



A Roadmap for Green Infrastructure in Ontario

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April 28th, 2017

Green Infrastructure Ontario Coalition

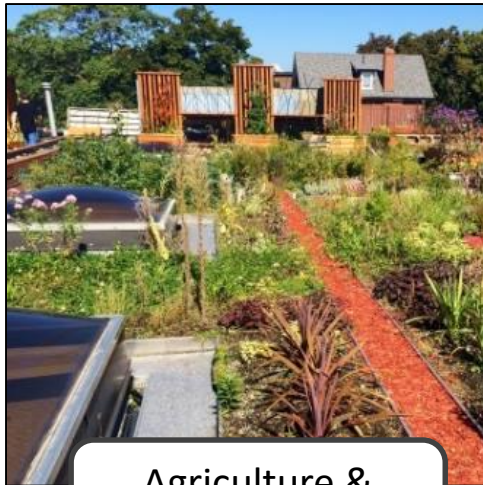
1. Green infrastructure & GIO overview
2. Roadmap Vision
3. Roadmap Tracks & Short Term Objectives



Green Infrastructure Overview



It encompasses:



Agriculture &
Urban Agriculture

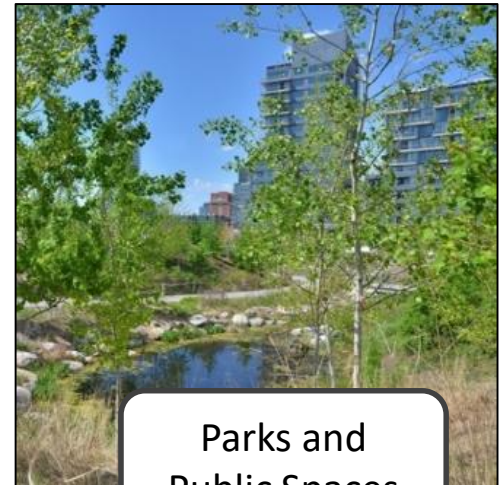
Green
Roofs/Walls



Urban
Forest



Stormwater
Systems



Parks and
Public Spaces

Natural
Heritage



Green technologies
Eg. Permeable pavement



Soils

Advocacy & Communications

Our members are:

- Businesses
- Industry professional associations
- Municipal governments
- Conservation Authorities
- ENGOS



1

Fed. and Prov. infrastructure funding for green infrastructure projects:

- The Federal government - **\$120 billion** over 10 years.
- The Province of Ontario - **\$160 billion** over 12 years.

2

Green infrastructure integrated in to:

- Asset Management Planning
- Growth Planning
- Climate Change Plans
- Stormwater Management Guidelines

- Partnership with  Clean Air Partnership
- Set the vision for green infrastructure in Ontario

Green Infrastructure is the New Normal

- Implemented collectively by a wide variety of organizations

Roadmap Vision and Interim Milestones

2017 Current

Green infrastructure is emerging



2020 Milestone

Green infrastructure is on a level footing



2030 Milestone

Green infrastructure is the preferred option



2040 Vision

Green infrastructure is the default



Four key action tracks

Track 1

Study green infrastructure performance and raise awareness and communicate the benefits and business case

Track 2

Create a green infrastructure-positive regulatory and funding environment

Track 3

Incorporate green infrastructure in asset management

Track 4

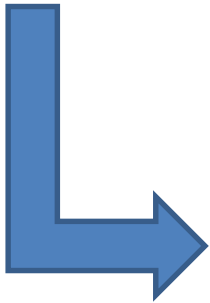
Support green infrastructure practitioners and others with tools, training and resources

Track 1

Study green infrastructure performance and raise awareness and communicate the benefits and business case

Strategy 1A

Monitor performance and communicate green infrastructure cost/benefits to key influencers in municipalities, province and development community.



Objective 1.1: Municipal leaders show increased willingness to implement green infrastructure.

Objective 1.2: Green infrastructure stakeholders implement and monitor performance (including costs) of projects.

1. Capital cost savings

- Cincinnati, Ohio: Green Infrastructure approach is \$200 million less expensive than the deep tunnel.

2. Lifecycle cost savings

- Lancaster, Pennsylvania: Green infrastructure plan will reduce long term wastewater pumping and treatment (operations) costs by \$661,000 per year.

3. Secondary services

- The value of natural green infrastructure is compounded due to the multiple functions it performs.



Track 1

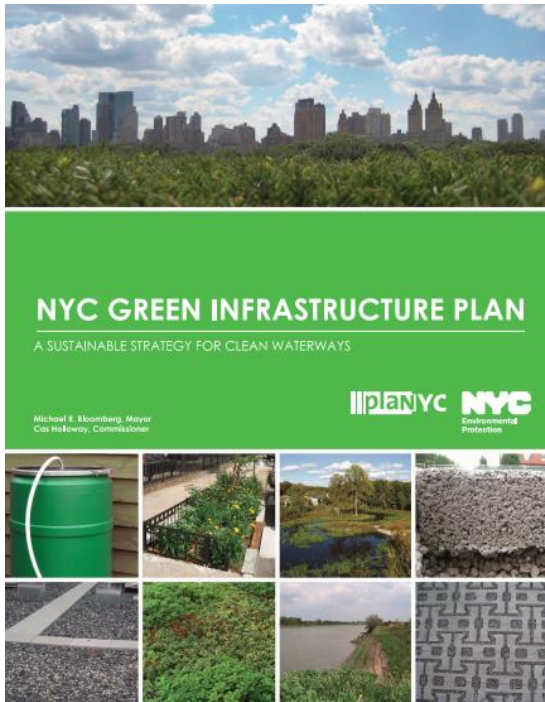
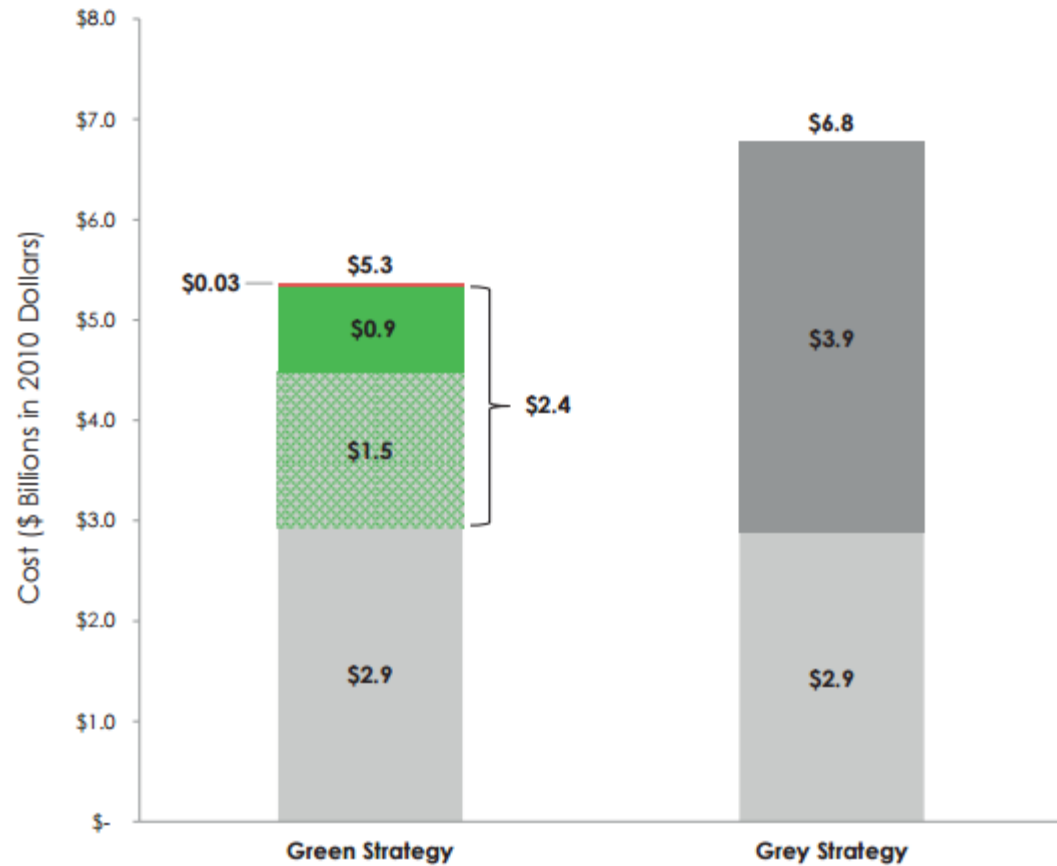


Figure 3: Citywide Costs of CSO Control Scenarios (after 20 years)



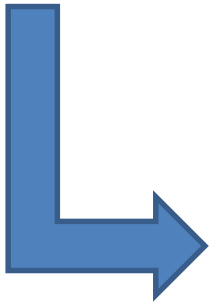
- Cost-Effective Grey Investments
- Green Infrastructure - Public Investment
- Optimize Existing System
- Reduced Flow
- Green Infrastructure - Private Investment
- Potential Tanks, Tunnels, & Expansions

Track 2

Create a green infrastructure-positive regulatory and funding environment

Strategy 2A

Remove funding barriers and seize legislative/planning opportunities

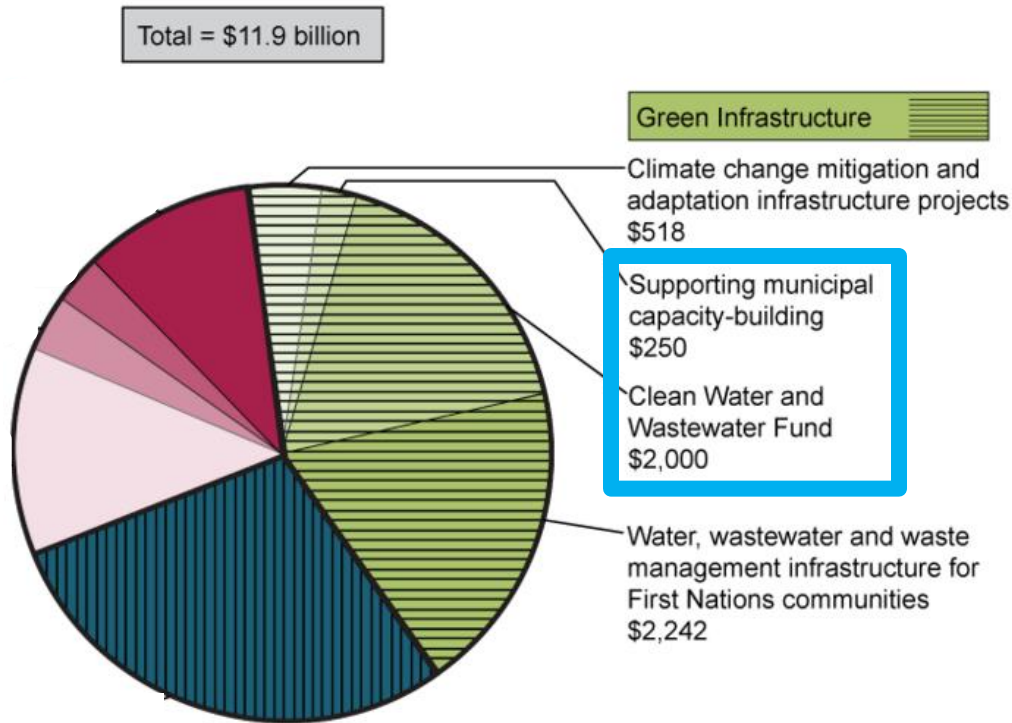


Objective 2.1: Ensure green infrastructure qualifies for provincial and federal infrastructure funding.

Objective 2.2: Ensure green infrastructure is included in climate adaptation plans at all levels.

Objective 2.3: Create specific funding streams for green infrastructure.

2016



2017

- Pan Canadian Framework on Clean Growth and Climate Change
 - \$2 billion for a Disaster Mitigation and Adaptation Fund.
- Bilateral Agreements

Building Together: Jobs and Prosperity for Ontarians

- Two References to green infrastructure



“Green infrastructure” is another way to reduce the need for costly, large-scale solutions. It uses natural processes like infiltration and evaporation, often on a small scale close to the source, to reduce the burden on built systems. Green infrastructure is in use across Ontario:

Infrastructure Funding Recommendations:

- Allocate 15% of infrastructure funds to a dedicated funding stream for green infrastructure.
- Implement a 'consider green infrastructure first' policy for infrastructure funding.
- Work with partners to develop and implement a green infrastructure strategy.

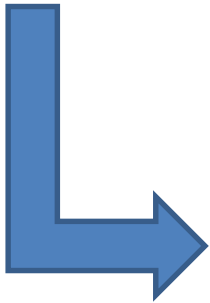
- PPS, 2014 Green Infrastructure Definition
- Land Use Planning Amendments (Growth Plan & Greenbelt Plan)
- Great Lakes Strategy & Great Lakes Protection Act
- Ontario Climate Change Strategy
- MOECC Stormwater LID Guidelines
- Modernizing Ontario's Municipal Legislation Act

Track 3

Incorporate green infrastructure in asset management

Strategy 3A

Identify barriers to adding green infrastructure assets to asset management systems and remove those barriers.



Objective 3.1:

Local and provincial politicians show support for inclusion of green infrastructure in asset management systems.

Objective 3.2:

The leading software tools for asset management can be applied to at least some green infrastructure asset classes.

Ontario's Municipal Infrastructure Strategy

- Directly links infrastructure funding to asset management plans

Infrastructure for Jobs and Prosperity Act

- Regulation for municipal asset management planning



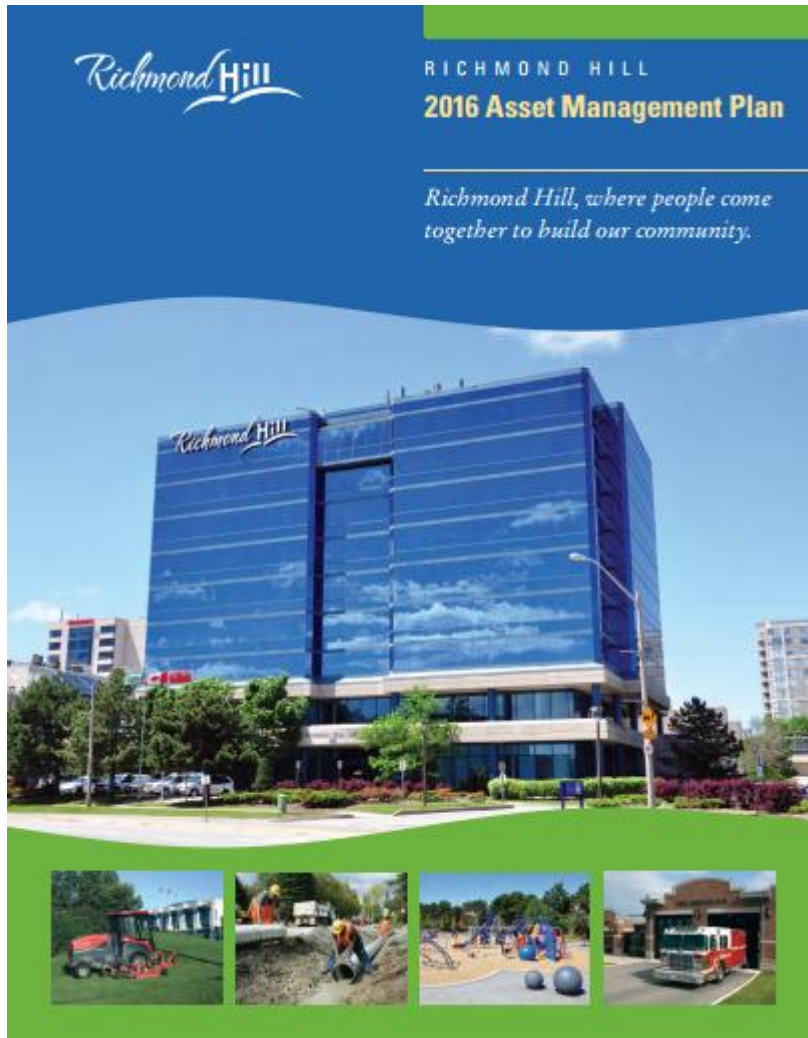













Table 2: Asset Classes and Services Supported

Asset Class	Components	Services Supported
Roadway System	Road surface & road base Bridges & culverts Signs, lighting, sidewalks Traffic signals	Local transportation Transit (service provided by York Region) Cycling and pedestrian active transportation Delivery of goods Emergency services
Buildings	Structural Architectural Mechanical Electrical	Arts, culture & library Community centres & arenas Fire services General government administration Heritage preservation
Stormwater Management	Stormwater management facilities Stormwater pipes Catchbasins, Manholes	Conveyance of water Flood and erosion control Water quality treatment
Water Network	Water pipes Water valves Water meters	Delivery of potable drinking water
Wastewater Network	Wastewater pipes Pumping stations	Sewage collection
Parks & Outdoor Recreation	Pathways & trails Playgrounds & waterplays Servicing & furnishings Sports facilities	Sports Outdoor recreation Walking paths & trails
Parking Lots	Subcomponents not available	Support to Buildings and Parks services
Vehicles & Equipment	Fire fleet Other vehicles & equipment such as: bylaw enforcement vehicles, dump trucks, snow plows, mowers, front end loaders	All municipal services
Information Technology	Hardware, software, telecom	All municipal services
Other Equipment & Materials	Library materials Small tools & equipment Furniture	Libraries Fire services Community centres
Environmental Assets	Street trees Natural forest areas Valleyland capital assets	Tree cover Conveyance of water Biodiversity Stormwater and Erosion control Clean air Greenspace recreation for residents

State of Infrastructure Report

2.0 Summary of Results

Resulting overall grades and predicted trends for 10 services areas across the corporation are summarized in the table below.

Service	Overall Grade	Trend																					
 Administrative Facilities	C	↔	<table border="1"> <thead> <tr> <th colspan="2">Grade</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Very Good</td> </tr> <tr> <td>B</td> <td>Good</td> </tr> <tr> <td>C</td> <td>Fair</td> </tr> <tr> <td>D</td> <td>Poor</td> </tr> <tr> <td>F</td> <td>Failed</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">Trend</th> </tr> </thead> <tbody> <tr> <td>↑</td> <td>Positive</td> </tr> <tr> <td>↔</td> <td>Neutral</td> </tr> <tr> <td>↓</td> <td>Negative</td> </tr> </tbody> </table>	Grade		A	Very Good	B	Good	C	Fair	D	Poor	F	Failed	Trend		↑	Positive	↔	Neutral	↓	Negative
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 Forestry	B	↑																					
 Housing	B	↔																					
 Long-Term Care	B	↔																					
 Paramedic Services	A	↔																					
 Police	B	↑																					
 Roads	B	↔																					
 Transit	B	↔																					
 Waste Management	A	↔																					
 Wastewater³	A	↔																					
 Water	A	↔																					



- **Municipal Natural Assets Initiatives – Pilot Projects**
 - Peel Region
 - Town of Oakville
- **GIO Advocacy**
 - Regulations
 - Public Sector
Accounting Board



Asset Management Regulation - Recommendations:

- Do not include a prescribed 'level of service' definition
- Green infrastructure must not only be documented and considered, but assessed for when it may become more financial viable when evaluating lifecycle management strategies.

PSADG Nov 18-2016 – Submission:



- Asserted that urban forests can be measured and should be recognized as assets
- Challenged recognition prohibitions relating to inherited natural resources

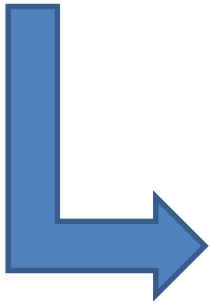
“because the costs, benefits and economic value of such items cannot be reasonably and verifiably quantified using existing methods”

Track 4

Support green infrastructure practitioners and others with tools, training and resources

Strategy 4A

Understand gaps and how best to fill needs of practitioners.



Objective 4.1:

There is a clear understanding of what green infrastructure tools, resources, and training are needed and how to deliver them.

- **Conservation Authorities – LID training**



LID Training

Upcoming Events

COURSE	DATE	TIME
How to Properly Construct Low Impact Development Stormwater Management Practices	May 10, 2017	8:30 a.m. – 5:00 p.m.
WEBINAR: Event-Based Monitoring and Modelling of Soil Loss from Southern Ontario Basins during Pre-Development and Development Activities	May 24, 2017	12:00 p.m. – 1:00 p.m.
Low Impact Development (LID) Stormwater Management (SWM) Treatment Train Design Practices	June 15, 2017	8:30 a.m. – 4:00 p.m.
Making it Work: LID Construction, Inspection, and Certification	June 16, 2017	8:30 a.m. – 4:00 p.m.

- **GIO Website (www.greeninfrastructureontario.org)**

- A shared measurement report on status of the various objectives
- Include inspirational examples (with pictures).
 - Eg. objective 1.1 could discuss the City of Vancouver green infrastructure strategy and team.



- Buy in to the vision
- What are the key interventions/actions needed?
- What does your municipality need?

www.greeninfrastructureontario.org

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