

Integration of Trees into Roads Policy

- the road to success -

Trees, People and the Built Environment 3

City of Birmingham, UK

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Presentation:

- Background – who, where...
- Historical perspective – trees and roads
- Current legislation and policy framework
- York Region street trees and streetscaping
- Street design, urbanization and making space for trees
- Key learning and messages

**Investment in green infrastructure
advances multiple Regional goals**



Where:

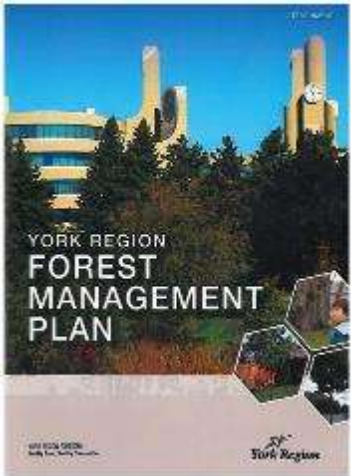
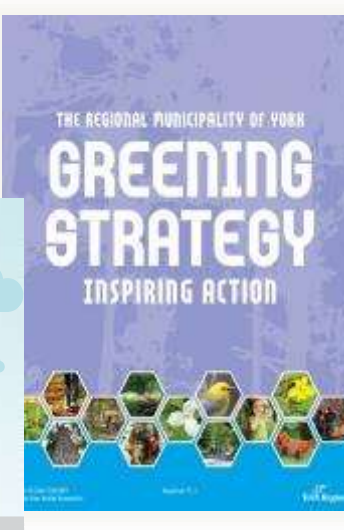


The Regional Municipality of York

- 9 local municipalities with cities and towns
- Population currently 1.2M
- Just north of City of Toronto
- 4,011 km of Regional Roads
- 80,000 street trees



York Region Forestry



Green Infrastructure

York Region Forestry – Urban Forestry

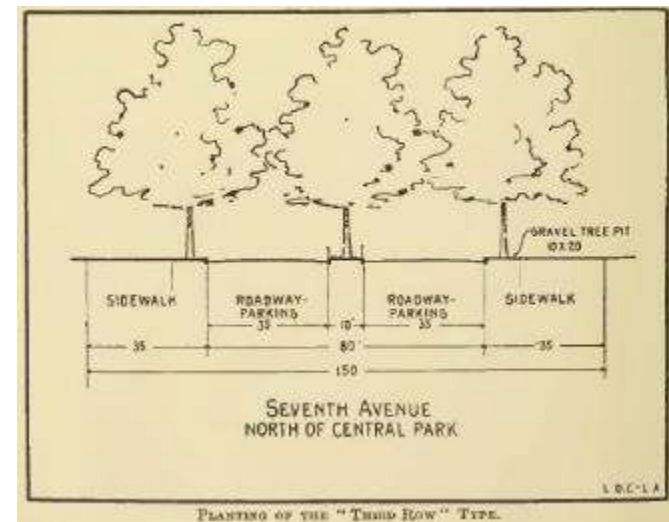
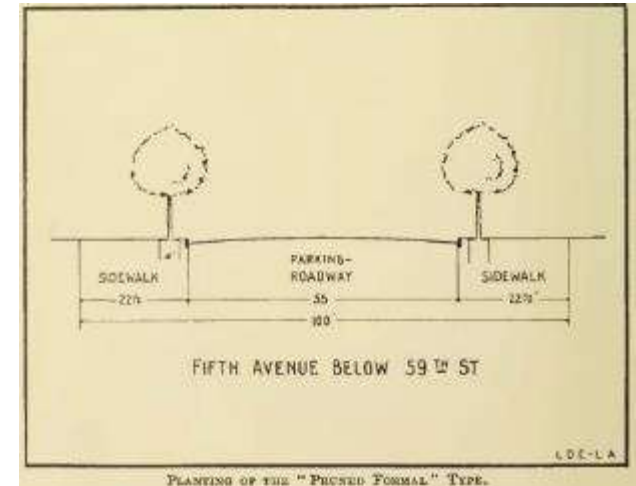
- Responsible for green infrastructure
- Capital project planning, design, review and maintenance
- Streetscaping - trees and vegetation
- 60,000 urban 20,000+ rural street trees



History of Streets ...Parks ...and Parking

- 1870 Washington DC – Congress law required 50% of width of street for trees and sidewalks
- System with roadway in the centre and parks on either side
- ‘parking’ originally referred to trees and paths along streets
- 1910 - 20’s parking of carriages and vehicles replaced the ‘parking’ of trees along the roadway edge

(Richmond 2015)



Legislation and Policy Framework

JURISDICTION

EXAMPLES



FEDERAL (Canada)



PROVINCIAL (Ontario)



MUNICIPAL

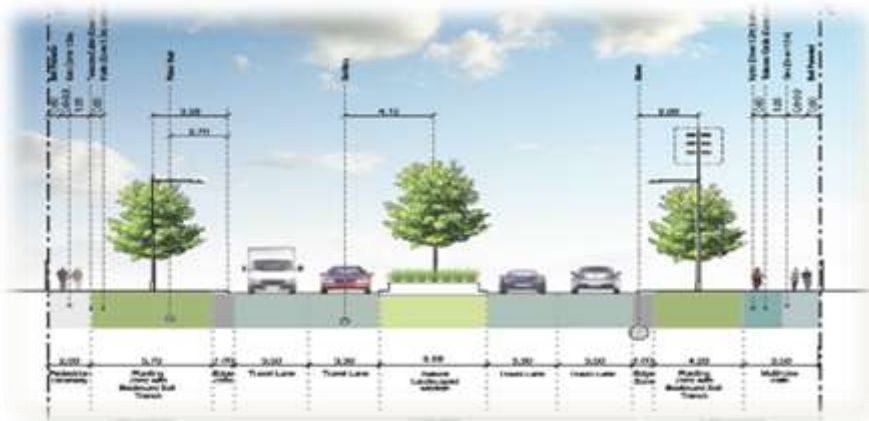
- Transportation Act
- Fisheries Act
- Environmental Assessment Act
- Plant Protection Act

- Highway Traffic Act
- Making Ontario Roads Safer Act
- Oak Ridges Moraine Conservation Act
- Environmental Assessment Act
- Planning Act
- Municipal Act

- By-laws e.g. Tree cutting, Fill, Parking
- Strategic Plans e.g. Regional Official Plan, Transportation Master Plan, Streetscaping Policy, Greening Strategy

Road safety legislation, policy and guidelines - duty of care

- Transportation Association of Canada promotes safe transportation in support of Canada's social and economic goals
- Guidelines, standards and best practices for transportation design and maintenance
- *Municipal Act* – e.g. Regulation for minimum maintenance standards



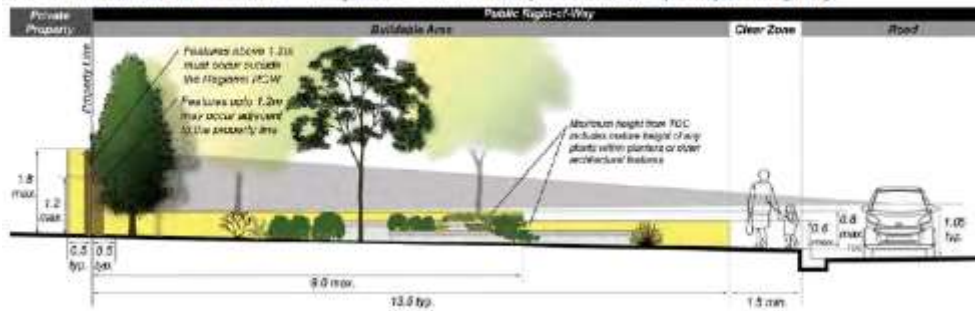
Road Safety – Design Guidelines

- Traffic design and travel speeds
- lane widths and turning radii
- Pavement markings and signage
- Sidewalk and cycling separation
- Universal accessibility
- Sight lines e.g. intersections
- Traffic calming



Elevation A-A': 15 x 15 Sight Triangle Architectural Feature Options

Notes: • All measurements in metres unless noted otherwise • Drawing is not to scale • Clear zone must be kept clear of all trees • Notes pertain only to indicated sight triangle

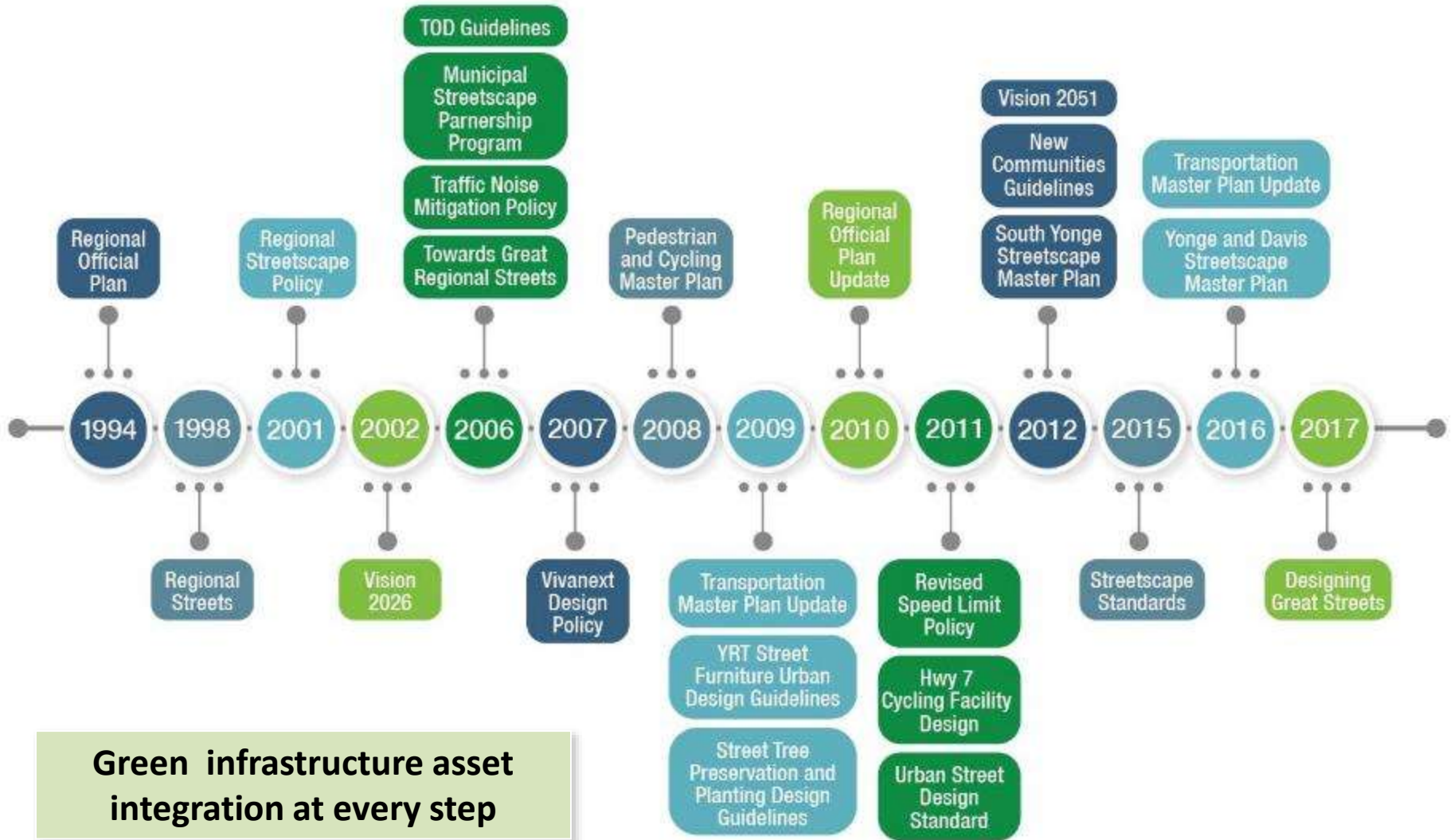


Urban Forestry Program

- Plan, input and review of green infrastructure in capital projects e.g. roads
- Street tree planting – species, locations etc.
- Juvenile tree maintenance
- Structural pruning
- Mature tree maintenance including hazard tree removal
- Woody vegetation maintenance and clearance e.g. sight lines, sign and intersection clearance



Streetscaping – policy, guidelines and master plans



Avoid this...

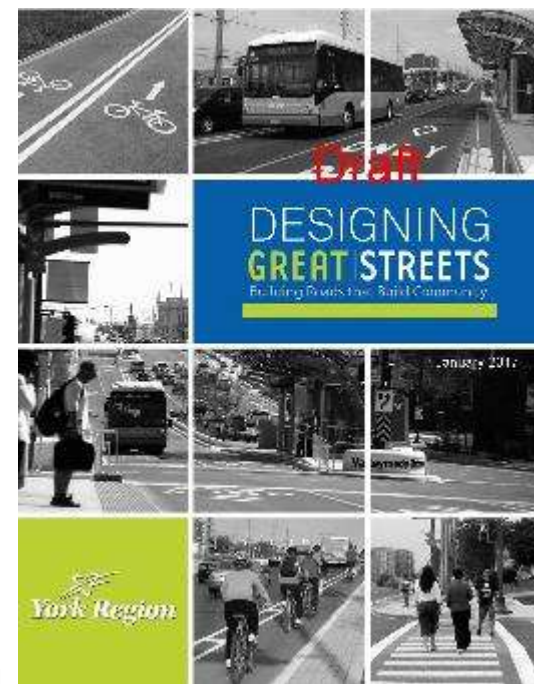


Designing Great Streets - Vision

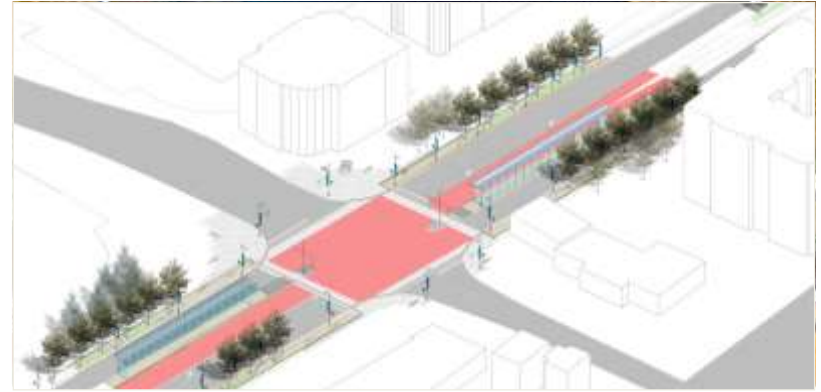
“To create vibrant streets for York Region that provide a range of safe and reliable transportation options, while being sensitive to the adjacent land uses and the needs of the community.”

- 6 road types; City Centre Street, Avenue, Main Street, Connector, Rural Road, Rural Hamlet
- Context sensitive solutions with best design practices for efficient vehicle travel, safe cycling and pedestrian use
- Integration of green infrastructure, art, street furniture...

Functional communities, safe spaces, complete streets

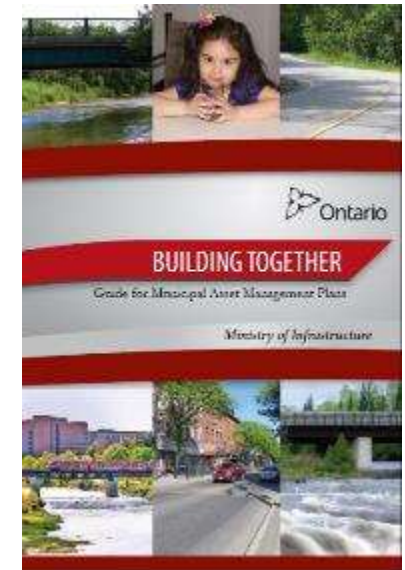
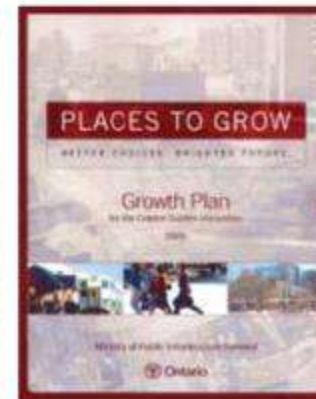
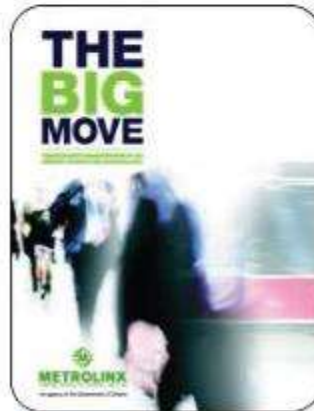
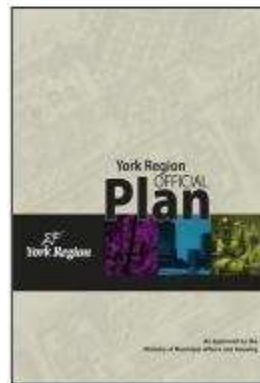
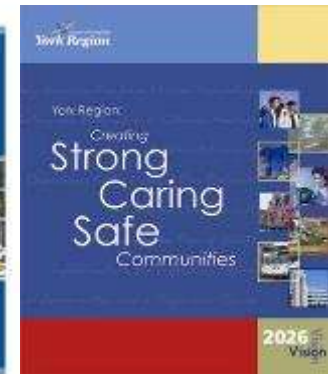
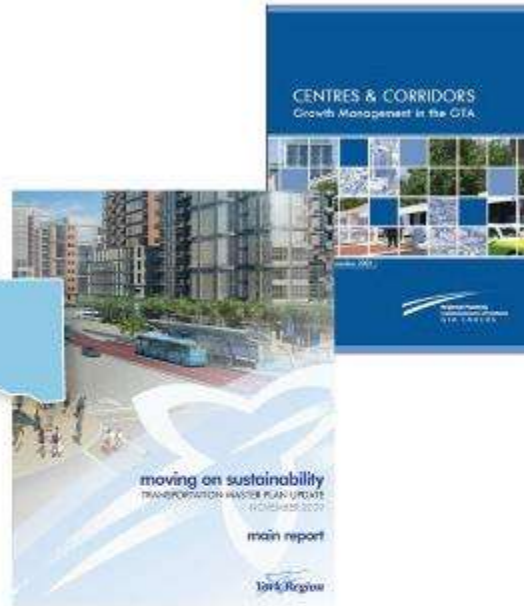


Setting the cues for urban enhancement and safety



Making space for nature

Alignment with federal and provincial planning



York Region Rapid Transit Corporation

- Share Capital Corporation owned by York Region
- Projects reflect vision of Transportation Master Plan
- Including multiple transit modes and centre line bus rapidways
- “Viva” brand
- Medians and boulevards: trees, shrubs, perennials and more...



New strategies for a changing Region

Comprehensive phased program



£2.2B

\$3.6 B FUNDED

- BRT [Rapidways]
- Spadina Subway Extension
- Facilities and Terminals



2000 2005 2010 2015 2020 2025 2030 2035 2040 2045

£5.7B
or

\$9.3 B UNFUNDED PRIORITIES

- Yonge-North Subway Extension
- BRT [Rapidways]

Driving investment in transportation, communities and the urban forest

vivaNext \$3.6B of infrastructure underway



Soil Cells in Urban Streetscapes

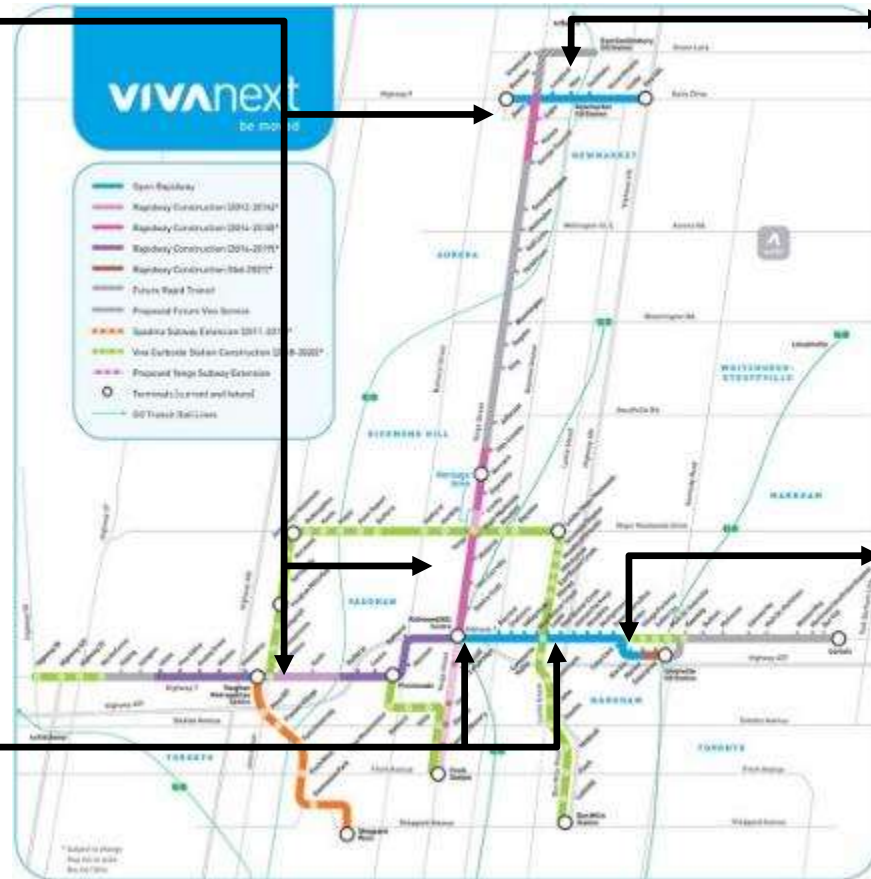
- By 2020 36 km of road with soil cells (18,000 m³ of soil)



Cupolex Rialto



Cupolex



Silva Cell



Strata Cell

We have come a long way... since 2005

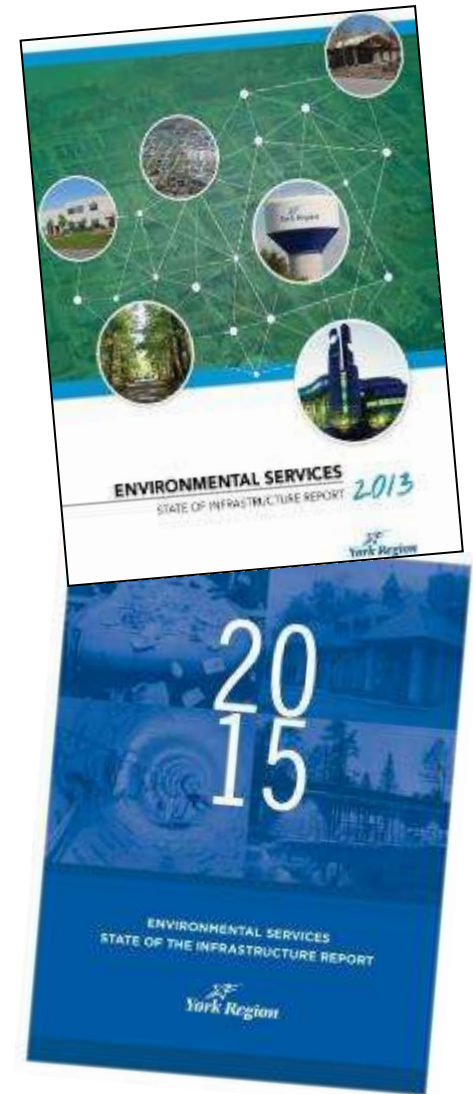


**Measuring success – decreased travel times, increased ridership ...
and improved street tree health**

Key Messages: Green infrastructure as an asset

- Green infrastructure managed as an asset
- 2013 and 2015 State of the Infrastructure Reports include green infrastructure
- 2017 Green Infrastructure Asset Management Plan underway
- *Municipal Act* amendment -municipal policy to “protect and enhance tree canopy and natural vegetation” (Nov 2016)
- Ontario Public Sector Accounting Board considering trees and forests as a Tangible Capital Asset (Nov 2016)

Invest in green infrastructure for multiple benefits



Key Messages: soil, space and water

- Soil quality and volume impacts life span, size and health of trees
- Performance target 40 cm (dbh) 40 years
- To achieve this 30 m³ of soil required or 16 m³ per tree with ability to share root space
- Utilize automated irrigation technology
- Drainage and monitoring is critical



Granitic Coarse Sand
45% +/- 10%



Topsoil
45% +/- 10%



High-lignin Organic Matter
10% +/- 2%



Key Messages: species, locations and monitoring

- Choose tree species and locations wisely
- Design for optimum health and the long term – top performers
- Stick with your specifications and criteria
 - saying no to trees is ok!
- Keep up with technology and science: species, soils, soil cells, climate change...
- Learn from experience – monitoring, continuous improvement and optimization



Performance = credibility ... street credibility

Success ... bringing the 'park' back to our streets

