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Rethinking Infrastructure Investment:

Supporting Post-Pandemic Rural Recovery and Climate Resilience Through Green Infrastructure

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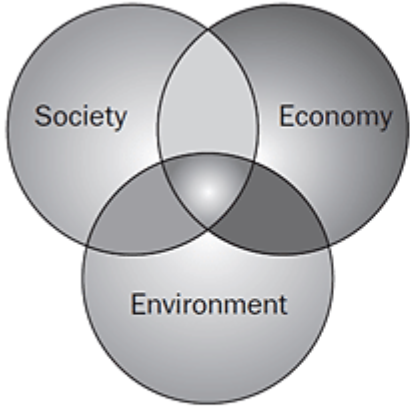
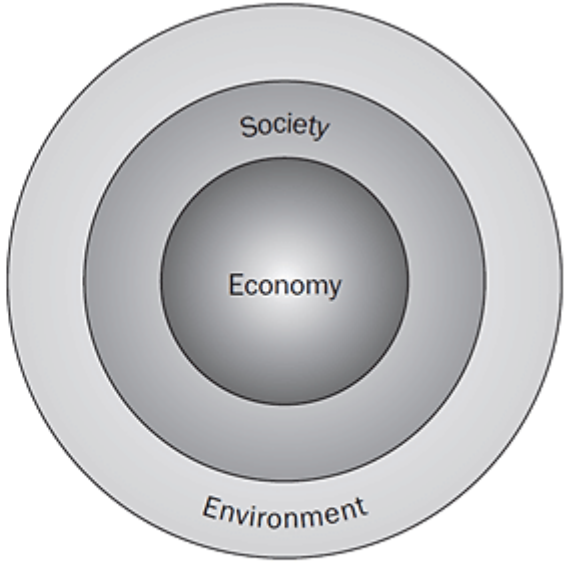
"We live in interesting times . . ."

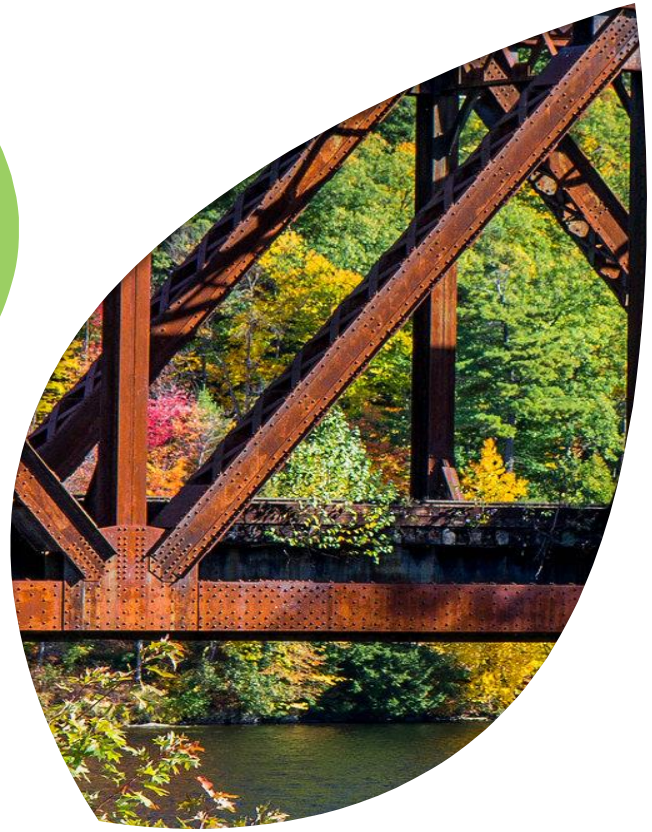


The conventional economic view of the interaction between economy, society and environment



The green economics paradigm: economy operates within social relationships and the whole of society is embedded within the natural world

Cato, 2009. Green Economics: An Introduction to Theory, Policy and Practice



1/3 of Canada’s infrastructure

is rated as “fair” to “poor”. This is often worse in rural areas.

Failures can cost 10x more

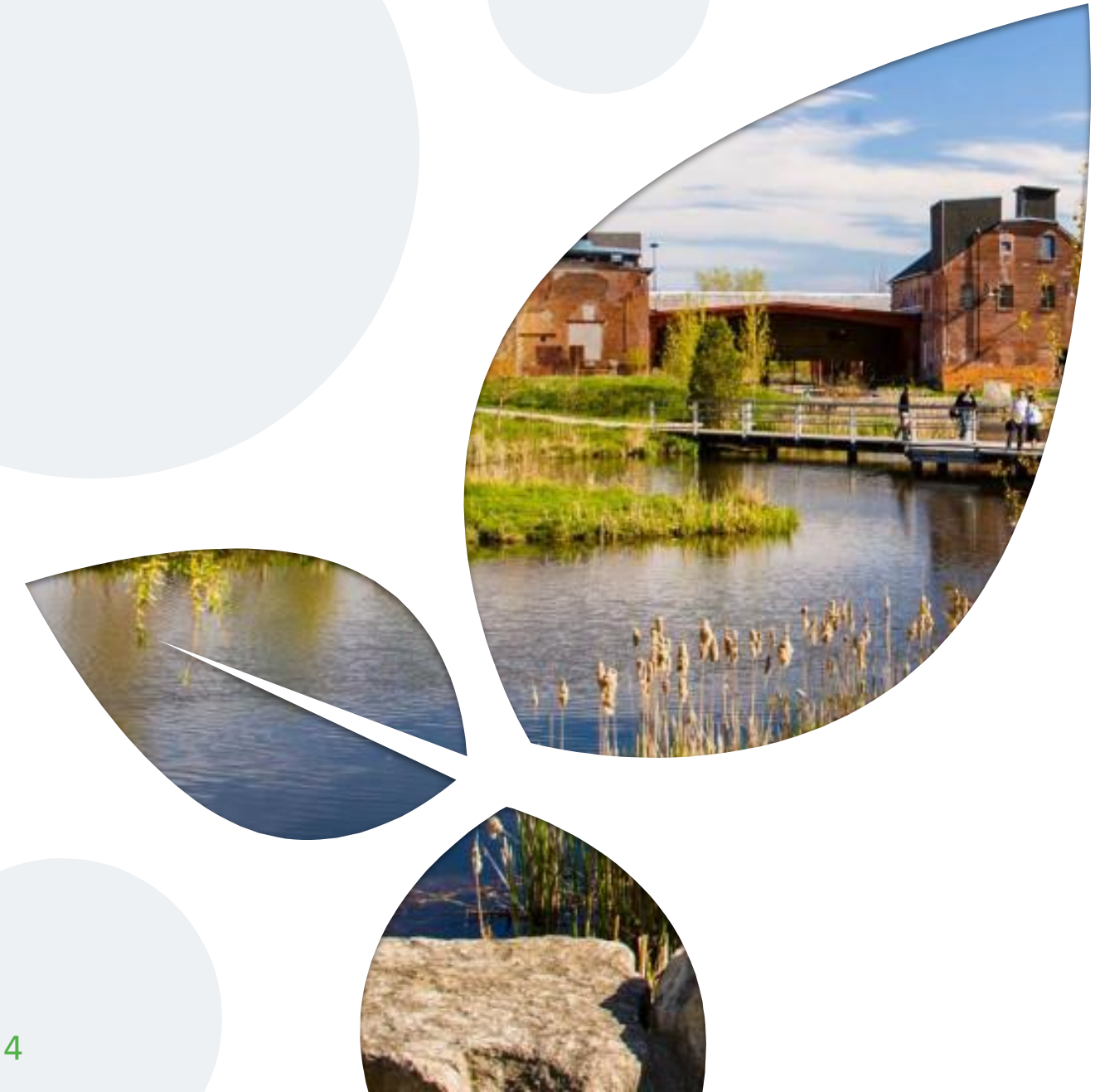
than preventative investments. (CIRC, 2019)

The economic development

of all communities is impacted by infrastructure deficits.

COVID-19 is adding stress

to many rural communities already struggling to make proactive investments in future oriented infrastructure.



GREEN INFRASTRUCTURE a natural step forward

- Definitions vary, but most refer to networks of natural, enhanced, and engineered assets that make use of natural processes to deliver multiple ecological, social, and economic benefits.
- Developed largely to address development challenges in urban areas where tensions between the natural and built Environments are highest.
- Rural communities often overlook the full value of natural assets but stand to gain substantial benefits given their close ties to the land.

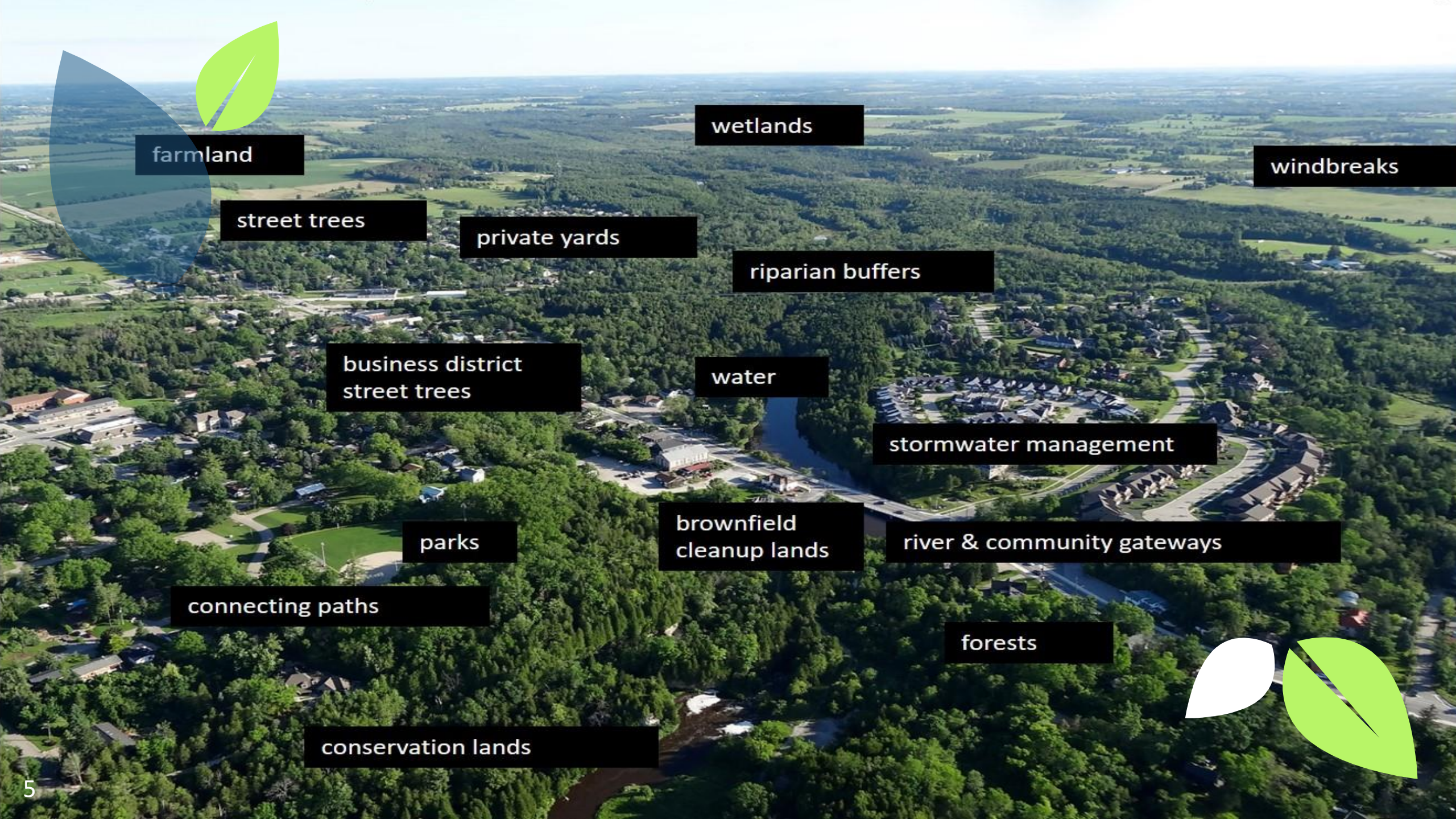

farmland
wetlands
windbreaks
street trees
private yards
riparian buffers
business district
street trees
water
stormwater management
brownfield
cleanup lands
river & community gateways
parks
connecting paths
forests
conservation lands

Table 2.3 Typical green infrastructure assets and their associated scales

Local, neighbourhood and village scale	Town, city and district scale	City-region, regional and national scale
• Street trees, verges and hedges • Green roofs and walls • Pocket parks • Private gardens • Urban plazas • Town and village greens and commons • Local rights of way • Pedestrian and cycle routes • Cemeteries, burial grounds and churchyards • Institutional open spaces • Ponds and streams • Small woodlands • Play areas • Local nature reserves • School grounds • Sports pitches • Swales, ditches • Allotments • Vacant and derelict land	• Business settings • City/district parks • Urban canals • Urban commons • Forest parks • Country parks • Continuous waterfronts • Municipal plazas • Lakes • Major recreational spaces • Rivers and floodplains • Brownfield land • Community woodlands • (Former) mineral extraction sites • Agricultural land • Landfills	• Regional parks • Rivers and floodplains • Shorelines • Strategic and long distance trails • Forests, woodlands and community forests • Reservoirs • Road and railway networks • Designated greenbelt and strategic gaps • Agricultural land • National parks • National, regional or local landscape designations • Canals • Common lands • Open countryside

European Environmental Agency. (2011). *Green infrastructure and territorial cohesion: The concept of green infrastructure and its integration into policies using monitoring systems*

GI Functions and Co-Benefits

Functions:

- Source water protection, stormwater management, and wastewater treatment
- Cultural, recreational, and tourism amenities
- Climate change mitigation and adaptation
- Community livability and aesthetics
- Food security and local agriculture
- Biodiversity conservation and habitat protection

Co-Benefits

- Improve water and air quality
- Improve human health
- Improve biodiversity
- Rises property values
- Creates green jobs
- Stimulates recreation and tourism spending
- Sequester CO_2
- Provide safe outdoor spaces for social events

Reasons to Invest in Nature Now

- GI provides multiple benefits which can:
  - Improve environmental health, community livability, and sustainable economic activity in a single process
  - Open funding opportunities for multifunctional projects
  - Reduce spending on one-dimensional grey infrastructure
- Natural assets can appreciate in value over time as plants and soils develop
- GI consists of dynamic living systems that increase community resilience against climate change and other shocks
- COVID-19 has transformed our social interactions creating demand for safe outdoor spaces

Leading Examples of Rural GI

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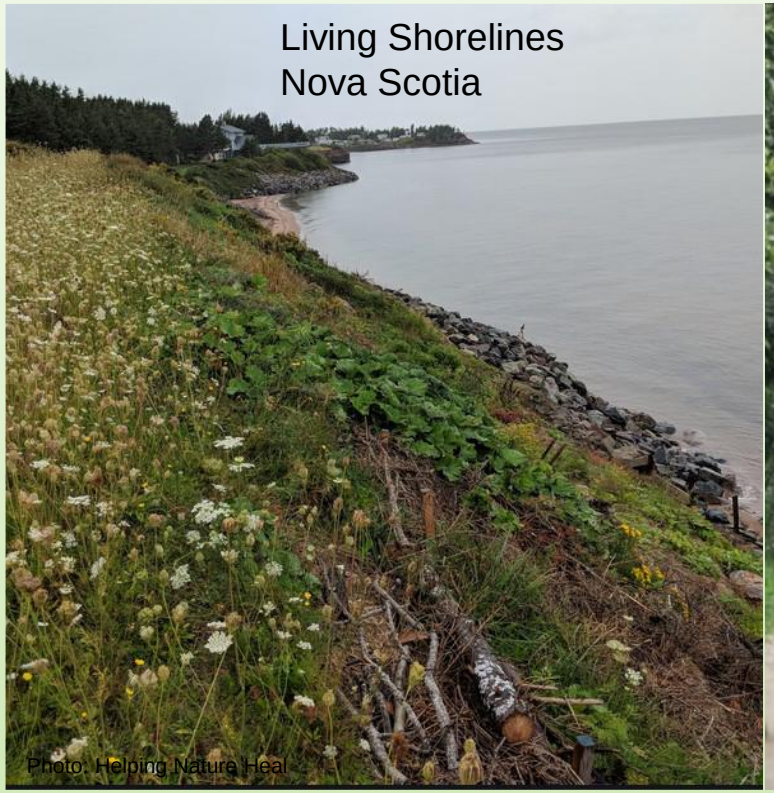


Recommendations for Improving Infrastructure Investments

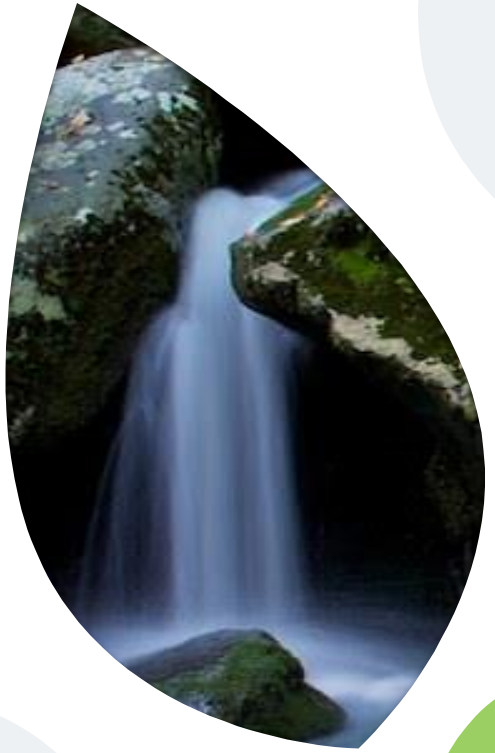
Prioritize funding for “shovel worthy” projects

Support rural GI capacity building

Foster Strategic Partnerships

Measure Co-Benefits and Evaluate Investments

Responding to the COVID-19 pandemic presents an excellent opportunity for communities to evaluate their natural assets and prioritize Green Infrastructure as a low-tech, low-cost, and community-oriented approach to sustainable service delivery. It is important to take action now, to ensure communities emerge from this uniquely challenging time without forgoing the short and long-term benefits of investing in nature.



References

ACT. (2020). *Accounting for Natural Assets: A Low Carbon Resilience Approach*. ACT (Adaptation to Climate Change Team), SFU. https://act-adapt.org/wp-content/uploads/2020/02/Natural-Assets-Valuation-Report.pdf

Caldwell, D. W., Kraehling, P., Dubyna, J., & Pauk, J. (2016). *Green Infrastructure for Ontario's Rural Communities: Nature and its Contributions to Community Economic Development and Resilience* (p. 58). Ontario Ministry of Agriculture, Food and Rural Affairs. http://waynecaldwell.ca/Projects/greeninfrastructure.html

Cato, M. S. (2009). *Green Economics: An Introduction to Theory, Policy and Practice*. Earthscan.

CIRC. (2019). *The 2019 Canada Infrastructure Report Card* (p. 56). http://canadianinfrastructure.ca/downloads/canadian-infrastructure-report-card-2019.pdf

County of Essex. (2020, July 6). *County Wide Active Transportation System (CWATS)*. https://www.countyofessex.ca/en/discover-the-county/county-wide-active-transportation-system.aspx

European Environmental Agency. (2011). *Green infrastructure and territorial cohesion: The concept of green infrastructure and its integration into policies using monitoring systems* (p. Copenhagen). https://www.eea.europa.eu/publications/green-infrastructure-and-territorial-cohesion

Green Infrastructure Ontario. (2012). *Health, Prosperity and Sustainability: The Case for Green Infrastructure In Ontario*. https://greeninfrastructureontario.org/app/uploads/2016/04/HPS_GI.pdf

Kraehling, Paul (2017) Planning the Resilient Rural Community: The Case for Using "Living" Green Infrastructure as a Foundation. In L. Brinklow and R. Gibson (Eds.) *From Black Horses to White Steeds: Building Community Resilience.* Island Studies Press, University of Prince Edward Island.

Living Shorelines. (n.d.). Ecology Action Centre. Retrieved September 25, 2020, from https://ecologyaction.ca/livingshorelines

Ontario Professional Planners Institute,. (2009). *Planning by Design: A healthy communities handbook*. Ontario Ministry of Municipal Affairs and Housing. http://www.mah.gov.on.ca/AssetFactory.aspx?did=7171 P27

Town of Gibsons. (2017). *Advancing Municipal Natural Asset Management: The Town of Gibsons' experience in financial planning & reporting*. https://mnai.ca/media/2018/01/GibsonsFinancialPlanningReport-WEB.pdf

Questions?

http://crrf.ca/riinfrastructure/?customize_changeset_uuid=70f797d8-62ef-41df-9591-138d8b9f4763&customize_autosaved=on