



Infrastructure Services

Prepared for	Council-in-Committee	Report No.	IS-14-2019
Agenda Date	May 6, 2019	File No.	210101

Subject
ASSET MANAGEMENT POLICY AND STRATEGY

Recommendations
THAT Council approves the Asset Management Policy and Strategy

Relation to Council's 2015-2018 Corporate Strategic Plan
Priority: B: Effective, Sustainable Infrastructure
Goal: B1: Continue to address the infrastructure gap through planned, responsible financing
Initiative: B1.2 Continuously track progress of the Asset Management Plan B3.2 Identify and implement best practices B4.2 Monitor government activities and take action where appropriate

List of Stakeholders
1) Mayor and Council 2) Fort Erie Residents 3) GM BluePlan

Prepared by:	Approved by:
Original Signed By:	Original Signed By:
Kelly M. Walsh, P. Eng. Director, Infrastructure Services	Tom Kuchyt, CET Chief Administrative Officer

Purpose of Report

The purpose of this report is to provide Council with the Asset Management Plan (AMP) Policy and Strategy developed as part of the Town's requirements to meet Ontario Regulation 588/17 which states that by July 1, 2019, each municipality shall prepare a strategic asset management policy.

Analysis

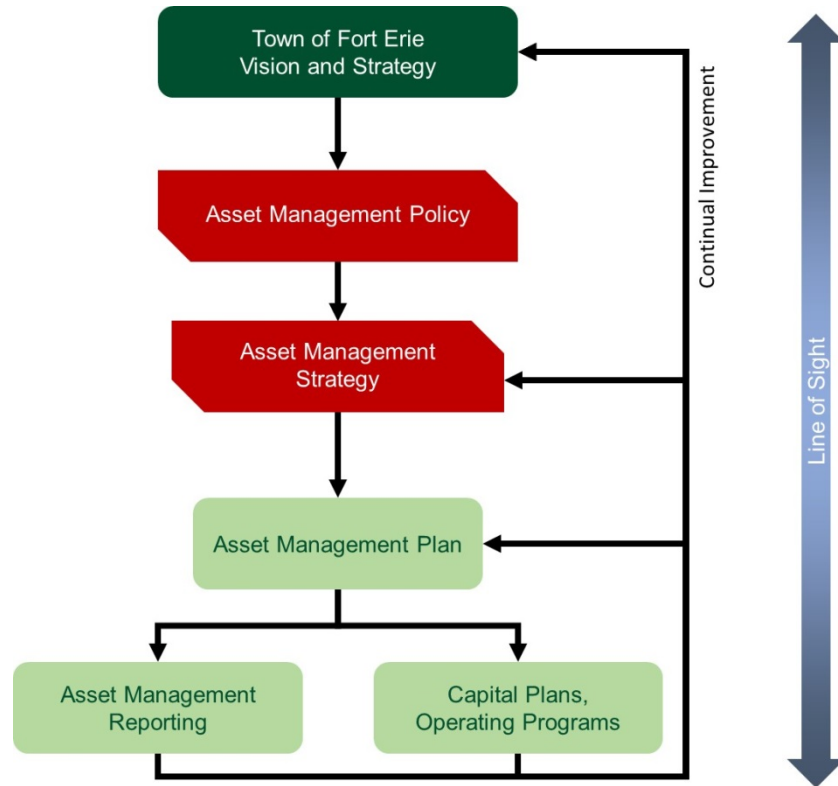
Enacted in late 2017, O. Reg 588/17 ([Link to 588/17](#)) made under the Infrastructure for Jobs and Prosperity Act, 2015 stipulated that each municipality over a population of 25,000 is to, by July 1, 2021, develop an Asset Management Policy and Plan for core infrastructure (water, wastewater, stormwater, roads and bridges). All remaining infrastructure must have a plan in place by July 2023. Approval of the Asset Management Policy allows the Town to demonstrate conformance to regulation under the Infrastructure for Jobs and Prosperity Act, 2015.

GM BluePlan (GMBP) was retained by the Town in May, 2018 (report IS-27-2018) to undertake the requirements to develop a new asset management plan and policy on the Town's behalf for the core asset group as outlined in the O. Reg. (roads, bridges, water, wastewater and storm water) plus facilities. These group of assets all have very recent master plans (or similar) completed that included life cycle costing information.

The objective of the Policy is to affirm the Town's approach to infrastructure asset management through defined commitments and principles for decision-making (prescribed by legislation), and to align and integrate asset management into strategic planning processes. The Asset Management Strategy is a vital connection between the foundational Policy and the technical Asset Management Plan, linking asset management to other corporate initiatives. The Strategy identifies planned high-level actions that support decisions to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

Based on internationally recognized management systems, this Asset Management framework is intended to be a cyclical system that continually improves. It stems from the overall Town vision into the future, and the Policy and Strategy (shown in red) are the umbrella documents that establish the framework for the plan and programs. Performance and feedback then cycle back into the overall framework through adjustments and improvements so that infrastructure asset decisions and the processes to make these decisions continue to be streamlined, improved, and effective.

The Line of Sight arrow shown in the figure below illustrates the link between high level corporate vision and strategy and the tactical level of asset management. This depicts how the broad spectrum of key roles within the Town, from those making visionary decisions to those implementing operating programs, can 'see' the others' scope, including progress and future plans for asset infrastructure.



The Policy is attached as Appendix '1' to this report and outlines our proposed commitments and principles.

The Strategy is attached as Appendix '2' and outlines, at a high level, our proposed:

- Lifecycle Activities
- Expansion and Development Process
- Procurement Process
- Risk Management
- Climate Change Considerations, and
- Stakeholder Consultation and Communication.

Financial/Staffing Implications

On its own, the Policy and Strategy will not have a direct staffing request. In the greater sense, the AMP will have effects on a number of facets through Town operations:

- Changes to contributions to reserves;
- Changes to annual operating account costs;
- Changes to the data tracked on assets;
- Increased condition assessments to make more informed decisions;
- The addition of an added staff member to administer the data collection and operate the AMP software.

Policies Affecting Proposal

By-law No. 90-15 adopted Council's 2015-2018 Corporate Strategic Plan. This includes; Effective, Sustainable Infrastructure that will, continue to address the infrastructure gap through planned, responsible financing; Continuously track progress of the Asset Management Plan; Identify and implement best practices; and Monitor government activities and take action where appropriate.

By-law No. 89-09 adopted the Capital Asset Policy that includes the Ontario Regulation 588/17 made under the Infrastructure For Jobs And Prosperity Act, 2017 - Asset Management Planning For Municipal Infrastructure.

Comments from Relevant Departments/Community and Corporate Partners

Staff from Infrastructure Services and Corporate Services have been instrumental in the development of the documents. Comments from other relevant departments have been included in this report, the policy and the strategy.

Communicating Results

This policy and strategy, as well as the whole of the asset management plan when approved will be posted on the Town's website for public information.

Alternatives

Council has the option to suggest modifications to parts of the policy and strategy as they see fit. Significant amounts of thought have gone into the development of the documents and changes to them may place the Town out of compliance with the Regulation.

Conclusion

Developed as part of the Town's requirements to meet Ontario Regulation 588/17, the policy and strategy represent a step towards a more formalized way of addressing the Town's infrastructure requirements. These documents will form the foundation of our actions going forward.

Attachments

Appendix '1' – Asset Management Policy
Appendix '2' – Asset Management Strategy

Asset Management Policy

- May 6, 2019 -



The Corporation of
The Town of Fort Erie

Strategic Asset Management Policy

1.0 Article 1 - Application and Administration

Strategic municipal asset management involves the challenge of planning and investing in core municipal infrastructure assets while ensuring sound stewardship of public resources and delivering valued customer services.

The purpose of this Asset Management Policy is to affirm the Town of Fort Erie's commitments in asset management through defined principles and processes and to ensure alignment and integration of asset management into our strategic planning processes. This policy is established to embed asset management principles into ongoing capital, operations, and maintenance activities, through the Asset Management Plan (AMP).

This policy provides a foundation to help identify and prioritize investments in existing and future infrastructure assets to ensure each investment is strong, safe, efficient, effective, and capable of supporting the quality of life desired in our community.

This policy applies to assets owned by the Town of Fort Erie including:

1. Core municipal infrastructure assets:
 - Roads (including all road assets in the right-of-way)
 - Bridges
 - Culverts
 - Drinking water distribution
 - Sanitary sewage collection, and
 - Storm water management.
2. Facilities Assets.

In the future, this policy will be expanded to include all infrastructure assets.

These policy requirements apply to all departments with responsibilities in the planning, maintaining or operating the municipal infrastructure assets listed above.

2.0 Article 2 - Definitions

For this policy, the following terms are defined:

“Asset” means a resource with economic value that a municipality controls with the expectation that it will provide a future benefit. An asset is specifically defined as property, equipment, vehicles, tools or other resources with a purchase value at or above the Capital Asset Threshold. Specifically, an Infrastructure Asset means the physical structures and associated facilities that form the foundation of development, and by or through which a public service is provided.

“Asset Management” means the coordinated activity of an organization to realize value from assets (AM).

Strategic Asset Management Policy

“Asset Management Plan” (AMP) means a plan developed for the management of infrastructure assets, in compliance with the Strategic Asset Management Plan from O.Reg.588/17, that combines multi-disciplinary management techniques (including technical and financial) over the life cycle of the asset in the most cost-effective manner to provide a specific level of service. This typically includes plans to Invest, design, construct, acquire, operate, maintain, renew, replace and decommission assets.

“Capital Asset Threshold” means the threshold at or above which a resource is considered an asset, the value of a municipal infrastructure asset at or above which a municipality will capitalize the value of it and below which it will expense the value of it. For the Town of Fort Erie, the capital asset threshold is defined in the Capital Asset Policy. However, items below the defined threshold may be included in the Asset Management Plan, based on risk or criticality, under the authority of the Director of Infrastructure Services or Director of Corporate Services.

“Core municipal infrastructure asset” means any municipal infrastructure asset that is a,

- water asset that relates to the distribution of drinking water,
- wastewater asset that relates to the collection of wastewater, including any wastewater asset that from time to time manages storm water,
- storm water management asset that relates to the collection, transmission, treatment, retention, infiltration, control or disposal of storm water,
- road, including all assets in the right-of-way, or
- bridge or culvert.

“O.Reg.588/17” means Ontario Regulation 588/17 under the Infrastructure for Jobs and Prosperity Act 2015, as amended. Principles are set out in this regulation by the provincial government to regulate asset management planning for municipalities.

“Public” means residents and businesses in the Town of Fort Erie, and other interested parties.

“Road” means all road assets within the right-of-way, which may include sidewalks, curb, streetlights, boulevard, median, or other related assets.

3.0 Article 3 – Roles and Responsibilities

A robust Asset Management Plan includes a clear structure of parties with responsibilities in asset management at the Town of Fort Erie.

Asset Management Coordinator is responsible for guiding procedures to ensure that AM information (such as condition assessment information, GIS attributes and construction data) required to make informed decisions is current and in a form that is usable, that software used in AM processes is relevant and that the requirements of O.

Strategic Asset Management Policy

Reg. 588/17 such as reporting requirements and AMP updates are being met by the Town. The AM Coordinator will be responsible for operating any software acquired to assist the Town in undertaking its tasks.

Council is responsible for ensuring resources are provided to staff to ensure the Asset Management Policy and Plan are established and maintained. Council has the authority to approve this policy and municipal budgets, Committee has the authority to recommend policy, budgets and the Asset Management Plan and Policy to Council. Council also has the authority to make or override asset management decisions, in adherence with this policy.

CAO is overall responsible for implementing the Asset Management Policy and Plan. The CAO is responsible for endorsing the Asset Management Policy, assigning authorities and resources to administrative staff to ensure the Asset Management Plan is in place and the Asset Management Policy is executed. The CAO has the authority to execute the duties defined above and has the authority to make or override asset management decisions or recommendations from Senior Management or from the Asset Management Lead, in adherence with this policy.

Executive Lead at the Town of Fort Erie is the **Asset Management Lead**, a role filled by the Director of Infrastructure Services. The Asset Management Lead is responsible for ensuring Asset Management Policy and Plan is relevant, suitable, adequate, reviewed and updated as required. The Asset Management Lead also has the authority to make or override asset management decisions made by Managers within Infrastructure Services, in adherence with this policy.

The **Director of Corporate Services** is responsible for working with the Asset Management Lead and AMP outcomes, to ensure the financial budgets and long term financial plan is aligned with the asset forecasts and Levels of Service. The Director of Corporate Services is also responsible for financial reporting on assets and maintaining the financing and revenue strategy in alignment with the Asset Management Plan, Budget and Reserve Policies. In collaboration, the Director of Corporate Services, CAO and Director of Infrastructure Services have the authority to make asset management decisions in adherence with this policy, particularly when meeting financial policy, in accordance with the capital process flow chart, is challenged.

Managers are responsible for making asset recommendations related to the assigned portfolio, in adherence with this policy, and executing plans once approved and reporting on results once executed.

Members of the Public can stay informed, access information and provide feedback related to the AMP. The public may access information that provides a basis to decision making in the AMP under privacy and disclosure legislation.

The general structure is shown in Figure 1 below, with corresponding responsibilities and authorities further described in the AMP.

Strategic Asset Management Policy

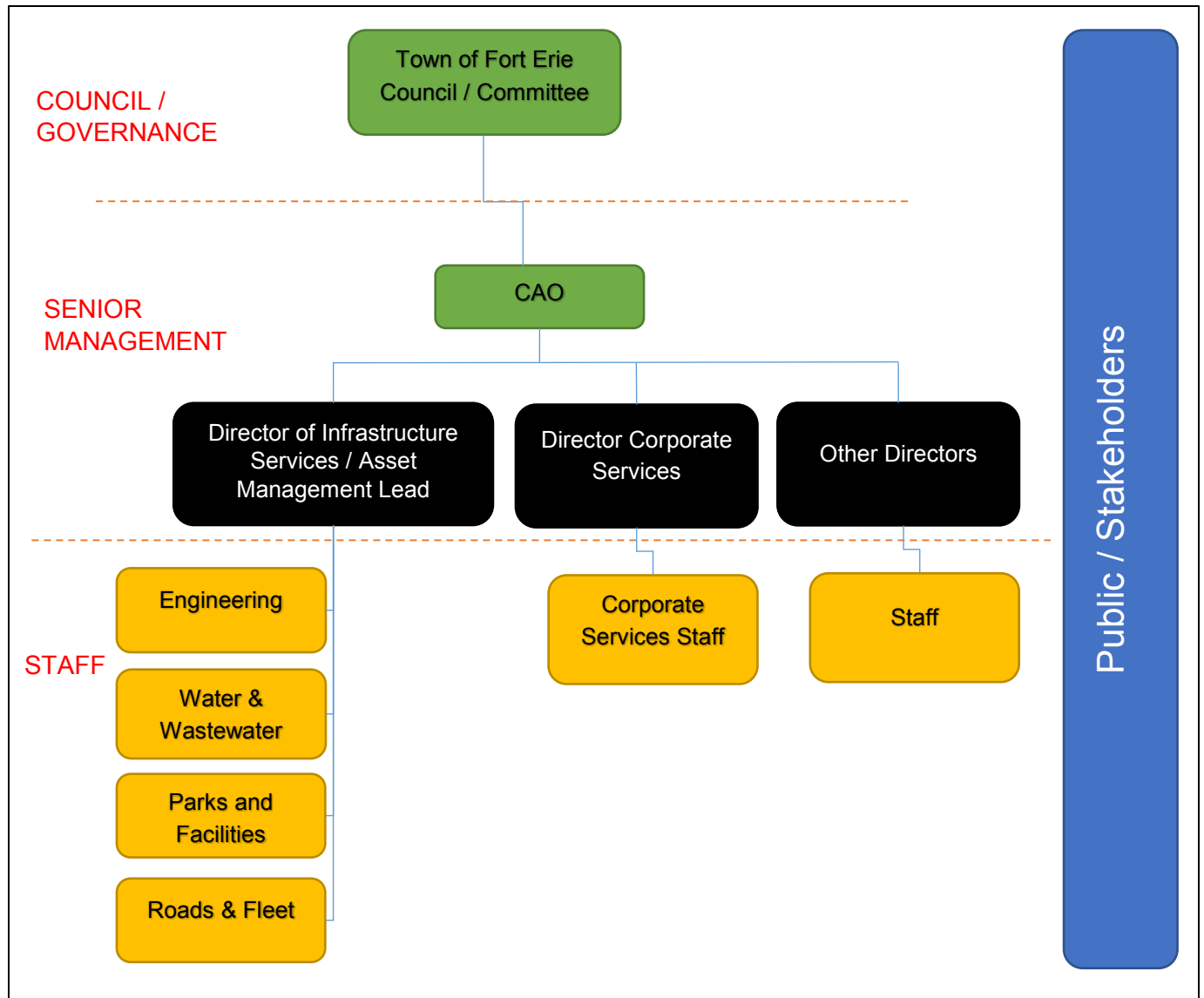


Figure 1: Overall governance Structure for Asset Management at the Town of Fort Erie.

4.0 Article 4 - Commitments

In our asset management planning, the Town of Fort Erie is committed to the following:

1. **Committing the resources to achieve sound stewardship of public resources** while maintaining the delivery of valued customer services at specified levels and upholding long term affordability.
2. **Consider public safety, risk tolerance and the Town’s Strategic Plan**, under the Asset Management Plan and the principles defined in this Policy, when deciding to acquire, construct, maintain, rehabilitate, replace or dispose of core assets.

Strategic Asset Management Policy

3. **Manage infrastructure assets with an integrated, not segregated, business approach** that delivers desired service results, and planning and investing in infrastructure within the context of our greater system, rather than examining assets in isolation.
4. **Enable residents, businesses and other interested parties** to provide input in asset management planning.
5. **Consider the impacts of climate change in asset planning and investment, and:**
 - a. Identify the vulnerabilities of our assets caused by climate change,
 - b. Consider the costs and means to address those vulnerabilities,
 - c. Consider adaptation opportunities that may be undertaken to manage the vulnerabilities,
 - d. Consider mitigation approaches to limit the magnitude or rate of long-term climate change (such as greenhouse gas emission reduction objectives), and
 - e. Consider disaster planning and contingency funding.
6. **Coordinate planning** for asset management with Port Colborne, Welland, Niagara Falls, the Niagara Parks Commission, Ministry of Transportation of Ontario, the Region of Niagara and other local partners where assets connect or are related.

This Asset Management Policy conforms to prescribed requirements from Ontario Regulation 588.

5.0 Article 5 - Principles

Embracing the principles below, the Town of Fort Erie's Asset Management Plan provides a framework for decision-making, based on a defined level of service, when we invest, design, construct, acquire, operate, maintain, renew, replace or decommission assets.

In our asset management planning, the Town of Fort Erie will strive to follow the principles listed below.

Health, Safety and the Environment

1. Ensure health & safety of workers is protected, including those involved in the construction and maintenance of assets.
2. Consider resilience to the effects of climate change in the design of infrastructure.
3. Minimize the impact of infrastructure on the environment.

Strategic Asset Management Policy

4. Respect and help maintain ecological and bio-diversity.
5. Endeavour to make use of acceptable recycled aggregates.

Prioritization and Value

6. Ensure we continue to provide our public services in Roads, Water, Wastewater, Storm, Bridges, Culverts and Facilities, at or above defined levels of service.
7. Identify and respect defined infrastructure priorities, based on risk and criticality. A clearly defined hierarchy for infrastructure priorities is a necessary foundation for an effective asset management plan, as priorities should inform investment decisions. Priorities are further described in the AMP.
8. Take a Long-term view in making asset decisions, especially considering the municipal life cycle of assets from acquisition to disposal. The Town strives to choose practices, interventions and operations that aim at reducing the lifecycle cost of asset ownership, while satisfying agreed levels of service, basing decisions on a balance of service levels, risks, and costs.
9. Factor information with implications for infrastructure planning into infrastructure investment decisions.
10. The Town will choose practices, interventions and operations that aim at reducing the lifecycle cost of asset ownership, while satisfying agreed levels of service. Decisions are based on balancing service levels, risks, and costs.

Connection and Communication

11. Align with all relevant Town of Fort Erie financial or asset plans prepared under applicable financial budgeting policies and legislation.
12. Practice asset management transparently, and under the law:
 - Base decisions on evidence and information that is made available to the public, and
 - Share information with implications for infrastructure planning with other public sector entities.
13. Be mindful of and align with the Strategic Plan, other Town policies and other plans and strategies in effect. A description of connected plans is provided in further detail in the AMP.

Community and the People

14. Promote economic competitiveness, productivity, job creation and training opportunities.
15. Promote accessibility for persons with disabilities.

Strategic Asset Management Policy

16. Promote community benefits, being the supplementary social and economic benefits arising from an infrastructure project that should improve community well-being.
17. Foster innovation by creating opportunities to make use of proven technologies, practices and services.

6.0 Article 6 - Other Provisions

Plans, Budgets and Forecasts

To fulfil Policy commitments, a process is in place at the Town of Fort Erie for using the AMP when developing municipal budgets and long-term forecasting related to assets, with special consideration to align to the Town of Fort Erie Water and Wastewater Service Area Financial Plans and master plans. This process is further described in the AMP.

Continual Improvement

The AMP must be continually improved, not just from nonconformities or weaknesses, but also making improvements in what the Town already excels in, by continually improving the asset management planning approach, incorporating new practices and principles. A process is in place to improve, adapt and tweak asset management processes, which includes responsibilities to stay current in asset management, adopt new practices, monitor the effectiveness of the AMP, and make changes. This process is further described in the AMP.

Land-Use Planning Framework

A process is in place to ensure that the Asset Management Plan aligns with Ontario's land-use planning framework, including the Town of Fort Erie Official Plan, Development Charge By-Law, and other master plans as they may apply. This process is further described in the AMP.

Risk Management

Climate change introduces risk and vulnerabilities for core municipal infrastructure assets. To fulfill climate change commitments in this Policy and stay aware of these risks and vulnerabilities, the Risk Assessment process is in place. Risk Assessment is further described in the AMP.

Also, as noted in Definitions, items below the capitalization threshold may be included in the AMP. Occasionally, an item's value may be less than the defined capitalization threshold, but it has a functional value that introduces risk should the item's inventory, availability, condition or forecast not be considered and planned for. In that case, assets may be added using the Risk Assessment process that is defined in the AMP.

Strategic Asset Management Policy

Finally, infrastructure priorities are clearly identified in alignment with the Risk Management process. The process for identifying infrastructure priorities includes Risk Assessment, which is further described in the AMP.

Stakeholder Consultation

Stakeholder involvement is a commitment in this Policy and an important factor of a successful and relevant AMP. It is imperative that opportunities to provide input are consistently offered to residents and interested parties. Consultation and communication processes are described in the AMP.

Availability and Update

This policy shall be posted on the Town website and provided to anyone who requests it. It shall be reviewed and updated as required, as other infrastructure AMPs are completed, and no more than five years from the last revision date posted.

Asset Management Strategy

- May 6, 2019 -



The Corporation of
The Town of Fort Erie

Asset Management Strategy

DEFINITIONS

Asset: An item, thing or entity that has potential or actual value to an organization (ISO 55000, 2014). The value can be tangible (or intangible); financial (or non-financial) and includes consideration of risks and liabilities.

Asset Management Plan (AMP): Documented information that specifies the activities, resources and timescales required for asset-based services to achieve the organization's Asset Management (AM) objectives (ISO 55000, 2014).

Asset Management Policy: A high-level statement of an organization's principles and approach to asset management (IIMM, 2015).

Asset Management Strategy: Documented information that specifies how organizational objectives are to be converted into Asset Management objectives, the approach for developing AMPs and the role of the Asset Management System in supporting achievement of the Asset Management objectives (ISO 55000, 2014).

Infrastructure: Infrastructure means the physical structures and associated facilities that form the foundation of development, and by or through which a public service is provided to Ontarians, such as highways, bridges, bicycle paths, drinking water systems, as well as any other thing by or through which a public service is provided to Ontarians (Infrastructure for Jobs and Prosperity Act, 2015, S.O. 2015, c. 15).

Level of Service (LOS): Level of Service is a qualitative or quantitative description of a service that is being provided. Two types of Levels of Service generally exist: Customer (or Community) Levels of Service; and, Technical Levels of Service.

Useful Life (service life): An estimate of the duration of time that an asset is forecasted to be in service.

Asset Management Strategy

1 INTRODUCTION

This Asset Management (AM) Strategy is a foundational element of the Town of Fort Erie's AM system. AM at the Town of Fort Erie is comprised of a Council-endorsed AM Policy which conforms to prescribed requirements from Ontario Regulation 588/17, as amended, the AM Strategy and the AMP.

The AM Policy articulates the Town's commitments and principles that will be considered in corporate AM planning. It ensures alignment and integration of AM into strategic planning processes.

The purpose of the AM Strategy is to determine the specific approaches that the Town will enact to link infrastructure decisions to the Town's overall priority of effective, sustainable infrastructure. The AM Strategy will set out to achieve the commitments and principles of the AM Policy through a set of inter-related business processes necessary to produce an AMP. The Strategy defines how the Town's AM processes are developed and connected, in order to provide the means through which the objectives of the AM Policy will be achieved (Based on "*Building Together – Guide For Municipal Asset Management Plans*" – Government of Ontario). The activities and processes described provide the basic elements for sound management of assets throughout their service life.

The Strategy is comprised of the following sections:

- **Lifecycle Activities**
- **Expansion and Development Process**
- **Procurement Process**
- **Risk Management**
- **Climate Change Considerations**

Asset Management Strategy

2 LIFECYCLE ACTIVITIES

This section summarizes different lifecycle activities typically used by the Town to manage assets.

2.1 Non-Infrastructure Activities

Non-infrastructure solutions are actions or policies that are not capital in nature, which can result in the lowering of costs and can extend the life of an asset through optimized planning and management. The Town takes the following general non-infrastructure actions:

- The Town strives to integrate the planning of infrastructure renewal across asset categories and with neighbouring/connected municipalities. This allows for economies of scale. For example, the Town will design for road reconstruction to align with buried infrastructure replacements or combine Town cross culvert replacements with Regional road reconstruction.
- Demand management initiatives are sometimes used to optimize asset use and educate the public. For example, transportation master planning will include consideration of traffic planning with consideration of matching road asset class & suitability to traffic use.
- Studies, investigations and master plans are regularly carried out to ensure there is a thorough understanding of the asset performance and needs, to inform the asset management planning decisions.
- The Town shares assets across divisions, where practical, to reduce or control a growing asset portfolio and avoid unnecessary duplication of spending or effort. This may include sharing equipment (e.g. fleet vehicles), more efficient equipment access & storage, and coordinating construction projects.
- The Town has been using software technology to inform AM decisions for many years. These systems help to more efficiently manage and operate assets across an organization by helping to improve consistency, recording, reliability, and reducing duplication of data. Examples include:
 - *Financial Management System*: This system which is known as FMW is used to exercise financial control and accountability related to the Town's budget. In addition, Accpac is used to house a PSAB register to track costs/depreciation related to the Town's assets.
 - *Customer Relationship Management (CRM)*: IBM Notes is used by the Town to track staff and public customer complaints which can be used for measuring Levels of Service (LOS).
 - *Computerized Maintenance Management System (CMMS)*: The Town has recently selected and begun implementing a CMMS (Fiix) for several service categories.

Asset Management Strategy

- *Geographical Information System (GIS)*: This system is used to capture, store, manipulate, analyze, manage, and present spatial or geographical data. The locations of the Town's physical linear assets are inventoried within this system.
- *Bridge and Structures Management System*: This system (Asset Management Forecaster) is used to gather, store, and analyze data about the Town's bridge and structure assets. It also allows for forecasting future needs for this infrastructure.
- *Pavement Management System*: This system (Decision Optimization Technology) is used to gather, store, analyze and forecast data about the Town's roads. It also allows for forecasting future needs for this infrastructure.
- A performance forecasting tool has been developed for Roads, Water, Wastewater, Stormwater, Facility, and Bridge and Structure assets. This tool is used to forecast future infrastructure needs based on available data and compare different financial and Level of Service (LOS) scenarios. Where the Town already has forecasting tools in place, the Town will continue to use these systems.

2.2 Renewals and Rehabilitation Needs and Investment

Rehabilitation is done to restore an asset from its current condition to a better condition. Where appropriate, rehabilitation projects are recommended. Replacement is done when the asset has reached the end of its life and/or is no longer providing acceptable service. Upgrading is done when a like for like replacement of an asset will not meet current or anticipated future demands and service requirements.

Based on risk assessments and industry standards, general rehabilitation and renewal strategies for each asset category are established from target condition performance, which can vary based on asset type and risk.

Identification of renewal needs and investment is practiced through the development of comprehensive asset inventories and condition assessments, which are used to develop medium and long-term capital plans. Before capital approval, asset renewals and rehabilitation considerations are assessed and prioritized based on risk, which includes the following criteria:

- Asset condition, provided through Condition Assessment programs, with special focus on assets with high criticality.
- Impact of the deficiency or observed condition on current and future asset performance.
- Available options for maintenance and renewal work.
- Available infrastructure renewal and rehabilitation options are considered in the AMP assessment activities.

Asset Management Strategy

Asset renewal options for assets other than roads are not included in the Decision Support System, but it is anticipated these will be folded into that tool in the future.

2.2.1 ROADS & BRIDGES ASSETS – RENEWALS AND REHABILITATION

Roads can be either rehabilitated or replaced when road condition falls below the target for the particular road segment, defined in the AMP. The condition of a road segment is measured using a Pavement Condition Index (PCI), standardized by the American Society for Testing and Materials, which is a 100-point rating scale where a score of 100 is a road in excellent condition and a score of 0 is a road in very poor condition. The target condition for each road segment varies based on road classification - larger volume arterial and collector roads have a higher target PCI than lower volume local roads.

The Town's strategy is to replace roads in coordination with the replacement of other subsurface infrastructure (such as watermains) in urban areas when conditions of other assets merit replacement. Roads are typically rehabilitated (rather than replaced) when there is no other subsurface infrastructure that requires replacement. Other considerations such as the timing of proposed developments are also incorporated into the decisions to replace or rehabilitate a road.

Further, road renewal is guided by condition "windows" for which different renewal strategies can be applied. If a road condition falls below a target PCI defined in the AMP, then rehabilitation is no longer practical, and the road will require a full replacement.

Roads options include: crack sealing, overlay, mill and overlay, and full depth reconstruction for asphalt roads; and single surface treatment, double surface treatment (DST), pulverize and DST, and pulverized, emulsified reclaimed asphalt concrete (RAP) and DST for surface treated roads.

Sidewalks are rehabilitated when they fall below a target performance score in accordance with legislative standards and based on condition ratings (see AMP).

Walks and trails are rehabilitated when they fall below a target performance score (see AMP).

The bridges in the Town of Fort Erie are both bridge structures and large culverts. Bridges and large culverts are rehabilitated and/or replaced in accordance with the recommendations made by qualified professionals through regulated inspections and subsequent site investigations. Options for short and long-term treatments are provided by the external consultant.

Asset Management Strategy

2.2.2 WASTEWATER ASSETS – RENEWALS AND REHABILITATION

Wastewater sewers can be either rehabilitated or replaced. The Town's strategy is to replace wastewater sewers in poor or very poor condition (i.e. below a target performance condition defined in the AMP) in coordination with the replacement of the road surface and other subsurface infrastructure, such as watermains and storm sewers.

In striving to maintain sanitary sewers in fair condition or better, critical sanitary sewers are scheduled for rehabilitation or replacement as soon as anticipated to reach a poor condition. Less critical sanitary sewers are allowed to degrade further before rehabilitation or replacement is considered. Currently, the criticality of sewers is based on the size of the pipe as the consequence of failure is assumed to be greater for pipes with a larger diameter. However, as the Town collects more information and refines this analysis, more factors may be incorporated to define the criticality of sewer pipes.

The decision for timing when to rehabilitate poor or very poor condition wastewater sewers is based on a detailed review of the observations from camera inspections that help the Town's subject matter experts determine when rehabilitation is preferred over replacement. The location of a sewer may also affect decisions for timing, for example, under a newly resurfaced road, in easements, on high traffic roads, and within an area where open cuts may be too disruptive (e.g. business improvement areas).

2.2.3 WATER ASSETS – RENEWALS AND REHABILITATION

Watermains can be rehabilitated or replaced. Based on the master plan, a funding strategy has been devised to minimize watermain breaks (State of Good Repair strategy) and provide projections for the total number of breaks across the system over the next 50 years. The current strategy is to replace watermains that experience a high number of breaks or that have reached the end of their useful life.

In striving to maintain watermain at a fair condition or better, critical watermain is scheduled for replacement as soon as anticipated to reach a poor condition. Less critical watermain is allowed to degrade further before replacement is considered. Currently, the criticality of watermains is based on the size of the pipe as the consequence of failure is assumed to be greater for pipes with a larger diameter. However, as the Town collects more information and refines this analysis, more factors may be incorporated to define the criticality of watermains, including risk of freezing in shallow servicing areas.

The rehabilitation of watermains through the installation of a cured in place liner was investigated in 2018 but is not being considered further, as the cost was equal to the cost of replacement.

Watermain replacement currently drives many of the decisions for roads rehabilitation or replacement in urban areas.

Asset Management Strategy

2.2.4 STORM ASSETS – RENEWALS AND REHABILITATION

Stormwater management ponds are dredged on a routine basis to remove sediment and vegetation that has accumulated, restoring the full capability of the asset to provide its intended service to treat the quality and quantity control of stormwater runoff. The performance scores used for the stormwater management ponds are related to the time since the last dredging relative to the target dredging frequency, determined at the time of design. Ponds are rehabilitated (or dredged) when they fall below a condition performance score defined in the AMP or have reached their target dredging date.

Storm sewers can be either rehabilitated or replaced. The current strategy is to replace storm sewers in very poor condition in coordination with the replacement of the road surface and other subsurface infrastructure, such as watermains and/or wastewater sewers. Closed Circuit TV (CCTV) inspection of storm sewers has commenced and informs the strategy for storm rehabilitation or replacement.

In striving to maintain storm sewers in a fair condition or better, critical sewers are scheduled for rehabilitation or replacement when anticipated to reach a poor condition. Less critical sewers are allowed to degrade further before rehabilitation or replacement is considered. Currently, the criticality of sewers is based on the size of the pipe as the consequence of failure is assumed to be greater for pipes with a larger diameter. However, as the Town collects more information and refines this analysis more factors may be incorporated to define the criticality of sewer pipes, such as lowered risk due to preventative maintenance flushing programs.

A ditching program is being developed, which may include rehabilitation activities.

2.2.5 FACILITIES ASSETS – RENEWALS AND REHABILITATION

Facilities are typically rehabilitated through the replacement or refurbishment of individual components or groups of components. Each component has an industry accepted estimated service life that is combined with observations of the condition of each component during site investigations and a target condition for the respective component to project the required expenditures. Individual components are replaced when they fall below a condition performance score (defined in AMP).

2.3 Maintenance and Operations Needs and Investment

Incorporating planned maintenance solutions into the lifecycle management strategy ensures that these activities are funded at an appropriate level, enabling assets to reach their full service potential. Maintenance and operations needs and investment are assessed and prioritized based on criticality and reliability. Routine preventative maintenance activities are completed to ensure the preservation of existing assets.

Asset Management Strategy

Operational and maintenance requirements are considered when planning new infrastructure.

Asset operations and maintenance requirements and required resources are assessed and prioritized based on:

- Carrying out legislated operations and maintenance activities to ensure safety and environmental sustainability in accordance with the appropriate regulations.
- Conducting routine and preventative maintenance activities to ensure preservation of existing assets.
- Reference to current operations and maintenance (O&M) contracts, historical costs of the established operational tasks, and forecasted industry pricing to forecast future O&M costs.
- Assessing consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio, especially before the asset portfolio expansion is approved.

For consistency, the Town has established Maintenance Quality requirements and complies with Ontario Regulation 239/02, as amended, “Minimum Maintenance Standards For Municipal Highways”. These Town requirements include:

- Sidewalk Inspection and Maintenance
- Roads Winter Operation and Salt Management
- Road Patrol
- Ditch Maintenance
- Culvert Maintenance
- Catchbasin Maintenance
- Storm Sewer Maintenance
- Streetlight Maintenance
- Bridge Inspection and Maintenance
- Fence Maintenance
- Spills Response
- Drinking Water Quality Management System – Distribution System Maintenance
- Wastewater Maintenance
- Facility Maintenance, and
- Elevator Maintenance.

Climate change poses infrastructure vulnerabilities that may impact maintenance and operations requirements, of which staff and management regularly discuss and stay aware in maintenance planning activities. More information on climate change vulnerabilities can be found in **Section 5 – Climate Change Considerations**.

Contingency plans are operational plans that can improve recovery times and reduce impacts of failure, thus affecting criticality. These types of plans are included in the maintenance and operation of assets at the Town.

Asset Management Strategy

2.4 Disposal Activities

The Town strives for consistency in disposal activities, when an asset has reached the end of its useful life or is otherwise no longer needed by the Town. Assets are disposed of within 12 months of when the asset is taken out of service and every effort to trade-in, resell, or auction the asset is made when practical. When disposal is required, assets are sent to the appropriate facility for recycling where possible.

With facilities, tenders often include removal and disposal of existing assets when renewing and this captures any trade-in or scrap value (e.g. old HVAC units). Recycling requirements are also stipulated in tenders, when appropriate (e.g. this is required with old lighting to achieve Ontario Power Authority grant funding).

2.5 Do Nothing

Consideration of 'doing nothing' should always be considered as a lifecycle option, as this position can establish a baseline against which other options are compared. Sometimes risk levels or levels of service requirements offer 'do nothing' as a legitimate alternative worth consideration or comparison.

Asset Management Strategy

3 EXPANSION AND DEVELOPMENT PROCESS

The Town must continually plan activities required to extend services to previously unserved areas or expand services to meet growth demands, all in accordance with a financial strategy. Incorporating growth into the lifecycle management strategy ensures that the additional lifecycle costs associated with newly constructed or acquired assets and new services are accounted for in the long-term forecast.

3.1 Population Growth

The 2018 budget reported the 2017 population as 30,710, with a reported 15,569 households and 1.26% tax growth. Based on the Region's 2019 Development Charges Study, the population is expected to grow to a projected 37,003 by 2031, and 42,390 by 2041. These projections amount to approximately 1.4% average annual growth from now until 2041.

3.2 Asset Portfolio Growth

This level of population growth will place significant pressure on the capacity of existing infrastructure and creates demand for new infrastructure. The Town determines its recommended expansion program through master plans and development charge background studies, where projected needs are planned with consideration of capacity, impending regulatory changes, stakeholder demand, desired target levels of service, and availability of enabling technologies.

The following master plans and expansion-related studies are complete, underway or planned for the near future:

- Corporate Strategic Plan
- Town of Fort Erie Official Plan
- Niagara Region Transportation Master Plan (2016)
- Active Transportation Master Plan
- 2017 Fort Erie Facility Condition Assessment and Master Plan
- 2016 Fort Erie Water Master Plan
- Water Financial Plan
- 2019 Fort Erie Wastewater Master Plan Update and Pollution Control Plan Update Study
- Development Charge Background Study (2019)
- 2016 Regional Niagara Water and Wastewater Master Servicing Plan Update
- 2018 Road Needs Study
- Rural Ditching Master Plan
- Parks and Open Space Master Plan

Asset Management Strategy

3.3 Operational Expenditure Growth

Operational expenditure is the operations and maintenance cost of new assets. For example, for a new pedestrian streetlight in a subdivision streetscape, the cost of electricity, replacement bulbs, and graffiti removal all contribute to the consequential operational expenditure associated with that new asset, even though the streetlight was initially installed by a developer which then passed the streetlight to the Town through assumption.

For most assets, a good estimate of the consequential operational expenditure required to operate and maintain the new assets is the existing operations and maintenance cost multiplied by the growth factor.

Operational expenditure growth is considered in AM forecasting.

Asset Management Strategy

4 PROCUREMENT PROCESS

To ensure the most efficient allocation of resources, the Town strives to explore different delivery mechanisms, such as working with other municipalities to pool projects and resources, design-build or pooling capital projects for economies of scale.

Procurement methods help to ensure the most efficient allocation of resources when executing AM strategies such as maintenance and renewals works completed by external contractors and suppliers.

It is the aim of the Town that all goods and services are acquired in a fair and open manner that is efficient and accountable, in accordance with the Town's current Purchasing Bylaw which guides all procurement practices.

Asset Management Strategy

5 RISK MANAGEMENT

The Town strives to meet service levels and to manage risk while minimizing life cycle costs.

There are risks within many levels of AM, which are summarized in this section. Some risk management described is included as legislated, and some is described to ensure the AMP holistically describes how risk is managed at the Town of Fort Erie.

Risk events, such as an asset failure, are events which may compromise the delivery of the Town's Corporate Strategic objectives, impact public safety, or lead to financial loss.

5.1 Corporate Risk Assessment

The Ministry of Infrastructure Guide for Municipal Asset Plans identifies that risks associated with the strategy (i.e. ways the plan could fail to generate the expected service levels) and any actions that will be taken in response are to be identified.

Risk is inherent to this AM Strategy, as the AMP has the potential to fail to generate expected service levels. Risk events, such as an asset failure, are events which may compromise the delivery of the Town's strategic objectives.

- a. Overall risk-based decisions are made by those with assigned authority. Those responsible for overall authority to make or override asset decisions for the Town ensure public safety and Town's strategic objectives are considered overall when approving plans or modifications to the plans under the AM Policy.
- b. Should any catastrophic event occur, Town resources would be diverted/reallocated from the current plan as required. The AMP would be adjusted and updated accordingly.
- c. Risks to revenues may also affect AM planning. For example, should water and sewer revenue forecasts not occur as per the financial plan, some projects that are required to maintain the water and sewer infrastructure will need to be removed from the forecast through a prioritization process.
- d. Master planning exercises determine the overall funding allocation for each department/service category. The AMP must take the allocated overall department funding into account, but must also identify, through risk, any changes that may be required to funding streams. Master planning is further described in **Section 2 - Expansion and Development Process**. Should forecasted asset needs exceed allocated budgeted funding streams, adjustments to funding, levels of service and/or risk tolerance adjustments may be required and reflected in the AMP. Consideration of commitments and principles from the AM Policy is done at this level, when assessing the criticality of assets and prioritizing current and forecasted budgets.

Asset Management Strategy

5.2 Asset Risk Assessment

Risk is managed more specifically at the asset level to determine the risk criticality of assets and manage these risks. Managing risk is achieved by optimizing the timing and type of maintenance and renewal interventions. To provide guidance for asset maintenance and renewal decision-making, the Town's tolerance for risk arising from the deterioration and failure of assets has been defined based on an asset's criticality and likelihood of failure.

Asset criticality reflects the importance of an asset to the Town's delivery of services or, in technical terms, the potential consequences of the asset failing (and therefore failing to provide the required LOS). An asset's likelihood of failure reflects the probability of an asset failing, which will increase over time as assets age but can also be impacted by the type of asset and the conditions the asset is subjected to.

Based on risk assessment and industry standards, rehabilitation and replacement strategies for each asset category are established from target condition performance, which can vary based on asset type. Typically, assets considered higher risk will be replaced earlier in their lifecycle as they will not be allowed to degrade to a point where failure is possible, while lower risk assets will be allowed to degrade further before action is considered. How risk is defined will vary based on asset category and can be refined over time as more information is collected to consider different contributing factors.

Consideration of commitments and principles from the AM Policy is also done at this level when assessing criticality of assets and prioritizing current and forecasted budgets.

Risks specific to drinking water distribution are also managed directly through the Drinking Water Quality Management System in place at the Town.

5.3 Asset Registry

Less formal risk assessments are also carried out when considering the addition of an item below the capitalization threshold. If the risk of excluding the item in the AMP is significant, based on an assessment approved by the Director of Infrastructure Services or by the Director of Corporate Services, that asset is incorporated into the AMP.

Asset Management Strategy

6 CLIMATE CHANGE CONSIDERATIONS

The infrastructure vulnerabilities that may be caused by the impact of climate change must also be considered within the lifecycle strategy.

Vulnerabilities are assessed during risk assessment activities.

Options to address these vulnerabilities are three-fold:

- Increasing preventive maintenance activities where possible (e.g. more frequent re-application of rip rap for erosion prevention around large culverts)
- Adjusting levels of service (e.g. tolerating a lower road network PCI)
- Considering lifecycle activities that may be effective (e.g. lining watermain).

These options to address or adapt to the vulnerabilities are considered during many stages of asset decision-making - when reviewing levels of service, planning maintenance budgets and activities at the department level, and in business decisions related to rehabilitation options, procurement, non-infrastructure activities, and replacement options.

Costs that may arise from the identified vulnerabilities are considered during risk assessments when reviewing the potential impact and likelihood of asset failure.

Mitigation approaches are considered in the Corporate Strategic Plan and when considering options in infrastructure planning.

Disaster planning and contingency funding is managed through Infrastructure Services and the Fire Department, and projected asset demands or changes to the asset portfolio are reflected in the AMP as appropriate.