# ASSET MANAGEMENT PLAN

Fleet

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# Contents

## 1.0 EXECUTIVE SUMMARY

### 1.1 The Purpose of the Plan

This Asset Management Plan (AM Plan) details information about fleet assets with actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide over the 20 year planning period. The AM Plan links to the County of Northumberland's Long-Term Financial Plan which typically considers a 10-year planning period.

### 1.2 Asset Description

The County of Northumberland (County) is a thriving, south-eastern Ontario community strategically positioned along Highway 401 to access both Toronto and Kingston within a 1 to 1.5 hour drive. Northumberland County offers a range of living experiences from historic towns to scenic rolling rural areas to spectacular water settings on Rice Lake, the Trent River and Lake Ontario. The County is an upper tier level of municipal government that owns and manages physical assets in numerous service areas which are used to deliver services to over 89,365 (2021 Census) residents. The County weaves together seven diverse, yet complementary municipalities that manage assets and deliver services to the community.

The seven municipalities are:

- Township of Alnwick/Haldimand
- Municipality of Brighton
- Town of Cobourg
- Township of Cramahe
- Township of Hamilton
- Municipality of Port Hope
- Municipality of Trent Hills

This AM Plan has been developed for the County's fleet assets including light vehicles, heavy vehicles, light equipment, heavy equipment and paramedic vehicles.

The Fleet inventory comprises:

- 49 Light Vehicles
- 24 Heavy Vehicles
- 32 Light Equipment
- 27 Heavy Equipment
- 30 Paramedic Vehicles

The above infrastructure assets have a replacement value estimated at $30,102,900.

### 1.3 Levels of Service

The allocation in the planned budget is insufficient to continue providing existing services at current levels for the planning period.

The main service consequences of the Planned Budget are:

- Asset condition deterioration due to lack of preventative and/or required maintenance activities.
- Prolonged wait times for repairs and replacements.
- Lack of equipment to complete necessary work and provide services to residents.
- Adjustment to the services provided and/or reduced service levels.

### 1.4 Future Demand

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

- Increasing Population and demand for services
- Climate Change
- Current Economy
- Changing Technology

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

- On-going implementation of Equipment Replacement Strategy.
- On-going implementation of Preventative Maintenance Strategy.
- Consideration of various approved purchasing strategies for the purchase of new vehicles and equipment and sourcing parts.
- Explore new technologies and options for equipment replacement.
- Continued inspections to determine condition, capacity, and function.

### 1.5 Lifecycle Management Plan

#### 1.5.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10 year total outlays, which for fleet assets is estimated as $64,233,058 or $6,423,306 on average per year.

## 1.6 Financial Summary

### 1.6.1 What we will do

Estimated available funding for the 10 year period is $58,097,012 or $5,809,701 on average per year as per the Long-Term Financial plan or Planned Budget. This is 90% of the cost to sustain the current level of service at the lowest lifecycle cost.

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

The anticipated Planned Budget for fleet assets leaves a shortfall of $613,605 on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

**Forecast Lifecycle Costs and Planned Budgets**

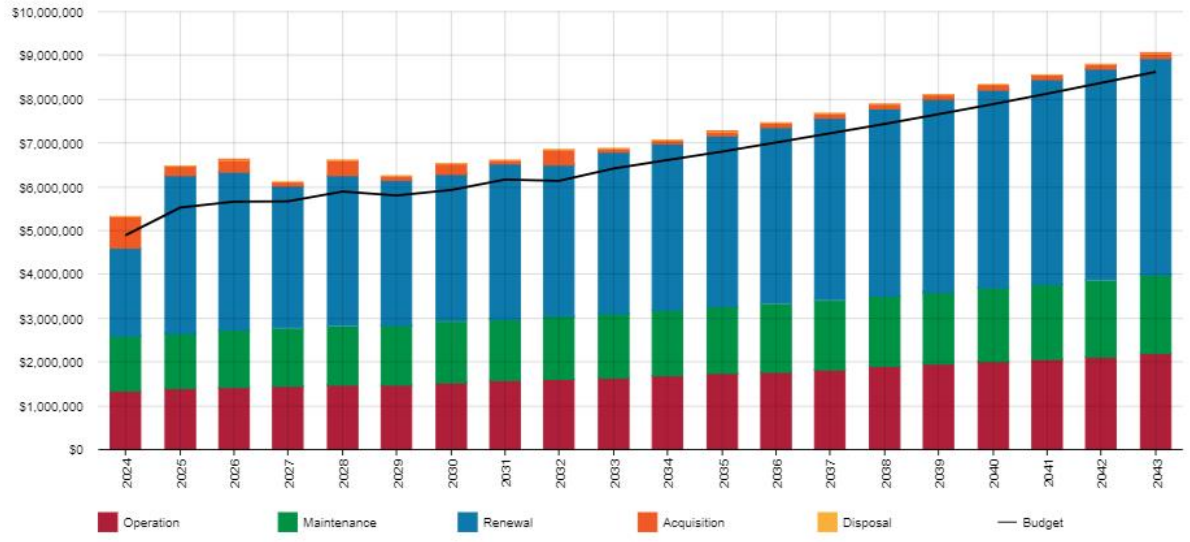



Figure Values are in 2024 dollars.

We plan to provide fleet asset services for the following:

- Prioritized operation, maintenance, renewal and acquisition of fleet assets to meet service levels set by the County in annual budgets.
- Replacement of tandem combination trucks with tri-axle combination trucks.
- Add one (1) new ambulance shift in 2024 and an ERV in 2026.
- Disposal of two (2) tractor backhoes and two (2) tractor brooms and replacement with two (2) multipurpose backhoes.

### 1.6.2 What we cannot do

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

- Meet fleet demands based on growth of County
- Complete all preventative maintenance and retrofits
- Replace necessary vehicles/equipment in a timely manner

### 1.6.3 Managing the Risks

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

The main risk consequences are:

- Failure of asset and/or use restrictions
- Increased downtime of vehicles and/or equipment
- Road safety concerns due to lack of fleet to complete required work
- Increased maintenance and repair resulting from assets not being renewed as required
- Increased liability

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

- Continuing to complete inspections and preventative maintenance
- Prioritizing repair, maintenance, upgrades and replacement to mitigate risks.
- Researching and implementing viable alternative part sources and replacements for economic efficiencies

## 1.7 Asset Management Planning Practices

Key assumptions made in this AM Plan are identified below.

General Assumptions:

- Asset Register was not used for capital renewal but rather reliance was on technical estimates and staff knowledge.
- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles.
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations.
- Depreciated values assumed based on current replacement costs of assets and percentage currently consumed.
- Assumed function and capacity were the same as condition in the asset register.
- Does not account for works that should be completed but are being deferred due to budget constraints.
- Renewal costs were the same as replacement costs in the asset register.
- The Community Paramedicine program is 100% funded by the Province and assumes this will continue past 2026.

Fleet Assumptions:

- Assumed age of some fleet based on staff knowledge.
- Fleet with a useful life of 10,000hr recorded as 15-year useful life.
- Ambulance fleet assumed useful life of 5-years or 250,000km, whichever comes first.

Our systems to manage assets include:

- Cityworks (CW) Asset Management Software
- Geographic Information System (GIS)
- Microsoft Excel Spreadsheets
- Great Plains Fixed Asset Module

Assets requiring renewal are identified from either the asset register or an alternative method.

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

The Alternate Method was used to forecast the renewal lifecycle costs for this AM Plan.

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

### 1.8 Monitoring and Improvement Program

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

- Further development of asset registers to enhance data set (completeness and accuracy) and incorporation of all data into the County's GIS database and Cityworks software.
- Additional lifecycle modelling for fleet assets.
- Review of Equipment Replacement Strategy.
- Incorporate additional internal stakeholder/customer satisfaction data with respect to fleet levels of service, risk and financial considerations.
- On-going costing updates as information becomes available from Cityworks (CW).
- Discussion between Public Works and Finance to better understand how assets are valued, tracked and amortized.
- Monitor asset resilience and complete resilience assessment and plan.
- Develop a more robust risk management plan.
- Review asset condition evaluation process for fleet and update accordingly.
- Incorporation of recommendations from County's Greenhouse Gas (GHG) Emission Reduction Plan anticipated to be completed in 2024 and any subsequent climate action plans or reports.

- Review staff resourcing requirements for on-going asset management plan development and updates and for implementation of plan.
- Review of expenditure thresholds for the capitalization of assets.
- Incorporate small hand tools, accessories and paramedic AED’s and stretchers.

## 2.0 INTRODUCTION

### 2.1 Background

This AM Plan communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period. In summary, asset management involves balancing asset lifecycle costs, performance and risk with a goal of delivering the required performance or level of service at the best possible cost over the life of the asset within an acceptable level of risk.

The AM Plan is to be read in conjunction with the County of Northumberland planning documents including the Asset Management Policy (2019), and the following key planning documents:

- Northumberland County Strategic Plan 2023-2027
- Northumberland County Official Plan
- Northumberland County Transportation Master Plan (2016) and Cycling Master Plan (updated 2014)
- Northumberland County Budget and Long-Term Financial Plan
- Equipment Replacement Strategy

Since 2009, the revised Public Sector Accounting Board (PSAB) standards have been in place. These standards required that clear definitions of capital be adopted by Municipalities and the County established the acquisition or historic value (PSAB value) for each asset grouping as well as the replacement values in current dollars. The County began development of a long term 10-year plan as part of the 2012 budget process, which continues to be in place.

In 2014, Northumberland County Council (Council) adopted its first formal AM Plan, in accordance with Funding requirements set out in the Ministry of Infrastructure's *Building Together* standard. Federal Gas Tax funding was modified in 2016 to also include a requirement for municipalities to have a detailed asset management plan. In April 2019, as per O.Reg. 588/17 requirements, Council adopted the Northumberland County Asset Management Policy. The policy outlines the following objectives:

- Provide a consistent framework for implementing asset management throughout the organization.
- Provide transparency and accountability and to demonstrate to stakeholders the legitimacy of decision-making processes which combine strategic plans, budgets, service levels and risks.

This AM Plan has been developed for all Fleet Assets as per O.Reg. 588/17 and will be used for development of annual and long term financial planning moving forward.

The assets covered by this AMP include all fleet assets. For a detailed summary of the assets covered in this AM Plan refer to Table 5.1.1 in Section 5.

These assets provide Emergency Services to residents and visitors of Northumberland County through Paramedic response, in addition to the foundation of the County's road and waste operations, inspection services, facilities management and natural heritage, and are critical to ensure operations and maintenance activities on infrastructure assets are completed to allow for the safe movement of people, goods and services; creating employment; providing connections to neighbouring communities; and contributing to the social and health needs of the community.

The infrastructure assets included in this plan have a total replacement value of $30,102,900.

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 2.1.

**Table 2.1: Key Stakeholders in the AM Plan**

| Key Stakeholder | Role in Asset Management Plan |
|---|---|
| County Council | ▪ Represent needs of community/shareholders,<br>▪ Allocate resources to meet planning objectives in providing services while managing risks,<br>▪ Ensure organization is financially sustainable. |
| CAO and Senior Management Team | ▪ Endorse the development of asset management plans and provide the resources required to complete this task<br>▪ Set high level priorities for asset management development and raise the awareness of this function among staff and contractors<br>▪ Support the implementation of actions resulting from this plan and prepared to make changes for better ways to manage assets and deliver services<br>▪ Support an asset management driven budget and LTFP |
| Public Works and Finance | ▪ Collection, consolidation, and analysis of the asset register and ensuring asset valuations are accurate based on the available data<br>▪ Prepare all aspects of the AMP including technical and customer levels of service, planned and future activities, risk management, monitoring and improvement program<br>▪ Development of supporting policies<br>▪ Includes GIS and administrative support |
| External Parties | ▪ Provide input through public survey on customer |

| Key Stakeholder | Role in Asset Management Plan |
|---|---|
| | values, levels of service, etc. |

## 2.2 Goals and Objectives of Asset Ownership

Our goal for managing fleet assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. The key elements of fleet asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and fleet investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing, and appropriately controlling risks, and
- Linking to a Long-Term Financial Plan which identifies required, affordable forecast costs and how it will be allocated.

Key elements of the planning framework are:

- Levels of service – specifies the services and levels of service to be provided,
- Risk Management – identifies critical assets, potential risk events, and provides mitigation measures to manage risk both proactively and reactively
- Future demand – how this will impact on future service delivery and how this is to be met,
- Lifecycle management – how to manage its existing and future assets to provide defined levels of service,
- Financial summary – what funds are required to provide the defined services,
- Asset management practices – how we manage provision of the services,
- Monitoring – how the plan will be monitored to ensure objectives are met,
- Asset management improvement plan – how we increase asset management maturity.

Other references to the benefits, fundamentals principles and objectives of asset management are:

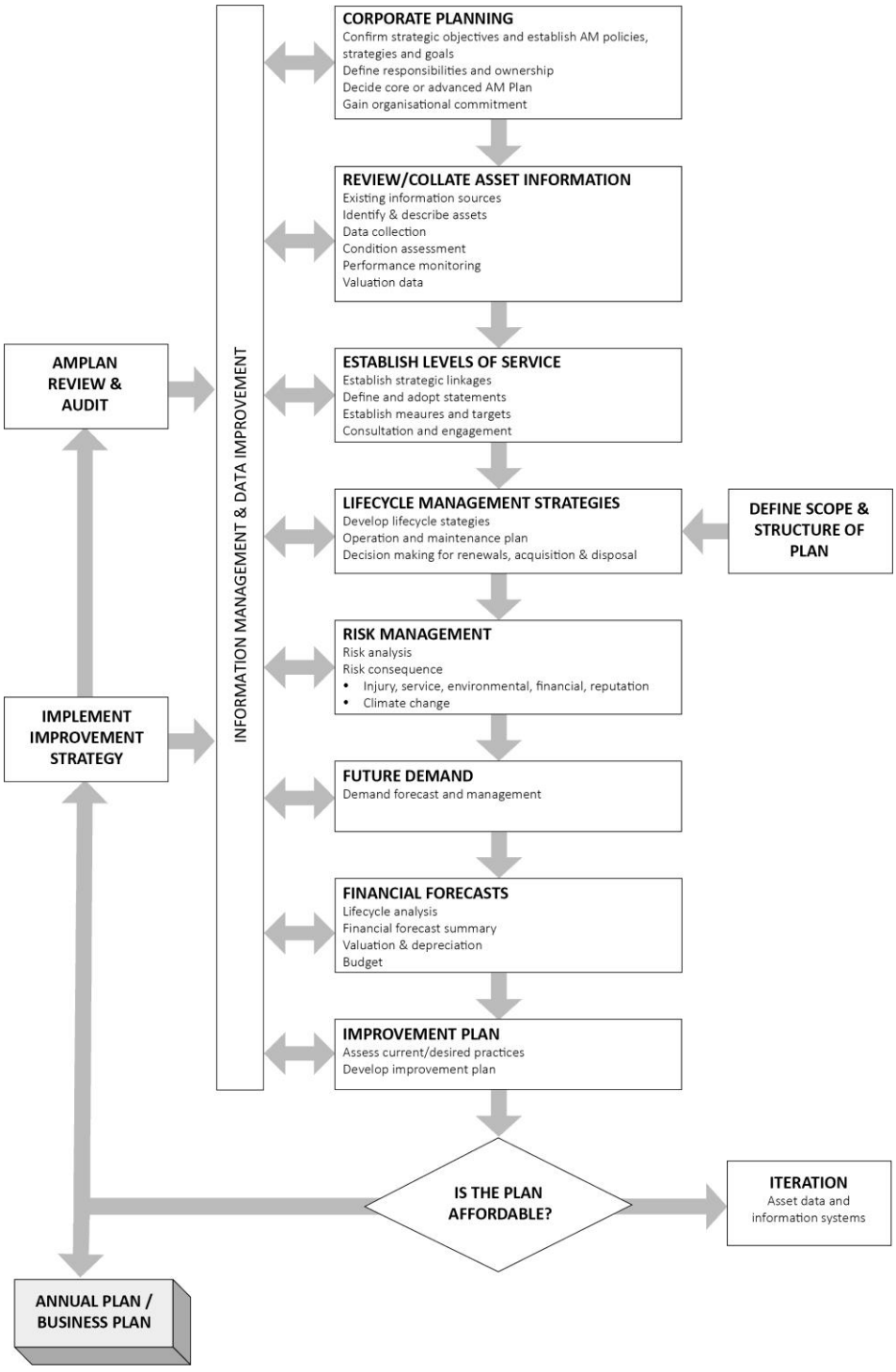
- International Infrastructure Management Manual 2015 [1]
- ISO 55000[2]

A road map for preparing an AM Plan is shown below.

[1] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13
[2] ISO 55000 Overview, principles and terminology

**Road Map for preparing an Asset Management Plan**

*Source: IPWEA, 2006, IIMM, Fig 1.5.1, p 1.11*



## 3.0 LEVELS OF SERVICE

### 3.1 Customer Research and Expectations

The County pursued feedback from the public on the current condition of various assets, along with expectations for future maintenance and renewal through an online survey over a three (3) week period in late 2023. However, fleet is a support service to various departments in providing services to residents and visitors of Northumberland County and therefore, the customers of fleet services are primarily County staff. Future revisions of this Plan will incorporate staff consultation on service levels.

### 3.2 Strategic and Corporate Goals

This AM Plan is prepared under the direction of the County of Northumberland's vision, mission, goals and objectives.

Our vision is:

To bring together people, partnerships, and possibilities for a strong and vibrant Northumberland County.

Our mission is:

To be a best practices leader of County Government and a collaborative partner with our member municipalities and community partners.

Five strategic pillars have been set by the County. The relevant pillars and objectives and how these are addressed in this AM Plan are summarised in Table 3.2.

**Table 3.2: Goals and how these are addressed in this Plan**

| Goal | Objective | How Goal and Objectives are addressed in the AM Plan |
|---|---|---|
| Propel Sustainable Growth | To provide safe and sustainable assets which meet or exceeds LOS and supports the movement of goods and services within the County of Northumberland. | Developing a sustainable renewal program as well as operational and maintenance programs to maintain the current assets and address future expansion and service requirements and the natural environment. |
| Innovate for Service Excellence | Ensures a fiscally responsible organization through a proactive approach to management of assets | Development of an AM Plan that not only meets legislative requirements but meets corporate objectives and ensures a fiscally responsible organization. |
| Innovate for Service Excellence | Gather feedback from the public and customers on LOS related to our assets and service delivery and educate the public on budget considerations and the consequence of selecting different options/priorities. | Inclusion of further public and customer consultation and education as part of the improvement plan to further inform all aspects of the AM Plan. |
| Ignite Economic Opportunity | Ensuring investment in all assets and services to ensure movement of goods and services in the County today and in the future. | Inclusion of growth forecasts in the AM Plan and ensuring levels of service account for current and future economic development opportunities. |

### 3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of fleet assets are outlined in Table 3.3.

**Table 3.3: Legislative Requirements**

| Legislation | Requirement |
|---|---|
| The Municipal Act | Compliance with the Act with respect to ownership and responsibilities of its infrastructure. |
| The Highway Traffic Act (HTA) | Compliance with the Act with respect to ownership and responsibilities of County owned motor vehicles. |
| Ontario Regulation 555/06 | Compliance with the Regulation regarding the hours of service on the use of fleet. |
| Infrastructure for Jobs and | To develop a Strategic Asset Management Policy as well as |

| Legislation | Requirement |
|---|---|
| Prosperity Act, 2015 | an Asset Management Plan in accordance with the technical requirements set out in O. Reg. 588/17 |
| National Safety Code II Part B | Maintenance and mandatory periodic inspection standards for commercial vehicles, the standards to which a vehicle will be inspection by an authorized technician at an authorized facility at a scheduled frequency. |
| Commercial Vehicle Operator's Registration (CVOR) Certificate Standards | Monitors and evaluates operators' safety records. |
| The Ambulance Act | Compliance with Regulation regarding requirement to have a maintenance plan and replacement schedule for paramedic fleet. |
| Motor Vehicle Safety Act, 1993 | Ensure all vehicles are in compliance with the act, including the Canadian Motor Vehicle Safety Standards. |
| Ontario Provincial Land Ambulance and Emergency Response Vehicle Standard | Describes the minimum mandatory requirements for land ambulances for use by an operator of a land ambulance service. |

### 3.4 Growth Considerations

The Northumberland County Official Plan (OP) is currently being updated to guide growth and development in Northumberland over the next 30 years. These updates align with Provincial legislation that requires municipalities to review and update their Official Plan every few years.

Current population and employment forecasts indicate that Northumberland County will grow to 122,000 people and 44,000 jobs by the year 2051. Most of this growth is expected to be concentrated in fully serviced urban areas however, there will be some housing growth in the rural areas. As a result, there will be added pressure on existing fleet assets in all departments and the potential need for upgrades or expansion based on service levels and potential new legislation. The updated Official Plan will include updated maps and policies related to long-term growth and land needs within Northumberland.

Review and update of this AM Plan will be required once the OP update is complete to incorporate any changes with respect to future needs identified as a result of growth and development.

### 3.5 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

**Customer Values** indicate:

- what aspects of the service is important to the customer,

- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provision

**Table 3.5: Customer Values**

**Service Objective: Provide a safe, functional, and well-maintained fleet to meet service needs.**

| Customer Values | Customer Satisfaction Measure | Current Feedback | Expected Trend Based on Planned Budget |
|---|---|---|---|
| The County will maintain fleet to minimize deficiencies and protect the safety of users/public | Annual # of service requests relating to fleet condition; Paramedic complaints | Average of 363 Cityworks (CW) Service Requests (SR) a year (from staff) regarding fleet condition; few verbal complaints regarding ride of ambulances | Remain the same or increase as existing fleet ages. |
| County fleet will be reliable with minimal disruptions for users to ensure activities can be completed | Annual # of service requests or complaints relating to fleet closures or service disruption | Few to no complaints. | Remain the same. |
| The County will provide fleet that meet service needs and all users | Annual # of service requests/complaints requesting fleet are improved from a function perspective | Few to no complaints. | Remain the same. |

**Service Objective: Effectively communicate fleet service disruptions to users and the public while considering the environment and sustainability.**

| Customer Values | Customer Satisfaction Measure | Current Feedback | Expected Trend Based on Planned Budget |
|---|---|---|---|
| The County will keep is customers informed about activities and respond promptly to inquiries and complaints. | Annual # of service requests related to fleet inventory. | Few to no complaints regarding fleet. | Remain the same or improve as communication team continues to use various means (social media, radio, press releases) to inform the public/users and Communications Master Plan is completed. |
| The County will consider the environmental impacts of assets maintenance, operations and renewal projects. | Annual # of service requests related to environmental issues/complaints (i.e. vehicle emissions etc) | Few to no complaints annually regarding fleet environmental concerns. | Remain the same. |
| Demonstrate leadership in sustainable asset management and invest in preventative maintenance and rehabilitation when most beneficial | What we hear from Council, our superiors, public? Comments/concerns during PICs, service requests regarding specific projects, request for memos, request for information/clarification/presentations/etc. | Few inquiries annually regarding budgeting process and fleet capital plan. | Remain the same or potential increase with growth and assets continue to age. |

### 3.6 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

**Condition** How good is the service? What is the condition or quality of the service?

**Function** Is it suitable for its intended purpose? Is it the right service?

**Capacity/Use** Is the service over or under used? Do we need more or less of these assets?

**Communication** Are impacts to the service communicated to the public? Is the public aware of service changes?

**Environmental Impacts** How is the environment impacted? Do service activities consider this?

**Sustainability** How is the budget allocated to services? How are works prioritized?

In Tables 3.6.1 - 3.6.3 under each of the service measures types (Condition, Function, Capacity/Use, Communication, Environmental Impacts, Sustainability) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

**Table 3.6.1: Customer Level of Service Measures - Fleet**

| Type of Measure | Level of Service | Performance Measure | Current Performance | Expected Trend Based on Planned Budget |
|---|---|---|---|---|
| **Condition** | Organizational measure | Descriptions that illustrate fleet condition, Cityworks work orders; known problem fleet assets | 31% in poor/very poor condition, 24% in fair condition; 45% good/very good condition | Condition of fleet anticipated to remain the same or decrease as new vehicles and parts are difficult to obtain. |
| | ***Confidence levels*** | | Medium<br><br>Professional judgement supported by vehicle inspections. | High<br><br>Professional judgement supported by analysis of data and current funding versus forecasted funding levels. |
| **Function** | Organizational measure | Description of vehicles and equipment available and the associated use for each. | 24 heavy vehicles, 49 light vehicles, 14 Ambulances, 3 ERV's, 2 Logistics Vans, 8 Community paramedicine vehicles, 32 pieces of light equipment and 27 pieces of heavy equipment | Minor changes anticipated due to disposal of several fleet assets and potential purchase of new vehicles/equipment to meet legislative changes. |

| Type of Measure | Level of Service | Performance Measure | Current Performance | Expected Trend Based on Planned Budget |
|---|---|---|---|---|
| | ***Confidence levels*** | | High<br><br>Supported by fleet inventory data in the County's GIS | High<br><br>Supported by staff recommendations and previous studies and reports. |
| **Capacity** | Organizational measure | Fleet usage as captured in Cityworks (CW) work orders; staff experience; paramedic response times | Over 26,000/hrs annually for roads fleet, 66.7% triage levels meeting response target | Increase in fleet usage across all County departments. |
| | ***Confidence levels*** | | Medium<br><br>Supported by data entered in Cityworks, staff knowledge and data analysis | Medium<br><br>Supported by staff knowledge, recommendations and previous studies and reports. |
| **Communication** | Organizational measure | Notices to staff and the public; communication with departments regarding status of repairs | 3 media releases regarding fleet from 2022- April, 2024; regular comments in Cityworks | Remain the same or increase. |
| | ***Confidence levels*** | | High<br><br>Based on data collected through Communications Department for project notification, public consultation, social media, etc. | High<br><br>Increase in Communications Department Staff for Major Projects; increasing use of Cityworks across various departments |

| Type of Measure | Level of Service | Performance Measure | Current Performance | Expected Trend Based on Planned Budget |
|---|---|---|---|---|
| **Environmental Impacts** | Organizational measure | Description of the measures in place to minimize the environmental impacts of fleet | Environmental impacts and alternative technology considered when purchasing fleet, adjustment to fleet replacement schedule based on various factors | Remain the same or reduced environmental impact as the GHG Reduction Report is finalized and implemented |
| | ***Confidence levels*** | | High<br><br>Research and consideration of environmental impacts of fleet and alternative fuel vehicles available | Medium<br><br>Continue to consider alternative fuels for fleet and follow legislative requirements; could be potential future changes based on policy or legislative change |
| **Sustainability** | Organizational measure | Long-term plan, lifecycle models, purchasing protocol | 10 year long-term financial plan is in place and updated annually; Development and approval of AMP; Purchasing by-law in place | AMP will be approved, additional AM data will be available through CW for assets and more complex lifecycle modelling will have been completed. |
| | ***Confidence levels*** | | Medium<br><br>Based on staff judgement and compilation, review and analysis of existing data | Medium<br><br>Availability of additional data and completion of lifecycle modelling |

### 3.7 Technical Levels of Service

**Technical Levels of Service** – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

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

- **Acquisition** – the activities to provide a higher level of service (e.g. changing from a tandem to a tri-axle) or a new service that did not exist previously (e.g. a new vehicle).
- **Operation** – the regular activities to provide services (e.g. licensing, fuels and fluids, inspections, etc.)
- **Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. reactive repairs).
- **Renewal** – the activities that return the service capability of an asset up to that which it had originally provided (e.g. significant repair, new engine, replacement),

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.[3]

Table 3.7 shows the activities expected to be provided under the current 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

**Table 3.7: Technical Levels of Service- Fleet**

| Lifecycle Activity | Purpose of Activity | Activity Measure | Current Performance* | Recommended Performance ** |
|---|---|---|---|---|
| **Acquisition** | Replacement of tandem trucks with tri-axle trucks | Num. of trucks based on 10 year plan | 2 trucks/year | 3 trucks/year |
| | Addition of new paramedic fleet | Num. of ambulances, ERV's and/or Community Paramedicine SUV's based on 10 year plan | 1-2 in 10 year plan | New paramedic shift every 4 years; additional ERVs |
| | Addition of new vehicles for staffing positions | Num. of vehicles based on 10 year plan | 1-2/year | 1-2/year |
| | | **Budget*** ** | ***$175,100*** | ***$184,100*** |

[3] IPWEA, 2015, IIMM, p 2|28.

| Lifecycle Activity | Purpose of Activity | Activity Measure | Current Performance* | Recommended Performance ** |
|---|---|---|---|---|
| **Operation** | Preventative Maintenance Inspections | Frequency of inspections | Currently inspected 2 times a year | Inspect monthly |
| | Tire replacement | Average replacement of tires | As required | As required |
| | Licensing | Num. of licenses | 58 License renewals | Remain the same or increase based on new acquisitions |
| | Fuels – gas/diesel | Annual cost for fuels | $1,182,953 | Remain the same and increases with inflation and fleet acquisition |
| | | **Budget*** ** | ***$1,437,071*** | ***$1,487,071*** |
| **Maintenance** | Reactive Repairs | % of reactive repairs completed | 90% | 100% |
| | Preventative Maintenance | % of preventative maintenance completed | 90% | 100% |
| | | **Budget*** ** | ***$1,121,566*** | ***$1,321,566*** |
| **Renewal** | Replacement of combination trucks | Num of trucks/year | 2/year | 3/year |
| | Replacement of light vehicles | Num of vehicles/year | 2-3/year | 3/year |
| | Replacement of Paramedic vehicles | Num of vehicles/year | 3/year | 3/year |
| | Significant repairs | % of major repairs completed | 90% | 100% |
| | Heavy equipment replacement | Average num of pieces of equipment replaced/year | 1/year | 1-2/year |
| | | **Budget*** ** | ***$3,112,684*** | ***$3,325,684*** |

| Lifecycle Activity | Purpose of Activity | Activity Measure | Current Performance* | Recommended Performance ** |
|---|---|---|---|---|
| **Disposal** | Decommission fleet | Average number/year | 4-6/year | 7-10/year |
| | | **Budget*** ** | ***$0*** | ***$0*** |

Note: * Current activities related to Planned Budget.

** Expected performance related to forecast lifecycle costs, engineering estimates, and professional judgement.

*** Average per year based on 10 year planning period, unless otherwise noted.

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

## 4.0 FUTURE DEMAND

### 4.1 Demand Drivers

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

### 4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

### 4.3 Demand Impact and Demand Management Plan

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 4.3.

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

Opportunities identified to date for demand management are shown in Table 4.3. Further opportunities will be developed in future revisions of this AM Plan and climate change is addressed in Section 4.5.

**Table 4.3: Demand Management Plan**

| Demand driver | Current position | Projection | Impact on services | Demand Management Plan |
|---|---|---|---|---|
| Population Change | Current population is 89,365 (Statistics Canada, 2021 Census Data), an increase of 4.4% since 2016. | Increase to 122,000 by 2051 (current Provincial Forecasts) | An increase in the population is expected to increase traffic volumes on the County's transportation infrastructure, which will put pressures on paramedics, operations, and the need for an adequate fleet to support all other services that are provided. | Equipment Replacement Strategy, Preventative Maintenance |

| Demand driver | Current position | Projection | Impact on services | Demand Management Plan |
|---|---|---|---|---|
| Economic Factors | Currently, the County is facing extended wait times for parts and new vehicles, and increased prices due to inflation. In addition, we've experienced difficulties surrounding obsolete parts (i.e. Sterling trucks). | It is anticipated that increased wait times for parts and vehicles, and higher prices will continue into the foreseeable future. | Delay in repairs being completed resulting in more down time for fleet, as well as higher repair and purchase costs due to inflation. Inability to repair vehicles due to no parts available. | Purchase of vehicles off dealership lots if bids are not received or unable to meet specifications. Retain decommissioned vehicles to use for parts for those that are obsolete. |
| Changing Technology | Typically, traditional gas-powered vehicles in the County fleet. | Government of Canada target of 100% zero-emission vehicle sales by 2035 for all light-duty vehicles; increased number of green vehicles available for purchase and expectation by public that the County move in this direction. | May impact future vehicle purchase considerations, in addition to repairs and maintenance. | Equipment Replacement Strategy, GHG Strategy, Future purchases will consider this changing technology and any necessary safety elements to accommodate the mix of traditional vs. alternative fuel vehicles. |

### 4.4 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or consolidated. Additional assets are discussed in Section 5.5.

Acquiring new assets will commit the County to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations,

maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 5).

### 4.5 Climate Change Adaptation

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

How climate change impacts assets will vary depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.[4]

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region.

Risk and opportunities identified to date are shown in Table 4.5.1

**Table 4.5.1 Managing the Impact of Climate Change on Assets and Services**

| Climate Impact Description | Projected Change | Potential Impact on Assets and Services | Management |
|---|---|---|---|
| Heavy Precipitation Days | Increase in the number of heavy precipitation days falling as rain, freezing rain and/or snow. | Increased pressures on fleet vehicles and equipment to clear snow to meet LOS and MMS and assist with operations activities including flooding, erosions/washouts, potholes etc. | Ensure preventative maintenance activities and inspections are completed on fleet and consider alternative means for replacing and/or upgrading vehicles and equipment. |
| Intense storms | Increased frequency and intensity of storms resulting in high winds and severe weather. | Increased pressures on fleet vehicles and equipment to clear debris and vegetation and respond to emergencies. | Vegetation management to reduce likelihood, consider alternative equipment that are multipurpose, ensure preventative maintenance and inspections are completed. |

Additionally, the way in which we determine/assess the need for fleet new assets should recognize that there is opportunity to build in resilience to climate change impacts. Building resilience can have the following benefits:

- Assets will withstand the impacts of climate change;
- Services can be sustained; and

[4] IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

The County is currently finalizing a Greenhouse Gas (GHG) Emissions Reduction Plan which is expected to recommend the development of a Climate Adaptation and Resilience Plan. As a result, strategies for building resilience to climate change will be established through these recommendations and included in future revisions of this Asset Management Plan.

## 5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the County plans to manage and operate the assets at the agreed levels of service (Refer to Section 3) while managing life cycle costs.

### 5.1 Background Data

#### 5.1.1 Physical parameters

The assets covered by this AM Plan are shown in Table 5.1.1.

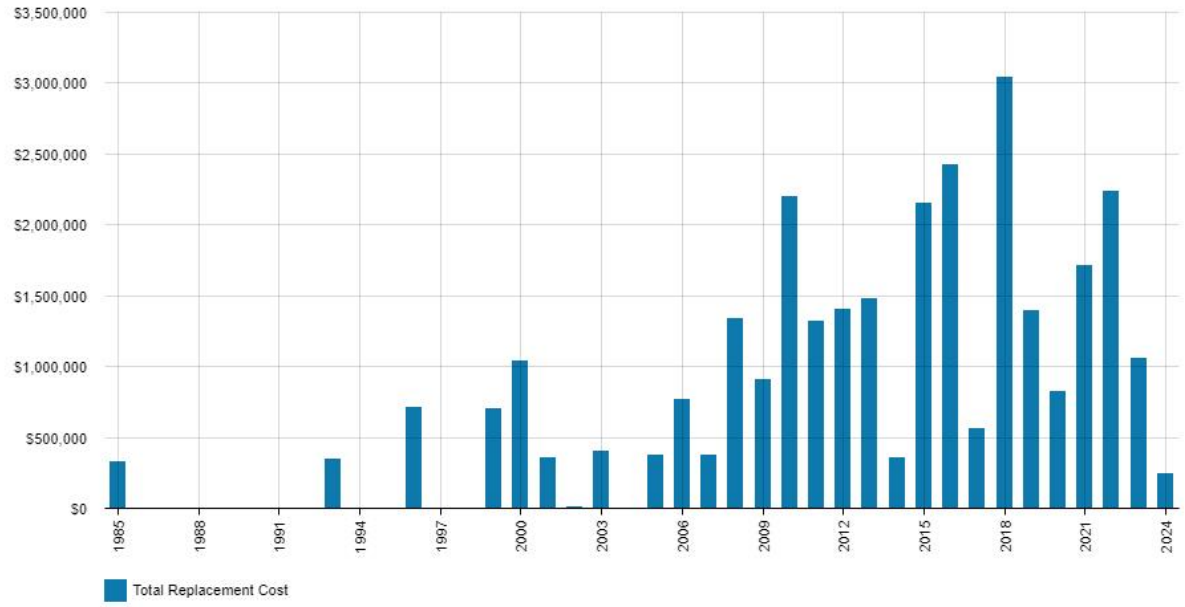
These assets include the fleet assets including light vehicles, heavy vehicles, light equipment, heavy equipment, and paramedic vehicles.

The age profile of the assets included in this AM Plan are shown in Figure 5.1.1 and Figure 5.1.2.

**Table 5.1.1: Assets covered by this Plan**

| Asset Category | Dimension | Replacement Value |
|---|---|---|
| Light Vehicles | 49 | $3,710,000 |
| Heavy Vehicles | 24 | $9,675,000 |
| Light Equipment | 32 | $1,413,900 |
| Heavy Equipment | 27 | $10,800,000 |
| Paramedic Vehicles | 30 | $4,504,000 |
| **TOTAL** | **162** | **$30,102,900** |

**Figure 5.1.1: Asset Age Profile – Acquired Date**




All figure values are shown in 2024 dollars.

Figure 5.1.1 above illustrates the date acquired for the fleet assets covered in this plan. It is evident through the figure above that there are clear peaks in 2010, 2016 and 2018, leading us to believe that they have reached the end of their useful life or will be approaching the end of their useful life in the near future due to the varying asset useful lives of 5, 10 and 15 years. This will undoubtedly add to the renewal expenditures required. In addition, there are significant peaks from the mid 2000's to 2023 indicating past investments in assets that will be requiring renewal or maintenance activities in the coming years.

### 5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

**Table 5.1.2: Known Service Performance Deficiencies**

| Location | Service Deficiency |
|---|---|
| Fleet Condition | A number of the County's highest value assets (i.e. heavy vehicles and equipment) have reached their end of life or are approaching it and are currently in poor/very poor condition. |
| Fleet Renewal – Combination Trucks; Ambulances | Historically, renewal budgets have been underfunded and the effects on the manufacturing industry due to the Covid-19 Pandemic exacerbated the backlog of replacements. Three (3) Combination trucks ordered in 2022 and 2023 have still not been received. Similarly, there are currently four (4) ambulances that have reached their end of life and awaiting replacements. |
| Fleet Maintenance Activities | Maintenance activities are underfunded and generally dealt with in a reactive manner. Inflation and supply demand has impacted pricing of parts and pieces over the past few years. Several fleet assets are at their end of life and it is extremely difficult to source parts and pieces to complete necessary repairs. Sterling trucks are no longer being manufactured and therefore parts are not being produced any more. |
| Fleet – Upgrade/New | Growth, legislation changes and new requirements have prompted the need for additional types of fleet assets or upgrades to existing fleet to meet requirements and LOS and ensure public safety, that are not currently budgeted for. |

The above service deficiencies were identified from fleet inspections, condition surveys, data analysis, staff expertise and available historical data.

### 5.1.3 Asset condition

Fleet asset conditions are monitored by the Chief of Paramedics and the Fleet Supervisor, in addition to assessing maintenance data entered into Cityworks. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the AM plan results are translated to a 1 – 5 grading scale for ease of communication. Fleet condition is measured using a 1 – 5 grading system[5] as detailed in Table 5.1.3.

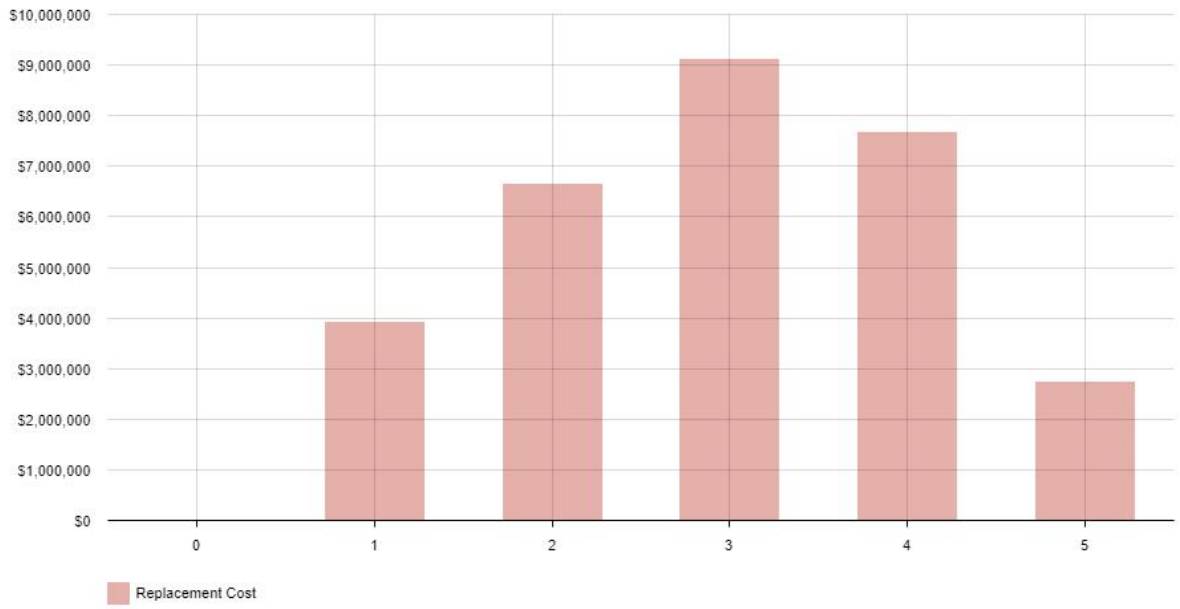
[5] IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

**Table 5.1.3: Condition Grading System for Fleet**

| Condition Grading | Description of Condition |
|---|---|
| **5** | **Very Good**: free of defects, only planned and/or routine maintenance required |
| **4** | **Good**: minor defects, increasing maintenance required plus planned maintenance |
| **3** | **Fair**: defects requiring regular and/or significant maintenance to reinstate service |
| **2** | **Poor**: significant defects, replacement required |
| **1** | **Very Poor**: physically unsound and/or beyond repairs, immediate replacement or decommissioning required |

The condition profile of our assets is shown in Figures 5.1.3 and 5.1.4.

**Figure 5.1.3: Asset Condition Profile – Fleet**




All figure values are shown in 2024 dollars.

There are 162 fleet assets, ranging from heavy equipment and combination trucks to light equipment and SUV's, each with a life span ranging from 5 year to 15 years. The age of the

County's fleet ranges from 1 to 39 years old, with 31% (50 fleet assets) listed in poor or very poor condition and requiring renewal/replacement. Another 24% (39 assets) are listed as fair condition, indicating the likelihood of maintenance and renewal activities in the near future. Finally, 45% (73 fleet assets) are in good or very good condition and, at the very least, will require ongoing preventative maintenance prior to replacement.

## 5.2 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include preventative maintenance activities and inspections.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating. Examples of typical maintenance activities include minor reactive repairs.

The trend in maintenance budgets are shown in Table 5.2.1.

**Table 5.2.1: Maintenance Budget Trends**

| Year | Maintenance Budget $ |
|---|---|
| 2023 | $881,310 |
| 2024 | $992,578 |
| 2025 | $1,012,459 |

Maintenance budget levels are considered to be inadequate to meet current and projected service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this AM Plan and service risks considered in the Asset Risk Management Plan.

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement of severity and risks associated in relation to the available budget.

**Asset hierarchy**

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

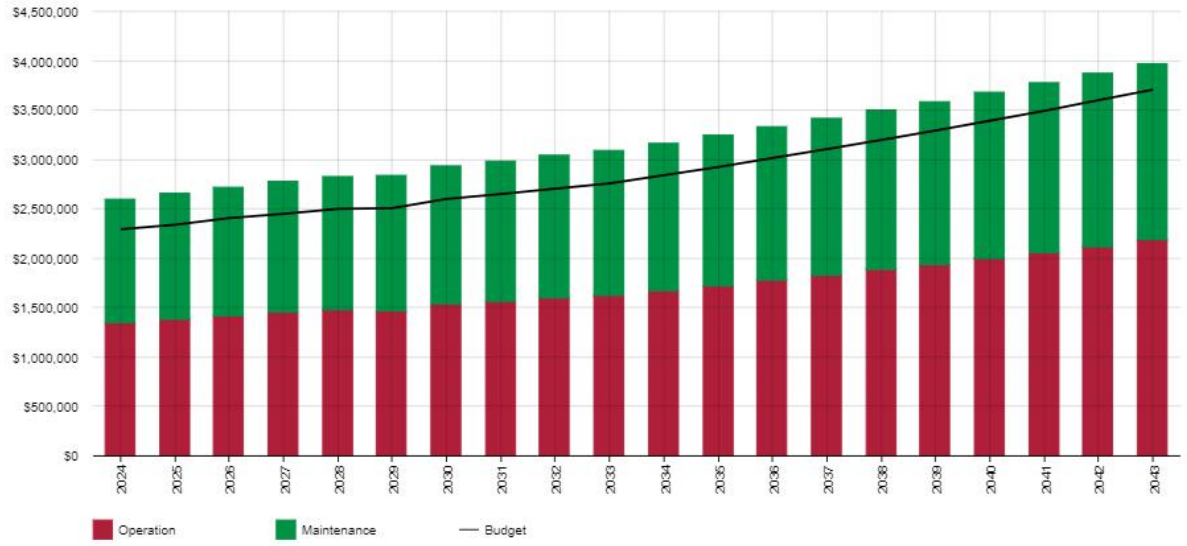
The County does not currently have a formal hierarchy framework in place however, several factors are considered when making decisions related to service planning and use of fleet assets. Information provided from inspections, department uses and Cityworks are key components that are evaluated.

Additionally, legislative requirements impact the delivery of fleet services and outline the responsibility of the County to complete the required maintenance and operations work.

**Summary of forecast operations and maintenance costs**

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecasted to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. Figure 5.2 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

**Figure 5.2: Operations and Maintenance Summary**




All figure values are shown in 2024 dollars.

The current and future operations and maintenance forecasts are not within the current annual and forecasted budgets. The County operates and maintains 162 fleet assets and the operational and maintenance activities are prioritized based on the criticality of the asset and balancing the legislative requirements and user needs and expectations. It is critical to meet the required operational and maintenance needs to extend service lives and to reduce lifecycle costs.

It is clear from the above figure that the planned budget does not meet all operations and maintenance requirements, with a shortfall of $324,105 on average per year over the period 2024-2033. As a result, some works will need to be deferred. Deferred maintenance refers to identified maintenance activities that are unable to be completed due to a lack available funding. The risk associated with deferring works is addressed in Section 6.0 of this plan.

It is also important to note that the Community Paramedics fleet is 100% funded by the Province until March 31, 2026. If this funding is no longer available in the future, additional pressures will be put on the operations and maintenance budget for fleet.

### 5.3 Renewal Plan

Renewal refers to purchases of new assets or major repairs which does not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces, or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an acquisition resulting in additional future operations and maintenance costs.

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

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

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives were last reviewed through the development of this plan.

**Table 5.3: Useful Lives of Assets**

| Asset Category | Asset Type | Useful life |
|---|---|---|
| Light Vehicles | Bus/Van | 10 years |
| | ½ ton trucks/ SUV's | 5-7 years |
| Heavy Vehicles | Combination Trucks | 10 years |
| Light Equipment | Forklifts | 20 years |
| | Wood Chipper/Patching Hot Box | 15 years |
| | Snowmobile/Trailers | 10 years |
| Heavy Equipment | Graders/Excavator/Tractor/Loader/Sweeper | 10 years |
| Paramedic Fleet | Ambulance/ERV/SUV | 5 years or 250,000km |

The estimates for renewals in this AM Plan were based on the Alternate Method.

#### 5.3.1 Renewal ranking criteria

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing fleet to deliver the service it was constructed to facilitate (e.g. replacing a plow truck that is needed to clear snow), or

- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. condition of vehicle).[6]

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

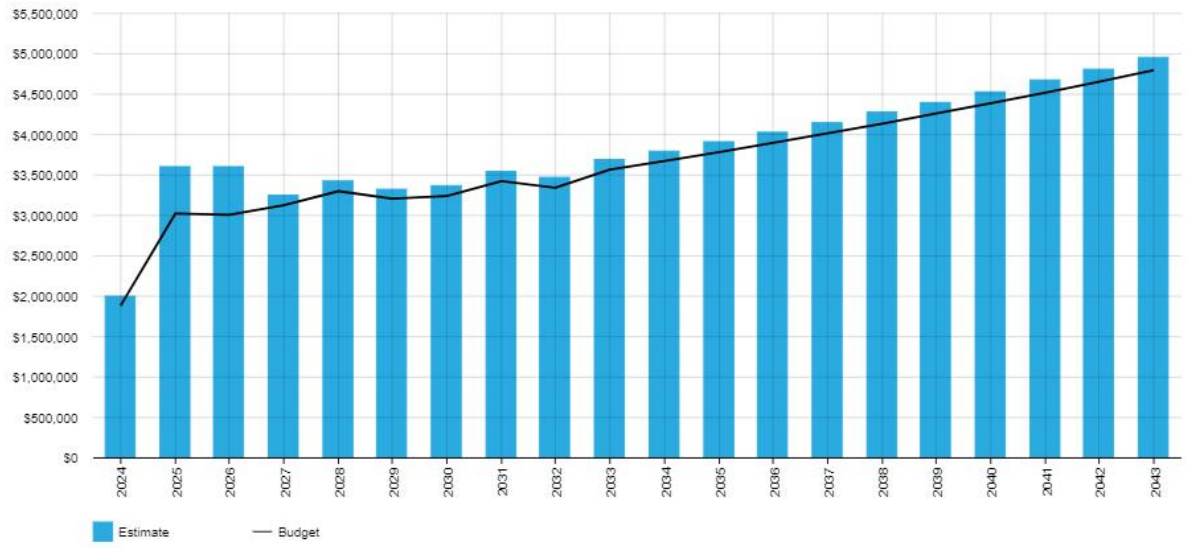
- Have a high consequence of failure,
- Have high use and subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.[7]

The County currently utilizes the Equipment Replacement Strategy and fleet condition to determine priority of identified renewal and replacement proposals for fleet assets.

### 5.4 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in Figure 5.4.1. A detailed summary of the forecast renewal costs is shown in Appendix C.

**Figure 5.4.1: Forecast Renewal Costs**




All figure values are shown in 2024 dollars.

The figure above demonstrates that the County's planned asset renewal investment strategies will not sustain the current levels of service and the forecasted renewal needs, with an average annual shortfall of 213,000 over the 10-year period. The spike in 2025 and 2026 represents the need to replace an additional combination truck each year to meet the planned replacement strategy. The risks associated with deferring assets identified for renewal but not scheduled in the capital works program are addressed in Section 6.0 of this plan.

[6] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.
[7] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

## 5.5 Acquisition Plan

Acquisition reflects are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs. Assets may also be donated to the County.

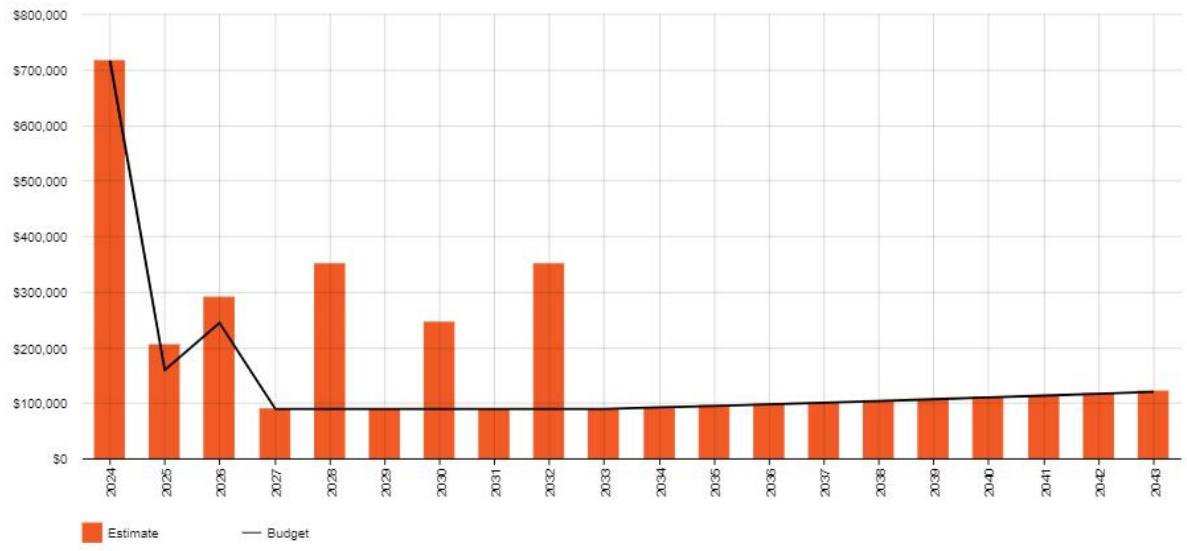
### 5.5.1 Selection criteria

Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as department requests, proposals identified by various plans, and identified needs. Potential upgrade and new works should be reviewed to verify that they are essential to the County's needs. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programs.

**Summary of future asset acquisition costs**

Forecast acquisition asset costs are summarized in Figure 5.5.1 and shown relative to the proposed acquisition budget. The forecast acquisition capital works program is shown in Appendix A.

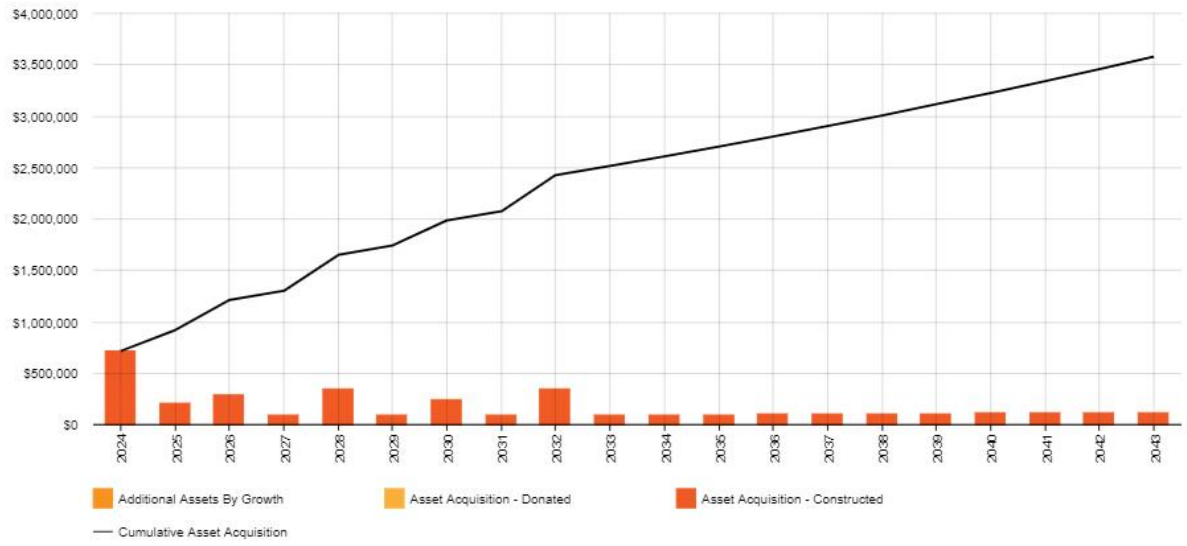
**Figure 5.5.1: Acquisition (Constructed) Summary**




All figure values are shown in 2024 dollars.

When an Entity commits to new assets, they must be prepared to fund future operations, maintenance, and renewal costs. They must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by the Entity. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 5.5.2.

**Figure 5.5.2: Acquisition Summary**




All figure values are shown in 2024 dollars.

Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding.

Planned acquisition over the 20-year planning horizon as depicted in Figure 5.5.2 includes the replacement of tandem trucks with tri-axle trucks which will allow for increased efficiencies in winter maintenance and surface treatment activities. Also included are additional vehicles for new staffing positions and ambulances for increased response times and shifts.

## 5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in Table 5.6. Any costs or revenue gained from asset disposals is included in the long-term financial plan.

**Table 5.6: Assets Identified for Disposal**

| Asset | Reason for Disposal | Timing | Disposal Costs | Operations & Maintenance Annual Savings | Capital Expenditure Savings in next 10 years |
|---|---|---|---|---|---|
| Tractor Backhoe - B006 | Age, condition, and function | 2024 | $0 | $11,750 | $350,000 |
| Tractor Backhoe - B007 | Age, condition, and function | 2026 | $0 | $18,250 | $325,000 |
| Broom Tractor - TO14 | Age, condition, and function | 2024 | $0 | $6,267 | $350,000 |
| Broom Tractor - TO15 | Age, condition, and function | 2026 | $0 | $4,799 | $350,000 |

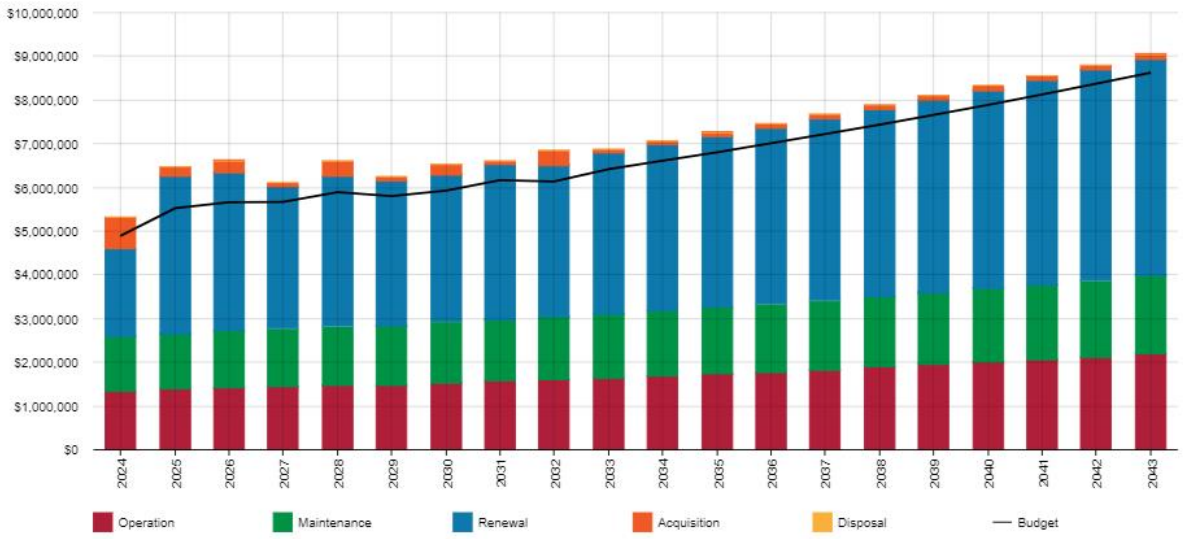
The above assets will be disposed of and replaced with two (2) multipurpose backhoes with a quick attach harness and three (3) attachment pieces. These two (2) pieces of equipment with attachments would complete the tasks the existing four (4) do, resulting in maintenance, operations and renewal cost savings, improved efficiencies and ease of use for staff, and sustainability into the future.

## 5.7 Summary of asset forecast costs

The financial projections from this asset plan are shown in Figure 5.7.1. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

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

**Figure 5.7.1: Lifecycle Summary**




All figure values are shown in 2024 dollars.

The figure above illustrates that the County does not have sufficient funds in the budget, represented by the black line, to meet the forecasted needs over the planning period. Over the first 10-year planning period, there is a shortfall of $613,605 on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the planned budget. The aging assets, addition of new assets acquired, and potential elimination of Community Paramedicine funding will further exacerbate this shortfall if maintenance, operations and renewal budgets are not adjusted to account for this. As a result, maintenance, operations, and renewal activities will continue to be deferred moving forward.

## 6.0 RISK MANAGEMENT PLANNING

The purpose of infrastructure risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: 'coordinated activities to direct and control with regard to risk'[8].

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

### 6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarized in Table 6.1. Failure modes may include physical failure, collapse or essential service interruption.

**Table 6.1 Critical Assets**

| Critical Asset(s) | Failure Mode | Impact |
|---|---|---|
| Paramedic Vehicles | Complete failure and/or breakdowns, prolonged repair times | Decreased service levels and longer response times; increased liability |
| Heavy Vehicles – Combination Truck | Complete failure and/or breakdowns, prolonged repair times | Service delivery and winter maintenance operations hindering the ability to meet Minimum Maintenance Standards (MMS); increased liability |
| Light Vehicles – ½ ton trucks | Complete failure and/or breakdowns, prolonged repair times | Decreased service levels for residents and tenants |
| Surface Treatment Equipment – Distributor and Chip Spreader | Complete failure and/or breakdowns, prolonged repair times | Service delivery to member municipalities and ability to rehabilitate road assets. Unable to rent this type of equipment. |

[8] ISO 31000:2009, p 2

By identifying critical assets and failure modes an organization can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

### 6.2 Risk Assessment

The risk management process used is shown in Figure 6.2 below.

It is an analysis and problem-solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of International Standard ISO 31000:2018.

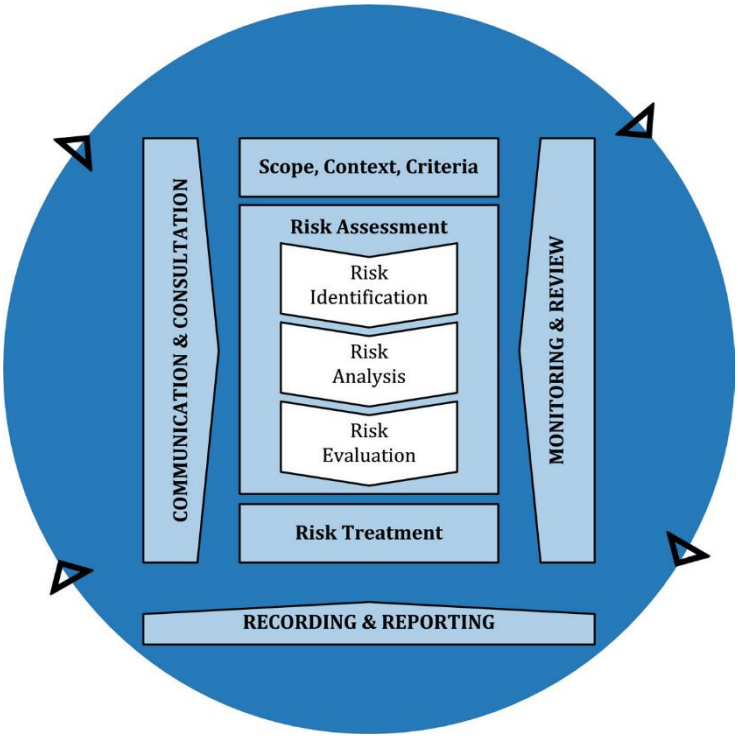



**Fig 6.2 Risk Management Process – Abridged**
Source: ISO 31000:2018, Figure 1, p9

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, development of a risk rating, evaluation of the risk and development of a risk treatment plan for non-acceptable risks.

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in Table 6.2. It is essential that these critical risks and costs are reported to management and County Council.

**Table 6.2: Risks and Treatment Plans**

| Service or Asset at Risk | What can Happen | Risk Rating (VH, H) | Current Risk Treatment Plan | Current Residual Risk | Preferred Risk Treatment Plan | Residual Risk * | Treatment Costs |
|---|---|---|---|---|---|---|---|
| Fleet | Breakdowns | VH | Reactive maintenance activities driven by complaints; inspections | H | Increased preventative maintenance measures | M | Staff time and/or contracted services, replacement parts |
| Fleet | Reduced service delivery | M | Spare combination trucks for winter maintenance; on call mechanic to reduce down time; inspections; spare ambulances | M | Proper maintenance and vehicle replacement in a timely manner to meet service levels | L | Staff and equipment time; contracted services; parts; capital budget for vehicle replacement |
| Fleet | Failure | H | Reactive maintenance activities driven by complaints; inspections | M | Complete all priority repairs, maintenance and renewal as identified through inspections | L | Budget costs for consultant and contracted services; staff time and parts |
| Fleet | Use restrictions | H | Reactive maintenance activities driven by complaints; inspections | M | Complete all priority repairs, maintenance and renewal as identified in inspections | L | Rental costs, staff time and parts and replacement |

Note * The residual risk is the risk remaining after the selected risk treatment plan is implemented.

### 6.3 Infrastructure Resilience Approach

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

Resilience is built on aspects such as response and recovery planning, financial capacity, climate change risk assessment and crisis leadership.

We do not currently formally measure our resilience in service delivery. This will be included in future iterations of the AM Plan as further plans are developed.

### 6.4 Service and Risk Trade-Offs

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

#### 6.4.1 What we cannot do

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

- Complete all recommended operations and maintenance activities within the first 10 years, including all necessary repairs
- Complete all of renewal works required within the first 10 years to meet lifecycle demands
- Complete all upgrades/new to address future service demands

#### 6.4.2 Service trade-off

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

- Deterioration of assets and reduced life span
- Impact on the services provided by various departments (Public Works, Paramedics, Facilities, Forestry etc.) and decreased LOS
- Failure of assets and use restrictions put in place (i.e. breakdowns)
- Health and Safety risks for the residents and staff

#### 6.4.3 Risk trade-off

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

- Deterioration of assets to point of replacement instead of regular maintenance and repair
- Potential loss of service and decreased life span of assets due to deterioration
- Public disappointment

- Potential increase in liabilities due to decreased LOS, not meeting MMS and longer response times by Paramedics.
- Increased lifecycle costs for not completing timely repairs, maintenance, and rehabilitation

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

## 7.0 FINANCIAL SUMMARY

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

### 7.1 Financial Sustainability and Projections

#### 7.1.1 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the AM Plan for this service area. The two indicators are the:

- asset renewal funding ratio (proposed renewal budget for the next 10 years / forecast renewal costs for next 10 years), and
- medium term proposed budget/forecast costs (over 10 years of the planning period).

**Asset Renewal Funding Ratio**

Asset Renewal Funding Ratio[9] 94%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 94% of the funds required for the optimal renewal of assets.

The forecast renewal work along with the proposed renewal budget, and the cumulative shortfall, is illustrated in Appendix C.

**Medium term – 10 year financial planning period**

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

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

The forecast operations, maintenance and renewal costs over the 10 year planning period is $6,171,706 on average per year.

The proposed (budget) operations, maintenance and renewal funding is $5,634,601 on average per year giving a 10 year funding shortfall of $537,105 per year. This indicates that 91% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the AM Plan and ideally over the 10 year life of the Long-Term Financial Plan.

[9] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

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

Table 7.1.3 shows the forecast costs (outlays) required for consideration in the 10 year long-term financial plan.

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

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

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

Forecast costs are shown in 2024 dollar values.

**Table 7.1.3: Forecast Costs (Outlays) for the Long-Term Financial Plan**

| Year | Acquisition | Operation | Maintenance | Renewal | Disposal |
|---|---|---|---|---|---|
| 2024 | $716,000 | $1,350,206 | $1,256,219 | $2,005,000 | $0 |
| 2025 | $205,000 | $1,379,203 | $1,280,100 | $3,600,000 | $0 |
| 2026 | $290,000 | $1,422,889 | $1,301,280 | $3,603,000 | $0 |
| 2027 | $90,000 | $1,451,442 | $1,323,362 | $3,246,250 | $0 |
| 2028 | $350,000 | $1,478,943 | $1,345,903 | $3,420,063 | $0 |
| 2029 | $90,000 | $1,464,931 | $1,368,811 | $3,326,566 | $0 |
| 2030 | $245,000 | $1,536,227 | $1,392,188 | $3,360,894 | $0 |
| 2031 | $90,000 | $1,565,380 | $1,416,034 | $3,543,189 | $0 |
| 2032 | $350,000 | $1,595,208 | $1,440,356 | $3,463,598 | $0 |
| 2033 | $90,000 | $1,626,280 | $1,465,258 | $3,688,278 | $0 |
| **Total** | **$2,516,000** | **$14,870,709** | **$13,589,511** | **$33,256,838** | **$0** |

## 7.2 Funding Strategy

The proposed funding for assets is outlined in the County's budget and Long-Term financial plan. The financial strategy of the County determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

### 7.2.1 Budget Overview

Northumberland County adopted its first multi-year budget for the years 2024 to 2026. The multi-year budget will allow staff and council to focus on longer term planning. The 2024 - 2026 budget and long-term financial plan is aligned with the County's Strategic Plan 2023 - 2027. The existing strategic plan identifies four strategic priorities:

1. Innovate for Service Excellence

2. Ignite Economic Opportunity
3. Foster a Thriving Community
4. Propel Sustainable Growth
5. Champion a Vibrant Future

The property tax levy increase approved by council for the 2024 budget year is 8.57%. After growth, the increase to the existing property owner is 6.57%. This increase includes a 1% increase for the dedicated infrastructure levy and another 1% increase for a new dedicated social housing levy. Growth in the 2024 - 2026 budget was estimated at 2.0%.

Inflation has been a significant issue for the county operating and capital budgets. Inflation rose sharply in 2021 and 2022 and has remained somewhat elevated since then. Consumer prices rose during this time at their fastest rate since 1991. These increases in inflation are being driven by sustained housing prices, substantial supply chain constraints, and geopolitical conflicts. The Consumer Price Index measure of inflation has only recently dropped to 2.9% (12 month change) in March of 2024.

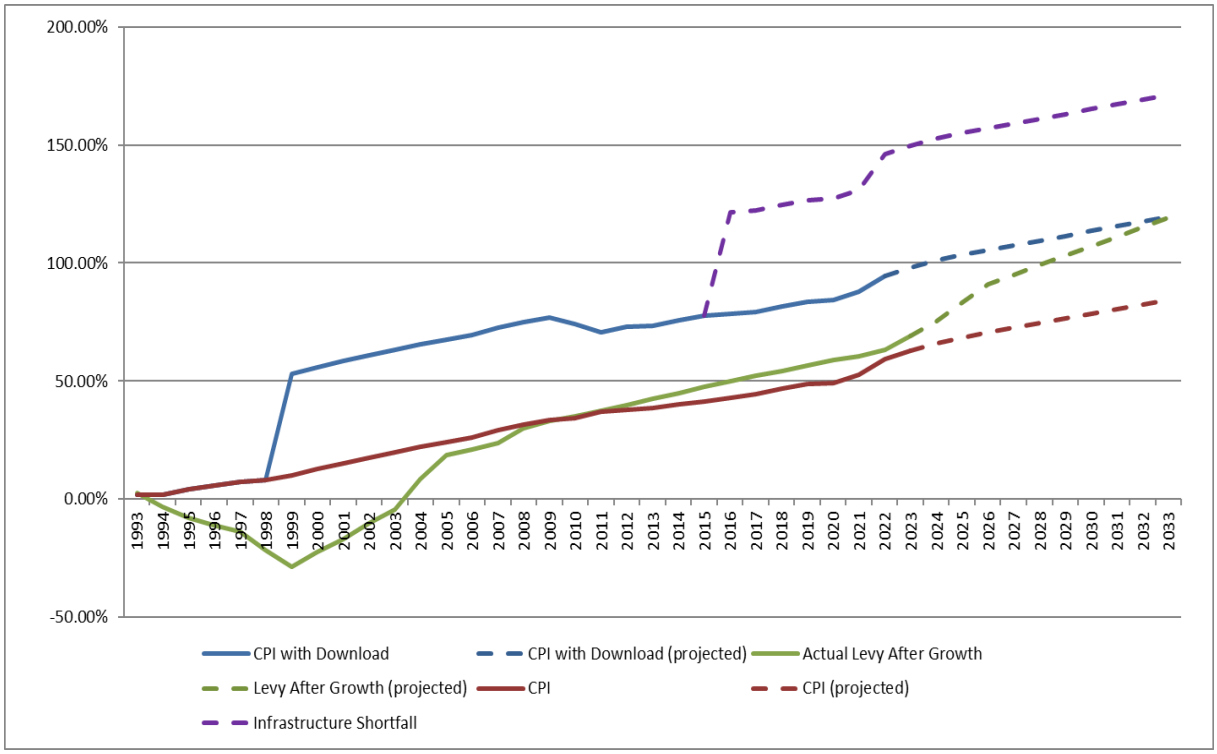
However, many of the goods and services purchased by the County move independently of the general rate of inflation as determined by a consumer basket of goods; therefore, CPI is not necessarily indicative of inflationary pressures experienced by the County. Expenditures such as construction and insurance for the County are impacted by other factors not typical of household consumers and far exceed the headline CPI index. The annual Non-residential Building Construction Index at the 4th quarter 2023 was 5.5% and for the Greater Toronto Area. This represents a more indicative measure of costs related to County infrastructure construction projects. These increases exceed the County's dedicated annual increase to infrastructure investment within the 2024 - 2025 budget and the long-term plan. Impacts from price escalations related to construction type activities are being realized by the County currently with several recent tender awards coming in overbudget; therefore, requiring additional financing to initiate the works. These price escalations represent a significant risk to the County with several major construction projects underway and others contemplated in the near term and within the long term financial plan.

As mentioned, many of the County's expenditures move independently of inflation as measured by the headline CPI. Additionally, the County has not fully re-established sustainable budgets for all departments such as transportation, waste and social housing. The ongoing trend of heightened inflationary pressures within the economy for construction type activities, as evidenced by the Non-residential Construction Price Index, will make it increasingly difficult to continue to limit tax levy increases without impacting capital intensive programs or seeing the infrastructure deficit worsen.

The chart below has been included in budget presentations over the past several years. It continues to be relevant as it provides a clear picture of the actual changes in the County levy compared to inflation and program changes. The green line shows the major decrease in the County levy through the 1990's when budgets were slashed across all departments. However, program responsibilities such as County Roads stayed the same so by 2000 the County's programs were all seriously underfunded. From 1998-2001, a range of former Provincial and Federal programs, such as Social Housing, several roads and EMS, were downloaded to the County with significant financial costs. From 2000-2005, the levy

increases were steep as Council struggled to meet its responsibilities to fund and operate all of the former and new downloaded services. The red line represents the Consumer Price Index (CPI) and shows how, theoretically, the County levy should have been increased to sustain its original program responsibilities only. The blue line is a theoretical line showing how the levy should have been increased from 1993 to today to handle both the original and downloaded program responsibilities. The purple dashed line reflects the additional investment in capital (for all County asset categories) that was recommended in the County's 2014 and 2022 Asset Management Plans. While this chart shows significant financial challenges in the past, the County is much more financially stable as we have made up much of the ground previously lost.

**Levy vs Consumer Price**




We have continued to project stable increases over the next several years. However, as we continue on the path of financial rebuilding, annual levy increases need to address the perpetual shortfall in infrastructure funding particularly in light of increased inflationary pressures for construction type activities which will erode financial capacity in future years with not keeping pace.

The Federal Gas Tax is the primary source of infrastructure funding available to the County. Ongoing Federal Gas Tax funding is an important part of the County Construction funding strategy. Any changes to this program would have a significant impact on the County's core asset renewal capabilities.

The Province introduced the formula based Ontario Community Infrastructure Fund (OCIF) program in 2014 for small, rural and northern communities to use on core infrastructure assets. In 2024 the province will distribute a total of $400M in OCIF funding to eligible municipalities based on the current replacement value of their core assets.

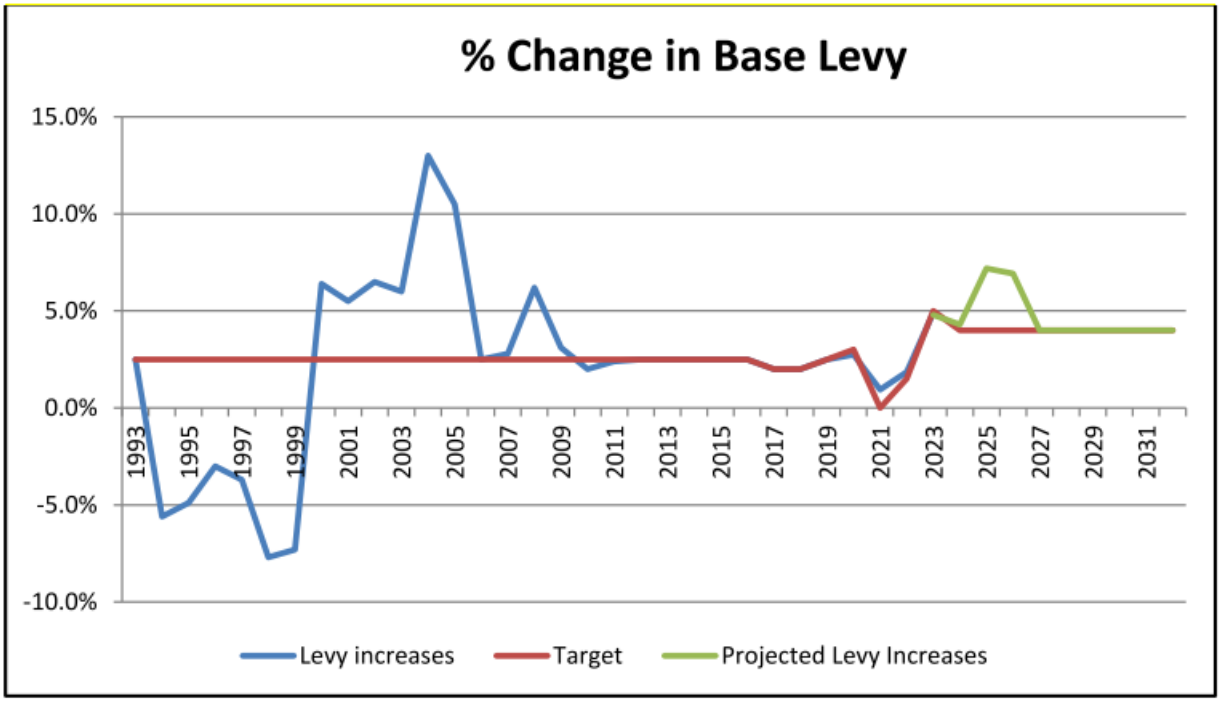
Application based funding programs are sporadic and require competition with other municipalities. In an environment where almost all municipalities are in need of infrastructure investments, the competition is fierce to chase relatively small pots of funding. Therefore, the level of annual increases is being reconsidered for future budgets as we develop plans to reach sustainable funding levels for both operating and capital budgets.

### 7.2.2 Long Term Financial Planning Framework

In recognition of the many competing priorities and budget pressures, the County developed a long-term financial plan in 2012. Since then, County staff have prepared the ten-year financial planning model, that is aligned with the County's strategic plan, and accordance with methodologies derived under the adopted Long-Term Financial Planning Framework (LTFPF).

The County has adopted a financial strategy within this framework that is focused on long term needs and challenges, as opposed to focusing solely on the current budget year levy impact. In order to ensure consistent and modest levy increases over time, this framework adopts a philosophy of establishing a targeted annual increase within the current year budget and the nine-year forecast.

In prior years the County experienced significant volatility in annual levy decreases/increases. Since adopting the LTFPF, the County has realized stable annual levy increases and this approach carries forward within the long-term financial model as displayed below:




* Prior to 2020, the Base Levy excluded the Dedicated Infrastructure Levy; however, included the annual increase for the Transportation Construction Program. Effective 2021, calculation methodology changed whereby the base levy also excludes the annual increase for the Transportation Construction Program now treated as Dedicated Infrastructure

Investments. The 2020 target was set by Council as inclusive of the Base Levy and Dedicated Infrastructure Investments. 2021 Target represents Council request for feasibility review of a 0.0% increase. Hospital grants are excluded from base levy.

This chart helps to display how each year is interlinked and how decisions focusing on the short term can impact on future years. In the '90's the County experienced levy rate reductions and then in subsequent years implemented significant increases trying to rebuild operating and capital budgets particularly in light of Provincial downloads. In conjunction with this, reserves were depleted as a means for financing routine capital items and in some instances, projects were completed and recorded as unfinanced capital within the Financial Statements. Working capital was minimal and the operating line of credit was frequently utilized to maintain cash flow requirements.

Prudent long-term focused planning under the existing framework allows for improved financial positioning by building upon reserves. Minimization of debt servicing costs is achieved with the issuing of debt for only larger, non-routine capital projects or projects where debt is available at exceptionally low rates that allow project funds to be stretched further. Striving towards a more sustainable financial model, escalation of annual capital budgets is a key priority.

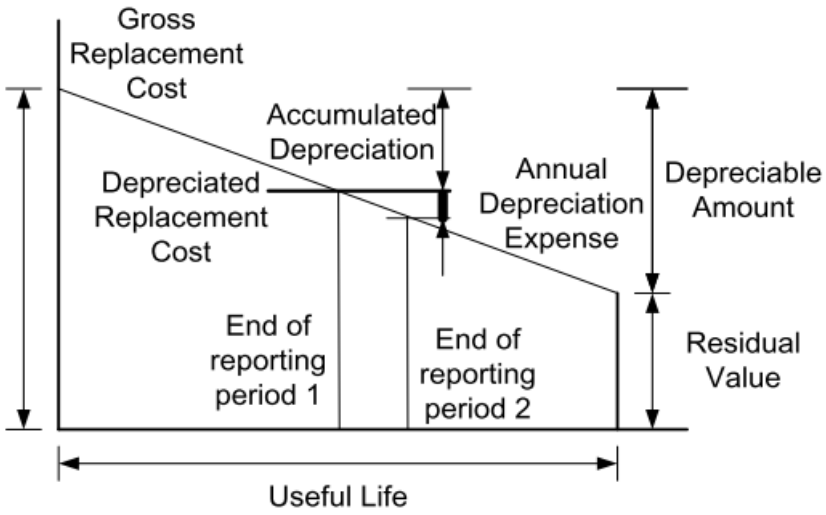
The County continues to work towards addressing the infrastructure deficit. Much of the infrastructure the County owns was downloaded from the Province in the form of roads, bridges and social housing. In many instances, this infrastructure is nearing the end of useful life and is inefficient and costly to operate and maintain. In 2016, the County introduced a dedicated infrastructure levy. Even with the implementation of this special purpose levy, infrastructure spending is only marginally gaining ground relative to the need that relates to the desired level of service. Adoption of a County-wide D.C. has increased financial capacity towards advancing expansion related infrastructure projects within the Transportation Department given the significant funding gap identified in this area.

**For a detailed review of the budget background and its components please refer to the Financial section of the Northumberland County Core Infrastructure Asset Management Plan.**

## 7.3 Valuation Forecasts

### 7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at current replacement costs derived from technical estimates.




| | |
|---|---|
| Replacement Cost (Gross) | $30,102,900 |
| Depreciable Amount | $30,256,900 |
| Current Replacement Cost[10] | $6,529,296 |
| Depreciation | $3,401,144 |

### 7.3.2 Valuation forecast

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

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

## 7.4 Key Assumptions Made in Financial Forecasts

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

Key assumptions made in this AM Plan are:

General Assumptions:

- Asset Register was not used for capital renewal but rather reliance was on technical estimates.
- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles.
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations.

[10] Also reported as Written Down Value, Carrying or Net Book Value.

- Depreciated values assumed based on current replacement costs of assets and percentage currently consumed.
- Assumed function and capacity were the same as condition in the asset register.
- Does not account for works that should be completed but are being deferred due to budget constraints.

Fleet Assumptions:

- Assumed age of some fleet based on staff knowledge
- Fleet with a useful life of 10,000hr recorded as 15-year useful life
- Ambulance fleet assumed useful life of 5-years or 250,000km, whichever comes first.

### 7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale[11] in accordance with Table 7.5.1.

[11] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

**Table 7.5.1: Data Confidence Grading System**

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

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 7.5.2.

**Table 7.5.2: Data Confidence Assessment for Data used in AM Plan**

| Data | Confidence Assessment | Comment |
|---|---|---|
| Demand drivers | Medium | Demand drivers have been identified through staff discussion and knowledge and current experiences. |
| Growth projections | Medium | Growth projections were obtained from Statistics Canada, in correlation with the County's Official Plan update which will help guide growth and development in Northumberland over the next 30 years. |
| Acquisition forecast | Medium | Acquisition forecasts were determined through staff judgement/knowledge. |
| Operation forecast | Medium | Operation forecasts were determined using a variety of sources including legislated requirements, costs tracked in Cityworks (CW) and staff judgement/knowledge. |
| Maintenance forecast | Medium | Maintenance forecasts were determined through a variety of sources including needs identified in condition inspections, costs tracked in Cityworks (CW) and staff judgement/knowledge. |
| Renewal forecast - Asset values | Medium | Asset values were determined using the Current Replacement Costs (CRC) assigned through, technical estimates and industry standards, and staff knowledge. |
| - Asset useful lives | Medium | Useful lives were determined using industry standards and staff judgement/knowledge. |
| - Condition modelling | Medium | Condition modelling was determined through industry standards and staff judgement/knowledge. |
| Disposal forecast | Medium | Information on the disposal of assets is based on staff judgement/knowledge. |

The estimated confidence level for and reliability of data used in this AM Plan is considered to be Medium.

## 8.0 PLAN IMPROVEMENT AND MONITORING

### 8.1 Status of Asset Management Practices[12]

#### 8.1.1 Accounting and financial data sources

The County's asset register was not used for the purposes of this plan due to a lack of confidence in the information contained in the register. The County currently tracks the historical acquired costs of assets, as well as any costs associated with major rehabilitation, maintenance, operation work and amortization costs. For the purposes of this Asset Management Plan, the budget data was obtained from the 10-year capital plan and the County's Finance department (approved annual budget and the long term financial plan). Current replacement costs were derived from technical engineering estimates provided in studies or reports completed by external consultants and internal staff (i.e. visual inspections, Cityworks data etc.).

#### 8.1.2 Asset management data sources

Infrastructure assets, including those in this plan, are stored in the County's Geographic Information System (GIS) and rehabilitation, maintenance and operations works are tracked against each asset using Cityworks.

### 8.2 Improvement Plan

It is important that an entity recognize areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in Table 8.2.

[12] ISO 55000 Refers to this as the Asset Management System

**Table 8.2: Improvement Plan**

| Task | Task | Responsibility | Resources Required | Timeline |
|---|---|---|---|---|
| 1 | Further development of asset register for each asset category to confirm year acquired, replacement costs etc. | Engineering and GIS Department Staff | Staff time | On-going |
| 2 | Additional lifecycle modelling for each asset category using Cityworks data and improved asset register. | All department staff; Consultants | Staff time; Funding for development of lifecycle models | On-going |
| 3 | Further public consultation on LOS/risk and financial considerations | All Departments | Staff time | 1-5 years |
| 4 | Review of Equipment Replacement Strategy | Public Works Department Staff; Consultants | Funding; Staff time | 1-5 years |
| 5 | Further implementation and ongoing use of Cityworks to better understand operational, maintenance and capital work that has been completed and associated costs. | Road Operations and Engineering Staff | Staff time | On-going |
| 6 | Discussions between Public Works Department and Finance Departments to better understand how assets are valued, tracked and amortized. | Public Works and Finance Departments | Staff time | 1-2 years |
| 7 | Monitor asset resilience and complete a resilience assessment and plan | Engineering, Road Operations and GIS/AM staff | Staff time | 1-2 years |
| 8 | Develop a more robust risk management plan | All Departments | Staff time | 1-5 years |
| 9 | Review asset condition evaluation process for fleet and update accordingly | Public Works Department staff | Staff time | 1-2 years |
| 10 | Incorporate small hand tools, AED's and stretchers into future plan | Road Operations, Paramedic and GIS/Am staff | Staff time | 2-5 years |

| Task | Task | Responsibility | Resources Required | Timeline |
|---|---|---|---|---|
| 11 | Incorporation of recommendations from County's GHG Emissions Reduction Plan and any subsequent climate action plans or reports | All departments; GIS/AM Staff | Staff time | 1-2 years |
| 12 | Review staff resourcing requirement for on-going asset management plan development, updates and implementation of the plan | Public Works Director, Finance Director, and GIS/AM Staff | Staff time | 1-2 years |
| 13 | Review of expenditure thresholds for capitalization of assets | Finance and Public Works Staff | Staff time | 1-2 years |

### 8.3 Monitoring and Review Procedures

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

The AM Plan will be reviewed and updated periodically to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

### 8.4 Performance Measures

The effectiveness of this AM Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the long-term financial plan,
- The degree to which the 1-5 year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the AM Plan,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieving the Organizational target (this target is often 90 – 100%).

## 9.0 REFERENCES


- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
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- IPWEA, 2018, Practice Note 12.1, 'Climate Change Impacts on the Useful Life of Assets', Institute of Public Works Engineering Australasia, Sydney
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- IPWEA, 2014, Practice Note 8 – Levels of Service & Community Engagement, Institute of Public Works Engineering Australasia, Sydney, https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn8
- ISO, 2014, ISO 55000:2014, Overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- 'Northumberland County Strategic Plan 2019 – 2022',
- 'Annual Public Works Capital Plan and Budget'

## 10.0 APPENDICES

## Appendix A Acquisition Forecast

### A.1 – Acquisition Forecast Assumptions and Source

Assumptions relating to the acquisition forecast include:

- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations
- Assumed upgrade from tandem to tri-axle combination trucks is $45,000/each
- Additional ambulance and ERV will be required every 4 years due to growth and increase in calls

### A.2 – Acquisition Project Summary

Significant acquisition projects included in this AM Plan are identified here.

| Asset | Year | Acquisition Project | Forecast |
|---|---|---|---|
| Fleet – Combination Trucks | 2024-2033 | Additional cost for upgrading from tandem to tri-axle trucks ($45,000 upgrade) | $90,000 annually |
| Fleet – ½ ton trucks | 2024 | Six (6) new ½ ton trucks for staff | $366,000 |
| | 2025 | One (1) new ½ ton truck for staff | $70,000 |
| Fleet - Paramedic | 2024; 2028; 2032 | One (1) additional ambulance | $260,000 |
| | 2026; 2030 | One (1) additional ERV | $155,000 |

### A.3 – Acquisition Forecast Summary

**Table A3 - Acquisition Forecast Summary**

| Year | Constructed |
|---|---|
| 2024 | $716,000 |
| 2025 | $205,000 |
| 2026 | $290,000 |
| 2027 | $90,000 |
| 2028 | $350,000 |
| 2029 | $90,000 |

| | |
|---|---|
| 2030 | $245,000 |
| 2031 | $90,000 |
| 2032 | $350,000 |
| 2033 | $90,000 |
| 2034 | $92,700 |
| 2035 | $95,481 |
| 2036 | $98,345 |
| 2037 | $101,296 |
| 2038 | $104,335 |
| 2039 | $107,465 |
| 2040 | $110,689 |
| 2041 | $114,009 |
| 2042 | $117,430 |
| 2043 | $120,952 |

## Appendix B Operation and Maintenance Forecast

### B.1 – Operation and Maintenance Forecast Assumptions and Source

Assumptions relating to the operation and maintenance forecast include:

- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations
- Forecasted costs based on technical estimates and expenditures entered in Cityworks

### B.2 – Operation and Maintenance Forecast Summary

**Table B2 – Operation and Maintenance Forecast Summary**

| Year | Operation Forecast | Maintenance Forecast | Total Forecast |
|---|---|---|---|
| 2024 | $1,350,206 | $1,256,219 | $2,606,425 |
| 2025 | $1,379,203 | $1,280,100 | $2,659,303 |
| 2026 | $1,422,889 | $1,301,280 | $2,724,169 |
| 2027 | $1,451,442 | $1,323,362 | $2,774,804 |
| 2028 | $1,478,943 | $1,345,903 | $2,824,846 |
| 2029 | $1,464,931 | $1,368,811 | $2,833,742 |
| 2030 | $1,536,227 | $1,392,188 | $2,928,415 |
| 2031 | $1,565,380 | $1,416,034 | $2,981,414 |
| 2032 | $1,595,208 | $1,440,356 | $3,035,564 |
| 2033 | $1,626,280 | $1,465,258 | $3,091,538 |
| 2034 | $1,675,068 | $1,494,563 | $3,169,631 |
| 2035 | $1,725,320 | $1,524,455 | $3,249,775 |
| 2036 | $1,777,080 | $1,554,944 | $3,332,024 |
| 2037 | $1,830,392 | $1,586,042 | $3,416,434 |
| 2038 | $1,885,304 | $1,617,763 | $3,503,067 |
| 2039 | $1,941,863 | $1,650,119 | $3,591,982 |
| 2040 | $2,000,119 | $1,683,121 | $3,683,240 |
| 2041 | $2,060,122 | $1,716,783 | $3,776,905 |
| 2042 | $2,121,926 | $1,751,119 | $3,873,045 |
| 2043 | $2,185,584 | $1,786,141 | $3,971,725 |

## Appendix C Renewal Forecast Summary

### C.1 – Renewal Forecast Assumptions and Source

Assumptions relating to the renewal forecast include:

- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations
- All forecasted costs based on technical estimates

### C.2 – Renewal Forecast Summary

**Table C3 - Renewal Forecast Summary**

| Year | Renewal Forecast | Renewal Budget |
|---|---|---|
| 2024 | $2,005,000 | $1,885,000 |
| 2025 | $3,600,000 | $3,025,000 |
| 2026 | $3,603,000 | $3,008,000 |
| 2027 | $3,246,250 | $3,126,250 |
| 2028 | $3,420,063 | $3,300,063 |
| 2029 | $3,326,566 | $3,206,566 |
| 2030 | $3,360,894 | $3,240,894 |
| 2031 | $3,543,189 | $3423,189 |
| 2032 | $3,463,598 | $3,343,598 |
| 2033 | $3,688,278 | $3,568,278 |
| 2034 | $3,798,926 | $3,675,326 |
| 2035 | $3,912,894 | $3,785,586 |
| 2036 | $4,030,281 | $3,899,154 |
| 2037 | $4,151,189 | $4,016,128 |
| 2038 | $4,275,725 | $4,136,612 |
| 2039 | $4,403,997 | $4,260,711 |
| 2040 | $4,536,117 | $4,388,532 |
| 2041 | $4,672,200 | $4,520,188 |
| 2042 | $4,812,366 | $4,655,793 |
| 2043 | $4,956,737 | $4,795,467 |

## Appendix D Disposal Summary

### D.1 – Disposal Forecast Assumptions and Source

There are currently four (4) fleet assets planned to be disposed of.

### D.2 – Disposal Project Summary

Planned disposals are included here.

| Year | Disposal |
|---|---|
| 2024 | 2003 Tractor Backhoe (B006) and 1999 Loader Tractor (TO14) |
| 2026 | 2010 Tractor Backhoe (B007) and 1999 Loader Tractor (TO15) |

### D.3 – Disposal Forecast Summary

**Table D3 – Disposal Activity Summary**

| Year | Disposal Forecast | Disposal Budget |
|---|---|---|
| 2024 | $0 | $0 |
| 2025 | $0 | $0 |
| 2026 | $0 | $0 |
| 2027 | $0 | $0 |
| 2028 | $0 | $0 |
| 2029 | $0 | $0 |
| 2030 | $0 | $0 |
| 2031 | $0 | $0 |
| 2032 | $0 | $0 |
| 2033 | $0 | $0 |
| 2034 | $0 | $0 |
| 2035 | $0 | $0 |
| 2036 | $0 | $0 |
| 2037 | $0 | $0 |
| 2038 | $0 | $0 |
| 2039 | $0 | $0 |
| 2040 | $0 | $0 |
| 2041 | $0 | $0 |
| 2042 | $0 | $0 |
| 2043 | $0 | $0 |

## Appendix E Budget Summary by Lifecycle Activity

Assumptions relating to the budget include:

- The Long-Term Financial plan, 10-year capital plan and costs inputted in Cityworks were used to determine budget figures
- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations

### Table E.1 – Budget Summary by Lifecycle Activity

**Table E1 – Budget Summary by Lifecycle Activity**

| Year | Acquisition | Operation | Maintenance | Renewal | Disposal | Total |
|---|---|---|---|---|---|---|
| 2024 | $716,000 | $1,300,206 | $992,578 | $1,885,000 | $0 | $4,893,784 |
| 2025 | $160,000 | $1,329,203 | $1,012,459 | $3,025,000 | $0 | $5,526,662 |
| 2026 | $245,000 | $1,372,889 | $1,035,859 | $3,008,000 | $0 | $5,661,748 |
| 2027 | $90,000 | $1,401,442 | $1,050,424 | $3,126,250 | $0 | $5,668,116 |
| 2028 | $90,000 | $1,428,943 | $1,071,379 | $3,300,063 | $0 | $5,890,385 |
| 2029 | $90,000 | $1,414,931 | $1,092,677 | $3,206,566 | $0 | $5,804,174 |
| 2030 | $90,000 | $1,486,227 | $1,114,527 | $3,240,894 | $0 | $5,931,648 |
| 2031 | $90,000 | $1,515,380 | $1,136,695 | $3,423,189 | $0 | $6,165,264 |
| 2032 | $90,000 | $1,545,208 | $1,159,294 | $3,343,598 | $0 | $6,138,100 |
| 2033 | $90,000 | $1,576,280 | $1,182,572 | $3,568,278 | $0 | $6,417,130 |
| 2034 | $92,700 | $1,623,568 | $1,218,049 | $3,675,326 | $0 | $6,609,643 |
| 2035 | $95,481 | $1,672,276 | $1,254,591 | $3,785,586 | $0 | $6,807,933 |
| 2036 | $98,345 | $1,722,444 | $1,292,228 | $3,899,154 | $0 | $7,012,171 |
| 2037 | $101,296 | $1,774,117 | $1,330,995 | $4,016,128 | $0 | $7,222,536 |
| 2038 | $104,335 | $1,827,341 | $1,370,925 | $4,136,612 | $0 | $7,439,213 |
| 2039 | $107,465 | $1,882,161 | $1,412,053 | $4,260,711 | $0 | $7,662,390 |
| 2040 | $110,689 | $1,938,626 | $1,454,414 | $4,388,532 | $0 | $7,892,261 |
| 2041 | $114,009 | $1,996,784 | $1,498,047 | $4,520,188 | $0 | $8,129,028 |
| 2042 | $117,430 | $2,056,688 | $1,542,988 | $4,655,793 | $0 | $8,372,899 |
| 2043 | $120,952 | $2,118,389 | $1,589,278 | $4,795,467 | $0 | $8,624,085 |