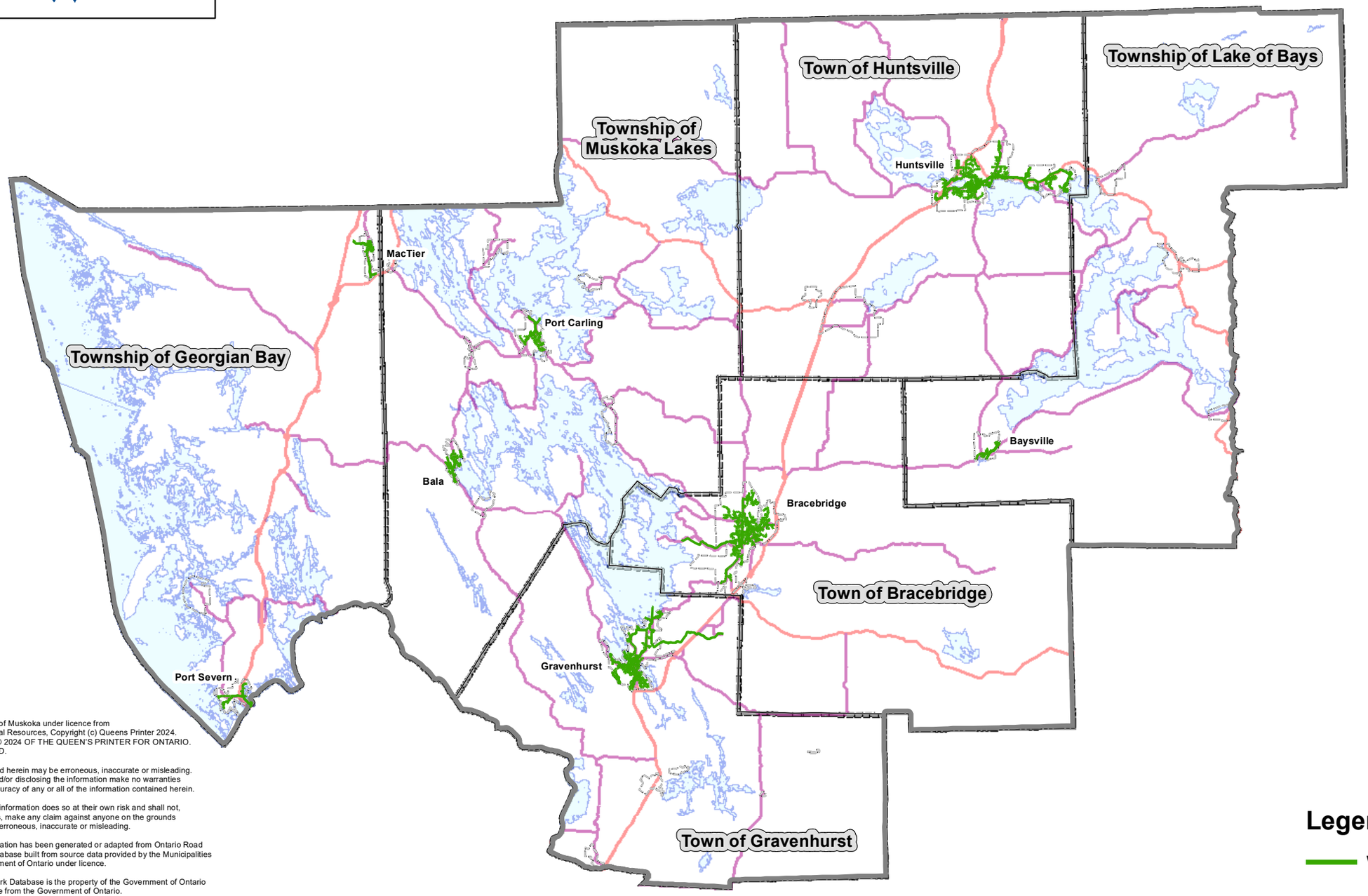
Legend

WTP Water Treatment Plant

N4. District of Muskoka - Wastewater Collection



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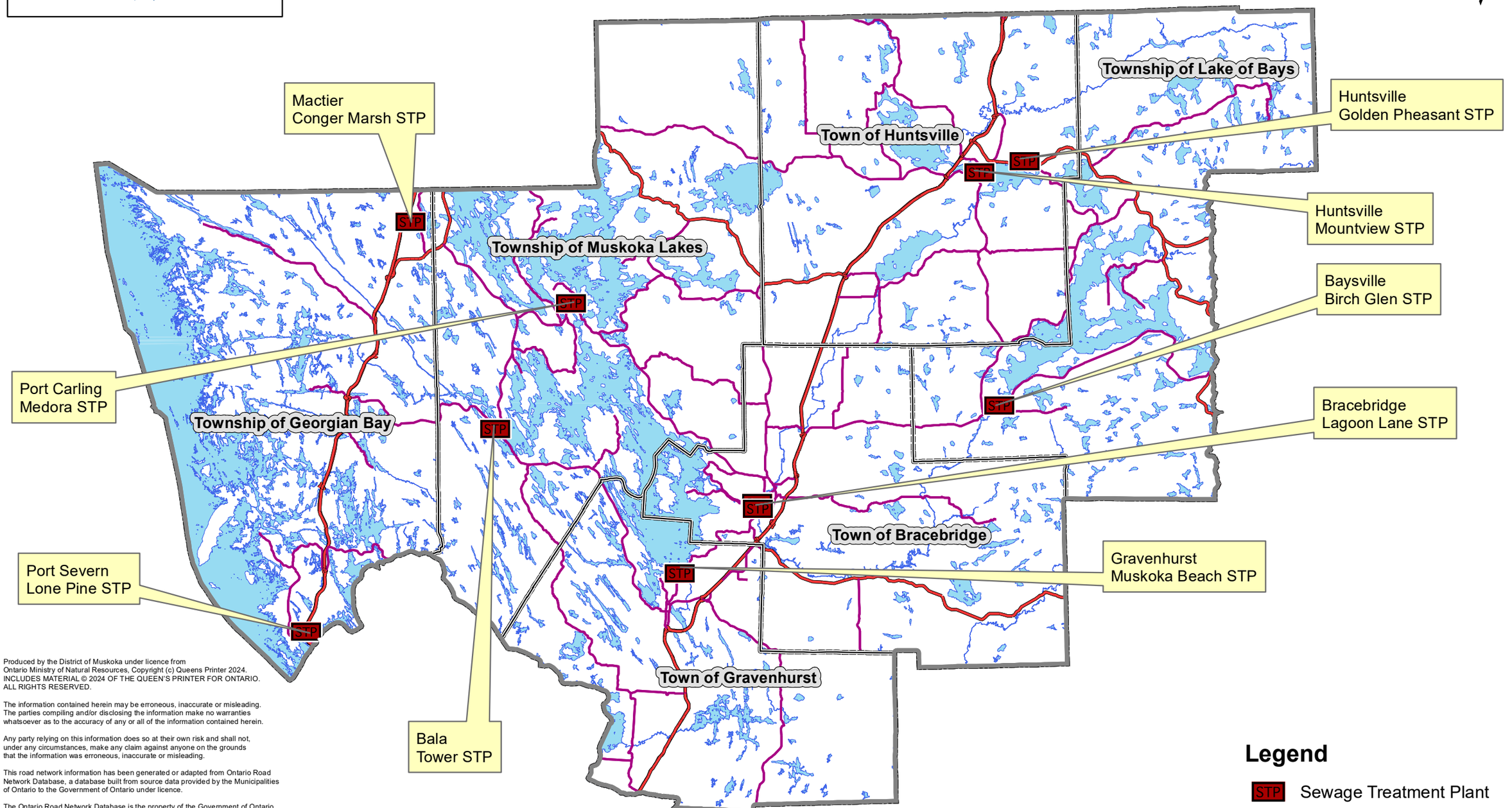
Legend

Wastewater Collection

N5. District of Muskoka - Sewage Treatment Plants



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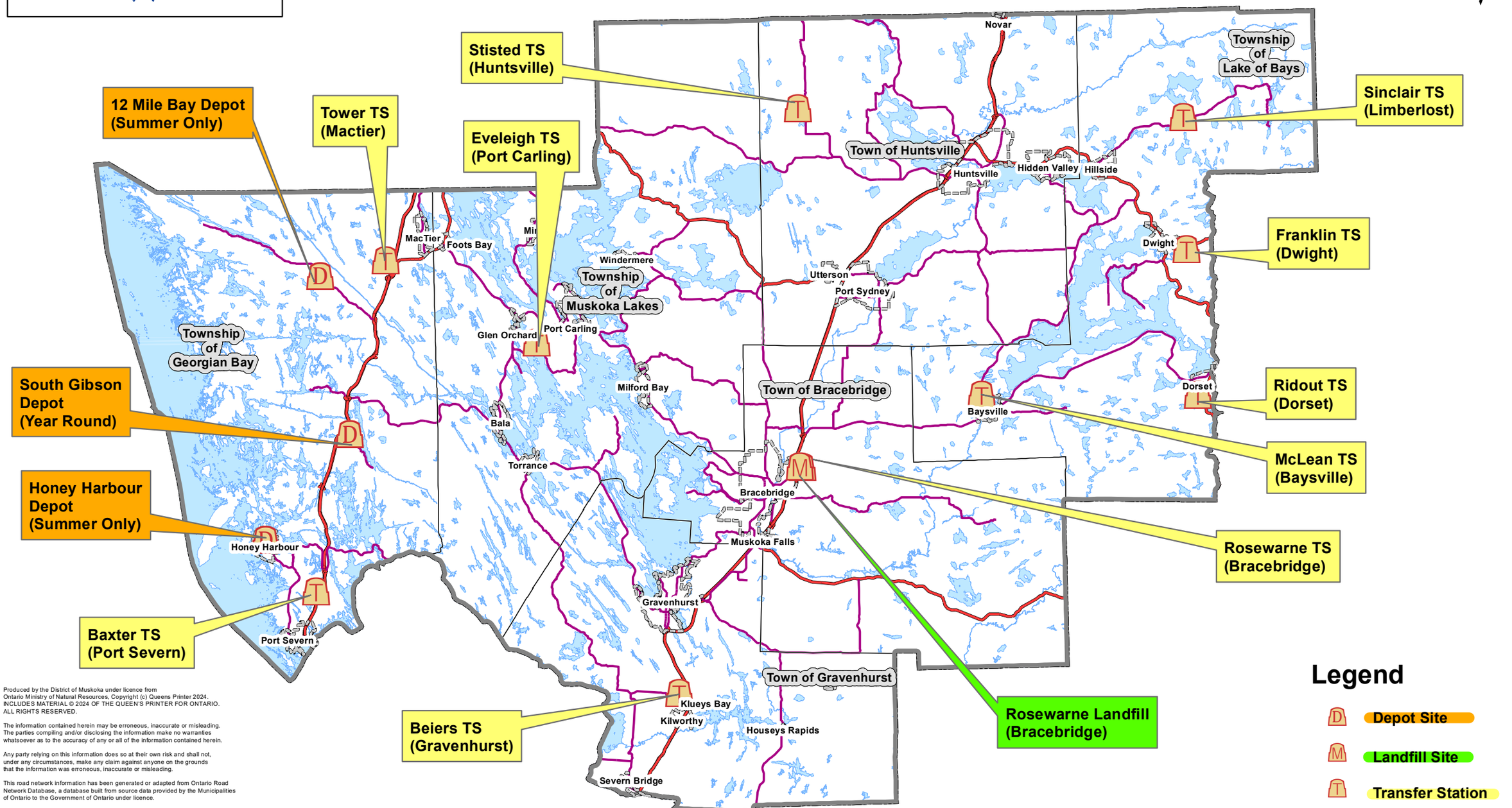
Legend

STP Sewage Treatment Plant

N6. District of Muskoka - Landfill, Transfer Stations, & Depots



Legend

- Depot Site
- Landfill Site
- Transfer Station

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