Clause 7 in Report No. 8 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on May 17, 2018.

7

Corporate Asset Management Plan

Committee of the Whole recommends:

1. Receipt of the presentation by James Steele, Director, Infrastructure Asset Management, Environmental Services and Brian Titherington, Director, Transportation and Infrastructure Planning, Transportation Services.

2. Adoption of the following recommendations contained in the report dated April 18, 2018 from the Commissioner of Environmental Services and the Commissioner of Transportation Services:

    1. Council approve the Corporate Asset Management Plan provided in Attachment 1.

    2. The Regional Clerk circulate this report to the local municipalities.

Report dated April 18, 2018 from the Commissioner of Environmental Services and the Commissioner of Transportation Services now follows:

1. Recommendations

It is recommended that:

1. Council approve the Corporate Asset Management Plan provided in Attachment 1.

2. The Regional Clerk circulate this report to the local municipalities.

2. Purpose

This report requests Council approval of the Region's first Corporate Asset Management Plan, formalizing asset management planning practices across Regional Departments. Council approval is a legislated requirement of Ontario

Regulation 588/17: Asset Management Planning for Municipal Infrastructure (the Regulation) enacted by the Province, which recently came into effect in January 2018.

3. Background and Previous Council Direction

York Region's asset base is steadily growing to accommodate population growth and effectively manage levels of service

York Region is one of Canada's largest municipalities and is forecast to reach 1,790,000 residents and 900,000 jobs by 2041. As population increases, so does the need for essential services and the assets required to deliver those services. The Region's Corporate Asset Management Policy and Plan support a coordinated approach to managing assets that ensures financial sustainability following recognized asset management principles guided by the Region's Strategic Plan and Vision 2051.

The Region's first Corporate Asset Management Plan builds upon current asset management practices

Asset management involves balancing asset cost, performance and risk. The goal is to deliver required performance at the best possible cost over an asset's life cycle within an acceptable level of risk. The need to achieve this balance informed the updated Corporate Asset Management Policy, which was approved by Regional Council in February 2018. Guided by the Region's Vision 2051 and its four-year Strategic Plan, the policy also sets out a coordinated approach to asset management processes and practices and drives continuous improvement.

The Region's Corporate Asset Management Policy was updated to ensure compliance with the Regulation, satisfying the first step required by the Regulation more than a year in advance. The Region's first Corporate Asset Management Plan builds upon the Region's asset management practices implemented over the past five years. By adopting the Corporate Asset Management Plan, Council will satisfy the next step required under the Regulation more than three years in advance.

In the past, Council has been informed on the state of Regional assets through the bi-annual Corporate State of the Infrastructure Report, most recently brought before Council in October 2016. Going forward, Council will be updated on the state of the Region's infrastructure and funding requirements for asset management through the annual budget process as well as through periodic updates to the Region's Corporate Asset Management Plan. The next update to the Corporate Asset Management Plan is planned to be brought before Council in 2022.

Corporate Asset Management Plan consolidates asset management practices across 13 service areas

The Region's first Corporate Asset Management Plan includes 13 service areas within four Departments and York Regional Police as shown in Table 1.

The Corporate Asset Management Plan documents information on the state of infrastructure, including asset inventory, average asset life, asset condition and replacement values for both core and non-core assets (Attachment 1). More details are included in the plan for core infrastructure assets (roads, water and wastewater assets) to comply with requirements of the Regulation.

Table 1
Summary of Department and Service Areas included in the Corporate Asset Management Plan

Service Group	Service Area
Community & Health Services	Housing Services Paramedic Services Senior Services
Corporate Management (includes Finance & Corporate Services)	Information Technology Property Services
Environmental Services	Energy Management Forestry Waste Management Wastewater (Core Asset) Water (Core Asset)
Transportation Services	Roads (Core Asset) Transit
York Regional Police	Police Services

Council approval of the Corporate Asset Management Plan will support compliance with newly adopted Regulation

O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure came into effect on January 1, 2018, and requires municipalities to have a Council approved Asset Management Plan for core infrastructure assets by July 1, 2021. Core infrastructure assets represent more than 75 per cent of all Regional physical assets and include roads, bridges, culverts; and assets, including facilities, used in the collection, conveyance/distribution, treatment or disposal of wastewater/water and stormwater management systems. Regulatory compliance status for the Region's core assets is shown in Table 2 (Current Levels of Service) and Table 3 (Proposed Levels of Service).

Table 2
Regulatory Compliance Status for Core Assets
– Current Levels of Service

Service Area	State of Infrastructure	Current Levels of Service	Asset Management Strategies	Financing Strategy
Roads	Compliant	Compliant	Compliant	Compliant
Wastewater	Compliant	Compliant	Compliant	Compliant
Water	Compliant	Compliant	Compliant	Compliant

Table 3
Regulatory Compliance Status for Core Assets –
Proposed Levels of Service

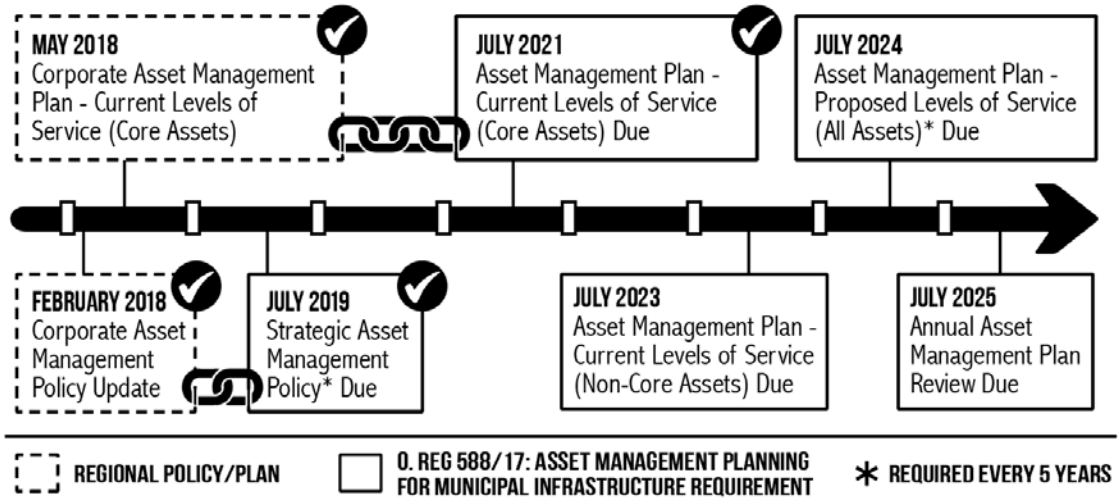
Service Area	State of Infrastructure	Proposed Levels of Service	Asset Management Strategies	Financing Strategy
Roads	Compliant	In Progress	In Progress	In Progress
Wastewater	Compliant	In Progress	Compliant	Compliant
Water	Compliant	In Progress	Compliant	Compliant

The Executive Summary of the Plan is provided as Attachment 1 to this report with the full document posted online for viewing and download. Council approval of the plan will comply with the Regulation, well in advance of the 2021 deadline set by the Province. Asset management planning timelines to meet the Asset Management Regulation are shown in Figure 1.

The Region has already satisfied the first two steps in the Regulation well in advance of regulatory deadlines

The Regulation is intended to provide certainty around future asset management planning requirements, supporting resiliency and sustainability as key aspects of municipal asset management planning. The Region is well positioned to meet the Regulation and has already updated the Corporate Asset Management Policy to meet legislated requirements in advance of the July 2019 deadline. Furthermore, approval of the Region's first Corporate Asset Management Plan will comply with legislated requirements to report on current levels of service for core assets well in advance of the July 2021 deadline. Meeting the requirements of the Regulation in advance, in particular for core assets, provides a more formal structure to inform infrastructure and fiscal planning.

Figure 1
Asset Management Planning Timelines to meet Asset Management Regulation



Future updates to the Asset Management Plan will incorporate current and future levels of service for all assets. These updates are scheduled to be ready in advance of the regulatory deadlines of July 2023 and July 2024, respectively. Work is currently underway with the departments responsible for each non-core service area, to define their current levels of service for their assets.

4. Analysis and Implications

Asset inventories and replacement values further refined through Asset Management Plan development

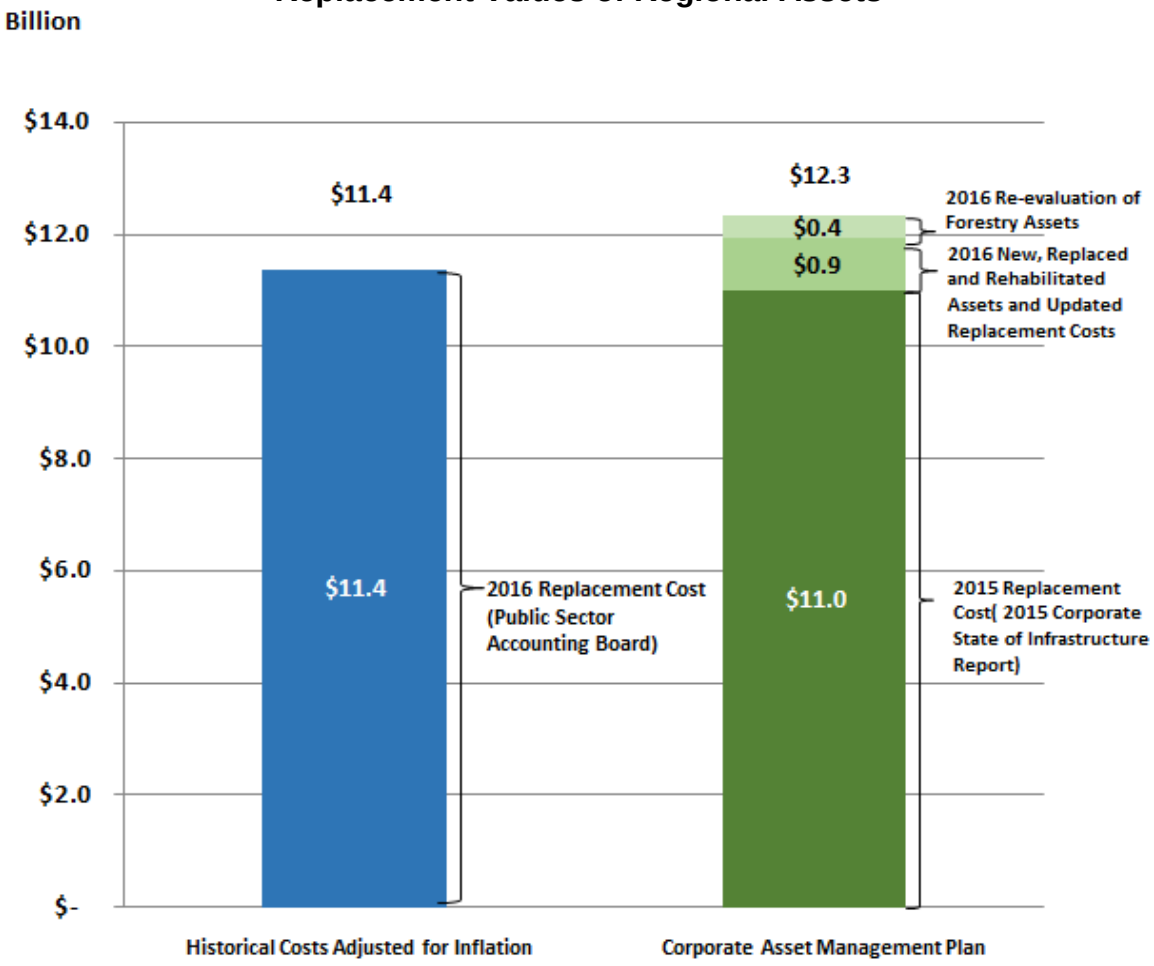
The Corporate Asset Management Plan provides an inventory of Regional assets within each service area and their replacement costs. Asset replacement values have been refined over the past year, through development of both the Corporate Asset Management Plan and Departmental Asset Management Plans. The estimated current replacement value of Regional assets as of December 31, 2016, is $12.3 billion as shown in Figure 2. Annual updates to asset valuation will continue to occur to inform regulatory reporting requirements.

In the past, replacement values of Regional assets were calculated by applying inflation to the historical cost of tangible capital assets. The Public Sector Accounting Board (PSAB) requires that assets be reported at their historical cost, which is the original cost of the asset at the time it was acquired, developed or constructed. This approach was previously used to provide a high-level estimate of asset management needs and resulted in a replacement value of Regional assets totalling $11.4 billion.

Through development of asset management plans, additional cost considerations are taken into account to refine these replacement values such as updated construction costs, current regulatory climate and design best practices. This approach provides more accurate information to support asset management decision making and reserve contributions, resulting in a more appropriate replacement value of Regional assets totalling $12.3 billion (at year end 2016).

The Corporate Asset Management Plan provides a total replacement value which is the sum of the 2015 State of Infrastructure valuation (at year end 2015) of $11 billion, plus new, replaced and rehabilitated assets in 2016, updated replacement costs of $0.9 billion, and a re-evaluation of forestry assets of $0.4 billion. The Plan ensures that assets are valued consistently across the Corporation, providing a baseline for future updates.

Figure 2
Historical Costs compared to
Replacement Values of Regional Assets



Sustainable asset management planning uses asset values based on the current cost to replace them

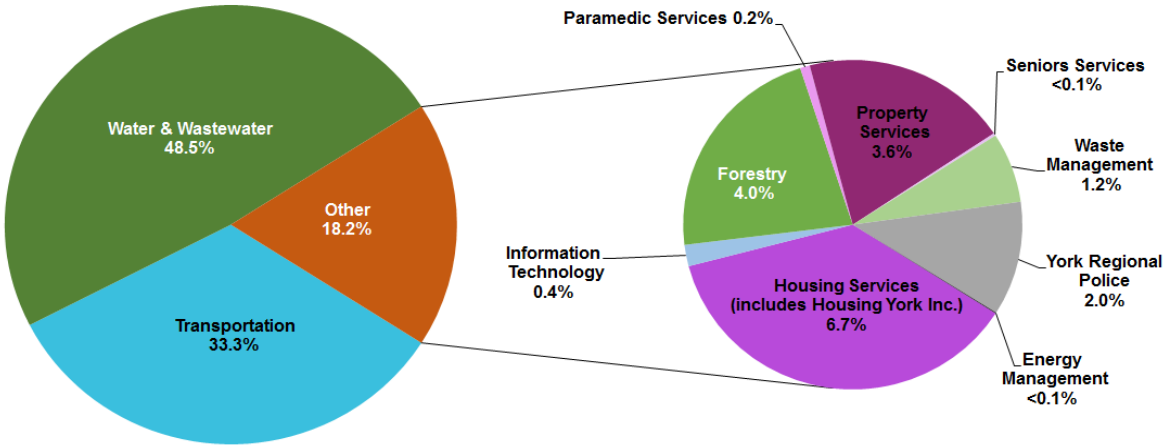
Corporate Asset Management Plan replacement values are calculated based on the cost required to replace an asset today. Replacement costs are typically more expensive in today's built urban settings than historic green-field settings, since construction occurs within a more complex environment (e.g. congestion and conflict between Regional infrastructure and utilities within the right-of-way), while maintaining levels of service.

Asset management practices continue to evolve, resulting in refinement of asset replacement values

As asset management practices improve, new ways to value assets emerge. For example, the Corporate Asset Management Plan replacement values include biological assets such as York Regional Forests and street trees, which are not considered tangible capital assets in the Region's Tangible Capital Asset Policy. The development of the Green Infrastructure Asset Management Plan is one of the first of its kind, evaluating and integrating the replacement value of the Region's green assets.

The replacement value of Regional assets by service area is shown in Figure 3.

Figure 3
Replacement Value of Regional Assets based on Corporate Asset Management Plan (2018) – $12.3 billion*



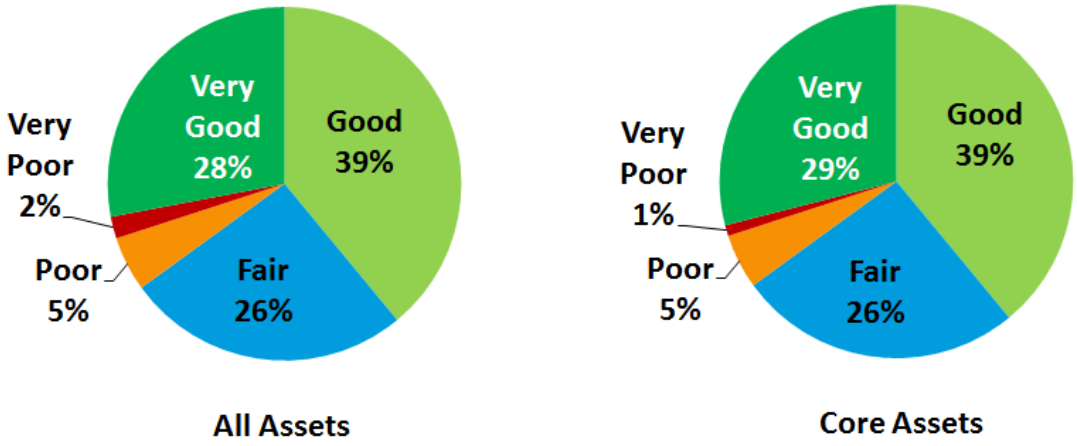
* Information is based on the development of the Corporate Asset Management Plan to reflect best available asset replacement values as of December 31, 2016.

93% of Regional assets are in fair or better condition, mainly requiring maintenance or preservation treatments

Understanding the useful life of an asset and its remaining life provides insight into the potential risk of asset failure impacting both levels of service and renewal need. Asset condition generally refers to the degree of physical deterioration of an asset, which is evaluated through condition assessment programs. For assets with no condition data, the condition is estimated based on the percentage of age to useful life. To adequately meet service levels and manage risk while minimizing life cycle costs, most assets should be preserved in fair or better condition.

While 93 per cent of the Region's assets are in fair or better condition, some are reaching the middle stages of their useful lives and will require rehabilitation or replacement in the coming years. A breakdown by condition grade is shown for all Regional assets and core assets in Figure 4.

Figure 4
Condition Grade of Regional Assets



Assets in poor and very poor condition are planned for renewal

Assets in poor or very poor condition require increased attention and renewal investment to avoid increased maintenance costs and/or unexpected failure. The assets that are currently in poor or very poor condition are typically those that are included in the 10-year capital renewal program and budget forecasts, such as replacement of #1 District Headquarters for York Regional Police, constructed in 1950 and scheduled for replacement and expansion in 2019 and 2020. Other assets falling into this condition grade include those where renewal is not feasible or practical to extend useful life. For example, technology assets, where replacement is based on age, ensuring that assets are kept current and performing at optimal levels. Exceptions to this are roads assets, as current funding amounts are insufficient to meet the renewal needs of all roads in poor and very poor condition.

Reserves have been built up to help fund asset management requirements in a financially sustainable way

The Corporate Asset Management Plan identifies a renewal requirement for roads infrastructure of $1.15 billion and the 10-year Capital Plan for roads renewal is $260 million, identifying a significant shortfall. Through the Fiscal Strategy, reserves have been built up in anticipation of these additional asset management requirements. A plan to use asset management reserves to help fund these requirements in a financially sustainable way will be established

through the next multi-year budget process beginning in 2018. While contributions to asset management reserves have been increasing over the past several years, further contributions will be required to fully address future asset management needs.

Both community and technical levels of service illustrate what can be expected by those receiving the service

Community levels of service are outlined at a corporate level through strategic objectives and key performance measures outlined in the Region's 2015 to 2019 Strategic Plan. Optimizing critical infrastructure systems capacity is one of several strategic objectives outlined in the 2015 to 2019 Strategic Plan and includes a number of key performance measures, including reducing the quantity of inflow and infiltration in Regional and local wastewater systems. The Strategic Plan outlines the tactical and practical means for the Region to deliver the community vision outlined in Vision 2051 and levels of service demonstrate whether the strategic objectives are being met.

Legislated levels of service, required by the Regulation for core services, include community levels of service and technical levels of service.

Community levels of service illustrate the services that are available to the Region's customers

Community levels of service describe the services delivered by an asset category. As outlined in the Regulation, examples of community levels of service include a map showing areas of the municipality that are serviced by the Regional water and wastewater system or images that illustrate the different levels of pavement condition of Regional roads, both of which can be found in Section 7 of the Corporate Asset Management Plan. In this example, maps provide an illustrative view of the extent of the services provided through the infrastructure assets.

Technical levels of service use specific parameters, like pavement condition index, to track performance

Technical levels of services use metrics to measure the scope or quality of the services being delivered by an asset category. As outlined in the Regulation, examples of technical levels of service include the percentage of urban properties serviced by the municipal water and wastewater system (95%), the percentage of the municipal stormwater management system resilient to a 5-year storm (100%) or the average pavement condition index (PCI) value for Regional roads (70).

The Region is working to develop proposed levels of service for all service areas and, along with public consultation, these will be a key aspect of the next update to the Asset Management Plan.

Departmental asset management strategies incorporate all life cycle activities to sustain affordable service delivery

An effective asset management strategy outlines the need to build new infrastructure to meet growth needs and manage existing assets to meet reliability needs all while balancing cost, performance and risk. Population growth impacts the scale of services required to support service delivery. Service area Master Plans propose new or expanded assets to address current and future capacity requirements.

For example, climate change may have a direct impact on cost of service delivery and has been considered in the assessment of risk. Further development of advanced weather projections is currently taking place, when available, these will provide additional insight into infrastructure plans. Furthermore, a Regional Climate Change Action Plan is expected to be complete in 2019, providing an additional input to the risk evaluation of assets.

All assets, (with the exception of biological assets, like trees, which don't depreciate), physically deteriorate at different rates and lose the ability to deliver the required levels of service. Asset renewal strategies are developed for Regional assets to identify the frequency and cost of activities that provide defined levels of service, at the best life cycle cost. For some asset types, the renewal strategy is very simple, such as information technology assets, where assets are replaced at the end of their useful life. For other asset types, such as facilities, the renewal strategy is much more complicated since there are many thousands of components, some of which may be rehabilitated or replaced numerous times throughout the life of the facility.

Maintenance strategies are also in place to ensure assets continue to deliver defined levels of services. Renewals and maintenance are strongly linked; maintenance strategies can hasten or delay the need for renewals, and if renewals are deferred, maintenance needs will often increase. For Regional roads, renewal planning is supported by the Region's pavement management system, which helps to forecast short and medium-term needs and priorities based on road inspection data collected every two years.

Corporate Asset Management Plan highlights growth, renewal and operating needs for core assets over the next ten years

The Regulation requires growth, renewal and operating needs be included in the asset management plan. This ensures that life cycle requirements to deliver a demand for expanded services are incorporated into asset management planning, including an increase in the asset portfolio.

Capital growth and renewal needs for core assets total over $4 billion over the next ten years

Annual capital growth needs over the next ten years for core assets are outlined in the Corporate Asset Management Plan and are based on the Transportation 10-Year Capital Plan and the 2016 Water and Wastewater Master Plan. Annual capital renewal needs over the next ten years for core assets are also outlined based on industry standard physical condition assessments, risk and best life cycle cost analysis. In addition, annual operating needs to sustain current levels of service for Regional core assets over the next ten years are outlined based on the 2015 Water and Wastewater Financial Sustainability Plan and for roads, current annual operating costs increased proportionately with forecast road network growth. Total value for growth, renewal and operating needs for core assets (roads, water and wastewater assets, as per the Regulation) over the next ten years are shown in Table 4.

Table 4
Total Value ($ billion) of Growth, Renewal and Operating Needs for Core Assets (2017-2026)

Life Cycle Needs	Roads	Water & Wastewater	Total Value
Capital Growth Needs	$1.33	$1.25	$2.58
Capital Renewal Needs	$1.15	$0.95	$2.10
Subtotal	**$2.48**	**$2.20**	**$4.68**
Operating Needs	$1.05	$6.19	$7.24
Total	**$3.53**	**$8.39**	**$11.92**

Region's Fiscal Strategy considers short-term and long-term need to mitigate risks to asset failure

Risks relating to asset failure are mitigated through condition and risk assessments, proactive maintenance programs and capital renewal programs to ensure work required to achieve defined levels of service is identified and implemented. The Region's Fiscal Strategy considers the inter-relationship and integration needed between the capital plan, debt management plan and reserve

management plan to address the long-term stewardship of Regional assets, striking a balance between current and near-term investments and saving for the future.

Corporate Asset Management Plan supports the Region's fiscal responsibility outlined in 2015 to 2019 Strategic Plan and Vision 2051

Both the 2015 to 2019 Strategic Plan and Vision 2051 outline actions to support the Region's fiscal responsibility, including responsible stewardship of the Region's assets while continuing to provide sustainable service delivery. The Corporate Asset Management Plan outlines a plan to effectively manage Regional assets over time to deliver defined levels of service in a sustainable manner.

Approval of the Region's Corporate Asset Management Plan will complete the next step required under the Regulation

The Regulation requires the approval of an asset management plan, including specific requirements, such as current levels of service, for core assets by July 1, 2021. By approving the Region's first Corporate Asset Management Plan, Council will satisfy the next step required by the Regulation more than three years in advance. Early completion of the plan ensures that better information is used to develop and identify financial needs to provide sustainable levels of service, informing future budgetary processes and fiscal strategies.

Gap analysis provides a framework to complete next steps to meet future Regulation requirements

As part of the Corporate Asset Management Plan development, a regulatory gap analysis was completed to identify additional work required to meet future regulatory requirements.

The gap analysis confirmed that the Corporate Asset Management Plan, attached to this report, meets the regulatory requirements with the July 2021 deadline (documenting current levels of service for core assets). The analysis also identified areas requiring further development to meet the requirements with 2023 (documenting current levels of service for non-core assets) and 2024 (setting proposed levels of service for all assets) deadlines.

This information will help staff develop a roadmap to inform asset management plan updates to meet the requirements of the Regulation.

5. Financial Considerations

Council has invested an average of half a billion dollars, annually, to grow and manage core assets over the last ten years

Over the last ten years, Council has invested $5 billion to effectively manage the growth, rehabilitation and replacement of Regional core assets. The Region's Corporate Asset Management Plan outlines capital growth and renewal needs of $4.68 billion over the next ten years to expand, sustain and maintain core assets (roads, water and wastewater), which account for over 75 percent of the Regions' asset base. Furthermore, the operation of current and growth assets will require funding of more than $7 billion dollars over the same period.

Multi-year budget process will account for growth, renewal and operating needs to move toward full life cycle cost recovery for all Regional assets

In 2018, the Region will be developing its next multi-year budget where it will consider the full life cycle cost recovery needs for all Regional assets, beyond just the core assets, over the forecast period. Full cost recovery pricing for water and wastewater assets by 2021 is being achieved through Council's approval of the 2015 Water and Wastewater Financial Sustainability Plan.

The 10-year Transportation Capital Plan has identified future growth and renewal needs for the Regional road network and the current committed funding is $1.6 billion. The approved 10-year budget allocated to rehabilitate and renew existing road infrastructure is $0.9 billion short of estimated needs as identified by the recently completed Transportation Asset Management Plans. The use of reserves will help fund these needs.

Various funding sources will be considered through multi-year budget to address asset management needs

The next multi-year budget will consider the viability of various funding sources available to address asset management capital and operating needs and determine whether additional funding sources will be required and/or available. Current revenue sources include tax levy, user rates, development charges, grants and other third-party funds. The Region may need additional revenue-raising powers, similar to those available to the City of Toronto (e.g. land transfer tax revenue), to fully fund all of the needs identified. Managing debt and building reserves will continue to be pillars of the Region's long-term fiscal strategy which aims to ensure financial sustainability over time.

6. Local Municipal Impact

The Region's Corporate Asset Management Plan formalizes existing levels of service, for core service areas (roads, water and wastewater), which are delivered to residents and local municipalities, who are both customers and municipal partners in service delivery. Consultation on existing levels of service has been achieved through an integrated master planning process to develop the 2016 Water and Wastewater Master Plan and 2016 Transportation Master Plan. Additional workshops and initiatives involving local municipalities and stakeholders also help to advance best practices on asset management planning.

Public engagement will help inform updates to the Asset Management Plan

Continued public engagement will help inform updates to the Asset Management Plan, including the identification of current levels of service for all Regional assets, and will be defined through the development of a communication and engagement plan. Public engagement, including input from residents, will help provide an additional lens to consider how the Region can best manage its assets and inform the next incremental update to the Corporate Asset Management Plan, planned to be brought before Council in 2022.

7. Conclusion

Region's first Corporate Asset Management Plan meets the next steps in Asset Management Planning Regulation and formalizes asset management planning practices

The Region's Corporate Asset Management Plan meets legislated requirements of O. Reg. 588/17 to define current levels of service for core infrastructure assets. Thirteen service areas are presented within the plan, three of which are core service areas (roads, water and wastewater). Asset information on inventories, condition and valuation has also been included for remaining non-core service areas and provides a strong foundation to build upon to complete the next asset management plan legislated requirements within regulatory deadlines.

Approval of the Region's first Corporate Asset Management Plan will align with the Region's asset management practices and ensures responsible stewardship of the Region's assets while continuing to provide ongoing financially-sustainable service delivery.

For more information on this report, please contact James Steele, Director, Infrastructure Asset Management at 1-877-464-9675 ext. 73018 or Brian Titherington, Director, Transportation and Infrastructure Planning at 1-877-464-9675 ext. 75901.

The Senior Management Group has reviewed this report.

April 18, 2018

Attachment

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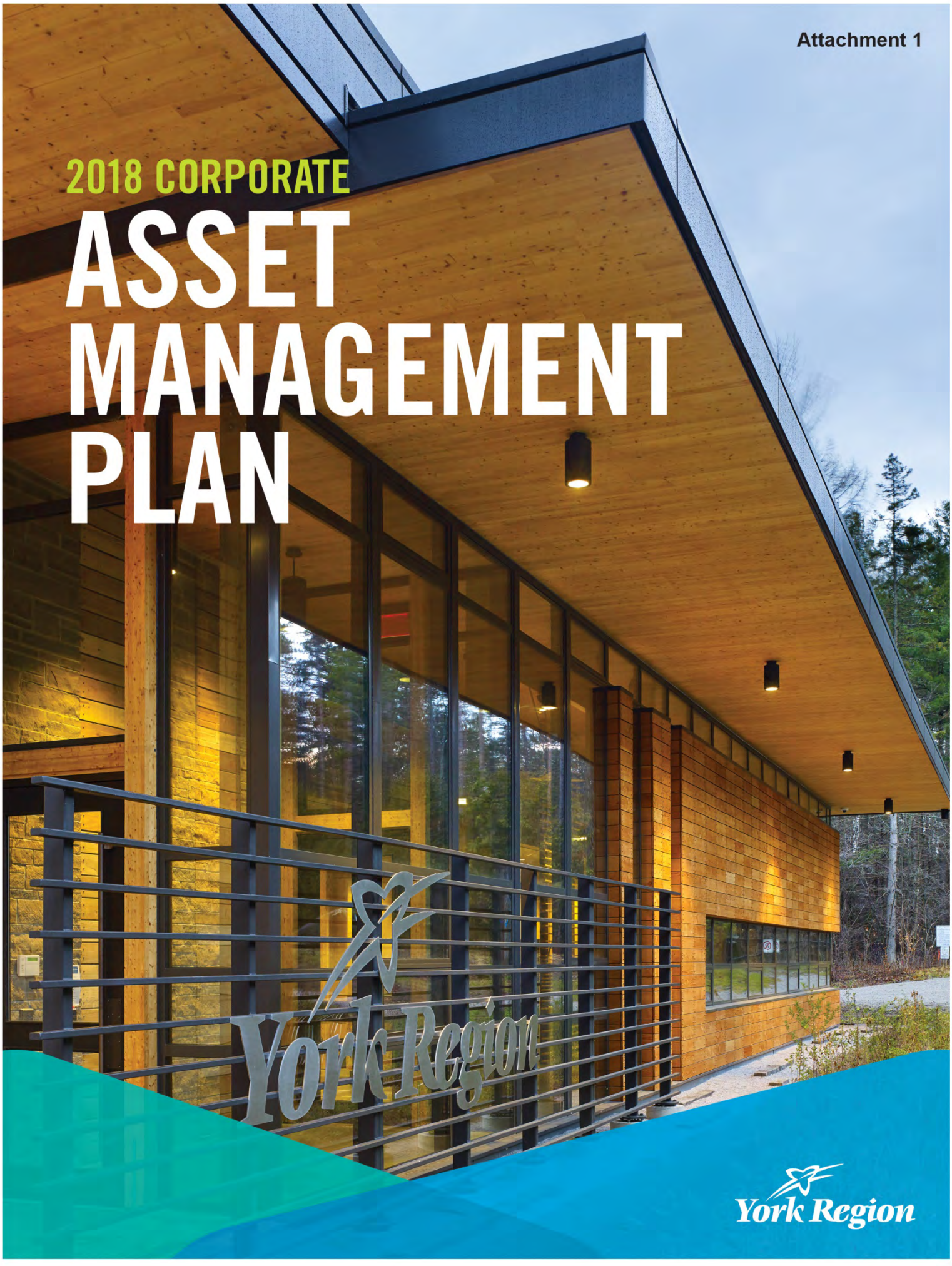
Accessible formats or communication supports are available upon request.

Attachment 1

2018 CORPORATE ASSET MANAGEMENT PLAN



York Region

Mayor
Frank Scarpitti
City of Markham

Regional Councillor
Jack Heath
City of Markham

Regional Councillor
Jim Jones
City of Markham

Regional Councillor
Joe Li
City of Markham

Regional Councillor
Nirmala Armstrong
City of Markham

Mayor
David Barrow
Town of Richmond Hill

Mayor
Maurizio Bevilacqua
City of Vaughan

Chairman & CEO
Wayne Emmerson

Regional Councillor
Vito Spatafora
Town of Richmond Hill

A Message from York Region Chairman and CEO and Members of Regional Council

The Regional Municipality of York provides a variety of programs and services to 1.2 million residents and 51,000 businesses. Regional assets, such as roads, bridges and water treatment infrastructure, are essential to providing these services and contribute to the high quality of life enjoyed by our residents.

York Region owns and manages over $12 billion worth of infrastructure assets vital to support the range of services delivered to our communities. As our population increases, so does the need for essential services and the assets required to deliver those services.

While many Regional assets are relatively new and in good condition, others will require rehabilitation or replacement in the coming years. Understanding the replacement value, condition and proportion of remaining life of the Region's assets provides insight into potential risk and the potential need for renewal.

The Corporate Asset Management Plan outlines assets currently owned and managed on behalf of the community and how they support the services delivered by the Region. The plan identifies what assets will be needed in the future, the strategy to sustain them throughout their lives, and how to financially manage the planned assets throughout all life cycle phases.

This plan is well aligned with the Region's Corporate Asset Management Policy to ensure responsible stewardship while continuing to provide services to our communities in a sustainable way.

Regional Councillor
Mario Ferri
City of Vaughan

Regional Councillor
Brenda Hogg
Town of Richmond Hill

Regional Councillor
Gino Rosati
City of Vaughan

Mayor
Tony Van Bynen
Town of Newmarket

Regional Councillor
Sunder Singh
City of Vaughan

Regional Councillor
John Taylor
Town of Newmarket

Mayor
Margaret Quirk
Town of Georgina

Regional Councillor
Naomi Davison
Town of Georgina

Mayor
Geoffrey Dawe
Town of Aurora

Mayor
Virginia Hackson
Town of East Gwillimbury

Mayor
Steve Pellegrini
Township of King

Mayor
Justin Altmann
Town of Whitchurch-Stouffville

Executive Summary

York Region owns and manages physical assets such as roads, traffic signs and signals, buses and related facilities, watermains, elevated tanks and sewers, treatment plants, administrative buildings and community housing that together total billions of dollars in value.

The Region relies on these assets to deliver important services, often in partnership with nine local municipalities, to 1.2 million residents and more than 50,000 businesses. Caring properly for its assets – which is often referred to as "stewardship" – helps to ensure the Region can deliver services safely, reliably and at the best possible cost now and into the future.

This Corporate Asset Management Plan supports stewardship of Regional assets

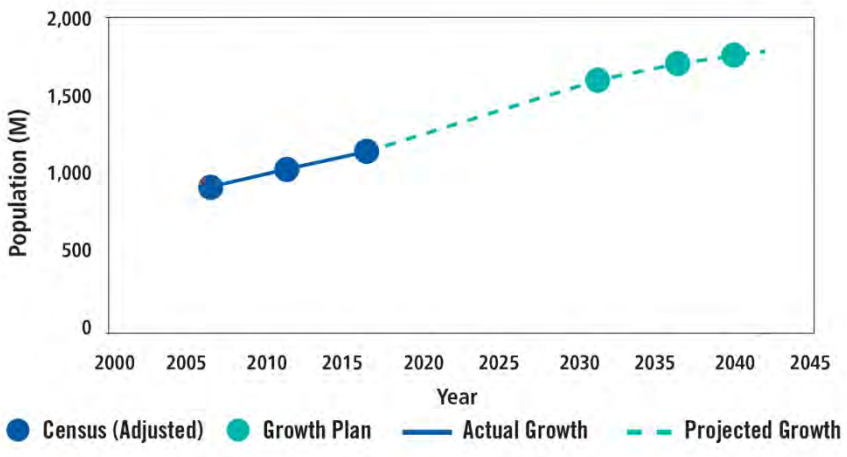
The purpose of this Corporate Asset Management Plan is to support the Region's stewardship of its assets. It summarizes:

- The assets the Region relies on to support service delivery to the community;
- The current level of service provided by core assets (water, wastewater, stormwater, roads, bridges and culvert assets);
- The core assets that will be needed in the future to deliver services safely and reliably;
- The activities to sustain all core assets throughout their life cycles at the best possible cost;
- An outline of funding needs and how they might be met; and
- The steps to improve future versions of the Corporate Asset Management Plan.

The plan was created through workshops and input on assets and their condition with participation of staff from across the organization, and the Finance Department provided input on financial implications.

Expected growth drives the scale of Regional services and, in turn, the assets needed to support them. The provincial Growth Plan for the Greater Golden Horseshoe (referred to in this document as Growth Plan 2017) sets out population and employment forecasts, and the provincial government mandates the Region to plan for them. **Figure ES-1** shows current and expected population, using recent Census data and Growth Plan 2017 forecasts.

Figure ES-1 Regional Population Growth



Asset management involves balancing asset cost, performance and risk. The goal is to deliver required performance at the best possible cost over an asset's life cycle within an acceptable level of risk. The need to achieve this balance informed the updated Corporate Asset Management Policy, which was approved by Regional Council in February 2018 and appears in the Appendix. Guided by the Region's Vision 2051 and its four-year Strategic Plan, the policy also sets out a coordinated approach to asset management processes and practices and drives continuous improvement.

Developing estimates of the replacement value, condition and remaining life of assets are core activities in asset management planning. This information helps to show when renewals will likely need to happen to keep assets working properly and reduce the risk of service disruption. It is especially helpful in identifying previously unknown risks to asset performance in the near term. Climate change, for example has been considered in the past for assessing risks to delivering service with more advanced work taking place to informing proposed levels of service, which will be included in future updates.

Different departments within Regional government are responsible for delivering specific services and managing the assets used to deliver them, as **Figure ES-2** shows.

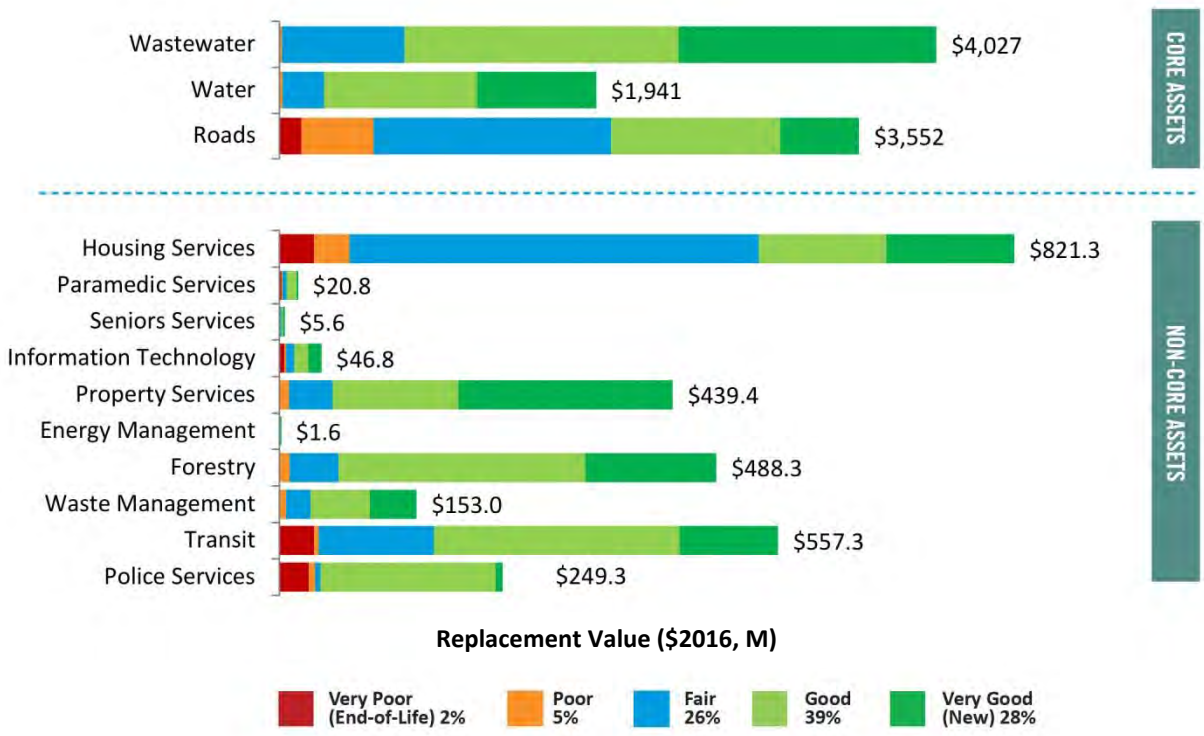
Figure ES-2 Service Groups and Associated Service Areas within the Region

Some departments, in particular those responsible for core assets, have already developed asset management plans. Core assets – those that provide wastewater, water and roads services – together account for over 75 per cent of the Region's total asset portfolio. These assets are highlighted as a priority in provincial regulatory guidance on asset management planning.

Figure ES-3 gives information on asset condition by service area. It shows the value of assets that fall within each of the five condition grades, with red representing very poor condition and dark green, very good to the best condition.

The total replacement value of Regional assets at the end of 2016 was $12.3 billion, and 93 per cent were considered to be in fair or better condition. The body of this document explains in more detail how replacement values for different types of assets were developed.

Figure ES-3 Regional Asset Inventory and Condition by Service Area



Notes:

1. *The figure at the right of each bar represents the total replacement value of assets in that service area*
2. *Because of their large relative size, the bars for roads, wastewater and water are plotted against a horizontal axis scale five times larger than the scale used for other assets*
3. *"Roads" includes stormwater, bridges and culvert infrastructure*

The high proportion of assets in fair or better condition reflects that major capital investments were made to meet the rapid growth of recent decades, and many of those assets – especially those expected to give decades of service – are not far into their service life.

Nonetheless, about $810 million worth of assets, or 7 per cent of the portfolio's value, is in poor or very poor physical condition. The reasons are varied. In some cases, such as with a relatively inexpensive information technology device, the lowest-cost decision is often to replace it at the end of its useful life. Rehabilitation is neither possible nor practical. In others, needed work may have been put off because of other pressing needs.

In each of the last 10 years, Council invested an average of more than half a billion dollars to sustain core assets

Existing Regional asset management strategies for core assets informed Council's average annual investment, through capital and operating budgets and approval of water and wastewater rates, of more than half a billion dollars over the last decade. Building on Council's prior commitment, this plan will help to consolidate asset management practices throughout the Region, developing consistency across the service areas. This consistent approach will define our needs and provide evidence-based recommendations on spending and resource requirements for asset management.

This Corporate Asset Management Plan addresses the need to have all assets in an acceptable condition while maintaining defined levels of service. Current community levels of service and technical levels of service are included in this Corporate Asset Management Plan for core assets as required by Ontario Regulation (O. Reg.) 588/17. Furthermore, key performance measures on the management of the Region's assets are set out in the 2015 to 2019 Strategic Plan and tracked annually to indicate results and trends.

York Region's asset management planning and implementation is ahead of provincial requirements

In 2017, under the authority of the *Infrastructure for Jobs and Prosperity Act, 2015*, the Province enacted O. Reg. 588/17 outlining how Ontario municipalities should address aging infrastructure challenges.

The regulation, which went into effect in January 2018, sets out the following requirements and timeline:

- By July 1, 2019: Develop a strategic asset management policy;
- By July 1, 2021: Develop an initial asset management plan for core assets showing current level of service;
- By July 1, 2023: Develop an initial asset management plan for all other assets showing current level of service; and
- By July 1, 2024: Add information to asset management plans on the proposed level of service that assets should provide and their long-term financial sustainability.

York Region has already integrated asset management into its plans and operations, hence meets the regulation's near-term requirements well within the timelines. Specifically:

- Regional Council approved a strategic asset management policy in February 2018; and
- This Corporate Asset Management plan shows current levels of service for core assets, provides base information for the balance of assets, and discusses the financial implications of asset management over the next 10 years.

With these steps in place, the Region is more than three years ahead of legislated deadlines, and expects to continue to meet future requirements well before the legislated dates.

Table ES -1 outlines the status of asset management planning for the Region's core assets, with page numbers referring to the portion of the document which demonstrates compliance with the respective portion of the regulation.

Table ES-1 Regulatory Compliance Status for Core Assets

	Phase 1 (Current Levels of Service) by July 1, 2021				Phase 2 (Proposed Levels of Service) by July 1, 2024			
Service Area	**State of Infrastructure**	**Current Levels of Service**	**Asset Management Strategy**	**Financing Strategy**	**State of Infrastructure**	**Proposed Levels of Service**	**Asset Management Strategy**	**Financing Strategy**
Wastewater	Compliant (pg. 64)	Compliant (pg. 65)	Compliant (pg. 66)	Compliant (pg. 67)	Compliant (pg. 64)	In Progress	Compliant (pg. 66)	Compliant (pg. 67)
Water	Compliant (pg. 70)	Compliant (pg. 71)	Compliant (pg. 73)	Compliant (pg. 74)	Compliant (pg. 70)	In Progress	Compliant (pg. 73)	Compliant (pg. 74)
Roads	Compliant (pg. 77)	Compliant (pg. 78)	Compliant (pg. 79)	Compliant (pg. 79)	Compliant (pg. 77)	In Progress	In Progress	In Progress

Financial plans will reflect both growth and ongoing spending needs

The need to invest in assets typically arises from two factors: growth in population and/or economic activity, and the aging of existing assets. Investment needs in either areas may be reduced through innovative approaches to delivering service, which can reduce or eliminate the need for major investment.

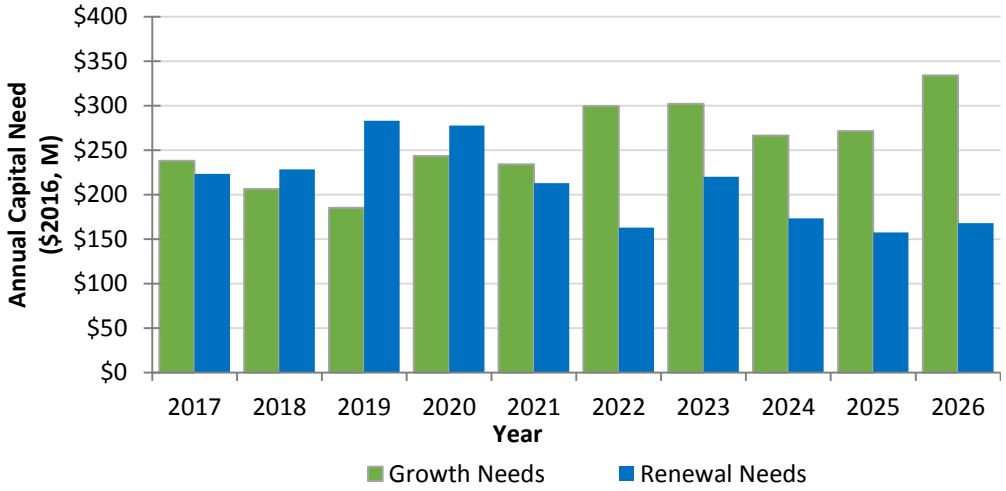
The Regional Official Plan, which describes the Region's approach to accommodating growth, forms the basis of the Transportation Master Plan as well as, the Water and Wastewater Master Plan. Organized by service area, these master plans provide direction and approaches to meeting growth needs, which then inform the 10-Year Capital Plans.

The aging of existing assets is reflected in departmental asset management plans. These plans describe how the department manages asset condition on an ongoing basis and plans to meet the need for rehabilitation and replacement. (In this document, rehabilitation and replacement are collectively referred to as "renewal".)

Figure ES-4 shows the spending required for core assets to continue to deliver current levels of service. The green bars, which show the growth-related need for new/expanded assets, are derived from the master plans and capital plans discussed above. The blue bars, which indicate the costs of renewing existing assets as they age, are based on departmental plans and work carried out for this plan.

Figure ES-4 outlines core asset needs only. While limited information on non-core assets (e.g. administrative and housing facilities, vehicles and information technology) and their needs is included in this plan, this is based on current practices within the service areas and information may not be complete or consistent across the organization. Work is underway to improve asset management planning for all assets. This work will be completed for all non-core assets by the applicable regulatory deadlines; for current levels of service by July 2023 and for proposed levels of service by July 2024.

Figure ES-4 10-Year Capital Growth (Green) and Renewal (Blue) for Core Assets



As the asset portfolio ages over time, the focus will gradually shift from growth-related needs to spending on ongoing operations and maintenance, as well as, periodic capital investment in renewal. This affects financial planning, because growth investments generally rely on charges on new development, while renewal must generally be funded by the tax levy and user rates.

To address how to fund the needed investments, the Region will develop an Asset Management Financing Plan. This will align with the Regional Fiscal Strategy, which Regional Council approved in 2014 tying together capital management, debt management, intergenerational equity, and reserve management as shown in **Figure ES-5**.

Service areas, such as Transportation-Roads, have identified a funding gap which requires attention. The fiscal strategy has built up reserves that can be used for major asset renewals, which includes the use of reserves to fund these requirements in a financially sustainable way and will be established through the next multi-year budget process beginning in 2019.

Continuous improvement activities now and into the future

Developing this plan provided valuable information about the current state of asset management planning in the Region and will help to inform future activities:

- Assessing current asset management information and practices against the requirements of the new provincial regulation identified key areas of focus to achieve full compliance; and
- The work also showed opportunities to improve current practices and information.

Figure ES-5 Regional Fiscal Strategy

Together, this gave rise to 19 action items, such as developing proposed levels of service for core and non-core assets and improving the Corporate Asset Management Strategy, as shown in **Table ES-2.** Service areas will develop work plans by the end of 2018 to achieve these actions.

A key activity will be to continue to refine asset-related information so that it is gathered and analyzed consistently across the organization. To help support that work, the Region is convening organization-wide asset management committees to ensure that both existing and new plans integrate smoothly into the Corporate Asset Management Plan.

Having more complete information about assets is also critical to developing a comprehensive financing plan. The Region is currently working on an asset management financing plan to be finalized in late 2018. This will coincide with the start of the next multi-year budget process, covering 2019 to 2022 inclusive, and will ensure the plan informs operating and capital budgets put forward for Regional Council approval.

The Region expects to review and if necessary update the Corporate Asset Management Plan every four years, with results informing the next multi-year budget cycle.

The format and contents of this Corporate Asset Management Plan are consistent with the Province's *Building Together: Guide for Municipal Asset Management Plans* and meet requirements of the July 1, 2021 milestone set out in the regulation. Staff will continue to improve asset management information and practices to develop an asset management plan that outlines current levels of service for all non-core assets by July 1, 2023 and proposed levels of service for both core and non-core assets by July 1, 2024 to meet future milestones set out in the regulation.

Table ES-2 Planned Timelines for Action Items to Address Gaps in Asset Management Plans

	Action Item Number	Action	Completion By	
			2021	2022
Meeting O. Reg. 588/17	1	Improve asset inventories for non-core assets	X	
	2	Develop current levels of service for non-core assets	X	
	3	Develop a life cycle strategy for non-core assets	X	
	4	Document a financing strategy for non-core assets	X	
	5	Create or finalize Asset Management Plans for service areas that currently do not have them		X
	6	Ongoing update of asset inventories	X	
	7	Document proposed levels of service for core and non-core assets	X	
	8	Document life cycle strategies for core and non-core assets	X	
	9	Document financing strategy for lifecycle activities, core and non-core assets	X	
	10	Update Corporate and Departmental Asset Management Plans		X
Asset Management Continuous Improvement	11	Improve Corporate Asset Management Strategy	X	
	12	Improve coordinated effort across the organization in asset management	Ongoing	
	13	Develop and improve asset management processes	Ongoing	
	14	Evaluate cost, risk and performance	X	
	15	Further develop and implement the fiscal strategy	Ongoing	
	16	Strengthen corporate data management capabilities		X
	17	Lead Region wide asset management collaboration	X	
	18	Include business software in the next Corporate Asset Management Plan update		X
	19	Include data in the next Corporate Asset Management Plan update		X

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1. Introduction

1.1 York Region Responsibilities and Goals

York Region provides important services to the community, often partnering with its nine local municipalities: Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan and Whitchurch-Stouffville. The Region is directly responsible for policing, public health, paramedic, social and community services, arterial roads and bridges, and public transit. It delivers drinking water to local municipal systems and conveys wastewater from them, and shares in the responsibility for solid waste, forestry management, and community planning.

The Region relies on physical assets to deliver important services. Assets must be in good condition to deliver these services safely and reliably at the best possible life cycle cost for today and as the population and economy grow. Asset management planning aims to ensure these goals are met.

The Region has developed plans, strategies and frameworks to guide its decisions, including decisions on how it manages assets. This Corporate Asset Management Plan aligns with this guidance.

Regional Official Plan

The Regional Official Plan 2010 describes how York Region will accommodate future growth and development while meeting the needs of existing residents and businesses in the Region. It sets out directions and policies that guide economic, environmental and community planning decisions.

Vision 2051

Vision 2051 is York Region's current long-term strategy. It describes the Region's ideal vision of the next 40 years and how it will be achieved. Vision 2051 describes York Region that:

- Is a place where everyone can thrive;
- Is made up of livable cities and complete communities;
- Has a resilient natural environment and agricultural system;
- Has appropriate housing for all ages and stages;
- Has an innovation economy;
- Has interconnected systems for mobility;
- Promotes living sustainably; and
- Has open and responsive governance.

Each of these eight goal areas gives rise to priorities that help guide York Region's decision-makers.

2015 to 2019 Strategic Plan

At the start of each term, Regional Council endorses a four-year strategic plan that aims to turn the long-term objectives of the Region's Vision 2051 into day-to-day activities and goals. The 2015 to 2019 Strategic Plan, which was approved in February 2015, focuses on four priority areas for the Region as shown in **Figure 1-1**.

Figure 1-1 Strategic Priority Areas and Regional Services

Regional Fiscal Strategy

The Regional Fiscal Strategy brings together four distinct components: managing the capital plan, reducing reliance on debt, saving for the future, and recognizing the need for fairness between current and future generations. Its overarching goal is achieving long-term financial sustainability by understanding the linkages among these components. In particular, it recognizes that stewardship of capital assets involves striking a balance between making investments today and saving for future needs.

York Regional Council has a long-established policy of putting money into reserves for future rehabilitation and replacement of major assets. Before 2013, the annual increase in the Region's contribution to asset replacement reserves was 1 per cent of the prior year's tax levy. That year, Council approved a new contribution rate increase of 2 per cent to be phased in by 2017. In 2018, the contribution is to increase by 4.2 per cent from the previous year. As well, 100 per cent of the Region's supplementary tax revenues may be added to these reserves each year. The current policy aligns asset specific replacement reserves and full cost recovery rates, in the case of Water and Wastewater, to reflect the amounts needed for each asset category. **Figure 1-2** illustrates the components of the Region's Fiscal Strategy.

Figure 1-2 Regional Fiscal Strategy

Corporate Asset Management Policy and Framework

Aligning with the Region's strategic plan, the Corporate Asset Management Policy provides clear objectives for asset management practices across all Regional departments to enable a consistent, coordinated and affordable approach to providing services.

POLICY STATEMENT VALUE TO THE COMMUNITY

York Region's assets will be managed through a coordinated approach that ensures financial sustainability following recognized asset management principles guided by the Region's 2015 to 2019 Strategic Plan and Vision 2051

It sets out the following objectives:

- Adopt and advance industry leading asset management practices that align with established standards and legislation;
- Provide defined levels of service which are balanced against considerations of costs and risks;
- Align Asset Management Plans with the Regional Fiscal Strategy;
- Demonstrate financially sustainable life cycle management by appropriately balancing cost, risk and performance to achieve full value from assets;
- Improve evidence-based decision-making from in-service asset data related to expenditures, operations and maintenance; and
- Ensure organizational accountability and transparency by engaging customers to provide input into asset management planning.

Regional Council approved the updated Corporate Asset Management Policy in February 2018. To meet the objectives of the Corporate Asset Management Policy, the Region follows the Corporate Asset Management Framework, as outlined in the Corporate Asset Management Policy in the Appendix. The framework is built on understanding the expectations of customers of the services and the Region itself, as well as, provincial government legislation on asset management. It is also shaped by the Regional Strategic Plan and Fiscal Strategy.

At the departmental level, information about assets, risk and expectations helps to shape more detailed plans, with the goal of delivering appropriate levels of service to individual customers, local municipalities and the Region.

Service Area Master Plans

Based on the Regional Official Plan, the Region develops specific master plans for transportation and water and wastewater infrastructure. Updated periodically through a process that includes extensive consultation, these master plans propose new or expanded assets and non-infrastructure solutions to address current and forecast future capacity needs and potential performance gaps.

Other Regional Objectives

The Region is currently developing a Climate Change Action Plan, with expected completion in 2019. The information and actions will inform future asset management planning.

In addition the Corporate Asset Management Coordinating Committee, comprised of representatives across all Departments, is working on the following projects and objectives:

- Corporate Asset Management Risk Framework to improve overall decision making related to risk in the context of cost and performance. Project is aligning with the existing Controllership office, corporate risk framework and registry; and
- Data Governance project to look at treating data and information as an asset and the added objective to ensure all data being used for asset management is consistent, accurate and defendable at the best possible life cycle cost.

1.2 Provincial Asset Management Planning Requirements

To address the challenges of underfunded municipal infrastructure needs across Ontario, the Province published the document *Building Together: Guide for Municipal Asset Management Plans* in 2012. This document outlines the information and analysis that municipal asset management plans are to include and was published to provide consistency across the province for asset management.

Under authority of the *Infrastructure for Jobs and Prosperity Act, 2015*, the Province enacted O. Reg. 588/17, Asset Management Planning for Municipal Infrastructure, effective January 1, 2018. This regulation identifies water, wastewater, stormwater, roads, bridges and culvert assets as “core infrastructure assets” (or “core assets”). Core assets represent more than 75 per cent of all Regional physical assets and are mainly the responsibility of two departments, Transportation Services and Environmental Services.

The regulation requires that municipalities must have:

- By July 1, 2021, an approved asset management plan for core assets that discusses current levels of service and the cost of maintaining those services; and
- By July 1, 2023, a similar plan for all municipal infrastructure assets.

A third milestone is July 1, 2024. Building on previous requirements, by this date plans must also include a discussion of proposed levels of service, what activities will be required to meet proposed levels of service, and a strategy to fund the activities.

The July 1, 2021 requirements include reporting on:

- The state of infrastructure summary including replacement cost, average age and condition;
- Performance on current community and technical levels of service;
- The life cycle activities, estimated capital costs, and any significant operating costs to service growth forecast for the next 10 years; and
- The life cycle activities, estimated capital costs, and any significant operating costs to sustain current levels of service for the next 10 years.

The format and contents of this Corporate Asset Management Plan are consistent with the Province's *Building Together: Guide for Municipal Asset Management Plans*. The format in the guide has specific Table of Content headings and suggested content for each section. This Corporate Asset Management Plan follows the guide and meets the requirements of the July 1, 2021 milestone set out in the regulation.

1.3 Asset Ownership

Table 1-1 describes the assets that support the Region's goals in 13 service areas. This list outlines essentially all physical assets the Region owns, as well as, leasehold improvements it has made in facilities it does not own.

The assets are organized into five "service groups" (which, except in the case of Corporate Management and York Regional Police, are departments of the Region). In some cases, more than one service group shares ownership of assets, such as Paramedic Stations, which are budgeted, planned and operated by Paramedic Services but constructed and maintained by Property Services. As well, the Region co-owns some assets with other municipalities. In these cases, the replacement value in this plan reflects the percentage owned by the Region.

Table 1-1 Assets included in the Corporate Asset Management Plan

Service Group	Service Area	Assets
Community & Health Services	Housing Services	Social housing units including low, mid and high rise apartment complexes, townhouse complexes, emergency housing shelters, and community centres.
	Paramedic Services	Ambulance and emergency response equipment, and support vehicles. Paramedic Response Stations are included under Property Services.
	Seniors Services	Land improvements and leasehold improvements to long-term care facilities, program machinery and equipment. Long-term care facilities are included under Property Services.
Corporate Management	Information Technology	Computer information technology hardware including a data centre, voice and data technologies, end-user devices, and a telecommunications network. Software and data is not currently included.
	Property Services	Corporate facilities including administration offices, mixed-use facilities, and improvements to leased office space. Also included are provincial offences court facilities, public health facilities, long-term care facilities, and Paramedic Response Stations.
Environmental Services	Energy Management	Solar arrays and associated equipment.
	Forestry	The urban forest including street trees, growing medium and planters, the York Regional Forest including trails and structures ponds and drainage, and a forestry stewardship centre including outbuildings.
	Waste Management	A materials recovery facility including process equipment, transfer stations, household hazardous waste depots, community environmental centres, facilities, and co-ownership of an energy from waste facility.
	Wastewater | CORE ASSET	Water resource recovery facilities, a wastewater treatment lagoon, equalization tanks, odour control facilities, wastewater pumping stations, sanitary forcemains, trunk sewers, maintenace holes and chambers.
	Water | CORE ASSET	Water treatment plants, groundwater wells, elevated tanks, pumping stations, storage reservoirs, transmission mains, water chambers and maintenance holes.
Transportation Services	Roads | CORE ASSET	Paved roads in urban and rural environments including stormwater infrastructure, bridges, culverts, traffic signals, roadside assets, road maintenance facilities, vehicles and equipment. Also includes service area support vehicles.
	Transit	Fleet for local, rapid and mobility plus transit, facilities for terminals and garages including machinery and equipment, transit stops including platforms and shelters, rapidway assets, and technology systems for dispatch, customer relationship management and maintenance.
York Regional Police	Police Services	Facilities, a fleet of motor vehicles, marine vessels and other equipment, information technology and telecommunications assets and specialized equipment.

Land is generally not included in the current replacement costs of the asset inventory, except where integrated with the assets, as in the York Regional Forest, and where acquisition is required to provide new or expanded services such as Police Services, Paramedic Services, Public Health and Social Housing capital programs.

Data and information are important assets, especially in decision-making. Examples include:

- Digital aerial images, parcels, addresses, easements, rights-of-way, growth and development plans; and
- Data collected by staff on all Regional assets including roads, water and wastewater facilities and equipment, and vehicle assets.

Despite their value and the Region's investment in them, data and information as an asset are not included in this Corporate Asset Management Plan because they are not physical in nature. The Region will nonetheless explore ways of ensuring that these assets are properly managed and maintained. Asset data is relied on extensively to manage assets in the Region, as well as, in the development and finalization of this Corporate Asset Management Plan.

Business software applications are currently not included in this plan, however, steps are being taken to assess inventory of these assets, and will be included in the next version of the Corporate Asset Management Plan.

1.4 Purpose of the Corporate Asset Management Plan

The purpose of this Corporate Asset Management Plan is to support the Region's stewardship of its assets. It summarizes:

- The assets the Region relies on to support service delivery to the community;
- The current level of service provided by the Region's core asset supported services;
- The assets that will be needed in the future to support core asset service delivery objectives and mitigate vulnerabilities;
- The planned activities to sustain current and future core assets throughout their life cycles at minimal cost, while mitigating vulnerabilities;
- The status of determining funding sources for planned life cycle activities; and
- The steps to improve future iterations of the Corporate Asset Management Plan.

1.5 Developing the Asset Management Plan

The corporate asset management project team worked with Regional staff to develop this plan. This involved:

- Reviewing background materials, including existing asset management plans;
- Holding consultation meetings with internal stakeholders to collect data for each service areas group of assets;
- Assessing received data and information and filling gaps to complete analysis;
- Conducting internal stakeholder review meetings throughout development of the Corporate Asset Management Plan to confirm outline, objectives and scope; and
- Sharing interim outputs with stakeholders and incorporating their feedback.

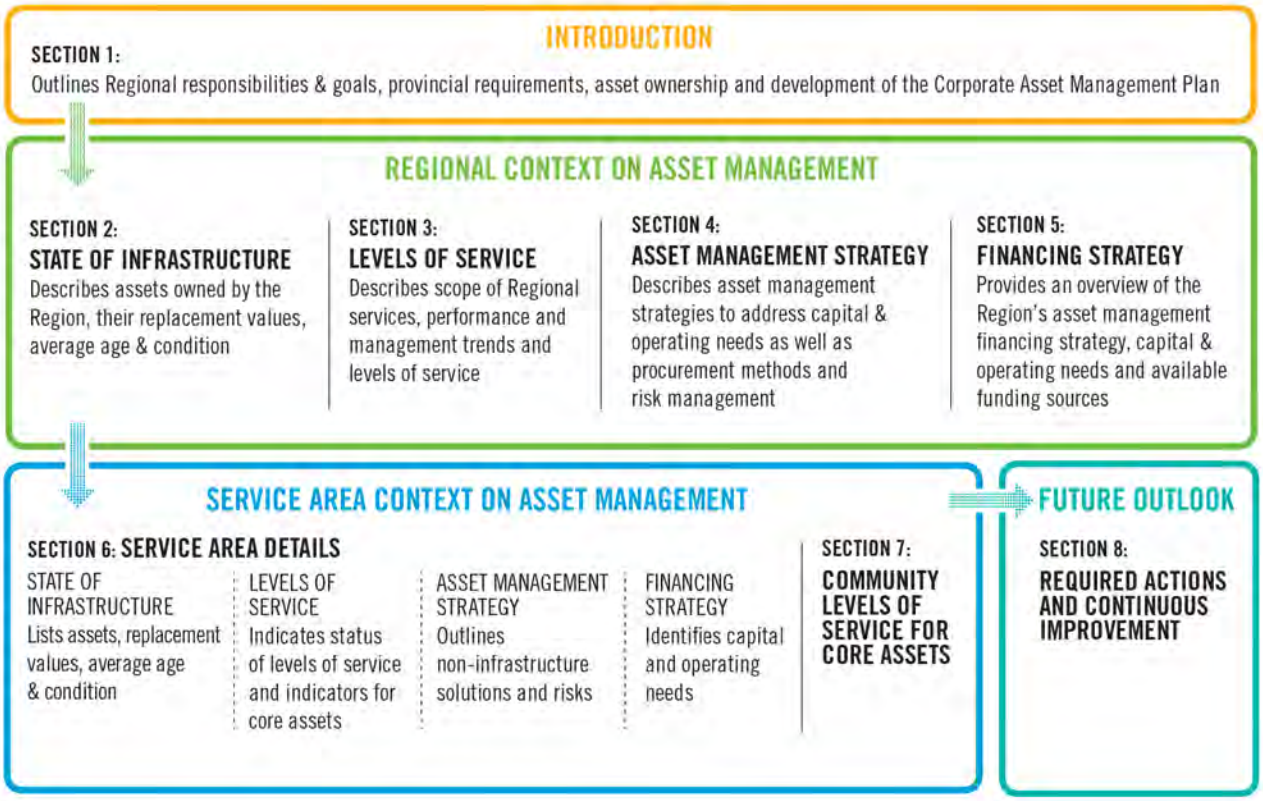
Table 1-2 outlines, for each service area, sources of existing information and data that were used in preparing this plan. While every service area has information on the state of its assets, to date the focus of more detailed asset management planning has been on core assets.

Table 1-2 Asset Management Plan Data Sources

Service Area	State of Infrastructure	Asset Growth Strategies	Asset Renewal Strategies
Housing Services	• Inventory from Asset Planner (December 8th, 2017) which includes replacement values from insurance valuation • Condition based on 10-yr Facility Condition Index, provided in 2015 State of Infrastructure Report Data Model File	In Progress	In Progress
Paramedic Services	• Logistics Asset List 2017 (e.g. Vehicles, Stretchers, Defibrillators) with replacement costs (reassigned install year if 2017)	In Progress	In Progress
Seniors Services	• Long-Term Care Asset Planner 2017	In Progress	In Progress
Information Technology	• Provance Personal Computer, peripherals & Printer • Printers Inventory Raw Check • Provance Cisco IP Phones • Provance Data Center (7 year life) • Provance Data Center (5 year life) • Life Cycle Submissions	In Progress	In Progress
Property Services	• Asset Management Plan – Life Cycle Submissions	In Progress	In Progress
Energy Management	• 2017 Energy Asset Management Plan	Energy Conservation and Demand Management Plan	2017 Energy Asset Management Plan
Forestry	• 2017 Green Infrastructure Asset Management Plan	Forest Management Plan	2017 Green Infrastructure Management Plan
Waste Management	• 2017 Solid Waste Asset Management Plan	SM4RT Living Master Plan	2017 Solid Waste Asset Management Plan
Wastewater	• 2017 Water and Wastewater Asset Management Plan	2016 Water and Wastewater Master Plan	2017 Water and Wastewater Asset Management Plan
Water	• 2017 Water and Wastewater Asset Management Plan	2016 Water and Wastewater Master Plan	2017 Water and Wastewater Asset Management Plan
Roads	• Pavement Asset Management Plan • Bridges and Structures Asset Management Plan • York Region South-West Asset Management Plan	10-Year Capital Plan	2015 State of Infrastructure
Transit	• 2017 Transit Asset Management Plan • 2017 draft Bus Rapidway Asset Management Plan	In Progress	In Progress
Police Services	• 2015 State of Infrastructure Report • 2015 Net Book Value of Fleet and IT file • Life cycle Submissions	In Progress	In Progress

Figure 1-3 depicts how the balance of this Corporate Asset Management Plan is organized**.**

Figure 1-3 Corporate Asset Management Plan Organization



The steps taken to develop each section are briefly outlined below:

Section 1: Introduction

- Reviewed Regional responsibilities and goals, provincial requirements, asset ownership and provided overview of development of the Corporate Asset Management Plan

Section 2: State of Infrastructure

- Reviewed the asset inventory included in the most current service area state of infrastructure reports, asset management plans, associated data files, and inventory data included in a long-term capital forecast summary prepared by the Region's Office of the Budget in mid-2017 based on data provided by the various service areas;
- Collected asset inventory, useful life, and condition data from various data sources, organized around service area asset hierarchies. (A hierarchy is created by subdividing broad groups of assets by more specific criteria. For example, within the Environmental Services service group, the Service Area called "Water" is further subdivided into Water Treatment Plants, Groundwater Wells, Elevated Tanks, Reservoirs, Pumping Stations, Transmission Mains, Chambers and Maintenance Holes. Service areas break these classifications down even further as needed to track and manage work processes and feed into software applications); and
- Summarized the asset inventory across service areas including quantities or counts, replacement value, average service life and average age, and percentage of assets by replacement value in each of the five condition states based on service area reported physical condition or based on age, where reported physical condition was not available.

Section 3: Levels of Service

- Reviewed the existing performance indicators and levels of service reported in the most current corporate strategic and service area plans and reports, including the 2015 Corporate State of Infrastructure Report; and
- Collected and reported performance data and conclusions from the service areas for core assets.

Section 4: Asset Management Strategy

- Reported population and employment forecasts as set out in the Growth Plan 2017;
- Summarized the anticipated growth of the asset inventory for core assets until 2026 based on service area master plans and other data; and
- Summarized the life cycle renewal strategies by asset type based on service area specific asset management plans for core assets.

Section 5: Financing Strategy

- Summarized the estimated 10-Year capital expenditures and significant operating costs for core assets to accommodate projected increases in demand caused by growth as set out in the Growth Plan 2017; and
- Summarized the estimated 10-Year capital expenditures and significant operating costs to undertake the life cycle activities for core assets to maintain the current levels of service.

Section 6: Service Area Details

- For core assets, gathered and summarized information as described above in Sections 2 through 5; and
- For non-core assets, gathered and summarized information as described above for Section 2: State of Infrastructure.

Section 7: Community Levels of Service for Core Assets

- Reviewed O. Reg. 588/17 requirements for community levels of service for core assets; and
- Prepared descriptions, data, maps and images of core assets to meet scope, reliability, and quality regulatory requirements.

Section 8: Required Actions and Continuous Improvement

- Reviewed available service area data, processes and documentation related to asset management planning used to compile the Corporate Asset Management Plan;
- Compared the Region's current asset management planning practice and the Corporate Asset Management Plan to O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure, and identified any gaps; and
- Developed and finalized action items to meet regulatory requirements and identified asset management continuous improvement actions.

1.6 Availability of Information

This Corporate Asset Management Plan and the Corporate Asset Management Policy are posted on the Region's website and available in hard copy format upon request. All background information and reports upon which this Plan is based are also available upon request.

2. State of Infrastructure

2.1 Overview

Understanding the value, age, useful life, and condition of the Region's assets is important to evaluate the efficacy of infrastructure investments and provide a basis to analyze future renewal requirements. These parameters were reported for all Regional assets in State of Infrastructure Reports in 2013 and 2015.

This Corporate Asset Management Plan takes into account current industry practices and incorporates innovative approaches to evaluating the state of the Region's assets, providing a firm foundation to build the balance of the Plan components. This section provides information on the current state of Regional Assets.

2.2 Asset Valuation

The estimated replacement values in this Corporate Asset Management Plan, as shown in **Table 2-1**, are based on engineering approaches as of December 31, 2016. The table shows that replacing all Regional assets would cost $12.3 billion in 2016 dollars while maintaining current service levels**.**

Table 2-1 Regional Service Area Assets and Replacement Values

Service Group	Service Area	Current Replacement Value ($M)	Current Replacement Value (%)
Community & Health Services	Housing Services	$821.3	6.7%
	Paramedic Services	$20.8	0.2%
	Seniors Services	$5.6	<0.1%
Corporate Management	Information Technology	$46.8	0.4%
	Property Services	$439.4	3.6%
Environmental Services	Energy Management	$1.6	<0.1%
	Forestry	$488.3	4.0%
	Waste Management	$153.0	1.2%
	Wastewater | CORE ASSET	$4,026.9	32.7%
	Water | CORE ASSET	$1,941.1	15.8%
Transportation Services	Roads | CORE ASSET	$3,552.2	28.8%
	Transit	$557.3	4.5%
York Regional Police	Police Services	$249.3	2.0%
Total		$12,303.6	100%

Replacement values for asset management purposes are generally higher than the value of assets used in financial accounting. Accounting value – known as "book value" – shown in financial reporting is the historical cost of an asset less an amount representing the decline in its value over time.

In the past, the starting point for replacement values was the historical cost of an asset, which was then increased by the rate of inflation since the asset was built or acquired. This approach provided a high-level estimate only. This Corporate Asset Management Plan takes an engineering-based approach that considers cost factors in addition to inflation. For example, replacement values now incorporate current regulatory and design standards, as well as, technological advances since the asset was originally put in place. As well, it typically costs significantly more to replace an asset than to put it in place for the first time because service has to be maintained during the replacement period.

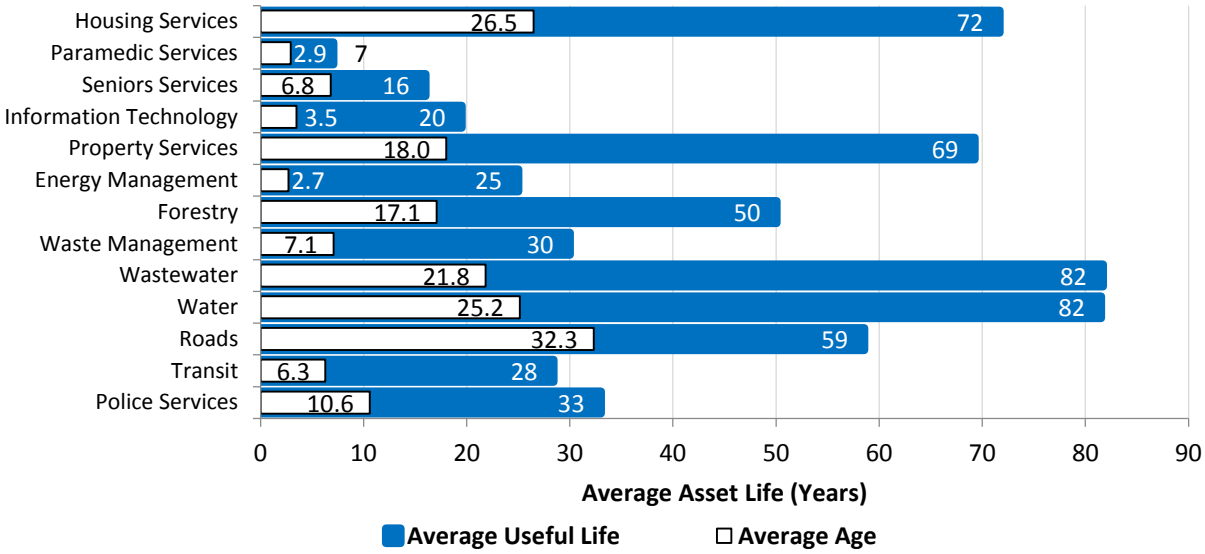
Another factor underlying the higher portfolio value is the inclusion of such assets as the York Regional Forest and Regionally-owned street trees, which accounting rules do not always recognize as assets. The more refined approach used in this Plan has increased the replacement value of the asset portfolio compared to previous estimates. The balance of this chapter explains how replacement values were estimated.

2.3 Asset Age and Remaining Life

Knowing the expected life of an asset and how much of it has already been used up gives some guidance on when it might fail and need to be renewed. As the next section notes, age by itself generally does not provide the same quality of information as assessing physical condition. **Figure 2-1** shows the average age of assets in each service area against the average total expected useful life. This gives a sense of how far into their service life each group of assets is.

The graph shows that many of the Region's assets are relatively new. This is because a large share of infrastructure was put in place to serve recent population and economic growth. Some assets, however, are reaching the middle or even final stages of their estimated useful lives, for example in Paramedic Services, Roads, and Seniors Services.

Figure 2-1 Asset Life Consumed Profile by Service Area



2.4 Asset Condition

In this Corporate Asset Management Plan, the term "condition" refers to the degree to which an asset has physically deteriorated. "Performance" is a more general term that typically describes an asset's ability to deliver levels of service; it depends on capacity and reliability, as well as, condition.

In addition to evaluating current condition, condition assessment programs determine the rate of deterioration over time, enable forecasts of future condition, and inform the most beneficial type and timing of treatment. Condition assessment methods and rating systems vary depending on the type of asset and, for some types of assets, have become relatively standard.

The Region inspects assets on schedules that are appropriate to the asset group, with more critical assets, for example bridges and structural culverts, being inspected more frequently than less critical ones. The Region does not have condition data on every asset. It is not needed for assets like vehicles, where renewal is based on age or mileage, or for assets like street lights that are normally run to failure.

In many cases, however, recent condition data would be useful, but is unavailable. This is the case for about 20 per cent of the assets in this Corporate Asset Management Plan. Collection of this information is underway, however, estimated age provides a general indication of the expected useful life. This approach is common among municipalities, but should be verified through condition assessment, as it does not always directly reflect condition or remaining life.

The Region is working to increase the percentage of assets with industry standard condition assessment data. This is a stewardship goal in the 2015 to 2019 Strategic Plan. A grading scale is useful to present detailed engineering data about asset condition in a way that allows comparisons over time and across different asset types. The Region uses a five-point condition grading system, summarized in **Table 2-2** below, which is consistent with the general condition grading system included in the International Infrastructure Management Manual (IIMM).

Table 2-2 Five-Point Condition Grading System

Grade	Description	Condition Criteria	Criteria Description
VG	Very Good	Fit for the future	Well maintained, good condition, new or recently rehabilitated.
G	Good	Adequate for now	Acceptable, generally approaching mid-stage of expected service life
F	Fair	Requires attention	Signs of deterioration, some elements exhibit deficiencies.
P	Poor	Increasing potential of affecting service	Approaching end of service life, below standard, significant deterioration.
VP	Very Poor	Unfit for sustained service	Near or past service life, advanced deterioration, assets may be unusable.

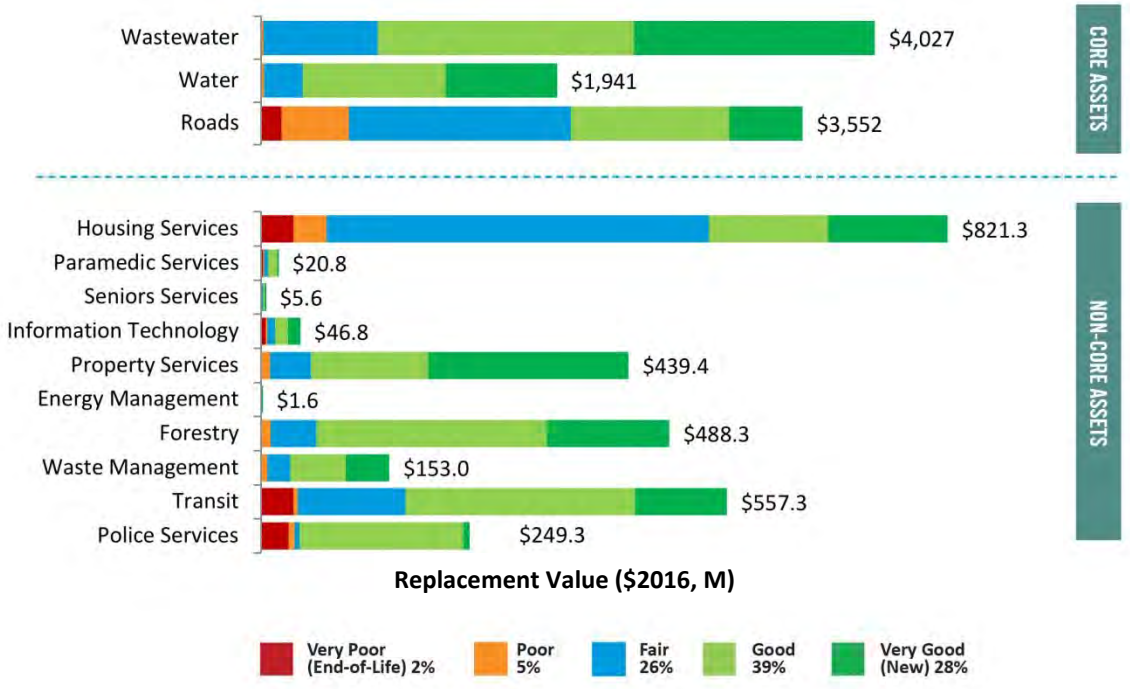
Table 2-3 shows how the Region translates information from industry standard condition rating systems and age-based assets into the grading system above.

Table 2-3 Conversion of Industry Condition to Five-Point Condition Grade

Regional Condition Grade	Pavement Condition Index (PCI)	Bridge Condition Index (BCI)	Facility Condition Index (FCI)	% Life Remaining for Age-Based "Condition"
Very Good (New)	90 to 100	-	0 to 5%	90 to 100%
Good	80 to < 90	> 70 to 100	5 to 10%	50 to 90%
Fair	60 to < 80	> 60 to 70	10 to 20%	25 to 50%
Poor	50 to < 60	0 to 60	20 to 30%	10 to 25%
Very Poor (End-Of-Life)	0 to < 50	-	Over 30%	0 to 10%

Figure 2-2 shows the value of the assets by condition grade and service area. The replacement value for each service area appears to the right of the condition grade bar.

Figure 2-2 Regional Asset Inventory and Condition by Service Area

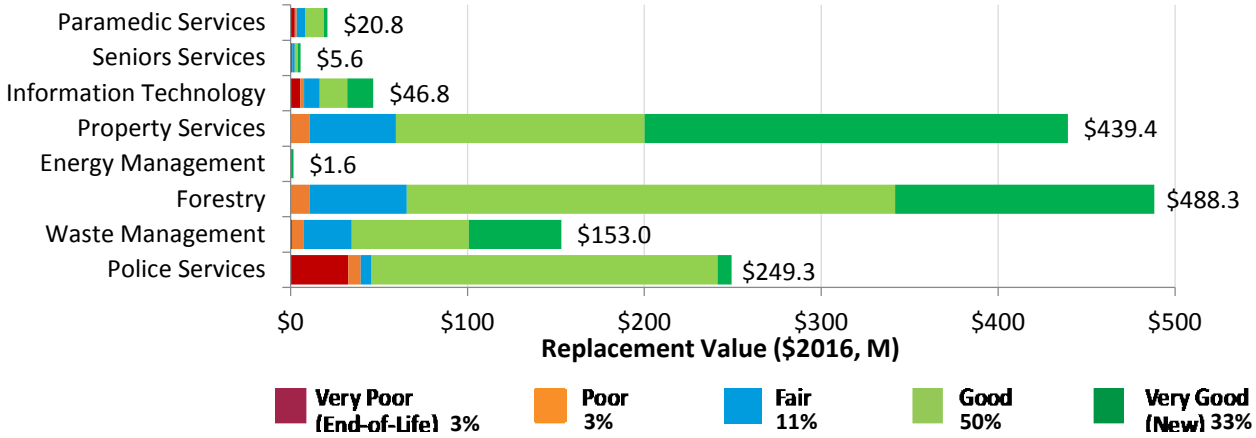


Notes:

1. *The figure at the right of each bar represents the total replacement value of assets in that service area*
2. *Because of their large relative size, the bars for core assets are plotted against a horizontal axis scale five times larger than the scale used for non-core assets*
3. *"Roads" includes stormwater, bridges and culvert infrastructure*

As the detail for some of the smaller valued asset portfolios is lost in **Figure 2-2**, those asset portfolios with less than $500 million replacement value are shown in more detail in **Figure 2-3**.

Figure 2-3 Regional Asset Inventory and Condition by Service Area - Smaller Portfolios



To meet service levels and manage risk while minimizing life cycle costs, assets should generally be kept in fair or better condition. The above figures show that some 93 per cent of the Region's assets meet this threshold.

In theory, it might seem that no assets should be allowed to fall into poor or very poor condition. In practice, however, this is not always the case. Where the asset is not critical, the risk when it fails is small and it can be easily replaced after failure – for example, an individual street light – letting it run down is both reasonable and cost-effective. In many cases, as well, a replacement for the asset is in development, and the old asset is being used as long as possible in the meantime.

Critical assets in poor or very poor condition need increased attention and renewal investment to avoid higher maintenance costs and/or unexpected failure. These assets are a priority for inclusion in 10-Year capital renewal programs and budgets.

2.5 Asset Information Updates

The information that supports this Corporate Asset Management Plan is continuously updated. The Region intends to review and update, if necessary, the Corporate Asset Management Plan itself every four years, once for each term of Council.

3. Levels of Service

3.1 Overview

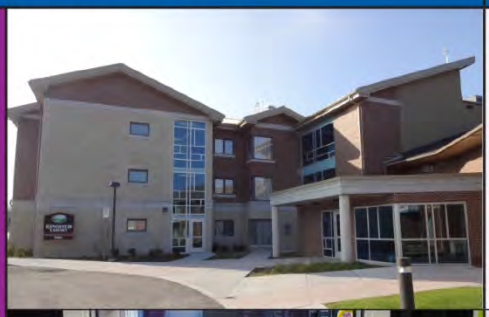
One of the first steps in asset management is to define the levels of service the assets are to provide. The goal is then to determine how to deliver those at the best life cycle cost. This requires understanding what the community wants, what regulators require, and what is technically and financially feasible.

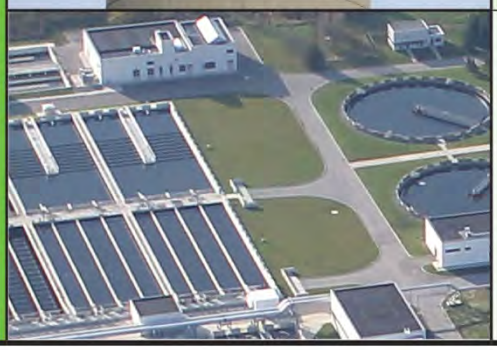
Performance management is central to this process. It involves identifying goals, measuring progress, reporting the results in a meaningful way, and using results to drive improvement. When these activities are carried out systematically and on a regular basis, performance management helps the organization to focus on priorities and address under-performance.

3.2 Current Levels of Service and Performance

The Region provides the following scope of services to the community as outlined in **Table 3-1**.

Table 3-1 Regional Scope of Services provided to the Community

Service Group		Service Area
Community & Health Services		**HOUSING SERVICES** The Region, as shareholder of Housing York Inc., owns and operates approximately 2,600 social and affordable housing units for seniors, singles and families.
		**PARAMEDIC SERVICES** Provides emergency and non-emergency medical response for the municipalities within York Region, including patient assessment, lifesaving treatment and monitoring, safe and timely transport to appropriate facilities for continuing medical care.
		**SENIORS SERVICES** Provides safe and reliable long-term care facilities, nursing and personal care services for adults no longer able to live on their own.
Corporate Management		**INFORMATION TECHNOLOGY** Supports the Region's organization by developing, operating and maintaining the Region's technology networks, and distributing and maintaining end-user devices.
		**PROPERTY SERVICES** Supports the Region's organization by developing, operating and maintaining corporate administration offices, leased office space, mixed-use facilities, long-term care facilities and Paramedic Response Stations.

Service Group		Service Area
Environmental Services		**ENERGY MANAGEMENT** Tracks the environmental impacts of Regional energy use and works to mitigate those impacts through better energy management and promotion of sustainable practices.
		**FORESTRY** Builds, protects and enhances green infrastructure, including trees and other vegetation in both urban and rural landscapes.
		**WASTE MANAGEMENT** Works in partnership with the local municipalities, who manage curbside collection of blue box, green bin, yard waste and residual waste, and deliver the materials to York Region for processing, energy recovery and/or disposal.
		**WATER** Secures and protects drinking water and delivers it in bulk to the local municipalities, which in turn distribute it to residents and businesses.
		**WASTEWATER** Collects wastewater from the local municipalities and conveys it to water resource recovery facilities for treatment.

Service Group		Service Area
Transportation Services		**ROADS** Assists in the safe and efficient transport of people and goods through interconnecting roads between urban and rural areas. Maintains the road network in a state of good repair.
		**TRANSIT** Provides reliable, convenient and seamless travel across the local municipalities, and easy access to the Toronto Transit Commission and provincial GO Transit systems.
York Regional Police		**POLICE SERVICES** York Regional Police provides crime prevention and law enforcement to the Region's nearly 1.2 million citizens. There are just over 2,200 dedicated sworn and civilian members who serve the region's diverse communities, ensuring that our neighbourhoods, roads and schools are safe for all residents.

To track progress toward goals, performance management uses indicators and measures like the "Key Performance Measures" set out in the 2015 to 2019 Strategic Plan. Reported annually, these show results and trends. Measures on the management of the Region's physical assets based on the 2016 Community Report are shown in **Table 3-2,** with the coloured circles indicating current trends.

Table 3-2 Key Performance Measure Trends, 2016

Strategic Priority Area	Strategic Objectives	Key Performance Measures	Current Trend
ECONOMIC VITALITY	Focusing on networks and systems that connect people, goods and services	Increase number of road lane kilometres new and rehabilitated	🟢
		Increase number of rapidway lane kilometres	🟢
HEALTHY COMMUNITIES	Increasing the range of available and affordable housing choices	Increase percentage of total housing stock medium/high density residential housing	🟢
		Increase number of shelter beds	🟢
	Protecting public health	Maintain percentage of samples that meet Ontario drinking water standards	🟢
	Making our communities more welcoming and inclusive	Increase number of bike lane and paved shoulder kilometres	🟢
SUSTAINABLE ENVIRONMENT	Managing traffic congestion	Increase number of road lane kilometres new and rehabilitated	🟢
		Increase number of traffic signals reviewed and optimized annually	🟢
		Increase transit ridership per capita	🟠
		Increase number of rapidway lane kilometres	🟢
	Optimizing critical infrastructure systems capacity	Maintain percentage of treated water returned to environment with regulated standards	🟢
		Reduce quantity of inflow and infiltration in Regional and local wastewater systems	🟢
		Measure percentage of capital budget spent on renewal/asset management	🟢
		Increase percentage of solid waste diverted from landfill	🟢
		Decrease average residential water demand	🟢
	Preserving green spaces	Increase number of trees and shrubs planted annually through the Regional Greening Strategy programs	🟠
GOOD GOVERNMENT	Stewardship of the Region's assets	Increase contribution to asset replacement and rehabilitation as percentage of replacement value	🟢
		Increase percentage of assets with real condition assessment data	🟢

LEGEND: 🟢 - Trending in the desired direction 🟠 - Annual variation not in the desired direction

Community Levels of Service

O. Reg. 588/17 requires legislated community levels of service for core assets. Community levels of service use qualitative descriptions to describe the scope or quality of service delivered by an asset category. Examples of legislated community levels of service include a map showing areas of the municipality that are serviced by the Regional water and wastewater system or images that illustrate the different levels of pavement condition grade of Regional roads, both of which can be found in Section 7: Community Levels of Service for Core Assets. In this example, maps provide an illustrative view of the extent of the services provided through the infrastructure assets.

Technical Levels of Service and Performance

O. Reg. 588/17 also requires legislated technical levels of service for core assets. Technical levels of service use metrics to measure the scope or quality of service being delivered by an asset category. Examples of technical levels of service include the percentage of urban properties serviced by the municipal water and wastewater system for Regional water and wastewater assets or the average pavement condition index (PCI) value for Regional roads. Technical levels of service for core assets are provided in Section 6: Service Area Details and have been informed by State of Infrastructure Reports in 2013 and 2015.

Legislation and regulations set standards, many relating to safety and reliability, which the Region is legally obligated to meet. These feed into defining the Region's levels of service. The Region keeps information on regulatory inspections and compliance. Typically, the details are maintained at the operational level and confirmation of compliance is reported at a higher level.

3.3 Proposed Levels of Service and Performance

External trends and issues affecting the Region's ability to meet defined levels of service include:

- Infrastructure failing prematurely due to environmental factors and/or construction practices;
- Availability of external funding (such as federal and provincial infrastructure programs);
- Unexpected downloading of services by more senior levels of government;
- Integrating innovative approaches into existing infrastructure by piloting new technologies on a regular basis (such as Living Building Challenge's features in the Bill Fisch Forest Stewardship and Education Centre); and
- Potential changes in federal or provincial legislation that must be incorporated as part of ongoing service delivery.

Additionally, the following trends and issues have been considered in setting defined levels of service for core assets in the transportation and water and wastewater master plans:

- Population and employment growth and demographic changes;
- Changes in public expectations or patterns of use;
- New technology or methods that might replace obsolete equipment, provide longer asset life, and/or achieve higher quality and greater efficiencies; and
- Increases in the cost of inputs (such as fuel) that would raise service delivery costs.

The Region is working to develop defined levels of service for all service areas and, along with public consultation these will be a key aspect of the next update to the Corporate Asset Management Plan.

4. Asset Management Strategy

4.1 Overview

The Region has limited funds available to build new infrastructure for growth and care for existing assets. To make its resources go as far as possible, it relies on asset life cycle management strategies. These strategies enable an asset to provide a defined level of service at the best possible cost over its entire life cycle with manageable risk.

Life cycle management strategies typically take into consideration:

- Non-infrastructure solutions – policies and coordinated initiatives that can lower costs, increase an asset's performance, better balance the risk or extend asset life. Examples include integrated infrastructure and land use planning through the Municipal Comprehensive Review process and Infrastructure Master Plans, demand management through the Transportation Demand Management and Long Term Water Conservation Strategy, purchase of insurance to reduce risk of premature asset failure, optimization through Energy Management Plans and condition assessments;
- Expansion activities – planning, design and construction of new assets or modification to existing assets to meet growth demands;
- Renewal activities – significant rehabilitation designed to improve asset life cycle costs (e.g. the lining of ductile iron watermains can defer the need for replacement) and activities that are expected to occur once an asset has reached the end of its useful life and rehabilitation is no longer a viable option;
- Maintenance activities – activities required to ensure assets are operated as intended and meet designed service life. Activities include regularly scheduled inspection, preventative maintenance, and more significant repair and activities associated with unexpected events; and
- Disposal activities –activities associated with disposing assets that are declared surplus or no longer needed by the municipality.

The Region assesses the costs of potential life cycle activities to determine the best life cycle cost strategy to manage each asset type. The sum of all asset life cycle management strategies informs the minimum cost to sustain each asset type, for each service area. Failing to take care of assets can increase an asset's life cycle cost and also have other impacts such as causing damage to other infrastructure or causing interruption to service delivery.

4.2 Asset Management Strategies

The Region uses its understanding of current service delivery gaps and potential future gaps to inform the timing, location and amount of needed investment in infrastructure assets. The Region aims to provide sufficient service capacity to meet demand and manages the condition and renewal of assets to sustain defined service levels, including meeting legislated and other Regional requirements.

Growth Planning

Growth, especially in population, has major impacts on infrastructure. It generally requires significant investment, and its geographical distribution affects costs and ability to deliver service. The Region is mandated to plan for the population and employment forecasts outlined in the Growth Plan 2017.

Table 4-1 shows expected population and employment growth for the Region.

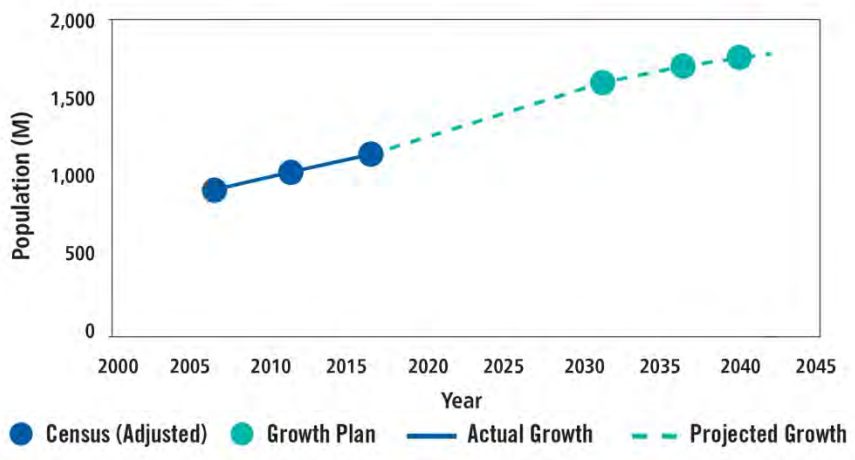
Table 4-1 Growth Plan 2017 Forecasts for York Region

	Census Data	Growth Plan 2017 Projections		
	2016	**2031**	**2036**	**2041**
Population	1,148,000*	1,590,000	1,700,000	1,790,000
Employment	600,800	790,000	840,000	900,000

**Figure may change subject to release of the undercount value*

Figure 4-1 brings together previous and current census data with the Growth Plan 2017 forecasts to show a longer-term trend.

Figure 4-1 Regional Population: Census and Growth Plan 2017 Forecasts



As discussed in Section 1: Introduction, the Regional Official Plan and master plans for transportation and water and wastewater infrastructure outline how the Region proposes to accommodate growth and deliver defined levels of service. A key question addressed by asset growth planning is typically, what infrastructure is required to service future growth? This planning is required many years in advance of the expected growth to ensure the adequate delivery of services. Section 6: Service Area Details summarizes the core asset strategies to accommodate growth.

Renewal Planning

All assets deteriorate physically, eventually failing altogether. As they deteriorate, their ability to deliver the defined level of service may decline, which can contribute to a performance gap. The Region assesses condition to understand where assets are in their life cycles and identify potential performance gaps.

Asset management plans and capital programs specific to various service areas set out approaches to addressing performance gaps and rehabilitating or replacing ageing assets. Asset management plans are based on identifying the needed activities, and their frequency and cost, that should enable an asset to

provide the defined level of service at the best life cycle cost. Over time, assets may be rehabilitated to extend their useful life. Ultimately, most assets must be replaced.

For some assets, such as a relatively inexpensive information technology device, the lowest-cost decision is often to replace it at the end of its useful life. Rehabilitation is neither possible nor practical. For other asset types, the issue is much more complex. A facility may include many thousands of components, some of which may be rehabilitated or replaced numerous times through the life of the facility. For pavement on a roadway, there are numerous treatment types and each may be applied a limited number of times only, and only under certain conditions, through the life of the pavement.

Because major asset renewals and replacements can be costly, they must be phased over time and across the entire asset portfolio. As the Region refines asset management planning through optimization analysis, it will be better able to track asset condition, compare this to targets, and use the information to make more effective decisions about renewing or replacing assets.

Operations and Maintenance

How an asset is operated and maintained on a day-to-day basis affects both its condition and its useful life. Poor operating and maintenance practices can shorten an asset's service life, while well-designed ones – which should include predictive, preventative and corrective actions – support the delivery of defined levels of service and maximize the service life. Conversely, if needed renewal of an asset is deferred, maintenance and renewal needs will often both increase.

Standard operating procedures reflect accounting practice. It makes a distinction between asset renewal, which is capital spending, and maintenance, which is operational. Renewals and maintenance are nonetheless strongly linked.

Operations and maintenance plans and budget forecasts reflect:

- Legislated and regulatory requirements;
- The need for routine preventative maintenance activities;
- Cost drivers, some of which (for example, energy) have increased much faster than the overall rate of inflation;
- Impacts of deferred renewal; and
- Needs that will arise as planned new infrastructure comes into operation.

The final bullet point underscores that growth in the asset portfolio, which tends to mirror population growth, will put significant pressure on existing operations and maintenance capacity. A bigger asset portfolio generally means higher ongoing operating costs.

4.3 Procurement Methods

The Region aims to ensure that it acquires all goods and services on a competitive, fair and open basis. Procurement activities include sourcing products and services, issuing bids and monitoring the bid process, conducting public tender openings, awarding contracts and issuing purchase orders, working to resolve vendor disputes, and disposing of surplus goods. The Region's Purchasing Bylaw guides all procurement practices and is supported by internal policies and procedures.

The Region works closely with the nine local municipalities, the Province, utility companies, and the private sector to coordinate procurement of service delivery and asset management.

This includes joint planning and scheduling of programs and capital projects, such as:

- Joint purchasing /contract delivery for capital projects where Regional, local, and other work can be undertaken together;
- Joint program delivery between the Region and local municipalities for programs such as snow clearing, traffic signal maintenance, road works and water and wastewater buried infrastructure renewal, including relining; and
- Purchase of goods and services.

In addition to being cost-effective, coordination also helps to achieve economies of scale and minimize disruption in service to residents.

4.4 Risk Management

The Region manages the risks around infrastructure – which include poor performance, high costs and premature failure – through well-developed maintenance and capital renewal programs based on assessment of assets' age and/or condition and performance testing.

These activities, however, require resources. As this section has shown, meeting the needs of a growing Region and keeping existing assets in a state of good repair can be costly. Adding assets increases operating costs on a long-term basis, putting pressure on operations and maintenance resources. A gradual shift toward more asset renewal, which must be funded from the tax levy or user rates, also has serious long-term financial implications.

York Region is currently developing a Climate Change Action Plan with expected completion in 2019 that will result in a methodology for considering climate change for the management of assets related to risk. In parallel, the Region has developed regional climate projections that can be used to assess infrastructure vulnerability and inform future updates to asset management plans. Currently, the Region uses various methods for managing risk across the 13 service areas.

Risk management, related to physical assets is being reviewed for each service being delivered. Some examples of risk management at the Region are:

- Risk is generally being managed across all service areas through a combination of age based prioritization methods for replacement, condition assessments and performance testing to better manage investment decisions, in turn, to better manage the consequences of asset failure from both an asset performance and life cycle cost perspective;
- Examples of some condition inspections range from roads, tanks, sewers, facility, plant and station condition inspections;
- Pump testing on large capacity potable water pumps is used as an example of asset performance testing to better manage the risk of service delivery;
- 2016 Water and Wastewater Master Plan assessed future infrastructure system needs, risks of changing rainfall events were considered by making adjustments to design storms; and
- Financial considerations for storm sewers assume existing infrastructure will be replaced to accommodate anticipated climate change projections.

Without the required resources, infrastructure risks will increase. The demands of infrastructure development and care, however, can bring financial risks. The next section looks at these issues in more detail.

5. Financing Strategy

5.1 Overview

Organizations with large asset portfolios need to address significant costs to build, acquire, operate, maintain, renew and replace assets. This section therefore looks at the links between asset management planning and financial planning.

York Region introduced a Regional Fiscal Strategy, which Council approved in 2014, to enhance its long-term ability to meet its asset needs without unduly adding to its debt. The Fiscal Strategy, shown in **Figure 5-1,** has put in place measures to manage debt, build up reserves, align capital needs with fiscal capacity and consider fairness between current and future residents.

Figure 5-1 Regional Fiscal Strategy

As well, in 2015 Regional Council approved a new water and wastewater rate structure that is designed to yield, by the end of 2021, the revenue needed to cover all costs of providing water and wastewater services. These measures are helping to ensure more funding is available from reserves for major rehabilitations and replacements.

Existing Regional asset management strategies for core assets informed Council's average annual investment, through capital and operating budgets, of more than half a billion dollars over the last decade. Building on Council's prior commitment, this plan will help to consolidate asset management practices throughout the Region, developing consistency across the service areas. This consistent approach will define our needs and provide evidence-based informing recommendations on spending and resource requirements for asset management.

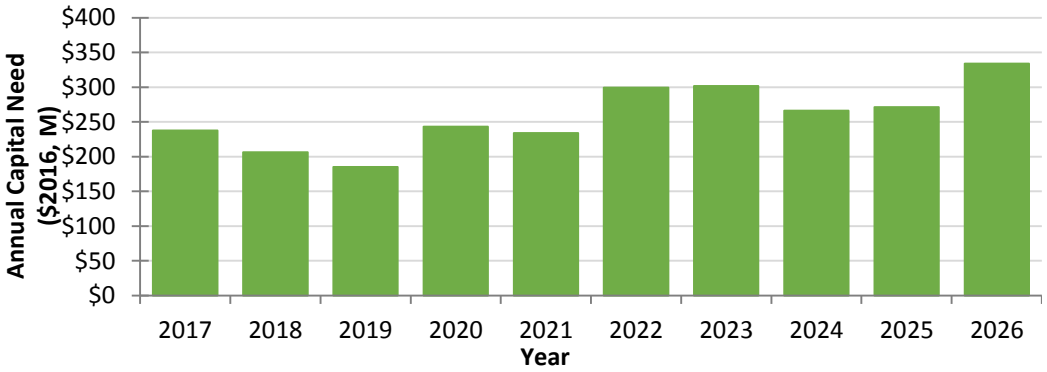
Preparing this plan, however, showed that there are still gaps in sustainable funding across the asset portfolio. To address these, the Region will develop an asset management financing plan based on the principles of the fiscal strategy, to be finalized in late 2018 as the next multi-year budget takes shape.

The Region then expects to review and if necessary update the asset management financing plan every four years, with results informing the next multi-year budget cycle.

5.2 Capital Needs for Core Assets

Figure 5-2 shows the 10-Year of growth-related capital needs for core assets. The forecast is based on the 10-Year Transportation Capital Plan and 2016 Water and Wastewater Master Plan.

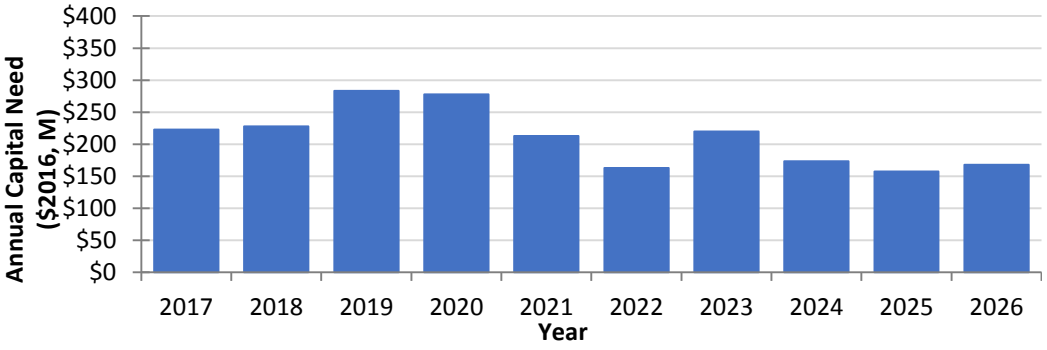
Figure 5-2 10-Year Capital Growth Needs (Core Assets)



Capital Needs for Renewal of Core Assets

Renewal of the asset portfolio is an ongoing activity for the Region. **Figure 5-3** shows the 10-Year capital renewal needs to sustain current levels of service for Regional core assets. The need is generally based on the work underlying this plan, including industry standard physical condition assessments, risk and best life cycle cost analysis.

Figure 5-3 10-Year Capital Renewal Needs (Core Assets)

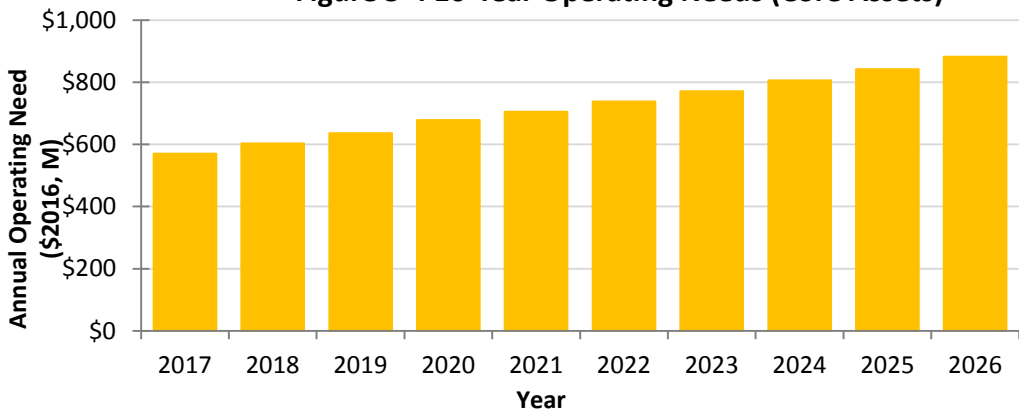


These needs include a backlog of renewal needs that is overdue from before 2017. This is also referred to as “now needs.” Most of the backlog is for the roads service area and has been distributed over a period of 25 years. The projects required to eliminate the asset renewal backlog have been spread-out over a 25 year period to avoid causing undue short term pressures on budget and staffing.
Core asset growth needs total $2.58 billion, against $ 2.10 billion for renewal needs, over the 10-Year period from 2017 to 2026 inclusive.

5.3 Operating Needs for Core Assets

Expected growth in population and assets was used to develop the operating cost needs in **Figure 5-4**. More specifically, the water and wastewater needs reflect the outlook in the Water and Wastewater Financial Sustainability Plan and the road needs reflect a proportionate increase in current operating costs with projected road network growth.

Figure 5-4 10-Year Operating Needs (Core Assets)



5.4 Funding Sources

A number of revenue sources are available to fund the capital needs of assets throughout their life cycles:

- Development Charges pay for most growth-related capital spending ;
- The tax levy, water and wastewater user rates and other fees:
  - Contribute to annual operating and maintenance costs;
  - Pay for minor rehabilitation and a portion of growth through a “flow through” pay-as-you-go renewal capital fund ; and
  - Contribute to reserve funds for major rehabilitations and replacements.
- Grants from senior levels of government are available, but unpredictable levels and timing, and conditions often placed on their use, make many grants unsuitable as a funding source for long-term asset management.

Debt is a source of funds, but not a source of true revenue because it has to be repaid from other revenue sources, such as taxes and user rates. As well, interest must be paid on debt, which reduces financial flexibility and can impair a borrower’s credit rating. The provincial government constrains the amount of debt that Ontario municipalities may issue, and limits the use of long-term debt to capital projects. The Region’s policy is to reduce reliance on debt.

The Region also considers how costs and benefits are spread between current and future residents. The concept is referred to as intergenerational equity. It recognizes that future generations should not be unduly burdened with debt or other obligations that result from the decisions of the current generation. Conversely, taxes and other burdens on the current generation should not be incurred for benefits that will accrue mainly to those who come after them.

The Region is currently determining how best to manage capital needs across service areas. As previously discussed, this includes looking at ways to reduce life cycle costs and finding non-infrastructure or less infrastructure-intensive solutions. For the funding need that remains, the Region is developing an asset management financing plan. Aligning with the Regional Fiscal Strategy, it will take into consideration:

- Expected timing of periodic needs (new assets and major rehabilitations);
- Ongoing annual spending needs (operations, maintenance and minor capital);
- Existing and potential revenue sources and their expected levels;
- Debt capacity and debt service costs;
- Balancing current and future costs and benefits;
- Advocating to obtain new revenue generating tools; and
- Increasing the portion of costs paid by user fees (e.g. the ratio of transit costs that are paid through fares).

6. SERVICE AREA DETAILS

This section provides details, by service area, for each of the following:

- State of Infrastructure
- Levels of Service
- Asset Management Strategy
- Financing Strategy

HOUSING SERVICES

ASSETS INCLUDE:

- 2,600 housing units for Housing York Inc., including:
  - 5 Community Centres
  - 4 Emergency Housing Facilities
  - 19 Mid and High Rise Complexes
  - 11 Low Rise Complexes
  - 7 Townhouse Complexes

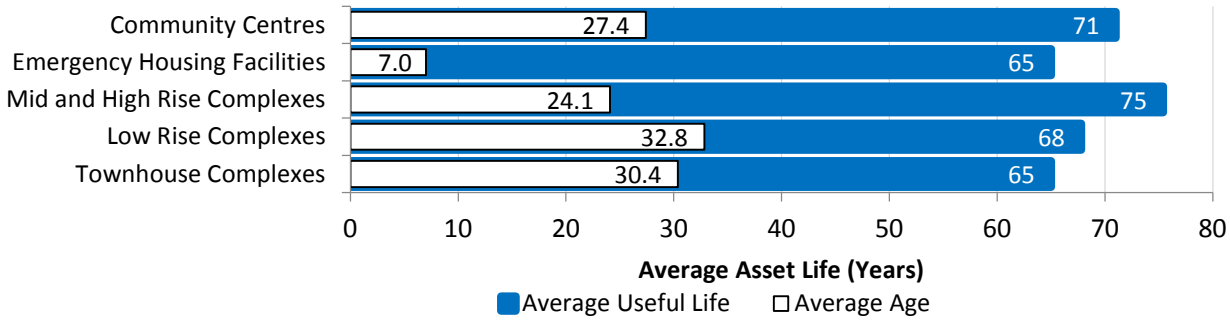
HOUSING SERVICES - Community and Health Services

State of Infrastructure ($821.3 million)

Housing York Inc., York Region's municipal non-profit housing corporation, owns and manages approximately 2,600 housing units and related assets.

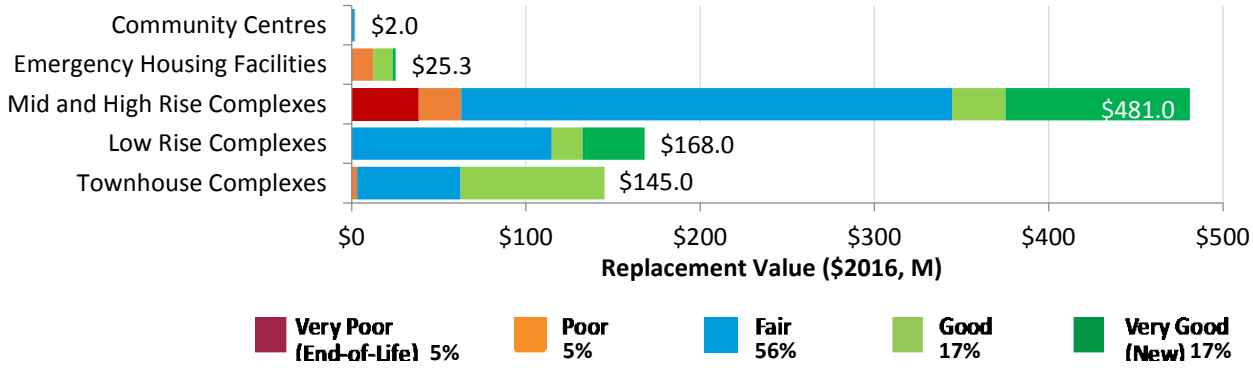
Key business drivers are forecast population and associated asset growth, and aging infrastructure.

Although many of the assets are relatively new due to recent growth, others are reaching the middle of their useful lives and will require renewal in the upcoming years.



The Region's housing assets are generally in fair to good condition, as assessed based on age, however, comprehensive building condition assessments (BCAs) are being performed to better understand the condition of all building systems and their components.

Housing Services undertakes all required accessibility, building code, fire code and other safety and security system compliance monitoring.



Levels of Service

Capacity of Housing Services facilities is measured by the occupancy rate and vacant suite turnover time. Reliability is measured by compliance with safety and security requirements, availability of standby power, facility amenities and aesthetics, and customer satisfaction.

Renewal needs are determined by industry standard condition assessments of facility systems which are undertaken on 20 per cent of the portfolio each year.

Levels of service will be developed and documented as outlined in Section 8: Required Actions and Continuous Improvement.

Asset Management Strategy

The strategies associated with this service area include:

- Expansion of the asset portfolio is based on the 10-Year Social Housing Capital Program and includes:
  - Redevelopment projects in Unionville and Woodbridge; and
  - Pre-development costs, land acquisitions and a regeneration expansion program.
- Renewal of the asset portfolio is based on minimizing life cycle cost while maintaining levels of service. The asset management strategies are based on typical facility renewal treatment schedules and renewal rates;
- Non-infrastructure solutions are developed through operational improvements such as reduction in suite turnover times resulting in increased occupancy of existing units, bulk purchasing, and tenant management. The Conservation & Demand Management Plan includes components for Housing Services facilities as they account for a significant portion of the Region's energy use and associated greenhouse gas emissions; and
- Operations and maintenance of the asset portfolio is based on industry standards which dictate that the Region must:
  - Continue maintenance to ensure safety and preservation of assets; and
  - Assess consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with the Strategy

Risks relating to asset failure are mitigated through investment planning, inspection and maintenance programs which provide the necessary data to identify the work required to achieve levels of service. Annual capital and maintenance programs and associated budgets ensure that funding to undertake the necessary work is provided.

ASSET MANAGEMENT IN ACTION

Condition assessments are currently being performed to inform future asset management decisions

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

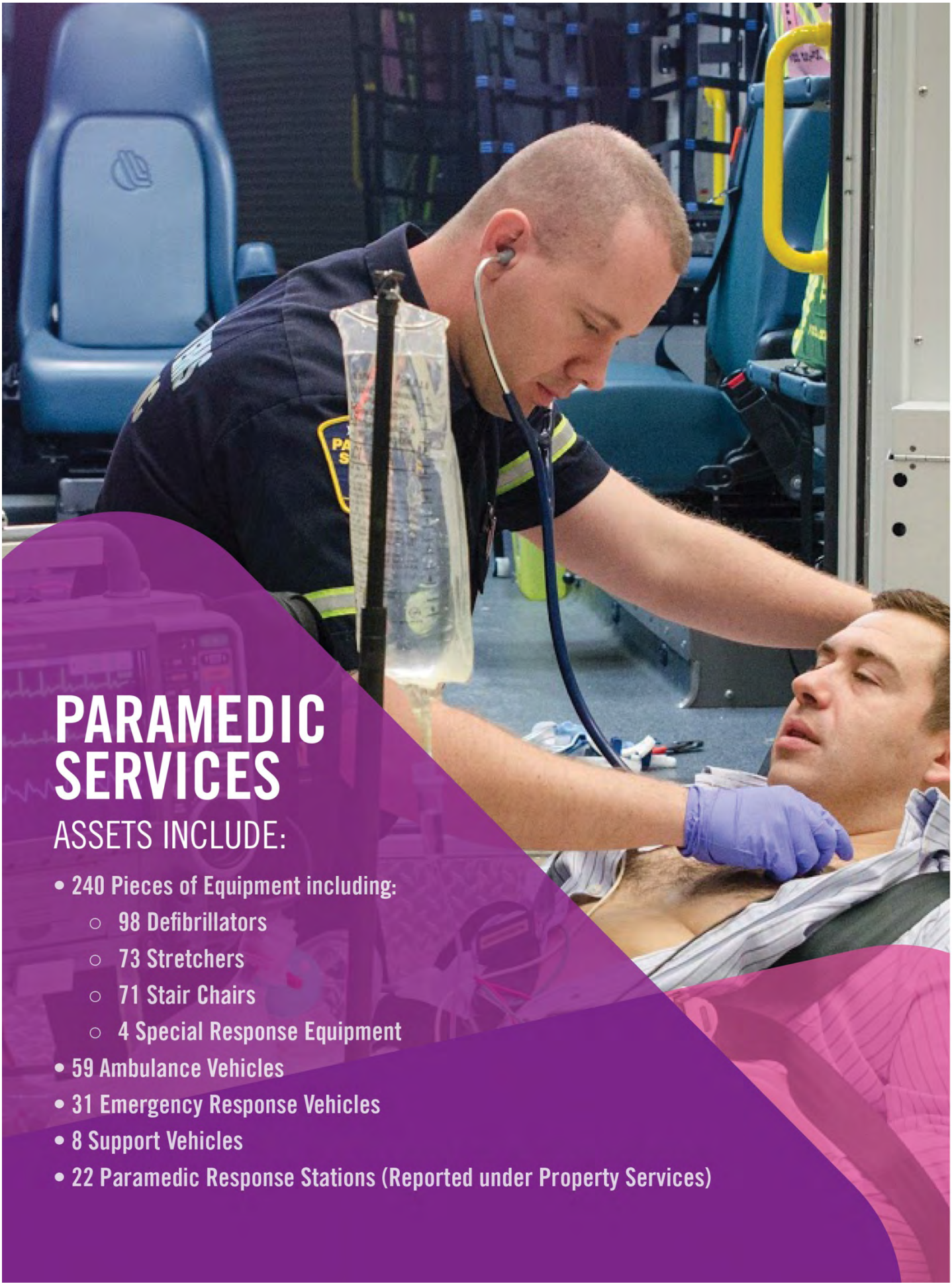
To meet the demand for expanded services, the Region constructs new assets and extends the capacity of the asset portfolio, in addition to implementing non-infrastructure strategies. The 10-Year 2017 Growth Capital Program totals $185 million for an estimated service area asset portfolio replacement value of $1,027 million in 2016 dollars by the end of 2026. The estimated costs to service asset growth from 2026 to 2041 are based on an approved 20-Year Capital Development Plan (2017 to 2036).

Capital Forecast - Asset Renewal of Existing Infrastructure

The funding required to renew existing assets over the long term, at current levels of service, is determined by applying the asset management renewal strategy to the asset portfolio. Future average annual renewal needs including growth are calculated proportional to the increased size of the asset portfolio based on what is outlined in the planning documents. Renewal needs are currently being evaluated and this work will help inform the next multi-year budget.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $76.8 million for public housing operations and maintenance needs. Annual operating costs are expected to increase proportional to the increased size of the housing portfolio.



PARAMEDIC SERVICES

ASSETS INCLUDE:

- 240 Pieces of Equipment including:
  - 98 Defibrillators
  - 73 Stretchers
  - 71 Stair Chairs
  - 4 Special Response Equipment
- 59 Ambulance Vehicles
- 31 Emergency Response Vehicles
- 8 Support Vehicles
- 22 Paramedic Response Stations (Reported under Property Services)

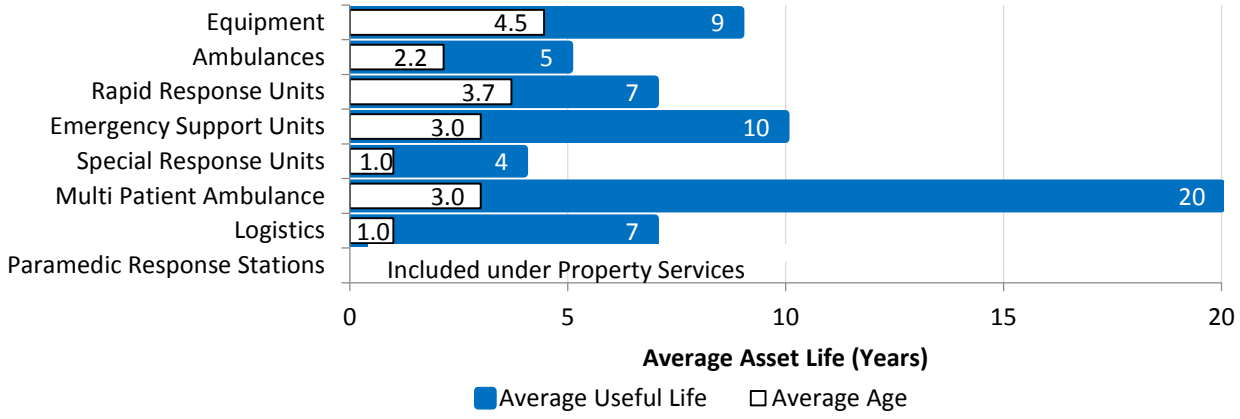
PARAMEDIC SERVICES - Community and Health Services

State of Infrastructure ($20.8 million)

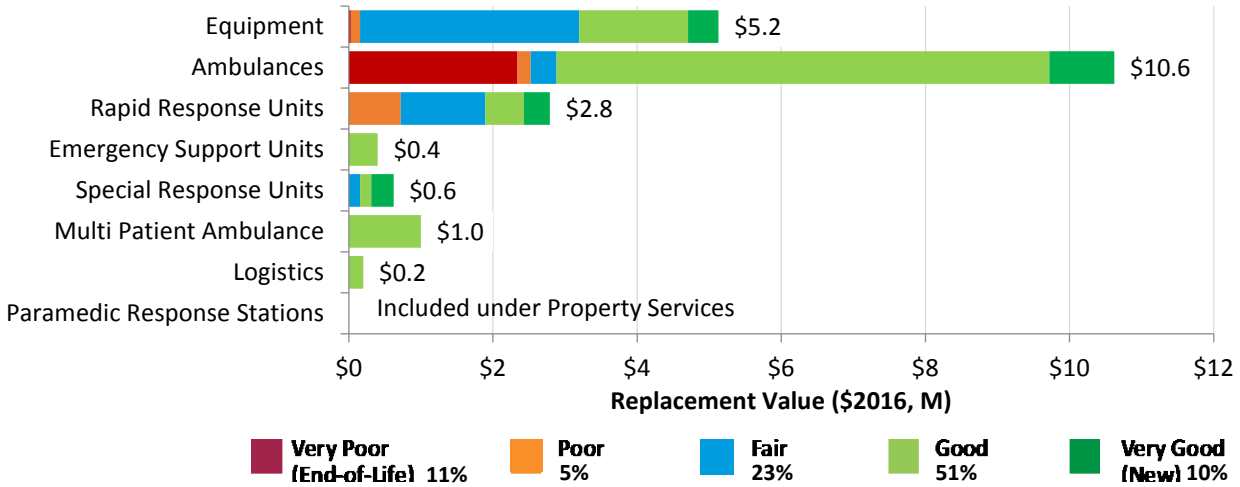
This service area provides emergency and non-emergency medical response for the municipalities within York Region, including patient assessment, lifesaving treatment and monitoring, and safe and timely transport to appropriate facilities for continuing medical care. It also maintains the Paramedic Services assets in a state of good repair.

Key business drivers at this time are a growing and aging population that have had the effect of increasing the consumption of emergency health services, in addition to associated asset growth and aging infrastructure.

The Region's paramedic services equipment and vehicles are relatively short lived and replaced on a schedule driven largely by age. The graph below reflects this, as most assets are approaching mid-life.



The Region's Paramedic Services assets are generally in fair to very good condition, based on age, with the exception of ambulances. Those assets that are shown in poor or very poor condition are approaching the end of useful life and have been inspected to ensure functionality. The ambulances that have reached end-of-life were replaced in 2017.



Levels of Service

The capacity of Paramedic Services assets is measured by the EMS response rate which indicates sufficient fleet size and adequate operations as of 2017. The reliability of Paramedic Services assets is measured by the size of standby fleet and percentage of assets beyond replacement year indicator. The standby fleet ratio to total fleet is currently being reviewed to ensure an appropriate balance of cost and performance risk. The condition of Paramedic Services assets is a measure of the physical condition of the infrastructure, its age and the maintenance performance.

Levels of service will be developed and documented as per the actions noted in Section 8: Required Actions and Continuous Improvement.

Asset Management Strategy

The strategies associated with this service area include:

- Expansion of the asset portfolio is based on the 10-Year Paramedic Services Capital Program and the Paramedic Services Consumption Forecast, which includes the procurement of new ambulances;
- Renewal of the asset portfolio is based on minimizing life cycle cost while maintaining levels of service. The asset management strategies for Paramedic Services are based on typical renewal treatment schedules and renewal rates, while the other assets are replaced at the end of useful life;
- Non-infrastructure solutions are developed through the Conservation and Demand Management Plan which includes components for the Paramedic Services vehicles as they account for a portion of the Region's energy use and associated greenhouse gas emissions;
- Operations and maintenance of the asset portfolio is based on industry standards which dictate that the Region:
    - Continue to carry out maintenance of the Region's assets to ensure safety and preservation of assets; and
    - Assess consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with the Strategy

Risks relating to asset failure are mitigated through investment planning, inspection and maintenance programs which provide the necessary data to ensure that the work required to achieve the established levels of service is identified. Annual capital and maintenance programs and associated budgets ensure that funding to undertake the necessary work is provided. Currently the Region is developing a Corporate Risk Framework for Asset Management as per Section 8: Required Actions and Continuous Improvement.

ASSET MANAGEMENT IN ACTION

To ensure reliability of ambulances, they are retired when reaching a particular mileage and replaced with new

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

To meet the demand for expanded services, the Region constructs new assets and extends the capacity of the asset portfolio, in addition to implementing non-infrastructure strategies. The consumption forecast results in an estimated service area asset portfolio replacement value at the end of 2026 of $37.4 million in 2016 dollars.

Capital Forecast - Asset Renewal of Existing Infrastructure

The funding required to renew existing assets over the long term, at current levels of service, is determined by applying the asset management renewal strategy to the asset portfolio. Future average annual renewal needs including growth are calculated proportional to the increased size of the asset portfolio based on what is outlined in the planning documents. Renewal needs are currently being evaluated and this work will help inform the next multi-year budget.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $72.0 million for Paramedic Services operations and maintenance need. Annual operating costs are expected to increase proportional to the increased size of the Paramedic Services asset portfolio.

SENIORS SERVICES

ASSETS INCLUDE:

- 1217 Pieces of Equipment
- 46 Pieces of Kitchen Equipment
- 2 Generators
- 48 Pieces of Environmental Equipment
- 163 Pieces of Communication Equipment
- 2 Long Term Care Facilities
  (Reported under Property Services)
  - Newmarket Health Centre
  - Maple Health Centre

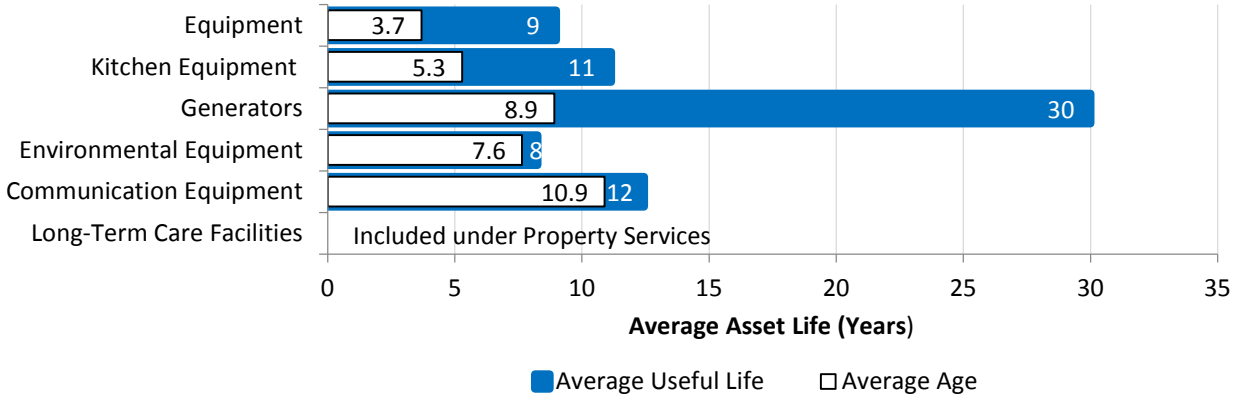
SENIORS SERVICES - Community and Health Services

State of Infrastructure ($5.6 million)

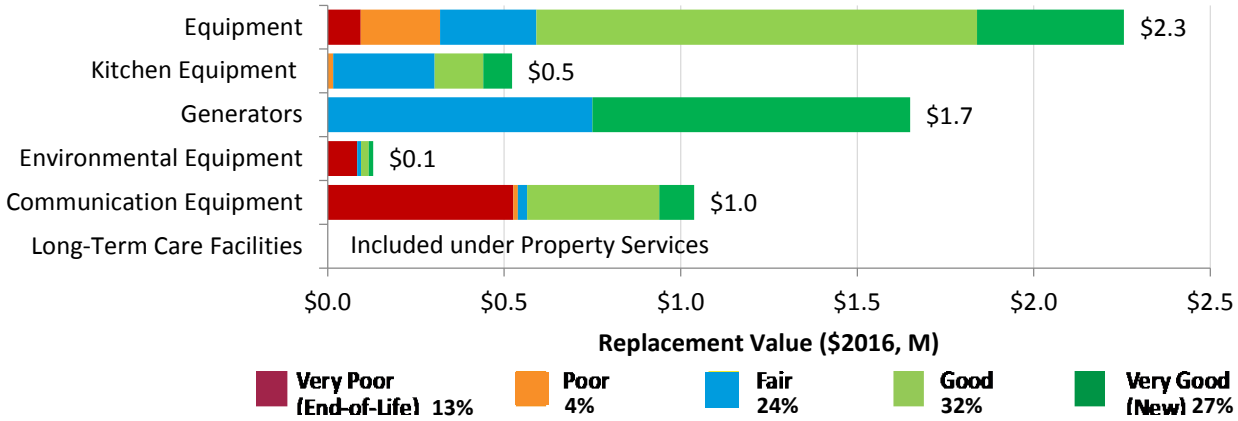
This service area assists to provide safe and reliable long-term care facilities, and nursing and personal care services for adults no longer able to live on their own. It also maintains the long-term care assets in a state of good repair.

Key business drivers at this time are future increases in demand due to future population growth, an aging population and aging infrastructure.

The Region's Seniors Services equipment is relatively short lived and replaced on a schedule driven largely by age. The graph below reflects this, as most assets are approaching mid-life. The exceptions are environmental equipment (used for cleaning) and communications equipment, both of which are scheduled for renewal over the next two years.



The Region's Seniors Services assets are generally in good condition, based on age. Those assets that are shown in poor or very poor condition are approaching the end of useful life and have been inspected to ensure functionality. The nurse call system is nearing the end of life and is scheduled for replacement in 2018.



Levels of Service

The capacity of Seniors Services' assets is measured by four indicators that are directly tied to Province of Ontario reporting requirements related to occupancy rates. The reliability of Seniors Services assets is measured by compliance with safety and security requirements, availability of standby power, facility amenities and aesthetics, and customer satisfaction.

Levels of service as currently provided will be further developed and documented as Section 8: Required Actions and Continuous Improvement.

Asset Management Strategy

The strategies associated with this service area include:

- Expansion of the Seniors Services asset portfolio is uncertain pending further development of initiatives under the Seniors Strategy. The Region is working with the provincial government to improve policy planning and decision-making for long-term care beds by developing a forecast for York Region, including identification of required number, type and location;
- Renewal of the Seniors Services asset portfolio is based on minimizing life cycle cost while maintaining levels of service;
- Non-infrastructure solutions are developed through the master planning process. In November 2016, Regional Council approved a Seniors Strategy that sets out how the Region will respond to seniors' needs over the next 10 to 20 years. This means ensuring that communities offer appropriate housing options and more accessible, convenient transportation;
- Operations and maintenance of the asset portfolio is based on industry standards, such as:
  - Continuing to carry out maintenance of the Region's assets to ensure safety and preservation of assets; and
  - Assessing consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with the Strategy

Risks relating to asset failure are mitigated through investment planning, inspection and maintenance programs which provide the necessary data to ensure that the work required to achieve the established levels of service is identified. Annual capital and maintenance programs and associated budgets ensure that funding to undertake the necessary work is provided. Currently the Region is developing a Corporate Risk Framework for asset management as per Section 8: Required Actions and Continuous Improvement.

ASSET MANAGEMENT IN ACTION

Nurse Call System has been run to the end of its useful life and is planned for replacement in 2018

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

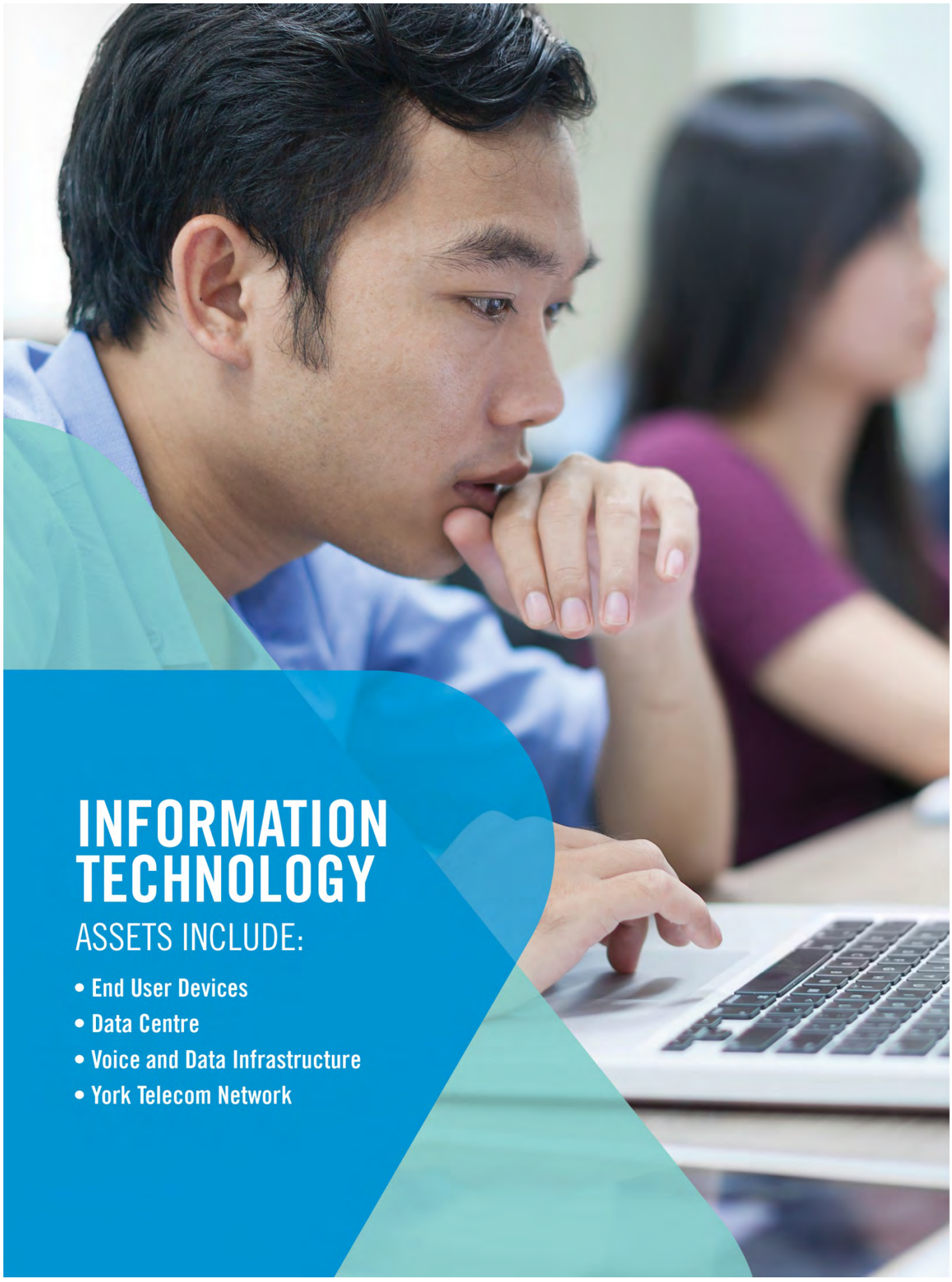
There is no current growth forecast in this service area at this time.

Capital Forecast - Asset Renewal of Existing Infrastructure

As there is no current growth forecast for this asset portfolio, the future average annual renewal needs including growth are pending. Renewal needs are currently being evaluated and this work will help inform the next multi-year budget.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $33.3 million for Seniors Services' operations and maintenance needs. As there is no growth forecast for this asset portfolio, the future annual operating costs are not expected to increase.



INFORMATION TECHNOLOGY

ASSETS INCLUDE:

- End User Devices
- Data Centre
- Voice and Data Infrastructure
- York Telecom Network

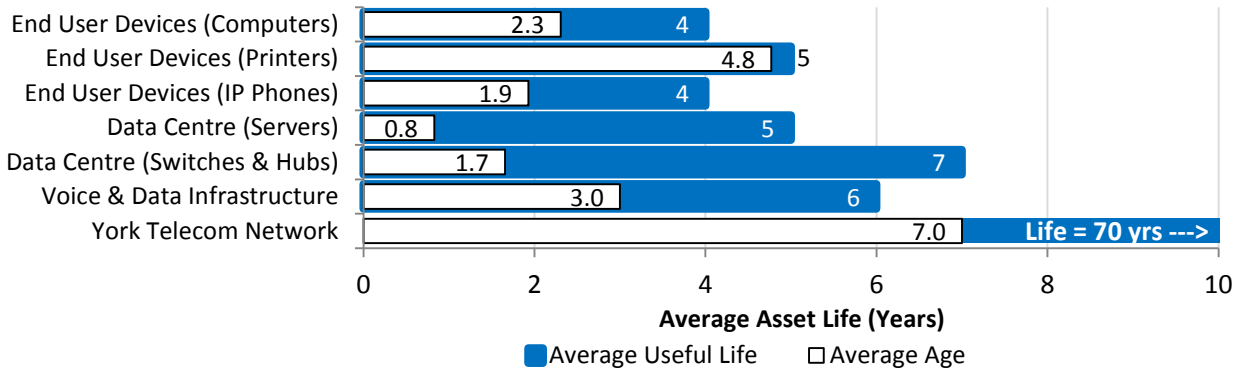
INFORMATION TECHNOLOGY - Corporate Management

State of Infrastructure ($46.8 million)

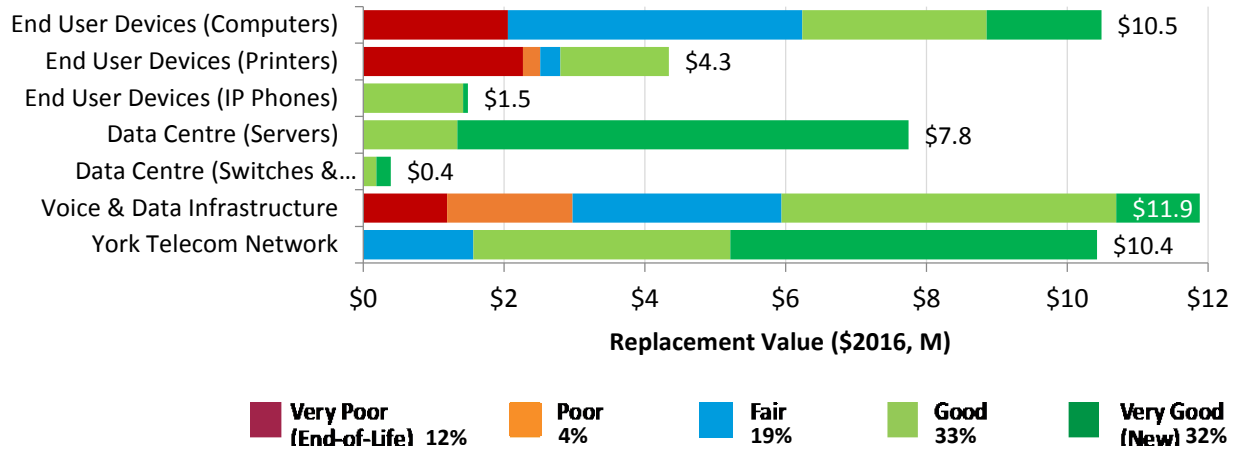
This program area supports the Region's organization by developing, operating and maintaining the Region's technology networks, and distributing and maintaining end-user devices.

Key business drivers at this time are continuous management of the scheduled renewal of technology assets, while keeping up-to-date with technology advances and procurement opportunities.

Although many of the assets are relatively new due to planned replacement of devices, however, as technology devices are generally short lived, replacement will continue as devices reach the end of their useful lives.



The Region's information technology assets range widely in condition grade, resulting from the planned replacement asset strategy. It is important to note that many technology-related devices are replaced at the end of their useful lives as refurbishment is typically not possible or effective. As such, it is expected that the condition grades for Information Technology infrastructure would be somewhat equally spread across the spectrum, ranging from Very Poor to Very Good.



Levels of Service

This program area is responsible for all Regional technology networks and end user devices. Current levels of service will be further developed and documented as per Section 8: Required Actions and Continuous Improvement.

Asset Management Strategy

The strategies associated with this service area include:

- Expansion of the asset portfolio is developed through the master planning process and includes provision of additional hardware for growth-related service expansions;
- Replacements for technology assets are age-based;
- Non-infrastructure solutions include shared computers and a print reduction strategy with business centre, and department strategies such as matching information technology services with individual needs;
- Operations and maintenance of the asset portfolio is based on industry standards
- Continuing to carry out maintenance of the Region's assets to ensure safety and preservation of assets; and
- Assessing consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with the Strategy

Risks relating to asset failure are mitigated through investment planning, inspection and maintenance programs which provide the necessary data to ensure that the work required to achieve the established levels of service is identified. Annual capital and maintenance programs and associated budgets ensure that funding to undertake the necessary work is provided. Currently, the Region is developing a Corporate Risk Framework for Asset Management as per Section 8: Required Actions and Continuous Improvement.

ASSET MANAGEMENT IN ACTION

Majority of technology assets are replaced solely based on age, mainly to address technological advances, manufacturers' planned obsolescence and compatibility with new systems

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for Asset Management needs going forward. Currently the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

To meet the demand for expanded services, the Region acquires new assets and extends the capacity of the asset portfolio, in addition to implementing non-infrastructure strategies. The estimated service area asset portfolio replacement value at the end of 2026 is $62.8 million in 2016 dollars. Forecasts of growth from 2016 to 2041 are assumed to be at a rate of 3.0 per cent annually.

Capital Forecast - Asset Renewal of Existing Infrastructure

The funding required to renew existing assets over the long term, at current levels of service, is determined by applying the asset management renewal strategy to the asset portfolio. Future average annual renewal needs including growth are calculated proportional to the increased size of the asset portfolio based on what is outlined in the planning documents. Identification of backlog renewal needs (e.g. work that is “due” based on the network analysis of the renewal strategies) as determined by age includes $2.3 million for end user devices (printers).

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $26.5 million for information technology services operations and maintenance needs. Annual operating costs are expected to increase proportional to the increased size of the information technology network.

PROPERTY SERVICES

ASSETS INCLUDE:

- 4 Administration Office Facilities
- 5 Mixed Use Facilities
- 2 Long-Term Care Facilities
- 12 Paramedic Response Stations

PROPERTY SERVICES - Corporate Services

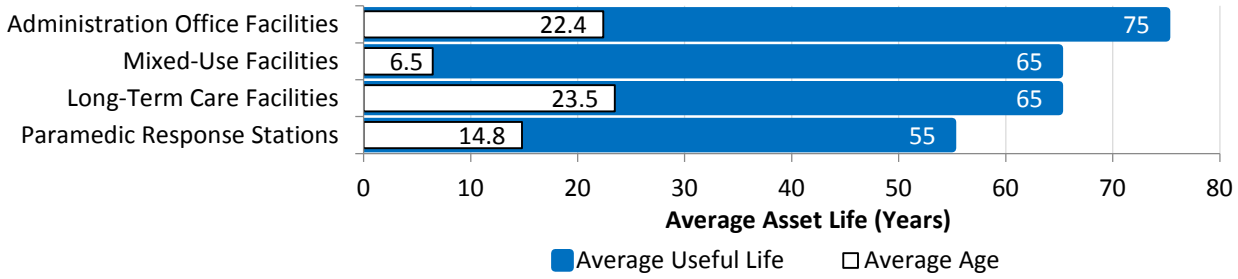
State of Infrastructure ($439.4 million)

Property Services acquires property, is responsible for facility maintenance, security and parking services, manages facility-related capital construction projects (for example, paramedic stations and administrative space), plans and designs space, and oversees efficient delivery of day-to-day facility operations.

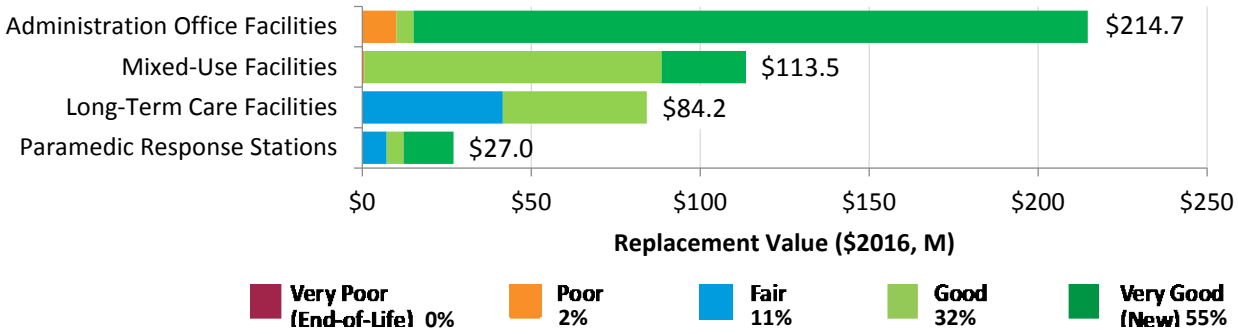
Key business drivers at this time are future population and associated asset growth and aging infrastructure.

Since most of the facilities are relatively new, it is important to have a well-developed plan to ensure that the best life cycle investments are made and that the investments made in assets can be realized.

Property Services Branch conducts comprehensive building condition assessments to better understand the condition of all building systems and their components on a 5 year rolling schedule. In addition, preventative maintenance activities by property services staff is carried out to ensure assets are well maintained and performing to targets. Through ongoing programs short and long-term planning needs are managed for the asset portfolio, to help proactively address and troubleshoot emerging facility concerns.



The Property Services assets are generally in good and very good condition, as assessed based on facility condition indices (FCIs) determined through building condition assessments.



Levels of Service

The capacity of corporate facilities is measured by the ratio of occupancy to design capacity and total staff to staff parking space availability. The reliability of property services facilities is measured by compliance with safety and security requirements, and availability of standby power. The renewal needs of property services facilities are determined by industry standard condition assessments of facility systems which are undertaken on approximately 20 per cent of the portfolio each year. Current levels of service will be further developed and documented in Section 8: Required Actions and Continuous Improvement.

Asset Management Strategy

The strategies associated with this service area include:

- Expansion of the asset portfolio is developed through the master planning process which considers provision of additional space for growth-related service expansions, including development of the Administrative Centre Annex and 10 Paramedic Response Stations;
- Renewal of the asset portfolio is based on minimizing life cycle cost while maintaining levels of service. The asset management strategy for the renewal of facility assets is based on building condition assessments and industry standards for replacement costs. Facilities have preventative maintenance plans to ensure assets are well maintained for maximum asset life cycle expectancy;
- Non-infrastructure solutions are developed through the Corporate Energy Conservation & Demand Management Plan which includes components for administrative facilities as they account for a significant portion of the Region's energy use and associated greenhouse gas emissions. Other initiatives include Smart Commute and Flexible Work Arrangements;
- Operations and maintenance of the asset portfolio is based on industry standards, such as:
  - Continuing to carry out maintenance of the Region's assets to ensure safety and preservation of assets; and
  - Assessing consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with the Strategy

Risks relating to asset failure are mitigated through investment planning, inspection and maintenance programs which provide the necessary data to ensure that the work required to achieve the established levels of service is identified. Annual capital and maintenance programs and associated budgets ensure that funding to undertake the necessary work is provided. Currently, the Region is developing a Corporate Risk Framework for Asset Management as per Section 8: Required Actions and Continuous Improvement.

ASSET MANAGEMENT IN ACTION

Building condition audits are completed every five years to help inform asset management planning

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

To meet the demand for expanded services, the Region constructs new assets and extends the capacity of the asset portfolio, in addition to implementing non-infrastructure strategies. The 10-Year 2017 Growth Capital Program totals $280 million for an estimated service area asset portfolio replacement value of $719 million in 2016 dollars at the end of 2026.

The estimated costs to service asset growth from 2026 to 2041 are based on asset growth being more or less proportional to population growth over the same period.

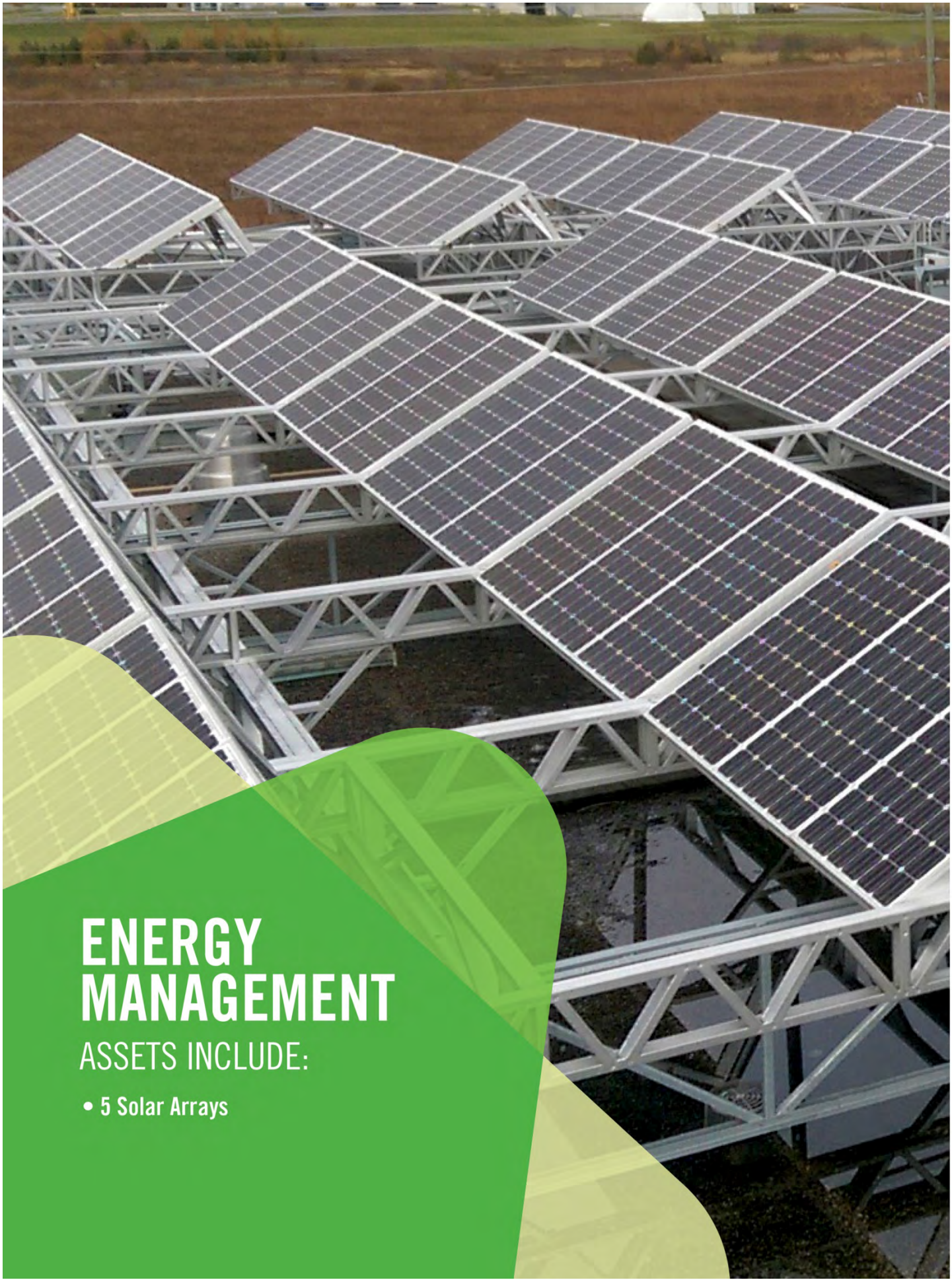
Capital Forecast - Asset Renewal of Existing Infrastructure

The funding required to renew existing assets over the long term, at current levels of service, is determined by applying the asset management renewal strategy to the asset portfolio. Future average annual renewal needs including growth are calculated proportional to the increased size of the asset portfolio based on what is outlined in the planning documents.

Identification of immediate renewal needs (e.g. work that is “due” based on analysis of renewal strategies) is determined through the building condition assessments (facilities where FCI indicates building condition of poor or very poor) and includes $10.2 million for Corporate Administration Offices and $0.6 million for Mixed-Use Facilities.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $5.1 million for Property Services operations and maintenance needs. Annual operating costs are expected to increase proportional to the increased size of the asset portfolio.



ENERGY MANAGEMENT

ASSETS INCLUDE:

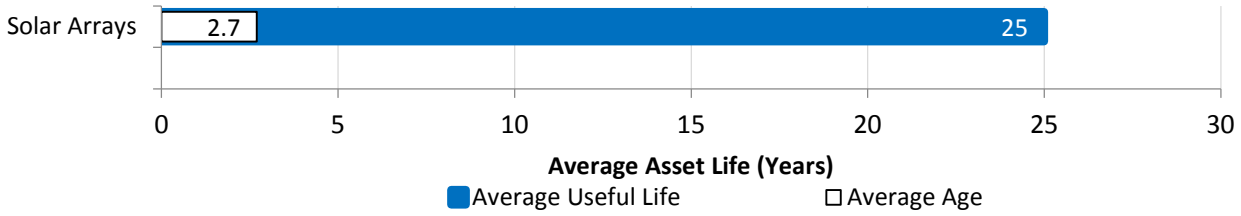
- 5 Solar Arrays

ENERGY MANAGEMENT - Environmental Services

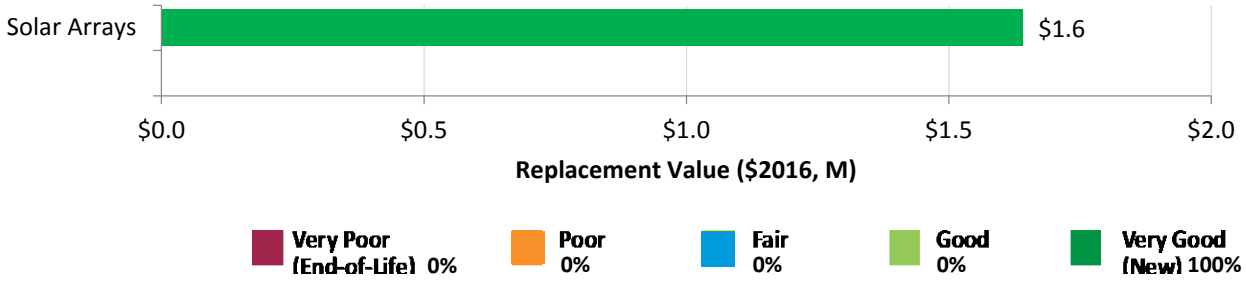
State of Infrastructure ($1.6 million)

This service area provides assets to support sustainable environment including five solar photovoltaic (PV) arrays, all of which are relatively new and constructed in the past 10 years.

The department's renewable energy assets are all less than 10-Years old. These assets do not require a lot of maintenance; however irregular meter readings quickly alert the Energy Management team to any issues with solar panels or inverters. A condition assessment program for solar panels is currently in development.



The Region's Energy Management assets are all in very good condition, as assessed based on age.



Levels of Service

Set through the Energy Conservation and Demand Management Plan, the level of service is measured by greenhouse gas emission offsets realized through infrastructure directly managed by the service area. Excerpted from the 2017 Climate Change and Energy Conservation Asset Management Plan, a preliminary level of service is indicated below:

Capacity & Scope
• Greenhouse Gas Emission Reduction through Renewable Energy Sources (tonnes equivalent to carbon dioxide)

Asset Management Strategy

Due to its infancy and the nature of the equipment (constantly evolving technology), assets in this service area are typically run to failure, as rehabilitation is usually not feasible nor practical. Renewal of the Energy Management portfolio is based on minimizing life cycle cost while maintaining levels of service. Activities include:

- Rehabilitation planning to develop renewal needs forecasts based on past experience with similar assets. For example, the rehabilitation of a roof may drive the replacement of an existing solar PV array installation;
- Performance monitoring to identify premature asset failure; and
- Replacement at the end of service life.

Significant growth of renewable energy infrastructure is anticipated over the next 20 years. Much of this growth will be realized by leveraging existing green technologies and other emerging sources.

Risks Associated with the Strategy

Three risk factors have been identified for energy-generating assets and will be addressed in future asset management plans:

- Premature failure and performance issues;
- Physical and weather damage; and
- Emerging technology and improvements.

ASSET MANAGEMENT IN ACTION

Solar panels will be replaced based on age and a measure of their output versus the manufacturer's rating

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for Asset Management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022, including the use of funds from the green energy reserve and revenues from Feed-in Tariff contracts.

Capital Forecast – New Infrastructure

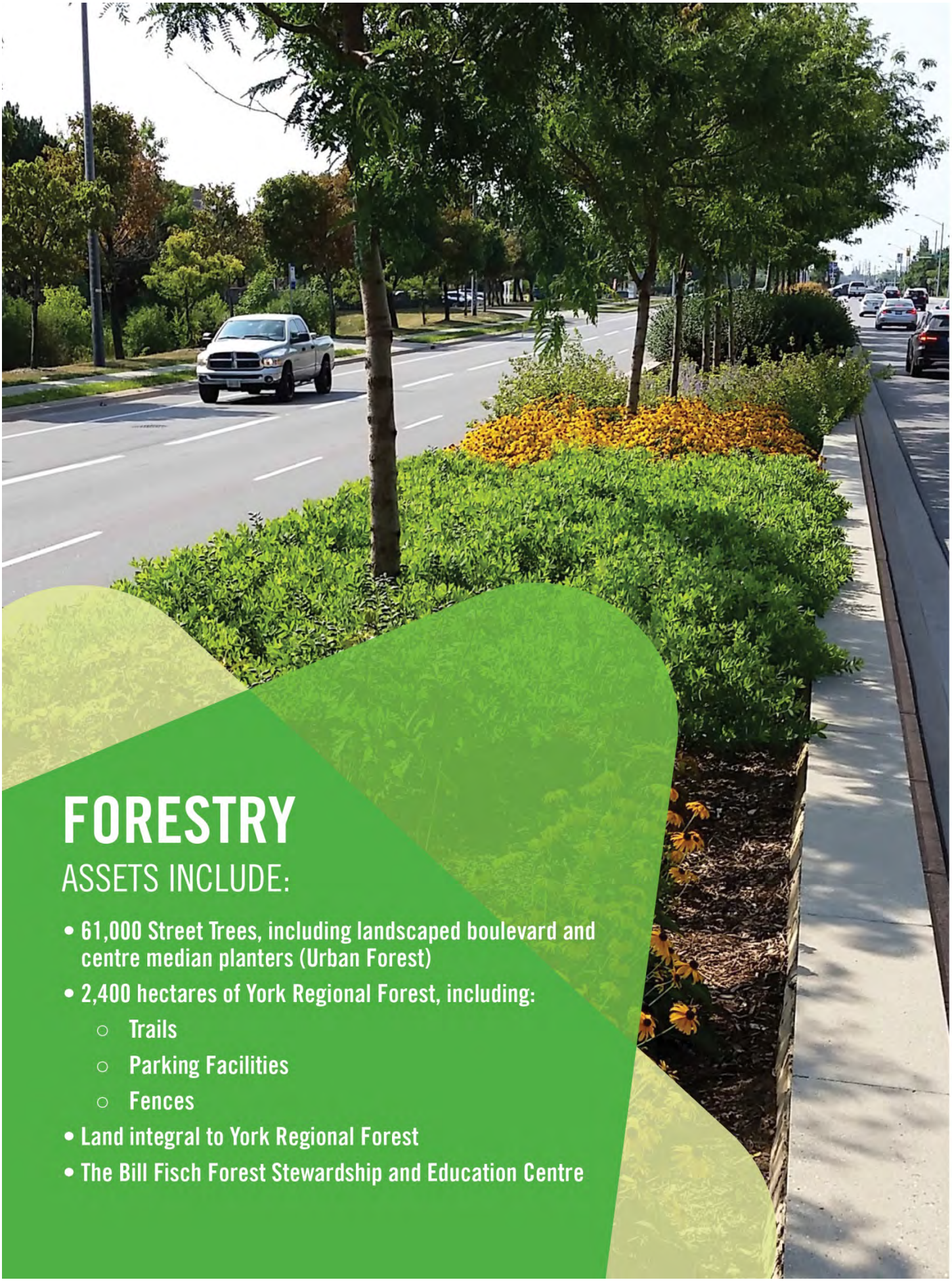
New Energy Management assets are constructed or expanded to provide a return on investment and to offset or reduce the Region's carbon footprint.

Capital Forecast - Asset Renewal of Existing Infrastructure

Energy management assets are all relatively new assets. Future average annual renewal needs will be developed in more detail in future budgets. Due to their recent construction, there is no identified backlog of renewal needs.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $0.62 million for energy management operations and maintenance needs. Annual operating costs are expected to increase proportional to the increased size of the asset portfolio.



FORESTRY

ASSETS INCLUDE:

- 61,000 Street Trees, including landscaped boulevard and centre median planters (Urban Forest)
- 2,400 hectares of York Regional Forest, including:
  - Trails
  - Parking Facilities
  - Fences
- Land integral to York Regional Forest
- The Bill Fisch Forest Stewardship and Education Centre

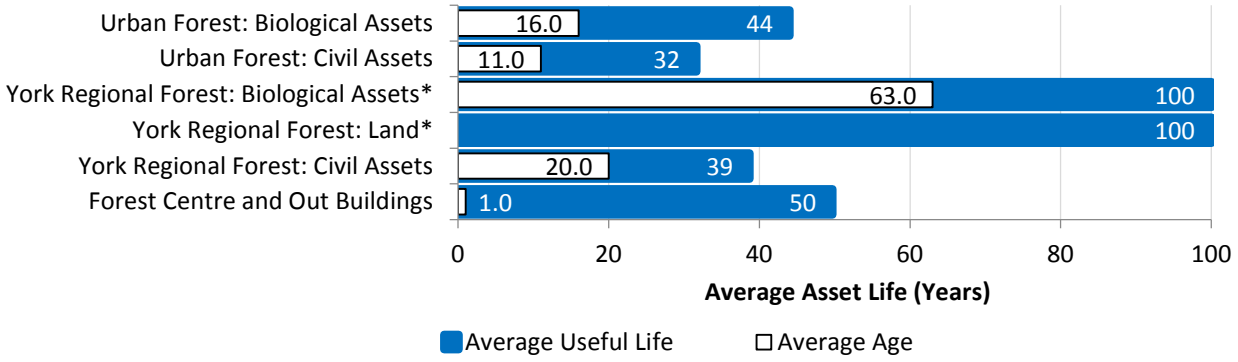
FORESTRY - Environmental Services

State of Infrastructure ($488.3 million)

York Region owns and manages a diverse network of planted and natural vegetation communities, and associated recreational and supporting infrastructure collectively known as green infrastructure.

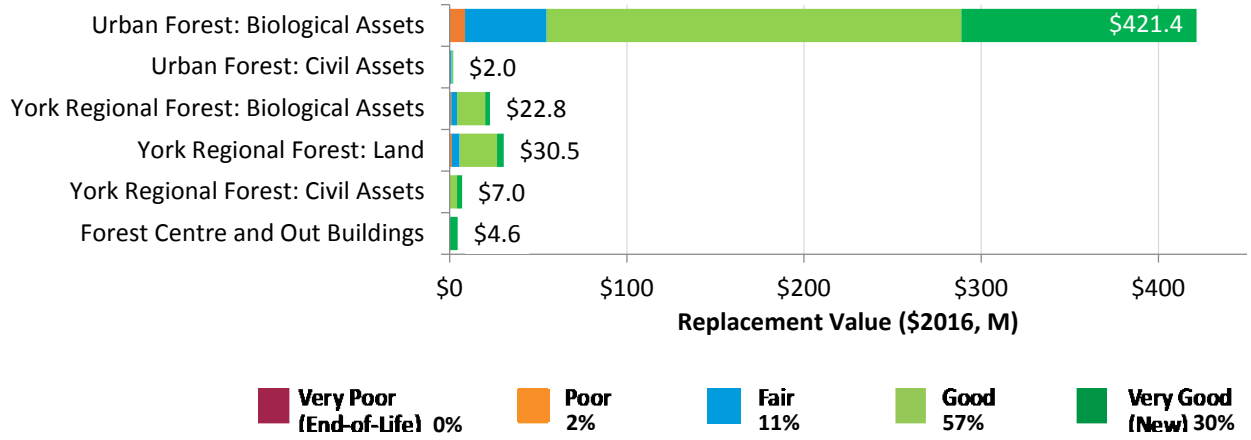
York Region utilizes dedicated staff and contracted services to monitor and maintain all street trees to maximize the expected life. Silviculture (the growing and cultivation of trees) management of the York Regional Forest is regularly undertaken to maximize forest health. Forestry staff are currently engaged in proactive initiatives to study and prepare for the effects of climate change, invasive species, urbanization, and pollution.

Most assets are relatively new due to recent growth of the Urban Forest and construction of the Bill Fisch Forest Stewardship and Education Centre.



*Forest stands and lands, if properly maintained, do not have an end of life. The age of land is not applicable.

The Region's Forestry assets are generally in fair to very good condition.



Levels of Service

The Region is in the process of refining levels of service for Regional Forest uses, such as recreation and environmental protection. Excerpted from the 2017 Green Infrastructure Asset Management Plan, preliminary levels of service are indicated below:

Capacity & Scope

- Area of sensitive habitat protected (per cent of hectares);
- Per cent conformance to Forest Stewardship Council Regional standards; and
- Per cent of available planting space occupied by street trees.

Reliability

- Per cent area of forest regenerating to acceptable levels;
- Health of street trees and landscape plantings as a measure of aesthetics and performance of supporting assets (e.g. growing media and irrigation systems); and
- Amount of water consumed per year at the Bill Fisch Forest Stewardship and Education Centre sourced from offsite.

Asset Management Strategy

The urban forest generally expands as a result of such capital projects as road construction, because street trees are planted as an important element of streetscaping.

- Renewal of the asset portfolio is based on life cycle cost-benefit analysis to determine the best treatment type and timing among available options throughout the life of the asset while maintaining levels of service;
- Green Infrastructure provides environmental enhancement and protection, recreation facilities, outdoor education and demonstrates sustainable forest management;
- York Region is moving to proactive tree maintenance for the urban forest. The Region is also placing an increased emphasis on improvement of soil through soil amelioration, constructed soil trenches and soil cells;
- Operations and maintenance of the asset portfolio is based on:
  - Continuing maintenance of the Region's assets to ensure safety and preservation; and
  - Assessing operational and maintenance consequences of significant new additions to the asset portfolio.
- Program to add plantings along existing roads, with the aim of achieving the target where 100 per cent of roads meet applicable landscaping standards.

ASSET MANAGEMENT IN ACTION

Proactive tree maintenance and monitoring will help to ensure continued growth in asset value of Urban Forests

Risks Associated with the Strategy

Key risks for Forestry assets include:

- Physical damage by wind and ice; and
- Disease and invasive insects.

The Region is currently developing a formal Corporate Risk Framework for Asset Management. In the meantime, existing life cycle management plans include measures to manage risks locally (for example, assessing trees that may pose a hazard) and at the Regional level (for example, increasing species diversity), as well as, an annual allowance for addressing costs of unforeseen events.

Risks relating to asset failure are mitigated through investment planning, inspection and maintenance programs which provide the necessary data to identify the work required to achieve levels of service. Annual capital and maintenance programs and associated budgets ensure that funding to undertake the necessary work is provided.

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast - New Infrastructure

For the Forestry service area, capital expenditures are funded through three sources:

- Current tax levy;
- Development charges; and
- Land securement reserves.

The current 10-Year forecast for the Capital Program identifies the works required to support a variety of individual projects related to the asset portfolio. The 10-Year 2017 Capital Program is $16.6 million for Natural Heritage and Forestry.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $7.8 million for forestry operations and maintenance needs. Annual operating costs are expected to increase proportional to the increased size of the asset portfolio.

WASTE MANAGEMENT

ASSETS INCLUDE:

- 4 Household Hazardous Waste Depots
- 2 Community Environmental Centres
- 1 Transfer Station
- 1 Material Recovery Facility and Transfer Station
- 1 Co-Owned Energy from Waste Facility (Durham York Energy Centre)

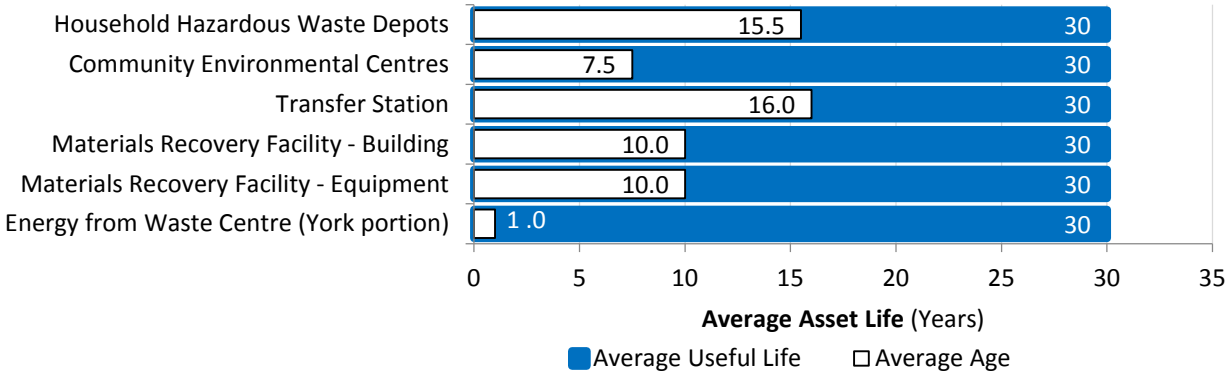
WASTE MANAGEMENT - Environmental Services

State of Infrastructure ($153.0 million)

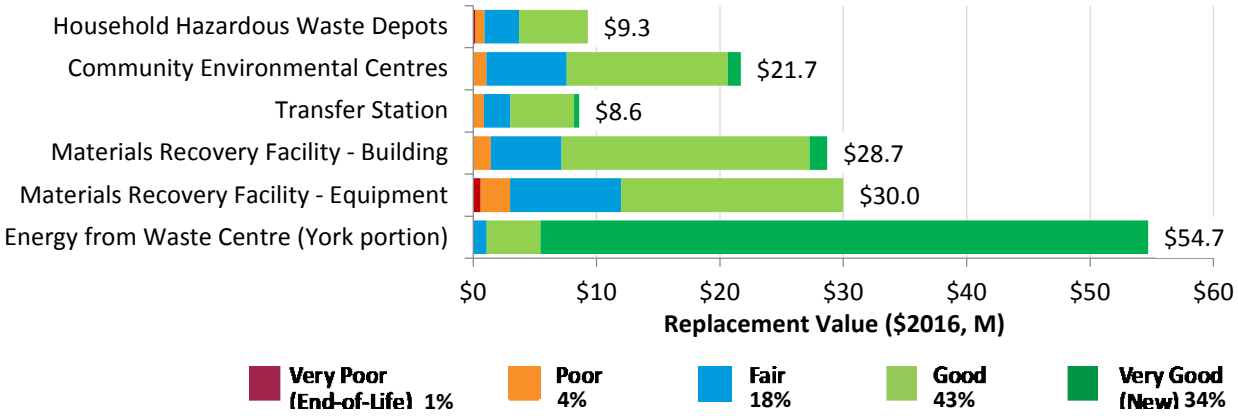
This service area works in partnership with the local municipalities to ensure proper disposal of solid waste. It also operates public drop-off depots for materials not managed at curbside such as electronic waste, scrap metal, and household hazardous waste.

York Region's Waste Management facilities are operated by third-party contractors. At the York Region Waste Management Centre and the Durham York Energy Centre, the contractor is required to perform regular condition assessments and undertake rehabilitation works necessary to ensure the facilities continue to operate above a stipulated level of service as specified in the operation agreements. The performance of the contractors is monitored by York Region and verified by independent consultants. At the Public Waste drop-off facilities, the Region manages condition assessments and undertakes rehabilitation work as required.

Although many of the assets are relatively new, others are reaching the middle to later stages of their useful lives and will require renewal in the upcoming years.



In general, Waste Management assets have been assessed based solely on age, with the majority of the assets in fair or better condition, meaning that they are fit to deliver the services. Assets identified in the poor or very poor categories are programmed for renewal in the upcoming years.



Levels of Service

Levels of service provide "line of sight" between the asset management plan and York Region strategic objectives. The Region is in the process of refining levels of service for the Waste Management service area. Excerpted from the 2017 Solid Waste Management Asset Management Plan, preliminary levels of service are indicated below:

Capacity & Scope
• Tonnes per week of receiving capacity; and • Number of Environmental Compliance Approval (ECA) compliance issues due to the performance/failure of the facility.

Reliability
• Number of complaints due to performance/failure of the facility received per year from local municipalities/customers; • Number of public or staff health, safety & environment issues due to performance/failure of the building, facility equipment or roadways; and • Availability of facility to receive (if applicable) materials delivered by local municipalities/customers.

Asset Management Strategy

The strategies associated with this service area include:

- Non-infrastructure solutions include integrated infrastructure planning through the SM4RT Living Plan as well as, continuing demand management through education and waste diversion and other related programs;
- Renewal of the waste management portfolio is based on performance monitoring and life cycle cost/benefit analysis to determine the lowest cost intervention and timing to ensure existing levels of service are maintained; and
- Operations and maintenance of the asset portfolio is based on industry best practices including implementation of Reliability Centered Maintenance across all high criticality components and assessing consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

ASSET MANAGEMENT IN ACTION

Asset management decisions are based on performance monitoring metrics

Risks Associated with the Strategy

The risks associated with the asset management strategies are identified as follows:

- Changes to Ontario's Blue Box Program under the *Waste-Free Ontario Act, 2016* may cause the cessation of operations of the Materials Recovery Facility;
  - Once municipalities' transition and transfer the responsibility of processing blue box material to Stewardship Ontario, the Region would likely no longer provide the service. A decision would need to be made about the future of the Region's Material Recovery Facility including negotiating options to lease the facility to interested vendors. The Region will continue to engage its local municipal partners as these decisions affect the Integrated Waste Management System delivered to residents; and
  - Transition to full producer responsibility under the *Resource Recovery and Circular Economy Act, 2016* will shift responsibility of end-of-life management of designated materials such as blue box, tires, electronics and household hazardous wastes to producers. Diversion capital is eligible for development charge funding, which will help to partially off-set the costs associated with managing one of the most cost intensive programs, the green bin.

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

To meet the demand for expanded services, the Region constructs new and expands the capacity of the existing asset portfolio, in addition to implementing non-infrastructure solutions.

Capital Forecast - Asset Renewal of Existing Infrastructure

The funding required to renew existing assets over the long-term, at current levels of service, is determined by applying the asset management renewal strategy to the asset portfolio.

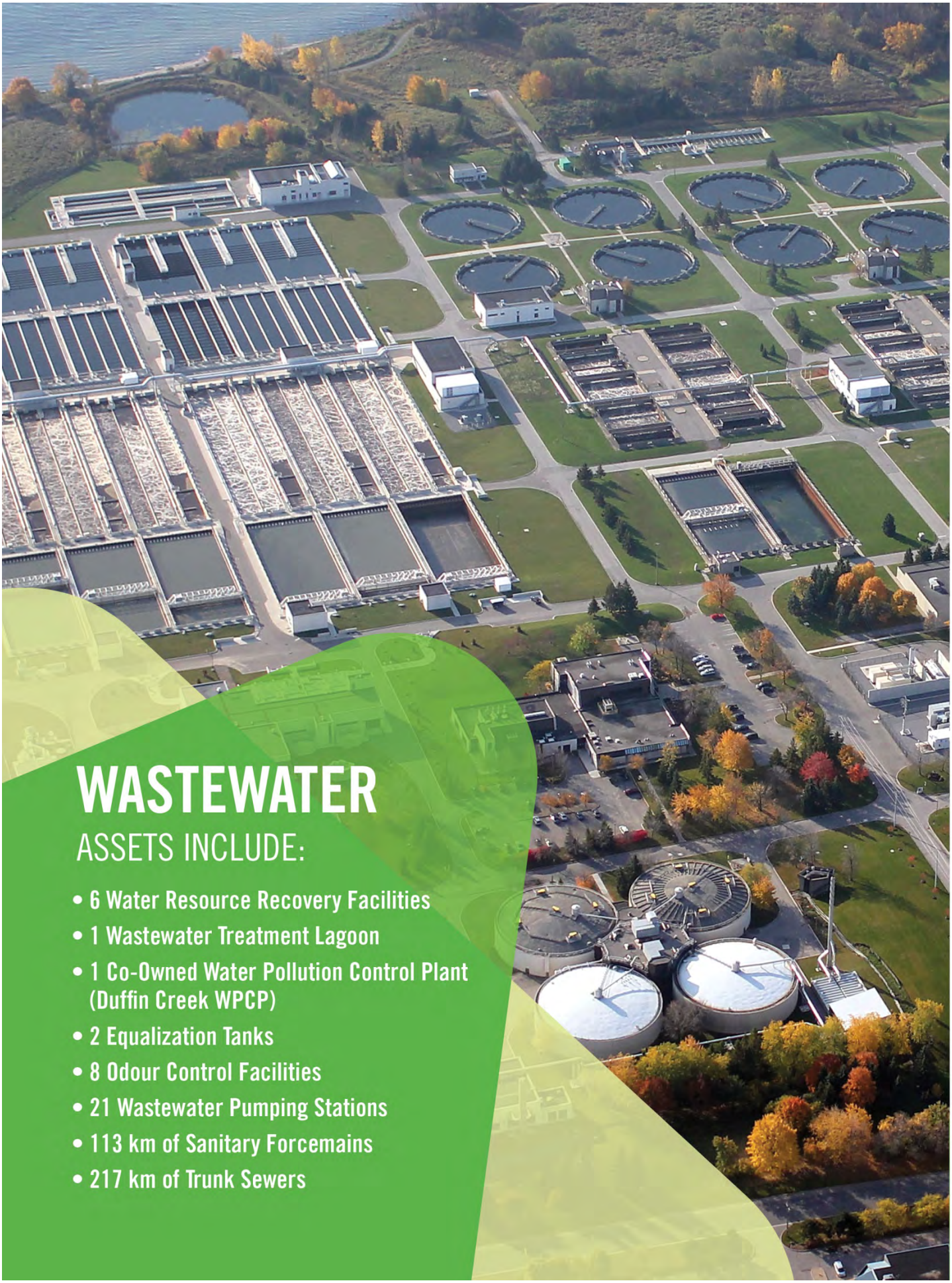
For the Waste Management asset class, capital expenditures are funded through three sources:

- Current Tax Levy;
- Development Charges; and
- Reserves.

The current 10-Year forecast for the Capital Program identifies the works required to support a variety of individual projects related to the asset portfolio. The 10-Year 2017 Capital Program is $47.2 million for Waste Management.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $62.6 million in operations and maintenance needs. Annual operating costs are expected to increase proportional to the increased size of the asset portfolio.



WASTEWATER

ASSETS INCLUDE:

- 6 Water Resource Recovery Facilities
- 1 Wastewater Treatment Lagoon
- 1 Co-Owned Water Pollution Control Plant (Duffin Creek WPCP)
- 2 Equalization Tanks
- 8 Odour Control Facilities
- 21 Wastewater Pumping Stations
- 113 km of Sanitary Forcemains
- 217 km of Trunk Sewers

WASTEWATER (CORE ASSET) - Environmental Services

State of Infrastructure ($4,026.9 million)

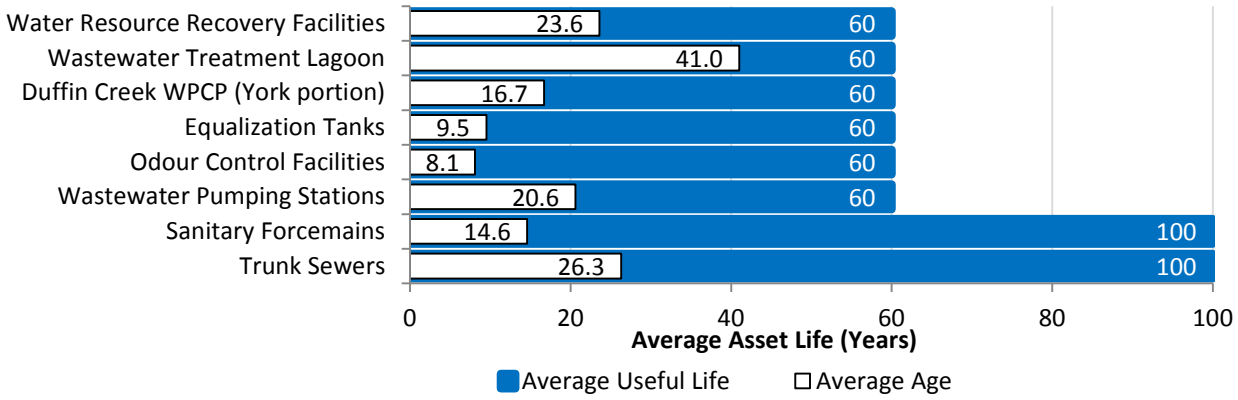
Water and wastewater infrastructure, while distinct, provide complementary services and are considered through integrated planning.

In York Region, wastewater services are delivered through a two-tier system. For wastewater, local municipalities are responsible for local wastewater collection and local pumping whereas the Region is responsible for major pumping stations, trunk sewers and treatment facilities.

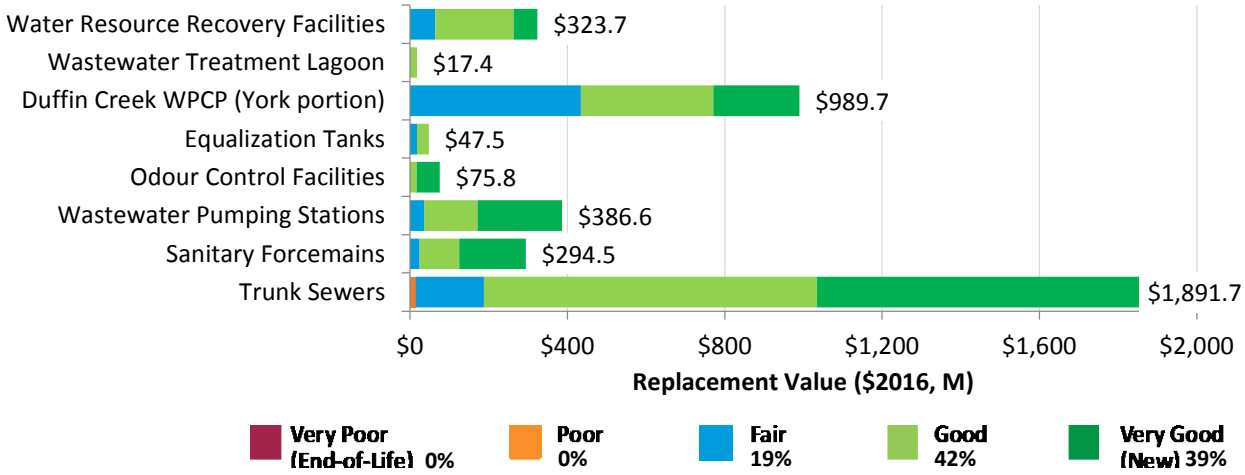
Through wastewater services, the Region:

- Ensures servicing is available to meet current needs and support future growth;
- Ensures environmental protection through wastewater treatment; and
- Monitors and maintains the wastewater network in a good state of repair to ensure sustainable delivery of services.

The majority, the Region's wastewater assets are relatively young compared with their expected service lives. Others, assets are reaching the middle stages of their useful lives and have recently been or will require renewal in the upcoming years. These renewal projects are identified in the approved 10-Year Capital Plan.



The Region's wastewater assets are generally in very good to fair condition, assessments are completed based on inspected condition using industry standard protocols.



In addition to the ongoing proactive maintenance and monitoring carried out by staff at every facility, the Region develops annual prioritized condition assessment plans focused on wastewater infrastructure. These assessments inform asset-specific rehabilitation and renewal projects that ensure our infrastructure continues to provide a high level of service. As an example, a recent comprehensive condition assessment of the Southeast Collector has led to the identification of a rehabilitation project (currently in design) including re-lining, rehabilitation and/or replacement of chambers and manholes with observed deterioration.

Levels of Service

The Region seeks information on customer satisfaction and input for water and wastewater services through various mechanisms including formal public consultation sessions and surveys as part of the Municipal Comprehensive Review and Vision 2051. This input is used to set level of service targets as part of the Water and Wastewater Master Plan and Water Rate Study updates.

In general, wastewater level of service indicators have been summarized from existing Council-endorsed plans and indicate that wastewater asset management strategies are effective in ensuring service levels are achieved.

Level of Service Indicator	2016 Actual	Discussion on Gaps and Trends
Capacity		
Per cent of urban properties serviced by the municipal wastewater system	95%	Servicing in town and village areas are considered urban, but often cannot be achieved cost-effectively.
Per cent of growth accounted for in servicing Master Plan	100%	Life cycle costs for all identified growth infrastructure is included in this Corporate Asset Management Plan.
Reliability		
Number of sampling results exceeding Environmental Compliance Approval limits	3	More information regarding this metric is included in the Region's Wastewater Annual Performance Report.
Per cent of wastewater treated prior to return to the environment	99.99%	System operation is monitored on a real-time basis and, in 2015, the Region launched shift schedules to ensure operational staff were available at facilities on a 24/7 basis. More information regarding this metric is included in the Region's Wastewater Annual Performance Report.
Financial		
Per cent of infrastructure captured in the User Rate Study	100%	This metric indicates the per cent of infrastructure addressed in the most recent Council-approved rate study in 2015. Any infrastructure not included may result in a financial shortfall.
Infrastructure Replacement value per capita	$3,393/ capita	Increased quantity of infrastructure directly results in higher life cycle costs. Maintaining a consistent intensity of infrastructure generally indicates a stable and sustainable long-term life cycle need.

The Region's performance on additional community level of service indicators are provided in Section 7: Community Levels of Service for Core Assets.

Asset Management Strategy

The Region's 2016 Water and Wastewater Master Plan, which was updated as part of the Municipal Comprehensive Review, identifies the most viable long term servicing strategy and determines new infrastructure and non-infrastructure solutions required to support growth, sustainably.

- The Region's One Water Action Plan monitors and supports the implementation of non-infrastructure solutions such as:
  - Inflow and Infiltration Reduction Program;
  - Energy Management & System Optimization; and
  - Behaviour change, market transformation, education programs (e.g. York Children's Water Festival, attendance at community events), and programs to promote water sustainability in new developments beyond the levels stipulated by the January 2014 building code update.
- Due to the long service life and complexity of wastewater assets, renewal planning is developed through a two-step strategy:
  - Renewal Implementation Plan (20-Years) – An implementation-focused plan that optimizes renewal project scope, timing and implementation approach using risk-based engineering assessments. These assessments are scheduled based on asset criticality and include performance monitoring and testing, comprehensive condition assessment and cost/benefit analysis; and
  - Long Term Forecast (100-Years) – Building from the short term renewal implementation plan, the Long Term Forecast provides input to financial strategies by identifying the timing and cost of infrastructure investment required in the future using typical or designed life cycle assumptions. This forecast also considers the need for multi-year renewal projects to begin prior to actual need and ensures peak investment years are realistic.
- Operations and maintenance of the asset portfolio is based on industry best practices including:
  - Implementation of preventative and proactive maintenance across all high criticality assets; and
  - Assessing operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with Wastewater Infrastructure

Current wastewater levels of service indicators and strategies are aligned with existing Council-endorsed strategies or plans. Moving forward, multiple factors are expected to affect the assumptions underlying asset management decisions including:

- Climate change and environmental changes will require continued monitoring and detailed assessment to quantify impacts and risk in order to define and prioritize implementable adaptation initiatives; and
- Increasing population density goes hand in hand with greater infrastructure density – that is, more assets and more different types of assets crowded together in a smaller area. Potential impacts include reduced accessibility to an asset requiring renewal.

ASSET MANAGEMENT IN ACTION

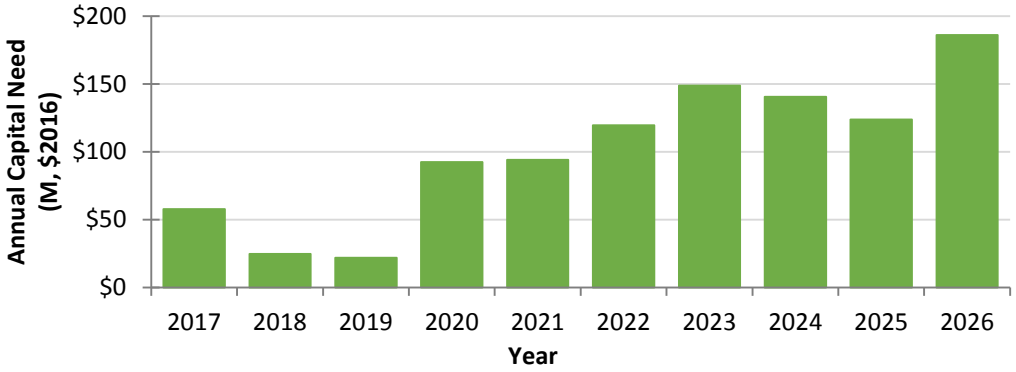
Renewal projects are identified through comprehensive condition assessments

Financing Strategy

This section summarizes the Council-endorsed financial plan included as part of the 2016 Water and Wastewater Master Plan and the Water and Wastewater Financial Sustainability Plan.

Capital Needs - New Infrastructure Required to Service Growth

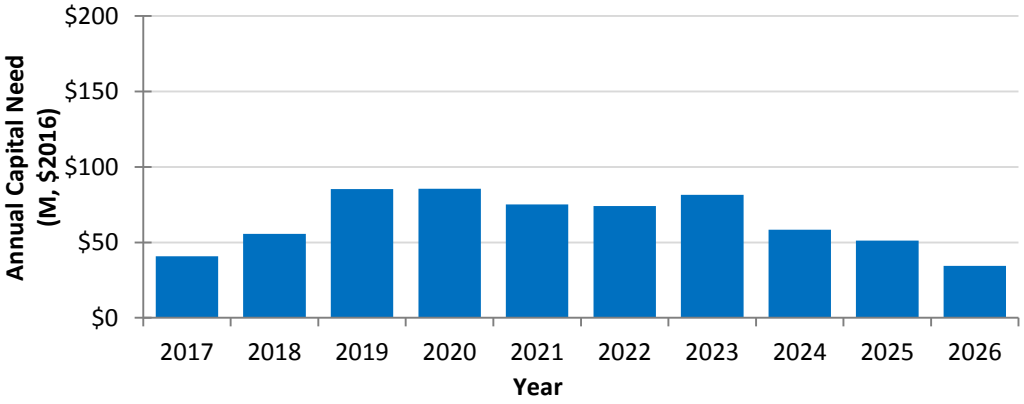
The 2016 Water and Wastewater Master Plan has identified the need for approximately $3 billion of new water and wastewater infrastructure to support growth to 2041. This increase maintains a wastewater infrastructure replacement cost of approximately $3,393 per capita. Estimated expenditures for 2017 to 2026 are shown in the graph below.



Capital Needs – Asset Renewal of Existing Infrastructure

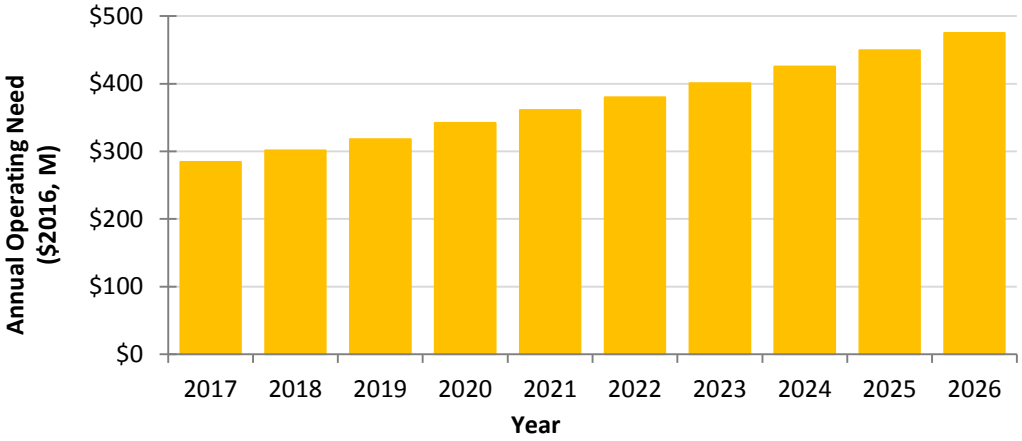
To ensure planned levels of service are met, asset renewal is an ongoing activity. The graph below shows the capital renewal needs forecast from 2017 to 2026 to sustain current levels of wastewater service.

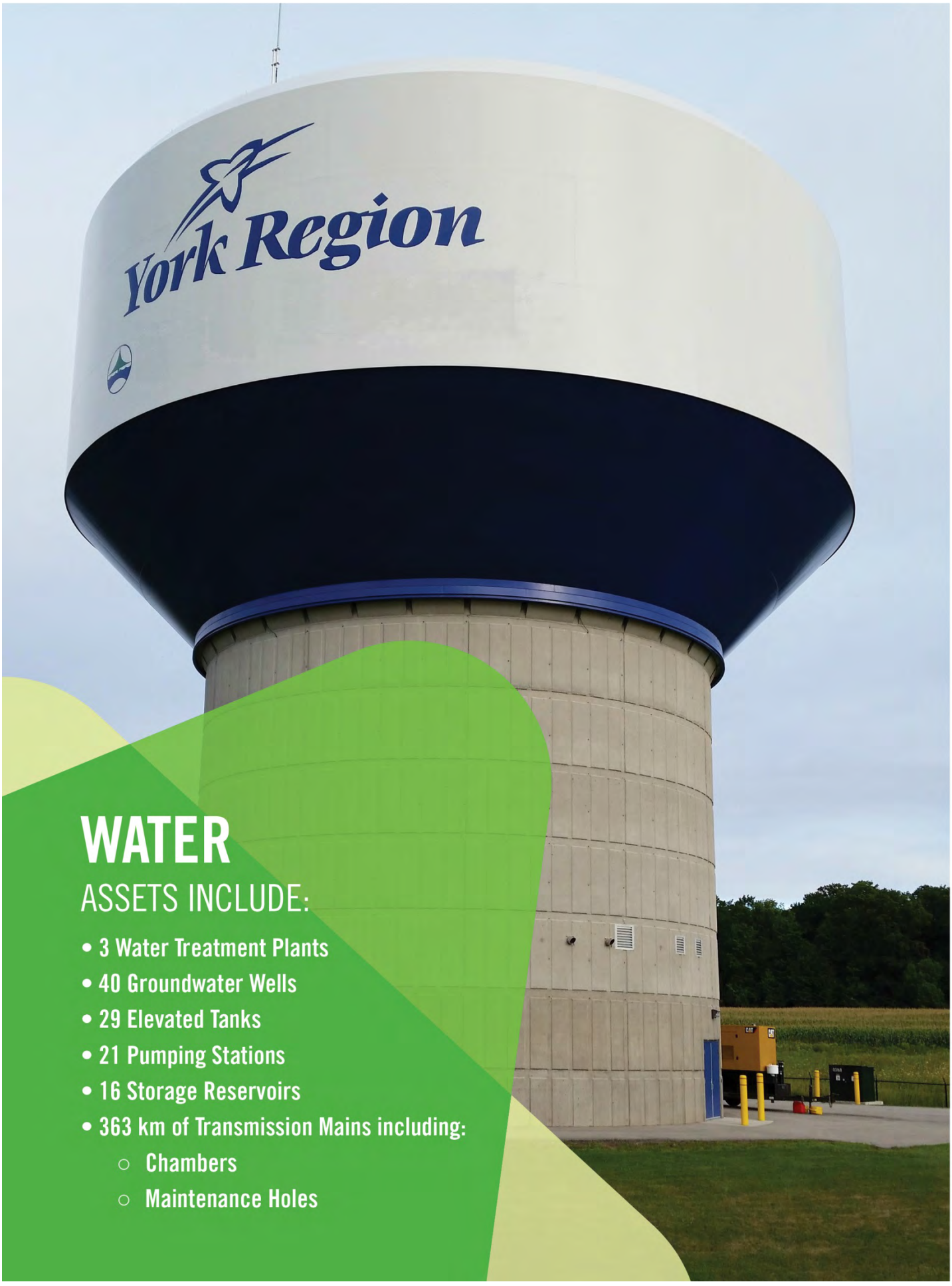
Renewal projects in this period are individually prioritized based on engineering assessments that detail the scope, costs, risks and implementation plan.



Operating Needs – Operations and Maintenance Needs

The Region undertakes regularly programmed operations activities, including maintenance of assets to ensure services are reliably delivered to customers. The 2015 Water and Wastewater Financial Sustainability Plan identified a statistical relationship between historical operating costs in response to increase asset portfolio and was used as the basis for the graph below.





WATER

ASSETS INCLUDE:

- 3 Water Treatment Plants
- 40 Groundwater Wells
- 29 Elevated Tanks
- 21 Pumping Stations
- 16 Storage Reservoirs
- 363 km of Transmission Mains including:
  - Chambers
  - Maintenance Holes

WATER (CORE ASSET) - Environmental Services

State of Infrastructure ($1,941.1 million)

Water and wastewater infrastructure, while distinct, provide complementary services and are considered through integrated planning.

In York Region, water services are delivered through a two-tier system. For water, the Region is responsible for securing and delivering drinking water to the nine local municipalities, which in turn distribute it to residents and businesses.

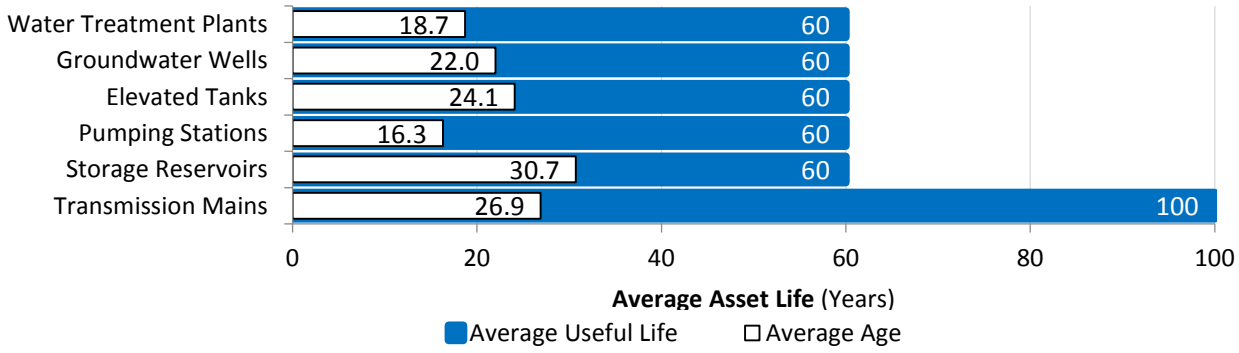
The Drinking Water Quality Management System (DWQMS) framework is used to manage day to day risk to the water supply system by identifying possible hazards, assigning risk scores, and identifying procedures to mitigate the risk.

Through these services, the Region:

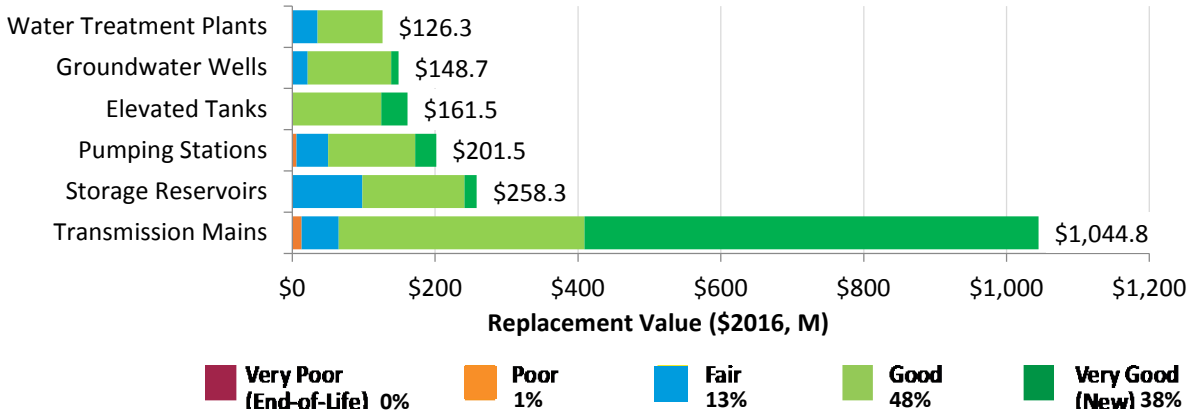
- Provides safe, reliable drinking water to local municipalities and York Region residents;
- Monitors and maintains the water network in a good state of repair to ensure sustainable delivery of services; and
- Ensures servicing is available to meet current needs and support future growth.

In addition to the ongoing proactive maintenance and monitoring carried out by staff at every facility, the Region develops annual prioritized condition assessment plans focused on water infrastructure. These assessments inform asset-specific rehabilitation and renewal projects that ensure our infrastructure continues to provide a high level of service. As an example, yearly intake cleanings and inspections of the Georgina Water Treatment Plant have led to an ongoing membrane rehabilitation project and the installation of a new multi-barrier mussel control system.

Ensuring services are available to meet current needs and support future growth the Region's water assets are relatively young as compared with their expected service lives. Some assets are reaching the middle stages of their useful lives and have recently been or will soon require rehabilitation in the upcoming years. These rehabilitation or renewal projects are identified in the approved 10-Year Capital Plan.



The Region's water assets are generally in very good to fair condition, assessment is based on inspected condition using industry standard protocols.



Levels of Service

The Region seeks information on customer satisfaction and input for water and wastewater services through various mechanisms including formal public consultation session and surveys as part of the Municipal Comprehensive Review and Vision 2051. This input is used to set level of service targets as part of Water and Wastewater Master Plan and Water Rate Study updates.

In general, water level of service indicators have been summarized from existing Council-endorsed plans and indicate that water asset management strategies are effective in ensuring service levels are achieved.

Level of Service Indicator	2016 Actual	Discussion on Gaps and Trends
Capacity		
Per cent of urban properties serviced by the municipal water system	95%	Servicing in town and village areas are considered urban, but often cannot be achieved cost-effectively.
Per cent of urban properties serviced with fire flow by the municipal water system	100%	Sufficient fire flow is a key design criteria used for the Regional water system.
Per cent of growth accounted for in servicing Master Plan	100%	Life cycle costs for all identified growth infrastructure is included in this Corporate Asset Management Plan.
Reliability		
Per cent of samples that met Ontario Drinking Water Standard.	99.96%	More information regarding this metric is included in the Region's Annual Drinking Water Report.
Number of boil water advisory notices per year attributed to York Region infrastructure failure	0	Boil water advisories are monitored through existing Integrated Management System indicators.
Financial		
Per cent of infrastructure captured in the User Rate Study	100%	This metric indicates the per cent of infrastructure addressed in the most recent Council-approved rate study in 2015. Any infrastructure not included may result in a financial shortfall.
Infrastructure Replacement value per capita	$1,635/ capita	Increased quantity of infrastructure directly results in higher life cycle costs. Maintaining a consistent intensity of infrastructure generally indicates a stable and sustainable long term life cycle need.

The Region's performance on additional community level of service indicators are provided in Section 7: Community Levels of Service for Core Assets.

Asset Management Strategy

The Region's 2016 Water and Wastewater Master Plan, which is updated as part of the Municipal Comprehensive Review, identifies the most viable long term servicing strategy and determines new infrastructure and non-infrastructure solutions required to sustainably support growth.

The Region's One Water Action Plan monitors and supports the implementation of non-infrastructure solutions such as:

- Long Term Water Conservation Strategy;
- Water Reuse Research Demonstration Project & Non-Revenue Water Audits;
- Energy Management & System Optimization; and
- Behaviour change, market transformation, education programs (e.g. York Children's Water Festival, attendance at community events), and programs to promote water sustainability in new developments beyond the levels stipulated by the January 2014 building code update.

Due to the long service life and complexity of wastewater assets, renewal planning is developed through a two-step strategy:

- Renewal Implementation Plan (20-Years) – An implementation-focused plan that optimizes renewal project scope, timing and implementation approach using risk-based engineering assessments. These assessments are scheduled based on asset criticality and include performance monitoring and testing, comprehensive condition assessment and cost/benefit analysis; and
- Long-Term Forecast (100-Years) – Building from the short-term renewal implementation plan, the Long-Term Forecast provides input to financial strategies by identifying the timing and cost of infrastructure investment required in the future using typical or designed life cycle assumptions. This forecast also considers the need for multi-year renewal projects to begin prior to actual need and ensures peak investment years are realistic.

Operations and maintenance of the asset portfolio is based on industry best practices including:

- Implementation of preventative and proactive maintenance across all high criticality assets; and
- Assessing operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with Water Infrastructure

Current levels of service indicators and strategies for water infrastructure are aligned with existing Council-endorsed strategies or plans. Moving forward, multiple factors are expected to affect the assumptions underlying asset management decisions including:

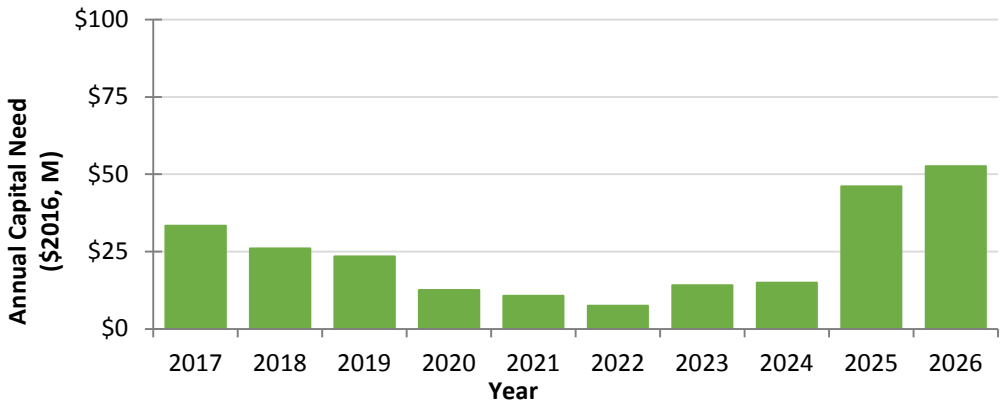
- Climate change and environmental changes will require continued monitoring and detailed assessment to quantify impacts and risk in order to define and prioritize implementable adaptation initiatives; and
- Increasing population density goes hand in hand with greater infrastructure density – that is, more assets and more different types of assets crowded together in a smaller area. Potential impacts include reduced accessibility to an asset requiring renewal.

Financing Strategy

This section summarizes the Council-endorsed financial plan included as part of the 2016 Water and Wastewater Master Plan and the Water and Wastewater Financial Sustainability Plan.

Capital Needs - New Infrastructure Required to Service Growth

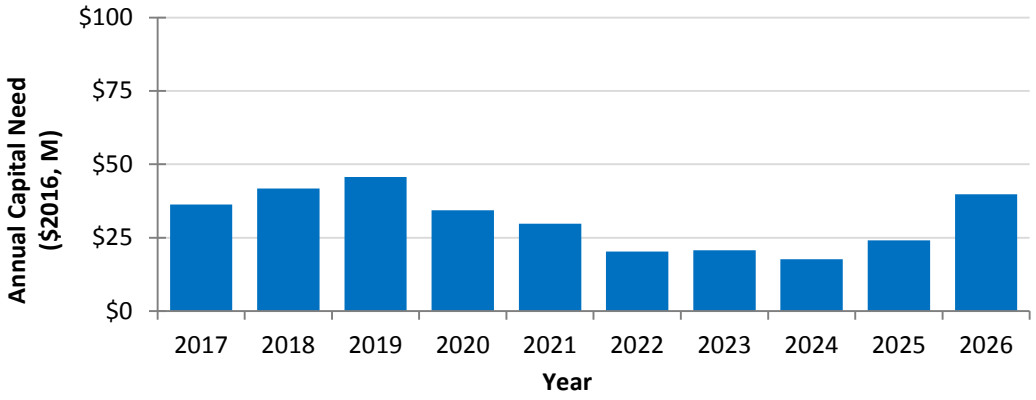
The 2016 Water and Wastewater Master Plan has identified the need for approximately $3 billion of new water and wastewater infrastructure to support growth to 2041. This increase maintains a water infrastructure replacement cost of approximately $1,635 per capita. Estimated expenditures for 2017 to 2026 are shown in the graph below.



Capital Forecast – Asset Renewal of Existing Infrastructure

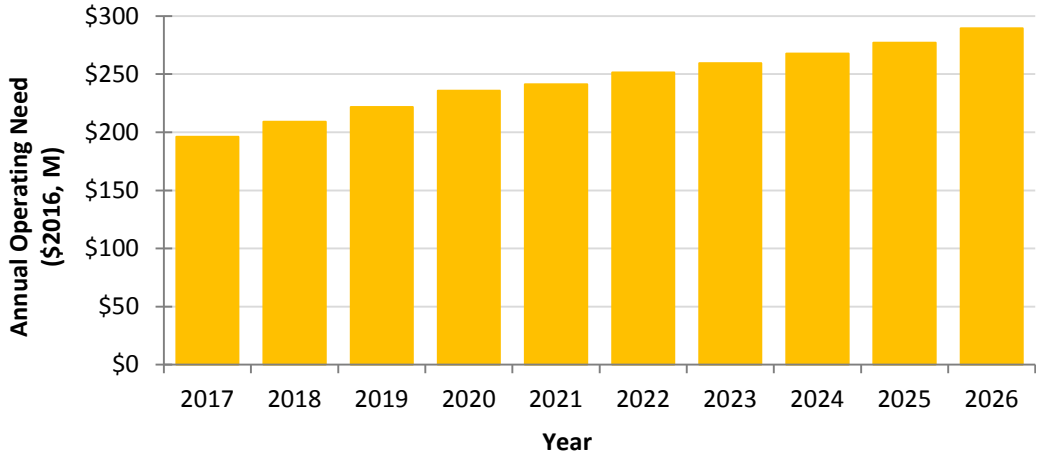
To ensure planned levels of service are met, asset renewal is an ongoing activity. The graph below shows the capital renewal needs forecast from 2017 to 2026 to sustain current levels of water service.

Renewal projects in this period are individually prioritized based on engineering assessments that detail the scope, costs, risks and implementation plan.



Operating Forecast – Operations and Maintenance Needs

The Region undertakes regularly programmed operations activities, including maintenance of the assets to ensure services are reliably delivered to customers. The 2015 Water and Wastewater Financial Sustainability Plan identified a statistical relationship between historical operating costs in response to increase asset portfolio and was used as the basis for the graph below.



ROADS

ASSETS INCLUDE:

- 4,028 Lane km of Regional Roads (Rural and Urban)
- 1,836 km of Storm Pipes, Outfalls & Ditches (Rural and Urban)
- 152 Bridges
- 165 Structural Culverts (Concrete and Steel)
- 41 Retaining Walls (>2m in height)
- Operations and Roadside Equipment including:
  - 30,000+ Traffic Signs
  - 5.8 km of Noise Barriers
  - 4 Patrol District Facilities
- 299 Vehicles and Equipment

ROADS (CORE ASSET) - Transportation Services

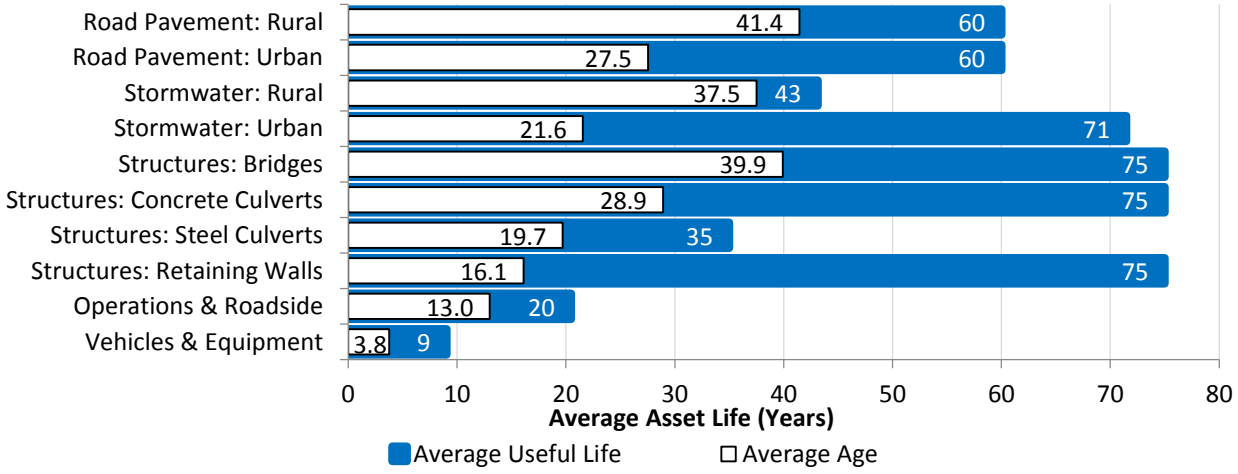
State of Infrastructure ($3,552.2 million)

This service area assists in the safe and efficient transport of people and goods through interconnecting roads between urban and rural areas. It also provides safe and effective drainage and preserves water quality. It maintains the road and storm networks in a state of good repair.

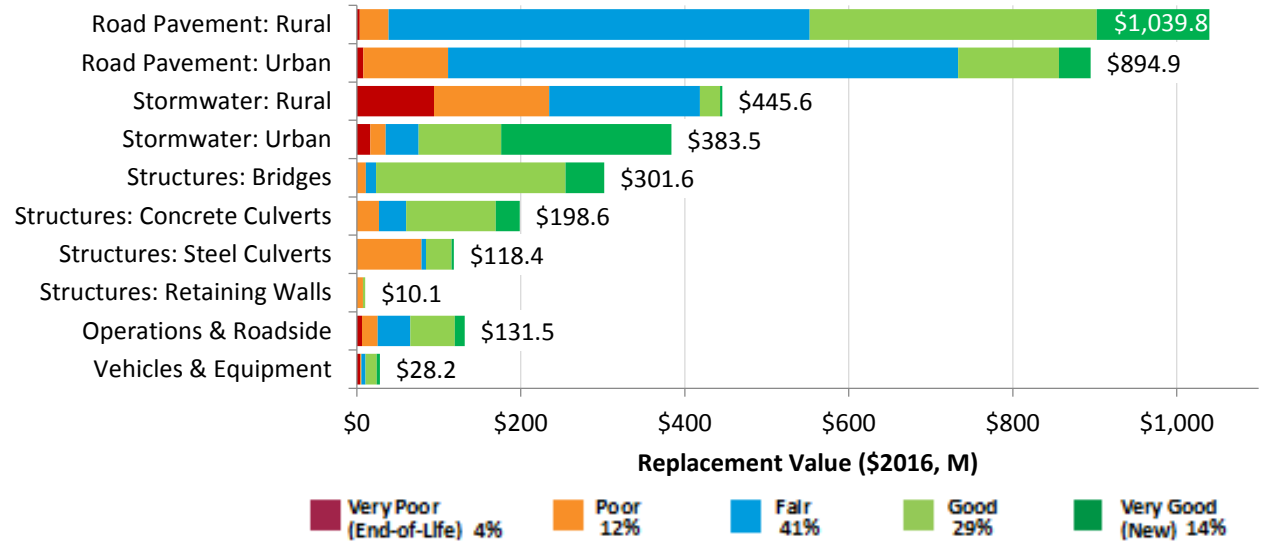
Key business drivers at this time are future population and associated asset growth and aging infrastructure.

Transportation Services undertakes biennial pavement inspections to determine how the driving surface of the road is performing. Based on these inspections, Transportation Services staff will perform resurfacing treatments to seal the road surface and prevent potholes from forming.

Although many of the roads are relatively new due to recent growth, others are reaching the middle to later stages of their useful lives and will require renewal in the upcoming years.



The Region's road assets are generally in fair condition, as assessed using industry standard inspection protocols. However, over $600 million (18 per cent) are in poor or very poor condition, which includes a backlog of renewal needs that is overdue from before 2017.



Levels of Service

The capacity of the road network is measured by compliance with volume/capacity targets which vary by roadside environment and road classification. The reliability of the road network is measured by compliance with load restriction targets which also vary by roadside environment and road classification. The resiliency of the stormwater network to impacts such as climate change is measured by per cent blockage of pipes and structures. The renewal needs of the road and storm networks are determined by industry standard condition assessments of pavement, bridges, pipes and culverts.

The following table summarizes current performance against service area specific measures required by O.Reg.588/17, organized under the Region's technical criteria.

Level of Service Indicator	2016 Actual	Discussion on Gaps and Trends
Capacity		
Number of lane-km of arterial (Class 1 and 2) roads per land area (km/km²)	1.7%	There is currently a need for $1,329 million in road traffic capacity improvement works as planned in the 10-Year Roads Capital Plan.
Number of lane-km of collector (Class 3 and 4) roads per land area (km/km²)	0.6%	
Per cent of bridges with loading or dimensional restrictions	0%	
Reliability		
Per cent of the municipal stormwater management system resilient to a 5-Year storm	100%	The ability to convey minor storms based on the per cent of assets without blockages, flooding, or debris.
Condition		
For paved roads, average pavement condition index (PCI)	70.0	There is currently a $350 million backlog in pavement and associated road renewal works, of $58 million in structures renewal work, and $74 million in storm pipes, roadside ditches and small culverts.
For bridges, average bridge condition index (BCI)	74.7	
For structural culverts, average bridge condition index (BCI)	71.7	

The Region's performance on additional community level of service indicators are provided in Section 7: Community Levels of Service for Core Assets.

ASSET MANAGEMENT IN ACTION

Biennial pavement inspections are completed to determine how the driving surface of the road is performing and inform planning of pavement renewal projects

Asset Management Strategy

Non-infrastructure solutions are developed through the master planning process and include promoting other modes of transport, advanced traffic management system, and reducing fleet energy use, resulting in reductions to associated greenhouse gas emissions.

- Expansion of the asset portfolio is based on the Transportation 10-Year Capital Plan. Key components include:
  - Grade separation additions and widenings, Hwy 400-series interchanges and ramp extensions, jog eliminations and intersection improvements, mid-block crossings, new arterial road links, road widenings and conversions to urban cross-sections; and
  - Southeast road operations facility, fleet additions for growth, and snow melting equipment.
- Renewal of the asset portfolio is based on life cycle cost/benefit analysis to determine the lowest cost treatment type and timing among available options throughout the life of the asset, while maintaining levels of service. Renewal planning is supported by the Region's pavement management system, which helps to forecast short and medium term needs and priorities based on road inspection data collected every two years. Longer term needs are forecast using rule-based strategies outlined in more detail in the Pavement Asset Management Plan;
- Asset operations and maintenance is based on industry standards, and includes:
  - Continuing to carry out maintenance of the Region's road infrastructure to ensure safety and preservation of assets in accordance with O. Reg. 239/02 Minimum Standards for Municipal Highways; and
  - Assessing consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with the Strategy

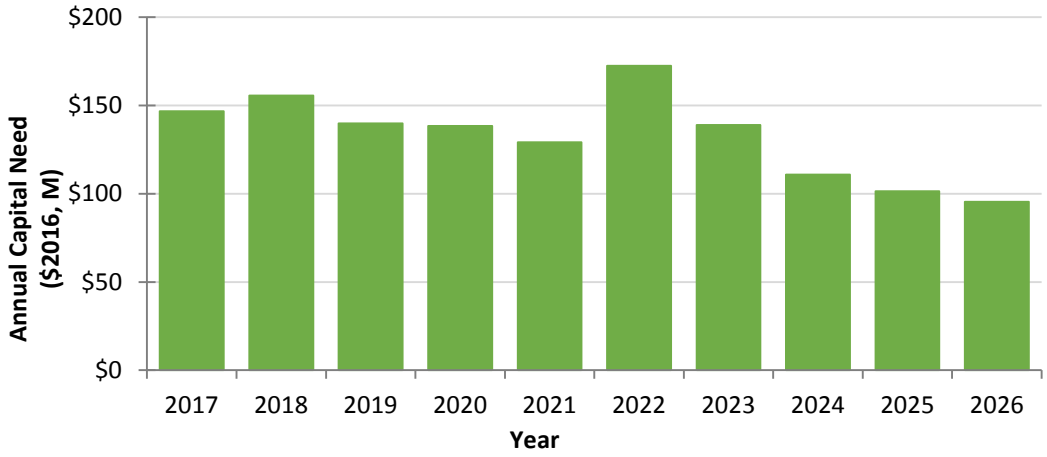
Within Transportation Services, risks relating to road infrastructure failure are mitigated through inspection and maintenance programs which provide the necessary data to ensure that the work required to achieve the established levels of service is identified. Risks relating to vehicle asset failure are mitigated through inspection and maintenance programs.

Financing Strategy

Growth activities occur once in the life cycle of each asset, while renewal and operating costs are required in perpetuity to support service delivery.

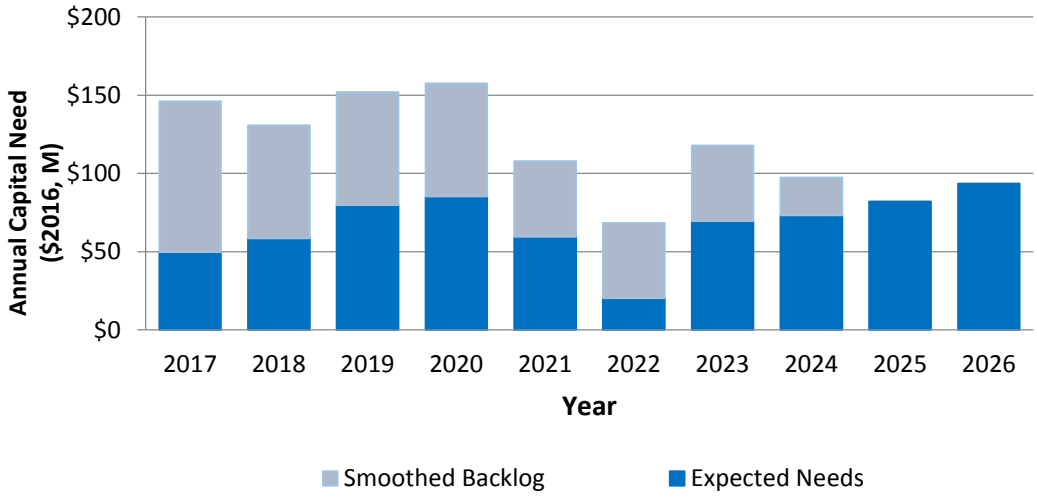
Capital Needs to Service Growth

To meet the demand for expanded services, the Region constructs new and extends the capacity of the asset portfolio, in addition to implementing non-infrastructure strategies. The capital growth needs forecast for roads assets from 2017 to 2026, based on the implementation plans outlined in the Transportation 10-Year Capital Plan, are shown in the graph below.



Capital Needs to Renew Assets

To manage asset condition and address potential asset and associated service reliability gaps, the Region continuously renews the asset portfolio. The graph below shows the capital renewal needs forecast from 2017 to 2026 to sustain current levels of service.

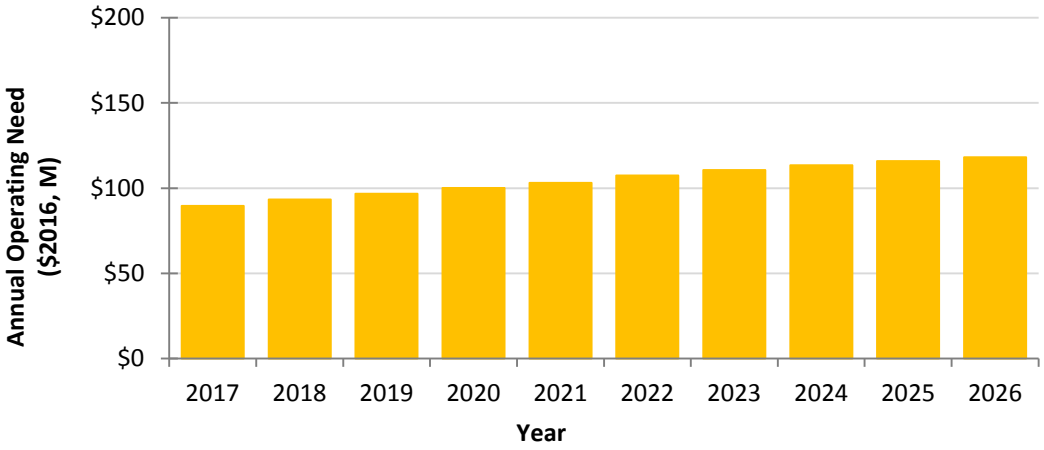


The renewal needs for road assets presented above includes a backlog of renewal needs, which is work that is “overdue” from before 2017. These are also referred to as “now needs”. The majority of the

backlog has been distributed over a period of 25 years. The Region is currently developing a strategy to determine how best to fund these and other asset life cycle capital needs.

Operating Needs Forecast

To deliver the defined levels of service, the Region undertakes regularly programmed activities, including operating and maintaining the assets. The forecast population and asset portfolio growth will place pressure on the capacity of existing operations and maintenance needs, as shown in the graph below.



TRANSIT

ASSETS INCLUDE:

- Conventional York Regional Transit (YRT)
- Bus Rapid Transit (Viva)
- Mobility Plus
- Terminals, Loops and Transit Stops
- Garages
- Bus Rapidway traffic assets, transit assets, and roadway assets

TRANSIT - Transportation Services

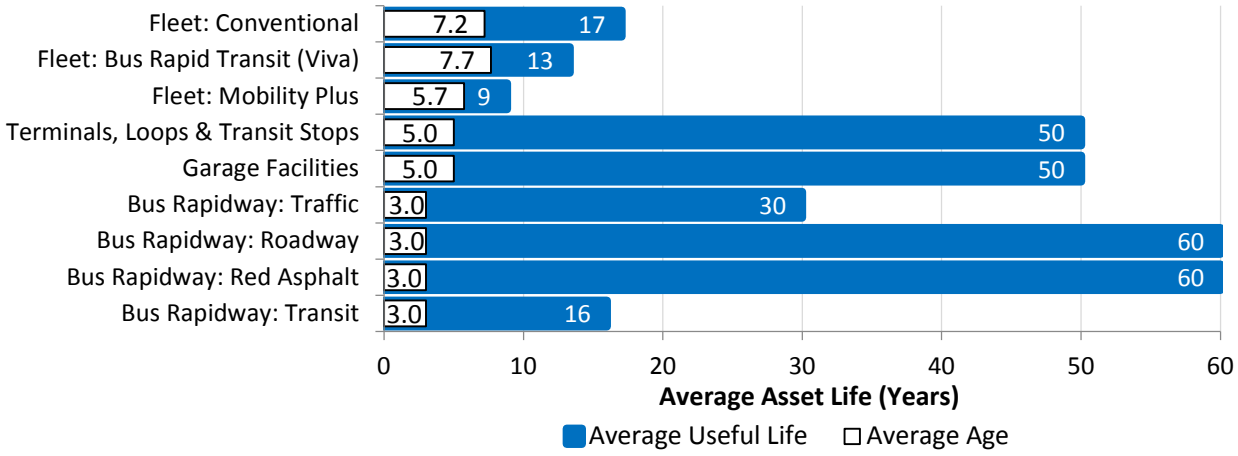
State of Infrastructure ($557.3 million)

This service area provides reliable, convenient and seamless travel across the nine local municipalities, and easy access to the Toronto Transit Commission and provincial GO Transit systems. It maintains the transit assets in a state of good repair.

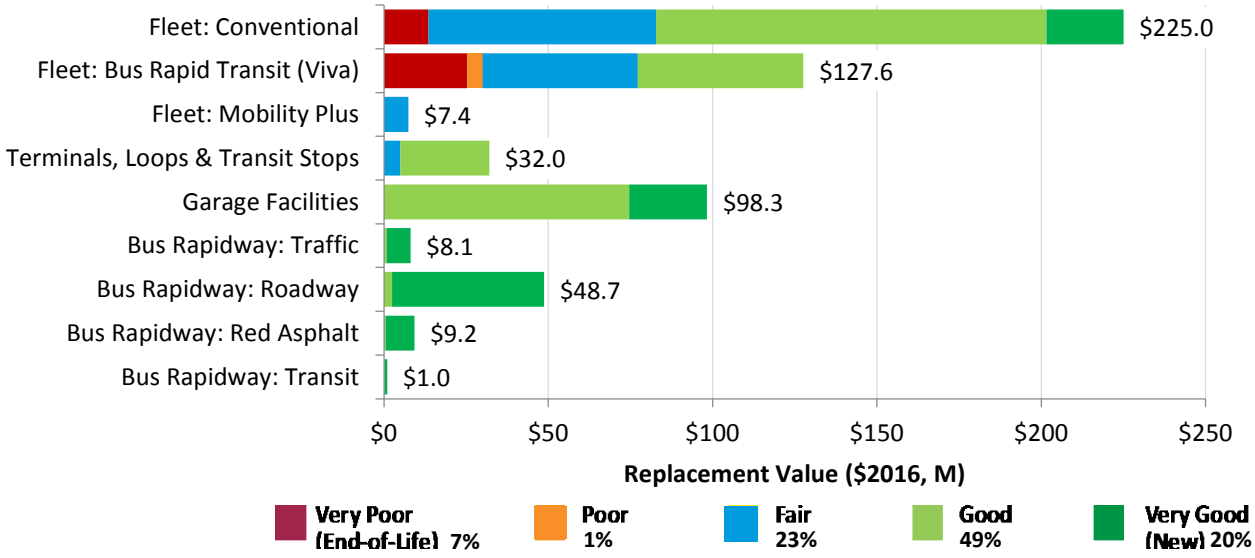
Key business drivers at this time are future population and associated asset growth and aging infrastructure.

Transportation Services staff and contracted staff perform regular inspections, such as bus inspections to ensure the vehicle is meeting service life expectations. Mid-life overhauls will also be completed to extend the service life of the bus fleet.

Most of the assets are relatively new due to recent growth, with the majority of fleet assets at mid-life.



The Region's transit assets are generally in fair to very good condition, as assessed based on age.



Levels of Service

The capacity of the transit system is measured by demand to capacity for vehicles during the peak hour, and transit garage capacity. The reliability of the transit system is measured by mean distance between failure (MDBF) and on-time performance. The renewal needs of the transit system are determined by age and remaining life of assets, quality assurance vehicle inspections and bus stop inspections.

Levels of service as currently provided will be further developed and documented as indicated in Section 8: Required Actions and Continuous Improvement.

ASSET MANAGEMENT IN ACTION

Mid-life overhauls of buses ensure full realization of asset life span

Asset Management Strategy

The strategies associated with this service area include:

- Expansion of the asset portfolio is developed through the master planning process:
  - Includes fleet expansion (conventional, rapid transit & mobility plus), support vehicles, terminals, garages, stops/viva stations, garages, shelters, bus pads, land acquisition, transit management systems including Presto and fare collection systems, information technology infrastructure and parking facilities; and
  - Also includes York Region's share of costs for the Toronto-York Spadina Subway Extension (TYSSE) including rights of way, system tracks, tunnel and single system, crossovers, subway stations and subway commuter facilities. Renewal of the transit portfolio is based on minimizing life cycle cost while maintaining levels of service.
- Non-infrastructure solutions are developed through the Conservation & Demand Management Plan which includes components for the transit fleet as it accounts for a significant portion of the Region's energy use and associated greenhouse gas emissions;
- Operations and maintenance of the asset portfolio is based on industry standards, and includes:
  - Continuing to conduct routine and preventative maintenance activities according to legislative requirements; and
  - Assessing consequential operational and maintenance requirements of significant new infrastructure planned to be added to the asset portfolio.

Risks Associated with the Strategy

Within the Transit service area, risks relating to infrastructure failure include not meeting service standards such as published transit schedules, which could affect public trust in the service. Ensuring that vehicles are in suitable operating condition will help to avoid claims from the public or fines.

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently, the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019-2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

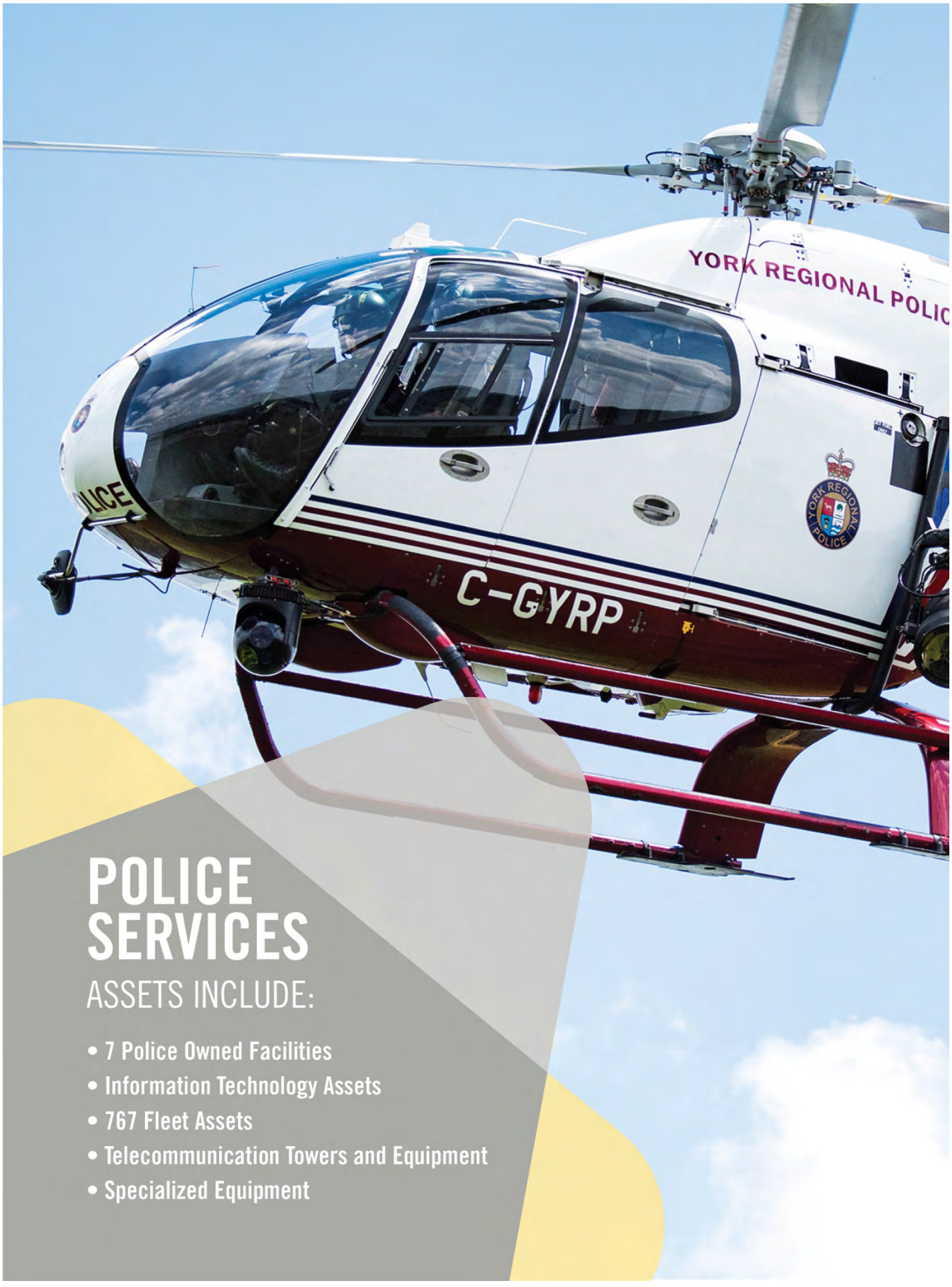
To meet the demand for expanded services, the Region constructs new assets and extends the capacity of the asset portfolio, in addition to implementing non-infrastructure strategies. The 10-Year 2017 Growth Capital Program totals $382 million for an estimated service area asset portfolio replacement value at the end of 2026 of $940 million in 2016 dollars. The estimated costs to service asset growth from 2026 to 2041 are based on asset growth being more or less proportional to population growth over the same period.

Capital Forecast - Asset Renewal of Existing Infrastructure

The funding required to renew existing assets over the long term, at current levels of service, is determined by applying the asset management renewal strategy to the asset portfolio. Future average annual renewal needs including growth are calculated proportional to the increased size of the asset portfolio based on what is outlined in the planning documents.

Operating Forecast - Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $216.5 million in operations and maintenance needs.



POLICE SERVICES

ASSETS INCLUDE:

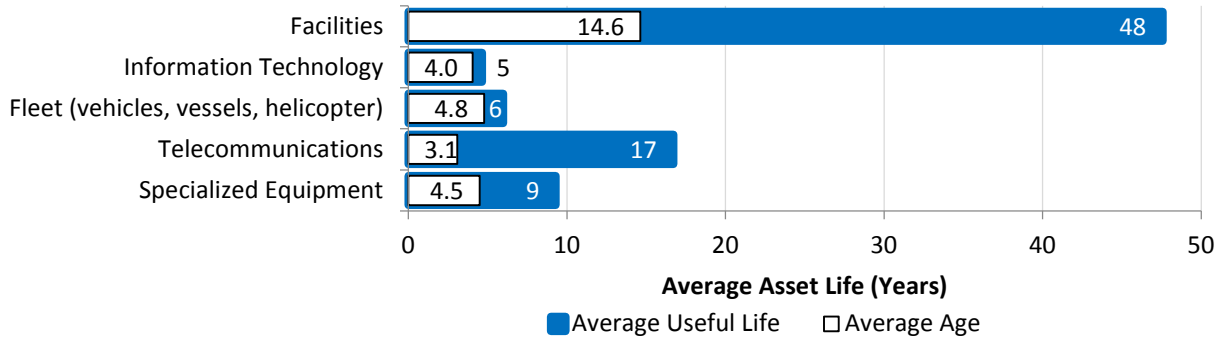
- 7 Police Owned Facilities
- Information Technology Assets
- 767 Fleet Assets
- Telecommunication Towers and Equipment
- Specialized Equipment

POLICE SERVICES – York Regional Police

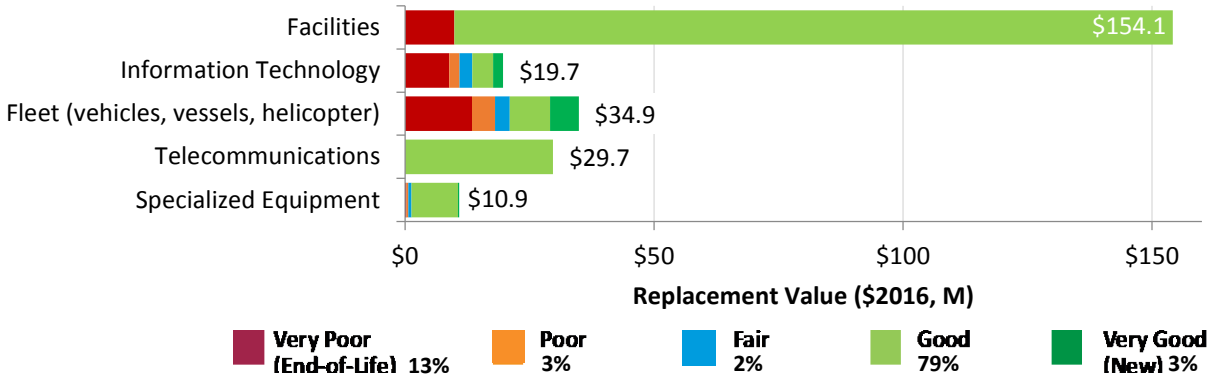
State of Infrastructure ($249.3 million)

York Regional Police provides crime prevention and law enforcement to the Region's nearly 1.2 million citizens. There are 2,200 dedicated sworn and civilian members who serve the Region's diverse communities, ensuring that our neighbourhoods, roads and schools are safe for all residents.

Although many of the assets are relatively new due to recent growth, some of the shorter lived assets are reaching the middle to later stages of their useful lives (on average) and will require rehabilitation or replacement in the upcoming years.



The Region's police assets have been assessed based on age and are generally in good condition. Assets shown in poor and very poor condition are in the latter stages of their useful life and have been inspected to ensure functionality. The end of life (red) portion of the facilities bar is #1 District Headquarters, which was originally constructed in 1950 and is scheduled for replacement (plus expansion) in 2019 and 2020. The end of life (red) portion of the fleet bar consists mostly of support vehicles and does not include those directly involved in policing activities.



Levels of Service

This program area provides crime prevention, safe streets and schools, community policing, reaching out to diverse communities through our ethnic media partners, plus initiatives such as a mental health co-responder model in collaboration with external partners.

Levels of service will be developed and documented as per the actions noted in Section 8: Required Actions and Continuous Improvement.

Asset Management Strategy

Expansion of the physical asset portfolio is based on the 15-Year Police Services Capital Program and includes:

- A district multi-function building growth portion, a training facility, a sub-station outlook, and a district marine headquarters, land acquisition; and
- New vehicles, marine boats, police helicopter, specialized equipment, portable & mobile gear, business intelligence and data governance retention management.

Renewal of the asset portfolio is based on minimizing life cycle cost while maintaining levels of service. The asset management strategies for facilities are based on typical facility renewal treatment schedules and renewal rates. All other assets are included in an age-based renewal program developed by asset type.

Operations and maintenance of the asset portfolio is based on industry standards which dictate that the Region:

- Continue to carry out maintenance of the Region's assets to ensure safety and preservation of assets;
- York Regional Police buildings are maintained by Facilities & Capital Projects. Condition is evaluated on a rotating basis using inspection and checks through a work order system. A standard approach and rating method is used to compile building condition reports with forecasted cost analysis. Deficiencies are identified and scheduled for resolution through capital and operating investments. Priority is taken to maintain mission critical assets impacting delivery of front line service; and
- Assessments on roofs occur every 4 years and buildings every 5 years.

Risks Associated with the Strategy

Risks relating to asset failure are mitigated through investment planning, inspection and maintenance programs which provide the necessary data to ensure that the work required to achieve the established levels of service is identified. Annual capital and maintenance programs and associated budgets ensure that funding to undertake the necessary work is provided. Currently, the Region is developing a Corporate Risk Framework for Asset Management as per Section 8: Required Actions and Continuous Improvement.

ASSET MANAGEMENT IN ACTION

Majority of assets are replaced, based on age criteria, to ensure reliability

Financing Strategy

This Corporate Asset Management Plan is the first step in identifying non-core asset funding requirements for asset management needs going forward. Currently the Region is developing a strategy how best to finance these needs through the multi-year budget process 2019 - 2022 inclusive.

Capital Forecast – New Infrastructure Required to Service Growth

To meet the demand for expanded services, the Region constructs new and extends the capacity of the asset portfolio, in addition to implementing non-infrastructure strategies. The 2017 Development Charges Background Study program totals $227 million for an estimated service area asset portfolio replacement value of $477 million in 2016 dollars by the end of 2031. The estimated costs to service asset growth from 2031 to 2041 are based on asset growth being more or less proportional to population growth over the same period.

Capital Forecast - Asset Renewal of Existing Infrastructure

The funding required to renew existing assets over the long-term, at current levels of service, is determined by applying the asset management renewal strategy to the asset portfolio. Future average annual renewal needs including growth are calculated proportional to the increased size of the asset portfolio based on what is outlined in the planning documents. Renewal needs are currently being evaluated and this work will help inform the next multi-year budget.

Operating Forecast – Operations and Maintenance Needs

The 2016 operating budget included a gross amount of $330.9 million for Police Services operations and maintenance needs. Annual operating costs are expected to increase proportional to the increased size of the asset inventory.

7. Community Levels of Service for Core Assets

7.1 Overview

This section describes the current community levels of service provided by core assets, based on their current performance. It is intended to provide some insight into the services that are currently provided by these assets and will help to inform development of proposed levels of service, in the future.

7.2 Community Levels of Service (per O. Reg. 588/17)

The following describes the Region's community levels of service for core infrastructure assets.

7.2.1 Transportation Services

Roads

The road network and its level of connectivity

An interconnected mobility system that encourages active transportation, and is supported by compact, complete communities is essential to creating a healthy, economically- vibrant, socially-connected and sustainable Region. The delivery of this interconnected system of mobility is supported by the progressive objectives, policies and actions embedded in many of the Region's Council-approved plans and documents, including Vision 2051, the Regional Official Plan (2010) and the 2015 to 2019 Strategic Plan.

Performance measurement is a key aspect of ensuring objectives and initiatives are being met in the years following the development of the Transportation Master Plan (TMP). Ongoing monitoring and evaluation helps determine the effectiveness of the objectives, policies and program improvements moving forward. **Figure 7-1** shows the proposed strategic goods movement network.

The Region is developing a framework to evaluate and report on the progress and effectiveness of the TMP. The framework of indicators will be structured to align with the Region's Vision 2051, the Regional Official Plan (2010) and the strategic objectives of the TMP. Accurately evaluating the progress, effectiveness and implementation of the TMP will help ensure the Region is on the right track moving forward so that residents and stakeholders know where the Region is headed.

The different levels of road class pavement condition

Pavement condition levels of service are defined by the Pavement Condition Index (PCI) and vary by road environment (urban or rural) and by maintenance class, as established by the Ontario Ministry of Transportation classification system based on the posted speed and traffic volume.

Pavement condition data is collected on the entire road network every two years. Data collected includes the type, extent and severity of distresses (cracks and rutting) and smoothness or ride comfort of the road. An overall PCI is calculated from all collected data and is used as input into the annual road resurfacing and reconstruction program. The index is scaled from zero to one hundred and has been divided into ranges to assess condition as shown in **Table 2-3**. Examples of Regional roads in each of the PCI rating categories are provided in **Table 7-1**.

Figure 7-1 Proposed Strategic Goods Movement Network - Transportation Master Plan

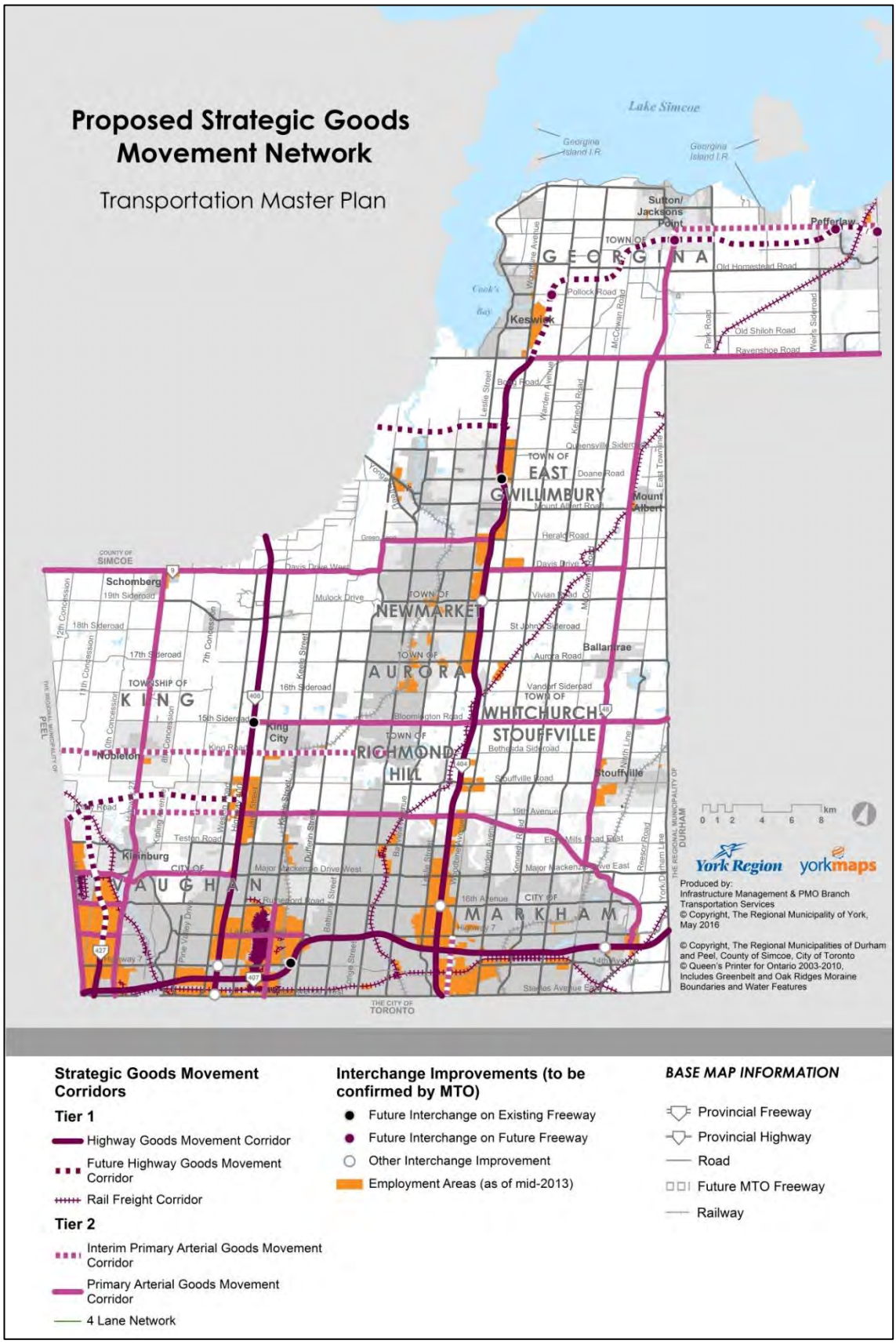
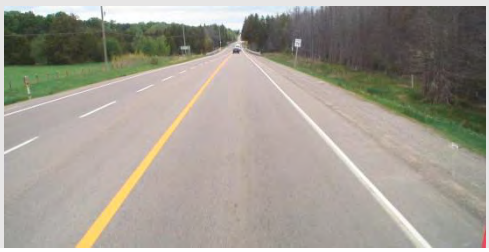


Table 7-1 Pavement Condition Grade Examples

Very Good (PCI = 90 to 100)	Segment 07-28 PCI = 92 	Segment 65-34 PCI = 93 
Good (PCI = 80 to 89)	Segment 68-01 PCI = 88 	Segment 27-22 PCI = 85 
Fair (PCI = 60 to 79)	Segment 57-01 PCI= 71 	Segment 67-10 PCI = 61 
Poor (PCI = 50 to 59)	Segment 12-08 PCI = 57 	Segment 88-34 PCI =57 
Very Poor (PCI = 0 to 49)	Segment 06-01 PCI = 49 	Segment 34-12 PCI =46 

Bridges and Culverts

The traffic that is supported by municipal bridges

The Ontario Ministry of Transportation (MTO) defines:

- A bridge as "a structure which provides a roadway or walkway for the passage of vehicles, pedestrians or cyclists across an obstruction, gap or facility and is greater than or equal to 3.0 meters in span"; and
- A structural culvert as "a structure that forms an opening through soil and has a span of 3 meters or more, or has the sum of the individual spans of 3 meters or more, for adjacent multiple cell culverts".

The Region's bridges have been designed in accordance with the Bridge Design Code current at the time of construction to carry heavy transport vehicles, motor vehicles, emergency vehicles, cyclists and pedestrians.

The need for mobility requires that the Region's roadway system be kept in a state of good repair.

Structures are a vital part of this system. The efficiency of the system is impaired and the public inconvenienced if a structure fails or its load-carrying capacity is reduced for any reason. To avoid such failings, an effective structure management system is required.

An essential component of a structure management system is systematic inspection. In accordance with O. Reg. 104/97: Standards for Bridges, the Region conducts detailed inspections of all of its bridges every two years. All inspections are supervised by a trained, professional engineer following the guidelines in Ontario's Structure Inspection Manual (OSIM), which sets standards for the visual inspection and condition rating of bridges and their elements.

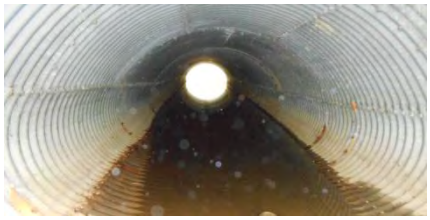
The inspector assesses each bridge element and records the amount of the element in each of three condition states: Good, Fair and Poor. The inspector also records suspected performance deficiencies and recommends maintenance and renewal activities, with costs.

The typical follow-up action for a suspected load carrying capacity deficiency would be to carry out a strength evaluation of the structure (or element) to determine the load-carrying capacity in accordance with the requirements of the Canadian Highway Bridge Design Code. The Region is responsible to pass any load limit by-law including load limit posting and duration, supported by two professional engineers' stamps. Currently, the Region has no bridges or structural culverts with load limit postings.

An overall Bridge Condition Index (BCI) is calculated from all collected data and is used as input into the annual bridge and structural culvert rehabilitation and reconstruction program. The index is scaled from zero to one hundred and has been divided into ranges to assess condition as shown in **Table 2-3** (Good, Fair, Poor). The BCI is not used to rate or indicate the safety of a bridge or structural culvert. Any safety issues are immediately reported by the inspector to supervising engineers and maintenance crews.

Table 7-2 provides examples of bridges and structural culverts in each of the three condition grades: Good, Fair and Poor.

Table 7-2 Bridge Condition Grade Examples

Condition Grade	Road Bridge Examples	Road Culvert Examples
Good (BCI is >70 to 100)	Bridge 34-06 B0010 BCI = 74 	Culvert 49-18 C0211 BCI = 88 
Fair (BCI is >60 to 70)	Bridge 07-10 B1580 BCI = 69 	Culvert 49-28 C0800 BCI = 68 
Poor (BCI is 0 to 60)	Bridge 67-38 B0859 BCI = 44 	Culvert 11-12 C0040 BCI = 57 

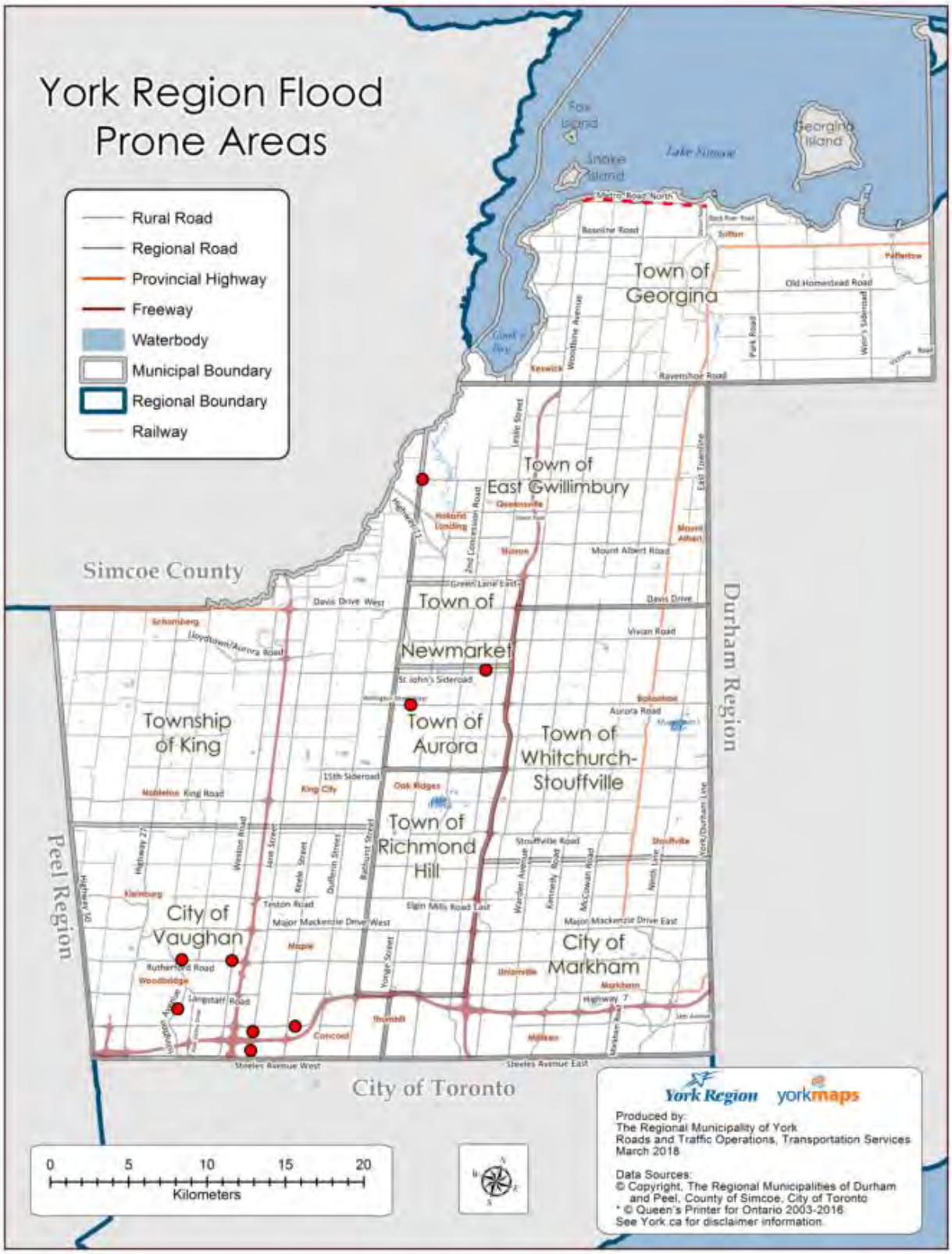
Stormwater Management

Areas protected from flooding

York Region is approximately 1,776 square kilometres in area, stretching from the City of Toronto in the south to Lake Simcoe and the Holland Marsh in the north, and bounded by Peel Region to the west and Durham Region to the east. The dominant physical features of York Region include Lake Simcoe and the Oak Ridges Moraine, an east-west rolling topography, including forested areas, wetlands and kettle lakes covering 500 square kilometres.

The Regional road network has limited areas that are prone to flooding and this is only as a result of high intensity localized events (concentrated rainfall or run-off). **Figure 7-2** provides a map of York Region indicating the historical flooding locations. There are now 10 flood prone areas within the Region, down from twelve in 2013, across York Region. The location on Warden Avenue (south of Major Mackenzie Drive) in the City of Markham was corrected as part of the Warden Avenue bridge reconstruction project completed in 2015. The location on Highway 7 in the City of Markham, east of Highway 404, was corrected in advance of the Viva Rapidway project, also completed in 2015.

Figure 7-2 York Region Flood Prone Areas



7.2.2 Environmental Services

Water and Wastewater

York Region, in partnership with nine local municipalities, is responsible for providing municipal drinking water and wastewater services to the community. Although customer interaction with these services is limited to common household fixtures, complex infrastructure systems are required to ensure services are available on demand.

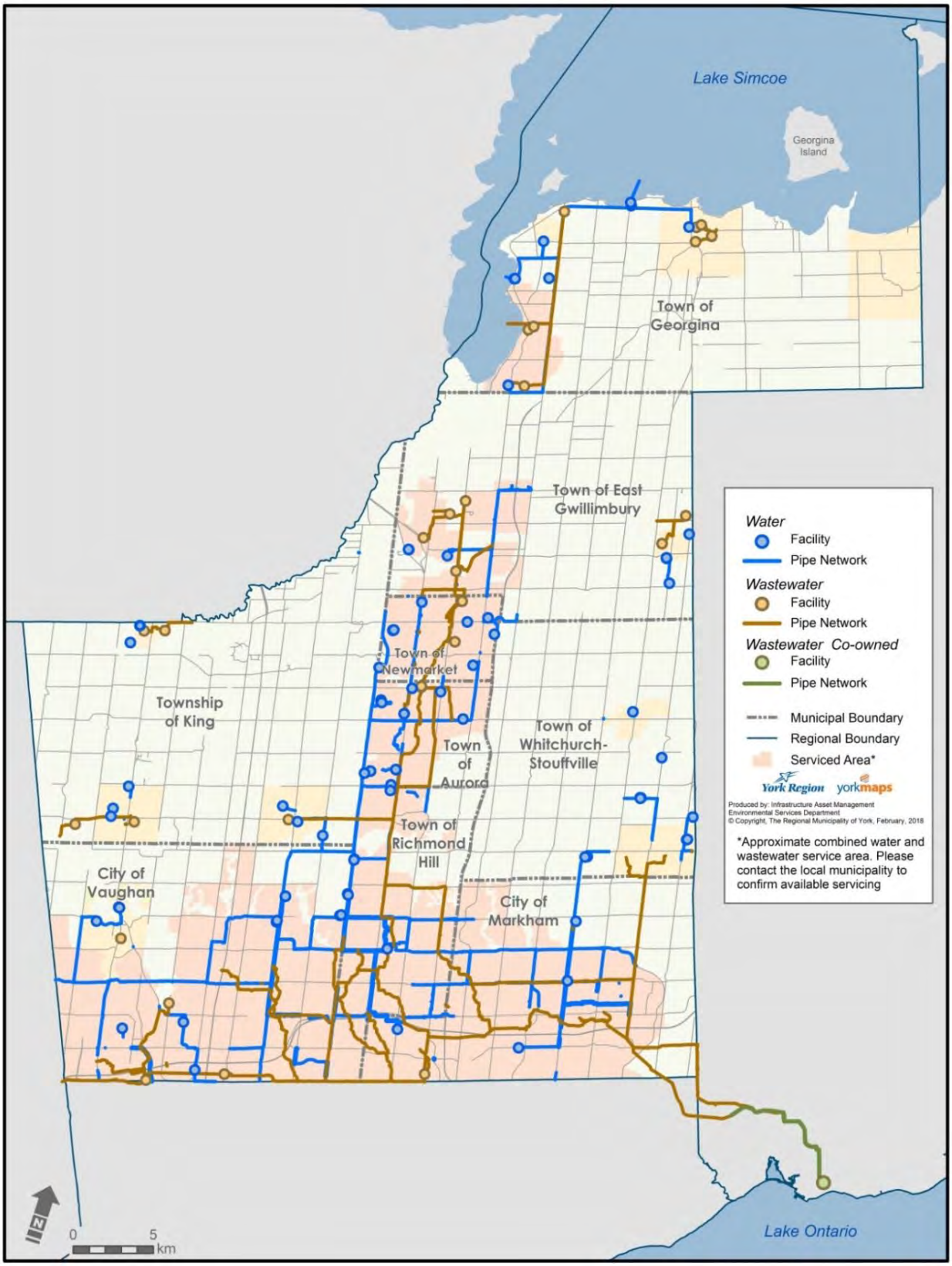
The Region is the wholesale supplier of water to its nine local municipalities, responsible for bulk supply, treatment and storage. York Region has direct access to Lake Simcoe and groundwater sources, but does not border Lake Ontario, the primary source of drinking water for southern Ontario. The Region has long term agreements with the Region of Peel and the City of Toronto for the supply of treated drinking water from Lake Ontario that together supply approximately 88 per cent of York Region's total demand. The balance comes from Lake Simcoe and regional groundwater wells.

York Region's drinking water supply is therefore currently divided into several distinct systems: the Lake Ontario-based York Water System, the Lake Simcoe-based Georgina Water System and the various stand-alone groundwater well systems. Communities serviced by stand-alone water systems include Mount Albert (Town of East Gwillimbury), Ballantrae (Town of Whitchurch-Stouffville), Ansnorveldt, Nobleton and Schomberg (Township of King).

In its role as a wholesale provider of wastewater services, York Region collects wastewater from local municipalities and conveys it to treatment plants. It operates a complex system of trunk sewers, pumping stations and wastewater equalization tanks. It co-owns, with Durham Region, the Duffin Creek Water Pollution Control Plant in Pickering, which treats about 85 per cent of the Region's wastewater, as well as, part of the conveyance system to Duffin Creek. York Region also has an agreement with the Region of Peel for the treatment of roughly a further 10 per cent of the Region's wastewater. Finally, York Region operates and maintains seven wholly owned water resource recovery facilities (formerly called water pollution control plants), mainly in the northern part of the Region, that treat the balance.

The Regional wastewater system includes several components: the York Durham Sewage System (including the Peel diversion system) for Aurora, Markham, Richmond Hill, Vaughan, King City, Stouffville and the majority of Newmarket; Georgina Wastewater System, and the stand-alone facilities for Keswick and Sutton (Town of Georgina), Mount Albert (Town of East Gwillimbury), Ballantrae (Town of Whitchurch-Stouffville), Ansnorveldt, Nobleton and Schomberg (Township of King). No combined sanitary and storm sewers exist in the Regional wastewater system. **Figure 7-3** shows the location of Regional water and wastewater assets.

Figure 7-3 Location of Regional Water and Wastewater Assets



Community levels of service

Delivery of water and wastewater services in York Region is governed by a variety of Federal and Provincial Acts, regulations, guidelines, and policies. As such, the Region's baseline level of service is to provide continuous, uninterrupted water and wastewater services that meet all regulatory requirements. It is important to note that even with intended continuous uninterrupted service, occasional service interruptions may occur due to planned maintenance or unplanned emergencies.

To support this objective, York Region is committed to continuously improving its drinking water systems by maintaining ISO 9001 certification and operating under the Drinking Water Quality Management Standard. The Region uses its Integrated Management System (IMS) to ensure compliance with these standards and drive continuous improvement in the system. Similarly, wastewater effluent quality assurance and control measures include an extensive sampling program and controls required by the ISO 14001 Environmental Management Standard, which is captured by the IMS.

Development of current and future community levels of service

The Region's Vision 2051 and Regional Official Plan provide high-level guidance to what community levels of service must address. York Region's water and wastewater community levels of service have been developed by assessing the availability, health and safety and affordability of water and wastewater services. These three areas are evaluated through more granular attributes and align with those prescribed in O. Reg. 588/17. **Table 7-3** shows how water and wastewater community levels of service are translated into action.

Water and wastewater community levels of service are reviewed every five years through Water and Wastewater Master Plan Updates as part of the Region's Municipal Comprehensive Review process. The most recent Water and Wastewater Master Plan Update was completed in 2016 which identified the Regional initiatives and infrastructure investments required to meet servicing needs to 2041 and beyond. These actions are incorporated into this plan.

Table 7-3 Translating Water and Wastewater Community Levels of Service into Action

Community Level of Service	Service Attribute	Example of Service Attribute
Are water and wastewater services accessible? ***This metric discusses access to the service now and in the future***	Scope & Capacity	Per cent of urban properties serviced by the public potable water and wastewater networks by York Region infrastructure
		Number of unplanned service interruptions attributed to York Region infrastructure
		Per cent of growth accounted for in servicing Water and Wastewater Master Plan
Is drinking water safe? ***How does wastewater impact my community?*** ***This metric assesses health and safety related to the service***	Reliability	Per cent of drinking water samples that met Ontario Drinking Water Standard per year
		Number of boil water advisory notices per year attributed to York Region infrastructure failure
		Per cent of wastewater treated prior to return to the environment
		Number of wastewater sampling results exceeding ECA limits
		Per cent of serviced properties serviced with fire flow
Are water and wastewater services affordable and cost efficient? ***This metric assesses financial considerations***	Financial	Infrastructure Replacement value per capita
		Per cent of infrastructure captured in the User Rate Study

8. Required Actions and Continuous Improvement

8.1 Overview

This section outlines recommended actions that will advance asset management across York Region. These actions respond to an assessment of current asset management planning against the new regulatory requirements, as well as, reflecting the Region's commitment to continuous improvement.

In drawing up this plan, a third party carried out a regulatory gap analysis. In addition to identifying gaps, this exercise suggested other opportunities for improvement.

None of the gaps identified by the analysis affected the Region's compliance with the requirements of O. Reg. 588/17 Phase 1 – Current Levels of Service for Core Assets.

The analysis set out proposed action items in two categories:

- Requirements to meet O. Reg. 588/17, as shown in **Table 8-3**; and
- Asset Management Continuous Improvement, as shown in **Table 8-4.**

8.2 Actions to Meet O. Reg. 588/17

O. Reg. 588/17, the regulation on asset management planning under the *Infrastructure for Jobs and Prosperity Act, 2015,* requires that:

- Every municipality prepare a strategic asset management policy by July 1, 2019 and shall review it and, if necessary, update it at least every five years;
- Every municipality prepare an asset management plan, with current levels of service, in respect of its core municipal infrastructure assets by July 1, 2021, and in respect of all of its other municipal infrastructure assets by July 1, 2023;
- Every municipality prepare an asset management plan, with proposed levels of service, in respect of all of its municipal infrastructure assets by July 1, 2024;
- Every asset management plan must indicate how all background information and reports upon which the information is based will be made available to the public;
- Every asset management plan must be endorsed by the executive lead of the municipality, and approved by a resolution passed by the municipal council; and
- Every municipality review and update its asset management plan at least every five years.

This 2018 Corporate Asset Management Plan meets the regulatory requirements for asset management plans with current levels of service, for core municipal infrastructure assets (water, wastewater, stormwater, roads, bridges and culvert assets) well in advance of the July 1, 2021 deadline.

Tables 8-1 and **8-2** summarize the Region's current state of compliance with O. Reg. 588/17. **Table 8-1** summarizes the status for core assets, with page numbers referring to the portion of the document which demonstrates compliance with the respective portion of the regulation and **Table 8-2** provides the status for non-core assets.

The Region has already met the regulatory requirement for a strategic asset management policy. The tables show that this plan meets requirements around core assets, for which the deadline is July 1, 2021. The gaps that were identified relate to requirements in the regulation after that date.

Table 8-1 Corporate-Wide Regulation Status - Core Assets

	Phase 1 (Current Levels of Service) by July 1, 2021				Phase 2 (Proposed Levels of Service) by July 1, 2024			
Service Area	**State of Infrastructure**	**Current Levels of Service**	**Asset Management Strategy**	**Financing Strategy**	**State of Infrastructure**	**Proposed Levels of Service**	**Asset Management Strategy**	**Financing Strategy**
Wastewater	Compliant (pg. 64)	Compliant (pg. 65)	Compliant (pg. 66)	Compliant (pg. 67)	Compliant (pg. 64)	In Progress	Compliant (pg. 66)	Compliant (pg. 67)
Water	Compliant (pg. 70)	Compliant (pg. 71)	Compliant (pg. 73)	Compliant (pg. 74)	Compliant (pg. 70)	In Progress	Compliant (pg. 73)	Compliant (pg. 74)
Roads	Compliant (pg. 77)	Compliant (pg. 78)	Compliant (pg. 79)	Compliant (pg. 79)	Compliant (pg. 77)	In Progress	In Progress	In Progress

Table 8-2 Corporate-Wide Regulation Status - Non-Core Assets

	Phase 1 (Current Levels of Service) by July 1, 2023				Phase 2 (Proposed Levels of Service) by July 1, 2024			
Service Area	State of Infrastructure	Current Levels of Service	Asset Management Strategy	Financing Strategy	State of Infrastructure	Proposed Levels of Service	Asset Management Strategy	Financing Strategy
Housing Services	Compliant	In Progress	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress
Paramedic Services	Compliant	In Progress	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress
Seniors Services	Compliant	In Progress	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress
Information Technology	Compliant	In Progress	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress
Property Services	Compliant	In Progress	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress
Energy Management	Compliant	Compliant	Compliant	Compliant	Compliant	In Progress	Compliant	In Progress
Forestry	Compliant	Compliant	Compliant	Compliant	Compliant	In Progress	Compliant	In Progress
Waste Management	Compliant	Compliant	Compliant	Compliant	Compliant	In Progress	Compliant	In Progress
Roads	Compliant	Compliant	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress
Transit	Compliant	Compliant	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress
Police Services	Compliant	In Progress	In Progress	In Progress	Compliant	In Progress	In Progress	In Progress

The Region is in the process of developing a road map to continue to meet regulatory requirements over the next six years. **Table 8-3** sets out needed actions, with timelines that will ensure compliance well in advance of deadlines. Action items are described in detail following the table.

Table 8-3 Action Items Required to Meet O. Reg. 588/17

Action Item Number	Action	Completion By		O. Reg. 588/17 Requirement
		2021	2022	
1	Improve asset inventories for non-core assets	X		Phase 1 By July 1, 2023
2	Develop current levels of service for non-core assets	X		
3	Develop a life cycle strategy for non-core assets	X		
4	Document a financing strategy for non-core assets	X		
5	Create or finalize Asset Management Plans for service areas that currently do not have them		X	
6	Ongoing update of asset inventories	X		Phase 2 By July 1, 2024
7	Document proposed levels of service for core and non-core assets	X		
8	Document life cycle strategies for core and non-core assets	X		
9	Document financing strategy for lifecycle activities, core and non-core assets	X		
10	Update Corporate and Departmental Asset Management Plans		X	

Phase 1 (O. Reg. 588/17 deadline of July 1, 2023)

The following provides more detail on the Phase 1 action items in **Table 8-3.**

Action Item #1: State of Infrastructure (Non-Core Assets): Ensure that asset inventories are accurate and at an appropriate level in the asset hierarchy to enable effective management of the assets. Generally, this entails disaggregating assets to the level at which renewal treatments will be applied and at which assets have similar life cycles. For example, non-core assets such as Housing Service, Information Technology, Property Services, Energy Management, Forestry and Police have asset inventories however the accuracy and level of detail will need to be confirmed and adjusted as required. The asset inventory for a building requires a hierarchy set-up with appropriate sub assets such as heating and ventilating equipment, generators, roofs, parking lots, etc. to ensure the effective management of the assets over their life cycles. Each asset in the inventory should include a unique identifier, asset description and location, installation/acquisition date, planned and actual maintenance completed, life cycle costs (historical, replacement, operations, maintenance, and disposal costs), expected useful life, and condition;

Action Item #2: Levels of Service (Non-Core Assets): Identify stakeholder and organizational objectives, including regulatory requirements. Identify current and future service area needs including capacity and reliability needs. Define community and technical service levels through appropriate measures with targets or triggers for application of life cycle activities. Evaluate current and forecasted future performance against the defined levels of service to identify performance gaps;

Action Item #3: Life Cycle Strategy (Non-Core Assets): Conduct risk and best life cycle cost analyses, based on identified capacity and reliability performance gaps. Risk analyses to align with the Region's Climate Change Action Plan that is expected to be completed in 2019 and will be considered in future Corporate Asset Management Plan updates. Life Cycle strategies are to be used to help inform and determine growth, renewal, operations and maintenance activities needed to maintain current levels of service;

Action Item #4: Financing Strategy (Non-Core Assets): Develop and document financial strategies developed using the multi-year budget to identify the capital and operating funds needed over the following 10 year period, based on the identified life cycle strategies, to deliver current levels of service; and

Action Item #5: Asset Management Plans (Non-Core Assets): Clearly document the above asset management planning in an asset management plan.

Phase 2 (O. Reg. 588/17 deadline of July 1, 2024)

The following provides more detail on the Phase 2 action items in **Table 8-3.**

Action Item #6: State of Infrastructure: Ensure that ongoing updates of asset inventories are accurate and at an appropriate level in the asset hierarchy to enable effective management of the assets, as described above in Action Item #1;

Action Item #7: Levels of Service: Document the levels of service the Region proposes to provide over the 10 years that follow the date of the asset management plan, including any changes from current

levels of service, levels of service options that were considered, risks to long-term sustainability, and demonstration of affordability. Document the proposed performance for each year in the 10 years that follow the date of the asset management plan;

Action Item #8: Life Cycle Strategy: Document asset management life cycle strategies to provide proposed levels of service, including the cost-benefit and risk analysis of life cycle activity options considered, and an estimate of annual life cycle capital and significant operating costs for each of the 10 years that follow the date of the asset management plan. Risk analyses to align with the Region's Climate Change Action Plan that is expected to be completed in 2019 and will be considered in future Asset Management Plan updates;

Action Item #9: Financing Strategy: Develop and document financing strategies developed using the multi-year budget to fund all life cycle activities including revenue source options examined to fund the plan, and any identified shortfalls and associated risks; and

Action Item #10: Asset Management Plan: Clearly document the above asset management planning in an asset management plan, including the risks associated with implementing the asset management plan and any actions that would be proposed in response to those risks.

8-3 Asset Management Continuous Improvement

The Region has already built significant capability in its asset management practice. **Table 8-4** outlines actions over the next five years to support continuous improvement. Action items are described in detail following the table**.**

Table 8-4 Continuous Improvement Actions

Action Item Number	Action	Completion By		Comments
		2021	2022	
11	Improve Corporate Asset Management Strategy	X		Improve compliance with Corporate Asset Management Policy
12	Improve coordinated effort across the organization in asset management	Ongoing		Ongoing through Corporate Asset Management Committees
13	Develop and improve asset management processes	Ongoing		As per the Corporate Asset Management Gap Assessment Report (04/2018)
14	Evaluate cost, risk and performance	X		Compliance with the Corporate Asset Management Policy
15	Further develop and implement the fiscal strategy	Ongoing		Align with asset management plans through the next multi-year budget in 2018

Action Item Number	Action	Completion By		Comments
		2021	2022	
16	Strengthen corporate data management capabilities		X	Through Corporate Asset Management Committees
17	Lead Region wide asset management collaboration	X		
18	Include business software in the next Corporate Asset Management Plan update	X		
19	Include data in the next Corporate Asset Management Plan update		X	

Asset Management Continuous Improvement Actions

The following provides more detail on the actions in **Table 8-4.**

Action Item #11: Improve Corporate Asset Management Strategy: Continue to develop Region-wide Corporate Asset Management Strategy as per the Council approved Corporate Asset Management Policy to standardize where possible and align best management approaches that are currently in place across various departments;

Action Item #12: Improve coordinated efforts: Continue to improve coordinated effort between and among departments as asset management matures across the organization. Guided by the Corporate Asset Management Policy, coordination has been improving for a number of years, examples include developing a Corporate Risk Framework for assets, aligning life cycle data to support improved financial planning and investment decisions, piloting data standardization, and standardizing Departmental Asset Management Plans. Continuing to improve coordination efforts can advance asset management in similar, cost-effective and efficient ways;

Action Item #13: Asset Management Process Development: Continue to develop and improve asset management processes, including those related to updating inventory data, reviewing program and technical performance against objectives, formulating and funding best life cycle cost programs to address identified performance gaps, and implementing life cycle plans;

Action Item #14: Cost, Risk and Performance Evaluation Strategy: Develop the ability to evaluate and appropriately balance cost and risk for various levels of service, including processes and frameworks (e.g. the Region is currently developing a Corporate Risk Management Framework for assets to provide risk data to form part of this action item);

Action Item #15: Fiscal Strategy: Further develop and implement the Regional Fiscal Strategy to support financial sustainability of asset management;

Action Item #16: Corporate Data Management Capabilities: Strengthen corporate data management capabilities and systems to better support the Region's asset management strategy and practices;

Action Item #17: Customer Focused Collaboration Strategy: Increase collaboration with York Region's nine local municipalities to define levels of service and leverage other opportunities to coordinate asset management;

Action Item #18: Software/Information Technology Strategy: Add business software applications as assets to information technology asset inventory in future Asset Management Plans;

Action Item #19: Data and Information Strategy: Develop plans to manage Regional data and information as Regional assets to ensure their continuing value; and

The 19 action items outlined above will be implemented through the Corporate Asset Management Steering and Coordinating Committees.

Status: Final
Approved By: Council

The Regional Municipality of York

CORPORATE ASSET MANAGEMENT POLICY

Policy No.: 8201695

Original Approval Date: November 21, 2013

Policy Last Updated: February 15, 2018

Policy Statement:

York Region assets will be managed through a coordinated approach that ensures financial sustainability following recognized asset management principles guided by the Region's Strategic Plan and Vision 2051.

Application:

This policy applies to all Regional staff involved in asset life cycle management, which includes planning, design/construction/acquisition, operation and maintenance, rehabilitation, renewal/disposal, and monitoring/reporting of owned in whole or in part, leased or operated Regional assets.

Purpose:

This policy is to provide clear objectives for asset management practices across all Regional departments to enable a consistent, coordinated and affordable approach to provide the services required to meet customer expectations. Asset Management at the Region is to be guided by the following objectives:

- Adopt and advance industry leading asset management practices that align with established standards and legislation;

- Provide defined levels of service which are balanced against considerations of costs and risks;
- Align Asset Management Plans with the Regional Fiscal Strategy;
- Demonstrate financially sustainable life cycle management by appropriately balancing cost, risk and performance to achieve full value from assets;
- Improve evidence-based decision-making from in-service asset data related to expenditures, operations and maintenance; and
- Ensure organizational accountability and transparency by engaging customers to provide input into asset management planning.

Definitions:

Asset[1]: Item, thing or entity that has potential or actual value to an organization. Value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities.

Asset Management[1]: Coordinated activity of an organization to realize value from assets. Realization of value will normally involve an appropriate balancing of costs, performance and risks, opportunities and performance benefits.

Asset Management Plan[1]: Documented information that specifies the activities, resources, and timescales required for an individual asset, or grouping of assets, to achieve the organization's asset management objectives.

Level of Service[1]: Parameters or a combination of parameters, which reflect social, political, environmental and economic outcomes that an organization delivers from their assets.

Example - Transportation (Roads) – level of service is indicated by different road pavement conditions according to pavement condition index

Life cycle[1]: Phases involved in the management of an asset.

Life cycle data: Includes cost, performance and risk data collected and managed through business processes required to help make well informed, evidence-based decisions in all phases of an asset's life cycle.

Tangible Capital Asset: Per the Region's Tangible Capital Asset (TCA) Policy, TCAs are non-financial assets having physical substance that are acquired, constructed or developed, including land, land improvements, roads, buildings, vehicles, equipment, water mains, sewer mains and capital assets acquired by capital lease or through donation.

[1] *ISO/IEC (2014) 55000 - Asset Management, Geneva, Switzerland: International Organization for Standardization (ISO).*

Description:

The Region is responsible for provision of a diverse array of services which depend on a large financial portfolio of assets. An integral component of ensuring reliable and sustainable services requires an effective approach to managing existing and future municipal assets.

Effective asset management focuses on the value an asset can provide to an organization. Ultimately, adopting effective and comprehensive asset management objectives across an organization will support the long term sustainability and efficiency of all assets to ensure they provide defined levels of service.

Asset Management Framework

To meet the objectives of this Policy, the Region will follow the Corporate Asset Management Framework in Appendix 1. The framework represents the Region's asset management process and stakeholders: Corporate, Departmental, and Customers. The asset management process begins with the alignment of legislative requirements and customer expectations into the Regional Strategic Plan and Fiscal Strategy to ultimately deliver levels of services to both external and internal customers.

The following sections in the framework assist in coordinating efforts across the Region to ensure value is realized from all Regional assets.

Corporate

- Assess and incorporate legislative requirements and customer expectations into the Regional Strategic Plan and Fiscal Strategy
- Maintain Corporate Asset Management Policy by updating every five years, as required
- Develop a Corporate Asset Management Strategy to outline how the Region's asset management objectives will be achieved, and will:
  a. Adopt and adhere to the asset management planning principles listed in Section 3 of the *Infrastructure for Jobs and Prosperity Act, 2015;*
  b. Develop well-coordinated investment planning, capital programming, work management and asset maintenance practices;
  c. Define levels of service that balance customer expectations, compliance and legislative requirements, technological and environmental considerations;
  d. Manage risk, through well-informed decision-making processes which minimize probability of failure and manage the consequences of failure with regards to safety, environmental protection, levels of service and cost impacts;
  e. Develop long term financial plans aligned with the Regional Fiscal Strategy to ensure appropriate capital/operating funding for all asset life cycle phases;

f. Monitor and evaluate the performance of assets and associated programs and track the efficacy of asset management principles and practices to ensure continuous improvement;
g. Ensure the strategy remains up-to-date in view of evolving asset management best practices (i.e. ISO 55000) and professional experience and review and update periodically;
h. Align and rationalize asset management business processes and data management systems to ensure a standardized and coordinated approach to an asset management system;
i. Consider opportunities to coordinate planning between interrelated infrastructure assets by pursuing collaborative opportunities;
j. Align asset management planning with growth management objectives in the Region's Official Plan;
k. Align asset management planning to support implementation of the Region's Climate Change Action Plan and Emergency Response Plan.

- Develop a Corporate Asset Management Plan to provide an overview of the Region's assets, based on departmental asset management plans, and update as required

Departmental

- Obtain in-service asset data to better inform decisions for all asset life cycle phases, including financial expenditures, work and maintenance management, condition assessments, operational performance and risk management
- Collaborate and work with Finance to implement departmental Asset Management Plans through the development of sustainable budgets as part of the annual budget process and alignment with the Regional Fiscal Strategy
- Develop a Departmental Asset Management Plan that aligns with the Corporate Asset Management Policy to provide an overview of the department's assets and asset management approaches and will:
    a. Outline long term goals, processes and steps to make asset management decisions;
    b. Include current asset inventory, performance, and risk management strategies;
    c. Integrate with corporate financial and risk management processes; and
    d. Record tangible capital assets in accordance with the Region's Tangible Capital Asset Policy.

Customers

- Includes both internal and external customers
- Receive and experience service delivery and provide feedback on level of service expectations
- Provide input into asset management planning

Responsibilities

Responsibilities include both internal staff and external stakeholders. Internal staff are outlined in the York Region Asset Management Organization Structure shown in Appendix 2, subject to change as required.

Council

- Approves Corporate Asset Management Policy and Plan, as required
- Serves as representative of customers' needs
- Approves asset funding to ensure required financial sustainability for Asset Management through the annual budget

Executive Lead - Corporate Asset Management Steering Committee

- Co-sponsored by the Commissioners of Environmental Services and Transportation Services, comprised of directors/managers from service areas and support groups within the Region
- Holds overall ownership and accountability for ensuring compliance with this policy and delegates responsibility to the Corporate Asset Management Coordinating Committee the responsibility for the implementation of Departmental Asset Management Programs
- Deliver key objectives as stated in the Region's strategic and business plans in relation to asset management (Strategic Plan, Vision 2051, etc.) and allocate appropriate resources for the achievement of the policy objectives
- Provide a forum for senior level cross-departmental collaboration on initiatives or projects related to asset management

Corporate Asset Management Unit

- Lead and support the Corporate Asset Management Coordinating Committee in their roles and responsibilities and report to the Corporate Asset Management Steering Committee quarterly regarding compliance with this policy
- Responsible for the coordination, implementation and reporting of legislated requirements
- Provide leadership to ensure the objectives of the Asset Management Policy are achieved through the Corporate Asset Management Strategy
- Advance opportunities to improve coordination of effort across the Region such as data sharing, business process alignments, resource sharing, data management systems consolidation, etc. related to asset management

Corporate Asset Management Coordinating Committee

- Led by the Corporate Asset Management Unit, comprised of delegates from service areas and support groups within the Region

- Reports to the Corporate Asset Management Steering Committee, responsible for the development, implementation and continuous improvement of the Departmental Asset Management Programs
- Integrate Departmental Asset Management Plans into Corporate Asset Management Plan
- Provide corporate collaboration with asset management best practices and expertise to guide departmental asset management plans and initiatives
- Champion corporate asset management policy objectives within the respective service areas

Departmental Asset Management Leads

- Leads which govern and maintain the Region's assets in compliance with the Corporate Asset Management Policy and liaise with Finance to ensure a sustainable financial strategy and include delegates from the following departments:
  - Environmental Services (ENV)
  - Transportation Services (TRN)
  - Community and Health Services (CHS)
  - York Regional Police (YRP)
  - Corporate Management (CM) includes Corporate Services and Finance
- Support integration with Corporate Asset Management Policy
- Responsible for the development, implementation, operation and continuous improvement of Departmental Asset Management Programs
- Liaise with Controllership Office – Risk Management to assist and utilize the corporate risk registry process to assess asset risks to help inform decisions
- Liaise with Finance to provide asset management requirements as inputs to the annual budget process and long term financial forecasts, which will ensure that sustainable financial strategies support asset life cycle needs
- Participate in the development and implementation of the Asset Management Plans pertaining to their departments and related asset management initiatives
- Engage customers to obtain feedback on levels of service and asset management planning and incorporate feedback

Customers

- Participate in stakeholder engagement initiatives, where possible
- Provide feedback related to levels of service, service experience, and service expectations

Non-Compliance:

Accountability and compliance with this policy is the responsibility of the Corporate Asset Management Steering Committee. Compliance with the Corporate Asset Management Policy will be monitored by the Corporate Asset Management Unit as required.

Reference:

Legislative and other authorities

- Tangible Capital Asset Policy;
- Municipal Asset Management Planning Regulation;
- *Infrastructure for Jobs and Prosperity Act, 2015;*
- *ISO/IEC (2014) ISO International Standard ISO/IEC 55000;2014 (E) - Asset Management – Overview, Principles and Terminology, Geneva, Switzerland: International Organization for Standardization (ISO).*

Appendices

- Corporate Asset Management Framework

Keyword Search

- Corporate Asset Management, Asset Management Policy

Contact:

Manager, Corporate Asset Management

Approval Information:

Council Approval

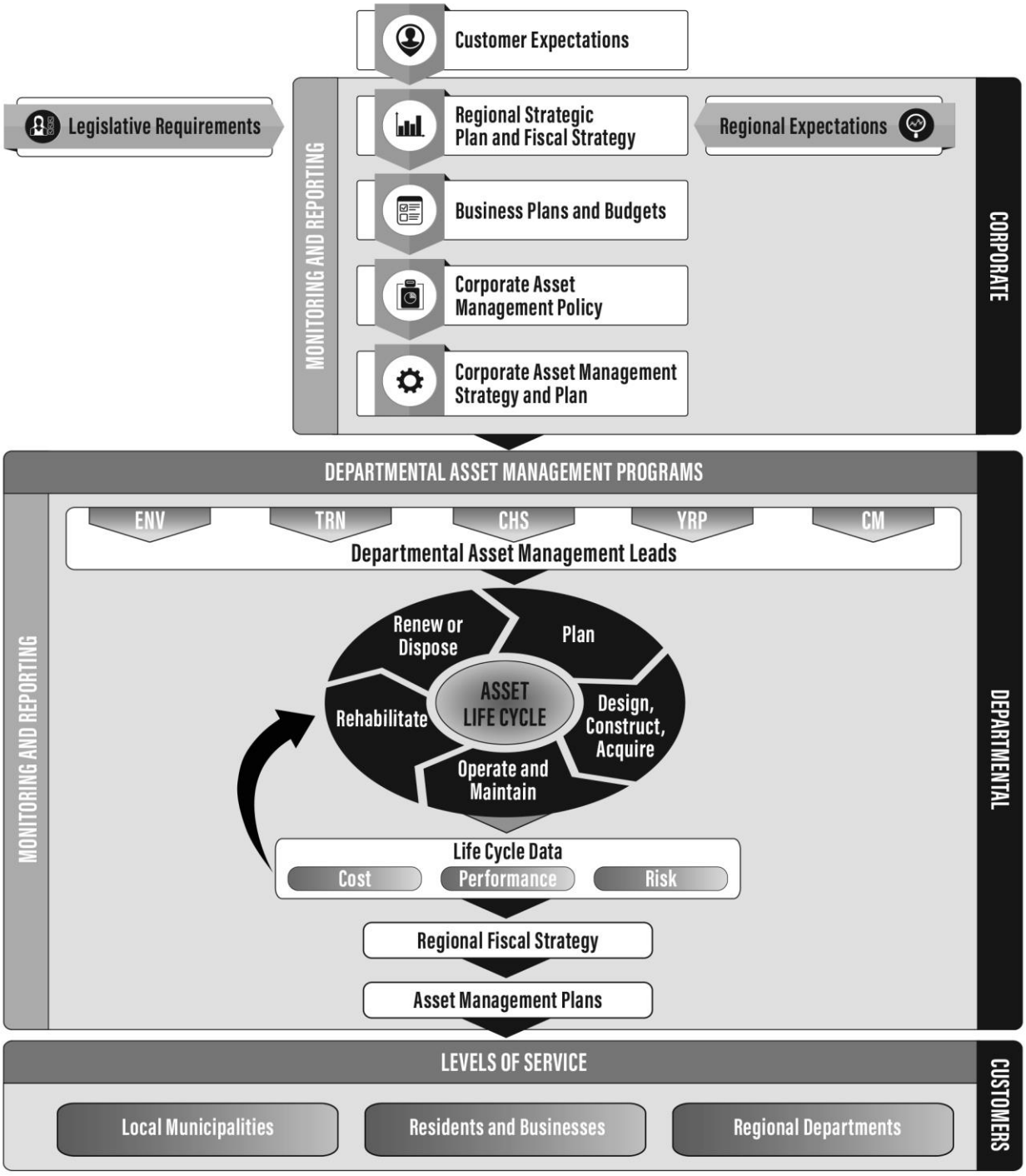
Council Approval Date: February 15, 2018 **Council Minute No.:** 25 **Extract eDOCS #:** 8135656	**Committee Name:** Committee of the Whole **Report No.:** 2 **Clause No.:** 6

8201695 (Policy)

5267618 *(Archived Policy)*

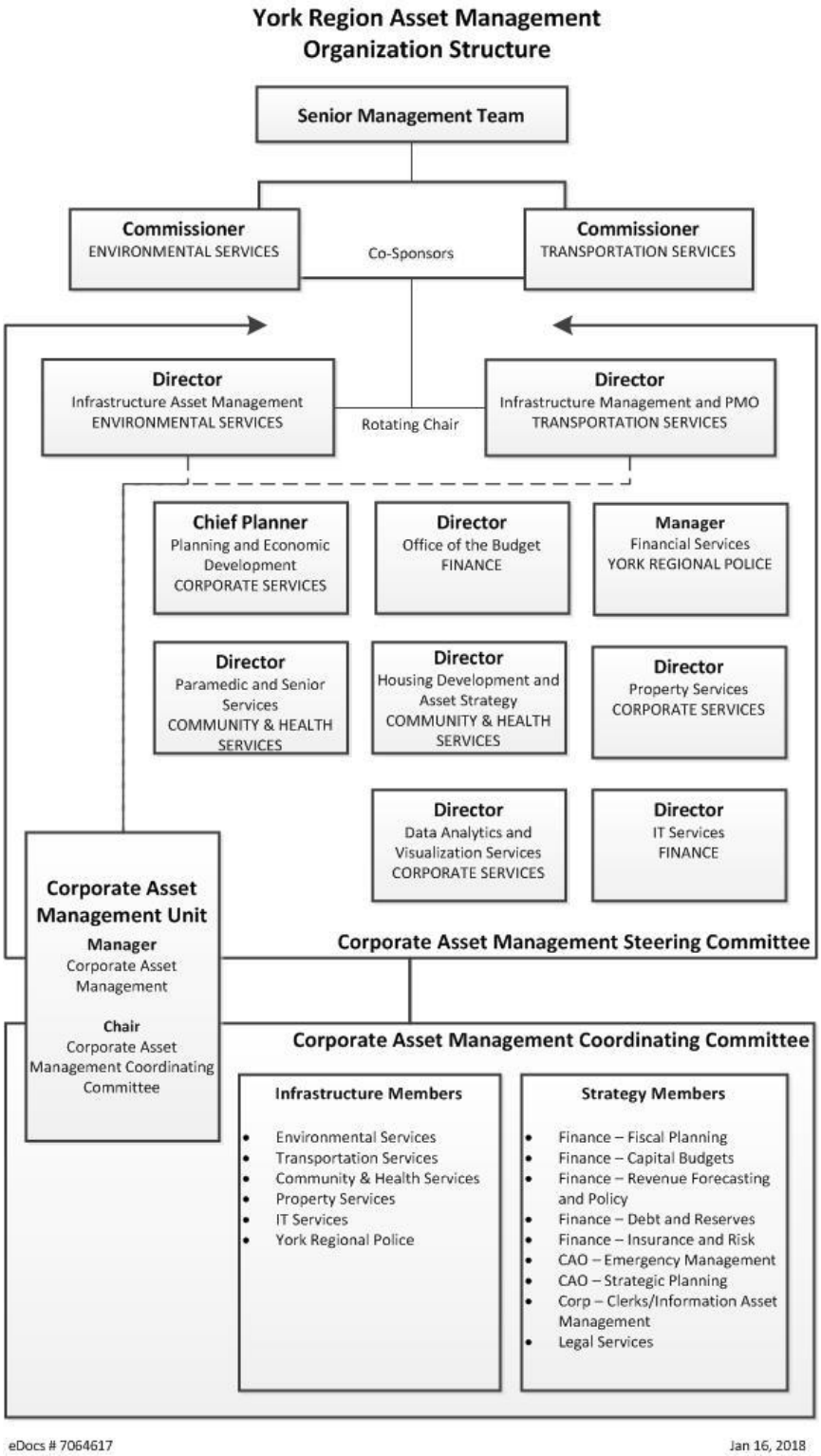
Accessible formats or communication supports are available upon request.

Appendix 1 – Corporate Asset Management Framework



DEPARTMENTAL ASSET MANAGEMENT LEADS:
ENV - Environmental Services **TRN** - Transportation Services **CHS** - Community & Health Services
YRP - York Regional Police **CM** - Corporate Management (includes Corporate Services & Finance)

Appendix 2 – York Region Asset Management Organization Structure



2018 CORPORATE

ASSET MANAGEMENT PLAN

The Regional Municipality of York
Environmental Services Department
Administrative Centre – 2nd Floor

1-877-464-9675

york.ca

Accessible formats or communication supports are available upon request.

York Region

CORPORATE ASSET MANAGEMENT PLAN

PRESENTATION TO
COMMITTEE OF THE WHOLE
MAY 3, 2018

James Steele
Director, Environmental Services
Infrastructure Asset Management

Brian Titherington
Director, Transportation Services
Transportation and Infrastructure Planning

York Region

Purpose

This presentation will:

- Present an overview of the Region's first Corporate Asset Management Plan
- Inform Committee of the Whole that the Corporate Asset Management Plan meets Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure

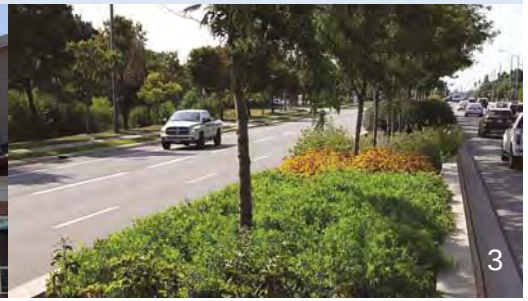
The Region's first Corporate Asset Management Plan formalizes asset management planning across all departments

Core and Non-Core Assets

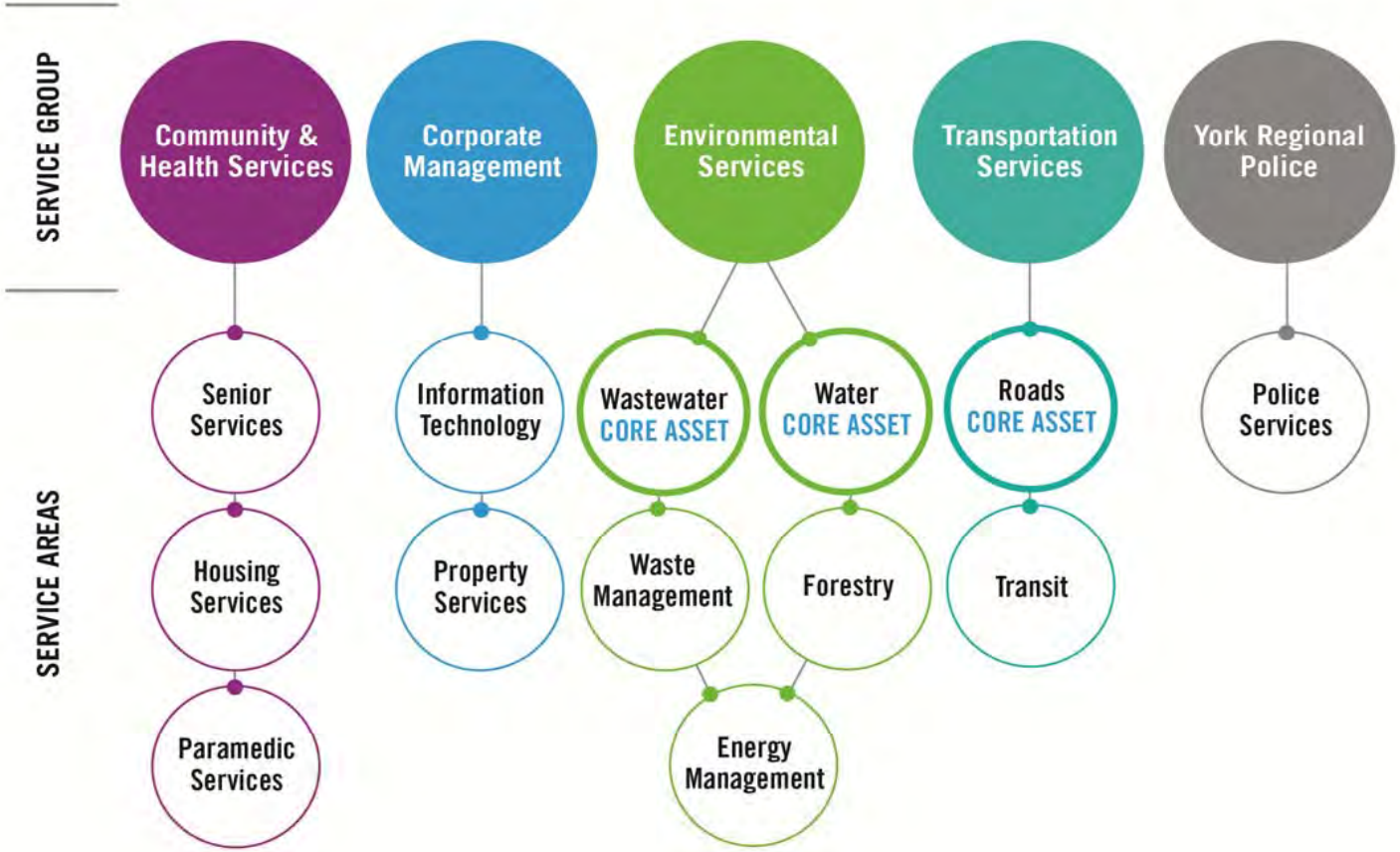
- Core assets include:
  - Water
  - Wastewater
  - Roads including stormwater, bridges and culvert assets

- Non-core assets include:
  - Administrative Facilities
  - Community Housing
  - Technology Network and Equipment
  - Fleet Vehicles
  - Waste Management Assets
  - Forest

Core assets account for over 75% per cent of the Region's asset base



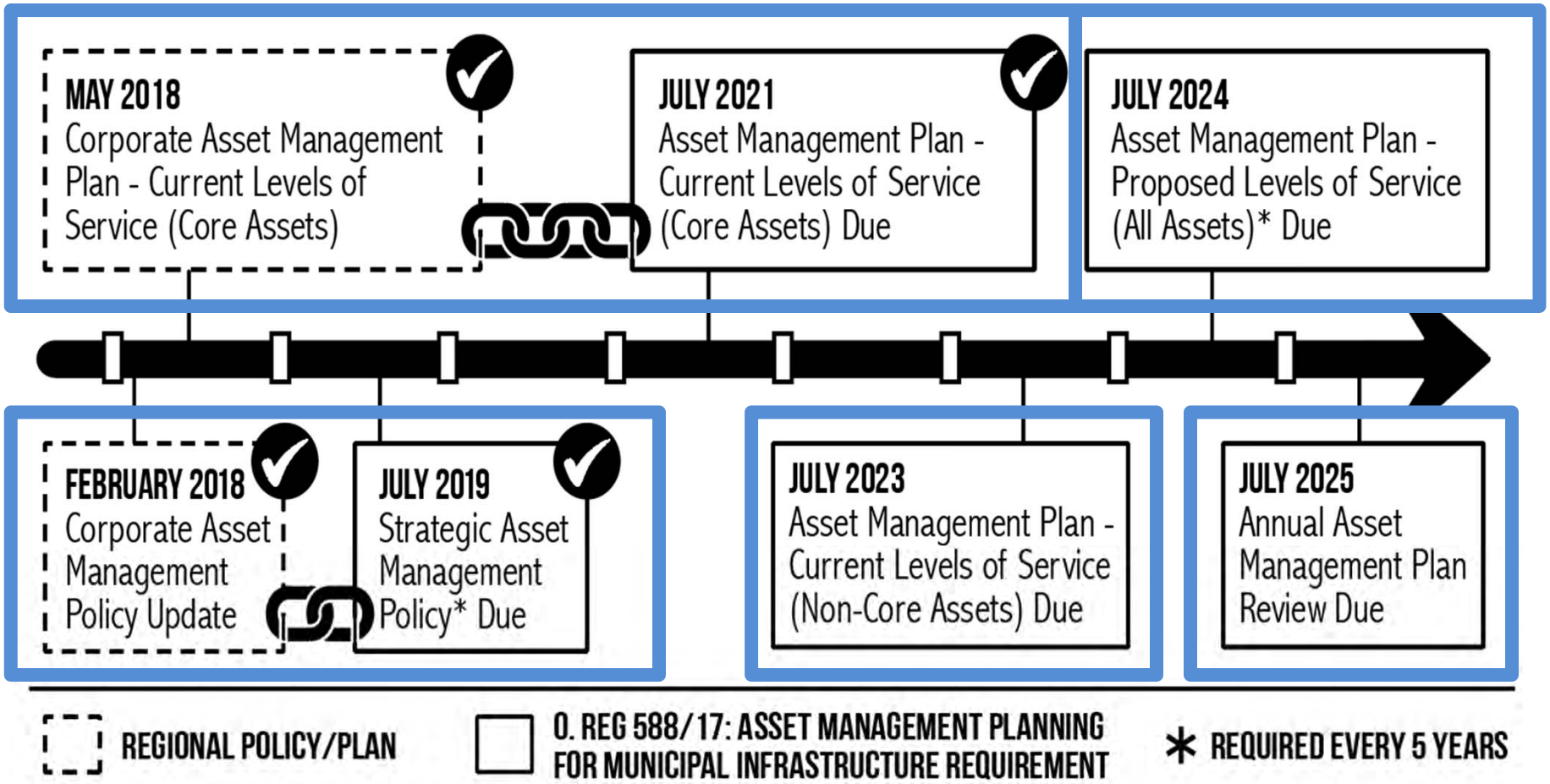
Asset Service Areas



This Corporate Asset Management Plan is the culmination of efforts across 13 asset service areas

CORE ASSET
WATER

Asset Management Planning Timelines



Approval of this plan will satisfy the next step in the regulation

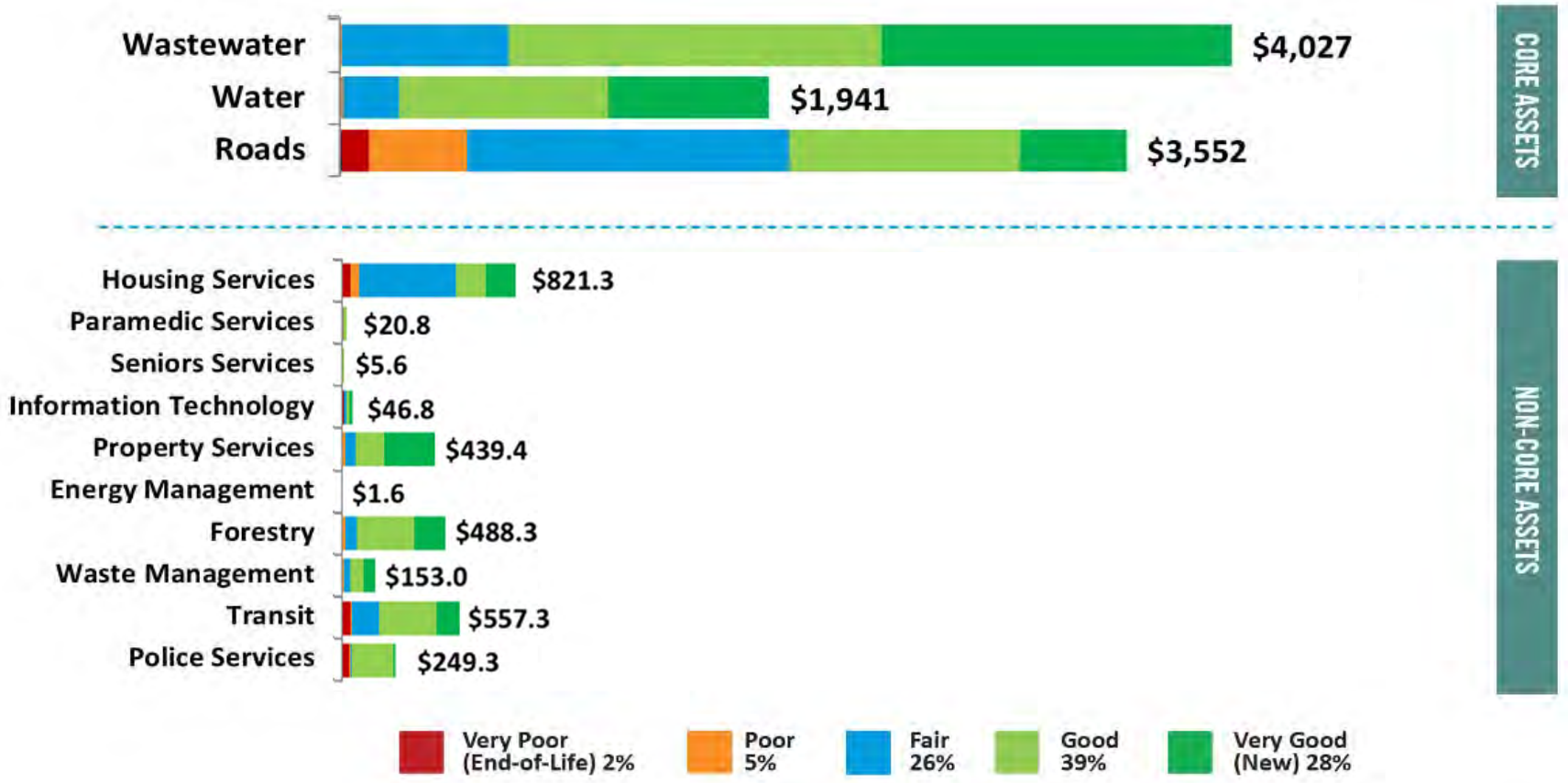
Regulatory Compliance Status for Core Assets

	Phase 1 (Current Levels of Service) by July 1, 2021				Phase 2 (Proposed Levels of Service) by July 1, 2024			
Service Area	State of Infrastructure	Levels of Service	Asset Management Strategies	Financing Strategy	State of Infrastructure	Levels of Service	Asset Management Strategies	Financing Strategy
Roads	Compliant	Compliant	Compliant	Compliant	Compliant	In Progress	In Progress	In Progress
Wastewater	Compliant	Compliant	Compliant	Compliant	Compliant	In Progress	Compliant	Compliant
Water	Compliant	Compliant	Compliant	Compliant	Compliant	In Progress	Compliant	Compliant

Plan requirements for core service area assets are compliant with regulation well ahead of July 2021 deadline

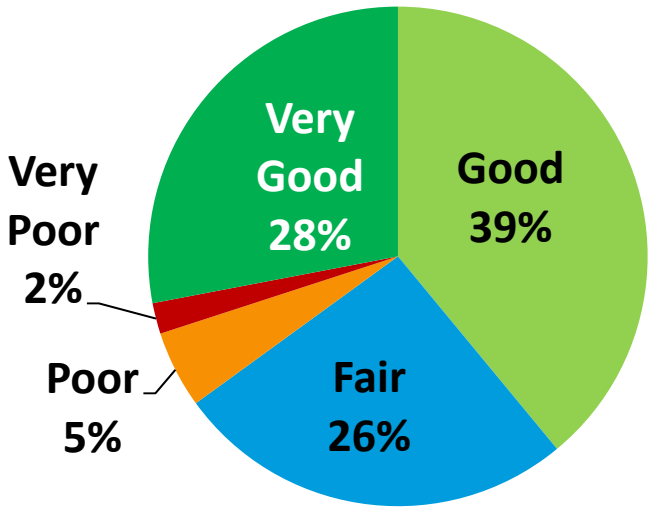
Inventory and Condition of Regional Assets

- Estimated current replacement value of all Regional assets is $12.3 Billion
- Figures below shown in Millions ($)

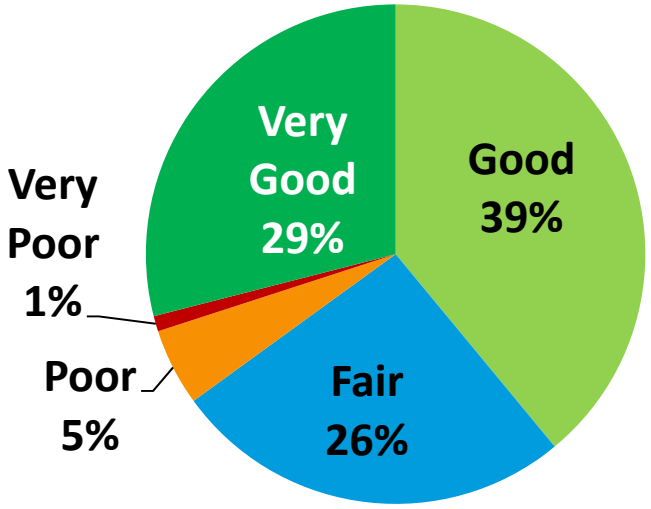


93% of Regional Assets are in fair or better condition

Condition Grade of Regional Assets



All Assets



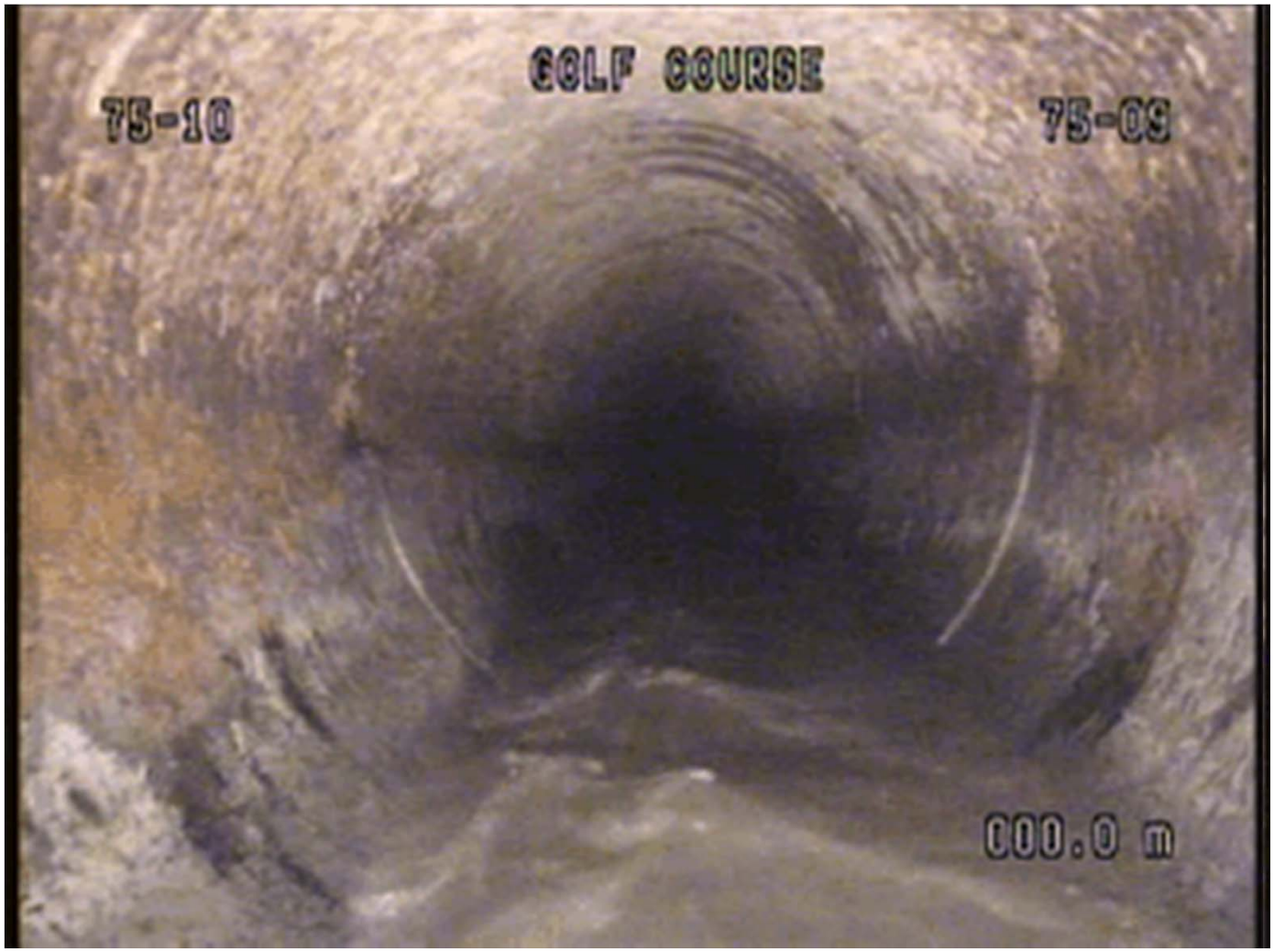
Core Assets

Assets in poor and very poor condition are planned for renewal

Condition Grade of Regional Assets
Example – Very Good Condition

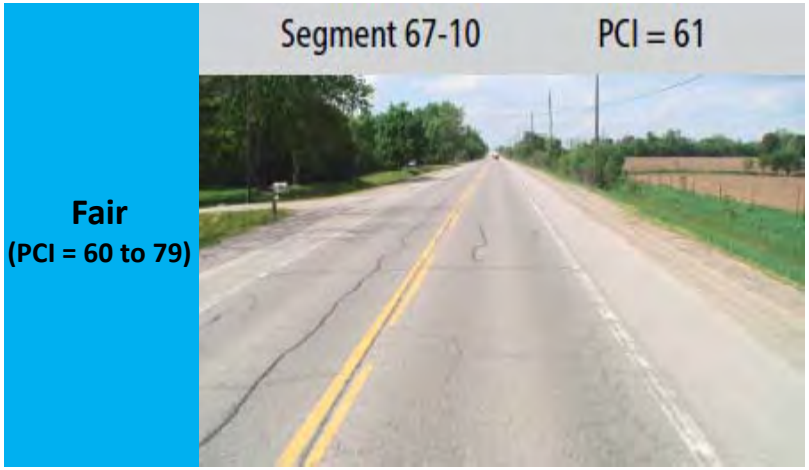
Condition Grade of Regional Assets
Example - Fair Condition

Condition Grade of Regional Assets
Example Rehabilitation – Poor to Good



Levels of Service

- Levels of Service define the scope or quality of services provided
- Technical levels of service are used by technical staff to guide investment decisions
- Community levels of service are simplified measures that are more easily understood by travellers



Levels of service define services expected by the community and provide metrics to evaluate performance by technical staff

Levels of Service

Very Good (PCI = 90 to 100) **PCI = 92**

Roads with pavement classified to be in “very good” condition are new roads

Levels of Service

Fair (PCI = 60 to 79) **PCI = 71**

Half of the Region's roads have pavement that is classified to be in "fair" condition

Levels of Service

Very Poor (PCI = 0 to 49) **PCI = 46**

Roads with pavement classified to be in “very poor” condition require more substantial repairs

Consultation on Proposed Levels of Service

- Feedback on existing levels of service achieved through integrated master planning process
  - *2016 Water and Wastewater Master Plan*
  - *2016 Transportation Master Plan*
- Continued engagement will help the Region to consider how to best manage its assets and inform next update to the Corporate Asset Management Plan, planned for 2022

Input from the public will be important in determining proposed levels of service

Financial Sustainability

- Financial sustainability means…
  - Growth can be accommodated without unacceptable tax levy or debt increases
  - Infrastructure kept in a state of good repair
  - Service levels can be increased as necessary
  - Service levels can be maintained in the face of changes in economic conditions
  - Financial responsibility is shared between current and future residents

- Council has approved two major initiatives that contribute to long-term financial sustainability
  - Fiscal Strategy – commitment to funding reserves for asset management needs
  - Financial Sustainability Plan for Water and Wastewater – annual rate which will support full funding of water and wastewater needs by 2021

Council continues to ensure the long-term financial sustainability of the Corporate Asset Management Plan

Summary

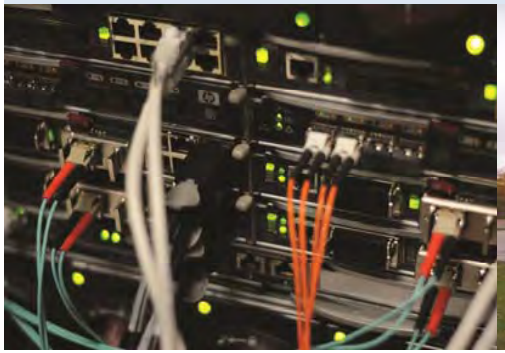
- 93 per cent of the Region's assets are in "fair" condition or better
- Requirements of the asset management regulation will be met three years ahead of the deadline
- The Corporate Asset Management plan is coordinated with the Fiscal Strategy to ensure the financial sustainability of Regional assets
- Through Council's leadership, the Region is at the forefront of asset management planning in Ontario

Next update to the Plan is planned for 2022

Report Recommendations

- Council approve the Corporate Asset Management Plan provided in Attachment 1.
- Regional Clerk circulate this report to the local municipalities.

The Region's first Corporate Asset Management Plan will meet legislated requirements of O. Reg. 588/17




THANK YOU

James Steele
Director, Environmental Services
Infrastructure Asset Management
james.steele@york.ca 1-877-464-9675 x 73018

Brian Titherington
Director, Transportation Services
Transportation and Infrastructure Planning
brian.titherington@york.ca 1-877-464-9675 x 75901

York Region