



Economic Impact Assessment of the Green Infrastructure Sector in Ontario

Clean Air Partnership Webinar

May 20, 2020

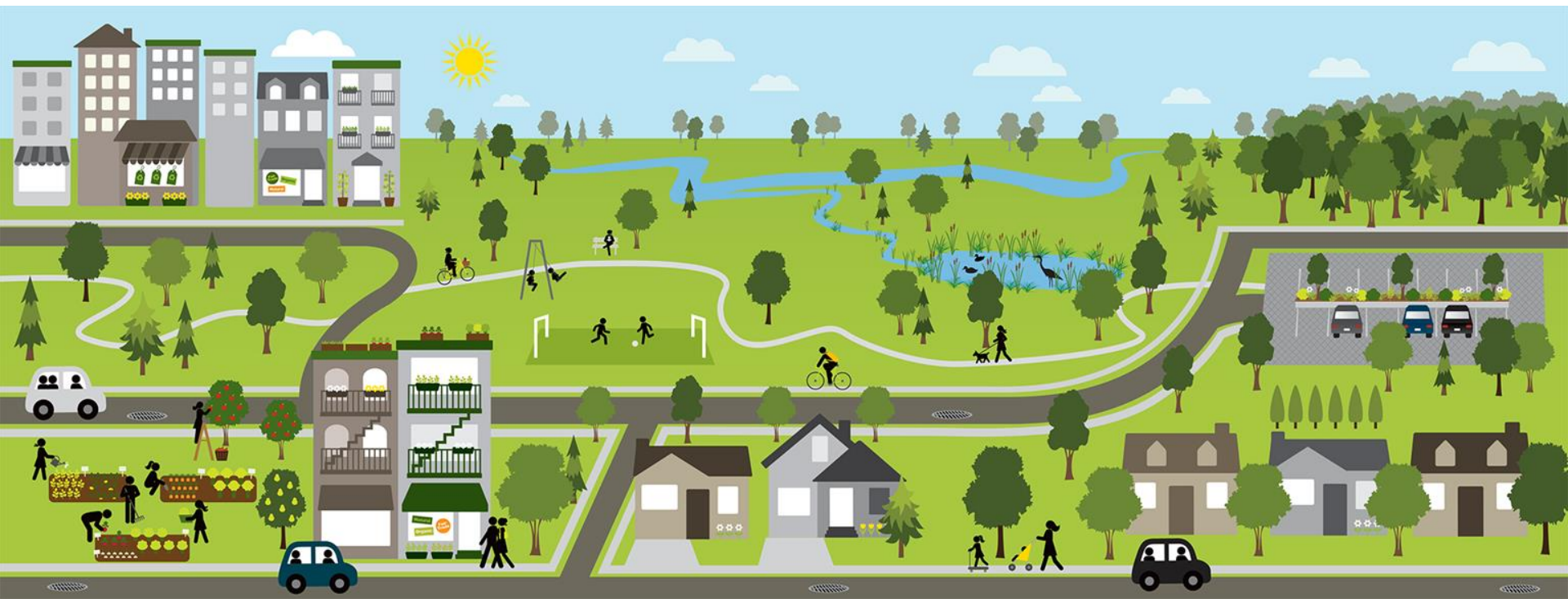
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About GIO



The Green Infrastructure Ontario (GIO) Coalition is an alliance of organizations that share a common vision for a healthy, green Ontario where the economic, social, environmental and health benefits of green infrastructure are fully realized.



GIO Coalition Members



GIO Steering Committee

Approx. 35 general members:

- Businesses
- Industry and professional associations
- Municipal and Regional governments
- Conservation Authorities
- ENGOs



GIO Activities

- Government Relations
 - Direct advocacy
 - Policy submissions
- Information sharing
 - Presentations
 - Workshops
 - Reports
 - Newsletter



About GIO: Legislation, Plans & Policies: Successes



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
- Ontario's Climate Change Strategy (2015)
- Provincial Policy Statement (2014)



Communications & Other Activities



- Published :
 - The Case for Green Infrastructure In Ontario (2012)
 - State of the Urban Forest in the GTA (2016)
 - A Green Infrastructure Guide for Small Cities, Towns, and Rural Communities (2017)
 - State of Large Parks in Ontario's Golden Horseshoe (2019)
 - Economic Impact Assessment of the Green Infrastructure Sector in Ontario (2020)
- Publish Bi-monthly Newsletters highlighting green infrastructure policy progress and initiatives in Ontario and around the world.
- Hosted workshops and sponsored conferences:
 - Soak it Up: Green Stormwater Infrastructure Toolkit
 - Green Infrastructure Asset Management
 - Grey to Green Conference



Economic Impact Assessment

Overview



- 1) Project Background & Objectives
- 2) Defining Ontario's Green Infrastructure Sector
- 3) Trends & Drivers
- 4) Economic Impact of Ontario's Green Infrastructure Sector
- 5) Ontario's Green Infrastructure Sector Growth Potential
- 6) Profile of Ontario's Green Infrastructure Sub-sectors
- 7) Summary

1) Project Background

- Commissioned by GIO
- Funded by Greenbelt Foundation
- Additional financial support from Landscape Ontario
- Prepared by Delphi Group

Project Objectives



This study evaluated the current and potential future economic impact of Ontario's green infrastructure sector, profiling its seven distinct sub-sectors.

Define	Define the size and the scope of the green infrastructure sector in Ontario
Assess	Assess the economic impact of the green infrastructure sector
Estimate	Estimate the growth potential of Ontario's green infrastructure sector

Activities Undertaken

Overview of Delphi Process:



SECONDARY
RESEARCH /
LITERATURE
REVIEW



REVIEW OF
MARKET TRENDS
AND DRIVERS



STATISTICAL
ANALYSIS TO
DETERMINE
ECONOMIC IMPACT
AND GROWTH
ESTIMATES



KEY INFORMANT
INTERVIEWS



INDUSTRY SURVEY

2) Defining the Sector

GIO defines green infrastructure as:

“The natural vegetative systems and green technologies that collectively provide society with a multitude of economic, environmental, and social benefits.”



GI Sub-Sectors

As defined for this study:

Landscape Horticulture and Open Spaces	Green Roofs and Walls	Green Stormwater Infrastructure Systems	Urban Forests	Parks	Natural Heritage	Cross Sectoral Support Services
<ul style="list-style-type: none"> • Floriculture production • Mixed fertilizer manufacturing • Nursery stores and gardens • Landscaping services 	<ul style="list-style-type: none"> • Roofing contractors • Architectural services • Nursery stores and garden centers 	<ul style="list-style-type: none"> • Water supply and irrigation systems • Engineering services • Environmental consulting services 	<ul style="list-style-type: none"> • Support activities for forestry • Landscape architectural services • Nursery and tree production 	<ul style="list-style-type: none"> • Nature parks and other similar institutions • Environmental consulting services • Zoos and botanical gardens 	<ul style="list-style-type: none"> • Nursery and tree production • Forest nurseries and gathering of forest products 	<ul style="list-style-type: none"> • Social advocacy organizations • Municipal regulatory services • Aboriginal public administration

3) Trends and Drivers

1) Climate Action Supporting GI

The understanding for the value that green infrastructure provides is continuously growing in terms of its potential for sequestering greenhouse gas (GHGs) and supporting climate change adaptation and resiliency.

2) Policy Driving GI Investment

As climate change and other environmental and social impacts are increasingly felt across Canada, jurisdictions (including in Ontario) are developing policy tools to address the challenges and opportunities.

3) Maturing of Local Value Chains

Key stakeholders across the local green infrastructure value chain are maturing in terms of their experience and expertise, given that work cannot be outsourced due to its localized nature (e.g., landscaping work).

3) Trends and Drivers

4) Innovation Enabling New GI Solutions

Technology innovation is driving efficient and effective planning, development, and maintenance of green infrastructure projects and assets. Examples include stormwater modelling using geographic information system (GIS) and the mapping of trees and forest assets using Light Detection, and Ranging (LiDAR) technology

5) Increased Public Awareness and Support for GI

Green infrastructure is becoming more popular, as can be seen by public and organizational attitudes towards the sector. As one example, a 2019 study about public attitudes towards Parks Canada found that 89% of respondents in Ontario are supportive of the agency's mandate, up from 87% in December 2018.

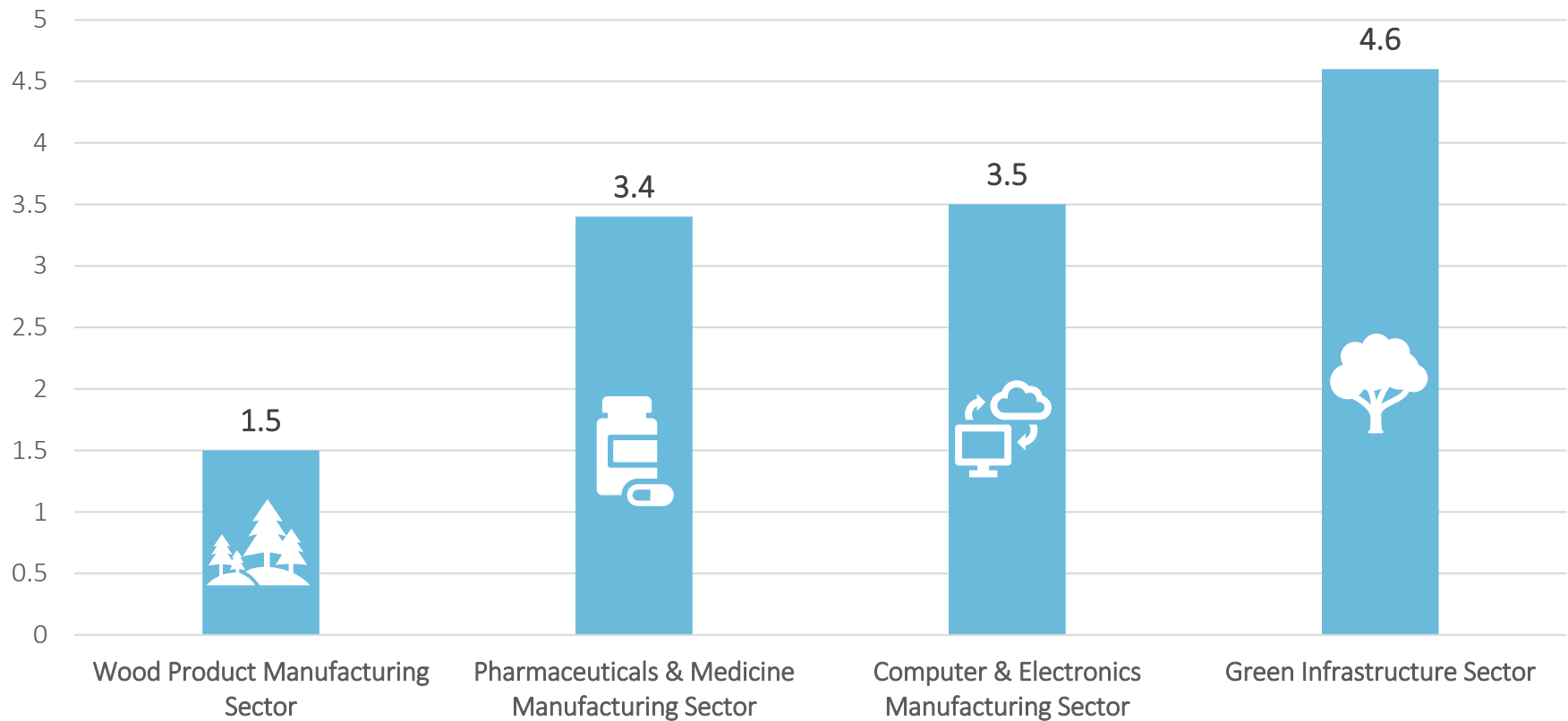
4) Economic Impact: Overview

In 2018, Ontario's green infrastructure sector was responsible for:

- \$8.6 billion in gross output (revenues)
- \$4.64 billion in direct GDP
- 84,400 direct jobs

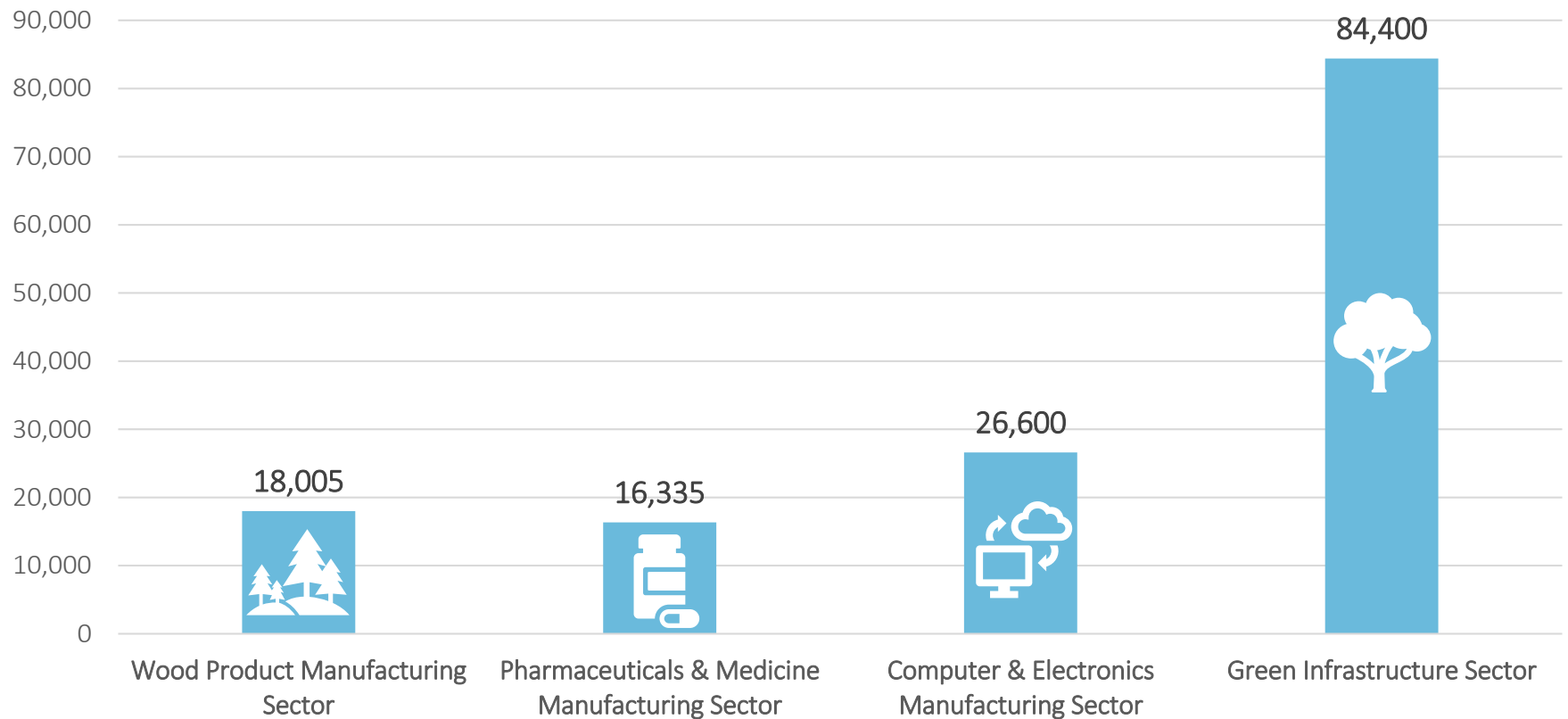
4) Economic Impact: Sector Comparison – GDP

GDP (2018) \$ Billion



4) Economic Impact: Sector Comparison – Jobs

Employment (2018)



4) Economic Impact: Jobs, GDP & Output



Green Infrastructure Sub-sector	GI Jobs (Direct Only) \$ thousands	GI Gross Output (Revenues) \$ thousands	GI GDP (Direct Only) \$ thousands	GI Jobs (Direct, Indirect, Induced)	GI GDP (Direct, Indirect, Induced) \$ thousands
Green Roofs and Walls	842	\$ 93,072	\$ 51,186	1,213	\$ 88,729
Green Stormwater Management	1,347	\$ 237,828	\$ 163,384	2,111	\$ 239,865
Urban Forests	3,417	\$ 323,625	\$ 177,990	4,780	\$ 315,764
Parks	8,923	\$ 877,900	\$ 511,209	12,772	\$ 885,601
Natural Heritage	5,321	\$ 552,414	\$ 331,360	7,510	\$ 553,787
Landscape Horticulture and Open Spaces	58,733	\$ 5,578,654	\$ 2,852,774	82,558	\$ 5,217,352
Cross-sector Support Services	5,852	\$ 940,231	\$ 547,304	10,637	\$ 1,026,272
TOTAL	84,434	\$ 8,603,724	\$ 4,635,208	121,581	\$ 8,327,371

5) Growth Potential



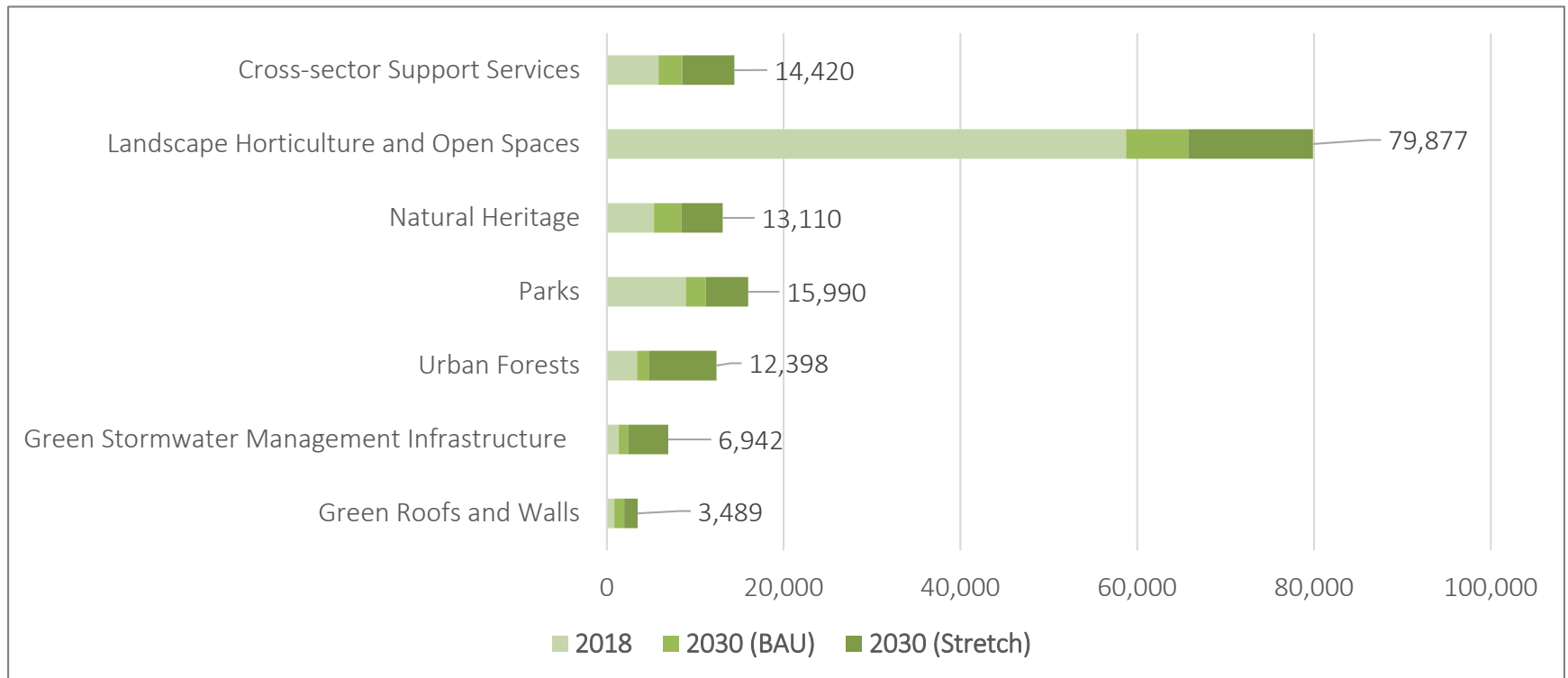
BAU growth to **\$7 billion** in direct GDP and **103,000** direct jobs by 2030.



Under a policy-driven “stretch” scenario, sector could grow to **over \$10 billion** in direct GDP by 2030, with the sector employing **more than 146,000 people**.

5) Growth Potential

Total Direct Jobs in Ontario's Green Infrastructure Sector under BAU and Stretch Scenarios (2018-2030).





6) Overview of GI Sub-Sectors

Landscape Horticulture & Open Spaces

- In 2018:



\$3.12 B in GDP

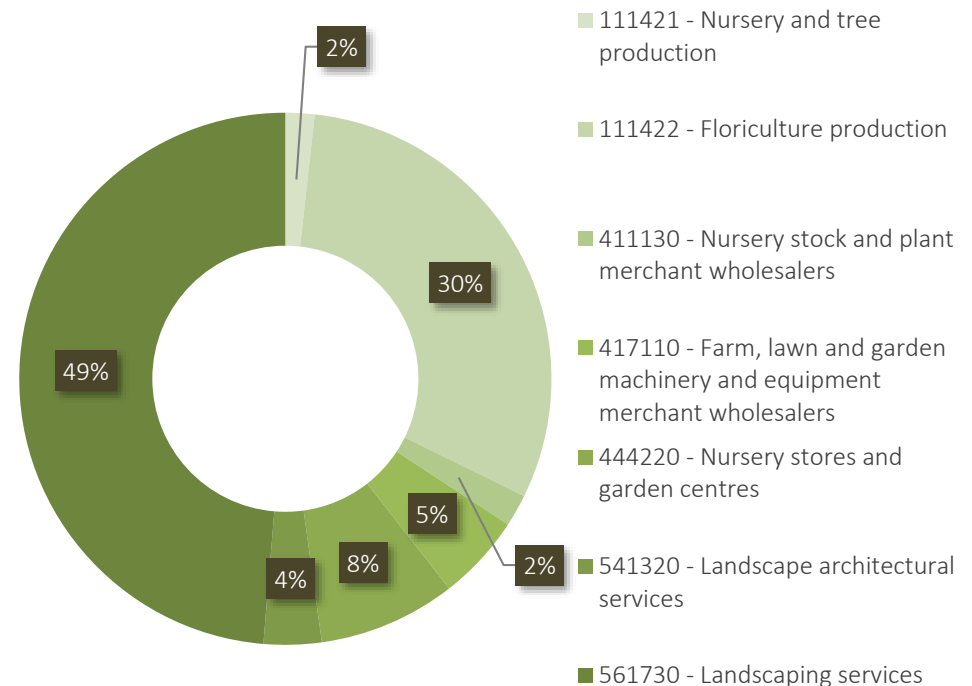


\$5.84 B in gross output



58,730 direct jobs

Landscape Horticulture and Open Spaces (Direct Jobs)



Source: The Delphi Group

Green Roofs & Walls

- In 2018:



\$5.12 M in GDP

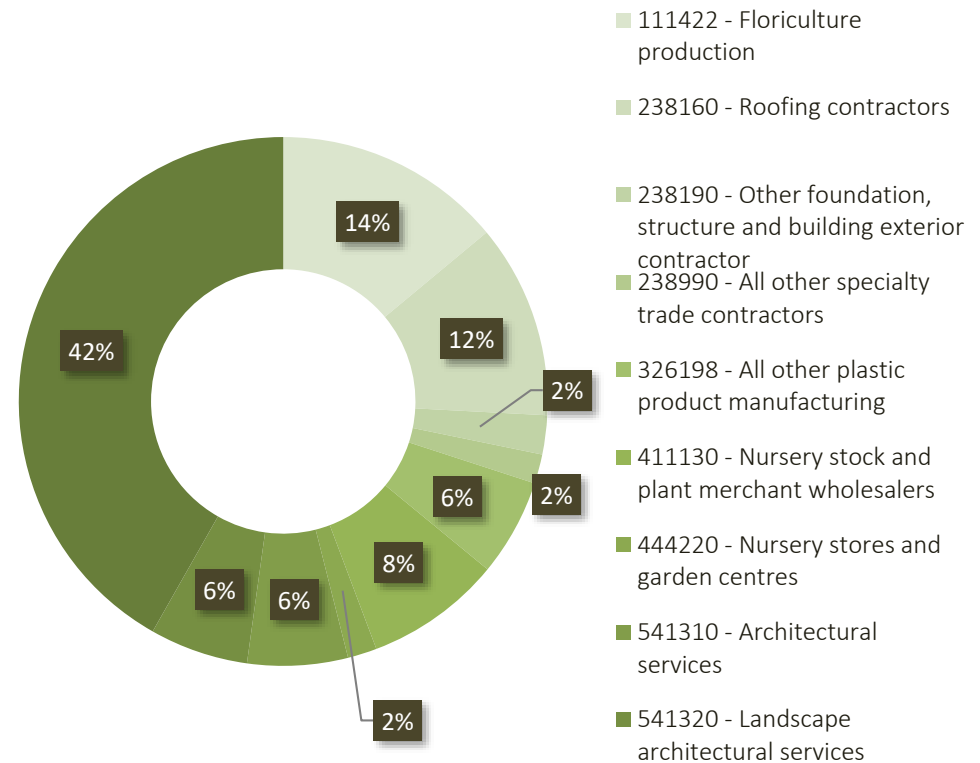


\$93 M in gross output



840 direct jobs

Green Roofs and Walls (Direct Jobs)



Source: The Delphi Group

Green Stormwater Management

- In 2018:



\$163.4 M in GDP

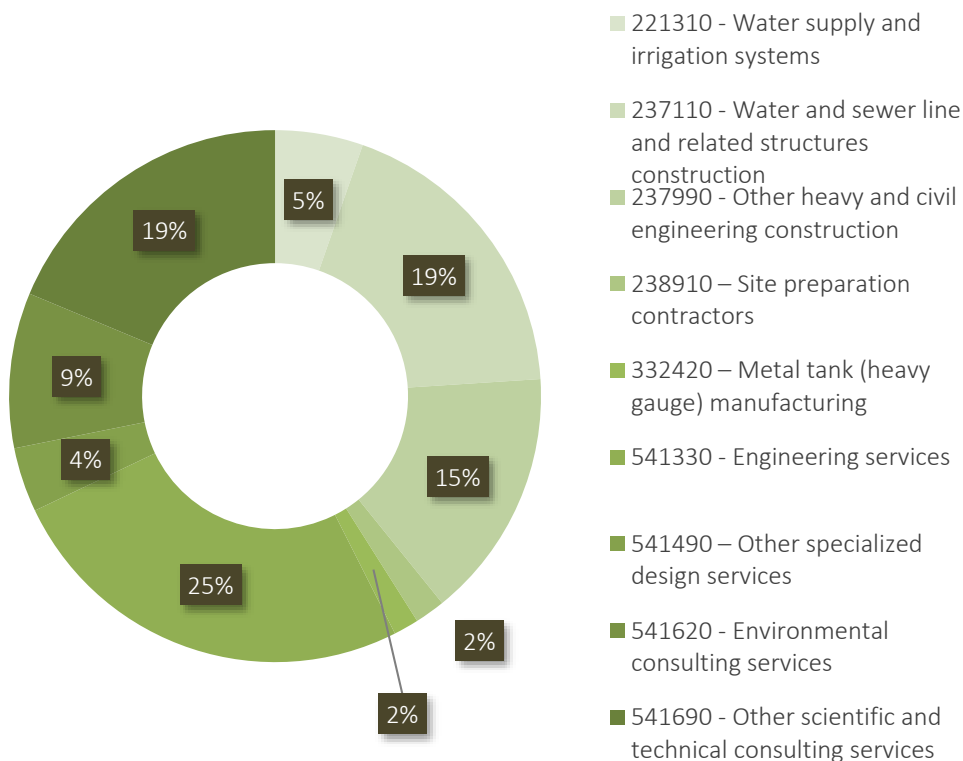


\$23.7 M in gross output



1,350 direct jobs

Green Stormwater Management Infrastructure (Direct Jobs)



Source: The Delphi Group

Urban Forests

- In 2018:



\$178 M in GDP

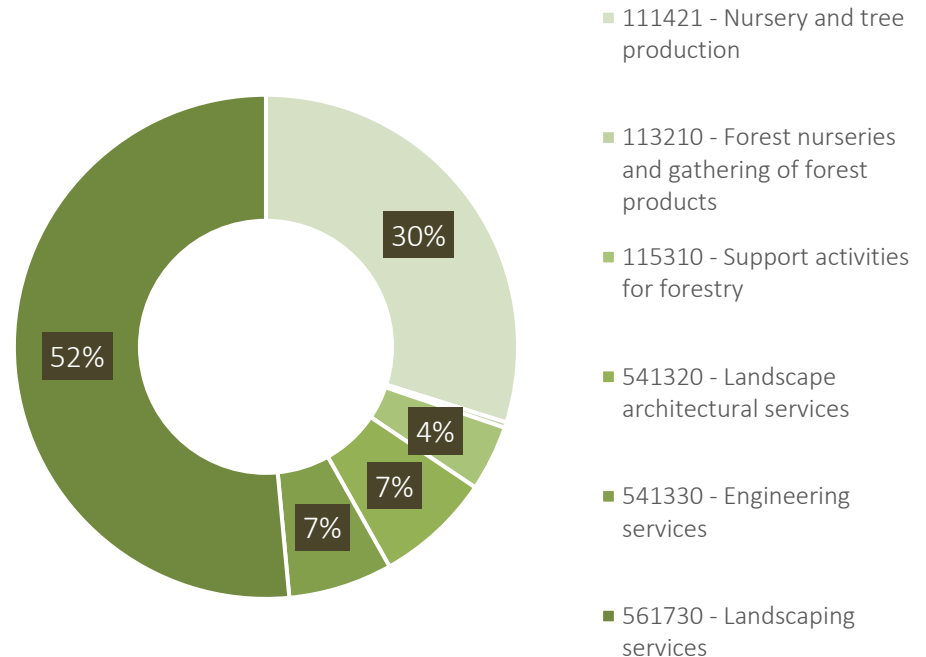


\$323.6 M in gross output



3,420 direct jobs

Urban Forests (Direct Jobs)



Source: The Delphi Group

Parks

- In 2018:



\$511.2 M in GDP

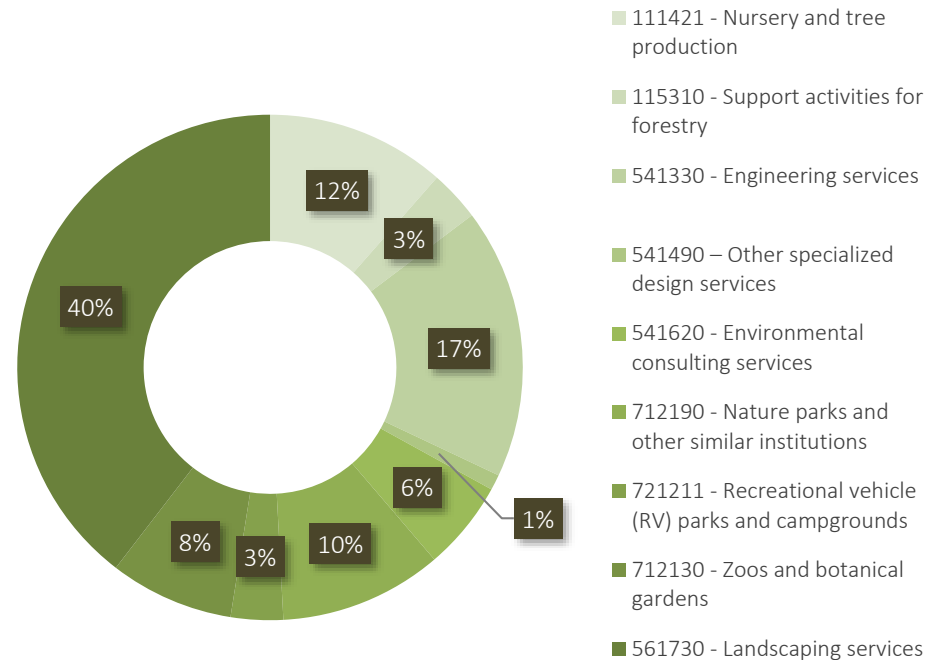


\$877.9 M in gross output



8,920 direct jobs

Parks (Direct Jobs)



Source: The Delphi Group

Natural Heritage

- In 2018:



\$331.4 M in GDP

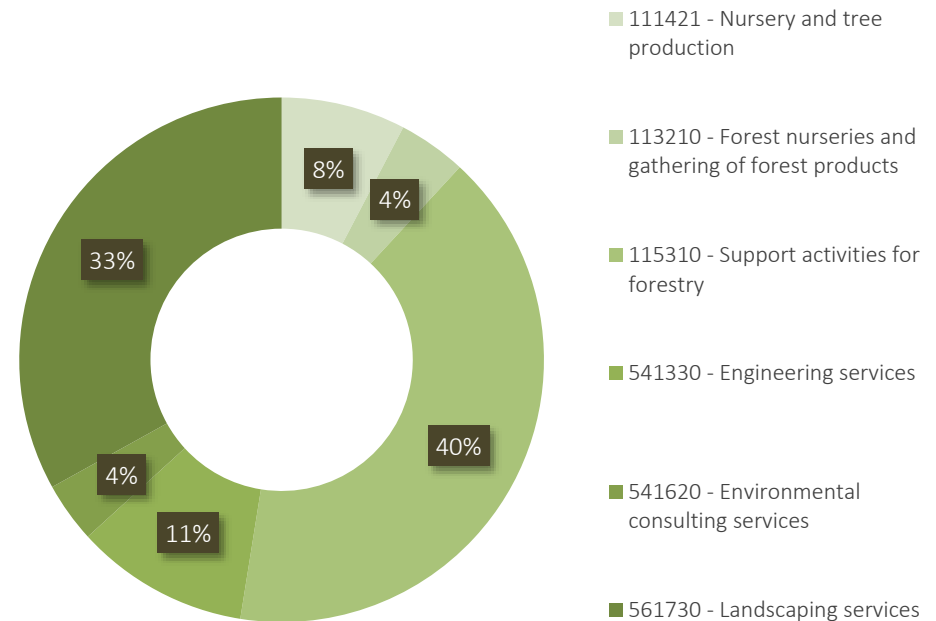


\$552.4 M in gross output



5,320 direct jobs

Natural Heritage (Direct Jobs)



Cross-Sectoral Support Services

- In 2018:



\$537.3 M in GDP

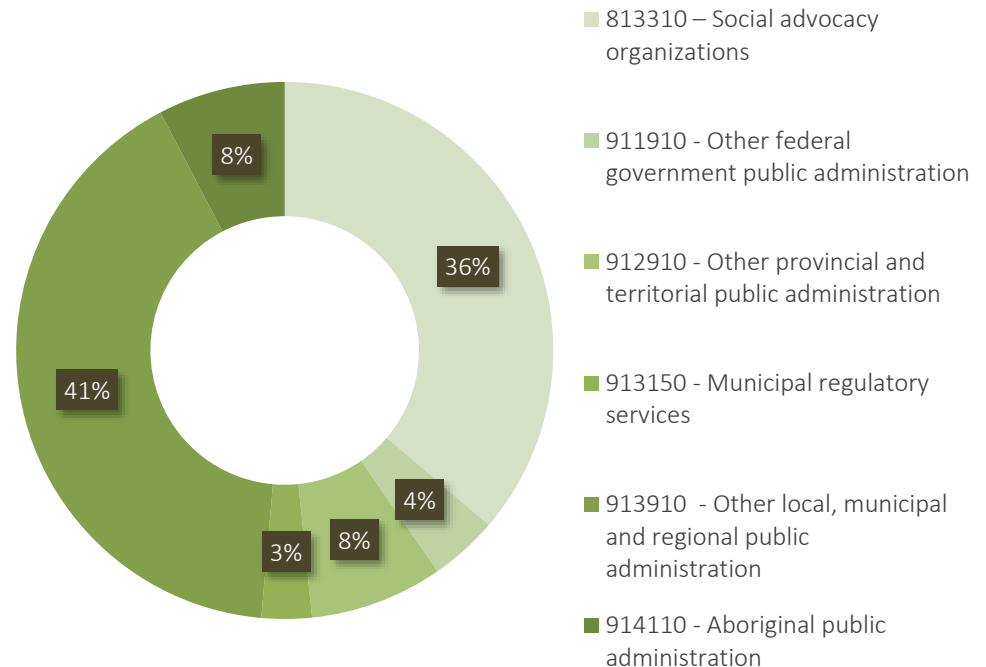


\$940.2 M in gross output



5,850 direct jobs

Cross-sector Support Services (Direct Jobs)



Source: The Delphi Group

7) In Summary

Green infrastructure drives significant economic impact in Ontario:

- **ECONOMIC IMPACT:** The green infrastructure sector generates \$8.6 billion in gross output (revenues) and \$4.64 billion in direct GDP.
- **GROWTH POTENTIAL:** The green infrastructure sector has the potential to grow; in direct GDP to \$6.9 billion in 2030 and 102,000 direct jobs by 2030.
- **JOBS:** The green infrastructure sector employed 84,400 people in 2018.
- **LEADING SUB-SECTOR:** Landscape Horticulture and Open Spaces sub-sector.

7) In Summary

In order to maximize the full potential triple-bottom-line benefits that can be provided by Ontario's green infrastructure sector, a coordinated approach across industries and sub-sectors is required in areas that include:

- 1) Better data collection and increased information sharing amongst decision-makers across the supply chain to demonstrate the clear value and benefits of green infrastructure to communities across Ontario.
- 2) Improved policy and regulatory frameworks that encourage the development and adoption of green infrastructure.
- 3) More inclusive funding and flexible financing options to support the capital costs and ongoing maintenance of green infrastructure.
- 4) Enhanced workforce skills and capacity development, including broader awareness amongst industry practitioners and decision-makers for the adoption of green infrastructure best practices.

Full Report

- Download the report!

<https://greeninfrastructureontario.org/gio-and-partner-resources/>



Join our coalition!

www.greeninfrastructureontario.org/join

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Let's Make Green Infrastructure the
NEW NORMAL!



Appendix A – Industry NAICS Codes

GI Sub-Sector NAICS Codes



Sector	Assets	NAICS
Green Roofs and Walls	<ul style="list-style-type: none"> • Green roofs • Green walls 	111422 - Floriculture production
		238160 - Roofing contractors
		238190 - Other foundation, structure and building exterior contractor
		238990 - All other specialty trade contractors
		326198 - All other plastic product manufacturing
		411130 - Nursery stock and plant merchant wholesalers
		444220 - Nursery stores and garden centres
		541310 - Architectural services
		541320 - Landscape architectural services
		561730 - Landscaping services
Green Stormwater Management	<ul style="list-style-type: none"> • Bioretention cells • Bioswales • Cisterns • Curb inlets • Gravel diaphragms • Infiltration chambers • Permeable pavement • Rain barrels • Rain gardens • Stormwater planters • Stormwater ponds • Underdrains 	221310 - Water supply and irrigation systems
		237110 - Water and sewer line and related structures construction
		237990 - Other heavy and civil engineering construction
		238910 - Site preparation contractors
		332420 - Metal tank (heavy gauge) manufacturing
		541330 - Engineering services
		541490 - Other specialized design services
		541620 - Environmental consulting services
		541690 - Other scientific and technical consulting services
		561730 - Landscaping services
Urban Forests	<ul style="list-style-type: none"> • Urban forest/tree canopy • Urban trees 	111421 - Nursery and tree production
		113210 - Forest nurseries and gathering of forest products
		115310 - Support activities for forestry
		541320 - Landscape architectural services
		561730 - Landscaping services

GI Sub-Sector NAICS Codes



Sector	Assets	NAICS
Green Stormwater Management	<ul style="list-style-type: none"> • Bioretention cells • Bioswales • Cisterns • Curb inlets • Gravel diaphragms • Infiltration chambers • Permeable pavement • Rain barrels • Rain gardens • Stormwater planters • Stormwater ponds • Underdrains 	221310 - Water supply and irrigation systems
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		237990 - Other heavy and civil engineering construction
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		332420 - Metal tank (heavy gauge) manufacturing
		541330 - Engineering services
		541490 - Other specialized design services
		541620 - Environmental consulting services
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		Urban Forests
113210 - Forest nurseries and gathering of forest products		
115310 - Support activities for forestry		
541320 - Landscape architectural services		
541330 - Engineering services		
561730 - Landscaping services		
111421 - Nursery and tree production		
115310 - Support activities for forestry		
326198 - All other plastic product manufacturing		
541330 - Engineering services		
Parks	<ul style="list-style-type: none"> • Urban parks • Rural parks • Marine parks 	541490 - Other specialized design services
		541620 - Environmental consulting services
		712190 - Nature parks and other similar institutions
		721211 - Recreational vehicle (RV) parks and campgrounds
		712130 - Zoos and botanical gardens
		561730 - Landscaping services

GI Sub-Sector NAICS Codes



Sector	Assets	NAICS
Natural Heritage	<ul style="list-style-type: none"> • Forests • Natural wetlands • Ravines • Lakes • Rivers and Creeks • Fields 	111421 - Nursery and tree production
		113210 - Forest nurseries and gathering of forest products
		115310 - Support activities for forestry
		541330 - Engineering services
		541620 - Environmental consulting services
		561730 - Landscaping services
Landscape Horticulture and Open Spaces	<ul style="list-style-type: none"> • Green streets • Parkways and boulevards • Gardens • Turfgrass • Fields 	111421 - Nursery and tree production
		111422 - Floriculture production
		325314 - Mixed fertilizer manufacturing
		332311 - Prefabricated metal building and component manufacturing
		333110 - Agricultural implement manufacturing
		411130 - Nursery stock and plant merchant wholesalers
		417110 - Farm, lawn and garden machinery and equipment merchant wholesalers
		444220 - Nursery stores and garden centres
		541320 - Landscape architectural services
		541330 - Engineering services
561730 - Landscaping services		
Cross-sector Support Services	<ul style="list-style-type: none"> • All 	813310 - Social advocacy organizations
		911910 - Other federal government public administration
		912910 - Other provincial and territorial public administration
		913150 - Municipal regulatory services
		913190 - Other municipal protective services
		913910 - Other local, municipal and regional public administration
		914110 - Aboriginal public administration