

Resilient Infrastructure Systems in the **Greenbelt + Greater Golden Horseshoe**

A focus on climate
change and water within
existing municipal
infrastructure programs
and specifications

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Possibility grows here.



The Greenbelt

Foundation: contributing to regional health and prosperity

Regional Resiliency

- Regional growth and livability
- Climate adaption and mitigation
- Natural systems and restoration
- Water quality and supply

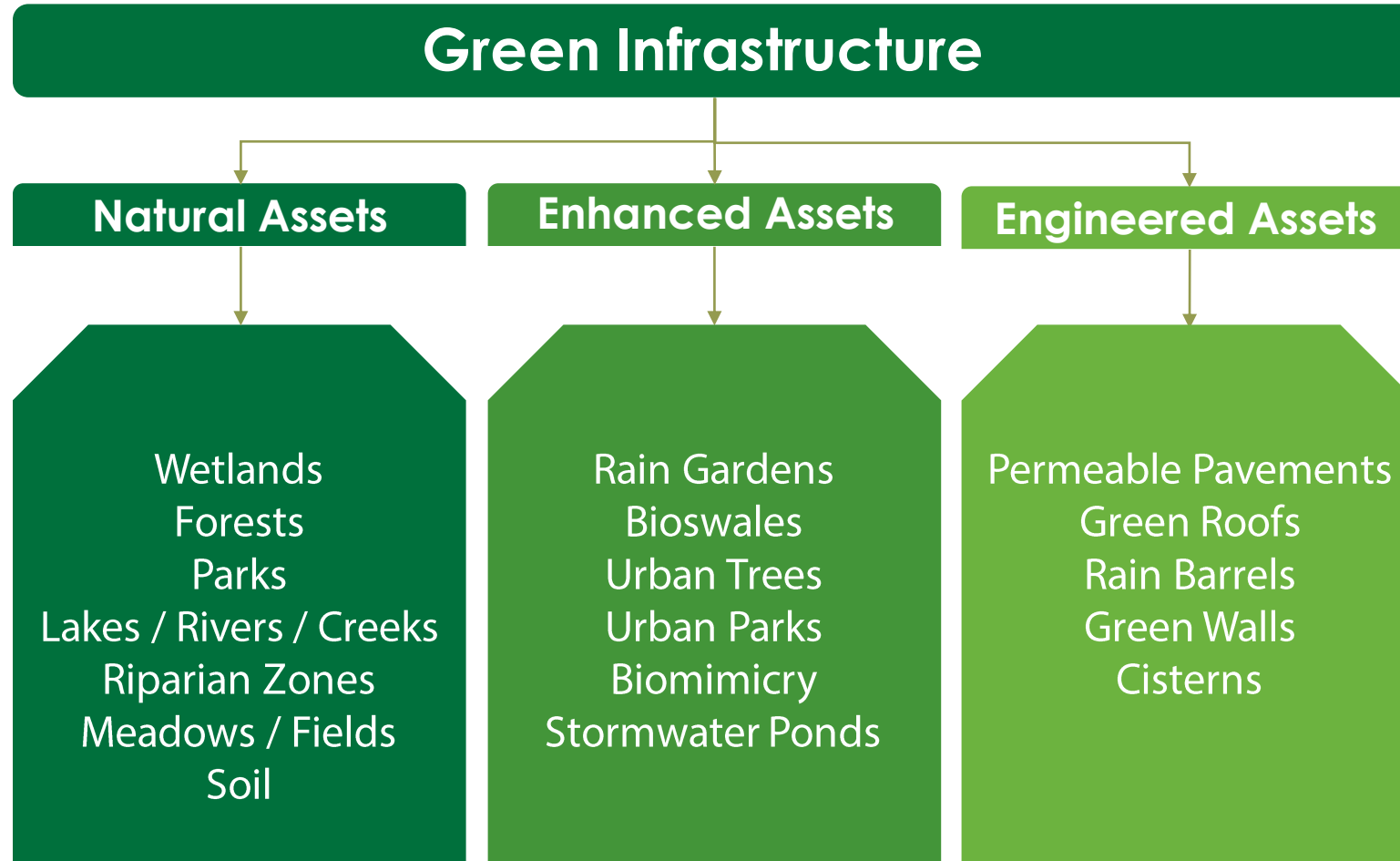
Working Landscape

- Rural economy and community vitality
- Protecting prime agriculture land
- Local food and agri-business
- Tourism and recreation

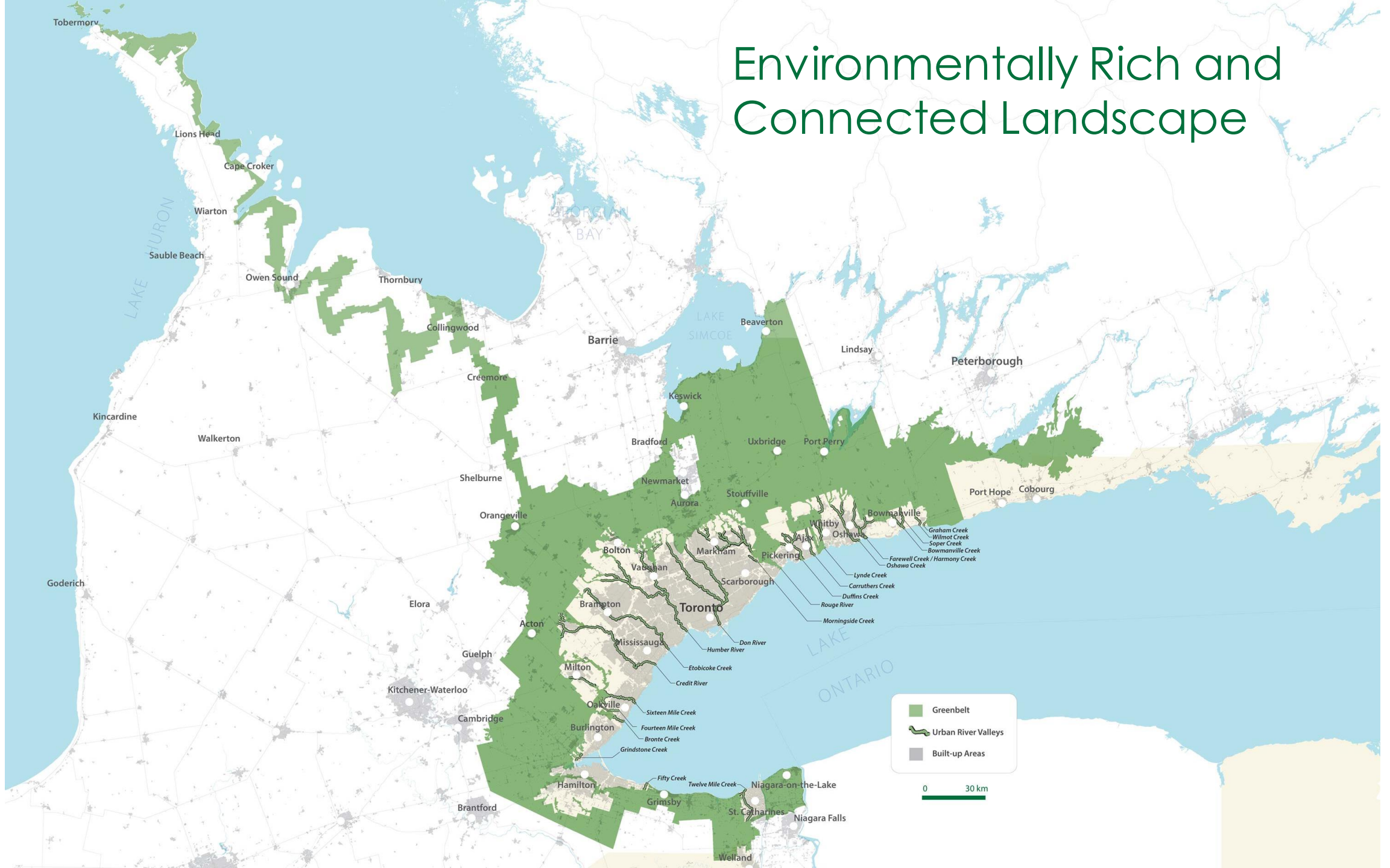
Communicating the Big Idea of the Greenbelt

Municipal and Community Engagement

Invest In Natural Assets



Environmentally Rich and Connected Landscape





Services and Benefits of the Greenbelt

- Contains an “intact” natural heritage system, linking corridors
- Greenbelt policies overlap and work together with the other 2 policy systems in place:
 - The Oak Ridges Moraine Conservation Plan
 - Niagara Escarpment Plan
- Provides \$3.2 billion in ecosystem services with 730,000 hectares of land

\$3.2B
annually in
ecosystem
services

\$2.1B
recreational
activities
valued

The Greenbelt
provides significant
value to residents,
municipalities and
businesses.

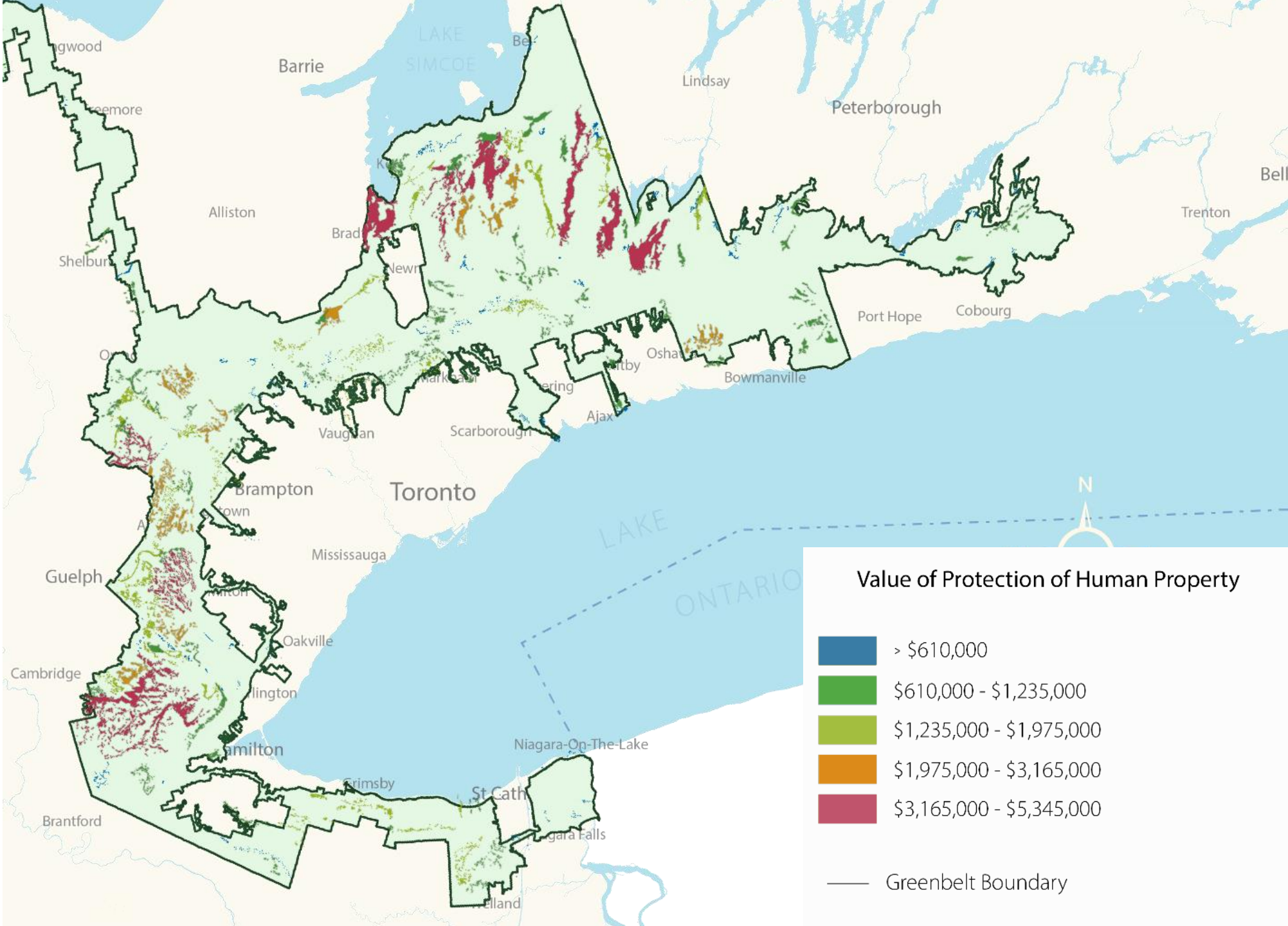
It protects and
preserves vital
economic goods and
services, and essential
natural assets that
increase resilience
against climate
change.

\$224M
per year in
flood
protection

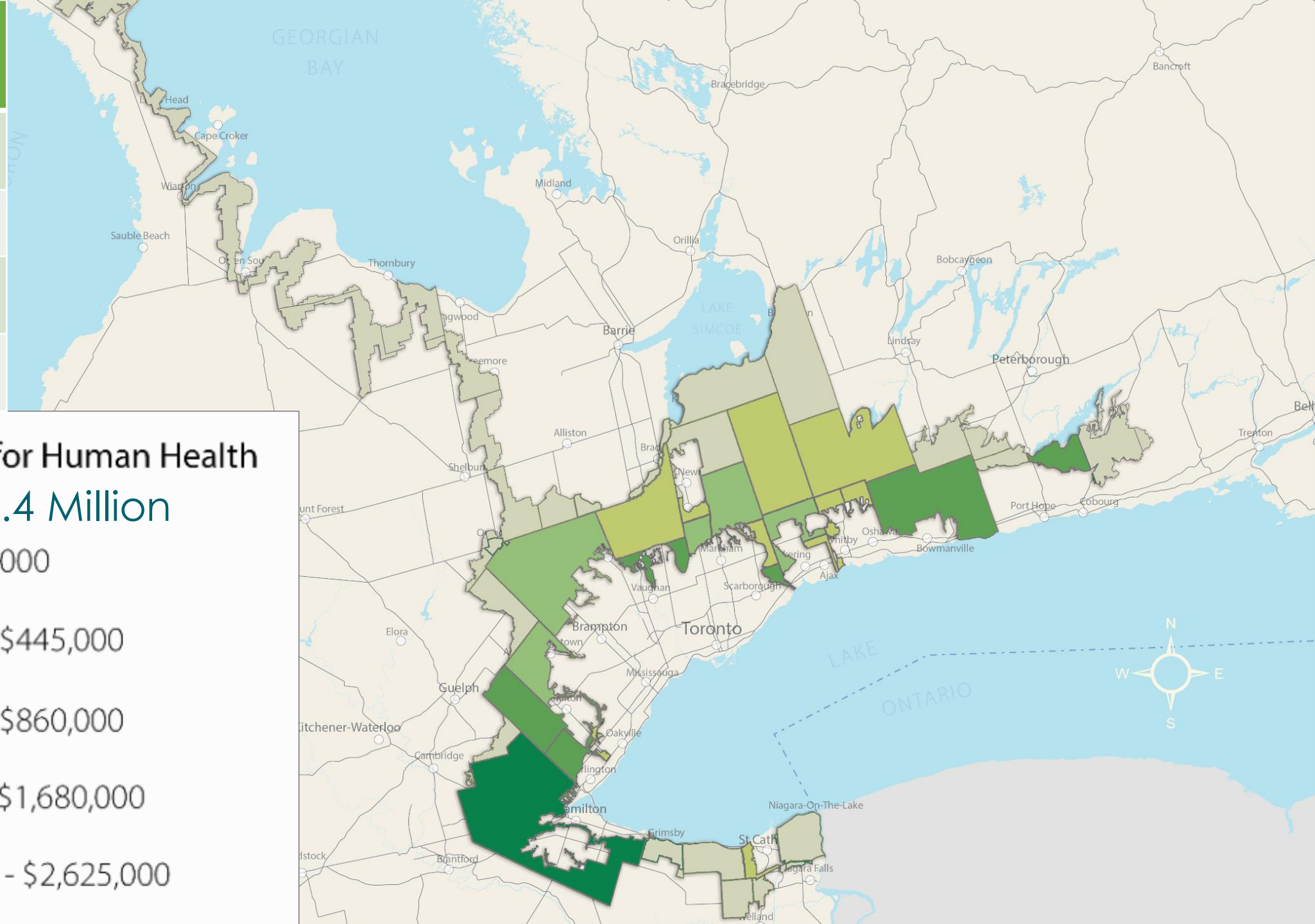
\$52M
per year in
carbon
sequestration

Flood Protection of the Greenbelt + Value of Protection for Human Property

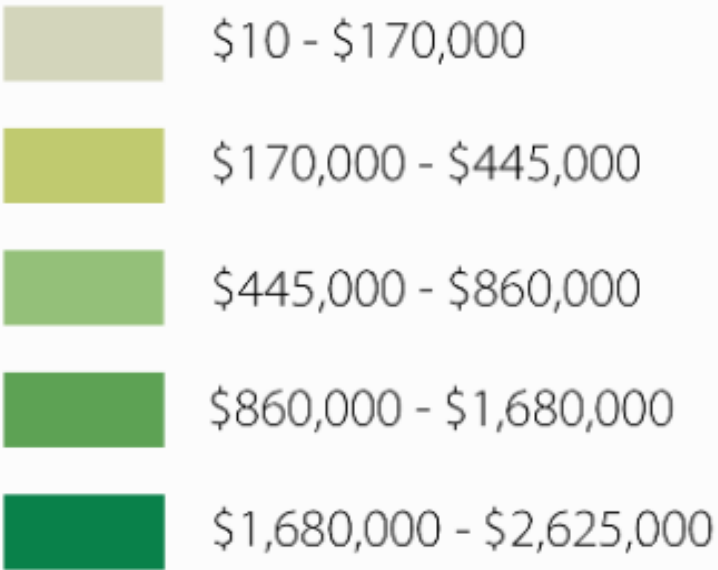
Total:
\$224 Million



Pollutant	Value (\$ Million)
Nitrogen dioxide	0.12
Ozone	6.73
Particulate matter	11.54
Sulphur dioxide	0.02



Value of Support for Human Health
Total: \$18.4 Million



The Greenbelt Foundation's Natural Asset Programming

Research:

Ecosystem services, soil health pilot, voluntary carbon off-sets

Municipal Natural Asset Management:

Municipal Natural Asset Initiative, policy and planning tools, business cases

Ducks Unlimited Canada (DUC):

Naturalized stormwater systems in and around the Greenbelt

Restoration Actions:

Restoration interventions that have biodiversity and climate resiliency outcomes for communities

Research at the Greenbelt Foundation



Ontario's Good Fortune: Appreciating the Greenbelt's Natural Capital

Prepared for the Friends of the Greenbelt Foundation
by Green Analytics



Twenty in a Series
Friends of the Greenbelt Foundation Occasional Papers
October 2016

valuing natural assets in the Greenbelt, with a template for municipalities to establish their own natural capital valuations



A Green Infrastructure Guide for Small Cities, Towns and Rural Communities



green infrastructure guide for lower capacity municipalities to manage flooding with their natural assets



Greenbelt Farmers: Sustaining Soil Health

Headlands Ag-Enviro Solutions

Friends of the Greenbelt Foundation Occasional Papers
December 2018



14 farmers tell their stories about using a variety of practices to improve soil health to promote resilient, biodiverse conditions



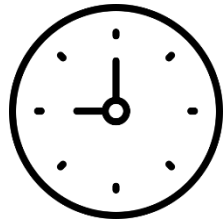
Municipal Natural Assets Initiative (MNAI)

- Turnkey program to advance the management of natural assets by municipalities
- Values municipal services provided by nature
- Leading-edge. 10 municipalities across Canada testing/revising the program
- Initial focus on stormwater management, flood prevention

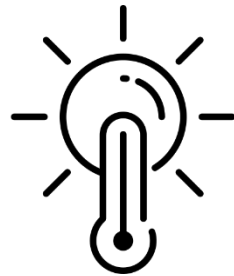
Municipal Natural Asset Management



Natural assets reduce service delivery costs



Natural assets have a perpetual life span



Natural assets support climate change adaptation

Municipal Asset Management – MNAI

The MNAI programs uses existing municipal processes and tools

Multi-disciplinary teams incorporate nature into asset management programs

MNAI team provides full or custom services



1

PRE-AUDIT

Checklist to see if your municipality is ready to participate

2

ASSESS

Identify and value services from key natural assets; model scenarios (i.e. climate change)

3

PLAN

Develop policies, strategies and financial plans to manage natural assets, including maintenance

4

IMPLEMENT

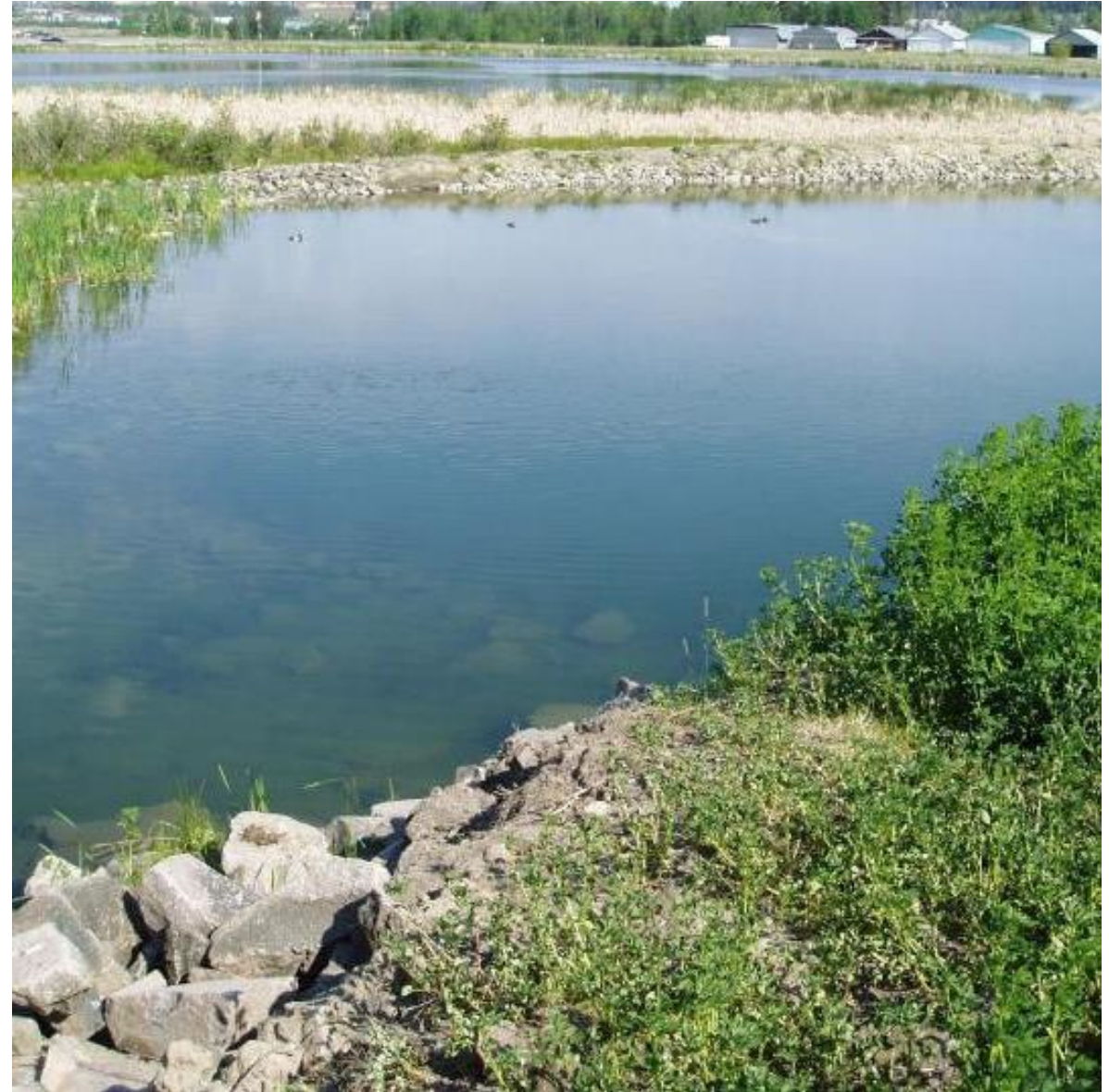
Integrate natural assets into asset mgmt. plans, develop monitoring, maintenance plans, increase performance

DUC: Improving Stormwater Management

Since 2002, DUC have successfully implemented and maintained over 90 naturalized stormwater management ponds (SWMP) across Canada

Though it will vary from site to site, in Winnipeg, this has drastically reduced maintenance costs for the city. Traditional wet ponds would cost the city \$10k/ha vs \$2.1k/ha annually for a naturalized SWMP design

These naturalized designs improve water quality, allows for low to no maintenance, provide natural aesthetics, provide a great range of design options, and are economically viable with potentially significant cost savings

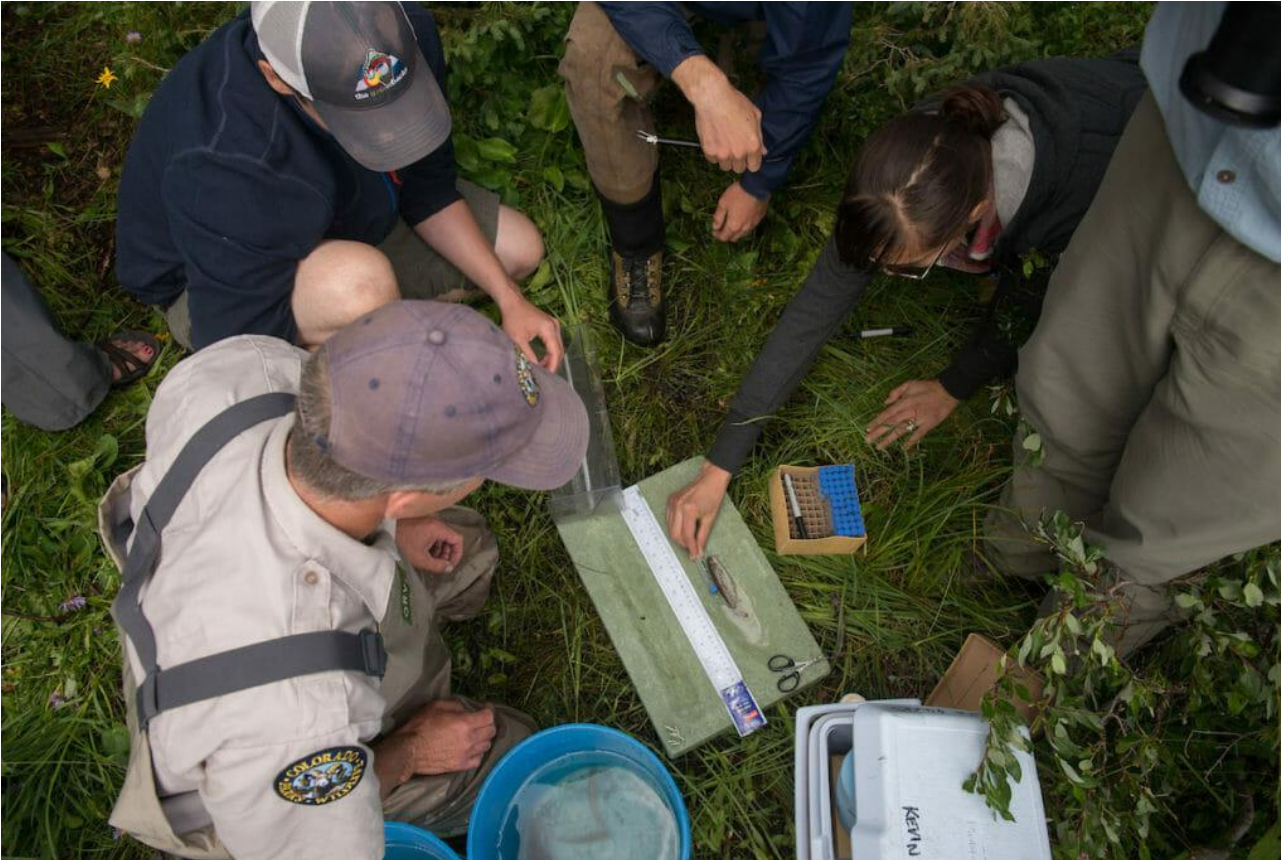


Implementing naturalized stormwater systems in the Greenbelt

- Aims to create a paradigm shift in how municipalities and developers build and maintain stormwater systems
- The naturalized system is designed to fit a new or retrofitted development site in accordance with existing municipal policy and regulations
- DUC will deliver all designs, specifications, and all other necessary elements, implement the system and follow up with guidance / support in the first 3-years of maintenance and deliver a detailed maintenance manual



Restoration Actions: Trout Unlimited



- Conservation work taking place in Niagara's last remaining cold-water creeks
- Project aimed at rehabilitating brook trout breeding areas and enhancing biodiversity in urban river valleys

<https://www.tu.org/>

The Foundation's Funding Program



Resilient Greenbelt

Working with nature to
increase public benefits
from Ontario's Greenbelt
and regional resilience

Prosperous Greenbelt

Supporting sustainable
agriculture and rural vitality



Possibility grows here.

THANK YOU!

Friends of the Greenbelt Foundation:
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