

Clause No. 2 in Report No. 10 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on May 15, 2014.

2
ENVIRONMENTAL SERVICES
2013 STATE OF INFRASTRUCTURE UPDATE REPORT

Committee of the Whole recommends:

- 1. Receipt of the presentation by Lucas Cugalj, Director of Strategy and Business Planning.**
- 2. Adoption of the following recommendation contained in the report dated May 8, 2014 from the Commissioner of Environmental Services:**

1. RECOMMENDATION

It is recommended that:

1. The Regional Clerk circulate this report to the Clerks of the local municipalities.

2. PURPOSE

This report provides an update on the State of Infrastructure for Environmental Services through an overview of the 2013 State of Infrastructure Report, which presents a consistent bi-annual snapshot of assets as of 2013 that can be directly compared to previous reports. The State of Infrastructure Report is a key element of the Ministry of Infrastructure's guide for detailed asset management plans and is a requirement for municipalities seeking Provincial capital funding. The financial grades in the State of Infrastructure Report are reflective of the current state of capital replacement reserves. The Drinking Water Quality Management Standard Water Financial Plan (also on this agenda) provides a long-term view of the financial sustainability of the water system.

3. BACKGROUND

York Region owns and operates over \$3.7 billion worth of water, wastewater, waste management and forestry assets

Water, wastewater, waste management and forestry in York Region are integral to the quality of life enjoyed by our citizens. A well maintained infrastructure asset base is

critical to ensure delivery of services in a safe, reliable and efficient manner, while sustaining a growing community.

As part of the Region's commitment to proactively manage and transparently provide information associated with delivery of services, the first State of Infrastructure Report was developed in 2009. This work included a detailed review of industry trends and best practices at that time and developed comprehensive criteria and a method to derive infrastructure grades. It also outlined financial demands and commitments required to maintain infrastructure in good and reliable condition. The need for a bi-annual update of the State of Infrastructure Report was identified to balance the frequency of update reports with providing effective information.

Environmental Services has completed State of Infrastructure Reports for 2009 and 2011, reporting results to Council in April 2010 and February 2012 respectively.

State of Infrastructure reporting is built on four key dimensions: Reliability, Capacity, Soundness and Financial

The same assessment methodology developed as part of the 2009 and 2011 State of Infrastructure Reports has been used for 2013. This approach ensures comparability of results.

Reliability

The reliability dimension relates to the ability of an asset to perform its required functions under stated conditions for a specified period of time. More specifically, the reliability grading provides an assessment of the ability to meet quality and regulatory standards with uninterrupted service.

Capacity

Capacity measures the ability of the Region's assets to ensure that availability of supply is consistent with current and future demands. Knowing the capacity performance of assets can provide an early indication of potential negative service impacts for customers and sustainability of the community. For example, a lower grade in capacity would indicate that further infrastructure is required to meet current and future demands.

Soundness

Soundness is a measure of physical condition of the infrastructure, its age and maintenance performance. This provides knowledge related to maintaining and enhancing asset condition, as well as efficiency and effectiveness of rehabilitation initiatives. Soundness provides an understanding of condition, deterioration and remaining service life of an asset.

Financial

The financial dimension focuses on funding requirements, budgeted funding and reserves. The financial grade can be used to guide rates, identify necessary tax supported funding and highlight economic risks. This information provides the Region with underlying facts to understand whether reserves are sufficient to maintain current levels of service. The financial grade can be used to help establish predictable rates consistent with community expectations and values, while recognizing economic risks.

Dimension grades are determined based on infrastructure's ability to meet current and anticipated purpose

Dimension grades are determined based on each infrastructure type and how fit it is for its current and anticipated purpose in terms of condition, regulatory requirements and capacity processes. Grades have an associated numeric score range, which is based on the criteria used to assess indicators and measures. Approximately 20 indicators and measures are analyzed for each dimension, graded and then rolled up to determine simple alphabetic grades. Table 1 indicates grade, associated numeric score range and description.

Table 1
Dimension Grade Breakdown

Alphabetic Grade	Range of Numeric Scores	Definition of Grades
A	3.5 – 5	Very Good: Functions as designed with little to no wear
B	2.5 – 3.4	Good: Fully functions as designed, shows signs of wear
C	1.5 – 2.4	Adequate: Meets basic functional requirements
D	0.5 – 1.4	Poor: Performance is at a level of high risk
F	0 – 0.4	Very Poor: Asset has failed

Since overall grades are derived from an average of the numeric score associated with each individual alphabetic grade (not the simple average of alphabetic grade), actual scores can result in two 'A's and one 'B' with an overall grade of 'B'. This is demonstrated in Table 2 where the average of the numeric scores for reliability, capacity and soundness are used to determine overall grades.

Table 2
Example of Overall Grade Determination

	Reliability	Capacity	Soundness	Apparent Overall Grade	Actual Overall Grade
Grade	B	A	A	A	B
Numeric Score	2.5	4.0	3.5		3.3
Grade	B	B	A	B	A
Numeric Score	2.5	3.0	5.0		3.5

Data plays an important role in determining accurate and repeatable infrastructure grades

Data collected as part of state of infrastructure reporting provides the foundation for this State of Infrastructure report. Overall data quality for the 2013 State of Infrastructure Report improved from the 2011 and 2009 reports due to improved data collection processes and validation. Improved data sets resulted in increased breadth and depth of completeness and greater accessibility to supporting data allowing for better consistency of the resulting analysis. York Region staff employed a robust data management and data transfer process for the 2013 State of Infrastructure Report by early recognition of data requirements and their sources, as well as determining how all data would be collected, stored and reported on.

Methodology used for State of Infrastructure grading reflects industry best practices

The Region's grading was developed based on methods used by the American Society of Civil Engineers, the Cities of Hamilton and Ottawa and the Region of Durham. Specific grading of infrastructure in York Region has been modified to reflect different types of service delivery.

Forestry is a new asset group included in 2013 Environmental Services State of Infrastructure Report

In early 2012, Natural Heritage and Forestry joined Environmental Services as part of an organizational realignment. As a result, forestry has been included in the 2013 State of Infrastructure Update Report for the first time and includes the Urban Forest (street trees) and York Regional Forest assets, with the Forestry Stewardship Centre scored separately based on criteria consistent with water, wastewater and waste management facilities.

4. ANALYSIS AND OPTIONS

York Region’s water, wastewater, waste management and forestry assets are in a good state with an overall grade of ‘B’ (Good)

Some of York Region’s water and wastewater assets date back to the 1950s having been transferred from local municipalities and the provincial government, while the majority of York Region’s water and wastewater assets were constructed in the 1970s and 1980s with a significant amount upgraded and expanded in the last fifteen years. The majority of York Region’s waste management assets were built to serve the needs of the Region in the last decade.

The Environmental Services Asset Management Program assigns a condition rating to assets similar to the very good to very poor grading system used for State of Infrastructure reporting. The majority of York Region’s water and wastewater assets are in good or very good condition with only the Forestry Stewardship Centre rated as very poor. The State of Infrastructure grades for each service area are summarized in Table 3. The overall forecasted positive trend in asset condition is attributed to investments being made in Regional Environmental Services infrastructure over the next two years.

Table 3
 Comparison of State of Infrastructure Overall Service Grades
 from 2009 to 2013 and Forecasted Trends to 2015

Service Area	2009	2011	2013	Trend to 2015
Water	B	A	A	→
Wastewater	B	B	B	↑
Waste Management	B	B	A	→
Duffin Creek WPCP	C	A	A	→
Forestry*			B	↑
OVERALL	B	B	B	↑

* Forestry includes Urban Forest (street trees) and York Regional Forest (does not include Forestry Stewardship Centre which is under construction)

These grades reflect the younger age of the asset base, rehabilitation efforts made through regulatory requirements, and the rigorous planning processes in place to support continued growth in York Region.

Trend analysis has identified a positive outlook to 2015

Trend analysis focuses on how an indicator or measure is likely to develop over the next two years and considers a range of factors, including new and planned projects and programs and how the outcomes of these initiatives are likely to impact the state of infrastructure in the next two years. As a result of continuous investment in infrastructure projects, grades for water, waste management and Duffin Creek Water Pollution Control Plant (WPCP) are expected to remain steady, whereas positive trends are identified over the next two years for wastewater due to planned facility upgrades. Excellent street tree and Regional forestry programs and the reconstruction of the Forestry Stewardship Centre result in a positive outlook for forestry moving towards 2015. Over the next two years, the overall trend for Environmental Services' assets is positive.

Grades for water, wastewater and Duffin Creek WPCP remain stable compared to 2011, while significant improvement was achieved for waste management

Overall, the state of Environmental Services' assets are good as most service areas scored relatively well. The majority of grades remain stable compared to 2011, with improvements realized for waste management due to equipment upgrades at the Material Recovery Facility and the addition of one new Community Environmental Centre. Trends are neutral to positive in all service areas as a result of current and near-term initiatives. Some notable examples of pending service enhancements to be completed by 2015 include:

- A full scale audit and monitoring program undertaken to reduce inflow and infiltration. As part of this program, the long-term rainfall and sanitary sewer flow are monitored and analyzed
- Beginning in 2010, an environmental assessment was undertaken to determine the optimal strategy for increasing the outfall capacity of Duffin Creek Water Pollution Control Plant to 630 MLD
- In 2009, Council endorsed the Water and Wastewater Master Plan Update, which included a five-year action plan to 2016. Ongoing work on the current five-year action plan includes implementing water and wastewater capital projects, Source Water Protection and Drinking Water Quality Management System, and a long-term water conservation strategy
- The Community Environment Centre at Elgin Mills will be expanded to include a Household Hazardous Waste collection depot, as well as inbound and outbound weigh scales to weigh customer vehicles
- Significant upgrade works for Duffin Creek WPCP (Stage 1 and Stage 2)
- Construction of Southeast Collector Trunk Sewer to ensure wastewater capacity for growth across the Region until 2036 and beyond

Duffin Creek WPCP is graded separately from other York Region wastewater assets as over 80 per cent of the Region's wastewater is treated at Duffin Creek WPCP, which is co-owned with Durham Region. Duffin Creek WPCP represents nearly half the total value of the Department's infrastructure.

As a result, a grade of 'B' for water, wastewater and waste management assets is expected due to the relatively young average age of York Region's assets in combination with completed growth and renewal work.

Water Service Area

Overall trend for water infrastructure is neutral to 2015 with current grade expected to be sustained as result of ability to meet future demand using effective servicing strategy

Trends for reliability and capacity are neutral to 2015 for water infrastructure and trend for soundness is positive. Water capital projects currently underway will provide additional capacity, and cost-shared servicing partnerships with Toronto and Peel Region support the Region's long-term servicing strategy. Key projects underway include Orchard Heights Pumping Station Upgrades, the Richmond Hill (Pugsley) Pumping Station Upgrade, Ridge Road Pumping Station upgrade, Glenway Reservoir expansion, Bathurst watermain replacement, construction of Kennedy Road watermain and Sutton water servicing which will help to sustain or improve the current grades until 2015. Table 4 provides the overall service grades for reliability, capacity and soundness for water. The trend into 2015 remains neutral as water infrastructure is expected to continue to be in very good standing over the next two years.

Table 4
Comparison of Grades for Water Infrastructure
from 2009 to 2013 and Forecasted Trends to 2015

Dimension	2009	2011	2013	Trend to 2015
Reliability	B	B	A	→
Capacity	B	A	A	→
Soundness	B	B	B	↑
OVERALL	B	A	A	→

Wastewater Service Area

Wastewater capital program has successfully increased system capacity to meet Region's current and future growth needs

The Region's ability to maintain wastewater infrastructure in good and reliable condition with effective operations and maintenance, proactive capital planning and rehabilitation and relatively young asset base are key strengths in wastewater services. Council has approved key wastewater capital initiatives over the last several years that provided secure wastewater infrastructure and capacity to achieve sustainable environmental priorities and meet the Region's current and future growth needs; the Inflow and Infiltration Reduction Strategy is an example of such an initiative. Other projects include upgrades underway to the Leslie Street Pumping Station and the recently completed Keswick Water Pollution Control Plant expansion.

Opportunities in this area are centered on continued efforts to proactively manage the wastewater system through timely and effective renewal of sewer assets and the Inflow and Infiltration Reduction Program.

Overall positive trend for wastewater infrastructure to 2015 based on Region's continued efforts to enhance and upgrade existing assets

The soundness grade 'A' in 2013 is a result of reliable operations and reinvestment through planned improvements to existing facilities, including upgrades to the Black Creek, Leslie, Aurora, Newmarket and Humber pumping stations and the York-Durham Sewage System rehabilitation within the Town of Aurora and Cities of Vaughan and Markham. The trend for reliability continues to be positive, whereas trends for capacity and soundness are neutral and indicate a steady grade moving forward due to ongoing and upcoming sewer renewal and expansion projects. Table 5 provides overall service grades for reliability, capacity and soundness for wastewater infrastructure.

Table 5
Comparison of Grades for Wastewater Infrastructure
from 2009 to 2013 and Forecasted Trends to 2015

Dimension	2009	2011	2013	Trend to 2015
Reliability	B	B	B	↑
Capacity	B	A	A	→
Soundness	A	A	A	→
OVERALL	B	B	B	↑

Waste Management Service Area

Community Environmental Centres and Material Recovery Facilities provide capacity for waste management

The Region's ability to provide waste management services with adequate capacity for current and future demand and current condition of assets are key strengths in this service area. Improvement to reliability and soundness grades are a result of operational enhancements, work management updates and upgrades to the Material Recovery Facility.

Opportunities in waste management are centered on continued development of long-term service agreements and relationships with external partners to enhance reliability and assurance in waste management services. This will be guided by the SM4RT Living Waste Management Master Plan completed in 2013.

Trends are neutral for waste management infrastructure to 2015 and current infrastructure grades expected to be sustained as a result of Region's efforts to implement sustainable waste management practices and solutions

The outlook for waste management is neutral as the Region has achieved 'A' scores in all dimensions. The Region continues to develop environmentally, socially and financially sustainable waste management solutions, including the partnership with Durham Region on the energy from waste facility. Table 6 provides overall service grades for reliability, capacity and soundness for waste management infrastructure.

Table 6
Comparison of Grades for Waste Management Infrastructure
from 2009 to 2013 and Forecasted Trends to 2015

Dimension	2009	2011	2013	Trend to 2015
Reliability	A	B	A	→
Capacity	B	A	A	→
Soundness	B	B	A	→
OVERALL	B	B	A	→

Duffin Creek Service Area

2011 grades for Duffin Creek WPCP sustained in 2013 as a result of completing Stage 3 expansion and rehabilitation of Stages 1 and 2

Duffin Creek WPCP is a unique York Region asset that requires partnership and collaboration to effectively operate, maintain and renew. York Region staff worked in partnership with Durham staff to successfully complete Stage 3 with significant progress in rehabilitating Stages 1 and 2. As a result, a grade of 'A' for both reliability and capacity has been maintained for Duffin Creek WPCP.

Continued opportunities for improvement are centered on specific individual processes and equipment to meet future capacity. Current grades are expected to be sustained as all planned upgrade work is completed.

All trends are neutral for Duffin Creek WPCP infrastructure to 2015 and grades are expected to sustain as a result of on-going initiatives to expand and enhance facility

Trends for Duffin Creek WPCP are neutral and current infrastructure grades are expected to be sustained as a result of the current initiatives, including rehabilitation and refurbishing Stages 1 and 2 infrastructure. Table 7 provides the overall service grades for reliability, capacity and soundness for Duffin Creek WPCP infrastructure.

Table 7
Comparison of Grades for Duffin Creek WPCP Infrastructure
from 2009 to 2013 and Forecasted Trends to 2015

Dimension	2009	2011	2013	Trend to 2015
Reliability	B	A	A	→
Capacity	D	A	A	→
Soundness	B	B	B	→
OVERALL	C	A	A	→

Forestry Service Area

All dimension grades for forestry are 'B' (Good) with positive trend to 2015 as a result of excellent street tree and forestry programs

Forestry Services includes the Urban Forest (street trees) and York Regional Forest. Trends for forestry reliability, soundness and capacity are positive, recognizing that the Region plants approximately 1,872 trees each year resulting in diversity of species and a positive difference in age of such trees. The Region is effectively managing the infestation of the emerald ash borer and other invasive species.

The Region manages 20 woodlots certified by the Forest Stewardship Council providing opportunities for the public to enjoy the benefits of natural areas within the Region.

Table 8 provides service grades for reliability, capacity and soundness for forestry. Recognizing that this is the first opportunity to grade forestry, service will trend upward to 2015 with sustained investment in the Urban Forest and York Regional Forest.

Table 8
2013 Grades for Forestry* and Forecasted Trends to 2015

Dimension	2009	2011	2013	Trend to 2015
Reliability	-	-	B	↑
Capacity	-	-	B	↑
Soundness	-	-	B	↑
OVERALL	-	-	B	↑

* Forestry includes Urban Forest (street trees) and York Regional Forest (does not include Forestry Stewardship Centre which is under construction)

The Region has dealt with invasive species infestations, including emerald ash borer, through an aggressive program of new plantings. Natural Heritage and Forestry services removed 1500 dead or dying trees in 2013 and planted more than 2100 new trees as part of the forestry plantation program.

The December 2013 ice storm had a significant impact on the Urban Forest. Impacts included significant costs of approximately \$750,000 and tree damage. The full long-term impact of the 2013 ice storm and potential future weather events on the Urban Forest's reliability dimension are currently being assessed.

All dimension grades for the Forestry Stewardship Centre are 'F' (Very Poor) with positive trend to 2015 as a result of facility replacement

The Forestry Stewardship Centre is included in the 2013 State of Infrastructure Report, but is graded separately with criteria consistent with those used for other Environmental Services facilities. The 2013 grade for the old Forestry Stewardship Centre is an 'F' with all trends positive as a result of the planned reconstruction of the Forestry Stewardship Centre in 2014/2015. Dimension grades are summarized in Table 9.

Table 9
Comparison of Grades for Forestry Stewardship Centre
from 2009 to 2013 and Forecasted Trends to 2015

Dimension	2009	2011	2013	Trend to 2015
Reliability	-	-	F	↑
Capacity	-	-	F	↑
Soundness	-	-	F	↑
OVERALL	-	-	F	↑

As Environmental Services continues to optimize performance by developing strategic asset management methods, a key focus will be ensuring that these grades are sustainable in the long-term by continuing to define and recommend appropriate funding and resource commitments for forestry.

Most of Environmental Services' infrastructure assets have more than half of their designed service life remaining

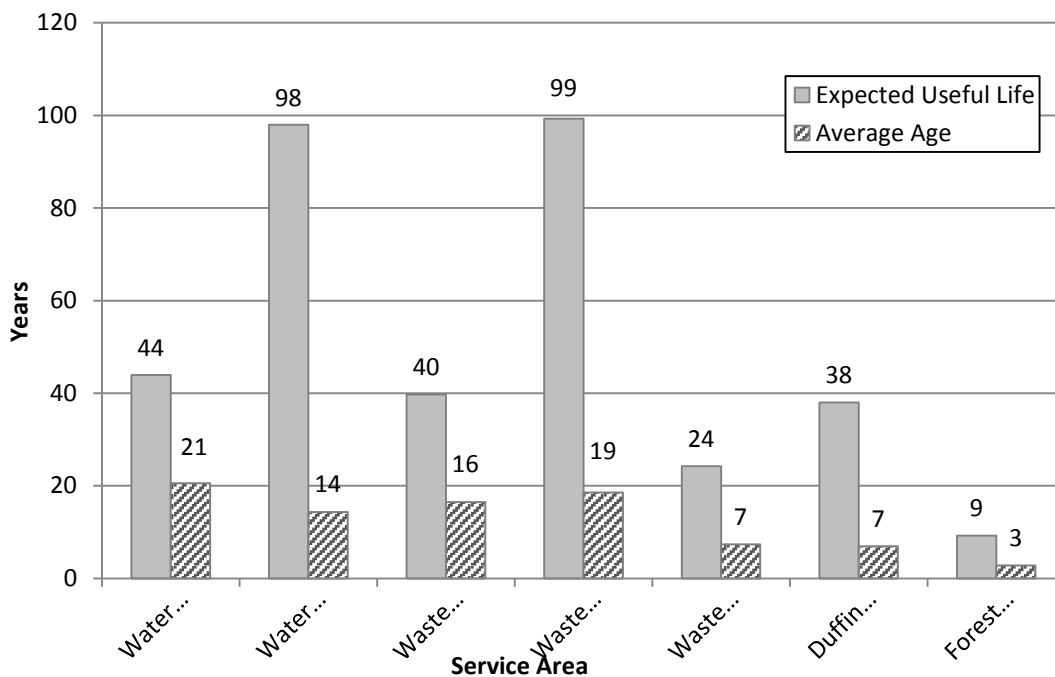
Expected useful life of assets varies considerably from several years to several decades. Useful life is highly dependent on each lifecycle asset category. For example, instrumentation and control assets are expected to last in the 15 year range, process mechanical assets in the 30 year range, structural facility assets in the 60 plus year range and linear assets such as concrete watermains and sewers in the 100 year range.

Figure 1 compares average age with average expected useful life of Environmental Services' infrastructure assets in each service area. To accurately represent the wide range of assets, all averages are weighted by asset replacement value. Average age represents the age of assets and expected life represents how long assets are expected to last notwithstanding any major issues. Remaining service life can be determined by calculating the difference between age and expected life.

Water and wastewater assets are separated into facilities which consist of instrumentation, control and process mechanical components and linear assets such as watermains and sewers which have a significantly longer expected useful life of up to 100 years. Waste management and Duffin Creek WPCP include facilities primarily consisting of a mix of instrumentation, control and process mechanical components. Currently, tangible forestry assets only include equipment, with a useful life of approximately nine years. The Urban and York Regional Forests are not recognized by the Public Sector Accounting Board (PSAB) as tangible capital assets. The Forestry Stewardship Centre will be included in the next State of Infrastructure Report in 2015.

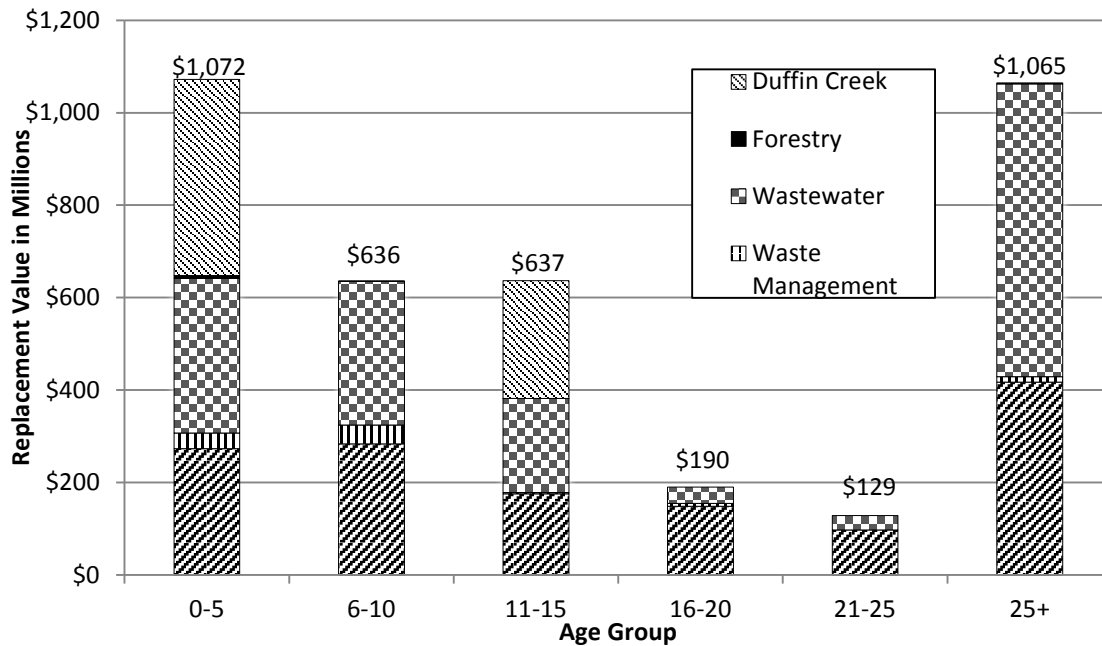
As shown in Figure 1, the average age of assets is substantially less than the expected useful life for all asset categories indicating that Regional Environmental Services assets are relatively young. However, significant growth in new infrastructure conceals the fact that some assets have performed beyond the halfway point in their expected useful life.

Figure 1
 Expected Useful Life versus Average Age of
 Environmental Services Infrastructure Assets



As infrastructure ages, there are increasing financial demands to maintain the same level of reliable service. This presents challenges for provision of continued reliable service and represents a financial demand to maintain and replace assets. Figure 2 presents current replacement value of all Environmental Services assets broken down into five State of Infrastructure asset groups as stated.

Figure 2
Asset Value by Age Group



York Region has been developing a more focused approach to asset management since 2007 to strategically manage infrastructure

To ensure that future capital investments for rehabilitation and replacement are made most effectively, a strategic 10-year Infrastructure Improvement Plan has been developed by Environmental Services. The plan was developed to identify deficiencies, prioritize infrastructure projects and determine appropriate resource levels. By developing these plans, rate models have been established with future requirements, and reserves can continue to be built to match forecasted needs. The Infrastructure Improvement Plan is part of a broader Infrastructure Management Program within Environmental Services. This Program continues to develop and implement service levels required to meet customer expectations, as well as monitor asset performance to support infrastructure planning.

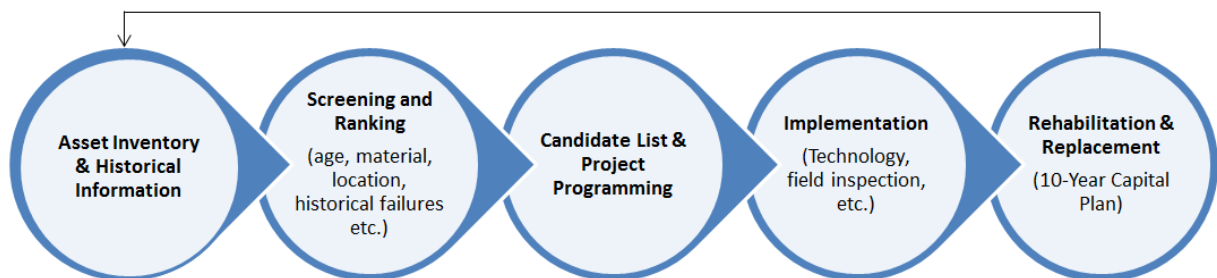
Environmental Services department is also working to develop an asset management strategy and asset management plan based on the Corporate Asset Management Policy and Framework approved by Council in 2013. Completion of these strategic initiatives will enable Environmental Services to further enhance its asset management programs for long-term sustainability.

York Region uses a systematic approach in determining condition assessment needs to balance capital investment and risk mitigation

As part of the asset management program, staff monitor all of the department's infrastructure, identifying when assets require further investigation and the type of condition assessment required to provide information necessary to prioritize condition assessment. For example, a sewer asset that has recently been inspected and is in excellent condition may be scheduled for inspection again between five and ten years in the future. In comparison, a sewer asset that is in poor condition may be scheduled for yearly inspection.

Condition assessment projects are identified based on infrastructure age, material type (e.g. cast iron or ductile iron pipe) past operating and failure history, criticality, risk exposure and feedback from operations staff. Figure 3 presents the condition assessment process used by the Region.

Figure 3
Condition Assessment Process



Condition assessment technology is a critical dependency in determining asset condition to support proactive and reliable asset management planning

Environmental Services continues to develop and implement a best-in-class asset management program by engaging, testing and evaluating emerging technologies, practices and techniques. Condition assessment projects using specialized inspection technologies have been completed as part of the asset management program and provide direct feedback in determining asset condition, measuring and managing risk and providing key inputs to develop reliable asset renewal plans.

Some key condition assessment projects completed in 2012 and 2013 include:

- Condition assessment of 25 km York-Peel feedermain using acoustic and electromagnetic technologies (acoustic leak and electromagnetic structural inspection) completed in 2013
- Condition assessment of 8 km Keele PD6 watermain using acoustic technology (acoustic leak inspection) completed in 2013
- Condition assessment of Newmarket forcemain using acoustic technology (acoustic leak inspection) completed in 2010
- Condition assessment of trunk sewer using CCTV inspection and condition grading system developed by Water Research Centre (WRC), UK

Asset management will require continued investment in condition assessment and infrastructure renewal

In early 2014, Council approved a watermain condition assessment and sewer condition assessment project to assess approximately 7 per cent and 10 per cent of the Region's watermain and sewer infrastructure annually over the next three and four years. As the condition assessments provide asset information, required renewal work and future condition assessments will be identified and require continued investment.

Link to key Council-approved plans

The State of Infrastructure Update Report aligns with the following 2011-2015 Strategic Plan goals:

- Continue to deliver and sustain critical infrastructure – through proactive protection of our infrastructure and assets
- Manage the Region's finances prudently – working to optimize decision making to ensure funds are spent where and when they need to be in order to most efficiently use infrastructure and assets
- Strengthen organizational capacity – through implementation of best practices, continuous improvement, and efficient use of existing resources

5. FINANCIAL IMPLICATIONS

With responsible, prudent fiscal policies, sustainable financial strategies and proactive financial planning processes, York Region strives to ensure that programs and services are delivered to the community in an effective manner at reasonable cost. York Region's financial policies and practices ensure that ongoing operating requirements, as well as growth and development needs, are financed in a fiscally responsible manner to meet current and future needs.

Lower financial grade for water reflects need for continued financial commitments

The 2013 State of Infrastructure grades reflect the younger age of the asset base, rehabilitation efforts made through requirements of the *Safe Drinking Water Act*, and the rigorous planning processes in place that support approved growth and infrastructure expansion in York Region.

Table 10 shows the 2009, 2011 and 2013 financial dimension grades, including trends for Environmental Services. The financial grade for water, wastewater and Duffin Creek WPCP remained a stable 'C' while significant improvement has been achieved for waste management primarily due to increased reserves. The overall financial grade for forestry is 'C'.

Trends for water, wastewater, waste management and forestry remain neutral while Duffin Creek WPCP is expected to have a positive trend to 2015.

Table 10
Grades for Financial Management

Service Area	2009	2011	2013	Trend to 2015
Water	C	C	C	→
Wastewater	C	C	C	→
Waste Management	C	C	A	→
Duffin Creek WPCP	D	C	C	↑
Forestry	-	-	C	→
OVERALL	C	C	C	↑

For Environmental Services assets, the financial dimension scores the quantity of reserves compared to asset value and approved capital plans.

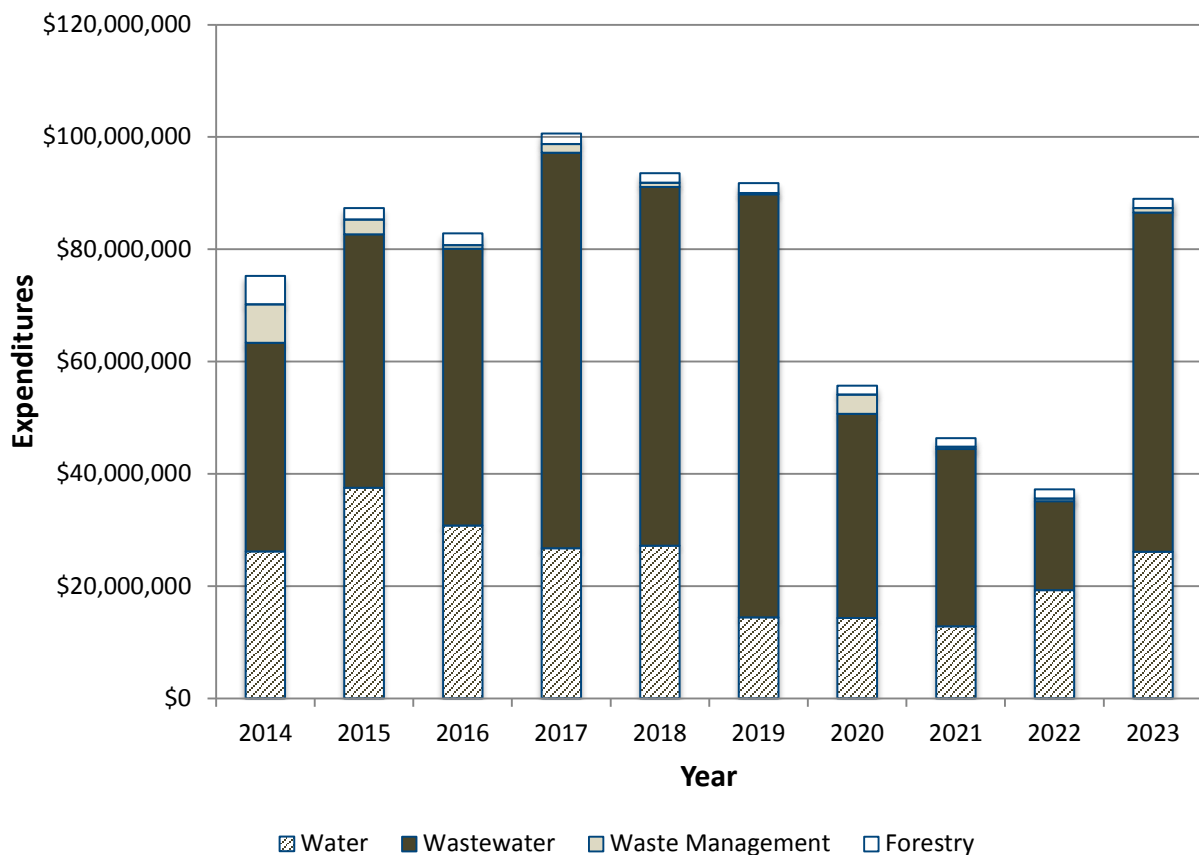
Financial management grades of 'C' (Adequate) are expected to trend towards 'B' (Good) with a planned review of rates in 2015

The Region's reserve management strategy includes continued implementation of Council policy to set contributions at a sufficient level to ensure sustainable funding of capital asset renewals. Environmental Services is working to update the current rate model in 2015, which will support rates required to increase sustainability of reserve balances beginning in 2016. Continued reserve building, sound financial strategy and prudent fiscal management will help the Region to improve financial grades towards 'B' in the future.

10-year capital plans consider both growth and renewal work required in short-term

Integration of identified rehabilitation needs in the annual budget for water and wastewater service areas are key strengths. Figure 4 presents the Council approved 2014 10-year capital plans for water, wastewater, waste management and forestry service areas. The 10-year capital plan defines essential financial resources required to sustain the current State of Infrastructure grade of 'B'.

Figure 4
2014 10-Year Capital Plans



Multi-year Council approved water and wastewater rate increases are key to building reserves over long-term

Many of York Region's assets are relatively young with significant growth over the past five years. As a result, growing reserves over the next number of years is critical to support future rehabilitation and replacement needs.

In May 2011, Council approved an annual blended rate increase of 10 per cent for water and wastewater user rates for the four-year period from April 1, 2012 to March 31, 2016. Rate increases are required to support operations of growing asset base and future rehabilitation and replacement needs.

Reserves require continued funding to ensure sustainability

Continued funding for infrastructure rehabilitation and replacement needs are critical to sustain an aging asset base in order to deliver quality services to customers.

York Region's long-term planning process, approved capital financial plans and fiscal strategy has positioned the Region to effectively plan for rehabilitation and replacement over a 20 year period, as well as identify any gaps in funding required to build reserves to a sustainable level.

6. LOCAL MUNICIPAL IMPACT

As the Region provides water, wastewater, waste management and forestry services to the local municipalities, they will benefit from the Region's proactive investments in managing infrastructure assets. The asset management program ensures long-range sustainability of Regional assets that provide reliable and cost-effective service to local municipalities. Collaborative efforts will continue to support sharing of expertise and experience in industry best practices, such as inspection and relining techniques, work management systems and field data collection.

York Region staff will continue to maintain strong partnerships with local municipalities to support sustainable asset management practices through programs, such as Water for Tomorrow, the Inflow and Infiltration Reduction Program and data sharing initiatives, similar to the All Pipes model. With continued coordination and development of business processes, best practices, technology and business resources, York Region and the local municipalities will continue to ensure sustainable environmental services.

7. CONCLUSION

The 2013 State of Infrastructure Update Report is a useful resource for focusing improvement efforts and fostering increased understanding of infrastructure issues among stakeholders.

York Region has been actively adopting sustainable asset management practices for the Region's water, wastewater, waste management, and forestry services. York Region has the opportunity to continue developing asset management programs at a time when infrastructure is still relatively young. This is required in order to continue to provide high quality municipal infrastructure to ensure the community's growth, economic development, safety and quality of life.

Overall the reliability, capacity and soundness of water, wastewater, waste management, and forestry are in a good state with assets and systems functioning as designed despite heavy impact and costs to address forestry assets due to the ice storm. The 10-year budget planning adequately supports the required commitment for asset management and Council's commitment to fund reserves ensures that, in the long-term, services can continue to be delivered in a safe, reliable and efficient manner.

For more information on this report, please contact Lucas Cugalj, Director of Strategy and Business Planning at (905) 830-4444 Ext. 75041.

Attachments (1)



ENVIRONMENTAL SERVICES

STATE OF INFRASTRUCTURE REPORT

2013



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Executive Summary – 2013 State of Infrastructure

	2009	2011	2013	Trend to 2015
ENVIRONMENTAL SERVICES DEPARTMENT	B	B	B	↑
Water	B	A	A	→
Wastewater	B	B	B	↑
Waste Management	B	B	A	→
Duffin Creek WPCP	C	A	A	→
Forestry			B*	↑
FINANCIAL	C	C	C	↑

* Forestry grade includes the Urban Forest (street trees) and York Regional Forest (does not include the Forestry Stewardship Centre)

The 2013 Environmental Services Department State of Infrastructure is an objective assessment of the physical and financial health of infrastructure managed by York Region’s Environmental Services Department. The Environmental Services Department manages \$3.7 billion in capital infrastructure to provide services to 1.1 million residents and over 28,000 businesses in York Region. While complying with complex provincial environmental regulations, York Region’s Environmental Services infrastructure grade is a “B”. Overall grades have improved over the years as the Region continues to build reserves, and establish a long-term asset management policy to effectively manage its infrastructure. The current State of Infrastructure Report is consistent with the standardized repeatable reporting process previously established building on the previously published Environmental Services State of Infrastructure Reports in 2009 and 2011. The current report uses grades to confirm the rigorous data-driven process that relies on availability, accuracy, and completeness of data while continuing to improve data confidence levels over time.

Most notable additions to the 2013 State of Infrastructure include the development of measures and indicators for assessing forestry and improvements to the data collection process. This involved staff from all areas of Environmental Services to participate in workshops, organized for each infrastructure service, to gather knowledge from those who are most familiar with the assets.

The following sub-sections provide an overall summary of grades for each service area evaluated in the 2013 State of Infrastructure Report: water, wastewater, waste management, Duffin Creek Water Pollution Control Plant (WPCP) and forestry.

Overall Water grade is an A

The overall grade for Water is an “A”, with a neutral trend anticipated in the short term. Following significant capacity improvements identified in the 2011 State of Infrastructure Report, additional improvements (e.g. Orchard Height Pumping Station upgrade, Ridge Road Pumping Station upgrade) were implemented for the Soundness dimension that contributed to improve Soundness grades in 2013.

The Region's 10-Year Capital Plan (to 2023) includes \$172 million for drinking water asset rehabilitation and replacement. The plan spans a wide variety of assets and asset types, including pumping stations, storage facilities, surface water treatment plants and linear infrastructure. The Region has also earmarked over \$65 million for developing a Water Asset Management Program that includes condition assessment of 27 per cent of the Region's watermains over the next four years.

York Region continues to achieve exceptional performance in drinking water quality sampling and testing; this continued achievement contributes to improvements in Reliability grading. The Ministry of the Environment (MOE) conducted 15 inspections at York Region water facilities in 2013. During these inspections only two minor non-compliance items were identified which were related to procedural reporting issues. Although adequate backup power is observed in most locations, some concerns exist about backup power at selected groundwater sites. These locations are currently under assessment with upgrade work to be determined based on the assessment outcome in 2014.

Overall Wastewater grade is a B

The overall grade for Wastewater is a "B". The Region continues to meet or exceed the regulatory requirements mandated by the Province of Ontario and has demonstrated that its efforts to create and implement effective asset management strategies have succeeded. A positive trend is identified for the wastewater asset class, provided that the Department continues to execute the strategies and solutions that are enumerated in this report (e.g. Leslie Street Pumping Station, Aurora and Black Creek sewage pumping station upgrades).

In terms of performance, the Region has completed major capacity expansions and continues to plan for future projects which will accommodate planned growth for the Region. Ongoing diligence for implementation of further asset management strategies (e.g. proactive condition assessment, renewal planning, and risk mitigation) will position the Region to improve this grade in subsequent years.

Overall Waste Management grade is an A

The overall grade for waste management is an "A" with a neutral trend for the future outlook to 2015. Waste management services are provided to regional residents and businesses via region-owned and operated infrastructure, purchased services from public and private vendors, region-owned but privately operated infrastructure, and local municipalities. The current program is well managed in terms of reliability of service, capacity for current and future demand and ability to maintain the waste management facilities in good condition. In 2013, the Region achieved 82 per cent diversion of waste from landfill, including waste processed through energy from waste facilities. This performance exceeded diversion rate forecasts and will continue to grow as more waste will be diverted through the Durham York Energy Centre in 2015.

Key accomplishments relevant to waste management include completion of the SM4RT Living Master Plan in collaboration with local municipal partners which will guide waste management decisions over the next 25 to 40 years. York Region was ranked first for diversion by Waste Diversion Ontario (WDO) in the large urban municipality category

with a diversion rate of 57 per cent in 2012. Construction has advanced at the Durham York Energy Centre. The Region has advocated a municipal position on the proposed Waste Reduction Act. With an integrated waste management master plan, waste management infrastructure is delivering a good level of service to the Region's residents.

Overall Duffin Creek Water Pollution Control Plant grade is an A

The overall grade for Duffin Creek Water Pollution Control Plant is an "A", with a neutral trend projected for the future. The Duffin Creek Water Pollution Control Plant has consistently met the demands of growth in terms of capacity expansion and has a strong program of identifying proactive maintenance activities. The completion of previous expansion activities, although achieved over a longer period than planned, has positioned the Duffin Creek Water Pollution Control Plant to achieve further Capacity grade improvements once data is collected to support it.

A comprehensive annual condition assessment, as well as expansion of the biosolids processing unit and the influent pumping stations, puts the Duffin Creek Water Pollution Control Plant in a favourable position moving forward. Despite the high grade, abiding by existing and more stringent regulations, while meeting future growth demands, will continue to be a challenge.

Forestry grade for Urban and York Regional Forests is a B

The grade for forestry is a "B", with a positive trend looking forward to 2015. Forestry includes the Urban Forest (street trees) and York Regional Forest. Recognizing that this is the initial assessment of forestry, the "B" grade reflects positive outcomes with regard to street planting programs and sustainable management of the York Regional Forest. Ongoing planting programs that establish diversity and replace tree species prone to infestations will result in an upward trend for forestry. The Forest Stewardship Council certification of the York Regional Forest is an indication that the forests are maintained in a sustainable, professional, best-in-class manner. As better data becomes available with regard to Urban and York Regional Forests, overall grades will be more clearly defined in the future. York Region is recognized by other municipalities for its knowledge regarding streetscapes and forestry.

The grade for the Forestry Stewardship Centre is a "F" with positive trend to 2015. The Region is in the process of constructing a new Forestry Stewardship Centre in 2014/2015 that will have a positive impact on the future state of forestry infrastructure.

Overall Financial grade is a C

Financial grades across all service areas received an overall "C", with a positive trend predicted to 2015. 2013 scores have shown a marked improvement from those achieved in 2009 and 2011, as evidenced by growing reserve balances of \$18.4 million at the end of 2011 to \$84.3 million at the end of 2013. As anticipated in previous State of Infrastructure Reports, the built asset base continues to grow as capital projects are delivered every year. Built asset replacement values have more than tripled from \$1.2 billion in 2005 to \$3.7 billion in 2013.

1.0 Background

York Region owns, operates and manages over \$3.7 billion worth of water, wastewater, waste management and forestry assets as illustrated in Figure 1-1.

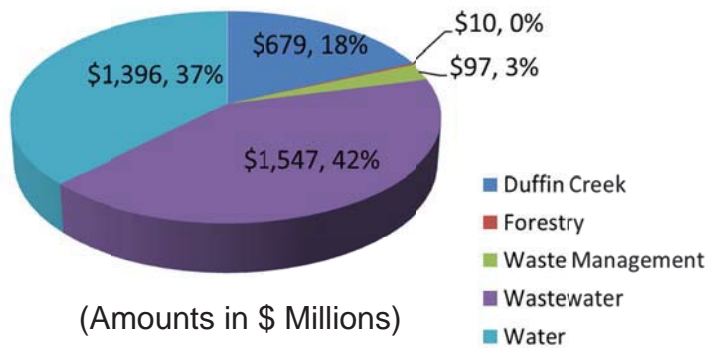


Figure 1-1: Summary of 2013 Asset Replacement Values

Water, wastewater, waste management and forestry services are essential to the excellent quality of life enjoyed by over one million York Region residents. Water, wastewater, waste management and forestry assets protect public health and the environment and help sustain a growing community. Well-maintained infrastructure is critical to ensure that services are delivered in a safe, reliable and efficient manner.



The 2013 Environmental Services State of Infrastructure Report is an objective assessment of the physical and financial health of infrastructure managed by York Region’s Environmental Services Department. State of Infrastructure Reports have been a means to communicate with York Region’s residents about the status of infrastructure assets in delivering quality service to the public, as evidenced by previous publications of the State of Infrastructure Report in 2009 and 2011.

From a York Region corporate perspective, a number of high level visions and strategies currently in place have been adopted by various departments and have specifically influenced Environmental Services Department programs and initiatives. The following sections highlight overarching corporate visions and strategies leading the Department’s work.

1.1 Corporate Vision and Strategies

Long-term vision and strategies in York Region developed for the benefit of a thriving Region are summarized in the following sections. These strategies influence Environmental Services Department programs that manage Regional infrastructure. Vision 2051 endorses the Region’s ideal vision of the next 40 years and describes the necessary implementation steps. The Region’s Sustainability Strategy was created in 2007 and continues to be the foundation of sustainability initiatives in the Region. Where sustainable infrastructure practices are concerned, the 2013 Corporate Asset Management Framework mandates standard levels of service for new and aging assets.

1.1.1 Vision 2051

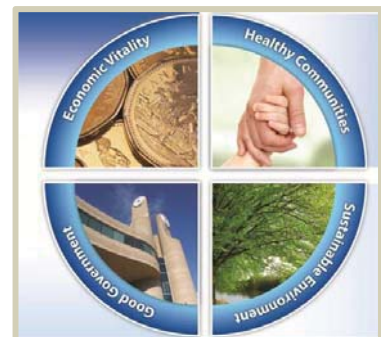
Vision 2051 builds on the foundation and legacy of successes established by York Region’s previous long term strategies Vision 2021 and Vision 2026.

Since the development of Vision 2026 in 2002, there have been a number of innovative policies and initiatives developed by the Region and the Province that have influenced how the Region does business. In the face of significant growth, there was a greater emphasis on sustainability coupled with increasing concern for climate change and energy management. Pressures on York Region’s transportation, waste, water and social infrastructure, an increasingly diverse and aging population, and meeting the housing, human services and safety needs of our population are continuing challenges. Vision 2051 responded to this landscape and established priorities and actions to guide decision making in York Region.

Vision 2051 builds on the Region’s ongoing consultation with the community, partners and stakeholders for a number of years on recently developed strategies, including the Sustainability Strategy, the Regional Official Plan, Infrastructure Master Plans and the Community and Health Services Multi-Year Plan, just to name a few. To complement the existing feedback on Regional strategies, a targeted engagement program was used for Vision 2051 which relied primarily on the internet and social media to engage and inform the public.

1.1.2 From Vision to Results: 2011 to 2015 Strategic Plan

“From Vision to Results: 2011 to 2015 Strategic Plan” is being updated to 2015-2019 which serves to officially align Regional Departments with Council’s goals by establishing a hierarchy of planning processes that direct department plans and budgets, as well as individual performance plans. The plan is intended to set the specific course of action for this term of Council to ensure the Region meets its long range vision, and longer-range Vision 2051. The plan houses strategic priority areas of focus supported by specific objectives that translate into concrete measures of progress.



1.1.3 Sustainability Strategy



Established in 2007, York Region’s Sustainability Strategy provides a long-term framework for making smarter decisions about growth management and all municipal responsibilities that better integrate the economy, environment and community. “Living better, not living without” is the legacy of sustainability to which the Region is

committed. The strategy aims at translating the concept of sustainability into practical action, which includes reducing and minimizing the effects of greenhouse gas emissions through mitigation and adaptation, providing a useful model for smarter decision-making that integrates economic, environmental and community considerations, and addressing the expectations and values of the public, stakeholders and employees. But most importantly, the sustainability strategy demonstrates leadership.

1.1.4 Corporate Asset Management Policy and Framework

Sustainable asset management practices have been adopted by York Region for delivery of water, wastewater, and waste management services to achieve standard levels of service for new and aging assets. In 2013, the Region developed the Corporate Asset Management Policy and Framework which applies to the management of all physical assets owned and operated by the Region. The purpose of the policy and framework is to enable a coordinated, cost effective and organizationally sustainable asset management approach across all Regional departments. To further enhance asset management programs for water, wastewater, and waste management assets, the Environmental Services Department is embarking in 2014 to develop an Asset Management Strategy. Asset lifecycle management activities will include asset management enablers, demand management, lifecycle management and financial management. Asset management principles and practices support the Region’s goal to provide the services required to support the Region’s residents and business needs in a sustainable manner by managing assets at defined levels of service to ensure that they meet customer expectations, compliance and legislative requirements, technological and environmental factors using a risk-based decision making approach.

1.2 Environmental Services Programs and Initiatives

The Environmental Services Department has integrated and aligned plans and activities for water, wastewater, waste management, and forestry with the corporate visions and plans presented earlier. Highlights of ongoing department initiatives are summarized in the following sections.

1.2.1 Integrated Waste Management Master Plan

York Region’s Integrated Waste Management Master Plan “SM4RT Living Plan” places a heightened focus on behaviour change to avoid unnecessary waste generation while recovering resources through participation in the sustainable hierarchy of waste management programs. The SM4RT Living Plan strikes a balance between key capital investments in infrastructure and innovative, community-driven programs to maximize long-term benefits. Waste management focuses on technology and infrastructure to manage the challenges created by waste thereby focusing on the 3Rs – reduce, reuse, and recycle. York Region, however, has endorsed a fourth R – energy recovery from waste. As shown in Figure 1-2, the 4Rs hierarchy of waste management explores new methods to extend the life of current waste management infrastructure through waste reduction and reuse initiatives that rely on community engagement, after all other diversion efforts have been exhausted.

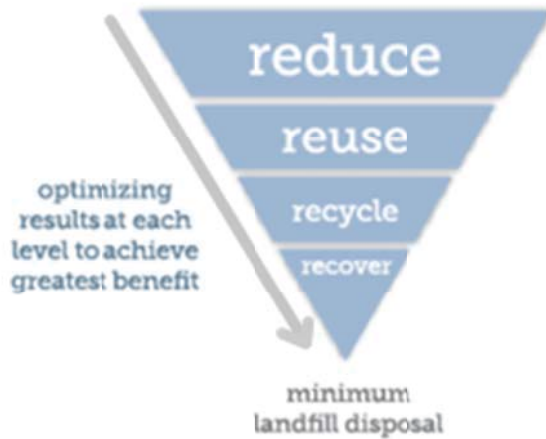


Figure 1-2: 4Rs Hierarchy of Waste Management

1.2.2 Water Conservation and Efficiency

York Region’s Water for Tomorrow program was initiated in 1998 and currently saves an estimated 25.8 million litres of water per day. Water savings accrued through this program continue to reduce demand on the Region’s raw water resources and on its treatment and distribution



infrastructure. Reductions in demand translate to real savings: in Environmental Services’ 2014 Capital Budget, reduced consumption rates accounted for \$226 million of deferrals and reductions to projects relating to water supply issues. The Long Term Water Conservation Strategy extends to 2051. York Region will continue to focus on optimizing the use of existing infrastructure while continuing to reduce or defer capital despite continued population growth. Conservation program components include policies and bylaws, rebates and other financial instruments, new program development, full cost recovery, outreach, education, and municipal infrastructure.

1.2.3 Energy Management Action Plan

The Energy Management Action Plan provides a roadmap for energy management excellence, building on energy efficiency and sustainability initiatives of Environmental Services Department activities which are grouped into the four areas of water, wastewater, waste management and forestry. The plan sets a departmental framework and provides guidance to further reduce electricity and energy use in a financially, socially and environmentally responsible manner, which builds upon the Energy Management Program established in 2009. The Environmental Services Department is the largest user of electricity within the Region, representing 52 per cent of the Region's total electricity use in 2012. Processes related to water and wastewater are the most energy intensive, but also have the greatest potential to achieve energy use reduction. Managing energy use in an efficient and sustainable manner includes exploring and implementing enhancements to facility operations to demonstrate leadership in energy use. Buildings and fleet operations are the next largest consumers of energy and have the potential to contribute to reduced energy use. Energy costs for the Department are second after transit, with a total energy cost of \$8.9 million in 2012, representing 19 per cent of the Region's total energy costs for the year.

1.2.4 Water and Wastewater Master Plan Update

In November of 2009, York Regional Council endorsed the Water and Wastewater Master Plan Update, which included a five-year action plan, to 2016. Presently, another Master Plan Update is underway and is expected to be completed in 2015. The Master Plan Update focuses on plans and programs that are needed to successfully deliver services in a way that protects and enhances the natural environment, ensures healthy communities and promotes on-going economic vitality. Ongoing work with respect to the current five-year action plan includes the implementation of water and wastewater capital projects, source water protection and the Drinking Water Quality Management System, Inflow and Infiltration Reduction Strategy with local municipalities, and a long-term water conservation strategy.

1.2.5 Inflow and Infiltration Reduction Program

York Region has taken a leadership role within Ontario by developing a 20 year strategy to address sustainable growth through a comprehensive Inflow and Infiltration Reduction Program. This ongoing innovative initiative is the largest of its kind in Canada and has identified industry best practices and cost effective methods to reduce inflow and infiltration. The Inflow and Infiltration Reduction Program helps optimize operational efficiency and lifecycle of both existing and future sewage infrastructure and better positions the Region for long-term sustainable service.

Coordination of effort between York Region and local municipalities is key to the success of the Inflow and Infiltration Reduction Program. Studies continue in areas where additional savings may be realized. The Region continues to build and use asset knowledge in a structured fashion to assess condition, remaining life, reliability and risk, thereby enhancing the ability to prioritize projects.

1.2.6 Natural Heritage and Forestry

The York Regional Forest, consisting of 23 properties, provides recreation and other environmental benefits to residents of York Region. A significant portion of the York Regional Forest is located within the Oak Ridges Moraine and is home to a variety of species of birds, insects, mammals and plants (including species at risk). York Regional Forest became the first public forest in Canada certified to the Forest Stewardship Council standards. Long term health and sustainability of the forest is achieved through reforestation, harvesting and under-planting. In addition to maintaining existing forests, the Regional Forest is being expanded through acquisition of new lands.

The Region plants approximately 1900 trees annually as part the street planting program. York Region is also responsible for watering recently planted trees and for maintaining immature trees planted within the last three years along Regional rights-of-way. The Region also removes and replaces trees that have been infested by the emerald ash borer. Since 2000, the Region has planted over 18,500 trees along Regional rights-of-way. The Region maintains over 20,000 trees annually through immature tree maintenance, structural pruning and hazard tree abatement programs. The December 2013 ice storm had a significant impact on the Urban Forest. The impact of this severe weather event is currently being assessed.

2.0 Measuring the State of Infrastructure

The infrastructure’s current state is an important aspect of York Region’s ability to meet its residents’ needs and deliver vital services. State of infrastructure is evaluated based on the reliability, capacity and soundness of infrastructure assets, in addition to economic conditions relevant to the management of the infrastructure. Another important aspect of the state of infrastructure are the planned initiatives and programs, which provide insight into the Region’s ability to meet the needs of a growing population, and evaluated using a trend analysis, akin to a projection of the state of infrastructure in the coming years.

The following sections describe the methodology underlying the grading of the infrastructure assets, and the approach to reporting of the individual and overall grades.

2.1 Grading Dimensions



The framework used for the Environmental Services State of Infrastructure is divided into four dimensions: Reliability, Capacity, Soundness and Financial. The dimension measuring financial capacity is reported on separately as it is more a result of Regional Council priorities than a measurement on an asset-by-asset basis. Grades for the four dimensions are based on a scoring system from 0 to 5, where 0 represents the low end, and 5 represents the high end. The numerical scores correspond to an alphabetic grading ranging from A to D, and F. The numeric score ranges and corresponding alphabetic grades are presented in Table 2-1.

Figure 2-1: Dimension Grades

Table 2-1: Numeric Scores and Alphabetic Grades

Alphabetic Grade	Range of Numeric Scores	Definition of Grades
A	3.5 – 5	Very Good: Functions as designed with little to no wear
B	2.5 – 3.4	Good: Fully functions as designed, shows signs of wear
C	1.5 – 2.4	Adequate: Meets functional requirements
D	0.5 – 1.4	Poor: Performance is at a level of high risk
F	0 – 0.4	Very Poor: Asset has failed

2.1.1 Reliability

The focus of this dimension is the overall reliability and quality of service of an asset. Reliability grading provides an assessment of the ability to meet quality and regulatory standards and uninterrupted service.

2.1.2 Capacity

Capacity to meet demand measures the ability to ensure availability of services provided by the Department is consistent with current and future demands. Knowing the capacity performance of assets provides an early indication of negative impacts on services for customers and potential impacts on the sustainability of the community. Capacity performance provides insight into future impacts of growth including how to prepare for what will be required of infrastructure in the future.

2.1.3 Soundness

Soundness is a measure of the physical condition of the infrastructure, its age and the performance of maintenance activities. A grade for Soundness provides knowledge related to maintaining and enhancing asset condition and the efficiency and effectiveness of rehabilitation initiatives. Soundness provides an understanding of the remaining service life and functionality of the asset.

2.1.4 Financial

Financial management of the State of Infrastructure is defined by one dimension focused on budget funding and reserves. This provides a measure of the ability to finance rehabilitation and replacement over both short and long-term periods helping to understand whether budgets and reserves are sufficient to maintain current levels of service. The Financial grade can be used to help establish predictable water and wastewater rates, and waste management tax levies consistent with community expectations and values while recognizing economic risks.

2.2 Grading System

Each dimension grade is made up of the scores from a number of measures that reflect the dimension. The score for each measure is made up of a score from each indicator. Indicators are made up from data from single or multiple data points. Dimension grades are determined based on the infrastructure and how fit it is for current and anticipated purposes in terms of condition, regulatory regime, capacity processes, and committed investment. The format adopted by the Environmental Services Department follows a traditional practice focused on the perspective of the owner of the soundness, reliability, and operational and economic performance of the infrastructure and service. Overall service area grades are determined by rolling up the grades from measures, which are rolled up from individual grades assigned to indicators.

Figure 2-2 provides an overview of the grading system.

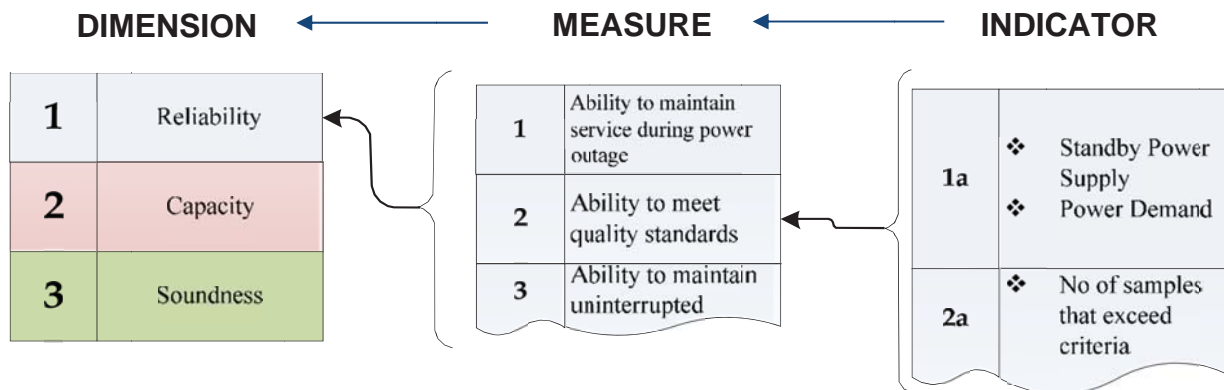


Figure 2-2: Overview of Grading System

2.3 Data

The score of each indicator is determined from the actual infrastructure data for the last two years (2012 and 2013). Indicators are evaluated and scored numerically on a facility-by-facility basis for water, wastewater, waste management, and the Duffin Creek Water Pollution Control Plant. Indicators vary based on the service area, which is imperative to appropriately assess the different infrastructure types in each service area. Scoring the indicators for forestry is carried out by distinguishing between urban landscapes and managed forests, which is necessary to reflect the variation among the forestry.

The data- driven analysis is compiled in spreadsheets for scoring and grading asset classes and facilities. An analysis of data confidence is presented in Chapter 10.0.

2.4 Trend to 2015

The trend analysis focuses on how an indicator or measure has developed over time and how it is likely to develop in the future. An evaluation of the trend to 2015 for each of the indicators or measures assessed as part of the 2013 State of Infrastructure Report requires a future outlook into initiatives that York Region is anticipating or expecting in the long term. The trend considers a range of performance indicators or measures related to an asset and considers the time period to the next State of Infrastructure Report (typically 2 years). A short time frame for the trend analysis is useful for planning purposes because of the association of the activity with the outcomes of the State of Infrastructure Report grades. Over a longer term, the expectation is that the outlook will be positive since the Region is striving to continually improve (e.g. proactive asset renewal program, etc.). The trend determined for the indicators or measures to 2015 is depicted by arrows, representing an upward trend

(positive), downward trend (negative), and a level trend (neutral), as demonstrated in Table 2-2.

Table 2-2: Example of a Trend Analysis

Service or Indicator Dimension	Analysis of Programs	Trend to 2015 Legend: Expectation for Grades in the short term (2-year outlook)	
		Trend	Expectation
Waste Management	Reviews what the change in grade over the next reporting period will be. Example: The Region's Energy from Waste facility has a planned operation date of August 2014. The Region has committed 30,000 tonnes per year of residual waste to the energy-from-waste facility. The trend to 2015 for the ability to accommodate future capacity needs is positive.	↑	Positive
Capacity		→	Neutral
Ability to meet current and future demand		↓	Negative

2.5 Facility Types

State of Infrastructure indicator data is grouped by facilities or asset types for each service area. There are five water facility types, six wastewater facility types, four waste management facility types, and three asset classes within forestry being managed by the Environmental Services Department in York Region. The breakdown of facility types for Water and Wastewater service areas is based on the existing asset hierarchy developed by the Environmental Services Department. Asset classes are assessed in detail in Chapters 4.0 through 8.0.

York Region is a partial owner of the Duffin Creek Water Pollution Control Plant, sharing ownership and associated responsibilities with Durham Region. This unique ownership arrangement necessitates that the Duffin Creek Water Pollution Control Plant be evaluated and graded under its own separate asset category, as opposed to inclusion with other wastewater assets.

Water facility types include:

- Linear Water (Transmission Mains)
- Surface Water Treatment Facilities
- Water Storage Facilities
- Ground Water (Production) Wells
- Water Pumping Stations

Wastewater facility types include:

- Gravity Sewers
- Wastewater Equalization Tanks

- Water Pollution Control Plants
- Sewage Pumping Stations
- Force mains
- Odour Control Facilities

The Duffin Creek Water Pollution Control Plant facility type includes

- The Duffin Creek Water Pollution Control Plant (as at 2013)

Waste Management facility types include:

- Transfer Stations
- Material Recovery Facilities
- Community Environmental Centres
- Household Hazardous Waste Facilities

Forestry assets include:

- Urban Forest (street trees)
- York Regional Forest
- Forest Stewardship and Education Centre

3.0 Overview of 2013 Results

A holistic view of the State of Infrastructure process, taking into account all asset classes and combining results for all dimensions, generates an overall 2013 State of Infrastructure grade of “B”, with a positive outlook for the future. An overview of 2013 results is presented in Table 3-1. This replicates the results of the 2011 State of Infrastructure, in which the same grade and score were achieved. It is important to note, however, that 2013 reporting marks the introduction of the forestry asset class. The inclusion of forestry provides a more complete assessment of Environmental Services infrastructure, but prohibits direct comparison of 2013 results with those presented in the 2011 State of Infrastructure Report.

Table 3-1: Overall State of Infrastructure Service Grades

Infrastructure Asset	Overall Grade			Trend to 2015
	2009	2011	2013	
Water	B	A	A	→
Wastewater	B	B	B	↑
Waste Management	B	B	A	→
Duffin Creek Water Pollution Control Plant	C	A	A	→
Forestry*	-	-	B	↑
OVERALL	B	B	B	↑

* Forestry includes Urban Forest (street trees) and York Regional Forest (does not include Forestry Stewardship Centre which is under construction)

The overall grade reflects the relatively young age of York Region assets and the proactive efforts that the Environmental Services Department makes to maintain, rehabilitate, and renew its infrastructure. The Department also monitors growth trends and projections with the aim of ensuring that new infrastructure can be planned and constructed to meet the demands that arise with population growth.

Overall trends at the asset level are positive. York Region has numerous capital projects and initiatives that will be planned and implemented within the next 10 years. These projects involve both the rehabilitation of current infrastructure and the commissioning of new infrastructure required to accommodate growth. The Department’s ambitious project plan serves as evidence of the Region’s continued focus on infrastructure management and improvement.

Grades for individual asset classes and more detailed information about planned projects for each asset class are discussed in more detail in Chapters 4.0 through 8.0 of this Report. The Financial dimension is discussed in Chapter 9.0.

3.1 Reliability

The Reliability dimension assesses the overall reliability and quality of service for each asset class. Reliability grading provides an assessment of the Region’s ability to provide uninterrupted services while meeting relevant quality and regulatory standards. The provision of clean and safe drinking water, the adequate treatment of wastewater, and

the safe and effective management of solid waste and forestry are critical for human health and ecological health and for maintaining local and provincial economies.

Overall, the Region achieves a Reliability grade of “B” in 2013, as presented in Table 3-2, and provides highly reliable water, wastewater, waste management, and forestry services. Consistent and comprehensive advocacy on emerging legislation has kept the Region at the forefront of meeting and exceeding regulatory quality requirements. The outlook for Reliability is positive as the Region continues to invest in system improvements, including additional power generation capability in water and wastewater, numerous planned water and wastewater facility upgrades, equipment upgrades and replacements at the Region’s four Household Hazardous Waste sites, and renewal of the York Regional Forest through silviculture and diversification of Urban Forest tree species. The Region continues to maintain ISO accreditation of its water, wastewater, and waste management operations, as well as Drinking Water Quality Management Standard accreditation for water operations. These management systems include periodic review of operations and infrastructure to ensure continued adequacy, suitability, and effectiveness of systems.

Table 3-2: Overall Infrastructure Reliability Grades

Infrastructure Asset	Reliability Grade			Trend to 2015
	2009	2011	2013	
Water	B	B	A	→
Wastewater	B	B	B	↑
Waste Management	A	B	A	→
Duffin Creek Water Pollution Control Plant	B	A	A	→
Forestry	-	-	B	↑
OVERALL	B	B	B	↑

Reliability grades for individual asset classes, and more detailed information about planned projects for each asset class, are discussed in more detail in Chapters 4.0 through 8.0 of this Report.

3.2 Capacity

The Capacity dimension assesses the Region’s ability to accommodate the servicing needs of both current and future customers. Capacity grading provides an assessment of the Region’s ability to meet the demands of current residents and customers while demonstrating adequate planning and preparation for increased in demand as a result of future growth.

Overall, the Region receives a grade of “A” for the Capacity dimension, as presented in Table 3-3. Water, wastewater, the Duffin Creek Water Pollution Control Plant and waste Management assets receive an “A” grade while forestry scores a “B” grade in its inaugural evaluation year. The Region continues to provide outstanding service with respect to Capacity, ensuring that water, wastewater, and waste management services

are adequate to accommodate current demands as well as additional demands anticipated through future growth. Service strategies and a firm commitment to capital expansions, including commissioning of several watermains for additional water supply, expansion of the Keswick Water Pollution Control Plant, the East Gwillimbury Waste Management Centre, and startup of Durham York Energy Centre in mid-2014 provide supports to sustain future Capacity grades.

Table 3-3: Overall Infrastructure Capacity Grades

Infrastructure Asset	Capacity Grade			Trend to 2015
	2009	2011	2013	
Water	B	A	A	→
Wastewater	B	A	A	→
Waste Management	B	A	A	→
Duffin Creek Water Pollution Control Plant	D	A	A	→
Forestry	-	-	B	↑
OVERALL	C	A	A	→

Capacity grades for individual asset classes, and more detailed information about planned projects for each asset class, are discussed in more detail in Chapters 4.0 through 8.0 of this Report.

3.3 Soundness

The Soundness dimension assesses the physical condition of the infrastructure and its maintenance performance. Soundness grading provides an assessment of the Region's ability to maintain and improve asset condition through proactive and efficient maintenance and rehabilitation activities. The Environmental Services Department has built and applied a proactive management program for its water, wastewater, and waste management assets. Evaluations of forestry assets are new inclusions to State of Infrastructure reporting in 2013.

Overall, the Region achieves a grade of "B" in 2013 for the Soundness dimension, as presented in Table 3-4. Wastewater and waste management received an "A" score, water and Duffin Creek Water Pollution Control Plant received a "B" score, and forestry received a "B" grade. Specifically, the Region demonstrates focus on improvement in its water, wastewater, and waste management assets, with numerous facility upgrade projects. Forestry also shows positive trends as the Region conducts annual condition assessments of its Urban Forest and consistently achieves sustainable forestry initiatives set out by the Forest Stewardship Council.

Table 3-4: Overall Infrastructure Soundness Grades

Infrastructure Asset	Soundness Grade			Trend to 2015
	2009	2011	2013	
Water	B	B	B	↑
Wastewater	A	A	A	→
Waste Management	B	B	A	→
Duffin Creek Water Pollution Control Plant	B	B	B	→
Forestry	-	-	B	↑
OVERALL	B	B	B	↑

Soundness grades for individual asset classes, and more detailed information about planned projects for each asset class, are discussed in more detail in Chapters 4.0 through 8.0 of this Report.

3.4 Financial

The Financial dimension assesses the Region's ability to allocate funds toward growth and rehabilitation/replacement projects within the next 20 years. This takes into account the amount of money held in reserve, as well as the depreciated value and replacement value of all assets within the Department.

The overall Financial grade is a "C", as presented in Table 3-5. An overall improvement was observed for the Financial dimension from the 2011 report, however, grades vary from "A" through "C" among the infrastructure assets. Financial measures are not assessed at the individual asset level; rather, an overview of the Region's financial performance with respect to all asset classes is provided.

Table 3-5: Overall Infrastructure Financial Grades

Infrastructure Asset	Financial Grade			Trend to 2015
	2009	2011	2013	
Water	C	C	C	→
Wastewater	C	C	C	→
Waste Management	C	C	A	→
Duffin Creek Water Pollution Control Plant	D	C	C	↑
Forestry	-	-	C	→
OVERALL	C	C	C	↑

Chapter 9.0 includes a detailed discussion of financial measures including an overview of the evaluation processes, grading for 2013, and justification for grading and trend analysis.

4.0 Water

The overall 2013 State of Infrastructure grade for Water is an “A”, which demonstrates the Region’s continued commitment to provide customers with reliable water service. Following significant capacity improvements that were identified in the 2011 State of Infrastructure Report, additional improvements in the Soundness dimension are identified in 2013.

Grades for each dimension for drinking water infrastructure are identified in Table 4-1 and are as good as or better than noted in the 2011 State of the Infrastructure Report. The future outlook for water system infrastructure is neutral, as evidenced by numerous infrastructure initiatives slated for initiation within the Region’s 10-year capital plan.

Table 4-1: Water Service Grades

Grading Dimensions	Water Service Grades			Trend to 2015
	2009	2011	2013	
Reliability	B	B	A	→
Capacity	B	A	A	→
Soundness	B	B	B	↑
OVERALL	B	A	A	→

The City of Toronto and the Region of Peel supply approximately 87 per cent of York Region’s drinking water, with Lake Ontario serving as the source for both the City’s and the Region’s water treatment operations. Treated, potable water is received from these systems and distributed via York Region’s transmission system throughout southern portions of York Region. Approximately 77 per cent of the Region’s water customers receive drinking water from the York Water System, which services the Region’s larger urban communities.

Smaller individual drinking water systems account for 15 per cent of raw water uptake and service approximately 23 per cent of the Region’s customers, including smaller communities located mainly in the northern and central areas of the Region. Approximately 3 per cent of the Region’s total water uptake is drawn from Lake Simcoe, and 10 per cent is drawn from groundwater aquifers.

Provision of water services through partnerships with Toronto and Peel Region is a key component of the Region’s long-term servicing strategy. To this end, York Region’s Capital Plan (2013) includes a \$309 million contribution to cost-shared capital works projects in Peel Region in partnership with Toronto and Peel over the next ten years. Projects include:

- Expansion of transmission feeder mains (Lakeview to Hanlan, Hanlan to Beckett Sproule), Peel Region
- Phase 3 expansion at Hanlan Pumping Station, Peel Region



- Airport Road reservoir expansion, Peel Region
- Treatment plant expansion: Lakeview and Lorne Park, Peel Region

York Region operates as a two-tier governance structure and water distribution is a multi-jurisdictional undertaking. York Region is the wholesale supplier of drinking water to nine area municipalities, including the Cities of Markham and Vaughan, the Towns of Aurora, East Gwillimbury, Georgina, Newmarket, Richmond Hill, and Whitchurch-Stouffville, and the Township of King. These local municipalities are the retail suppliers of water to the consumer and are responsible for their own distribution networks.

The Region’s drinking water assets are categorized as follows (quantities as of June 2013):

- **Linear Water**, including 338 km of transmission mains and associated distribution system control valves and water meter chambers
- **Surface Water Treatment**, including two water treatment plants (Keswick and Georgina) and the Georgina Low Lift Water Pumping Station
- **Water Storage** with a total of 44 facilities, including elevated tanks, reservoirs, and standpipes
- **Ground Water Treatment**, including 44 wells and associated well houses and treatment processes
- **Water Pumping Stations**, with a total of 20 facilities

A map of York Region’s drinking water infrastructure is included in Appendix A of this Report.

With regard to the three dimensions of Reliability, Capacity, and Soundness, additional information is provided in the following sections.

4.1 Reliability

Grading of the Reliability dimension has improved from a “B” in 2011 to an “A” in 2013 as noted in Table 4-2:

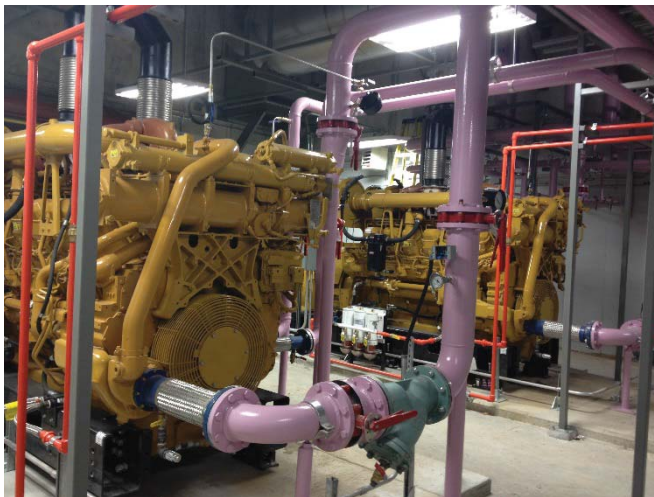
Table 4-2: Water Reliability Grades

Reliability Measures	Water Reliability Grades			Trend to 2015
	2009	2011	2013	
Ability to maintain service during power outage	C	B	A	→
Ability to meet quality standards	B	B	A	→
Ability to maintain service	B	B	B	→
Ability to maintain secure operations	A	A	A	→
OVERALL	B	B	A	→

The outlook for Reliability is neutral. The Region has demonstrated its ability to provide secure, uninterrupted service to residents and businesses while meeting provincial quality standards. The trends to 2015 are established with the expectation that the Region will continue to provide high quality and reliable service.

The Region demonstrates excellent performance in maintaining water services during power outages, as evidenced by the “A” score for this measure. All surface water treatment facilities are equipped with generators for the provision of backup power, and approximately two-thirds of the Region’s water pumping stations are also equipped with backup power generation. When groundwater treatment systems are examined as a group, adequate generator capacity exists to meet overall power demands. However, the capacity is not distributed across all facilities: approximately one-third of the Region’s groundwater facilities do not have backup power supply on-site. While this is an improvement from the 2011 assessment at which one-half of facilities lacked an on-site backup power supply, a gap still exists that leaves selected groundwater treatment systems vulnerable to power outages. To increase the availability of supply and uptime of operations, the Region has reviewed and identified a priority sequence to install

standby power supply at groundwater wells and water pumping stations.



Construction is complete at the Maple Water Pumping Station. Two backup power generators have been installed to enhance reliability of supply during power outages. An additional pump was installed to support capacity requirements within Pressure District 7.

With respect to regulatory sampling and compliance, the Region remains among the highest ranked municipal water suppliers in the Province. 99.9 per cent of York Region’s tested drinking water

samples were within regulatory compliance limits. The MOE conducted 15 inspections at York Region water facilities in 2013. During these inspections only two minor non-compliance were identified which were related to procedural reporting issues. This is a direct result of the Region’s commitment to operational excellence and capital improvements to water infrastructure. Compliance is monitored through Performance Measurement Reports which are updated on an annual basis

An improvement to maintenance of service was observed, with an average of four watermain breaks recorded per year in 2012 and 2013 without significant service interruptions. The Region also continues to maintain secure operations, with no security breaches reported at any of its drinking water facilities in 2012 and 2013.

4.2 Capacity

Grading of the Capacity dimension remains at an “A” in 2013, as noted in Table 4-3:

Table 4-3: Water Capacity Grades

Capacity Measures	Water Capacity Grades			Trend to 2015
	2009	2011	2013	
Ability to meet current demand	B	A	A	→
Ability to meet future demand	-	A	A	→
OVERALL	B	A	A	→

York Region delivered several capital projects in 2011 and 2012 that have enhanced the Region’s ability to meet current and projected water demands. New projects were also initiated within this timeframe that will contribute to increased capacity. Notable projects are identified as follows (projects completed unless otherwise indicated):

- Markham Bypass/Major Mackenzie Drive watermain (PD6)
- PD6 Huntington Road and Islington watermains (PD6), allowing the introduction of a lake-based supply to the Kleinburg-Nashville community
- Commissioning of Ballantrae Well No. 3
- Orchard Heights pumping station upgrades (*in construction*)
- Richmond Hill Pugsley pumping station upgrades (*in construction*)
- Nobleton Water Supply (*under construction*)
- Sutton water servicing (*Environmental Assessment completed*)

York Region’s 2014 Capital Plan includes plans for the investment of approximately \$346 million to increase water transmission system capacity in order to accommodate growth. This figure accounts for approximately 39 per cent of the Capital Plan and includes the following capacity-related improvements:



- Expansion of York Water transmission system in alignment with staged increases in lake-based water supply from Peel and Toronto
- Expansion of pumping capacity in PD7, PD8, West Aurora, and West Vaughan
- Increase in water storage capacities in Aurora, Newmarket, Queensville, Vaughan, and Whitchurch-Stouffville
- Expansion of the Sutton water system
- Commissioning of a new well in Nobleton

In light of the increasing and pressing need to efficiently manage scarce water resources and ensure long-term water supply to a growing Region, there has been renewed focus on preserving water through conservation efforts. In 2011, the Region completed a Long Term Water Conservation Strategy that builds on success of previous water efficiency plans and the Water for Tomorrow program. The Strategy provides

comprehensive guidance for Regional water conservation and efficiency programming and a framework to reduce water demand per capita over the next 40 years. An update to this Strategy is planned for 2016.

4.3 Soundness

Water infrastructure received a Soundness grade of “B”; this is consistent with the “B” received in the 2011 State of Infrastructure Report. Soundness grading is outlined in Table 4-4.

Table 4-4: Water Soundness Grades

Soundness Measures	Water Soundness Grades			Trend to 2015
	2009	2011	2013	
Condition	B	B	B	↑
Ability to maintain assets	A	A	A	→
OVERALL	B	B	B	↑

The maintenance of condition grading is indicative of the Region’s drive toward proactive asset maintenance. The Region continues to boast success in closing work orders in a timely fashion and in balancing proactive and reactive maintenance requirements.

York Region Council adopted a Corporate Asset Management Policy and Framework in November 2013. The Policy and Framework align with and support many of the existing asset management practices in place for drinking water assets, and they will continue to enhance asset management activities as new drinking water assets are commissioned.



The Region’s 10-Year Capital Plan (to 2023) includes \$172 million for drinking water asset rehabilitation and replacement. Highlights of this plan include:

- Pumping station upgrades including Bayview standby power, Maple and Ridge Road rehabilitation works (\$28.5 million)
- Replacing of ductile iron watermains including the watermains on Bathurst Street, Islington Avenue and Hwy 48 (\$57.4 million)
- Storage facility upgrades, including internal and external coating of water towers (\$36.9 million)
- Upgrades to groundwater well facilities, including Yonge Street Aquifer Well replacement and Kleinburg wells (\$36.1 million)
- Surface water treatment plant upgrades, including rehabilitation works at the Keswick Water Treatment Plant (\$9.7 million)
- Asset management program development, including condition assessments of the growing asset base (\$17.6 million)

5.0 Wastewater

The overall 2013 State of Infrastructure grade for Wastewater is a “B”, consistent with the grade received in 2011. The previous State of Infrastructure Report (2011) noted a significant improvement in wastewater capacity based on the Region’s ability to service both current demand and future growth. Since 2011, the Region’s focus has turned to the implementation of more structured asset and facility management processes. For 2013, this translates to an improvement in the overall grade for Wastewater with an improving trend projected for the future.

Grades for each dimension for wastewater infrastructure are consistent with those noted in the 2011 State of the Infrastructure Report, as presented in Table 5-1. The future outlook for wastewater system infrastructure is positive, as evidenced by the Region’s planned proactive approach to wastewater asset and facility management.

Table 5-1: Wastewater Service Grades

Grading Dimensions	Wastewater Service Grades			Trend to 2015
	2009	2011	2013	
Reliability	B	B	B	↑
Capacity	B	A	A	→
Soundness	A	A	A	→
OVERALL	B	B	B	↑

As previously indicated in Chapter 2.5 of this Report, ownership of the Duffin Creek Water Pollution Control Plant is shared with Durham Region. This ownership arrangement necessitates that it be evaluated and graded separately from other wastewater assets.



York Region is responsible for the collection of wastewater through the York-Durham Sewage System. The collection system serves the communities of Aurora, King City, Newmarket, Richmond Hill, Markham, Vaughan and Whitchurch-Stouffville. 85 per cent of all wastewater flows collected within the Region are treated at the Duffin Creek Water Pollution Control plant and discharged to Lake Ontario. An additional 10 per cent of total collected wastewater is diverted to Peel Region for treatment. The remaining 5 per cent of flows are

collected from the communities of Mount Albert, Holland Landing, Schomberg, Kleinburg, Keswick, Sutton and Nobleton; these flows are treated at smaller wastewater treatment plants servicing these communities. Treated wastewater is discharged from these facilities to various streams and tributaries leading into Lake Ontario and Lake Simcoe.

The Region's wastewater assets are categorized as follows (quantities as of June 2013):

- **Linear infrastructure**, including 187 km of gravity sewers and 93 km of forcemains
- **Wastewater storage**, including 2 equalization tanks
- **Wastewater Pumping Stations**, with a total of 19 facilities
- **Wastewater Treatment Facilities**, including 3 odour control facilities and 7 Region-owned wastewater treatment plants
- The **Duffin Creek Water Pollution Control Plant**, co-owned with Durham Region (see grading analysis in Chapter 7.0 of this Report)

The 2011 State of Infrastructure Report referred to the Environmental Services Department's adherence to a 10-Year Business Plan. The 10-Year Business Plan has continued to underpin the activities of the Department and has enabled a more proactive approach to asset management through a renewed focus on the maintenance of existing assets. The Business Plan calls for the delineation of asset management strategies including odour and corrosion control, optimization and risk management as well as improved data collection techniques and risk assessment. The Department is currently engaged in a process to enhance the overall asset management framework for these assets to incorporate further structure and sophistication into asset management processes.

A map of York Region's wastewater infrastructure is included in Appendix A of this Report.

With regard to the three dimensions of Reliability, Capacity, and Soundness, additional information is provided in the following sections.

5.1 Reliability

Grading of the Reliability dimension remains at a "B" in 2013. This is consistent with grades obtained in 2011, as presented in Table 5-2:

Table 5-2: Wastewater Reliability Grades

Reliability Measures	Wastewater Reliability Grades			Trend to 2015
	2009	2011	2013	
Ability to maintain services during power outage	B	A	A	→
Ability to meet quality standards	C	C	C	↑
Ability to maintain uninterrupted service	B	C	B	→
Ability to maintain secure operations	A	A	A	→
OVERALL	B	B	B	↑

The trend outlook for Reliability is positive, and can be sustained as long as York Region continues to meet current regulatory requirements and can plan to address and meet requirements of any future regulations or requirements.

The ongoing upgrade of wastewater facilities has contributed to the Region's ability to meet or exceed new regulatory requirements, including Effluent Quality and Tertiary Treatment Standards recently introduced in 2011. These standards require the Department to report regularly to MOE and the reports filed indicated compliance with current standards and an upward trend.



As noted in the 2011 State of Infrastructure Report, the Council of Ministers of the Environment outlined a strategy for performance standards related to the discharge of certain chemical compounds in effluent. While these standards are not yet in force, York Region has achieved compliance with the standards at all new treatment plants that have come online since 2011. Pre-emptive compliance with the pending performance standards demonstrates the proactive nature of the Region's plan for wastewater

assets. Meeting current Environmental Compliance Approval requirements and other related standards is also a key strategic priority for the Region and compliance is monitored through Performance Measurement Reports which are updated on an annual basis.

The Region has improved its ability to maintain uninterrupted wastewater service since the 2011 State of Infrastructure review. A total of five service outages were reported between 2012 and 2013, including one weather-related outage with causes beyond the Region's control, as well as four less significant events. York Region continues to implement its Inflow and Infiltration Program, reducing the flow of stormwater into the Region's sewage system and mitigating impacts that these additional storm flows would otherwise have on wastewater treatment processes. These measures have improved the overall grade under Reliability.

5.2 Capacity

The 2013 grade for Capacity remains consistent with the 2011 grade and is an "A", as presented in Table 5-3:

Table 5-3: Wastewater Capacity Grades

Capacity Measures	Wastewater Capacity Grades			Trend to 2015
	2009	2011	2013	
Ability to meet current demand	B	A	A	→
Ability to meet future demand	-	B	B	↑
OVERALL	B	A	A	→

After a significant improvement in 2011, wastewater capacity continues to trend positively; however, meeting growth needs remains a challenge for the Region. Key wastewater capital projects and initiatives have been implemented over the past few years and have enabled the Region to keep pace with demand and plan for future growth. At present, wastewater services have a combined rated capacity that serves the Region's needs. While future increases in capacity will be required to accommodate growth and ensure adequate service, current planned projects appear to address growth needs.

The Region has completed a number of key capital projects to address capacity issues and ensure that future demand can be met. The projects include:

- Southeast Collector Trunk Sewer Project
- Keswick WPCP Effluent Outfall Expansion



Capacity requirements are detailed in the Environmental Services Department's Capital and Operating Plans. These Plans form part of the overall asset management framework presently being developed by the Region. Specifically, capacity planning has provided for the growth of the Leslie Sewage Pumping Station to accommodate growth planned to 2051 in the Region's south end.

The Southeast Collector Trunk Sewer Project was initiated in 2010 to address capacity requirements related to development in the south-eastern part of the Region. The project highlights the challenges that the Region faces in meeting growth requirements within financial and legislative constraints. With a total budget of \$564 million, the Southeast Collector Trunk Sewer has a number of environmental and social benefits. The Southeast Collector Trunk Sewer project includes 15 km of pipe that will also provide a backup to existing older infrastructure. The Region used state-of-the-art tunneling technology for this project to minimize environmental and social impacts to affected communities. The Southeast Collector Trunk Sewer demonstrates effective planning for growth and best use of funds to achieve required capacity based on documents from the area planning study.

5.3 Soundness

The 2013 Soundness grade remains consistent with the 2011 grade and is an “A”, with a neutral trend predicted for future years, as presented in Table 5-4.

Table 5-4: Wastewater Soundness Grades

Soundness Measures	Wastewater Soundness Grades			Trend to 2015
	2009	2011	2013	
Condition	B	A	B	↑
Ability to maintain assets	A	A	A	→
OVERALL	A	A	A	→

Several wastewater capital projects have been implemented in 2012 and 2013, and condition ratings for the new assets have increased the overall condition rating of the wastewater asset base. The Region has also implemented additional tools and techniques to monitor condition and identify maintenance needs in a proactive manner. The implementation of proactive infrastructure management procedures and processes contributes to a reduction in operating issues, and the improvements to wastewater Reliability and Capacity grading demonstrate the impacts of this reduction in operating issues. Similarly, the Region’s steady trend in the condition measure is a result of continued focus on early detection of infrastructure issues and on optimization of repair efforts.



The Region has numerous capital improvement projects underway for wastewater assets, with additional projects planned in future years. Highlighted projects are as follows:

- Aurora Sewage Pumping Station pump replacements (*in construction*);
- Leslie Street Sewage Pumping Station upgrades (*in construction*)
- Black Creek Sewage Pumping Station upgrades (*in design*)
- Aurora Sewage Pumping Station hauled wastewater facility upgrade (*in design*)
- York-Durham Sewage System Rehabilitation within the Town of Aurora, City of Vaughan, and City of Markham (*in design*)

6.0 Waste Management

The overall grade for Waste Management is an “A”, demonstrating the Region’s successful waste reduction initiatives which offer substantial environmental benefits and future increased cost avoidance for both the consumer and the municipal waste management system.

The Region’s waste management facilities are categorized as follows:

- **Material Recovery Facility:** York Region Waste Management Centre
- **Transfer Stations:** Georgina Transfer Station and Depot
- **Household Hazardous Waste facilities:** East Gwillimbury, Markham and Vaughan
- **Community Environmental Centres:** McCleary Court and Elgin Mills



The future outlook for the waste management infrastructure is an overall neutral trend, which is supported by waste management and diversion projects and the resulting waste reductions expected from Integrated Waste Management Master Plan or SM4RT Living Plan initiatives. The 2013 grade and trend are presented in Table 6-1.

Table 6-1: Waste Management Service Grades

Grading Dimensions	Waste Management Service Grades			Trend to 2015
	2009	2011	2013	
Reliability	A	B	A	➔
Capacity	B	A	A	➔
Soundness	B	B	A	➔
OVERALL	B	B	A	➔

Key waste management and diversion projects identified include:

- Commitment to pursuing LEED Certification at new facilities
- Council endorsement of the 4th R (Energy Recovery)
- Construction of the Richmond Hill Community Environmental Centre
- Garfield-Wright Material Recovery Facility Upgrades

The SM4RT Living Plan was initiated by York Region in 2011 and endorsed by Council in 2014. The Master Plan identifies and assesses a clear picture of roles and responsibilities, expertise and efficiencies, in addition to preparing for Extended Producer Responsibility. The Master Plan also schedules and plans for waste management to meet the Region’s commitments outlined in the Sustainability Strategy, Regional Official Plan and Strategic Plan, as well as other applicable Regional and local policies and plans.

Appendix A includes a waste management infrastructure map for York Region.

Solid Waste management services are a shared responsibility between York Region and local municipalities. Local municipalities are responsible for collection of garbage, blue box and yard waste materials, bulky items, white goods, and source separated organics. The Region assumes responsibility for transfer and processing of waste, in addition to the operations of Community Environmental Centres and Household Hazardous Waste facilities throughout the Region. A portion of waste generated within the Region is being managed outside of the Regional system and can be classified as municipal waste from privately serviced multi-residential and mixed used buildings and/or public depots and public spaces; industrial, commercial and institutional waste; and construction and demolition waste.

Waste streams in the Region have changed dramatically over the past 25 years during the evolution of residential recycling and organic diversion programs. This will continue to evolve as the Region experiences rapid population growth expected to reach 1.5 million residents by 2031. Figure 6-1 shows a projection of potential quantities of waste to be managed between now and 2031.

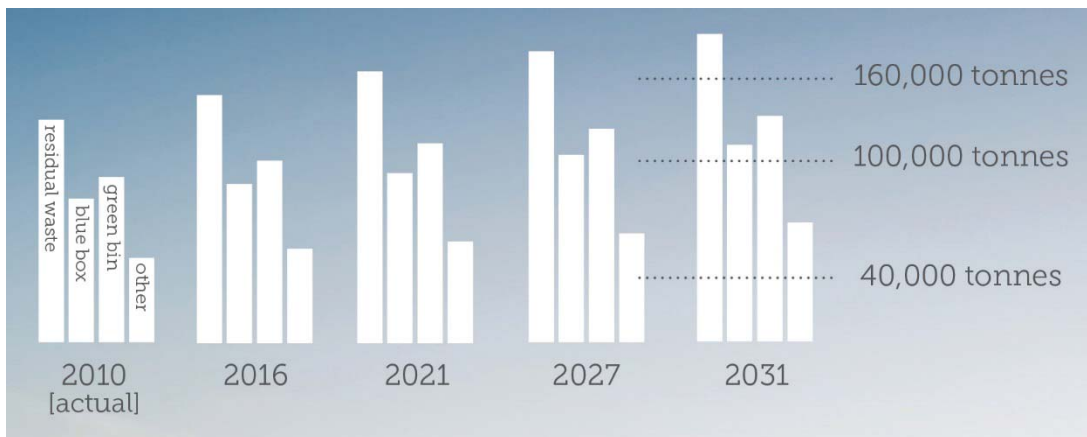


Figure 6-1: Projected Waste Generation from 2010 to 2031

(Source: Integrated Waste Management Master Plan 2013)

Waste reduction was estimated at 362,026 tonnes in 2012, and is expected to reach reductions in the order of 476,744 tonnes by 2031, including reductions in source separated organics, yard waste, waste reuse and miscellaneous waste.

Since 2007, York Region has partnered with non-profit organizations such as Goodwill to operate reuse transfer facilities at its McCleary Court and Elgin Mills Community Environmental Centre, as a means to increase reuse opportunities. Looking forward, projected tonnage diverted from landfills through Master Plan reuse and repair strategy is estimated at 521 tonnes in 2018, and 8,735 tonnes in 2031.

York Region, in partnership with Durham Region, received approval to construct a greenfield energy-from-waste facility. The investment for the energy-from-waste facility represents a premium over other waste disposal options. However, through evaluation of this long-term alternative it was determined that recovering additional energy and materials from the residual waste was a much better alternative (among others

evaluated) for the environment and worth the additional cost. The Region has committed 30,000 tonnes per year of residual waste (post waste diversion programs) to the energy-from-waste facility. The Durham-York Energy from Waste facility will recover 80 per cent of the ferrous metal and 60 per cent of the non-ferrous metal that still remains in the residual waste to be recycled; reduce the volume of waste being landfilled by up to 90 per cent, significantly reducing the Region’s reliance on landfill disposal; and, generate electricity that can be sold to the electrical grid for distribution at an annual revenue of over \$8 million.

With regard to the three dimensions of Reliability, Capacity, and Soundness, additional information is provided in the following sections.

6.1 Reliability

The overall grade for the Reliability dimension of waste management infrastructure is “A”, with an increase demonstrated in half of the measures since 2011, as presented in Table 6-2. The Reliability grade reflects the Region’s ability to maintain service, quality and secure operations.

Table 6-2: Waste Management Reliability Grades

Reliability Measures	Waste Management Reliability Grades			Trend to 2015
	2009	2011	2013	
Ability to maintain services during power outage	A	B	B	→
Ability to meet quality standards	B	A	A	→
Ability to maintain uninterrupted service	B	B	A	→
Ability to maintain secure operations	A	B	A	→
OVERALL	A	B	A	→

To demonstrate commitment to the environment in all daily operations, along with complying with environmental standards, the Region continues to maintain the ISO 14001 Environmental Management System. As new waste management facilities are commissioned and as



existing non-registered facilities complete their upgrades/expansions, they will be assessed for inclusion within the existing ISO 14001 registration scope. Certification for the Elgin Mills Community Environmental Centre and the Waste Management Centre was awarded in 2012. Following third party registration audits for seven of the Region’s solid waste management facilities, a number of facilities received ISO 14001

accreditation in 2012, including the Georgina Transfer Station, McCleary Court Community Environmental Centre, Household Hazardous Waste facilities at East Gwillimbury, Markham and Vaughan, and the Asian Long-Horned Beetle Site.

6.2 Capacity

The overall grade for the Capacity dimension of waste management infrastructure is an “A”, which mirrors the grade received in 2011, as presented in Table 6-3. The Capacity grade reflects the Region’s ability to meet current and future demand. The current capacity and use of the Waste Management Centre are 140,000 tonnes and 90,000 tonnes respectively. Current use of the McCleary Court and Elgin Mills Community Environmental Centres are 1,180 and 999 tonnes, respectively, both of which are significant increases from 2011 capacities.

Table 6-3: Waste Management Capacity Grades

Capacity Measures	Waste Management Capacity Grades			Trend to 2015
	2009	2011	2013	
Ability to meet current demand	B	A	A	➔
Ability to meet future demand	B	A	A	➔
OVERALL	B	A	A	➔



Vast changes in waste management diversion programs were made at the provincial level between 2005 and 2013. As programs mature, magnitudes of diversion will become incrementally more costly to achieve, and hence new initiatives are required to focus on waste reduction while

maximizing diversion (including food waste reduction). To increase waste diversion from landfill, the Vaughan Household Hazardous Waste facility will be relocated to the McCleary Court CEC. This relocation is focused on assisting residents of the southern part of the Region in their waste diversion efforts, and is scheduled in 2015. Diversion from landfill in 2013 was 82 per cent, including waste processed through energy from waste facilities.

Capacity enhancement of York Region Waste Management Centre was completed in 2011. With increased throughput, the facility is now able to process more tonnage as a benefit to the community and to the Region; processing more tonnage through the existing facility is cost effective, and in the short term, reduces the need to build a new facility.

New Regionally-owned source-separated organics (green bin) processing infrastructure is being considered to augment limited available third party processing capacity in Ontario for York Region’s source-segregated organics program.

6.3 Soundness

The overall grade for Soundness of waste management infrastructure is an “A”, as noted in Table 6-4. The Soundness grade reflects the physical condition of waste management facilities, and the Region’s ability to maintain assets to meet expected levels of service. Following asset management principles, the risk model used in the Environmental Services Department primarily for water and wastewater, is also currently being used for the waste management facilities.

Table 6-4: Waste Management Soundness Grades

Soundness Measures	Waste Management Soundness Grades			Trend to 2015
	2009	2011	2013	
Condition	B	B	B	→
Ability to maintain assets	B	C	A	→
OVERALL	B	B	A	→



Waste management facilities owned by the Region are maintained by Property Services and operated by third-party contractors who contribute to the infrastructure maintenance and minor replacement works (up to \$40,000 for the Region’s Waste Management Centre). York Region is responsible for capital work and major replacement work greater than \$40,000 in value.

The total number of work orders recorded for Waste Management Centre in 2013 is approximately 25,000, of which over 24,000 were proactive and 148 were reactive.

7.0 Duffin Creek Water Pollution Control Plant

The Duffin Creek Water Pollution Control Plant is located in the Town of Pickering and accepts wastewater flows from both the Regions of York and Durham. In 2013, 81 per cent of total flow originated from York Region and 19 per cent from Durham Region.



The overall grade for the Duffin Creek Water Pollution Control Plant is an “A”, as presented in Table 7-1. This is achieved through ongoing efforts to upgrade and maintain the facility while embracing the need for expansion on an incremental basis. The overall condition of the facility is very good given the plant has recently undergone significant expansion with Stage 3 upgrades and performance improved over the past several years. The previous asset evaluation

study for the Duffin Creek Water Pollution Control Plant (Stages 1 and 2) resulted in a 10 year capital plan for infrastructure renewal and maintenance. The plant is designed and operated to produce treated water that exceeds the current regulatory requirements. Based on the high environmental compliance rates (as outlined in the 2012 Duffin Creek Water Pollution Control Plant Annual Performance Report) and the increase in capacity, the Plant continues to have a neutral trend to 2015.

As discussed in Section 2.5 of this Report, ownership of the Duffin Creek Water Pollution Control Plant is shared between York Region and Durham Region. Maintenance of this facility is undertaken by Durham Region as part of its Operations Agreement responsibilities with York Region staff involved in advisory and management roles.

Table 7-1: Duffin Creek Water Pollution Control Plant Service Grades

Grading Dimensions	Duffin Creek Water Pollution Control Plant Service Grades			Trend to 2015
	2009	2011	2013	
Reliability	B	A	A	→
Capacity	D	A	A	→
Soundness	B	B	B	→
OVERALL	C	A	A	→

With regard to the three dimensions of Reliability, Capacity, and Soundness, additional information is provided in the following sections.

7.1 Reliability

The 2013 grade for Reliability has remained the same as in 2011. This “A” grade, as presented in Table 7-2, reflects the Region’s ability to maintain secure operations at the

facility, as well as meet quality standards and maintain service. In general, Reliability continues to be very positive. The trend going forward to 2015 is neutral.

Table 7-2: Duffin Creek Water Pollution Control Plant Reliability Grades

Reliability Measures	Duffin Creek Water Pollution Control Plant Reliability Grades			Trend to 2015
	2009	2011	2013	
Ability to maintain services during power outage	A	B	A	→
Ability to meet quality standards	B	A	A	→
Ability to maintain uninterrupted service	B	A	B	→
Ability to maintain secure operations	A	A	A	→
OVERALL	B	A	A	→

The Plant continues to rate ahead of comparable facilities according to the national Water and Wastewater Benchmarking Initiative and consistently performs well from an operational perspective.

7.2 Capacity

The overall grade for Capacity at the Duffin Creek Water Pollution Control Plant is an “A”, as presented in Table 7-3. The Duffin Creek Water Pollution Control Plant has been recognized as one of the best wastewater treatment plants in Ontario in Ecojustice’s Great Lakes Sewage Report Card 2013. In 2012, Duffin Creek Water Pollution Control Plant’s (WPCP) treatment capacity was increased from 420 MLD to 630 MLD and upgraded to provide increased phosphorus and ammonia removal through an amended Environmental Compliance Approval (ECA). Although the plant has a maximum capacity of 630 MLD, the Ontario Ministry of the Environment (MOE) limited the current plant outfall capacity to 520 MLD. However, the plant may operate at an average daily flow up to 540 MLD if the Regional Director is satisfied that the treated water discharged meets the Ministry’s effluent quality requirements thus minimizing environmental impact on the receiving water body.

In addition, York and Durham Regions are in the process of obtaining approvals to achieve a capacity of 630 MLD; this added capacity will serve projected demand beyond 2031.

Table 7-3: Duffin Creek Water Pollution Control Plant Capacity Grades

Capacity Measures	Duffin Creek Water Pollution Control Plant Capacity Grades			Trend to 2015
	2009	2011	2013	
Ability to meet current demand	C	A	A	→
Ability to meet future demand	F	B	B	↑
OVERALL	D	A	A	→

Figure 7-1 illustrates future average daily projected flow capacity on a year by year basis.

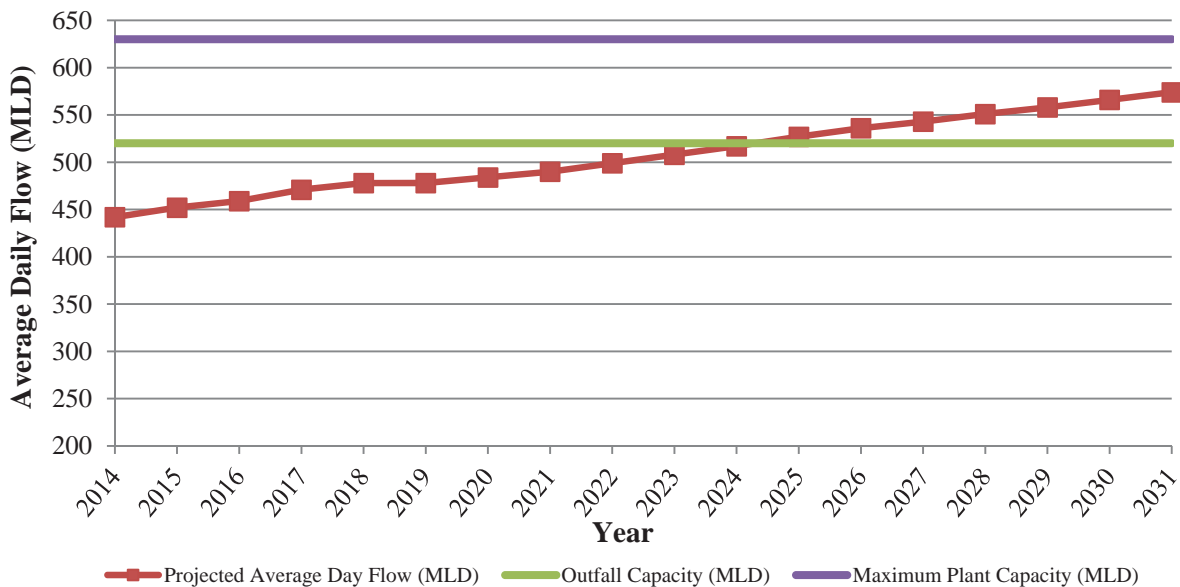


Figure 7-1: Duffin Creek Water Pollution Control Plant Average Daily Projected Flow and Capacity to 2031

York and Durham Regions are working together to optimize efficiency of the facility with the aim to operate and manage in an efficient and effective manner into the foreseeable future. Ongoing work is committed to ensure that the Plant continues to expand its capacity to meet growing demand. The current capital plan reflects the required financial resources to achieve this capacity expansion. Currently, Stages 1 and 2 upgrades projects are ongoing to 2017 as required to satisfy condition of the Ministry of the Environment Certificate of Approval (Air) for the Duffin Creek Water Pollution Control Plant Stage 3 Expansion. The projects are progressing in several stages: the New Stages 1 and 2 Electrical Substation constructions; the New Disinfection Building construction; and the New Preliminary Treatment Building and refurbishment of the liquid treatment trains for Stages 1 and 2. The new Stage 3 Influent Pumping Station construction is ongoing which is required to facilitate connection of the new Southeast Collector Sewer to the existing York-Durham Sewage System and to prevent surcharge conditions during construction and in the future.

7.3 Soundness

Similar to 2011 results, the Soundness grade for the Duffin Creek Water Pollution Control Plant remains at a “B”, as presented in Table 7-4. This grade is based upon the annual inspection results (which account for all assets within the facility) and the status of work orders at the plant. Each year, a basic condition assessment is carried out and all information is entered into a Maintenance Management System, which holds information on the 40,000+ assets at the facility.

Table 7-4: Duffin Creek Water Pollution Control Plant Soundness Grades

Soundness Measures	Duffin Creek Water Pollution Control Plant Soundness Grades			Trend to 2015
	2009	2011	2013	
Condition	C	B	B	→
Ability to maintain assets	B	A	A	→
OVERALL	B	B	B	→

A proactive maintenance program is in place to ensure that component assets of the plant will be serviced within the period of their useful life. This was evidenced by the partial roof replacement noted in the 2011 report; that process continues with older sections of the facility. Operation of the facility is conducted by Region of Durham staff and reports are prepared for the York Durham Sewage System Management Committee. The Environmental Services Department has Capital Improvement and Operations Plans in place to manage this facility.



8.0 Forestry

The 2013 State of the Infrastructure Grade for forestry is a “B”, as presented in Table 8-1. 2013 marks the first year that forestry is evaluated. Forestry includes the Urban Forest (street trees) and the York Regional Forest. The forestry grades are based on several factors, such as the amount of forested area per person, species diversity, and Forest Stewardship Council Audits. Criteria for grading were developed in consultation with York Region staff, with reference to indicators from other medium to large size municipalities in Ontario.

Table 8-1: Forestry Service Grades

Grading Dimensions	Forestry Service Grades			Trend to 2015
	2009	2011	2013	
Reliability	-	-	B	↑
Capacity	-	-	B	↑
Soundness	-	-	B	↑
OVERALL	-	-	B	↑

The Region continues to focus on maintaining the existing tree canopy through an initiative to plant new trees and to properly manage and expand the Regional Forest. York Region is responsible for maintaining over 36,000 trees within the Urban Forest. The Region has dealt with invasive species infestations, including emerald ash borer, through new plantings. Natural Heritage and Forestry removed 1,500 trees in 2013 but planted more than 2,100 new trees in the same year. In addition to the Urban Forest, the Region maintains 23 forest tracts with a total area of 2,300 hectares. These tracts are maintained through planned harvesting and replanting. When combined, these maintenance activities promote species and habitat diversity, forest health, and natural regeneration.



Ongoing efforts of Natural Heritage and Forestry to proactively manage assets are evidenced by certification of the York Regional Forest. The York Regional Forest was the first public forest to be certified in Canada and demonstrates that York Region maintains these assets in a sustainable manner.

In addition to the Urban and York Regional Forests, the Region operates a Forest Stewardship and Education Centre, demonstrating the importance of trees to the environment and to the well-being of the public. With significant population growth, preservation of the York Regional Forest ensures that future generations can experience the ecological wonders of diverse and healthy forests. Appendix A includes a map of forestry within York Region.

Table 8-2 and Table 8-3 illustrate the dimensions, grades and trends for the Urban and York Regional Forests respectively.

Table 8-2: Forestry Service Grades for the Urban Forest (Street Trees)

Grading Dimensions	Urban Forest			Trend to 2015
	2009	2011	2013	
Reliability	-	-	B	↑
Capacity	-	-	B	↑
Soundness	-	-	B	↑
OVERALL	-	-	B	↑

Table 8-3: Forestry Service Grades for York Regional Forest

Grading Dimensions	York Regional Forest			Trend to 2015
	2009	2011	2013	
Reliability	-	-	B	↑
Capacity	-	-	B	↑
Soundness	-	-	A	→
OVERALL	-	-	B	↑

The Forestry Stewardship Centre is included in the 2013 State of Infrastructure Report, but is graded separately with criteria consistent with those used for Environmental Services facilities. The 2013 grades for the old Forestry Stewardship Centre is an “F” with all trends positive as illustrated in Table 8-4.

Table 8-4: Forestry Service Grades for Forestry Stewardship Centre*

Grading Dimensions	Forestry Stewardship Centre			Trend to 2015
	2009	2011	2013	
Reliability	-	-	F	↑
Capacity	-	-	F	↑
Soundness	-	-	F	↑
OVERALL	-	-	F	↑

* Old Forestry Stewardship Centre; new centre under construction

The old Forestry Stewardship Centre was constructed circa 1929 and is comprised of a two storey gambrel styled building common to the era and similar to a large number of government built structures in the Holland Marsh area during the same era. A one story addition on the west side of the building was added in 1952. The building has reached its end of life and a project is underway to construct a new Forestry Stewardship Centre replacing the old one in 2014/2015.

8.1 Reliability

The Reliability grade for the Urban Forest for 2013 is a “B” based upon recognition of the programs and successes of Natural Heritage and Forestry, as presented in Table 8-5. Reliability measures the ability of the Urban Forest to resist harsh weather and disease. It is anticipated that based upon the principal of York Region of a “no net loss of trees or forest cover” when reviewing new projects that tree canopy and health will be maintained through the continuation of an aggressive planting program.

Table 8-5: Forestry Reliability Grades for the Urban Forest (Street Trees)

Reliability Measures	Urban Forest			Trend to 2015
	2009	2011	2013	
Resilience to weather and Disease	-	-	B	↑
Size/age of Forestry	-	-	C	→
OVERALL	-	-	B	↑

Increasing diverse species of trees will enable a more resilient Urban Forest in response to disease that attacks a specific type of tree. At the present time, the most commonly occurring species is the ivory silk lilac. The U.S. Department of Agriculture has recognized that generally no single species should comprise more than 10 per cent of the total tree population.

The Region maintains a comprehensive, robust database of all current and retired trees within the Urban Forest. The database includes the planting date, inspection results, and the tree species. This database information as well as routine assessment of trees, contributes to the positive trend in Urban Forest reliability. The impact of 2013 ice storm on the Urban Forest is yet to be assessed and not included in this report.



The Reliability grade for the York Regional Forest for 2013 is a “B”, as presented in Table 8-6. Reliability is based upon the ability to meet quality and regulatory standards in uninterrupted service. The measure is the ability to allow the forests to adequately regenerate through a number of efforts such as thinning. Of the 2,130 hectares of Regional Forest that were inventoried, 992 hectares were deemed to have adequate regeneration (mostly as a result of thinning). This generates a “B” grade for this dimension.

Table 8-6: Forestry Reliability Grades for York Regional Forest

Reliability Measures	York Regional Forest			Trend to 2015
	2009	2011	2013	
Ability to renew forests	-	-	B	↑
OVERALL	-	-	B	↑

In addition to thinning of the forests, the Region continues to plant seedlings underneath the canopy of existing trees. This ensures that the forest is able to regenerate when the older, taller trees are removed. As a result, the Reliability trend for the York Regional Forest is upward leading to 2015.

The Reliability grade for the Forestry Stewardship Centre for 2013 is an “F” with a positive outlook as a result of the construction of the new Forestry Stewardship Centre over the next two years.

Table 8-7: Forestry Reliability Grades for Forestry Stewardship Centre

Reliability Measures	Forestry Stewardship Centre			Trend to 2015
	2009	2011	2013	
Ability to maintain services during power outage	-	-	F	↑
Ability to maintain uninterrupted service	-	-	F	↑
Ability to maintain secure operations	-	-	D	↑
OVERALL	-	-	F	↑

8.2 Capacity

The 2013 grade for Capacity for the Urban Forest is a “B”, as presented in Table 8-8. As previously discussed, the Region’s tree planting program follows the principle of “no net loss of trees and forest cover”, and adherence to this principle should ensure an upward trend while meeting the needs of the Region.

Table 8-8: Forestry Capacity Grades for the Urban Forest (Street Trees)

Capacity Measures	Urban Forest			Trend to 2015
	2009	2011	2013	
Stocking Rate of Urban Forest	-	-	B	↑
OVERALL	-	-	B	↑

Capacity is assessed in consideration of the number of trees and the associated number of spaces in the streetscape available for planting. Forestry staff calculate that the current road infrastructure is 78 per cent stocked, meaning that 22 per cent of the road space remains available for planting. This figure is measured against the ideal target of 80 per cent stocking rate, giving it a “B” grade.

The 2013 grade for Capacity for the York Regional Forest is a “B”, as presented in Table 8-9. The measure of Capacity is the area of the York Regional Forest per capita. Based upon the present population of York Region and the area of the York Regional Forest, the measure was calculated at 2 hectares per 1,000 people.

Table 8-9: Forestry Capacity Grades for York Regional Forest

Capacity Measures	York Regional Forest			Trend to 2015
	2009	2011	2013	
Area of York Regional Forest per capita	-	-	B	↑
OVERALL	-	-	B	↑

The 2013 grade for Capacity for the Forestry Stewardship Centre is an “F”. All trends are positive as result of the planned construction of a new building designed to meet current and future demand requirements.

Table 8-10: Forestry Capacity Grades for Forestry Stewardship Centre

Capacity Measures	Forestry Stewardship Centre			Trend to 2015
	2009	2011	2013	
Ability to meet current demand	-	-	F	↑
Ability to meet future demand	-	-	F	↑
OVERALL	-	-	F	↑

8.3 Soundness

The 2013 grade for Soundness of the Urban Forest is a “B”, as presented in Table 8-11. Significant improvements have been made over a number of years in regard to design standards that significantly reduce the replacement of new plantings, notwithstanding the impact of urbanization. In addition, Soundness takes into consideration both age and maintenance activities.

Table 8-11: Forestry Soundness Grades for the Urban Forest (Street Trees)

Soundness Measures	Urban Forest			Trend to 2015
	2009	2011	2013	
Condition	-	-	B	↑
OVERALL	-	-	B	↑

Soundness is assessed in consideration of the tree age and of maintenance performed on the trees in the woodlot. These factors are evaluated in combination to establish a Soundness grade and an understanding of the remaining life of the forests. Soundness is impacted by maintenance performed as well as age of the various species of trees found in the woodlot.

The Soundness score for the York Regional Forest is based upon results of the Forest Stewardship Council audit for 2013. York Region met twelve of the fourteen criteria as outlined in the audit report. This resulted in an “A” grade, as presented in Table 8-12.

Table 8-12: Forestry Soundness Grades for York Regional Forest

Soundness Measure	York Regional Forest			Trend to 2015
	2009	2011	2013	
Condition	-	-	A	→
OVERALL	-	-	A	→

The Soundness score for the Forestry Stewardship Centre is an “F” due to the age of the structure as well as challenges involved in maintaining an old facility. The trends moving forward will be positive as a result of the new building to be constructed over the next two years.

Table 8-13: Forestry Soundness Grades for Forestry Stewardship Centre

Soundness Measures	Forestry Stewardship Centre			Trend to 2015
	2009	2011	2013	
Condition	-	-	F	↑
Ability to maintain assets	-	-	F	↑
OVERALL	-	-	F	↑

9.0 Financial

Strong financial strategies have been developed based on the new approved rate structure and an in-depth financial study of the Department operations and assets. Regional Council approved a 10 per cent combined annual rate increase for water and wastewater from 2012 through 2015. Implementing and building reserves will require the Region to maintain a disciplined approach and strong financial management to monitor and manage key factors (e.g. asset lifecycle, asset depreciation/deterioration, etc.) used to develop the strategies for future reserve requirements for sustainable infrastructure funding.

Although the Region has approved a rate structure with a positive long-term outlook, the Region's Financial grade remains a "C" because reserve balances for water and wastewater will not begin to build until 2014 and beyond. The Region's overall financial outlook will remain positive for the foreseeable future while the reserve continues to build up. Table 9-1 summarizes the overall Financial grades for the service areas and identifies an overall grade of "C" with a positive trend.

Table 9-1: Overall Infrastructure Financial Grades

Infrastructure Asset	Financial Grades			Trend to 2015
	2009	2011	2013	
Water	C	C	C	→
Wastewater	C	C	C	→
Waste Management	C	C	A	→
Duffin Creek WPCP	D	C	C	↑
Forestry	-	-	C	→
OVERALL	C	C	C	↑

Financial grades for water, wastewater, and Duffin Creek remain at a "C", consistent with the grades achieved in the 2011 State of Infrastructure Report. The Financial grade for waste management has improved from a "C" in 2011 to an "A" in 2013. A Financial grade of "C" is established for forestry and includes the Forestry Stewardship Centre.

9.1 Rehabilitation and Replacement Budget

The built asset base continues to grow as capital projects are delivered each year. Built asset replacement values have more than tripled since previous State of Infrastructure reporting, from \$1.2 billion in 2005 to \$3.7 billion in 2013. Investing in rehabilitation and replacement of infrastructure assets is key to ensuring service levels are maintained throughout the life of an asset. As infrastructure ages, it periodically needs major rehabilitation and ultimately needs to be replaced. Development charges cannot be used for this purpose. Figure 9-1 shows replacement costs of assets managed by the Environmental Services Department for the current State of Infrastructure with projections to 2022.

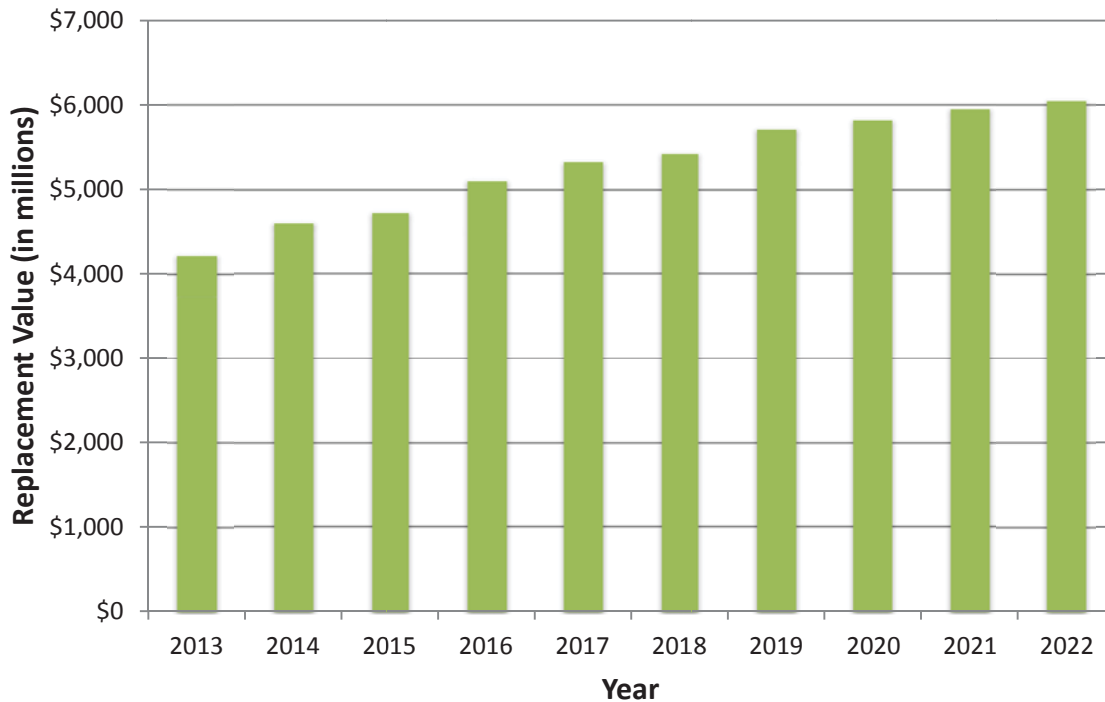


Figure 9-1: Replacement Value of Environmental Services Assets

In November 2013, Council adopted a Corporate Asset Management Policy and Framework which supports many of the asset management activities already in place and provides a basis for further development of asset management activities as new assets are commissioned over the next ten years. Current 2013 forecasts estimate over \$640 million in rehabilitation and replacement projects are required over the next 10 years to sustain service delivery.

Figure 9-2 shows the 10-year rehabilitation and replacement plan for water, wastewater, waste management, and forestry. Opportunities to smooth the 10 year rehabilitation expenditures will be considered during preparation of the 2015 10-year Capital Plan.

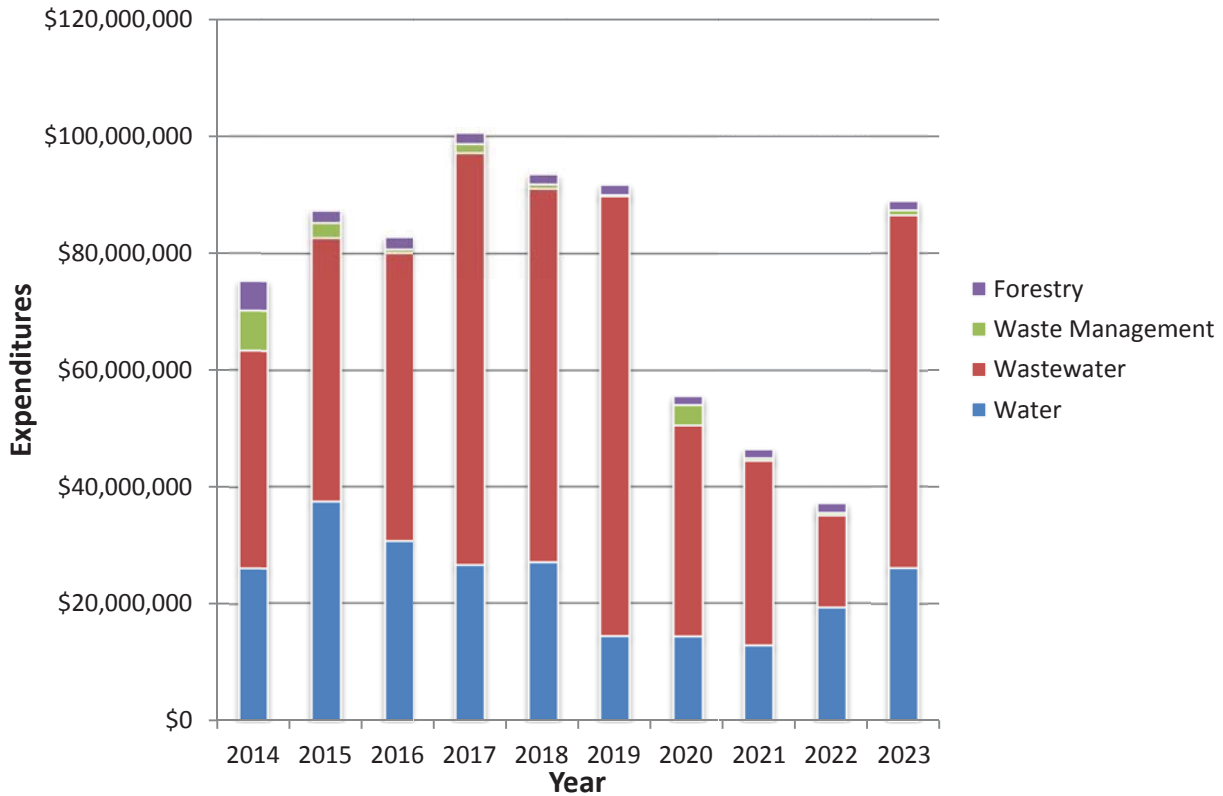


Figure 9-2: 10-Year Rehabilitation and Replacement Plan

Environmental Services is proactively planning infrastructure maintenance at the facility level to manage resources effectively and control costs. The Region is implementing long-term water conservation and inflow and infiltration strategies to optimize use of existing capital infrastructure. York Region continues to focus on waste reduction to keep downward pressure on annual operating costs.

As infrastructure ages, it periodically needs major rehabilitation and ultimately needs to be replaced. Figure 9-3 shows the age ranges of the asset base and their estimated replacement values.

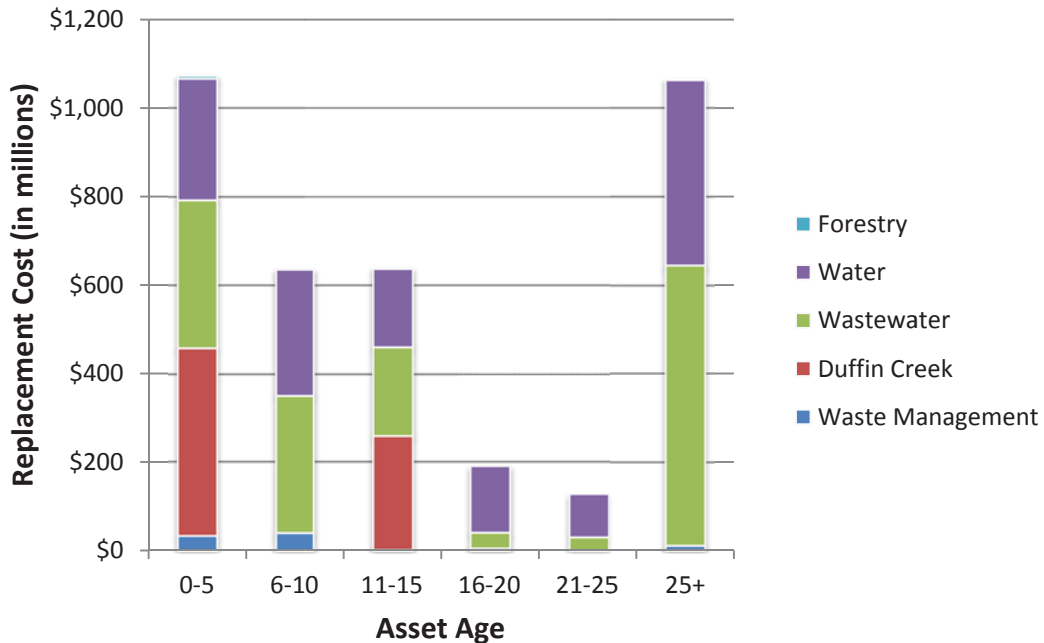


Figure 9-3: Asset Replacement Value by Age Group

While the Region is building new infrastructure, it is crucial that it is also mindful about the state of the reserves.

9.2 Reserves

The Region’s reserve management strategy includes continued implementation of Council policy to increase contributions for capital asset renewals. Reserve balances are growing as a result of sound financial strategy and prudent fiscal management which will continue to support the Region’s strong credit rating.

The 2011 rate review targeted reserve balances equal to 20 per cent of the replacement value of Environmental Services infrastructure. Based on the 2011 review, reserves were projected to reach and maintain a sustainable level in 2020 and beyond.

Replacement value of the Region’s infrastructure is increasing due to the continued commitment to meet growth requirements by constructing new assets. The budget for repairing, replacing and updating York Region’s water, wastewater, waste management and forestry is expected to grow as infrastructure ages.

More than half the value of the Department’s infrastructure has reached the midway point of the expected useful life which demonstrates the significance of future expenditures needed for asset replacement. Maintaining a reserve of 20 per cent of the replacement cost of Environmental Services infrastructure takes significant and increasing financial investment to account for withdrawals from the reserve fund and the increasing cost to rehabilitate and replace infrastructure.

The following sections summarize reserves for water and wastewater, waste management and forestry.

9.2.1 Water and Wastewater Reserve

The 2013 year-end reserve balance for water and wastewater was \$29.1 million. This includes \$44.2 million for water and a deficit of \$15.1 million for wastewater. Both water and wastewater service areas have operating surpluses forecasted for 2014 and beyond with a positive individual reserve balances beginning in 2014 and continuing to increase moving forward.

York and Durham each contribute funds to the Duffin Creek reserve fund which is managed by the York-Durham Sewage System Management Committee. The reserve is approximately \$1 million and is only intended to cover minor rehabilitation projects that arise during the year. Funding of major rehabilitation and replacement projects is the responsibility of Durham and York to budget and fund through each Region's respective capital budgets.

Rate increases are required to build sufficient reserves for necessary asset rehabilitation and replacement. 14 per cent of the 2014 water and wastewater rate has been allocated as contribution to capital replacement reserves. The review to update water and wastewater rates beginning in 2016 will be completed in 2015.

9.2.2 Waste Management Reserve

In 2013, approximately \$6.7 million of the Energy From Waste (EFW) facility was funded from the waste management reserve. However, the reserve was strong with a year-end total of \$53.1 million, achieving a 2013 State of Infrastructure financial grade of "A".

The master plan initiatives extend the life of processing capacity and facilities by reducing waste generation. However additional capital investments are still needed to provide residents with programs and services in the long term.

The York Region 10-year capital forecast is approximately \$177 million to support waste services and includes:

- Approximately \$65 million (or 37 per cent of the 10-year plan) for funding of a source separated organics processing facility
- \$30 million to increase diversion capacity
- \$20 million for expansion of the Community Environmental Centre network
- \$8 million to upgrade waste management facilities

With these future costs, a new mechanism is required to support the funding of waste management programs, services and facilities. For this reason, preliminary discussions on the concept of alternative financing options for the waste management system was explored as part of the SM4RT Living Plan as the plan could fund future large capital works required for the waste management system without additional burden to the Regional tax rate. However, a recent announcement from Waste Diversion Ontario

indicated a potential funding reduction to blue box recycling programs, and this may impact the feasibility of financing options.

9.2.3 Forestry Reserve

The 2013 year-end balance for the forestry reserve was \$2.2 million, primarily constituting the Forestry Land Securement reserve. Currently no reserve exists for the replacement of trees within the Urban Forest. Over the next reporting period options to establish and fund a Urban Forest reserve will be reviewed.

In 2014, reserves are expected to decrease due to construction of the Forestry Stewardship Centre. However, reserves will improve as the framework and policies to maintain a sustainable forestry reserve are established in 2014.

10.0 Data Management

York Region's State of Infrastructure reporting is a data-driven process that relies on the availability, accuracy, and completeness of data. Best practices for data management address data cleanliness, accessibility, completeness, and accuracy are as follows:

- **Clean data** does not contain spelling errors, typographical errors, or duplicate records
- **Accessible data** is stored in a location that can be easily retrieved and in a format that can be easily interpreted
- **Complete data** includes values for every variable such that all fields in a record are populated
- **Accurate data** is current and are reflective of present-day conditions. Standards for the collection, reporting, and maintenance of data are consistently applied

Data used in the State of Infrastructure assessment process are drawn from numerous and varied sources, including but not limited to work order systems, asset inventories, condition assessments, capital plans, budget forecasts, process monitoring and analysis, regulatory permits, and security systems. Where records did not provide adequate information for analysis, knowledge was collected from staff through workshops and interviews to supplement data collection. The quality and accuracy of the findings of this study are wholly contingent upon the quality and accuracy of the data provided for analysis. The importance of clean, accessible, complete, and accurate data in State of Infrastructure reporting cannot be understated.

An assessment of data confidence is provided in Table 10-1. Colours in the table indicate the ease with which data required for evaluation could be secured during the assessment process:

- **Green (high)** rating indicates that data were obtained easily and in a format that could be inputted directly into State of Infrastructure reporting tools
- **Yellow (medium)** rating indicates that data required some manipulation before use in State of Infrastructure reporting tools, or that datasets provided were moderately incomplete
- **Red (low)** rating indicates that data required significant interpretation or manipulation (e.g., Access database queries, etc.). In some cases, data was not provided or was very limited in nature

Trend arrows in Table 10-1 identify anticipated confidence in the data for the 2015 State of Infrastructure Report.

Data is the core of any business information system and is a key organizational resource. Data needs must be defined clearly and the accuracy and currency of data should match the business needs to support the decision-making processes of the organization. Data must be able to be gathered, verified, stored, retrieved and protected in an understandable and systematic manner.

Table 10-1: Data Confidence

Dimension	Measure	Data Confidence			
		2009	2011	2013	Trend to 2015
Reliability	Ability to maintain service during power outage	Medium	Medium	High	↑
	Ability to meet quality standards	Medium	High	High	→
	Ability to maintain service	High	High	High	→
	Ability to maintain secure operations	Medium	Medium	High	→
	Resilience to weather and disease (<i>Forestry only</i>)	N/A	N/A	Low	↑
	Size/age of Forestry (<i>Forestry only</i>)	N/A	N/A	Low	↑
	Ability to renew forests (<i>Forestry only</i>)	N/A	N/A	Medium	↑
Capacity	Ability to meet current demand	Medium	Medium	High	→
	Ability to meet future demand	Low	Medium	High	→
	Stocking rate of Urban Forest (<i>Forestry only</i>)	N/A	N/A	High	→
	Area of York Region Forest per capita (<i>Forestry only</i>)	N/A	N/A	Medium	↑
Soundness	Condition	High	High	High	↑
	Ability to maintain assets	Medium	High	High	↑
Financial	Ability to identify and budget rehabilitation & replacement needs (10 year term)	High	High	High	↑
	Ability to maintain long term replacement reserve	Medium	High	High	↑

Data quality and confidence levels have increased significantly in 2013 compared to those in the 2009 and 2011 State of Infrastructure reports as indicated in Table 10-1. A percentile breakdown of 2013 data confidence levels is presented below:

- High confidence (Green) – 73 per cent of total data
- Medium confidence (Yellow) – 13 per cent of total data
- Low confidence (Red) – 13 per cent of total data

Overall data quality and confidence for the 2013 State of Infrastructure report is high. Forestry asset data is being reported for the first time and data gaps still exist, but is expected to improve substantially as more years of data become available to establish a solid baseline.

Reliable decision making on capital planning, rehabilitation and replacement planning largely depends on the quality of infrastructure data that the Region collects and maintains. In preparing State of Infrastructure Reports, it is imperative that the Region

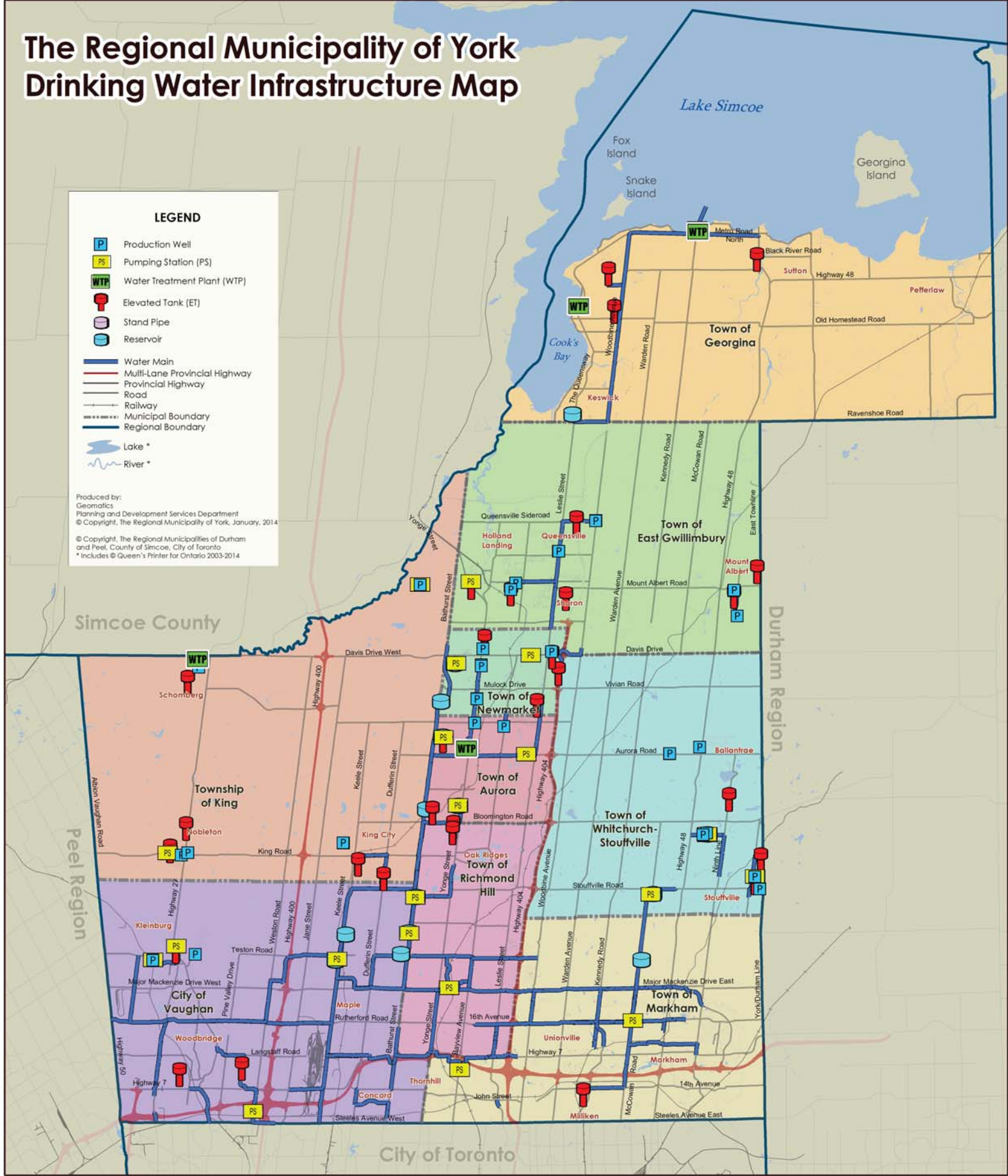
be able to substantiate the validity of the analysis with supporting data. With this objective in mind, the State of Infrastructure analysis continues to be improved in each reporting cycle such that the methodology and analysis is repeatable and defensible.

In its on-going efforts to achieve consistency in State of Infrastructure reporting, the Region continues to evolve asset data systems and processes to ensure that data is collected, managed, and analyzed in a controlled and secure manner. To this end, data will be verified, stored, retrieved and protected in a systematic manner and be readily available for use and analysis. The approach established by the Region will address issues of inconsistent, contradictory and duplicated data and improve data confidence in the future.

APPENDIX A

Infrastructure Maps

The Regional Municipality of York Drinking Water Infrastructure Map



LEGEND

- P Production Well
- PS Pumping Station (PS)
- WTP Water Treatment Plant (WTP)
- Elevated Tank (ET)
- Stand Pipe
- Reservoir
- Water Main
- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Railway
- Municipal Boundary
- Regional Boundary
- ~ Lake *
- ~ River *

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Figure A-1: Drinking Water Infrastructure

The Regional Municipality of York Wastewater Infrastructure Map

LEGEND

- Sewage Treatment Plant (STP)
- Odour Control Facility (OCF)
- Sewage Pumping Station (SPS)
- Equalization Tank (ET)
- Gravity Sewer Main
- Wastewater Forcemain
- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Railway
- Municipal Boundary
- Regional Boundary
- Lake *
- River *

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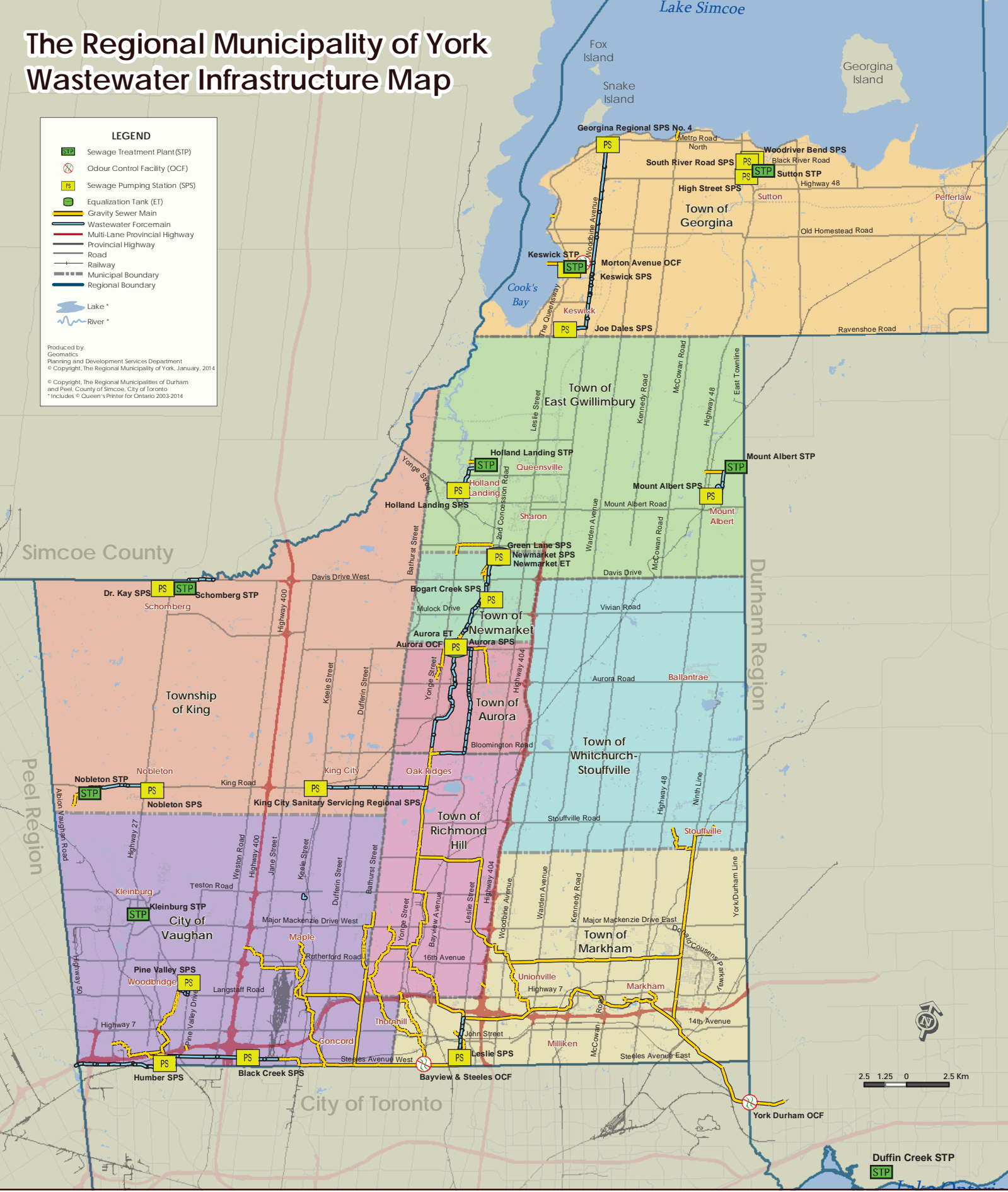


Figure A-2: Wastewater Infrastructure

The Regional Municipality of York Waste Management Infrastructure Map

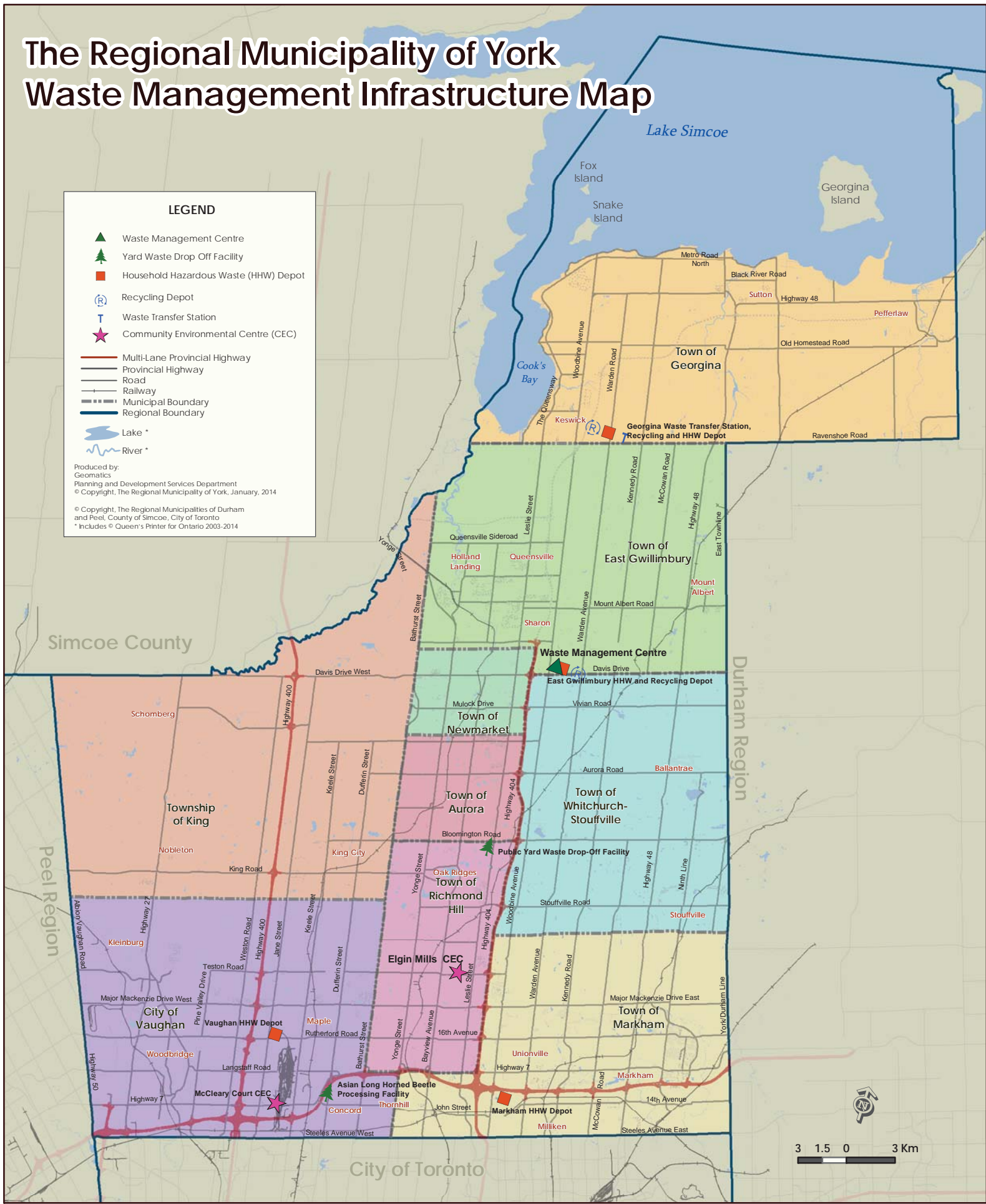


Figure A-3: Waste Management Infrastructure

The Regional Municipality of York Forestry Infrastructure Map

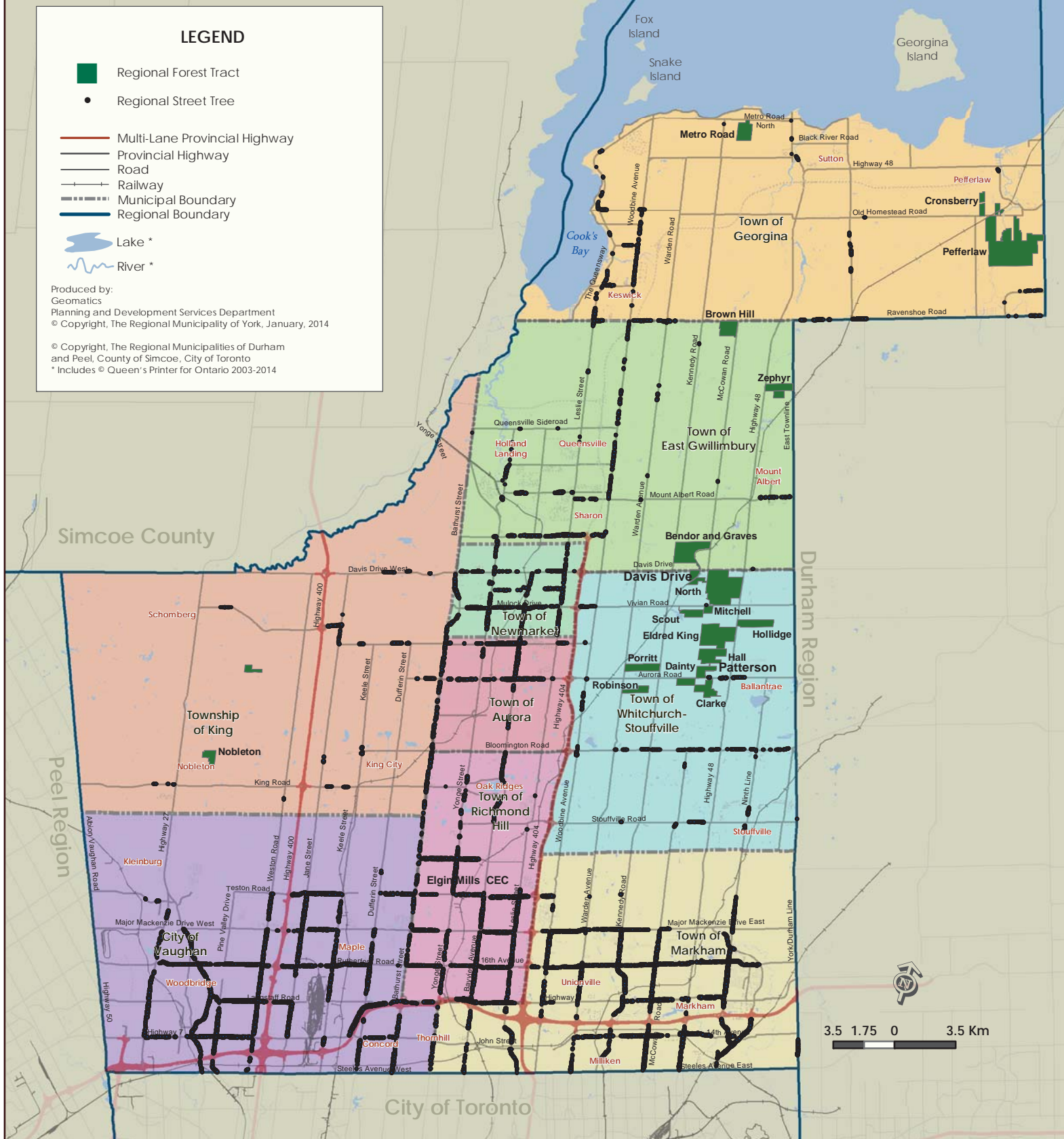


Figure A-4: Forestry

**ENVIRONMENTAL SERVICES
2013 STATE OF INFRASTRUCTURE
UPDATE REPORT**

Presentation to
Committee of the Whole

Lucas Cugalj
Director, Strategy and Business Planning
May 8, 2014

Agenda

- ❑ Background
- ❑ Overview of Infrastructure Assets
- ❑ Framework
- ❑ 2013 State of Infrastructure
- ❑ Recommendation



Background:

Alignment with Strategic Plan

The State of Infrastructure Report aligns with Council's Strategic Plan

2011 to 2015 Strategic Priority Area:

Continue to Deliver and Sustain Critical Infrastructure

Related *Objective*:

Refined Comprehensive Lifecycle Infrastructure Asset Management Strategy

Related *Indicators of Success*:

- ENV State of Infrastructure Report(s) – 2009, 2011, 2013 - Completed
- TCP State of Infrastructure Report – 2011, 2013 - Completed
- C&HS State of Infrastructure Report – 2013 - Completed
- Corporate Asset Management Policy and Framework 2013 – Completed
- Corporate State of Infrastructure Report - 2015

Related *Vital Action*:

- Establish Corporate Asset Management Steering Committee - Completed



Background:

Asset Management Framework

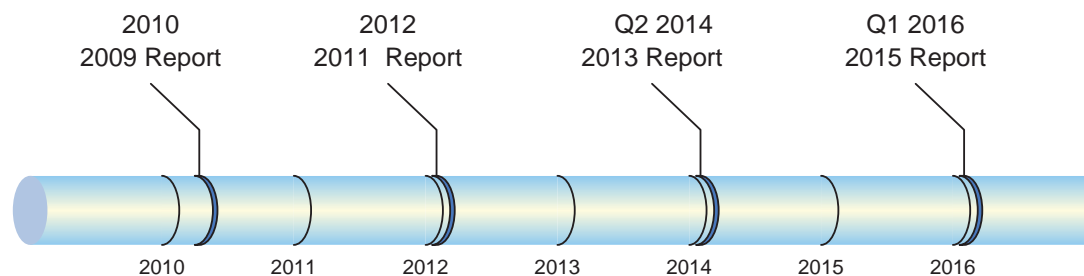
The **State of Infrastructure Report** is just one part of a comprehensive Asset Management Framework



Background:

ENV State of Infrastructure Report

- ❑ 2009 State of Infrastructure Report established a baseline grade for infrastructure supporting Environmental Services
- ❑ 2013 State of Infrastructure Update Report is based on current information and provides a sound basis for sustainable asset management
- ❑ Forestry has been added for the first time in 2013 report
- ❑ Similar methodology used in Ottawa, Hamilton and Durham Region
- ❑ Report produced on a bi-annual basis



**Supports the 2011 to 2015 Strategic Priority Area:
Continue to Deliver and Sustain Critical Infrastructure**

Overview of Infrastructure Assets

- York Region owns and operates over \$3.7 billion of water, wastewater, waste management and forestry assets
- 10-year capital plan adds approximately another \$3 billion in infrastructure assets



Over \$6 billion in built water, wastewater, waste management and forestry assets by 2023

Sustainable Asset Management

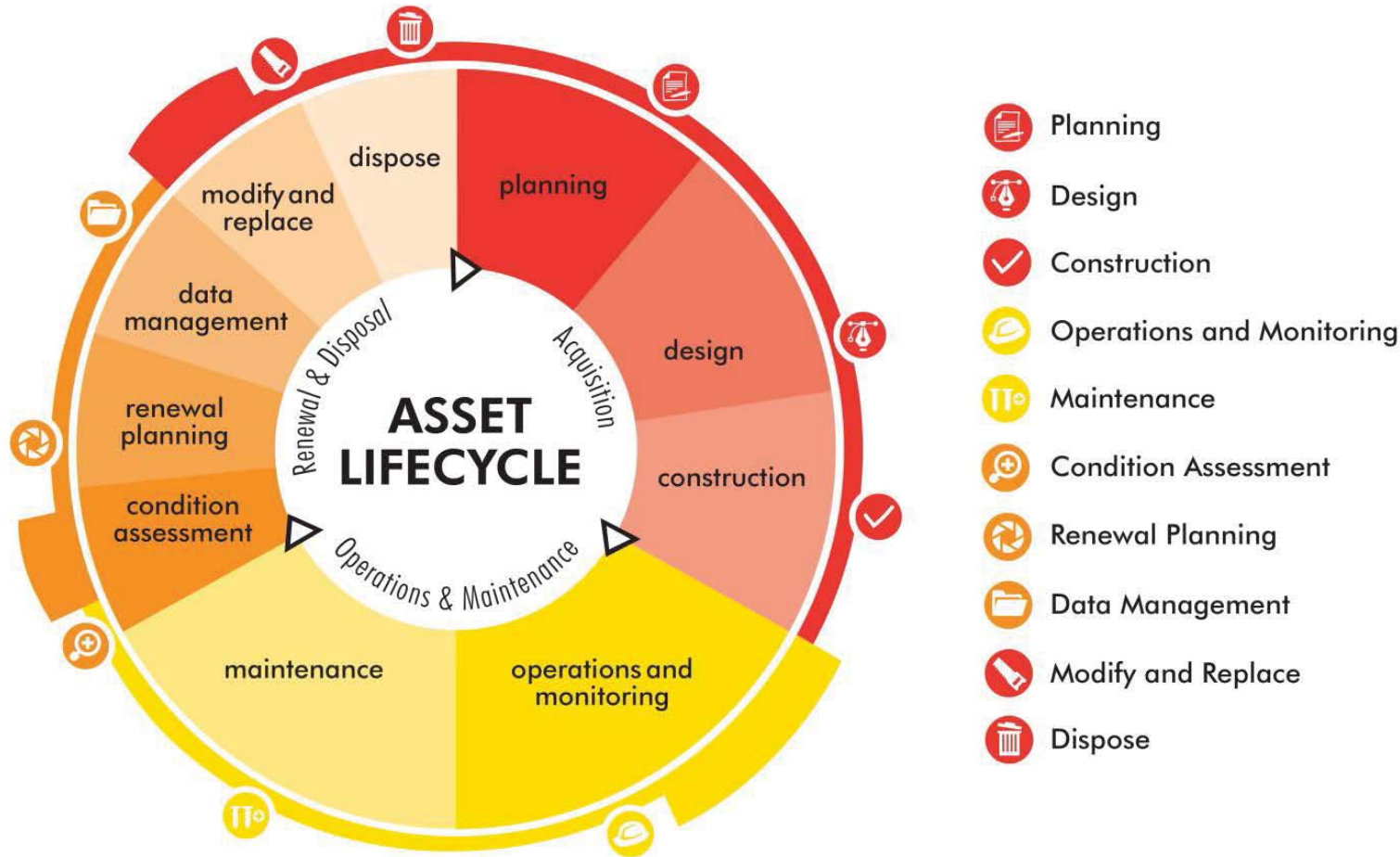


- Manage risk
- Make effective decisions
- Optimize process
- Prioritize capital projects and maintenance
- Minimize life cycle cost
- Sustainable funding

Council support of sustainable asset management practices ensures good return on investment for Regional infrastructure

Environmental Services

Proactive Asset Management

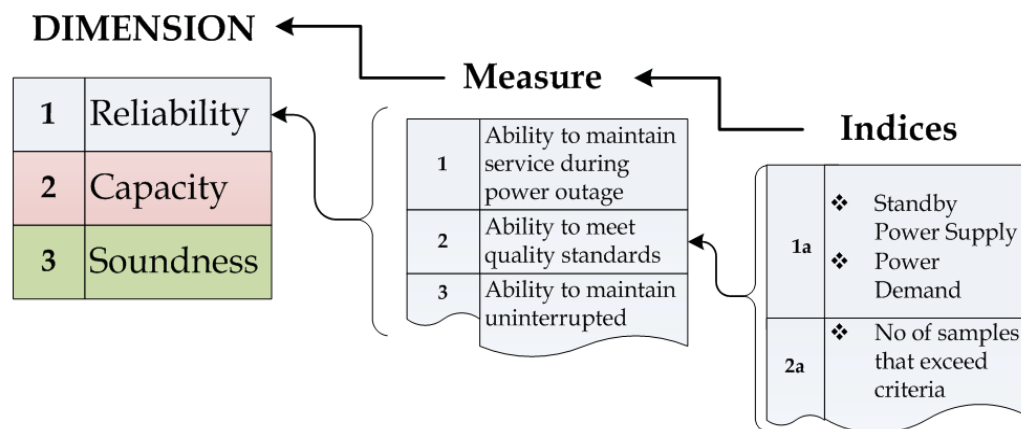


Framework: Grades

Dimension Grades

A	VERY GOOD - Functions as designed with little to no wear
B	GOOD - Fully functions as designed, shows signs of wear
C	ADEQUATE - Meets functional requirements
D	POOR - Performance is at a level of high risk
F	VERY POOR - Asset has failed

Grading System



Compare 2011 to 2013 Results



The Region's framework is in line with industry best practices

Framework: Example of Grades



Grade: A



Grade: B



Grade: C



Grade: D



Grade: F

Framework: Trends

Trend to 2015	Description
↑	Positive
→	Neutral
↓	Negative



- ❑ How an indicator or measure is likely to change in the future
- ❑ Considers impact of planned work and performance issues

Trends provide insight on outlook to 2015

State of Infrastructure: Overall Grades

Service Area	2009	2011	2013
Water	B	A	A
Wastewater	B	B	B
Waste Management	B	B	A
Duffin Creek	C	A	A
Forestry	-	-	B*
OVERALL	B	B	B

* Forestry grade includes the Urban Forest (street trees) and York Regional Forest (does not include the Forestry Stewardship Centre)

Positive Results

- ❑ Effective, safe and secure operations
- ❑ Adequate capacity to meet demand
- ❑ Ability to provide service

Opportunity for Improvement

- ❑ Continued development of condition assessment program as infrastructure ages



Overall grades remain stable since 2011, with improvement achieved for waste management assets

State of Infrastructure: Overall Trends

<u>Service Area</u>	<u>Trend to 2015</u>
Water	→
Wastewater	↑
Waste Management	→
Duffin Creek	→
Forestry	↑
OVERALL	↑

Trend

- ❑ Continued investment will help to sustain or improve infrastructure grades in the next two years



State of Infrastructure: Water Grades

Dimension	2009	2011	2013
Reliability	B	B	A
Capacity	B	A	A
Soundness	B	B	B
OVERALL	B	A	A

Action Since 2011

- ❑ Kennedy Road watermain
- ❑ Pugsley Pumping Station upgrade
- ❑ Glenway Reservoir expansion

Opportunity for Improvement

- ❑ Continued development of condition assessment program as infrastructure ages



Water infrastructure reliability has improved and capital projects currently underway help to sustain grades

State of Infrastructure: Water Trends

Dimension	Trend to 2015
Reliability	→
Capacity	→
Soundness	↑
OVERALL	→

Trend

- Positive for Soundness as a result of projects such as Bayview Pumping Station upgrades, PD6 Nashville watermain and Ridge Road Pumping Station upgrades



State of Infrastructure: Wastewater Grades

Dimension	2009	2011	2013
Reliability	B	B	B
Capacity	B	A	A
Soundness	A	A	A
OVERALL	B	B	B

Action Since 2011

- ❑ Southeast Collector Trunk Sewer
- ❑ Keswick WPCP expansion
- ❑ Upgrade to Leslie Pumping Station

Opportunity for Improvement

- ❑ Proactively manage wastewater system through timely and effective renewal of sewer assets



Wastewater capital program has successfully sustained system capacity to meet Region's growth needs

State of Infrastructure: Wastewater Trends

Dimension	Trend to 2015
Reliability	↑
Capacity	→
Soundness	→
OVERALL	↑

Trend

- ❑ Positive overall trend as a result of projects such as Leslie Pumping Station upgrades, 16th Ave & 9th Line Sewer rehabilitation and Green Lane Sewer expansion



State of Infrastructure: Waste Management Grades

Dimension	2009	2011	2013
Reliability	A	B	A
Capacity	B	A	A
Soundness	B	B	A
OVERALL	B	B	A



Action Since 2011

- ❑ Durham-York Energy Centre
- ❑ Integrated Waste Management Master Plan
- ❑ Opening of Elgin Mills Community Environmental Centre
- ❑ Material Recovery Facility upgrades

Opportunity for Improvement

- ❑ Continue to deliver capital infrastructure to accommodate growth and increased diversion

Overall grades for waste management improved as a result of capacity expansion and operational enhancement

State of Infrastructure: Waste Management Trends

Dimension	Trend to 2015
Reliability	→
Capacity	→
Soundness	→
OVERALL	→

Trend

- Although trend is neutral, infrastructure grade expected to sustain over next two years as a result of investment in energy-from-waste diversion capacity and capacity enhancement



State of Infrastructure: Duffin Creek WPCP Grades

Dimension	2009	2011	2013
Reliability	B	A	A
Capacity	D	A	A
Soundness	B	B	B
OVERALL	C	A	A



Action Since 2011

- ❑ Stage 3 Solid Phase completed
- ❑ Upgrades to Stages 1 & 2 underway

Opportunity for Improvement

- ❑ Rehabilitate or replace Biosolids Incinerators 1 & 2 included in approved 10-year capital plan

Overall grade for Duffin Creek WPCP sustained as a result of Stages 1 & 2 upgrades initiated in 2012

State of Infrastructure: Duffin Creek WPCP Trends

Dimension	Trend to 2015
Reliability	→
Capacity	→
Soundness	→
OVERALL	→

Trend

- ❑ Ongoing capital works and rehabilitation or replacement of Biosolids Incinerators 1 & 2 is expected to sustain neutral grade



State of Infrastructure: Forestry Grades

Dimension	2009	2011	2013
Reliability	-	-	B
Capacity	-	-	B
Soundness	-	-	B
OVERALL	-	-	B

Action Since 2011

- ❑ First time being evaluated in the State of Infrastructure Report
- ❑ Forestry grade includes the Urban Forest (street trees) and York Regional Forest (does not include the Forestry Stewardship Centre)

Opportunity for Improvement

- ❑ Continue to increase diversity
- ❑ Continue managing invasive species



State of Infrastructure: Forestry Trends

Dimension	Trend to 2015
Reliability	↑
Capacity	↑
Soundness	↑
OVERALL	↑

Trend

- Positive as a result of projects such as accessible trail construction, routine assessment of street trees and overall updates to the York Regional Forest and Urban Forest (street trees) inventory



State of Infrastructure: Financial Management

Service Area	2009	2011	2013	Trends to 2015
Water	C	C	C	→
Wastewater	C	C	C	→
Waste Management	C	C	A	→
Duffin Creek	D	C	C	↑
Forestry	-	-	C	→
OVERALL	C	C	C	↑

Trend

- ❑ Positive due to commitment to fund rehabilitation and replacement and long-term commitment to building capital reserves

Fiscal strategy is key to enhancing long-term financial reserves

Report Card

	2009	2011	2013	Trend to 2015
ENVIRONMENTAL SERVICES DEPARTMENT	B	B	B	↑
Water	B	A	A	→
Wastewater	B	B	B	↑
Waste Management	B	B	A	→
Duffin Creek WPCP	C	A	A	→
Forestry			B*	↑
FINANCIAL	C	C	C	↑

Recommendation

- ❑ The Regional Clerk forward a copy of the Environmental Services Department 2013 State of Infrastructure Update Report to the Clerks of the nine local municipalities



ENVIRONMENTAL SERVICES
STATE OF INFRASTRUCTURE REPORT **2013**



The State of Infrastructure Report reflects the commitment to proactively and transparently manage service delivery