

Green Infrastructure Policy in Ontario

Michelle Sawka
Green Infrastructure Ontario
Coalition

Clara Blakelock
Green Communities Canada/Green
Infrastructure Ontario Coalition



Outline

- 1. GIO Coalition Overview
- 2. Green Infrastructure Definition
- 3. State of Green Infrastructure Policy in Ontario
- 4. Municipal Policies for Green Infrastructure
- 5. Green Infrastructure Asset Management Planning



Steering Committee























GIO Members

Conservation Authorities







Government

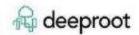






Industry







ENGOs







Academia





VISION



Green infrastructure is the NEW NORMAL



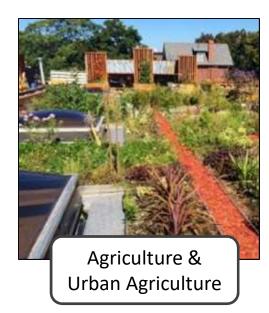
What is green infrastructure?





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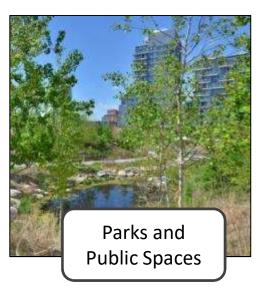
It encompasses:











Natural Heritage



Green infrastructure includes:



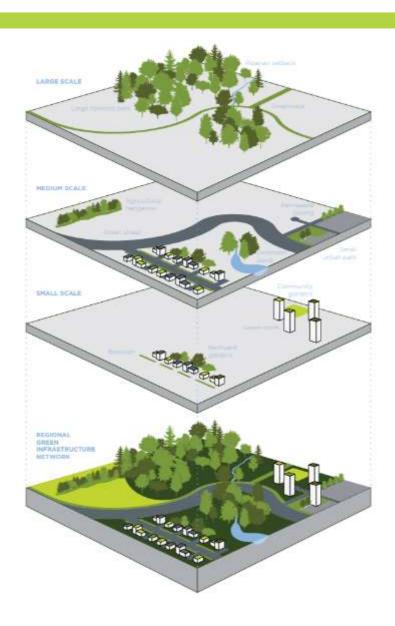
Green technologies
Eg. Permeable pavement



Soils



Green infrastructure is a network





Policy Change

Since 2014, green infrastructure has been included in:

- O. REG. 588/17: Asset Management Planning for Municipal Infrastructure (2018)
- Modernizing Ontario's Municipal Legislation Act, 2017
- Growth Plan for the Greater Golden Horseshoe & Greenbelt Plan (2017)
- Wetland Conservation Strategy (2017)
- Federal Infrastructure Clean Water and Waste Water Fund (2016)
- Pan Canadian Framework on Clean Growth and Climate Change (2016)
- Great Lakes Protection Act, 2015
- Provincial Policy Statement (2014)





Provincial Policy Statement



Under the Planning Act

Ontario.ca/PPS

Ontario

"Green infrastructure: means natural and human made elements that provide ecological and hydrological functions and processes. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces, and green roofs."



Municipal Green Infrastructure implementation





Green infrastructure "Hot Buttons"

- Beaches/tourism
- Drinking water
- Combined sewer overflows
- Fishing/ fish habitat
- Saving money
- Climate adaptation
- Wet basements/flooding
- Urban heat island
- Beautification
- Pollinators
- Carbon sequestration
- Public access to green space







Demonstration projects

- Prove green infrastructure effectiveness in local context
- Different locations— private residential, commercial, right of way etc.
- Organized by community groups, municipality







Community Support

- Build public goodwill and understanding (demo projects help)
- Use private property for green infrastructure
- Support green infrastructure when plans are under review
- Support funding for green infrastructure (e.g. stormwater fees)

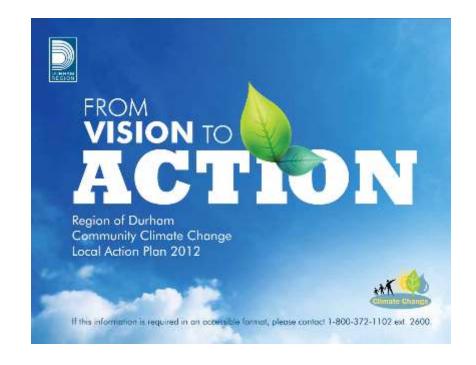






Incorporating green infrastructure into plans and policies

- Official Plans
- Stormwater
- Watershed and source protection
- Sustainability
- Climate adaptation/flood management
- Asset management
- Urban forestry
- Complete Streets (transportation)





GREEN INFRASTRUCTURE

IN ONTARIO'S OFFICIAL PLANS

AN UPDATE - JULY 2017

Who mentions green infrastructure?

Cities and Towns:

- o City of Ottawa
- o City of Toronto
- o City of Chatham-Kent
- o North Dumfries (Waterloo)
- o City of Brantford (Brant)
- o City of Oshawa (Durham)
- o Town of Ajax (Durham)
- o City of Brampton (Peel)
- o City of Mississauga (Peel)
- o Town of Oakville (Halton)
- o City of Kitchener (Waterloo)
- o City of Markham (York)
- o City of London (Middlesex)
- o City of Samia (Lambton)
- o City of Kenora
- o City of Temiskaming Shores
- o City of Thunder Bay

Counties:

- o Essex County
- o Leeds & Grenville County
- o Northumberland County
- o Prince Edward County

Regions:

o Niagara Region

bold represents plans since 2015 that have added green infrastructure mentions

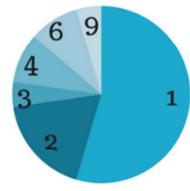
How often is green infrastructure mentioned?

22 of 93 official plans examined (23%) mention green infrastructure

16 plans have only 1-2 mentions (3 of these mentions are in the glossary only)

3 plans have 3-5 mentions

3 plans have 6-9 mentions



Number of green infrastructure mentions in the 22 plans

Mentions of green infrastructure added since 2015

- o Chatham-Kent added 1 mention o There were no new mentions in Regional plans
- o The City of Oshawa added 8 more mentions since the last assessment o Prince Edward County added 2 mentions
- o The City of Brantford added 1 mention

19 of the 22 plans that mention green infrastructure are from the last 3 years (4 are drafts)



Ontario that have added green infrastructure since 2015

O

Number of times the City of Oshawa mentions green infrastructure in their Official Plan

components in plans

Green infrastructure



Stormwater Management Systems and Climate Change Impact: 13 of 22



Urban Forest: 8 of 22



Green Roofs: 8 of 22

Urban Agriculture: 2 of 22

Urban Agriculture

Was included in 2 of the 4 Official Plans that added green infrastructure since 2015







Building capacity

- Professional development for municipal staff, practitioners
- Adopt local design standards
- Break down silos between municipal departments, the public





Make green infrastructure normal.

- Institutionalize its use in municipal construction (streets, parking lots etc.)
- Requirements for new construction/ redevelopment (infiltration targets, trees, soil volumes etc.)
- Incentives for private property (grants, lowered fees etc.)





City of Kitchener

- Stormwater user fees since 2012
- Credits for green infrastructure on private property
- RAIN community engagement program through REEP Green Solutions
- Integrated Stormwater Master Plan (2016)
- 12 mm runoff volume control required for new development and redevelopment (including road reconstruction)





City of Vancouver

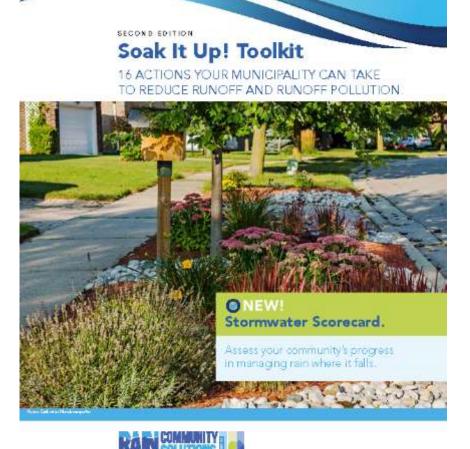
- Ambitious targets:
- 25 mm of rain absorbed
- 25 mm of rain treated/cleaned
- 90% captured and treated
- \$1.5M for GI team, plan.
- Multiple drivers (water quality, CSOs, biodiversity, flood prevention, climate resiliency)
- Rain gardens, green alleys, daylighting creeks, and more.
- Rain is a resource.





Learn More

- Soak it up! 16 actions your municipality can take to reduce runoff and runoff pollution
- Available at:
 http://www.raincommunitysolutions.ca/
 en/toolkit/



Clara Blakelock and Clifford Maynes, Green Communities Canada Second Edition, published 2017 | Quota or excerpt with credit

info@raincommunitysolutions.ca

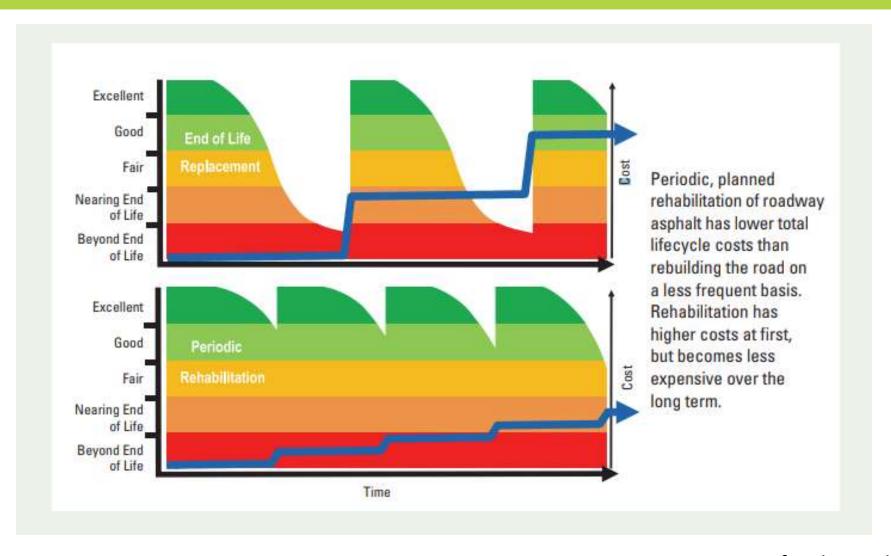


Asset Management





Asset Management Planning



Source: Town of Richmond Hill



O. REG. 588/17 ASSET MANAGEMENT PLANNING FOR MUNICIPAL INFRASTRUCTURE

5. (1) Every municipality shall prepare an asset management plan in respect of its core municipal infrastructure assets by July 1, 2021, and in respect of all of its other municipal infrastructure assets by July 1, 2023.

This Regulation comes into force January 1, 2018

Definitions

"municipal infrastructure asset" means an infrastructure asset, **including a green infrastructure asset**, directly owned by a municipality or included on the consolidated financial statements of a municipality, but does not include an infrastructure asset that is managed by a joint municipal water board

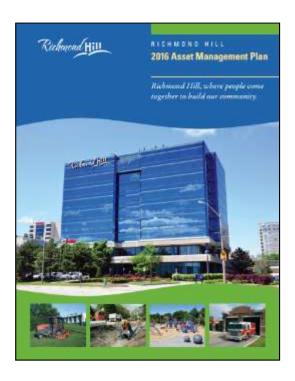
"green infrastructure asset" means an infrastructure asset consisting of natural or human-made elements that provide ecological and hydrological functions and processes and includes natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces and green roofs

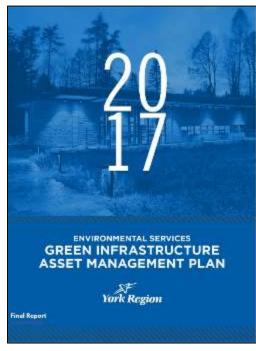


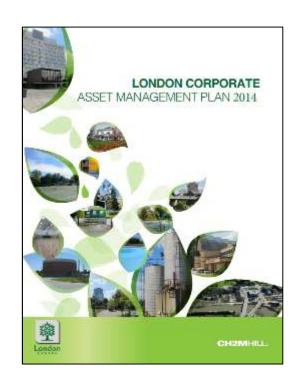
| | GREEN INFRASTRUCTURE FOCUS AREAS | | | | |
|-------------------------------------|---|---|---|---|--|
| ASSET CATEGORY | Urban Forest | LID/Stormwater | Parks & Open Spaces | Agriculture & Urban Agriculture | Green Roofs/Walls |
| Biological | Forest/woodlotPark treeStreet treeSoil | Natural wetlandNatural watercoursesLake | MeadowSoilNatural open spacesValley land | Agricultural landCommunity gardenSoil | n/a |
| Mixed biological & engineered | Soil cellEngineered soil | BioswaleRain GardenConstructed wetlandDry/wet pond | Park landTrails | n/a | Green roof Green wall Green roof garden |
| Engineered | n/a | Permeable pavingRain BarrelInfiltration trenches and chambers | Sports fieldPlayground | n/a | n/a |



Different Approaches







- Corporate Asset Management Plan
- Green Infrastructure Asset Management Plan



AMP Challenges

General

- Levels of service
- Condition Assessment

Specific to Green Infrastructure

- Appreciating assets
- No standard or Generally
 Accepted Accounting Principles
 (GAAP) for valuation
- Lifecycle "expected useful life": sudden mortality; no end of life



Green Infrastructure Assets in Ontario AMPs

| Richmond Hill | York Region | London | Guelph |
|-----------------------------|--|---------------------------------------|---------|
| Forests | Regional Forest | Woodlands | |
| Street Trees | Street trees | Street trees | • Trees |
| | | Some park trees | |
| | • Soil | Community gardens | |
| | Wetlands & Meadows | | |
| | | Hiking Trails | |



Valuation – Street Trees

| | Richmond Hill | London | York Region | Guelph |
|-------------|--|---|---|--|
| Method | Unit price replacement cost Based on quotes received through street tree replacement RFP process | Per tree replacement cost | Council of Tree & Landscape Appraisers (CTLA) Trunk Formula Method VALUE = Basic Tree Cost * Species Rating * Condition Rating * Location Rating | Placeholders used and populated in future iterations of the plan |
| Calculation | \$13.4M 43,217 Trees \$310/tree | \$60.8M 121,6000 Trees \$500/tree | \$410M 61,674 Trees \$6,647/tree | Case study featuring urban forestry inventory & maintenance |

One-for-one replacement cost with nursey stock

Equivalent YR Value: \$52M



Valuation – Forests

| | Richmond Hill | London | York Region |
|-------------|---|--|--|
| Method | Porest Restoration Plan: Dead ash tree and debris removal, invasive species management, planting and monitoring. | Per tree replacement cost Average number of trees/Ha | Timber value + Land value + Replacement cost (calculated based on restoring a stand to similar maturity and regenerative health following a total loss) |
| Calculation | \$74.2M | \$434.7M 1,242 trees/hectare \$500/tree replacement cost 700 ha of forest | \$30M land \$22M Timber + reestablishment. Depreciation: 0% Expected Useful Life: 100years |



Lessons & Next Steps

- Do not need to be Tangible Capital Assets (TCAs)
- Be clear on what is being reported and state assumptions, limitations, and gaps. Include placeholders.
- Next Steps Identified:
 - Community of Practice Leaders develop and discuss best valuation methods, level of service metrics
 - Maintain and communicate best practices
 - General education to municipalities across Ontario





www.greeninfrastructureontario.org

Join GIO – Visit the website Follow us on twitter @GreenInfraOn Sign up for the GIO newsletter

Michelle.sawka@trca.ca

www.raincommunitysolutions.ca

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cblakelock@greencommunitiescanada.org

