

Managing Green Infrastructure as a Municipal Asset

James Lane, R.P.F.

Program Manager, Urban Forestry
Regional Municipality of York

Green Infrastructure Ontario Coalition
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Overview

- **Why manage Green Infrastructure as an asset**
- **Background – Beginnings of Green Infrastructure Asset Management**
- **Green Infrastructure Asset Management Plan**
- **What's next**

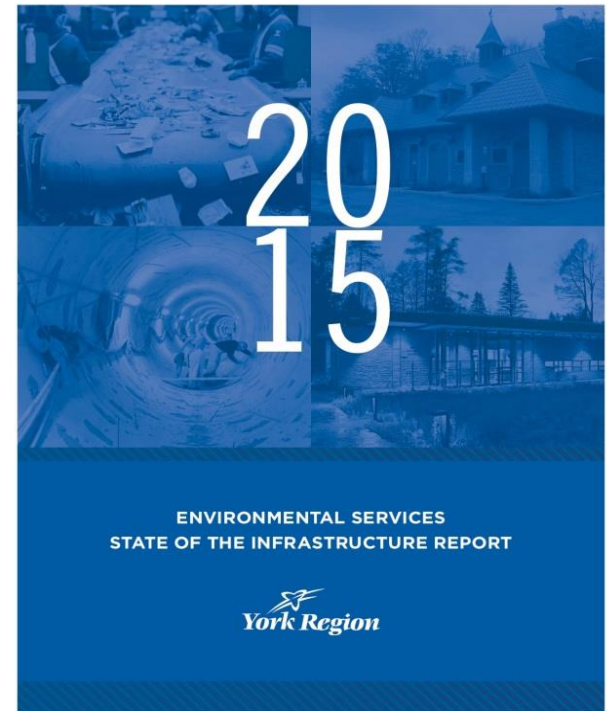
Why manage Green Infrastructure as an Asset

- Recognize and communicate the benefits provided by Green Infrastructure
- Systematic management approach to provide benefits over the long term
- Provides a defensible approach to identifying investment requirements

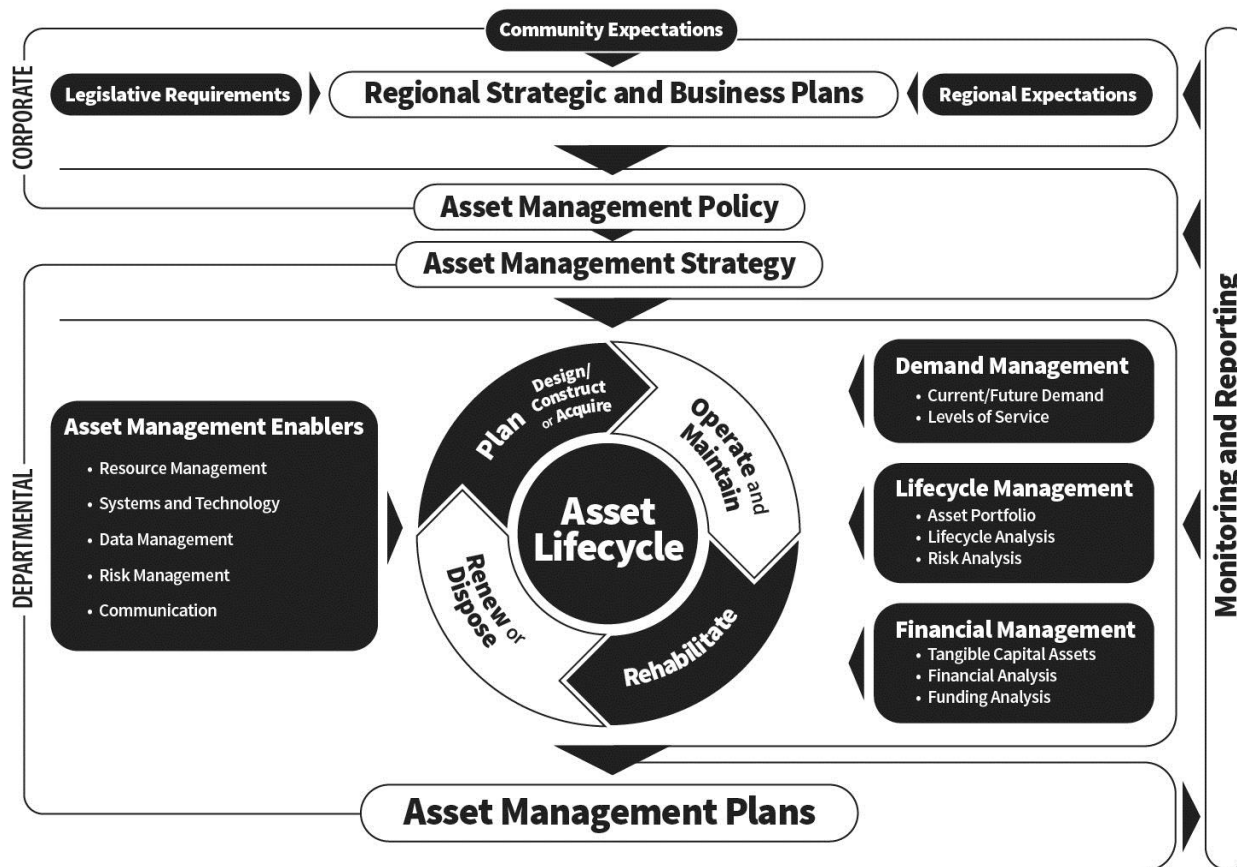


Background – Beginnings of Green Infrastructure Asset Management

- 2013 – Green infrastructure included in State of the Infrastructure reporting
- 2015 – Green infrastructure reported in second state of the infrastructure report
- Green Infrastructure includes:
 - Street trees
 - York Regional Forest
 - Forest communities
 - Trails, parking lots, signs, etc.

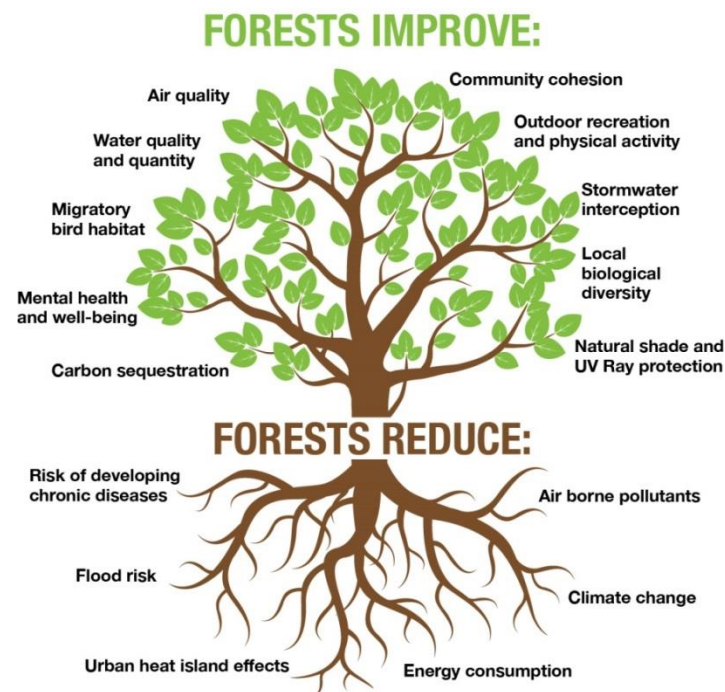


York Region Asset Management Structure



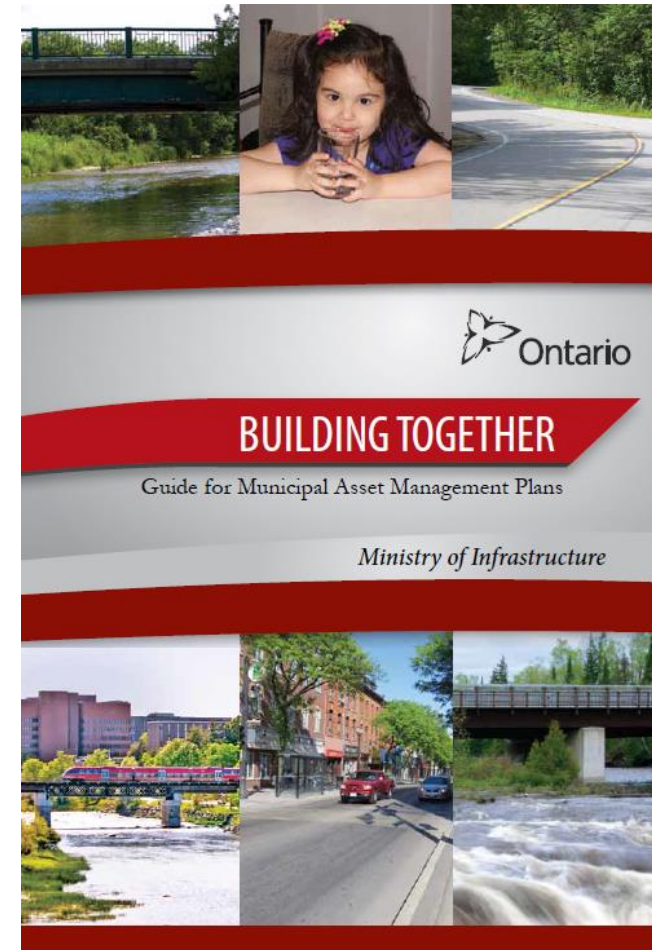
Green Infrastructure Asset Management Plan

- Currently finalizing the first asset management plan for green infrastructure
- Project Team
 - Infrastructure Asset Management Branch
 - Natural Heritage and Forestry
 - Opus International (consultant)
 - Silv-Econ (consultant)



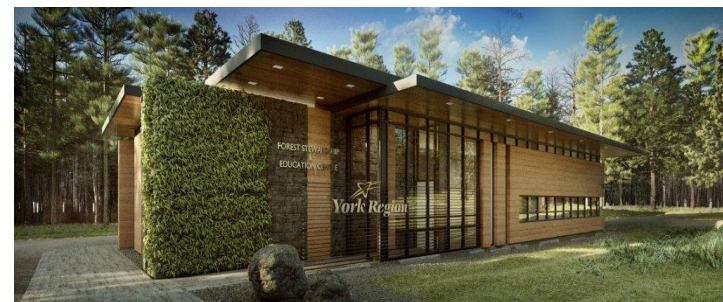
Asset Management Plan Elements

- Key components of the plan will include:
 - State of the infrastructure
 - Levels of service
 - Asset management strategy
 - Financing strategy
 - Continuous Improvement



Asset Portfolio

- Portfolio based on assets managed by division
- Assets organized into biological assets and civil assets under three categories:
 - Urban Forest (street trees)
 - York Regional Forest
 - Bill Fisch Forest Stewardship and Education Centre



Asset Portfolio

Urban Forest

- Biological – street trees, shrubs, perennials and growing media
- Civil – soil cells and irrigation systems, drainage

York Regional Forest

- Biological – vegetation communities (forests, wetlands, prairies)
- Civil – trails, parking lots, fences, signs, culverts, etc.



Asset Evaluations – Urban Forest

- What is the most appropriate and defensible method to value urban forest biological assets?
- Street trees – Use CTLA trunk formula method
- Shrubs and perennials – replacement cost
- Growing media – replacement cost
- Assessed ecosystem services using I Tree Eco

Asset Evaluations – York Regional Forest

- What is the most appropriate and defensible method to value Regional Forest biological assets?
- Forests – Timber value, land value, re-establishment cost
- Wetlands and prairies – land value, re-establishment (future)
- Assessed ecosystem services using I Tree Eco

Levels of Service

- Identifying levels of service to be provided by green infrastructure was the most challenging element of the plan
- Level of service includes:
 - Community level of service
 - Technical level of service
 - Performance measure

TABLE 3-3: URBAN FOREST PROPOSED LEVELS OF SERVICE

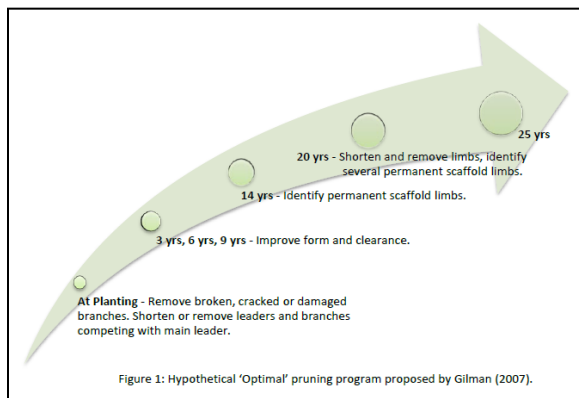
Community Level of Service	Service Attribute	Technical Level of Service	Technical Performance Measure	Planned Target	Reported 2016	Data Source
Will street trees, landscape vegetation and supporting infrastructure provide the expected benefits to residents over the long term?	Scope	% of available space along urban Regional roads occupied by street trees.	% of urban Regional roads meeting applicable landscaping standards.	95%		GI AMP 2017
	Quality	Health of street tree and landscape plantings as a measure of aesthetics and performance of supporting assets (e.g. growing media and irrigation systems).	Tree health condition (% of street trees meeting satisfactory or better health rating).	90%	84%	2016 Street Tree Health Assessment
	Reliability	Annual ecosystem benefits in amounts and dollars including carbon sequestration, air quality impacts, stormwater runoff benefits.	Ecosystem benefits (e.g. kg/year).	> current	Carbon - 293,102 kg/yr Pollution - 9,478 kg/yr	Silvercreek Effective Valuation Tech Memo

Asset Management Strategy

- Estimating the useful life of biological assets posed some challenges
- Street trees - identify three growing environments and estimate average lifespan
 - Urban – 35 years
 - Suburban – 44 years
 - Rural – 53 years
- York Regional Forest – natural communities are self perpetrating (with maintenance)

Asset Management Strategy

- Asset management strategy provided opportunity to document our practices in a single source
- Provided single source of costing information
- Meaningful review of expected growth in programs – particularly challenging

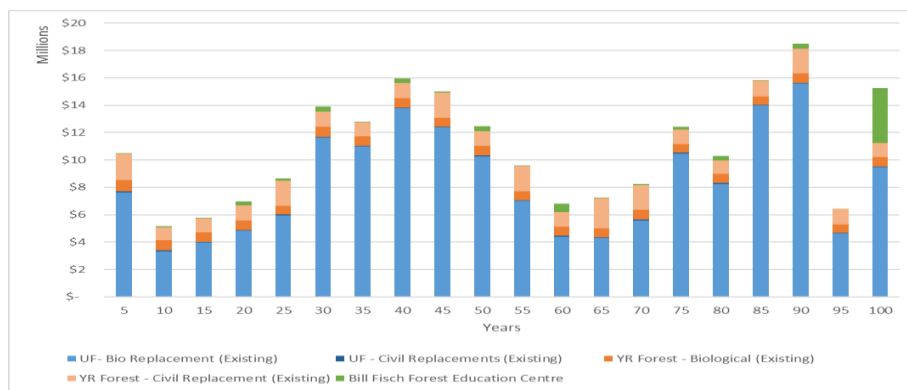


Financial Strategy

- Funding plan to put asset management strategies into action, required investment to meet service levels
- 100 year forecast with multiple scenario's based on level of growth

Financial Strategy

- Modelling shows significant peaks if funding during 100 years
- Key outcomes from financials strategy
 - Need to review service levels and return on investment for some treatments
 - Need to establish reserve to minimize impacts of funding peaks



What's Next

- Plan identified a number of continuous improvement initiatives:
 - Stakeholder consultation
 - Separate operating and maintenance costs
 - Need for a forestry replacement reserve
 - Establish data governance model
 - Improve age and condition data for civil assets
- Update plan 3 – 4 years

Questions / Discussion