

Clause No. 4 in Report No. 9 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.

**4**

**TRANSPORTATION AND COMMUNITY PLANNING 2013  
STATE OF INFRASTRUCTURE REPORT**

**Committee of the Whole recommends adoption of the following recommendation contained in the report dated April 15, 2014 from the Commissioner of Transportation and Community Planning:**

**1. RECOMMENDATION**

This report be received for information.

**2. PURPOSE**

This report provides a summary of the Transportation and Community Planning 2013 State of Infrastructure Report.

**3. BACKGROUND**

**The Transportation and Community Planning Department operates and maintains approximately \$2.1 billion worth of Region owned transportation infrastructure assets**

The Transportation and Community Planning (TCP) Department manages the infrastructure that connects people and goods in York Region's communities. Our services provide mobility across the Region for all modes of travel. The Department consists of six branches – all of which aim to provide a high level of customer service to both internal and external customers. For the purposes of this State of Infrastructure Report, transportation assets are categorized as Roads, Transit (YRT/Viva) and Traffic Management Systems.

The Department operates and maintains approximately \$2.1 billion (historic cost) of Region-owned transportation infrastructure assets. Robust transportation infrastructure across a well-integrated multi-modal network is needed to ensure the Region's continued growth, economic development, safety and quality of life. The TCP 2013 State of Infrastructure Report reflects the Region's commitment to proactively and transparently manage and communicate issues associated with delivery of transportation services.

**The need for a comprehensive asset management framework has been identified in the Region's Corporate Strategic Plan**

In the Region's Corporate Strategic Plan "From Vision to Results", one of the seven Priority Areas focuses on the Region's ability to "deliver and sustain critical infrastructure". A key objective related to this Priority identifies sound asset management practices as necessary to making capital planning decisions.

**Figure 1**  
Simplified Asset Management Framework



Figure 1 illustrates a simplified asset management framework, which Council adopted as part of its Corporate Asset Management Policy in November 2013. This framework assists the Region in managing its assets over their entire lifecycle. This guiding framework will help the Region make the right decision at the right time, at the right cost, for the right reasons, while meeting established levels of service and managing risk.

As noted above, there are several critical elements to the asset management framework, of which only one is the development of a State of Infrastructure Report (Monitoring and Reporting). This report informs future capital planning decisions and is also being used to inform corporate reserve management strategies. Managing transportation infrastructure is a complex process – careful decision making is needed to match capital investment priorities with service requirements and fiscal objectives.

The TCP 2013 State of Infrastructure Report follows the corporate format. This information will continue to assist in sustainable asset management through proactive analysis, prioritization and program planning for infrastructure expansion and rehabilitation.

#### **4. ANALYSIS AND OPTIONS**

##### **The framework used for developing the State of Infrastructure Report is consistent with the approach used by all departments across the Region**

The Report reflects the State of Infrastructure as at year-end 2013. The structure is similar to the 2011 State of Infrastructure Report with minor modifications to the measures as noted in the report. It is proposed that an update of this Report continue to be presented to Committee and Council on a bi-annual basis.

A report summary is appended as *Attachment 1* and the main report is appended as *Attachment 2*.

##### **The framework used for the assessment of transportation infrastructure is based on three key Criteria: Condition, Reliability and Capacity**

**Condition** – This is a measure of the physical condition of the infrastructure including its age. A grade for condition provides knowledge related to maintaining and enhancing asset condition and the efficiency and effectiveness of rehabilitation. Condition provides an understanding of the remaining service life and functionality of the asset.

**Reliability** – A measure of the overall reliability and quality of service being delivered by the asset. A grade for reliability provides an assessment of the ability to meet service and quality requirements.

**Capacity** – A measure of the asset's ability to meet the demand based on current and forecast requirements. Knowing the capacity of the asset provides an early indication of potential future constraints that the asset may pose to the Region.

For this State of Infrastructure Report, a grade has not been applied for the financial criterion. The TCP Department is currently working with the Corporate Finance Department to create successful long-term asset management practices. These practices will assist in further informing the full cost of building and renewing the Region's transportation infrastructure, which will assist in grading financial criteria in future State of Infrastructure Reports.

**Criteria grades are determined based on how the infrastructure performs in terms of condition, reliability and capacity**

Generally, when assessing assets, it is typical to assign a letter grade which describes the assets state within a range of "excellent" to "fail", as shown in Table 1.

**Table 1**  
Criteria Grades

<b>Grade</b>	<b>Description</b>
A	Excellent
B	Good
C	Adequate
D	Poor
F	Fail

The trend analysis focuses on how criteria are likely to develop over the next two years. It considers a range of factors including new and planned projects and programs, and how the outcomes of these initiatives are likely to impact the asset in the next two years. Trend analysis provides important knowledge on effectiveness of future initiatives to enhance infrastructure conditions. Trends are identified as positive, neutral and negative, as shown in Table 2.

**Table 2**  
2015 Trend Analysis

<b>Trend</b>	<b>Description</b>
↑	Positive
↔	Neutral
↓	Negative

**With increasing implementation of business intelligence systems across the department, the quality of asset management data continues to improve**

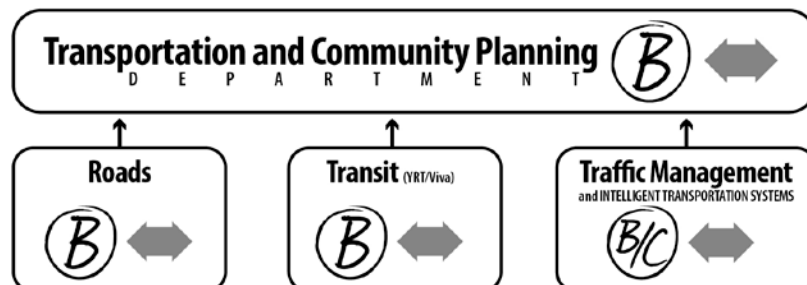
This report is the second review of the state of the Region’s transportation infrastructure and relies on a review of existing data and currently available information, extracted from a variety of data management systems. In addition, input has been provided through discussions and workshops with staff responsible for delivery of services within their respective Branches.

It is important to recognize that some of the data and methods used to analyze the state of transportation assets are still not fully advanced (Transit data is the most advanced). As use of business intelligence within the Department increases, the quality and integrity in the data and related findings will improve. Over the past few years, the Region has invested significant resources into its business intelligence systems. These investments are beginning to support staff by enabling an improved understanding of the assets and therefore resulting in better planning and management. This continued investment will further assist the Department to make the right decision, at the right time, at the right cost, for the right reasons, while meeting established levels of service and managing risk.

As an example, in 2013, the Department fully implemented and rolled out its Computerized Maintenance Management System (CMMS) Cityworks to all participating business areas (Roads Maintenance, Traffic Safety, Transit and Forestry). This follows the successful use over the past few years of the Computerized Maintenance Management System - M5, by both the Transit and Roads fleets.

**Overall Transportation and Community Planning assets scored a B and are in a good state of repair with a stable trend for the future (Figure 2)**

**Figure 2**  
2013 Overall Grades and Trends to (2015)



All transportation assets scored relatively well. The individual areas, which did not score as well, are being addressed through current or planned initiatives as described in the 2013 State of Infrastructure Report including the update of the Region’s Transportation Master Plan through 2014/2015.

Table 3 provides the overall state of infrastructure for Roads, Transit and Traffic assets and shows changes from the first report.

**Table 3**  
 2011 - 2013 Individual Grades

Transportation and Community Planning Department State of Infrastructure						
	Roads		Transit		Traffic	
	2011	2013	2011	2013	2011	2013
Condition	B	B	B	B	B/C	B
Reliability	A	A	C	B	B	A/B
Capacity	C	C	B	B	D	C
<b>OVERALL</b>	<b>B</b>	<b>B</b>	<b>B/C</b>	<b>B</b>	<b>C</b>	<b>B/C</b>

**The state of Transportation infrastructure is trending stable**

Table 4 indicates that by the next State of Infrastructure Report (2015), all categories of asset assessment show a stable trend. Roads continue to implement the Cityworks CMMS application and have commenced implementation of new pavement and bridge management systems which will further inform decision making on rehabilitation and renewal of major assets. Additionally, both Transit and Traffic have several Council approved initiatives which will improve or maintain condition, reliability and capacity ratings. Further details can be found in the main report.

**Table 4**  
 2015 Trend Analysis

Transportation and Community Planning Department State of Infrastructure			
	Roads	Transit	Traffic
Condition	↔	↔	↔
Reliability	↔	↔	↔
Capacity	↔	↔	↔
<b>OVERALL</b>	<b>↔</b>	<b>↔</b>	<b>↔</b>

## Link to Key Council-approved Plans

The 2013 State of Infrastructure Report aligns with the 2011-2015 Strategic Plan Priority Areas as follows:

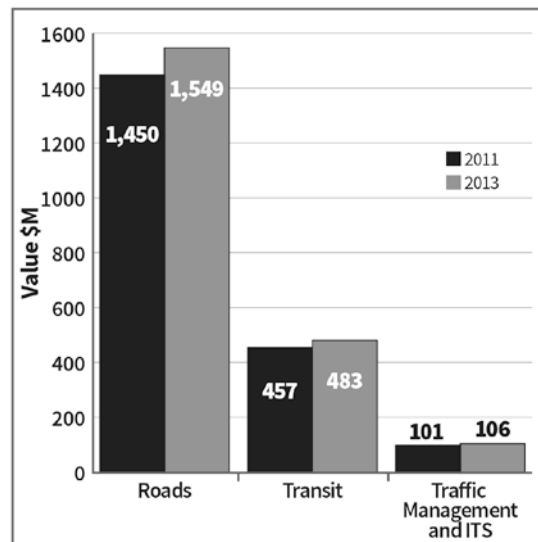
- Continue to deliver and sustain critical infrastructure – through proactive protection of our infrastructure and assets
- Manage the Region’s finances prudently – working to optimize decision making to ensure investments are made to the right assets at the right time
- Strengthen organizational capacity – improve business intelligence and management practices to reflect a more proactive and informed use of resources

## 5. FINANCIAL IMPLICATIONS

### Transportation and Community Planning assets are valued at a historic cost of approximately \$2.1 billion

Transportation and Community Planning Department has responsibility for a diverse and complex portfolio of assets with a historic cost of approximately \$2.1 billion. Figure 3 shows asset breakdown by category and respective changes since 2011.

**Figure 3**  
2011-2013 Transportation Asset Historic Cost Breakdown (\$M's)



### Understanding the financial state of infrastructure is fundamental to maintaining assets in a state of good repair

Successful asset management requires comprehensive financial planning and sustainable funding. The Region has a robust budget and business planning process that requires each Department to prepare a 10-Year Capital Plan, which analyzes the various funding sources to meet specific budget pressures.

Figure 4 identifies the approved 2014 10-Year Capital Plan funding for the three main asset categories (Roads, Transit and Traffic).<sup>1</sup> A total 10-Year Capital Plan of \$1.905 billion has been approved, broken down by Roads (\$1.294 billion), Transit (\$0.477 billion) and Traffic (\$0.134 billion).

**Figure 4**  
10-Year Capital Plan 2014-2023 for Roads, Transit and Traffic Branches

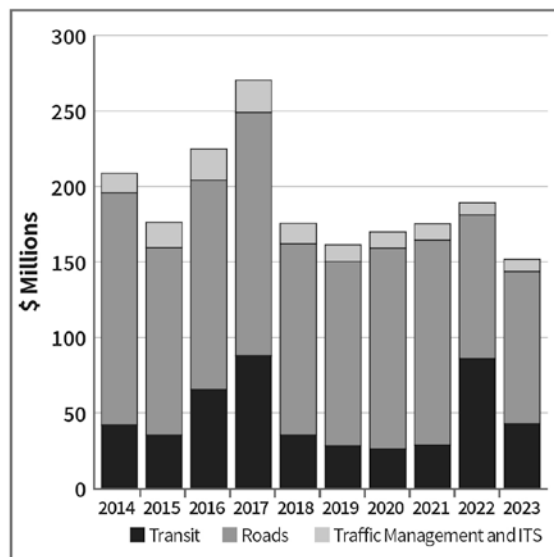
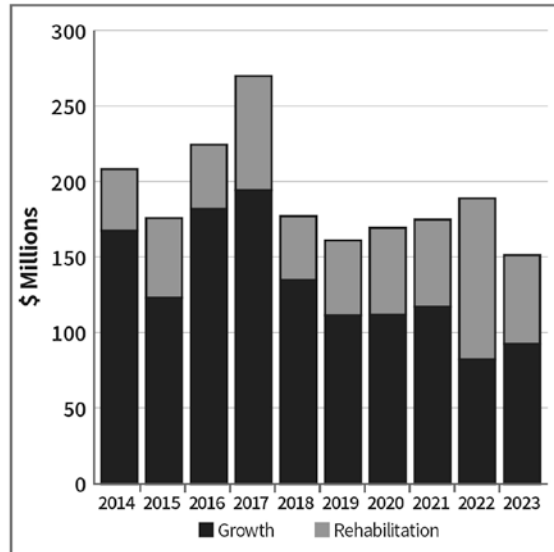


Figure 5 shows the corresponding 10-Year Capital Plan split between growth and rehabilitation. The total for growth and rehabilitation, respectively, for the three main operational branches is: Roads (\$1.013 billion, \$0.281 billion), Transit (\$0.219 billion, \$0.258) and Traffic (\$0.088 billion, \$0.046 billion).

<sup>1</sup> The 10-Year Capital Plan does not include the Region's capital contribution to YRRTC of \$606 million



**Figure 5**  
10-Year Capital Plan 2014-2023 (Growth and Rehabilitation) for Roads, Transit and Traffic Branches



## 6. LOCAL MUNICIPAL IMPACT

### **The Region is partnering with all levels of government to capitalize on infrastructure investment**

The Region constructs, maintains and operates a transportation network that is dependent on a proactive approach to infrastructure asset management and investment.

Staff will continue to work with the local municipalities, Provincial and Federal governments to maximize investments in transportation infrastructure. With continued co-ordination on many transportation projects, York Region and its partners will strive to continue to maintain a high level of service on the Region's transportation network.

## 7. CONCLUSION

The 2013 State of Infrastructure Report is an important resource for focusing improvement efforts and fostering increased understanding and awareness of infrastructure issues among stakeholders. Monitoring the state of assets is an important step in any sound asset management program and the results are needed to ensure prudent fiscal planning.

York Region continues to develop and implement sustainable asset management practices for the transportation network. York Region is in the favorable position to be establishing comprehensive asset management programs at a time when much of its transportation infrastructure is still relatively young. Providing high quality transportation infrastructure is essential to supporting continued community growth, economic development, safety, and quality of life.

Overall, the condition, reliability and capacity of transportation assets is good and planned capital investment will ensure the transportation system continues to meet the future needs of York Region residents.

For more information on this report, please contact Chris Kynicos, Head Transportation Asset Management, at ext. 75561.

The Senior Management Group has reviewed this report.

*Attachments (2)*

# STATE of *Infrastructure* **REPORT CARD** 2013

THE REGIONAL MUNICIPALITY OF YORK



## REPORT SUMMARY

## State of Infrastructure Report Card 2013 *Summary*

This is the Regional Municipality of York Transportation and Community Planning Department's second State of Infrastructure Report for transportation assets. It provides an assessment on the assets within its three major operational branches:

- Roads
- Transit
- Traffic Management and Intelligent Traffic Systems

York Region is continuing to grow, requiring continuous capital investment to support this growth, while also operating and maintaining existing infrastructure for York Region residents. The purpose of this report is to communicate information to York Region Council, senior management, local municipalities, the public and staff about the state of the Region's transportation assets, progress and achievements to date and future plans. It attempts to answer the following questions:

*1 What assets do we own?*

*2 What physical condition are they in?*

*3 Do they meet current transportation needs?*

*4 What is their reliability?*

*5 What are the assets worth?*

*6 What will we need to spend in the future?*

The State of Infrastructure Report is one of the key reporting aspects of the Region's Asset Management Policy and Framework that was developed to improve decision making process as it relates to our assets. It was developed to align with the Province's requirement for asset management planning.



### 1 *What assets do we own?*

York Region owns a multitude of transportation assets including roads, structures, vehicles, traffic signals and facilities.

### 2 *What physical condition are they in?*

The majority of transportation assets are in a good physical condition primarily due to their relatively young age in infrastructure years.

### 3 *Do they meet current transportation needs?*

York Region's transportation assets have some capacity concerns and new or expanded assets are being considered to improve the service delivered to residents.

### 4 *What is their reliability?*

The majority of our transportation assets have good reliability due to several initiatives the Region has implemented over the previous few years.

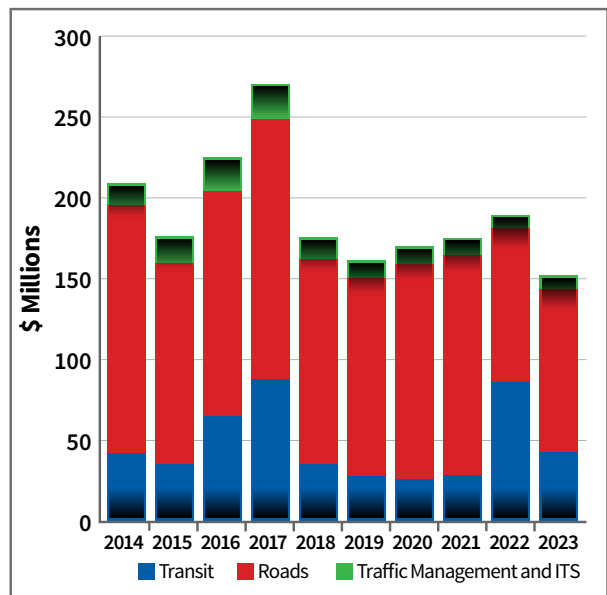
### 5 *What are the assets worth?*

York Region's transportation assets have a historical cost of \$2.1 billion, with an estimated replacement cost of 2.5 times.

### 6 *What will we need to spend in the future?*

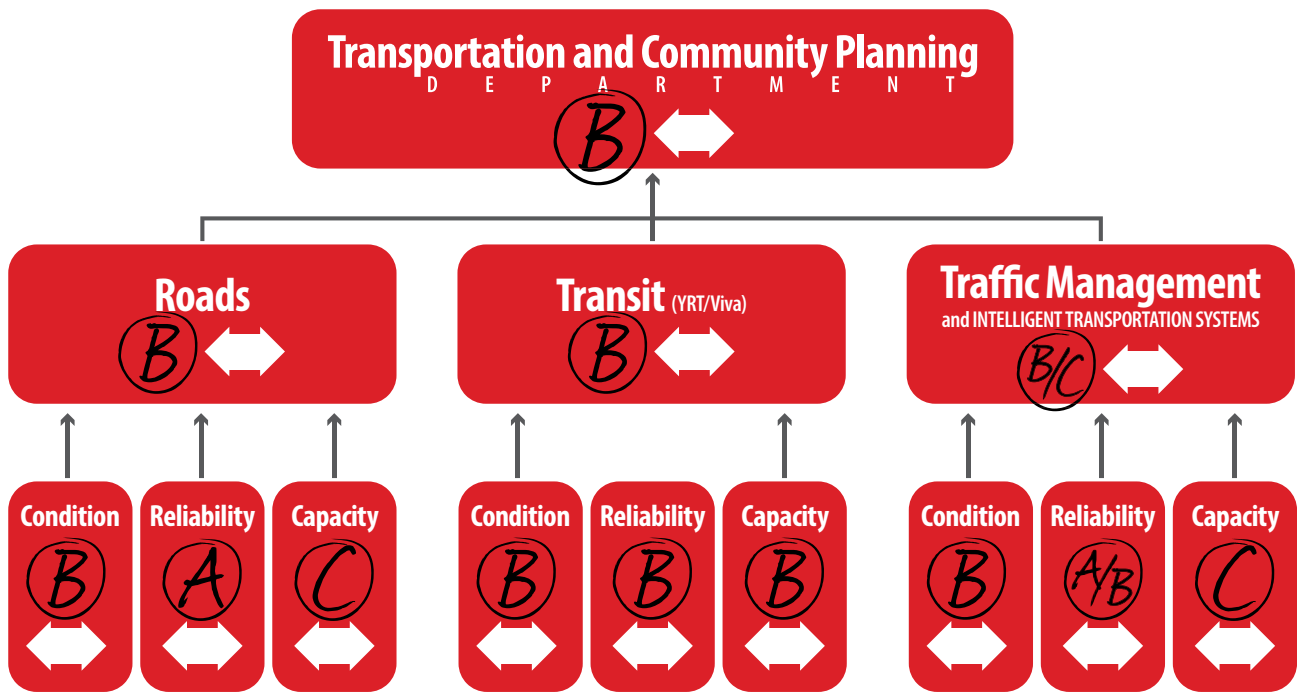
York Region's 10-Year Capital Plan indicates a \$2.1 billion spend.

**Figure 1 - 10-Year Capital Plan by Branch**



# Transportation assets graded a **B**

The State of Infrastructure Report grades show the majority of York Region's transportation assets are in a good state of repair with a stable trend for the future.



**Table 1 - Grading Scale**

Grade	Description
<b>A</b>	Excellent
<b>B</b>	Good
<b>C</b>	Adequate
<b>D</b>	Poor
<b>F</b>	Fail

- **A positive** ▲ **trend** indicates that the reported grade is expected to increase between now and the next State of Infrastructure Report
- **A neutral** ↔ **trend** indicates that the reported grade is expected to remain the same between now and the next State of Infrastructure Report
- **A negative** ▼ **trend** indicates that the reported grade is expected to decrease between now and the next State of Infrastructure Report



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# STATE of *Infrastructure* **REPORT CARD** 2013

THE REGIONAL MUNICIPALITY OF YORK







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# 1 Introduction

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“Asset management is an integrated, lifecycle approach to effective stewardship of infrastructure assets to maximize benefits, manage risk and provide satisfactory levels of service to the public in a sustainable and environmentally responsible manner.”

*Ministry of Infrastructure: Building Together - Municipal Infrastructure Strategy*



## 1.1 Purpose

The Regional Municipality of York's Transportation **State of Infrastructure Report** has been developed for Regional Council and the public to gain an understanding of the state of its transportation infrastructure assets.

A definition of state of assets is:

*The condition of the infrastructure as a measure of the reliability and performance of the infrastructure to provide the required level of service at the accepted level of risk.*

The first report was presented in 2013 and was the first time an analysis had been assembled into one document for the Transportation and Community Planning Department. This is the second report, being completed to comply with reporting schedules for York Regional Council. As the interval between the first and second report is less than 24 months, any grading changes will be minor.

A key goal of this Report (and other State of Infrastructure Reports being documented by other departments) is to communicate information about progress and achievement to stakeholders including York Region Council, senior management, local municipalities, the public and staff.

Formed in July 2012, Transportation Asset Management is a function within the Transportation and Community Planning Department and works with the asset management units within each of the operational branches, to support the 2011 to 2015 Corporate Strategic Priority Area 'Continue to Deliver and Sustain Critical Infrastructure'.

Transportation Asset Management's role is to further develop the asset management programs within the Department including asset management planning, investment and budgeting, performance measurement and best practices.

The **State of Infrastructure Report** is one of the key reporting aspects of the Region's Asset Management Framework that was developed to improve our decision making process as it relates to our assets. It was developed to align with the Province's definition of asset management (*Ministry of Infrastructure: Building Together - Municipal Infrastructure Strategy*).

*"Asset management is an integrated, lifecycle approach to effective stewardship of infrastructure assets to maximize benefits, manage risk and provide satisfactory levels of service to the public in a sustainable and environmentally responsible manner."*

*Ministry of Infrastructure: Building Together -  
Municipal Infrastructure Strategy*

This information will assist York Regional Council in supporting its future decisions about transportation infrastructure.

The **State of Infrastructure Report** will answer the following questions:

- **What assets do we own?**
- **What physical condition are they in?**
- **Do they meet current transportation needs?**
- **What is their reliability and quality?**
- **What are the assets worth?**
- **What will we need to spend in the future?**

The report provides a snapshot of the assets owned and operated by the Transportation and Community Planning Department.

## 1.2 *Limitations*

This report is an update of the state of the Region's first Transportation Infrastructure Report (2011). The report relies on a review of existing data and information that was available from the Transportation and Community Planning Department's branches. In addition, input has been provided through discussions and workshops with Regional staff responsible for the delivery of services within their respective branches. It does not define or attempt to suggest acceptable levels of service.

## 1.3 *Improvements to future reports*

This is the first update of what is expected to be an on-going process to keep York Regional Council informed of the state of transportation infrastructure. A further update is scheduled at the beginning of 2016 (for 2015).

This *State of Infrastructure Report* uses existing data that was available from the respective branches. Future business planning will include a focus by the operating branches to adopt new data management plans that will provide a higher level of confidence in the data used to develop future state of infrastructure reports.

As a result of previous assessments, a new computerized maintenance management system was purchased in 2011 and implemented in 2013 within the branches.

Over the next two years, the computerized maintenance management system will assist in creating an asset data management repository which will allow cost-effective inspection, monitoring and condition assessment to be collected and stored in one location. As part of this implementation, the branches will develop a data management plan to ensure that the right data is being captured, maintained and stored for on-going analysis.

## 1.4 *Report Format*

### **Section 1 – Introduction**

**Section 2 – Background:** Describes the context for this report.

**Section 3 – Approach:** Describes the approach used to develop the various grades for each of the branches.

**Sections 4 to 6** describe in detail the data and conclusions for each of the assets contained within the three branches in Transportation and Community Planning: Roads, Transit and Traffic Management and Intelligent Transportation Systems (ITS).

**Section 7 – Financial:** Provides a high-level overview of the current financial plans for the Transportation and Community Planning Department.

# 2 Background

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“The Transportation and Community Planning Department manages the infrastructure that connects York Region’s communities. Our services provide mobility across the Region for all modes of travel.”

*State of Infrastructure Report 2013*





The Transportation and Community Planning Department manages the infrastructure that connects York Region's communities. Our services provide mobility across the Region for all modes of travel including:

- **Motorists**
- **Transit users**
- **Truck drivers**
- **Pedestrians**
- **Cyclists**

The Transportation and Community Planning Department consists of six branches, three operational and three support, which strive to provide the highest level of customer service to both internal and external customers. The Transportation and Community Planning Department is mission focused and results driven.

For the purposes of this *State of Infrastructure Report*, only the three operational branches with transportation assets have been evaluated.

The operational branches are:

- **Roads**
- **Transit (YRT/Viva)**
- **Traffic Management and Intelligent Transportation Systems**

In addition to these three operational branches, there are three support branches:

- **Transportation Planning**
- **Community Planning**
- **Strategic Policy and Business Planning**

In November 2013, the Region approved the Corporate Asset Management Policy. This new policy will help ensure the Region invests in the renewal of assets, in a consistent and timely way.

These assets are important to sustaining the economic prosperity and quality of life across York Region. The new Policy establishes a framework for a coordinated approach to the Region's asset management practices.

In support of this Policy, all Transportation and Community Planning Branches have adopted a "State of Good Repair" approach to the rehabilitation and maintenance of all of its assets.

"State of Good Repair" philosophy emphasizes the following concepts:

- Maintaining the Region's infrastructure assets as needed to meet a certain level of service
- Minimize asset life-cycle costs while avoiding negative impacts to service
- Performing maintenance, repair, rehabilitation and renewal according to the Region's policy
- Reducing the Region's backlog of unmet capital needs



## 2.1 Roads

The Roads Branch mandate is to assist in the safe and efficient transport of goods and people through interconnecting roads between urban and rural areas. The branch is organized into three main service delivery areas:

**Capital Delivery:** This division is responsible for the development of the road network through the design and construction of new roads and expansion/rehabilitation of existing roads

**Maintenance:** Responsible for maintaining the road network in a state of good repair

**Fleet:** Responsible for approximately 419 corporate vehicles and equipment

The Regional road network consists of approximately 3,500 lane-kilometres of urban and rural roads (to the end of 2012) and is anticipated to grow by over 90 lane-kilometres over the next five years.

For the purposes of this report, the following assets have been assessed:

- Regional roads
- Bridges
- Culverts with a span in excess of three metres
- Retaining walls
- Traffic signs
- Noise barriers
- Vehicles and equipment (only vehicles and equipment that are used by the Transportation and Community Planning Department have been considered)
- Buildings
- Land (value only)

## 2.2 Transit

The Transit Branch mandate is to provide high quality, reliable, safe, accessible and convenient transit services to meet the needs of York Region residents, workers and visitors through the Family of Services model. This model includes:

- Conventional York Regional Transit (YRT)
- Bus Rapid Transit (Viva)
- Community Bus
- Dial-a-Ride and Mobility Plus door-to-door service

YRT/Viva offers seamless transit services across its nine local municipalities, as well as easy access to the Toronto Transit Commission (TTC) and the Provincial GO Transit systems. These services encompass more than 125 bus routes, using a fleet of 484 vehicles. There are two Region-owned and two leased operating and maintenance garages, as well as a central dispatch, customer call centres (conventional and mobility) at an administrative centre located in the Town of Richmond Hill.

For the purposes of this *State of Infrastructure Report*, the following assets have been assessed:

- Vehicles (conventional, rapid transit and Mobility Plus fleet)
- Buildings
- Transit stops
- Street furniture
- Technology

## 2.3 *Traffic Management and Intelligent Transportation Systems*

The Traffic Management and Intelligent Traffic Systems (ITS) Branch mandate is to assist in the safe and efficient transport of goods and people through interconnecting roads between urban and rural areas.

The Traffic Management and ITS Branch is responsible for managing congestion, addressing traffic operations issues and safety, and operating the Traffic Control System. Through the use of technology the branch optimizes traffic safety and network capacity. The branch is organized into four service delivery areas:

- Traffic Safety
- Traffic Design Installations
- Transportation Management Systems
- Traffic Engineering and Intelligent Transportation Systems

For the purposes of this *State of Infrastructure Report*, the following assets have been assessed:

- Traffic control signals
- Streetlights
- Traffic management systems



# 3 Approach

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“A review of the existing data and information was undertaken. This review was supplemented by discussions and workshops with Regional staff responsible for the delivery of services within their respective branches.”

*State of Infrastructure Report 2013*



A “state of infrastructure” is usually synonymous with condition. However, there are many factors that affect condition.

The development of this *State of Infrastructure Report* includes not only an assessment of physical condition, but also capacity, reliability and financial. The following questions need to be answered to gain a better understanding of the transportation assets that the Region owns and operates:

- What assets do we own?
- What physical condition are they in?
- Do they meet current and future transportation needs?
- What is their reliability and quality?
- What are the assets worth?
- What will we need to spend in the future?

The following section describes the grading system developed to answer and assess these questions.

## 3.1 Grading

The grading used for the *State of Infrastructure Report* is defined by four criteria: condition, reliability, capacity and financial. The assets within each of the Roads, Transit, and Traffic Management and ITS Branches will be graded separately for the three of the four categories detailed below (condition, reliability and capacity).

The fourth category - financial, will not be graded in this *State of Infrastructure Report* due to ongoing development of appropriate policies, criteria and measures. The financial grading will be included in the next update.

**Section 3.1.1** describes the criteria developed to answer and assess the above.

### 3.1.1 Criteria

**Condition** – A measure of the physical condition of the infrastructure and its age. A grade for condition provides knowledge related to the physical state of the infrastructure and an estimate of its remaining useful or maximum life.

**Reliability** – A measure of the overall reliability and quality of service being delivered by the asset. A grade for reliability provides an assessment of its ability to meet service and quality requirements.

**Capacity** – A measure of the assets’ ability to meet the availability of services provided based on current requirements. Knowing the capacity of the assets provides an early indication of potential future constraints that the asset may pose to the Region.

**Financial<sup>1</sup>** - A measure of the Region’s ability to meet current and future financial requirements for ongoing and future replacement and growth requirements of the assets. A grade for financial provides an assessment of whether the Region’s budgets and reserves are sufficient to maintain current and future levels of service.

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<sup>1</sup> The Transportation and Community Planning Department is currently reviewing its asset management financial policies in conjunction with the Finance Department. Once those policies are implemented the Transportation and Community Planning Department will be in a position to objectively measure the financial criteria and grade accordingly.

### 3.1.2 Measures

Each of the four criteria are made up of the assessments from a number of measures that reflect that criteria.

Each measure is made up of data from single or multiple data sources. **Appendix 2** provides the measures used for each branch. The number of measures used vary both by criteria and branch. This is representative of the varying level of information available within branches. It is the intent that, as future iterations of the *State of Infrastructure Report* are developed, additional measures will be considered.

A review of the existing data and information was undertaken. This review was supplemented by discussions and workshops with Regional staff responsible for the delivery of services within their respective branches.

### 3.1.3 Grading

The grading follows a simple alphabetical grading system, ranging from A to D and F, as represented in the following table.

**Table 1 - Grading Scale**

Grade	Description
A	Excellent
B	Good
C	Adequate
D	Poor
F	Fail

As outlined, the first three criteria will be graded for the assets within the Roads, Transit, and Traffic Management and ITS Branches and an overall grade for the Transportation and Community Planning Department will also be awarded. This overall award will be a blended rating based on the consolidation of the three criteria and may be more heavily weighted to one specific criteria based on the assets being assessed.

Although the quality of the available data varies and has required some assumptions in the assessment of the grades, this grading system provides a strategic perspective on the assets within the Transportation and Community Planning Department.

### 3.1.4 Trend to 2015

The trend analysis focuses on how a measure is expected to change in the future. It considers a range of performance issues related to the measure in question and considers the time period to the next *State of Infrastructure Report* planned for 2015. 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 the long term, the expectation is that the outlook will be positive since the Region is striving to continually improve.

- **A positive ▲ trend** indicates that the reported grade is expected to increase between now and the next *State of Infrastructure Report*
- **A neutral ↔ trend** indicates that the reported grade is expected to remain the same between now and the next *State of Infrastructure Report*
- **A negative ▼ trend** indicates that the reported grade is expected to decrease between now and the next *State of Infrastructure Report*



# 4 Roads

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“The overall State of Infrastructure for Roads is good, with a stable trend for the future. This demonstrates the Region’s commitment to providing a safe and reliable road network”

*State of Infrastructure Report 2013*





## 4.1 Overall Assessment

The overall State of Infrastructure grade for Roads assets is a **B**, with a stable trend for the future. This demonstrates York Region’s commitment to providing a safe and reliable road network.

**Table 2** summarizes each individual grade and the outlook for the future. Overall it shows a road network that is very reliable, relatively new and in good condition. Capacity in our more urban southern areas is a continuing concern.

**Table 2** - Overall Assessment - Roads

Criteria	2011	2013	Trend
Condition	B	B	↔
Reliability	A	A	↔
Capacity	C	C	↔
<b>Overall</b>	<b>B</b>	<b>B</b>	↔

## 4.2 Background

York Region’s road network assets consist primarily of:

- Regional roads
- Bridges
- Noise barriers
- Culverts
- Retaining walls
- Traffic signs
- Vehicles and equipment
- Buildings
- Land (mostly land located under the Regional road network)

The current inventory for each road asset type is shown in **Table 3** and the inventory was extracted from various sources, including the financial database, the pavement management system, the structure inventory and inspection bridges, culverts and retaining walls.

**Table 3 - Current Asset Inventory - Roads**

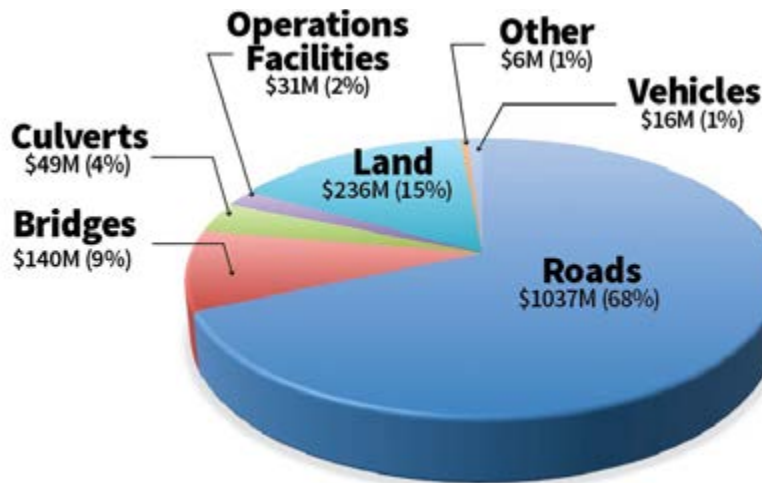
Asset Type	2011	2013	% Change
Roads (lane-km)	3,292	3,501	6.3
Bridges	139	141	2.9
Noise Barriers (km)	4.1	4.1	0
Culverts (>3 metres)	123	115	(6.3)
Vehicles and Equipment	370	255 <sup>2</sup>	(31.1)
Operation Facilities	4	4 <sup>3</sup>	0
Retaining Walls	N/A	7	N/A
Traffic Signs <sup>1</sup>	30,000	30,000	0

**Table 4 - Historical Cost Breakdown - Roads**

Asset Type	2011(\$M)	2013(\$M)	% Change
Roads	989	1,060	7.2
Bridges	136	144	5.9
Others (noise barriers and retaining walls)	-	6	N/A
Culverts (>3 metres)	47	54	14.9
Vehicles and Equipment	14	16	14.3
Operation Facilities	31 <sup>4</sup>	31	0
Land	233	238	2.1
<b>Totals</b>	<b>1,450</b>	<b>1,549</b>	<b>6.8</b>

The historical cost breakdown can be seen in **Table 4** and represented in **Figure 1**. Noise attenuation barriers and retaining walls are grouped as a single value and the traffic sign inventory has not been valued.

**Figure 1 - Historical Cost Breakdown - \$M (%)**



*The three main assets (roads, land and bridges) account for over 90 per cent of the total historical cost of the assets for the Roads Branch.*

<sup>1</sup> There are a total of approximately 30,000 Regional owned signs including regulatory, warning, tourism etc. Of these 22,568 are regulatory and warning signs. <sup>2</sup> The large reduction in the number of vehicles is due to retirements and a revised method of assessing vehicle count, where attachments are not counted or treated separately (plows etc.) for the 2013 report. <sup>3</sup> One facility (S-E) is rented. <sup>4</sup> Note that the large drop in historical value for the Operation facilities in 2011 is due to the elimination of the value of some transit facilities which is now included in the Transit Branch's assets.

## 4.3 Condition **B**

Roads infrastructure received a condition grade of **B**. The following indicators were measured and assessed:

- **Road Condition Index (RCI)**
- **Bridge Condition Index (BCI)**
- **Age and Remaining Life**

In addition to the indicators above, vehicles and buildings complete an annual visual inspection to determine their condition and remaining life expectancy.

### 4.3.1 Road Condition Index (RCI)

Pavement condition data is collected bi-annually (allowing for 50 per cent of the network to be reviewed annually) for the entire Region. Data collected includes: the type, extent and severity of distresses (cracks and rutting) and smoothness or ride comfort of the road (what is actually ‘felt’ by the road user). It should be noted that there is no uniform measure of RCI across Ontario or Canada. RCI is calculated differently by each jurisdiction and will vary depending on the indices considered and the methodology.

The Region uses a pavement management system (PMS) to model an overall Road Condition Index (RCI) which takes into account all of the collected data. The result is an index which can be prioritized and used to provide input into the annual road resurfacing and reconstruction program. The index is scaled from zero to 100 and has been divided into ranges to assess condition as shown in **Table 5**.

**Table 5 - Road Condition Index (RCI) Ratinas**

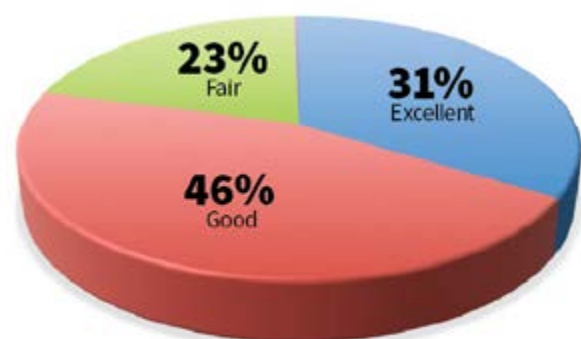
Rating	RCI Range
<b>Excellent</b>	100 to 90
<b>Good</b>	89 to 80
<b>Fair</b>	79 to 65
<b>Poor</b>	<65

The results of the 2012 and 2010 inspections (reported in 2013 and 2011) can be seen in **Figures 2a** and **2b**. Overall, 95 per cent of the Region’s road network is rated excellent or good. This represents an improvement over the previous data so that the average RCI for the Region is above 90. This improvement was due in large part to the Federal Economic Action Plan and the Stimulus Funding Program, but also represents the continued increase in Regional population with corresponding increase in new road networks.

**Figure 2a - 2013 Road Condition Index - Percentage Road kms by RCI**



**Figure 2b - 2011 Road Condition Index - Percentage Road kms by RCI**



### 4.3.1 Road Condition Index (RCI) *continued*

The table below illustrates the percentage changes in Road Condition Index between the 2011 and 2013 results.

**Table 6 - Road Condition Index Rating Range**

Rating	2011	2013	% Change
Excellent	31%	58%	27
Good	46%	37%	(9)
Fair	23%	5%	(18)
Poor	0%	0%	0

### 4.3.2 Bridge Condition Index (BCI)

A major component used in the assessment of structures, particularly as it relates to determining the Region's bridge rehabilitation program, is legislated by the Province and requires that all the structures (bridges, culverts and retaining walls) greater than 3 metre span be inspected under the direction of a Professional Engineer.

Structure condition data is collected bi-annually (allowing for 50 per cent of the structures to be reviewed annually) for the entire Region and the Bridge Condition Index data is used to assist in planning scheduled maintenance and repair. The Bridge Condition Index is not used to rate or indicate the safety of a bridge.

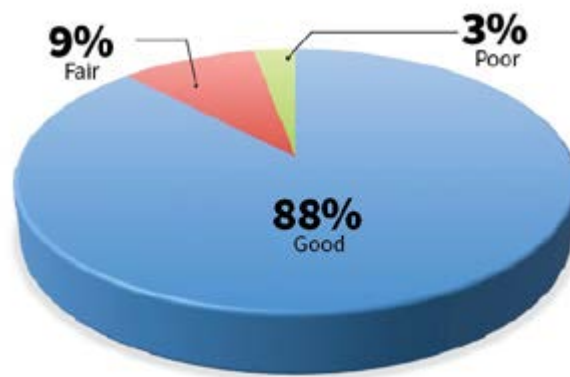
To provide guidance for the maintenance need, the BCI has been divided into three ranges shown below.

**Table 7 - Bridge Condition Index Rating**

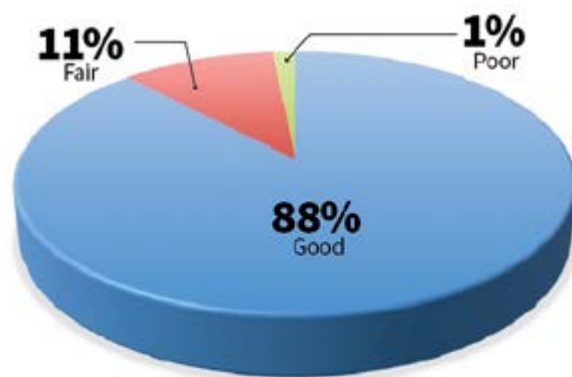
Rating	BCI Range	Indicator
Good	100 to 70	Maintenance work is not usually required within the next five years
Fair	69 to 60	Maintenance work is usually required within the next five years
Poor	<60	Maintenance work is usually required within approximately one year

The results of the 2012 and 2010 structure inspections (reported in 2013 and 2011) can be seen in **Figures 3a** and **3b** (bridges) and **Figures 4a** and **4b** (culverts). Overall, 97 per cent of the Region's bridges have a rating of good or fair, and 91 per cent of the Region's culverts have a rating of good or fair.

**Figure 3a - 2013 Bridge Condition by Percentage of Bridges**



**Figure 3b - 2011 Bridge Condition by Percentage of Bridges**



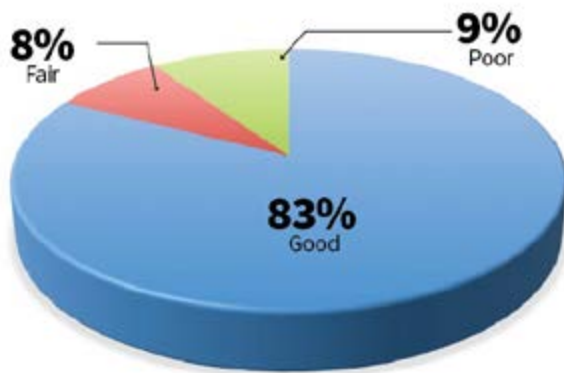
The table below illustrates the percentage changes in Bridge Condition Index between the 2011 and 2013 results.

**Table 8 - Bridge Condition Index Percentage Change**

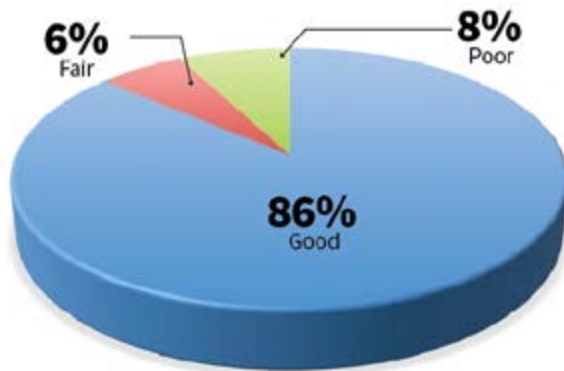
Rating	2011	2013	% Change
Good	88%	88%	0
Fair	11%	9%	(2)
Poor	1%	3%	2

### 4.3.3 Culvert Condition

**Figure 4a** - 2013 Culvert Condition by Percentage of Culverts



**Figure 4b** - 2011 Culvert Condition by Percentage of Culverts



The table below illustrates the percentage changes in Bridge Condition Index between the 2011 and 2013 results.

**Table 9** - Culvert Condition Index Percentage Change

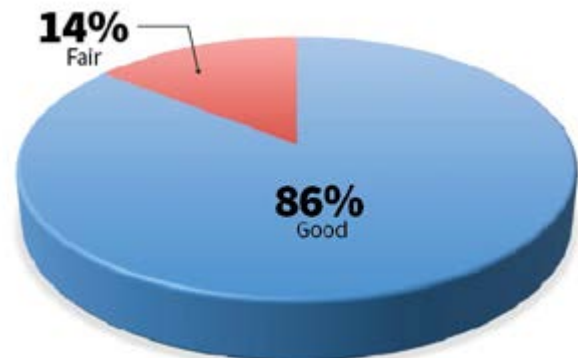
Rating	2011	2013	% Change
Good	86%	83%	(3)
Fair	6%	8%	2
Poor	8%	9%	1

Those bridges and culverts identified as “Fair” or “Poor” have been scheduled for either rehabilitation or replacement within the next 10 years subject to budget approval.

### 4.3.4 Retaining Walls

The results of 2012 inspection can be seen in **Figure 4c**. Overall, 100 per cent of the Region’s retaining walls have a rating of good or fair.

**Figure 4c** - Retaining Wall Condition by Percentage of Walls



### 4.3.5 Traffic Signs

The Region owns approximately 30,000 signs which include regulatory, warning and tourism signs. Mandated by the Province of Ontario, the Region is required to conduct reflectivity testing on the regulatory and warning signs. As a result, the Region has purchased new retro-reflectivity equipment to inspect these signs on an annual basis. This will allow for traffic signs that do not meet the requirements to be identified and replaced. The Roads Branch has started implementing the reflectivity testing as part of their traffic sign condition assessment. Traffic signs are replaced on an as-needed basis.

In addition to the reflectivity measurements, all traffic signs were inventoried and reviewed using digital video acquired as part of the data collection for the Region’s computerized maintenance management system. The condition rating system used is described in the table below.

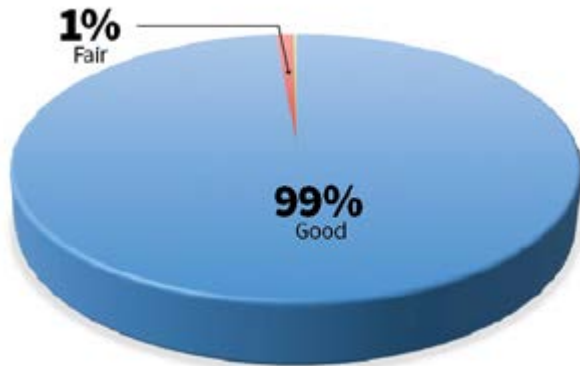
**Table 10** - Sign Condition Ratings

Rating	Indicator
Good	Visible and undamaged
Fair	Minor damage or dirty
Poor	Missing, major damage or bent

### 4.3.5 Traffic Signs *continued*

The results of this review are shown in **Figure 4d**. Overall, 100 per cent of the traffic signs have a rating of Good or Fair.

**Figure 4d** - Overall Condition of Traffic Signs



### 4.3.6 Age and Remaining Life

Regional assets are constructed at different times, have varying useful lives and deteriorate at different rates depending on design, construction, maintenance and use. **Table 11** illustrates the typical useful lives of the major Road Branch assets. These are projected lives and assume that all required maintenance is carried out.

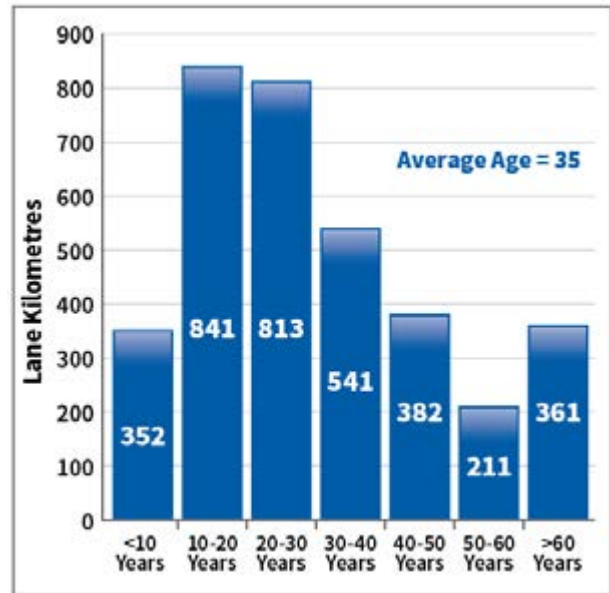
**Table 11** - Asset Typical Useful Life

Asset Type	Useful Life (Years)
Regional Roads	60
Bridges	75
Noise Walls	75
Retaining Walls	75
Culverts	75
Operation Facilities	50
Vehicles and Other Equipment	3 to 15

The following figures provide an overview of the current age of the various Roads Branch assets.

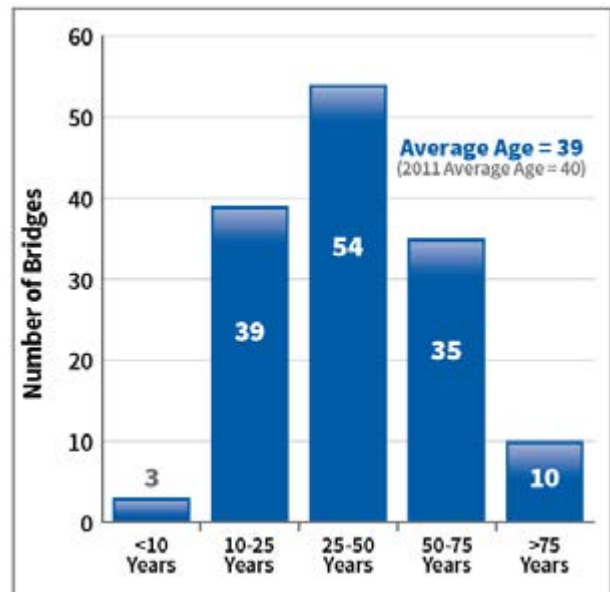
**Figure 5** shows that 10 per cent of the Region's roadways are less than 10 years old and 34 per cent less than 20 years old.

**Figure 5** - Age of Roadways by Lane Kilometres



**Figure 6** shows that 32 per cent of the Region's bridge structures are 50 years or older and **Figure 7** shows that 47 per cent of the Region's culverts are 50 years or older.

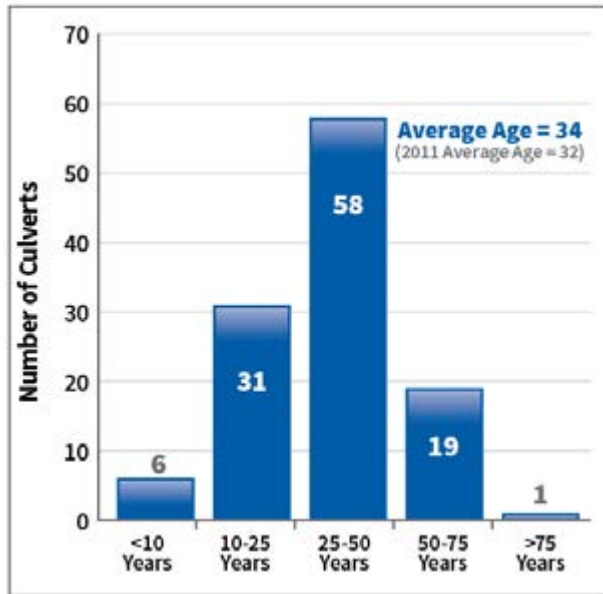
**Figure 6** - Age of Bridges by Number of Bridges





### 4.3.6 Age and Remaining Life *continued*

**Figure 7** - Age of Culverts by Number of Culverts



This drop in older vehicles and equipment is a result of the ongoing investment in the Fleet Capital Replacement Program. Annually, approximately 60 units are purchased through the Fleet Capital Replacement Program at a cost of \$2.5 million. Individual unit lifecycles are determined based on the type of vehicle, their expected use and disposal values. Lifecycles range from three to fifteen years.

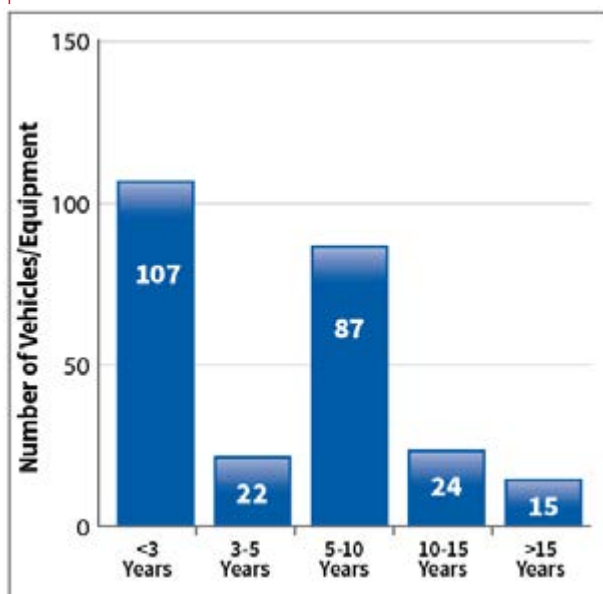
With direct end-user involvement, the acquisition and outfitting of new units benefits the Regional fleet operations through the right-sizing of vehicles, improved fuel economy, gains through functionality, improved aesthetics and reduced downtime from unscheduled breakdowns.

The outfitting of vehicles is a large part of the fleet procurement process. Through direct involvement with the end user, vehicles are acquired, customized and outfitting (through contracted and in-house services).

### 4.3.7 Vehicles and Equipment

**Figure 8** shows that of the current 255 vehicles in service, 51 per cent (a three point increase) of vehicles and equipment is less than five years old and 15 per cent (a drop of 15 points) is more than 10 years old.

**Figure 8** - Age of Vehicles and Equipment



Since 2011, 133 new units have been purchased and put into service. The range of assets acquired for multiple departments is varied and range from dump trucks with snowplows for the Roads Branch to a brush clipper for Forestry.

### 4.3.8 Facilities

The Roads Branch currently operates out of the Operations Centre at 90 Bales Drive and has four yards located throughout the Region (three are owned and one leased) to undertake its summer and winter maintenance programs. The Operations Centre building is less than 10 years old and in good condition, while the four yards are between 10 and 40 years old and in varied condition.

#### 4.3.9 *Trend*

Through the continued use of the pavement management system and the structure inspection report, the Roads Branch will continue to have a good understanding of the condition of its major assets. This understanding will be further improved with the ongoing implementation of the new Computerized Maintenance Management System (CMMS). Information and data to be recorded in the CMMS will allow for the condition of other road infrastructure assets, not currently being monitored, to be checked and assessed against Regional standards. Those falling below Regional standards will be included in upcoming maintenance and rehabilitation plans.

### 4.4 *Reliability* **A**

Road infrastructure received a reliability grade of **A**. The following indicators were measured and assessed.

- **Load Restrictions**
- **Areas Prone to Flooding**

#### 4.4.1 *Load Restrictions*

York Region restricts loading on some roads to avoid excessive damage from vehicular and truck traffic. The restrictions are due to either; the road in question does not meet Regional design standards or that it is susceptible to damage during the spring thaw. During the spring thaw, usually between March 1 and April 30, there are half-load restrictions on about 229 lane-kms (six per cent of the Regional road network) and year-round vehicle weight restrictions on 238 lane-kms (seven per cent of the Regional road network).

In addition, two bridges have existing load limit and weight restriction postings. These are the Umphrey and East Udora bridges located on Ravenshoe Road in the Town of Georgina. Both of these bridges are scheduled for replacement during the 2014 construction season.

#### 4.4.2 *Areas Prone to Flooding*

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

The Regional road network has very limited areas that are prone to flooding and are only as a result of high intensity localized events (concentrated rainfall or run-off). **Appendix 3** provides a map of the Region indicating the historical flooding locations and there are eleven areas across the Region plus Metro North Road in Georgina (runs parallel and adjacent to Lake Simcoe).

#### 4.4.3 *Trend*

Reliability on the road network is expected to continue to be very good. Load restrictions should continue to reduce as roads and bridges are rehabilitated or replaced. Additionally, areas that are prone to flooding continue to be considered for improvements which will further reduce the probability of flooding.

## 4.5 Capacity C

Road infrastructure received a capacity grade of **C**. The following indicators were measured and assessed:

- **Regional Capacity**
- **Operations Facilities (Patrol Yards)**

### 4.5.1 Regional Capacity

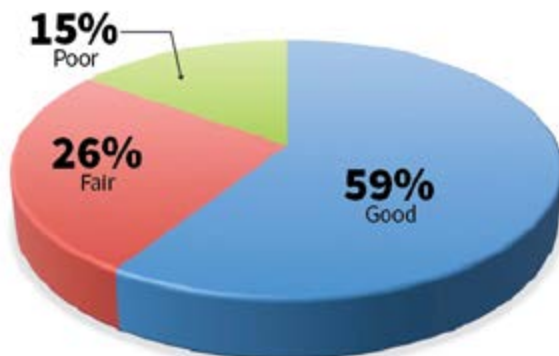
An indicator of capacity is the estimation of the Regional road network capacity to the number of vehicles observed. A volume to capacity ratio is used to represent the degree of congestion within a road segment and the results below have been calculated based on the A.M. peak volume of traffic on the road segment divided by the estimate capacity for that road segment. **Table 12** shows how each of the forecasted traffic volumes on a road segment is grouped into one of three categories for the purposes of rating.

**Table 12 - Volume to Capacity Rating**

Rating	Indicator/Capacity Ratio
Good	Volume/Capacity < 0.70
Fair	$0.70 \leq \text{Volume/Capacity} \leq 0.89$
Poor	Volume/Capacity $\geq 0.90$

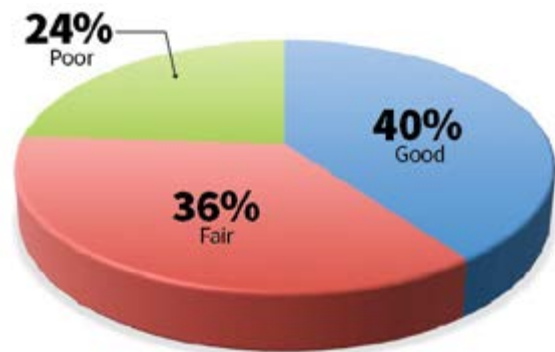
The results of analysis undertaken by the Transportation Planning Branch for the A.M peak direction in 2012 (reported 2013) can be seen in **Figure 9** and **Appendix 4**, which represents the entire Regional road network. Overall, 59 per cent of the Regional road network is rated as good.

**Figure 9 - Volume to Capacity Ratio by Kilometres of Road Network (%)**

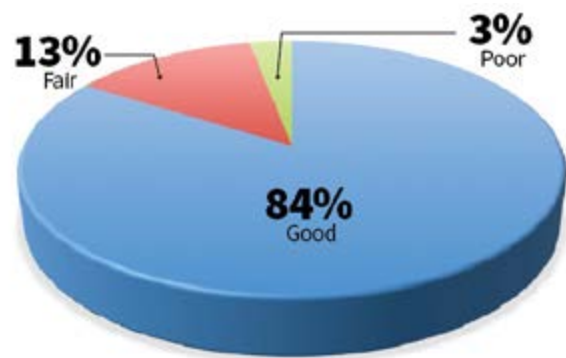


Further, when categorizing the Regional road network into urban and rural, **Figures 10** and **Figure 11** show differences in the level of regional capacity. **Figure 10** shows that in urban areas, a greater capacity constraint is apparent with only 40 per cent of the road network rated as good. This is the opposite when considering the rural areas, with 84 per cent of the road network rated as good, as shown in **Figure 11**.

**Figure 10 - Volume to Capacity Ratio by Kilometres of Urban Roads (%)**



**Figure 11 - Volume to Capacity Ratio by Kilometres of Rural Roads (%)**



### 4.5.2 *Operations Facilities (Patrol Yards)*

Four main yards are used by the Region for maintenance activities. Due to the increased density within the southern area of the Region, the two yards located in the south (South-East and South-West facilities) are already at capacity and require expansion or relocation to meet growth and urbanization needs. The North and Central facilities are adequate for current operational requirements. Additionally, with the VivaNext Rapidways opening, increasing operating pressures are falling on the Region relating to snow management.

The Roads branch is currently developing a Facilities Master Plan to address the operations facility capacity and snow management needs. The report is expected to be complete in 2014.

### 4.5.3 *Trend*

The Transportation and Community Planning Department is continually implementing congestion management initiatives as defined in the Regional Official Plan and Transportation Master Plan to help manage congestion, and in the process creating an increasingly multi-modal transportation system and providing modal choice. These initiatives include increasing road capacity (road widenings), improving transit services (improve bus rapid transit service, increase area coverage, increase service hours), transportation demand management (encouraging shifts to carpooling, public transit, active transportation), and the use of intelligent transport systems (increase traffic capacity, improve transit service reliability). However, even with these continuing improvements to the road and transit networks, peak time capacity constraints on our more urban roads will remain a concern going forward as the Region continues to grow and evolve at a rapid rate.

In relation to operational facilities, assuming funding is available to implement the recommendations of the Facilities Master Plan, the capacity of the operations facilities will improve over the long-term.

## 4.6 *Data Confidence*

Overall, the data confidence for the Roads Branch is medium. The data used to develop this analysis has been collated from a range of data sources with significant inconsistencies and gaps found within the data sources. In addition, there are asset classes, e.g., storm water assets, for which data is limited. However, data relating to the condition of the major asset classes (roads and bridges) is based on well established procedures and collection techniques.

The above is a recognized concern for the Roads Branch and, as a result, a new computerized maintenance management software (Cityworks) was purchased in 2011 and began implementation in 2012. Major steps have been taken to eliminate redundant data and to create consistent and accurate data sources.

This state-of-the-art system will assist the Region in the prioritization and tracking of maintenance activities on the assets that comprise the Regional road network. It has the ability to provide dashboard information regarding performance measurements.

Extensive training is being provided to all district staff by the State of Good Repair team and IT Services. A full rollout to all participating divisions (Maintenance, Traffic Safety, Transit and Forestry) was completed in November 2013. Operational procedures continue to be fine-tuned through the implementation phase.

## 4.6 *Data Confidence* continued

In the coming years, additional data collection programs are planned and the software will provide an asset data management repository which will support more cost-effective inspection, monitoring and condition assessment.

Overall the confidence in the data available has improved largely due to the implementation and subsequent data population of the Cityworks application. This data source has consolidated many of the disparate sources for previous reports. Data confidence is expected to increase as the branch continues to improve data collection processes and implements further data management systems and decision making tools.

### 4.6.1 *Condition Data*

The condition data used for the pavement (road network) came from the pavement management system (PMS), which calculates a Road Condition Index (RCI) based on multiple variables. The data is fully refreshed every two years and there is good confidence in the data. A project is currently underway to develop improved condition rating methodology and modelling techniques so that a more accurate representation of the current and future pavement conditions can be made. This project will also allow Regional staff to examine life-cycle options for road rehabilitation that will ensure the most economical method of pavement design and repair is selected.

Similarly, the condition data for bridges and culverts is refreshed every two years and there is good confidence in the data. The Roads Branch is reviewing its processes and procedures to further improve the data management and analytics. The implementation of the bridge management system will assist with this.

Condition data for vehicles is based on a yearly inspection of the fleet by Fleet Services and there is good confidence in the data provided.

Condition data on the buildings is based on observations by staff and inspections undertaken by the Property Services Branch and there is a medium level of confidence in the data.

### 4.6.2 *Reliability Data*

Load restriction data is based on good knowledge of restrictions placed on the Regional road network, while the areas prone to flooding are based on the knowledge of staff.

### 4.6.3 *Capacity Data*

The volume to capacity ratio has been generated from observed counts and network attributes such as number of lanes and lane capacities from the Region's Travel Demand Forecasting Model. The Region's Travel Demand Forecasting Model is a macro morning peak hour model using the EMME software platform.

Adjustments to the model lane capacities were made to accommodate commercial vehicle (medium and heavy truck) percentages and to reflect observed breakdown conditions for selected road segments and professional judgement. As the data represents modelled or theoretical data, the results may not fully represent the conditions on a specific road link but provides good guidance from a Regional perspective .

Facility information is provided based on staff assessments and knowledge of the assets. With a Facilities Master Plan in progress, the confidence in the data will improve.



# 5 Transit

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“Reliability of the vehicles is steadily improving, primarily as a result of investments into proactive maintenance which will assist in keeping the vehicles in good condition.”

*State of Infrastructure Report 2013*







## 5.1 Overall Assessment

The overall State of Infrastructure grade for Transit assets is a **B** with a stable trend for the future.

**Table 13** summarizes each individual grade and the outlook for the future. Overall it shows a transit system in good condition, with vehicles on average a third of the way through their useful life. Reliability of the vehicles is steadily improving, primarily as a result of investments into proactive maintenance which will assist in keeping the vehicles in good condition. There is capacity on the vehicles which will allow for ridership to grow with minimal requirements for additional assets, although vehicle storage is at or reaching capacity at certain locations.

**Table 13 - Overall Assessment - Transit**

Criteria	2011	2013	Trend
Condition	B	B	↔
Reliability	C	B	↗
Capacity	B	B	↔
Overall	B/C	B	↗

## 5.2 Background

York Region's transit system consists of six primary asset classes:

- Vehicles (conventional (YRT), Bus Rapid Transit - BRT (Viva), and Mobility Plus)
- Support fleet (cars, trucks, SUVs, vans provided and managed by the Roads Branch)
- Buildings (garages, transit terminals and bus loops)
- Facilities (transit stops, shelters and street furniture)
- Technology (Transit Control Centre, Presto smartcard and IT systems and software)
- Equipment (all equipment other than technology and equipment within transit stops)

The inventory for major asset classes is identified in **Table 14**. The inventory was extracted from various sources, including the financial database and the Computerized Maintenance Management System (CMMS). The fleet includes only those vehicles that are located in garages.

**Table 14 - Current Asset Inventory - Transit**

Asset Type	2011	2013	% Change
<b>Vehicle (Fleet)</b>	488	484	(0.8)
<b>Buildings, Loops and Terminals</b>	35	35	0
<b>Technology (IT)</b>	Various	Various	-
<b>Equipment</b>	Various	Various	-
<b>Transit Stops</b>	4,484	4,889 <sup>1</sup>	9
<b>Support Fleet</b>	41	50	22

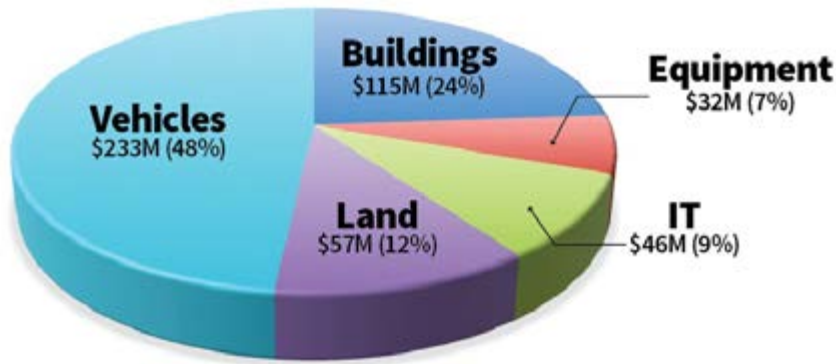
**Table 15 - Historical Cost Breakdown - Transit**

Asset Type	2011(\$M)	2013(\$M)	% Change
<b>Vehicle (Fleet and Support Fleet)</b>	226	233	3
<b>Buildings, Loops and Terminals (Including Transit Stops)</b>	113	115	2
<b>Technology (IT)</b>	30	46 <sup>2</sup>	53
<b>Equipment</b>	31	32	3
<b>Land</b>	57	57	0
<b>Totals</b>	<b>457</b>	<b>483</b>	<b>7</b>

In addition, York Region owns machinery and equipment that is used in both Region-owned garages and contractor-owned garages.

As of the end of September 2013 the Transit Branch operated and maintained \$483M (inclusive of land) of assets and the historical cost breakdown can be seen in **Table 15** and illustrated in Figure 9. The vehicles account for almost 50 per cent of the entire Transit Branch's assets.

**Figure 12 - Historical Cost Breakdown - \$M (%)**



*Vehicles represent the major asset cost for Transit, representing \$233M or 48 per cent of historical costs included in the Region's financial inventory*

<sup>1</sup> The Transit Branch also uses, but does not own, 231 transit stops in other jurisdictions. <sup>2</sup> Note the value has increased due to the inclusion of the Transit Control Centre.

## 5.3 Condition **B**

Transit infrastructure received a condition grade of **B**. The following indicators were measured and assessed:

- **Age and Remaining Life**
- **Quality Assurance vehicle inspections**
- **Bus stop inspections**

### 5.3.1 Age and Remaining Life

The table below illustrates the typical useful lives of the major Transit Branch assets.

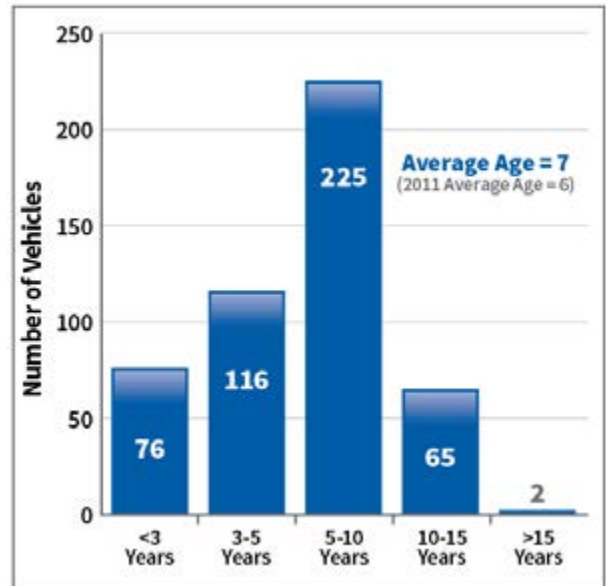
**Table 16 - Current Asset Useful Life - Transit**

Asset Type	Useful Life (Years)
Vehicle (Fleet)	12 - 18
Support Fleet	7
Buildings, Loops and Terminals	50
Transit Stops (Shelters and Buildings)	15
Technology (IT)	5 - 15
Equipment	5 - 15

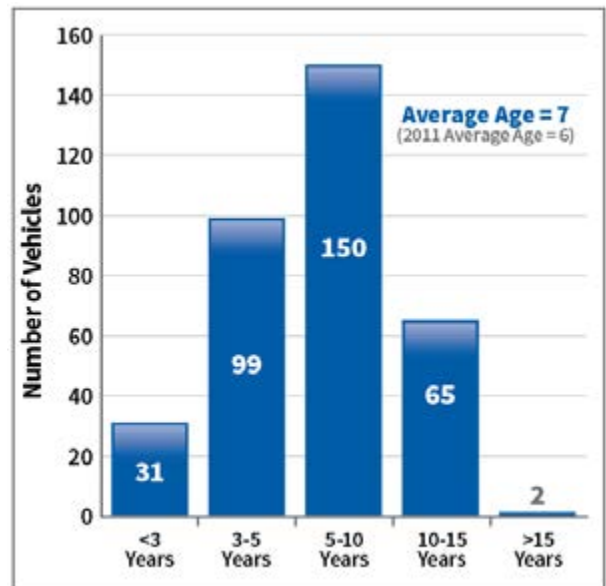
### 5.3.2 Vehicles

**Figures 13** (total of transit fleet), **14**, **15** and **16** show that the majority of vehicles are about a third of the way through their useful life (average age of seven years) with only 14 per cent of the fleet over the age of 10 years (all conventional buses), indicating a fleet that is in its younger years. However, the age of a fleet is not always representative of its condition which is where ongoing preventative maintenance plays a significant part. This is an area where the Transit Branch is investing in several programs to improve the condition of its fleet (see Reliability - Section 5.4).

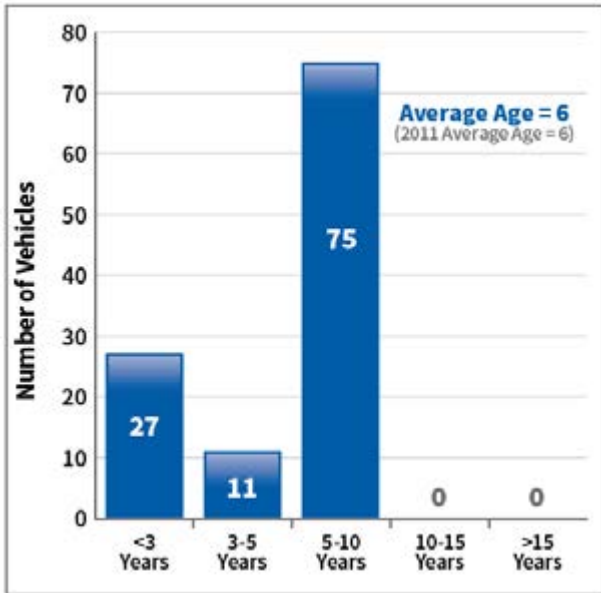
**Figure 13 - Age of Total Fleet**



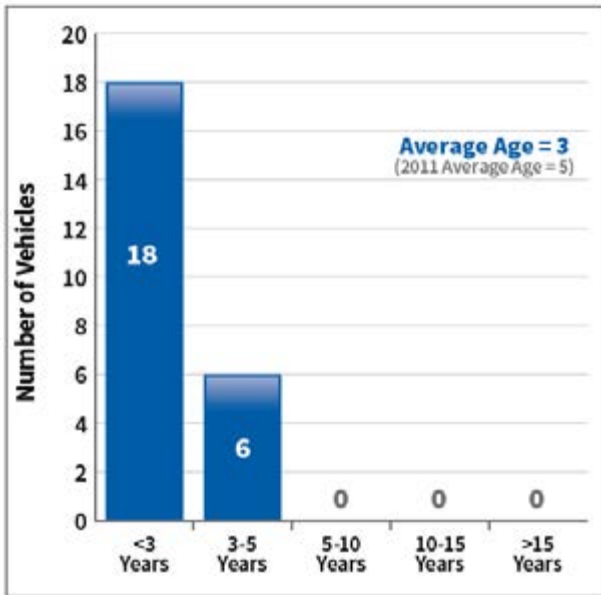
**Figure 14 - Age of Conventional Fleet**



**Figure 15 - Age of Viva Fleet**



**Figure 16 - Age of Mobility Fleet**



Of the Conventional and Viva vehicles, a significant portion (almost 50 per cent) are reaching their mid-life (seven to nine years), primarily as a result of the major vehicle purchases in 2005 for the opening of the Viva routes. This is a period when major rehabilitation is required on the vehicles to allow them to function reliably towards the end of their 18-year useful life.

Between 2011 and 2013 the branch completed the Capital Asset Life Assurance Program on 85 BRT vehicles. This program ensures that overhauls of the engines and transmissions are done in a proactive and planned way. The vehicles are also given an exterior and interior refresh. This ensures that a major asset, with a very high utilization rate, maintains a reasonable refresh cost.

For Mobility Plus vehicles, their useful life is less, at seven years (the Eldorado vehicles being the exception at 18 years). Through recent purchases the average of this fleet has been reduced from five to three years.

### 5.3.3 Quality Assurance Vehicle Inspections

YRT/Viva contracts out the vehicle maintenance of its fleet through Operations and Maintenance contracts. The branch conducts inspections on 25 per cent of its vehicles each quarter (allowing for all vehicles to be inspected each year) to ensure legislative compliance, safety and appearance. Any vehicles that do not meet the required standard are removed from service and maintenance is undertaken to correct any deficiency.

### 5.3.4 Buildings

Buildings account for \$115M of the total historic asset cost value and include transit garages, terminals, the pedestrian bridge, loops, pads and transit stops. The largest asset is the newly (2010) constructed and operational south west transit garage, while Viva shelters are currently half way through their service life (eight of 15 years).

### 5.3.5 Transit Stop Inspections

Depending on the service levels prescribed, each transit stop (including all street furniture located at the bus stop location) is inspected at various frequencies throughout the year and any deficiencies are reported as part of the inspection. Any deficiencies are logged into “Bus Stop Manager”. This is in addition to issues that are registered from customer calls through CARES (Customer Action and Response System). Any deficiencies create a work order and are corrected in a timely manner.

### 5.3.6 Equipment

Equipment accounts for \$32M of the total historic asset cost held by the Transit Branch and the majority relates to Viva equipment (transit signal priority systems and ticket machines). The Viva equipment is due to be replaced in 2015, at the end of its 10-year useful life.

### 5.3.7 Trend

With the majority of the BRT transit vehicles having undergone their mid-life overhaul, the condition of the vehicles will remain stable in the short-term. The only assets that will be expecting a condition deterioration are the bus garage equipment since they will be close to the end of its useful life and may exhibit higher levels of failure.

## 5.4 Reliability **B**

Transit infrastructure received a reliability grade of **B**. The following indicators were measured and assessed:

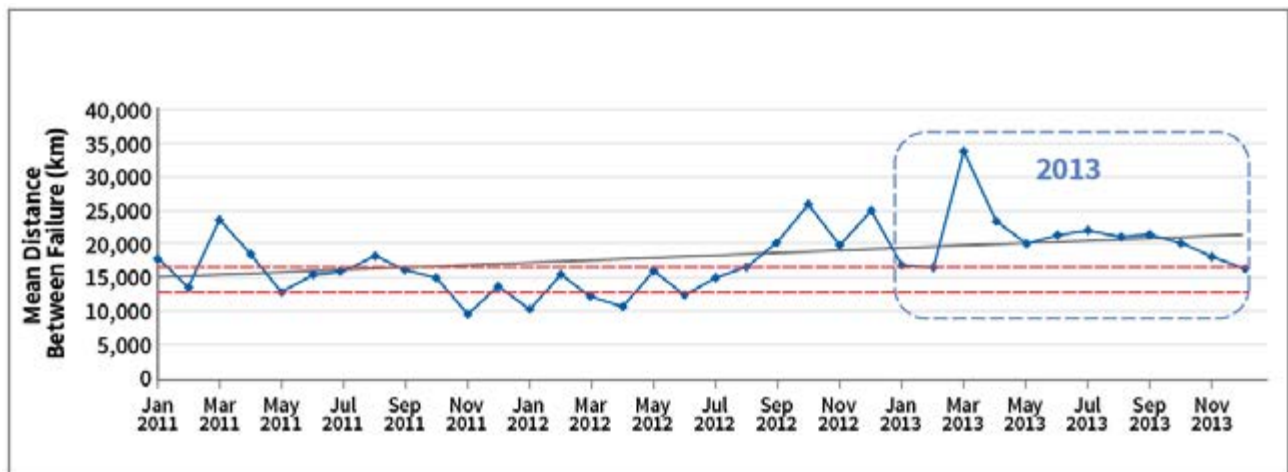
- Mean Distance Between Failure
- On-time Performance

### 5.4.1 Mean Distance between Failure

Mean Distance between Failure (MDBF) is a measure of reliability that expresses the average distance travelled by the fleet before a reportable mechanical failure, i.e. incidents precluding a bus from completing its trip, or starting its next scheduled trip. The greater the MDBF, the less the fleet is encountering mechanical issues.

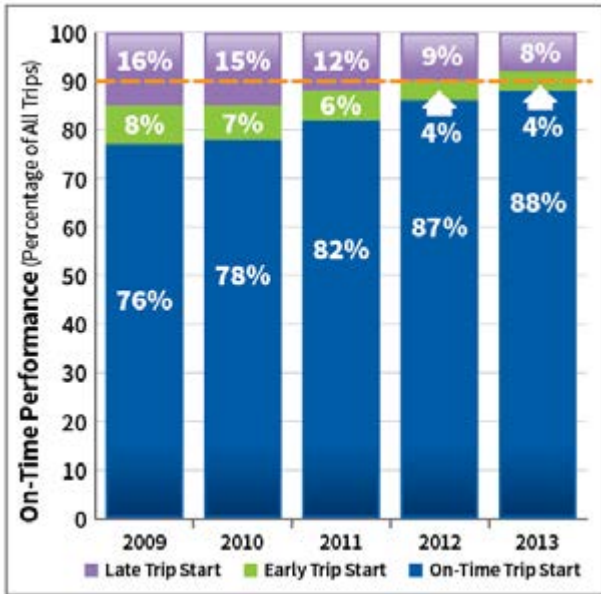
Currently, all mechanical breakdowns are counted as failures. As can be seen in **Figure 17** over the last three years, the MDBF has been steadily improving. The Transit Branch has set a service level of between 14,000 and 16,000 kilometres and over the last three years has experienced a continuous positive upward trend. The 2013 data indicates the majority of monthly MDBF are higher than the service level required. This is a result of the significant investment made over the last few years on the preventive maintenance programs.

**Figure 17 - Mean Distance Between Failure**



### 5.42 On-Time Performance

**Figure 18** - On-Time Performance - Conventional Transit



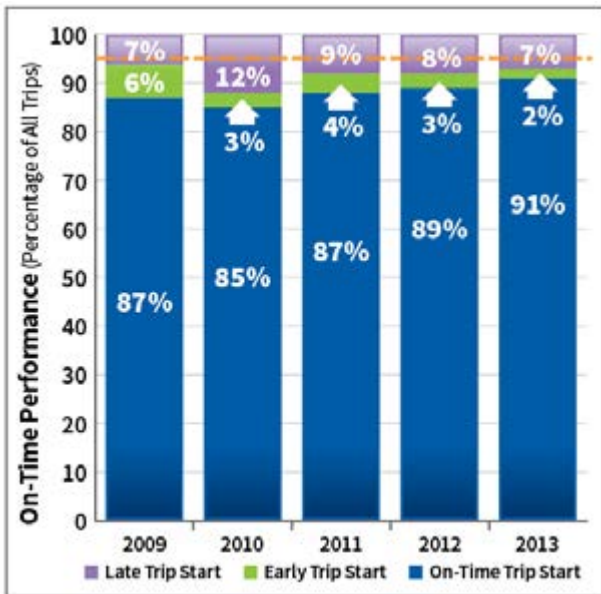
On-Time Performance is a function of many variables (e.g. scheduling, traffic, mechanical issues etc.) that are not all related to the state of the infrastructure. However, it is an important measure when considering the reliability of the vehicle. The Transit Branch has set On-Time Performance service levels of 90 per cent (Conventional) and 95 per cent (Viva) for start of trip. As can be seen in **Figures 18 and 19**, Conventional trip start times have been continually improving over the previous years and so has Viva.

In 2013, the trip start for Conventional reached 88 per cent (on-time start) and Viva reached 91 per cent. These are marginally below the On-Time Performance service levels established but, an improvement over previous years.

### 5.4.3 Trend

Reliability in the Transit Branch is on a continuing upward trend. Mean Distance between Failure (MDBF) has again improved over the previous two years and is projected to continue to improve due to investments in proactive maintenance programs. A similar trend is evident in on-time performance and is expected to continue to improve in the future. It is anticipated by the next State of Infrastructure Report that both measures will be at branch service levels.

**Figure 19** - On-Time Performance - Viva



## 5.5 Capacity B

Transit infrastructure received a capacity grade of **B**. The following indicators were measured and assessed:

- **Demand to Capacity**
- **Garage Capacity**

### 5.5.1 Demand to Capacity

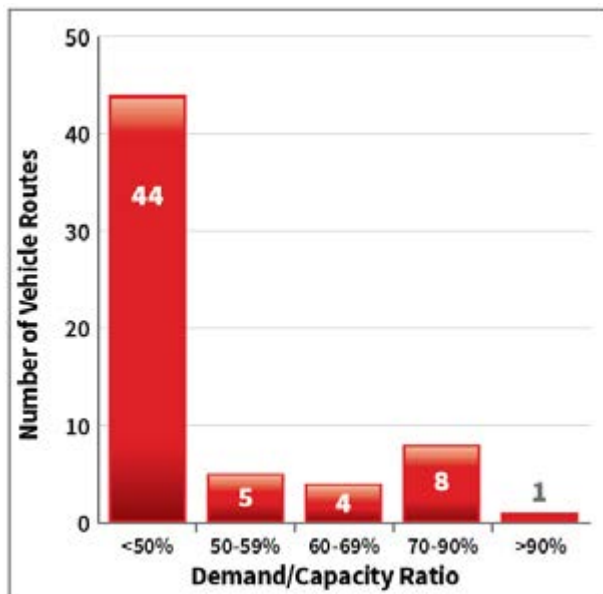
**Table 17** and **Figure 20** below represents the average demand capacity ratio for bus routes during the A.M. peak hour, when the majority of vehicle routes are at their peak demand. The average ratio of all routes combined is 42 per cent.

**Table 17** - Demand to Capacity - Transit

Demand Capacity	Number of Vehicle Routes 2013
>90%	1
70% to 90%	8
60% to 69%	4
50% to 59%	5
<50%	44

Note: Comparison with 2011 is not possible due to a change in methodology.

**Figure 20** - Demand to Capacity Ratio - A.M. Peak



### 5.5.2 Garage Capacity

The capacity of the Region's garages is based on the current and projected fleet size and distribution of transit services and fleet between the operating divisions across the Region.

**Table 18** presents the fleet distribution totals for 2031, based on the anticipated modest growth in ridership, modal split and transit service levels.

**Table 18** - Fleet Distribution Totals - 2013 to 2031

Year	SE (150)	North (60)	SW (200)	Viva (198 <sup>3</sup> )	Total
2013	159	80	132	113	484
2021	230	94	169	159	652
2025	261	108	192	175	736
2031	309	127	227	199	862

The North garage is currently over capacity. In 2012, Council approved the purchase of property and a small bus garage for GO Transit in the Town of Newmarket adjacent to the North garage. The property transfer will take place in 2014 with full amalgamation of both sites expected for 2016.

### 5.5.3 Trend

The Region operates many routes throughout the Region, with varying degrees of demand to capacity. Over the next few years, as the Region's transportation modal split changes, higher transit ridership is expected. This should result in a higher demand to capacity ratio, although it is not expected in the short term to impact the Transit Branch's asset needs.

With the increased North garage capacity and the new Viva garage, the Transit Branch will have sufficient vehicle storage for the next 10 years.

<sup>3</sup> As of 2015 when the new Viva facility will be complete in Richmond Hill.

## 5.6 *Data Confidence*

Overall, the data confidence for the Transit Branch is high. The data used to develop the above analysis has been collated from a range of data sources with the majority of data sources being easily accessible with high levels of confidence.

### 5.6.1 *Condition Data*

Condition data is primarily a function of the age of the major assets. The confidence in this data is high, being corroborated by information contained within the Region's financial database and the Computerized Maintenance Management System used by the Transit Branch.

### 5.6.2 *Reliability Data*

Reliability data consists of MDBF and on-time performance, both of which have a high level of confidence. The Transit Branch tracks and maintains this data on a regular basis and updates are available within a few weeks from the end of the period. Mature data collection programs and analysis are used.

### 5.6.3 *Capacity Data*

Capacity data consists of demand to capacity and facilities capacity, both of which have a high level of confidence. These data sets are used by the Transit Branch to track their systems and are used on a frequent basis.



# 6 Traffic Management and ITS

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“The Traffic Management and Intelligent Transportation Systems (ITS) Branch is implementing initiatives and capital programs to improve the condition of assets and ability to improve the mobility of the travellers around the Regional transportation network.”

*State of Infrastructure Report 2013*





## 6.1 Overall Assessment

The overall State of Infrastructure grade for Traffic Management and ITS is a **B/C** with a stable trend for the future.

**Table 19** summarizes each individual grade and the outlook for the future.

Overall it shows the Traffic Management and ITS Branch is implementing initiatives and capital programs to improve the condition of assets and ability to improve the mobility of the travellers around the Regional transportation network. Traffic management coverage improvements are in a development stage and although currently at a low level, they are anticipated to increase significantly over the next few years.

**Table 19 - Overall Assessment - Traffic**

Criteria	2011	2013	Trend
Condition	B/C	B	➡
Reliability	B	A/B	➡
Coverage	D	C	➡
Overall	C	B/C	➡

## 6.2 Background

York Region's traffic management network assets consist primarily of:

- Traffic control signals
- Streetlights
- Traffic management systems (Central Traffic Control System - CTCS and traffic count technology)

The current inventory for each Traffic Management and ITS asset type is shown in **Table 20** and the inventory was extracted from various sources, including the financial database, the in-house management system (TOPS) and localized spreadsheet data.

The historical cost breakdown can be seen in **Table 21** and percentages represented in **Figure 21**.

**Table 20** - Current Asset Inventory - Traffic

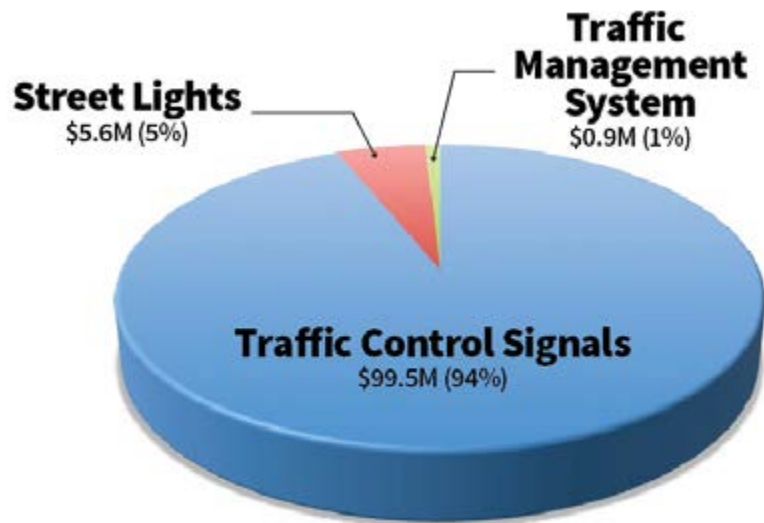
Asset Type	2011	2013	% Change
Traffic Control Signals	675	686	1.6
Street Lights	5514	6194	12.3
Traffic Management System	Various	Various	-

**Table 21** - Historical Cost Breakdown - Traffic

Asset Type	2011(\$M) <sup>1</sup>	2013(\$M)	% Change
Traffic Control Signals	-	99.5	N/A
Street Lights	-	5.6	N/A
Traffic Management System	-	0.9	N/A
<b>Totals</b>	<b>101</b>	<b>106</b>	<b>7</b>

<sup>1</sup>Note: Breakdown not available in 2011.

**Figure 21** - Historical Cost Breakdown - \$M (%)



*Traffic control signals represent the major asset costs for Traffic Management and ITS, representing \$99.5M of the \$106M of historical costs included in the Region's financial inventory.*

## 6.3 Condition B

Traffic infrastructure received a condition grade of **B**. The following indicator was measured and assessed:

- **Age and Remaining Life**

### 6.3.1 Age and Life Expectancy

The table below illustrates the typical service lives of the major Traffic Management and ITS Branch assets.

**Table 22** - Current Asset Useful Life - Traffic Management and ITS

Asset Type	Useful Life (Years)
Traffic Control Signals	20 (Technology Driven)
Street Lights	30*
Traffic Management System	10 to 15 (Technology Driven)

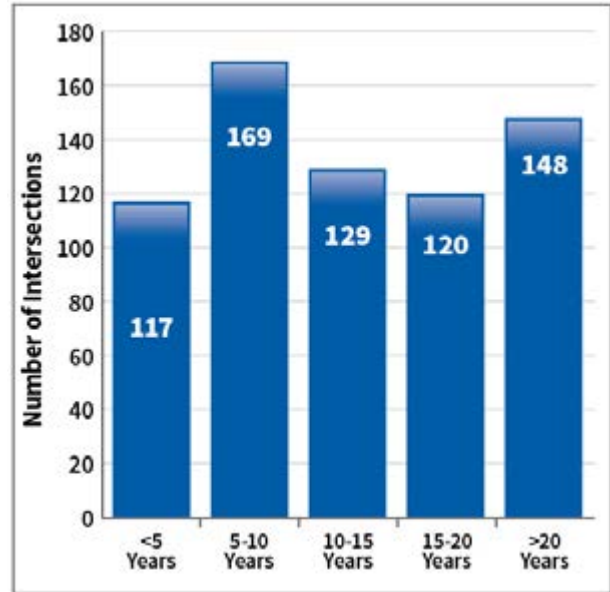
\*Note: Re-lamping required at five-year intervals.

The distribution of the age (from the date of installation) of the traffic control signals is shown in **Figure 22**<sup>2</sup>. Their average age of 13 years is down from 18 in the 2011 report.

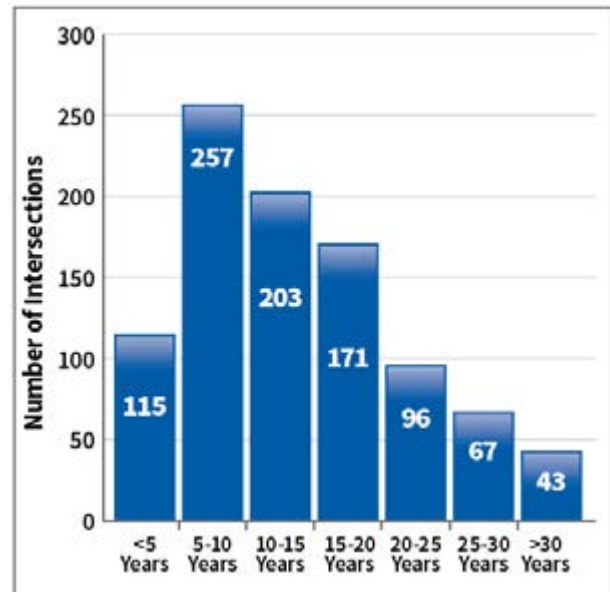
The distribution of the age (from the date of installation) of the streetlights is shown in **Figure 23**, with an average age of 14 years. For the purposes of the evaluation only, the life expectancy of the lamp is considered and not the poles, which can last up to 75 years. Additionally, the expected life of a streetlight lamp is around five years and the branch has a proactive replacement program.

In addition to **Figures 21 and 22**, every intersection (including traffic control signals and streetlights) has an annual visual inspection to determine their condition. Any deficiencies noted in these inspections are reported and fixed in a timely manner.

**Figure 22** - Age Distribution of Traffic Signals



**Figure 23** - Age Distribution of Street Lights



<sup>2</sup> Note: Age data for three of the 686 traffic signal intersections is unknown.

### 6.3.1 Age and Life Expectancy *continued*

In relation to traffic management systems, the centralized traffic control system introduced in 2002 is coming to the end of its useful life and planned updates have taken place and will continue in 2014. As a result of the Bus Rapid Transit Project, a new traffic control system was introduced (Centracs) and the branch has a limited number of signals using this system (located along Highway 7). In the long term the branch will be updating all Regional signals so that they are all on one single uniform platform. It is planned that the conversion will take 10 to 15 years, subject to budget availability.

### 6.3.2 Trend

The condition of the Traffic Management and ITS Branch assets is anticipated to remain stable in the short-term as continuing capital investments allow for the replacement of older infrastructure. In addition, capital investments are planned to improve traffic management which will provide new assets for the branch.

## 6.4 Reliability

**A/B**

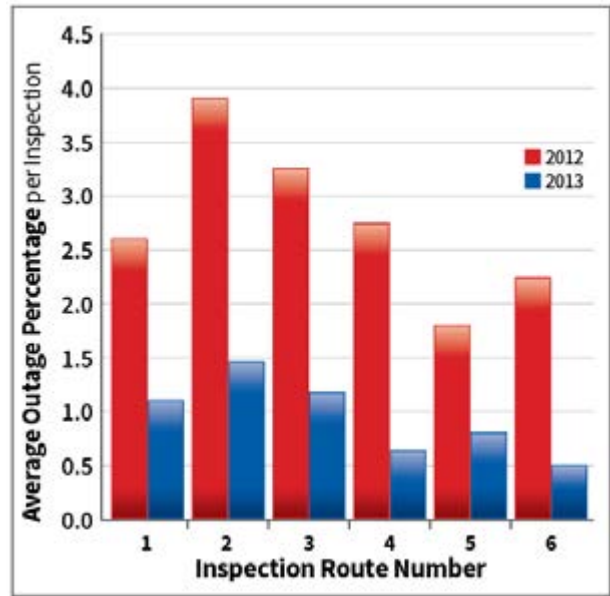
Traffic infrastructure received a reliability grade of **A/B**.

The largest two asset groups of the Traffic Management and ITS Branch are the traffic control signals and the streetlights. Two major projects completed in 2013 has increased the reliability of both of these asset types.

As part of the in state of good repair, the Traffic and Management and ITS Branch initiated a program in 2012 for the replacement of existing pedestrian LED traffic signal lamp modules. In addition, the work included replacing the traffic signal backboards with a 75mm retro-reflective sheeting border. The program was conducted in two phases: first phase was for all traffic control signalized intersections on Yonge Street and east of Yonge Street; second phase was for all signalized intersections west of Yonge Street.

In 2013 a new street light patrol program was launched to verify the reliability of streetlights. The program covers six routes and each route is inspected on a two-month cycle. As a result of the re-lamping program and the inspections the numbers of outages reported has dropped significantly, as shown in **Figure 24**.

**Figure 24 - Street Light Outage Percentage by Route**



### 6.4.1 Trend

Reliability of the streetlights is expected to decrease in the next few years as the luminaires will be reaching the end of their expected life (5 years) and the number of outages will increase yearly until the next re-lamping program (planned for 2017).

## 6.5 Coverage (Capacity) C

Traffic infrastructure received a Coverage grade of **C**. The following indicators were measured and assessed:

- **Coverage of Traffic Control Signals by Centralized Traffic Control System (CTCS)**
- **Road Network Served by Closed Circuit Television (CCTV)**

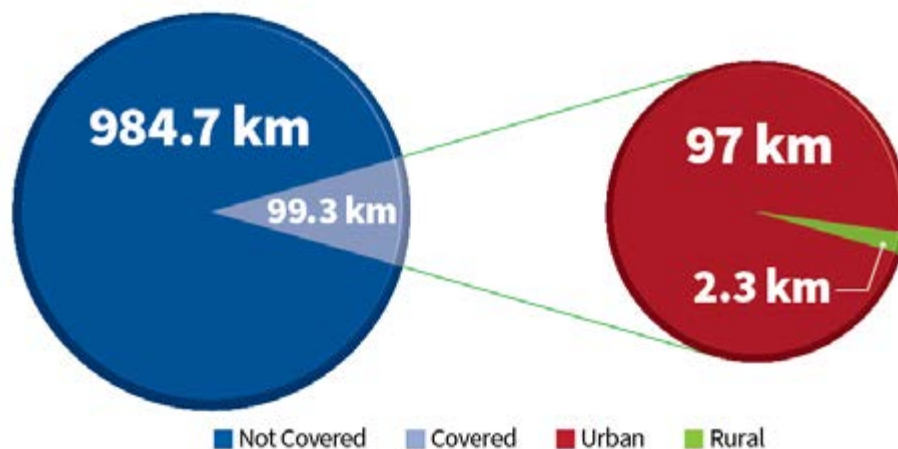
### 6.5.1 Coverage of Traffic Control Signals by CTCS

The Traffic Management and ITS Branch currently maintains 825 traffic signal controls (including those owned by other levels of government). Of the 825, 686 are owned by the Region and four signals owned by Town of Newmarket. Of the 825 traffic control signals, 821 are connected to the CTCS with the remaining four owned by the Town of Newmarket, and at their request are not connected to the CTCS. In addition, the branch has six signalized intersections on the Centracs system which is being implemented by vivaNext.

### 6.5.2 Road Network Served by CCTV

The Traffic Management and ITS Branch has 36 live CCTVs covering major traffic areas across the Region. Of these, 36 CCTVs, 14 are located along Highway 7 and seven are located along Yonge Street. The CCTV coverage has more than doubled over the past two years.

**Figure 25 - CCTV Regional Road Coverage by Kilometre**



### 6.5.3 Trend

Coverage of the road network through intelligent transportation systems is in its infancy within the Region. The outlook is positive as the Traffic Management and ITS Branch looks to increase the use of intelligent transportation systems to help manage congestion and make real-time traffic information more readily available to road users.

## 6.6 Data Confidence

Overall the data confidence for the Traffic Management and ITS Branch is low to medium, but much improved over the 2011 report. Data collection programs have been undertaken, as well as the collection of reliability measures.

The Traffic Management and ITS Branch will be part of the new Computerized Maintenance Management System (CMMS) being implemented and this will assist in gathering a better understanding of the assets that reside within the branch.





# 7 Financial

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“Understanding the financial state of infrastructure is fundamental to maintaining assets in a state of good repair. For asset management to be successful, good financial planning and budgeting is required.”

*State of Infrastructure Report 2013*



## 7.0 Financial

Understanding the financial state of infrastructure is fundamental to maintaining assets in a state of good repair.

For asset management to be successful, good financial planning and budgeting is required. Historically, the Region has actively pursued prudent fiscal policies, sustainable financial strategies and proactive financial planning processes to allow for infrastructure to be constructed, maintained and rehabilitated in a value for money manner.

### 7.1 The 10-Year Capital Plan

The Region has a robust budget process that requires each department to prepare a 10-Year Capital Plan<sup>1</sup> which analyzes the various funding sources in their respective branches to meet specific budget pressures.

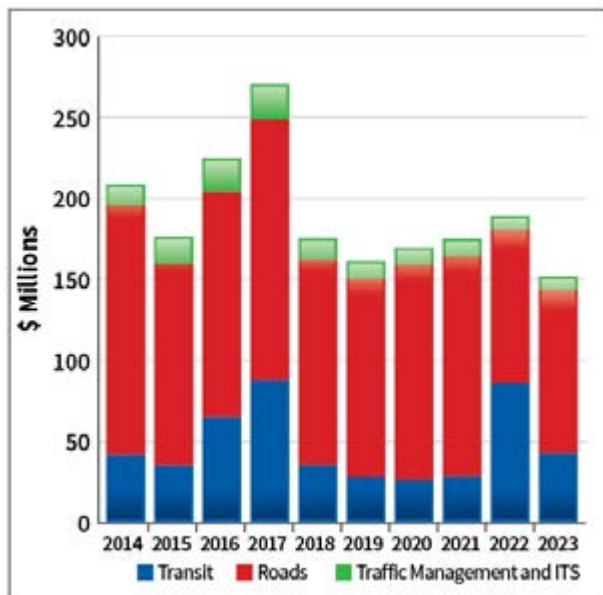
within the Transportation and Community Planning Department. A total 10-Year Capital Plan of \$1.905 billion has been approved, broken down by Roads (\$1.294 billion), Transit (\$0.477 billion) and Traffic Management and ITS (\$0.135 billion).

The budget process is designed to ensure that the Regional transportation network has the necessary funding to allow for the connection and movement of people and goods to meet Regional demand.

In accordance with Corporate Asset Management Policy, emphasis will be placed on a set of principles and approaches that guide investment in the renewal of the assets (instead of growth related investments). Where possible, budget projections are broken down into two categories:

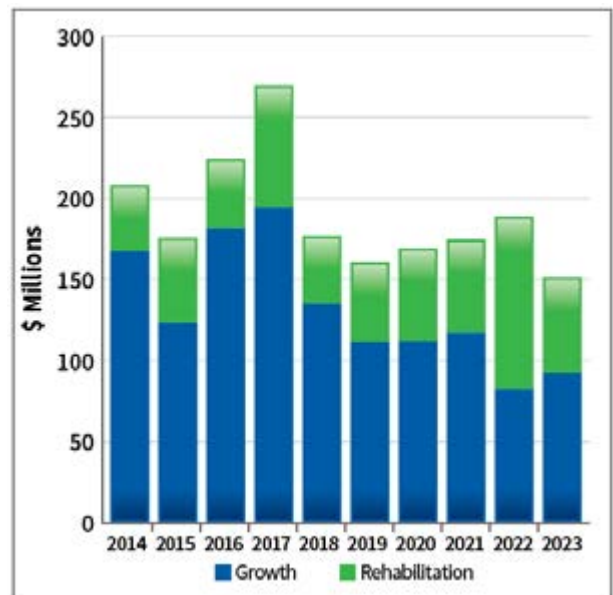
- **Growth and expansion**
- **Rehabilitation and replacement**

**Figure 26 - 10-Year Capital Plan by Branch**



**Figure 26** identifies the approved 2014 10-Year Capital Plan for the three main operational branches (Roads, Transit and Traffic Management and ITS)

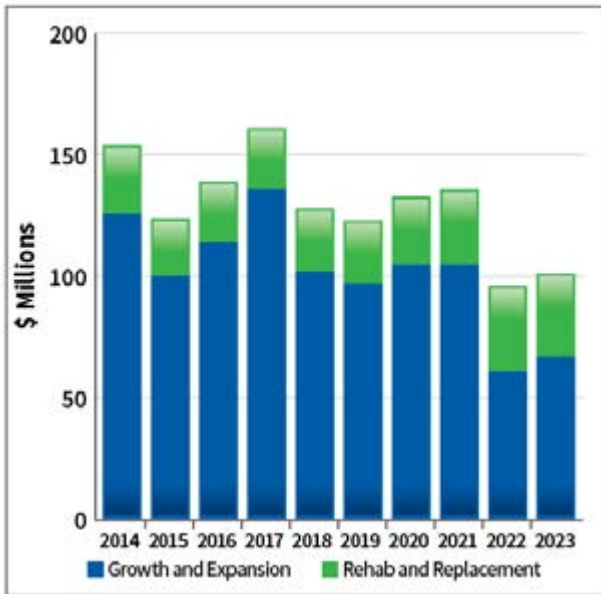
**Figure 27 - 10-Year Capital Plan (Growth and Rehabilitation)**



**Figure 27** identifies the approved 2014 10-Year Capital Plan for the three main operational branches split between growth and rehabilitation.

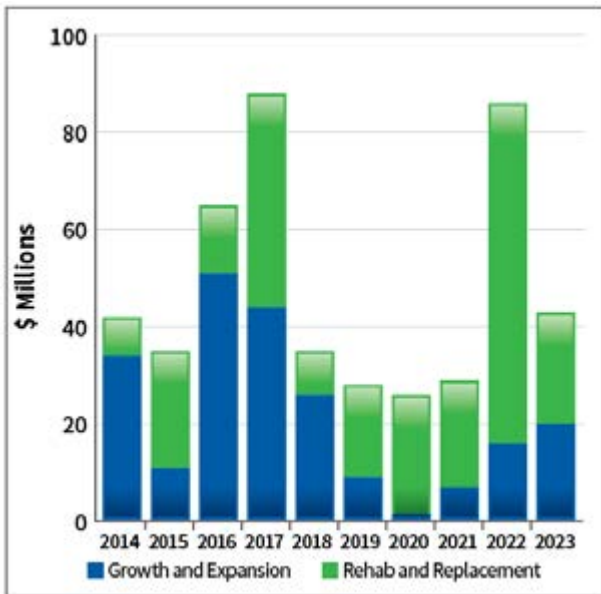
<sup>1</sup> The 10-Year Capital Plan does not include the Region's capital contribution to YRRTC (\$606M).

**Figure 28 - 10-Year Capital Plan - Roads**



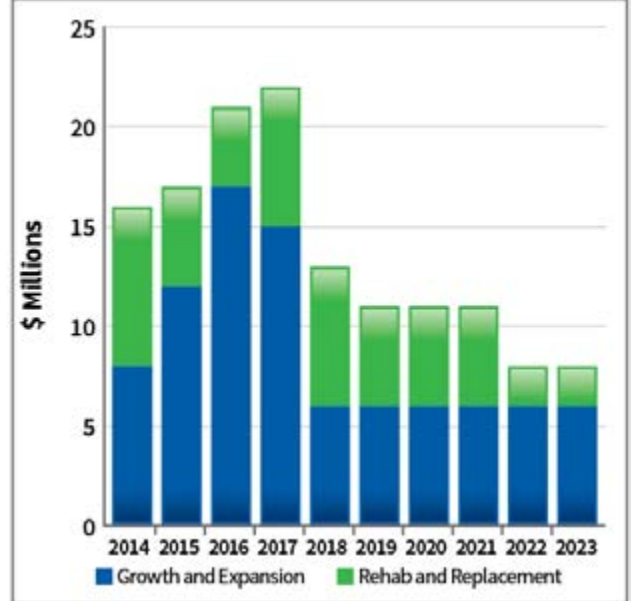
**Figure 28** illustrates the 10-Year Capital Plan for Roads yearly budget split between growth and rehabilitation.

**Figure 29 - 10-Year Capital Plan - Transit**



**Figure 29** illustrates the 10-Year Capital Plan for Transit yearly budget split between growth and rehabilitation.

**Figure 30 - Historic Cost Breakdown - Traffic Management and ITS**



**Figure 30** illustrates the 10-Year Capital Plan for Traffic Management and ITS yearly budget split between growth and rehabilitation.

As the Transportation and Community Planning Department improves its asset management practices, desired Levels of Service (intended to describe the quality of the services provided by the asset for the benefit of its users) will be created and approved by Council. As with any service levels, the higher the service level the higher the overall cost to achieve. The service levels will be defined based on a multitude of factors, one of which will be the availability of funds.

## 7.2 Asset Valuations

Asset valuation is the process of placing dollar values on infrastructure assets. The value of the infrastructure assets owned by the Region can be measured in a number of ways, with the two key valuation methods described in the following sections.

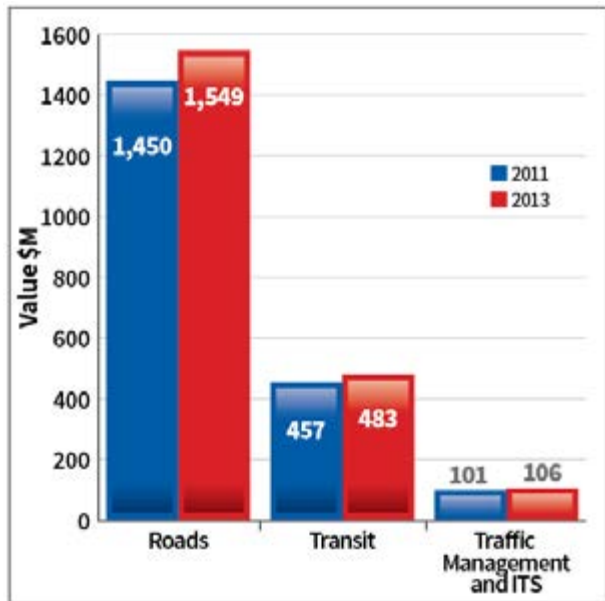
### 7.2.1 Historical Value

As a public sector entity, the Region complies with directives or regulations issued by the Public Sector Accounting Board (PSAB). Under PSAB 3150, the Region has implemented Tangible Capital Asset Accounting where all assets that met the definition of a Tangible Capital Asset are capitalized on acquisition values.

The Region's infrastructure assets are defined by its Tangible Capital Assets Policy. This policy provides definitions of capital assets, a classification of capital assets, and threshold values which an asset must meet to be considered a capital asset.

**Figure 31** shows the transportation historical asset values (a total of \$2.1 billion) that are recorded for the Region's Tangible Capital Assets Policy.

**Figure 31 - Historic Cost Breakdown by Branch**



### 7.2.2 Replacement Value

Of particular importance to effective long-term asset financial planning is replacement value (i.e. how much would it cost today to build a brand new asset meeting the same performance requirements of the existing asset).

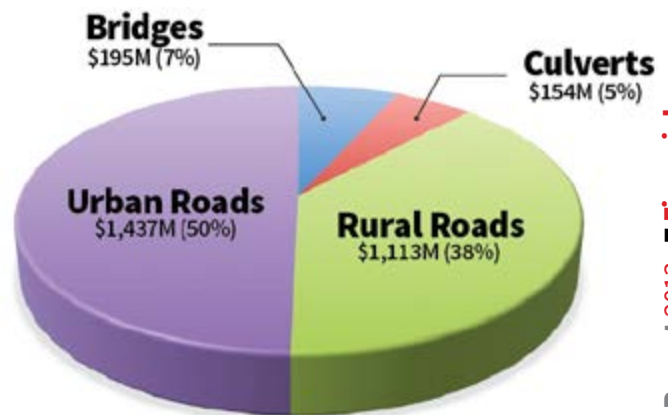
This is more relevant than historical value because it will provide estimates for the purposes of forecasting the replacement and rehabilitation expenditures required. It should be expected that the current replacement value of assets will be significantly higher than the historical value represented due to a multitude of factors including; inflation, safety standards, technology advancements and regulation.

To date, the Asset Management Group has completed an in-depth review of the replacement costs of the three of the Roads Branch major asset types:

- Regional roads (urban and rural)
- Bridges
- Culverts (>3 metre span)

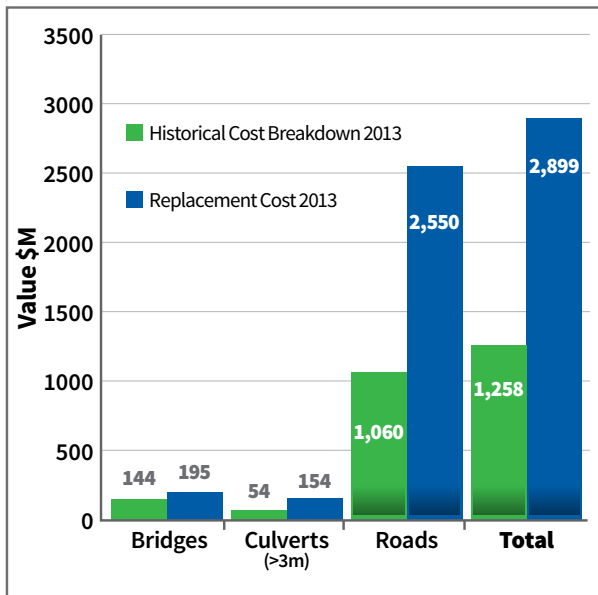
The replacement costs are shown in **Figure 32**.

**Figure 32 - Major Road Assets Replacement Cost 2013 - \$M (%)**



As an indication of how important the replacement cost “value” is to long-term financial planning **Figure 33** shows the comparison and resulting discrepancies between the historic and true replacement value. The replacement value is almost two and a half times higher. Using this value on all Transportation and Community Planning assets, the replacement value could be as high as \$5.25 billion (compared to the historic cost of \$2.1 billion).

**Figure 33 - Major Road Assets Comparison Costs 2013 (\$M)**



## 7.3 Reserves

The majority of assets owned by the Transportation and Community Planning Department are high value assets with long useful lives, often running into decades. With the Region currently investing substantially in delivering new transportation infrastructure due to growth, the asset base continues to increase. These assets generally require high initial capital investments, followed by routine maintenance and operating costs.

Throughout the asset life-cycle, periodic large capital rehabilitations (to maintain a state of good repair) are required to assist the asset in reaching the end of its useful life prior to that asset having to be reconstructed or disposed of.

Funding to keep the asset in a state of good repair can come from a variety of sources including property taxes, user fees, debt issuance and drawing on reserves. As infrastructure assets can have uneven capital investment requirements, over time reserves become an important tool for managing the Region’s infrastructure assets prudently. An important Regional goal is to maintain year-over-year continuity in the tax levies and user rates charged to residents. The existence of reserves promotes this type of continuity and stability.

Reserves and reserve funds have been long recognized as key elements of the Region’s current and future capital financing programs. The Region’s philosophy relating to reserves and reserve funds has been developed through a combination of historical prudence and the adoption of best practices among municipal governments. In 2007, the Region implemented capital asset replacement reserves to allow for the funding of rehabilitation and /or replacement of the Region’s capital assets and as part of the 2011 to 2015 Strategic Plan, a revised reserve policy to support long-term asset management was adopted.

These policies have allowed Regional Council to increase contributions to its capital asset replacement reserves. As of 2013, the contribution was 1.2 per cent of the annual tax levy. The contribution will be further increased by 0.2 per cent per year from 2012 until it reaches two per cent in 2017.

With transportation assets accounting for such a large portion of the Region’s assets (approximately 40 per cent), the Transportation and Community Planning Department is working with the Finance Department to create successful long-term asset management practices, including the best use of capital reserves.

## 7.4 *Other Levels of Government Ownership of Assets*

In addition to the many assets the Region owns and is required to fund the rehabilitation and replacement, the Region also operates and maintains a number of assets on behalf of other levels of government (lower-tier municipal, provincial and federal). The largest of these is the Viva Bus Rapid Transit network. When complete, dedicated lanes in the centre of the road “rapidways” will allow rapid transit buses to move out of congested traffic, enabling people to get around the Region’s busiest corridors faster by using transit. The first of the projects opened in August 2013 and the remaining two are scheduled to be complete by 2020, with 34.2 km of planned segregated routes.

These projects are part of Metrolinx’s \$1.4 billion commitment to improving transit in York Region, just one component of a larger \$9.5 billion commitment in the priority projects of Metrolinx’s Regional Transportation Plan, The Big Move.

A master agreement between Metrolinx, York Region Rapid Transit Corporation and The Regional Municipality of York governs the funding and ownership of the Bus Rapid Transit program in the Region.

This agreement states that Metrolinx will be responsible for asset preservation and replacement decision making and funding, while the Region will oversee and fund all day-to-day operations, routine maintenance and operation of the Viva service.





# 8 Appendix

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## *Sources of Data and Information*

### *Inventory*

- Roads - Extracted from Deighton's Total Infrastructure Management System (dTIMS) and Cityworks database
- Transit - PS3150 Tangible Capital Asset data - M5 CMMS
- Traffic - TOPS and Cityworks database

### *Condition*

- Roads – Road Condition Index – Extracted from Deighton's Total Infrastructure Management System (dTIMS)
- Roads – Bridge Condition Index – Extracted from the Structure Inventory and Inspection Bridges, Culverts and Retaining Walls 2012 report
- Roads/Transit/Traffic – Age and Life Expectancy – Extracted from Public Sector Accounting Board's, PS3150 Tangible Capital Asset reporting requirements, M5 CMMS

### *Reliability*

- Roads – Load Restrictions – Regional bylaws (<http://www.york.ca/wps/portal/yorkhome/yorkregion/yr/bylaws/signsonregionalroads>)
- Roads – Areas prone to flooding – Roads Branch observations
- Transit – Mean Distance Between Failures – YRT/Viva Quarterly Reports, M5 CMMS
- Transit – On-time performance – YRT/Viva Quarterly Reports

### *Capacity*

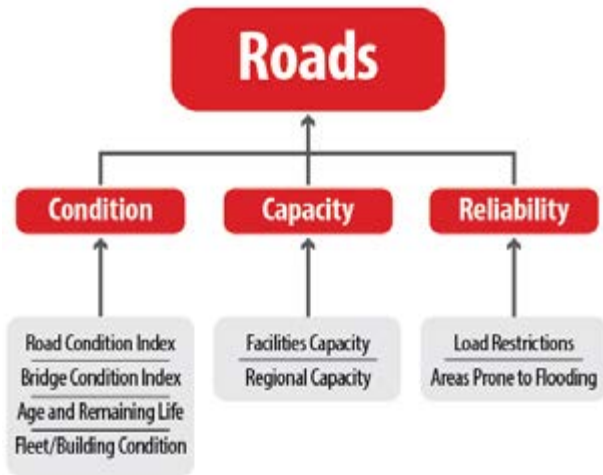
- Roads – Regional Capacity - Region's Travel Demand Forecasting Model
- Roads - Facilities - Roads Branch
- Transit – Demand Capacity – YRT/Viva Quarterly Reports
- Transit - Facilities Capacity – Facilities Strategy
- Traffic - Coverage of Traffic Control Signals by CTCS – Traffic Branch
- Traffic - Road Network Served by CTCS – Traffic Management and ITS Branch

### *Financial*

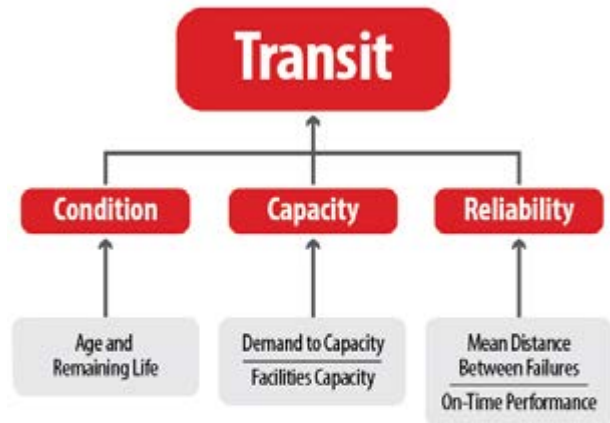
- 10-Year Capital Plan - 2014 Business Plan and Budget - Capital
- Roads/Transit/Traffic – Historical Cost - Extracted from the Public Sector Accounting Board's, PS3150 Tangible Capital Asset reporting requirements

## Criteria and Measures by Branch

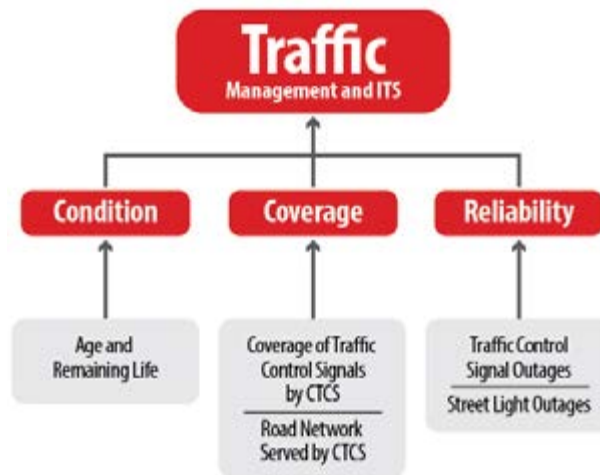
Roads Report Card

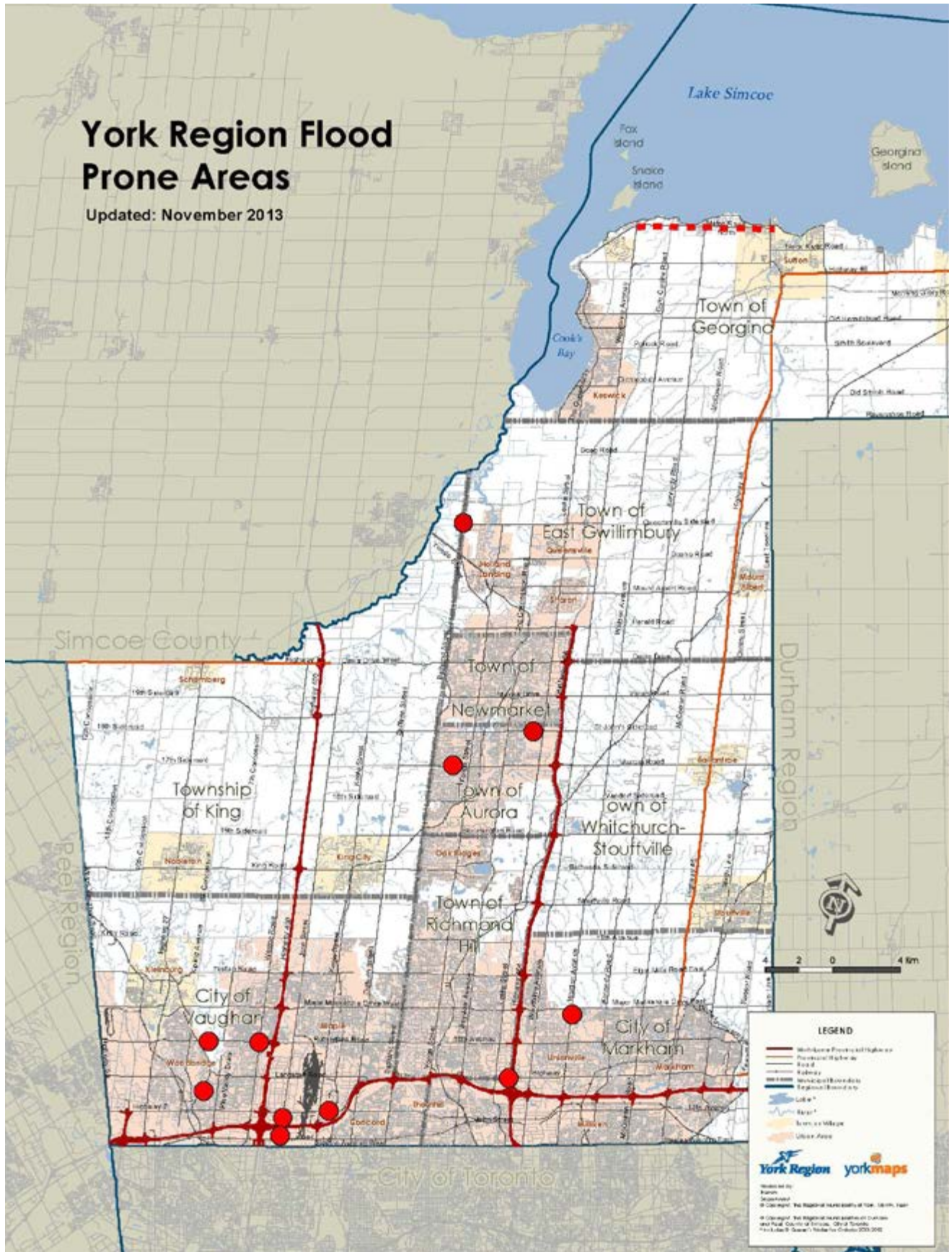


Transit Report Card



Traffic Report Card





# Road Capacity Condition Volume to Capacity Ratios

**Legend**

- Good (V/C less than 0.70)
- Fair (V/C between 0.70 and 0.89)
- Poor (V/C greater than or equal to 0.90)

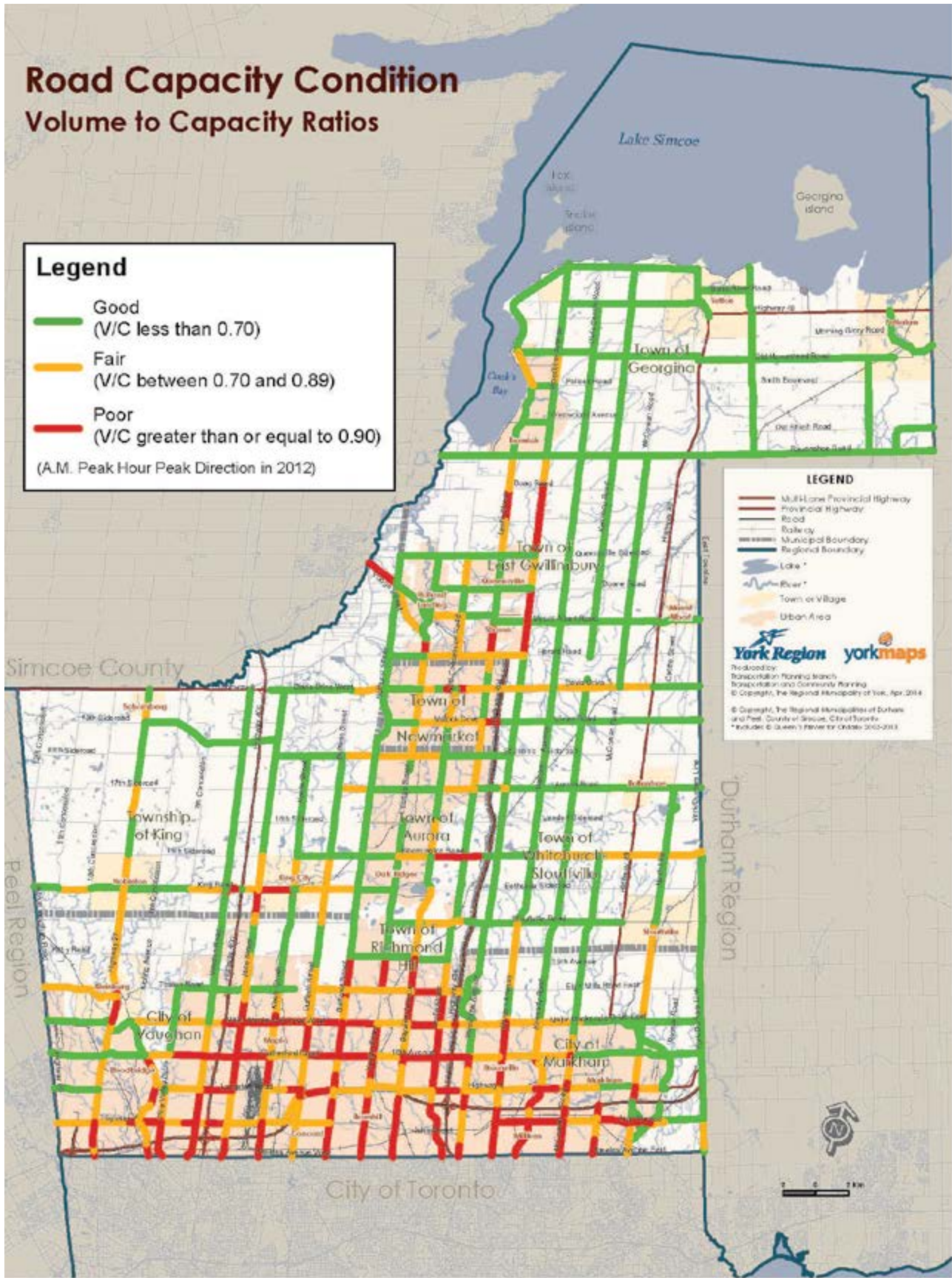
(A.M. Peak Hour Peak Direction in 2012)

**LEGEND**

- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Railway
- Municipal Boundary
- Regional Boundary
- Lake \*
- River \*
- Town or Village
- Urban Area

**York Region yorkmaps**

Prepared by: Transportation Planning Branch  
 Transportation and Community Planning  
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# STATE of *Infrastructure* **REPORT CARD** 2013

THE REGIONAL MUNICIPALITY OF YORK

