



Movement of Goods Series

Report #1: Economic Impact of the Movement of Goods in the Toronto-Waterloo Innovation Corridor

AUGUST 2017

The Toronto-Waterloo Innovation Corridor is Canada's largest transportation hub with the highest concentration of employment in transportation and logistics industries in the country.

FOREWORD

Transportation is the Toronto Region Board of Trade's longest-running advocacy file, and for good reason: the Toronto-Waterloo Innovation Corridor (the Region) is Canada's busiest transportation hub.

The movement of goods is critical to our economy. Wholesale and retail, transportation and warehousing, construction and primary industries contribute 1.4 million direct jobs and \$171 billion in annual GDP—one-third of the Region's total.

One of the most critical barriers to the smooth movement of people is the need for efficient goods movement.

Currently, there is no comprehensive data on the state of goods movement within the Region.

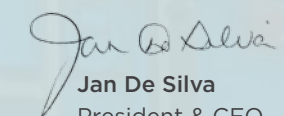
This information gap extends from local downtowns to freeways, to the inter-modal hubs at airports, rail and ports and our border crossing. It exacerbates the challenge of understanding and removing the barriers to freight efficiency. Ultimately, this hinders the competitiveness of the Region's manufacturing sector.

This is the first in a series of reports from the Board and our research partner CPCS. The report focuses on the economic impact of goods movement—the jobs provided, the industries supported and their overall contribution to Canada's growth and competitiveness.

The Board is focused on working towards a multi-modal, comprehensive regional strategy for timely and efficient goods movement. As catalysts for the business community, we are driving this multi-stage initiative, taking action by understanding the barriers and advocating solutions to improve goods movement, reduce congestion and create a more competitive business environment in the Region.

Establishing a comprehensive, multi-modal goods movement strategy is a critical part of the Board's 2020 Vision to make Toronto one of the most competitive and sought after business regions in the world.

It's time to get the Region moving again.



Jan De Silva
President & CEO
Toronto Region Board of Trade

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INTRODUCTION

The challenge of getting around the congested transportation network of the Toronto-Waterloo Innovation Corridor (the Region) is well known to both residents and visitors. We all feel the effects of traffic congestion when we go about our daily lives—driving our cars and boarding buses, trains and planes.

Less directly felt is the effect of traffic congestion on goods movement: slow and unreliable transportation hurts the Region's competitiveness by increasing the cost of doing business.

While estimates of the economic costs of traffic congestion in the Region vary, a commonly referenced estimate for the Greater Toronto and Hamilton Area (GTHA)¹ alone is \$6 billion every year.² Though much of the public debate focuses on the impacts of gridlock on passenger transportation, the impacts on goods movement are no less critical.

Simply put, goods movement underpins the high quality of life the Region's residents enjoy. Whether or not we give much thought to it on a day-to-day basis, delays and traffic uncertainty can have wide-ranging impacts on our lives. Unreliable transportation increases the risk of products being out of stock, forces households and businesses to wait longer for critical deliveries, and creates inefficiencies for retailers—from being unable to manage deliveries to holding excessive inventory,

to spoilage of fresh produce resulting from border and transit issues. Ultimately, these inefficiencies are passed on to consumers as higher costs.

Inefficient goods movement also drives up costs for automakers and other producers in the Region, harming their competitiveness and putting jobs at risk.

The Toronto-Waterloo Innovation Corridor is one of the fastest growing urban areas in North America. The GTHA alone is expected to grow by an estimated 110,000 residents annually.³ While Toronto is expected to remain the largest employment centre, the majority of employment growth will occur elsewhere in the Region. This growth and attendant challenges like traffic congestion impel us to explore policies and investments that will improve the economics, speed, reliability, safety and environmental sustainability of goods movement.

This report is the first of four in the Board's *Movement of Goods Series*. Its purpose is to describe the economic impact of goods movement in the Region.⁴

Subsequent reports will focus on the following topics:

- understanding the bottlenecks to goods movement in the Region;
- potential policies to improve the Region's goods movement; and
- identifying the costs and benefits of goods movement for businesses and consumers.

Goods movement is the lifeblood of the Toronto-Waterloo Innovation Corridor (the Region). Every product we buy, will at some point, be moved on the Region's multi-modal transportation system. All industries will inevitably depend on goods movement, with the most reliant being transportation, logistics and shipper industries (manufacturing, trade, construction and raw materials).

DIRECT IMPACT



\$171 billion in direct GDP, one-third of the Region's gross domestic product



1.4 million direct jobs plus annual pay wages and salaries of \$123 billion annually

INDIRECT & INDUCED* IMPACT



\$151 billion in indirect and induced GDP



900,000 indirect and induced jobs

*Economic activity generated when income earned in goods movement industries and by their suppliers is spent on other goods and services



Non-transportation service industries

financial services, public administration, healthcare and professional services make up the remaining two-thirds of the Region's GDP

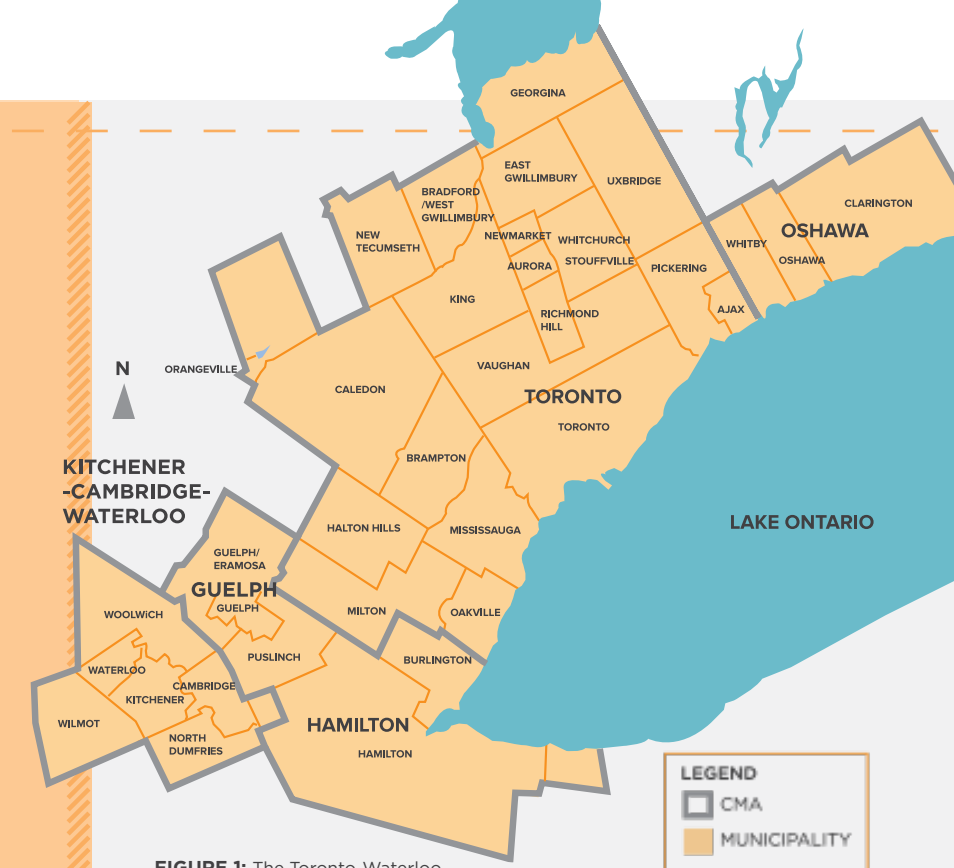


FIGURE 1: The Toronto-Waterloo Innovation Corridor

GLOSSARY OF TERMS

THE TORONTO-WATERLOO INNOVATION CORRIDOR (the Region) is defined as the five Statistics Canada Census Metropolitan Areas (CMAs) of Guelph, Hamilton, Kitchener-Waterloo-Cambridge, Oshawa and Toronto.

THE GREATER TORONTO & HAMILTON AREA refers to the City of Hamilton, the City of Toronto, Durham Region, Halton Region, Peel Region and York Region. This area corresponds approximately to Hamilton, Oshawa and Toronto Census Metropolitan Areas (CMAs).

THE TORONTO CENSUS METROPOLITAN AREA includes the following 23 municipalities: Ajax, Aurora, Bradford West Gwillimbury, Brampton, Caledon, East Gwillimbury, Georgina,

Halton Hills, King, Markham, Milton, Mississauga, Mono, New Tecumseth, Newmarket, Oakville, Orangeville, Pickering, Richmond Hill, Toronto, Uxbridge, Vaughan, Whitchurch-Stouffville.

THE REGION OF PEEL refers to Caledon, Mississauga and Brampton.

THE REGION OF YORK refers to Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan and Whitchurch-Stouffville

THE REGION OF HALTON refers to Burlington, Oakville, Milton and Halton Hills.

THE REGION OF DURHAM refers to Ajax, Brock, Clarington, Oshawa, Pickering, Scugog, Uxbridge and Whitby.



WHAT IS GOODS MOVEMENT?



Goods movement, sometimes referred to as “freight,” is the movement of a physical product from one location to another. Goods can be raw materials destined for processing at a plant, the food we buy in the grocery store, materials used in the construction of buildings we live and work in, manufactured products we use in our everyday lives, finished products transported to a retail location for sale, or packages transported by couriers.

There are five types of business that are primarily involved in or dependent on goods movement (Figure 2). In this report we collectively refer to these as goods movement industries.






THE LAST MILE

One of the distinguishing features of goods movement is the “last mile.” For example, the last mile may be the truck trip from a distribution centre to the grocery store or from a courier facility to a customer’s door. Often, last-mile trips are made with smaller vehicles to dense

urban areas where it is more difficult for larger trucks to travel. While goods may come into and out of the Region on a variety of modes such as rail, marine or pipeline, the last mile is almost always a truck trip. Issues associated with the last mile will be explored further in future reports in this series.



FIGURE 2: Goods Movement Industries

SECTOR	EXAMPLE BUSINESSES	TYPICAL GOODS
 Manufacturing	<ul style="list-style-type: none"> • Auto parts plant • Food manufacturing • Chemical plant • Household appliance manufacturing 	<ul style="list-style-type: none"> • Processed food and beverages • Vehicles and parts • Appliances • Clothing
 Wholesale & Retail	<ul style="list-style-type: none"> • Retail stores • Gas stations • Car dealerships • Distributors 	<ul style="list-style-type: none"> • Clothing • Household goods • Food and beverages • Electronics
 Construction	<ul style="list-style-type: none"> • Construction companies 	<ul style="list-style-type: none"> • Cement and concrete • Lumber • Building materials • Construction equipment
 Transportation & Warehousing	<ul style="list-style-type: none"> • Trucking companies • Couriers • Airlines, airports • Railways • Seaports 	<ul style="list-style-type: none"> • All goods
 Primary Industries	<ul style="list-style-type: none"> • Quarries and gravel pits • Farms 	<ul style="list-style-type: none"> • Fruit, vegetables • Animals, unprocessed milk • Sand and gravel

NOTE: Manufacturing includes North American Industry Classification System sectors 31-33; wholesale and retail sectors 41, 44-45; construction sector 23; transportation and warehousing sectors 48-49; primary industries sectors 11 and 21.

HOW DOES GOODS MOVEMENT CREATE ECONOMIC ACTIVITY & QUALITY OF LIFE?

Approximately 1 million tonnes of goods move in, out and through the Region daily. In dollar terms, more than \$3 billion of goods move on the Region's roads every day.⁵ Economic activity is created with every shipment, whether by air, pipeline, rail, road or water. To better understand the economic impact, consider the example of how many goods movement trips are made in order to serve ice cream to a consumer in the Region.



FIGURE 3: Simplified Ice Cream Supply Chain

HOW DOES GOODS MOVEMENT CREATE ECONOMIC ACTIVITY & QUALITY OF LIFE



ESTIMATING THE ECONOMIC IMPACT OF GOODS MOVEMENT

How can we describe the economic importance of goods movement? In a very real sense, the economy would quickly cease to function without it. One need only think of how quickly our daily lives would grind to a halt without gasoline, food products and medical supplies being delivered where they are needed.

Beyond this fundamental enabling function, one way to estimate economic impact is to look at the value in dollars of all of the economic activity created by goods movement industries.⁶ This measure is called the gross domestic product (GDP) directly created by goods movement.

Goods movement industries directly generated \$171 billion of GDP in 2016, 34% of the Region's total GDP (Figure 4).

The largest sectors by GDP are manufacturing and wholesale and retail, which each generated over \$50 billion in 2016 (Figure 5). The vast majority of this economic activity occurs within the Toronto Census Metropolitan Area (CMA). The Toronto CMA includes a number of the largest municipalities in the Region including Ajax, Brampton, the City of Toronto, Markham, Mississauga, Oakville, Pickering, Richmond Hill and Vaughan.⁷

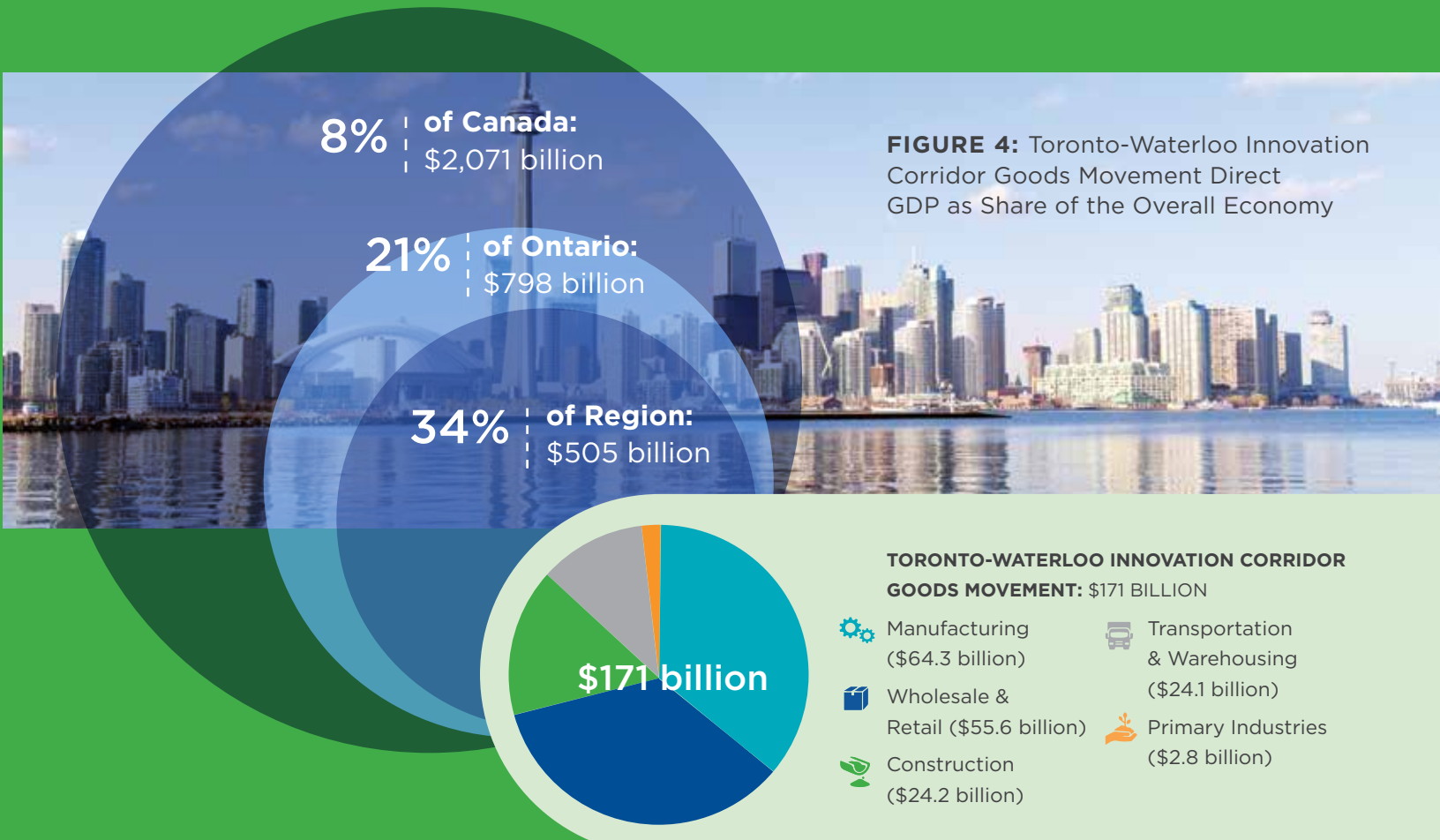
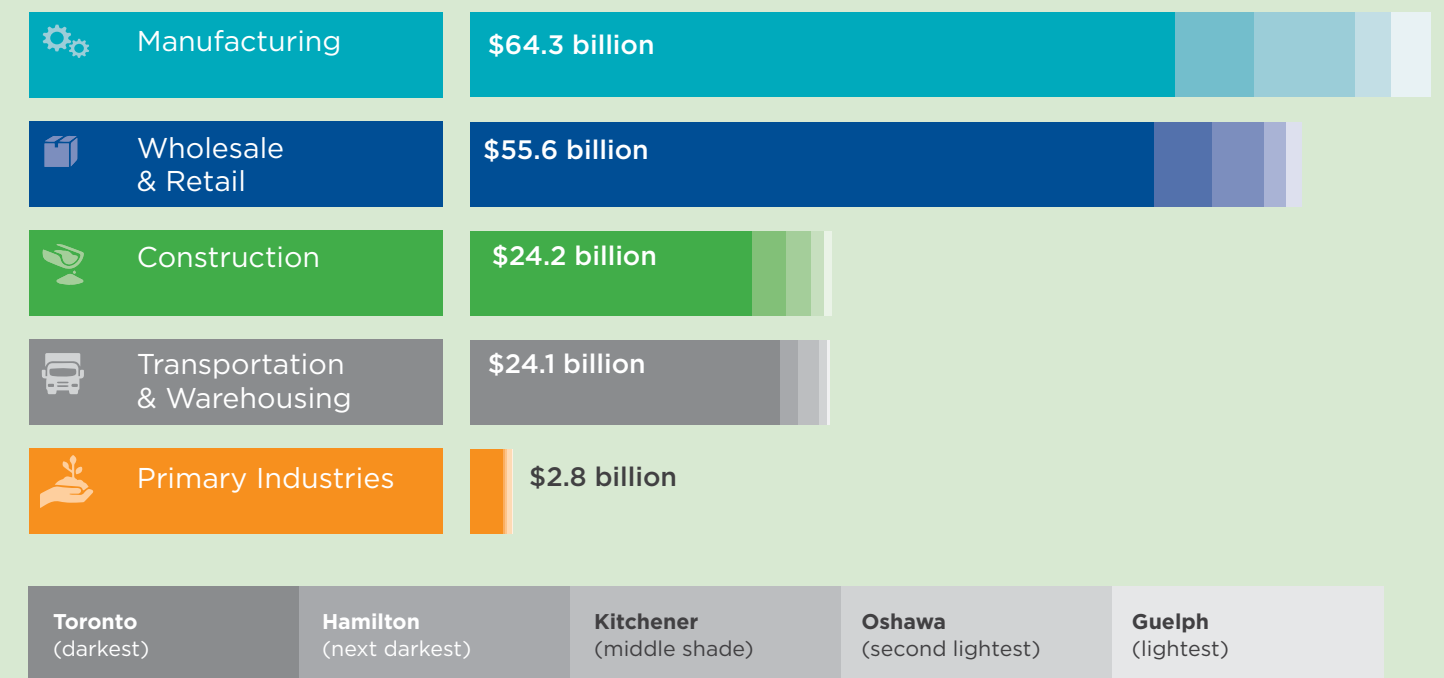


FIGURE 5: GDP in Key Goods Movement Industries and Census Metropolitan Areas



SOURCE: CPCS analysis of data from Statistics Canada and the Conference Board of Canada

GOODS MOVEMENT JOBS

Goods movement industries are also significant job creators. There are 1.4 million goods movement jobs in the Region, equal to 39% of the Region's total employment (Figure 6). Goods movement jobs in the Region represent 22% of all employment in Ontario and 8% of all employment in Canada.

8% | of Canada:
16.6 million

22% | of Ontario:
6.3 million

39% | of Region:
3.6 million

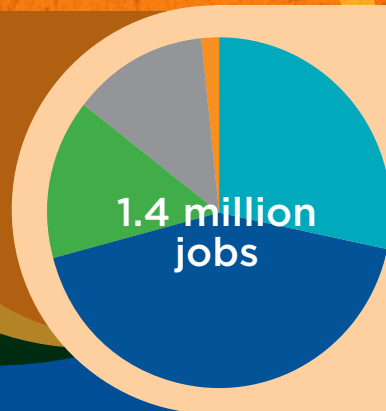


FIGURE 6: Toronto-Waterloo Innovation Corridor Goods Movement Employment as a Share of Total Employment in Canada

TORONTO-WATERLOO INNOVATION CORRIDOR GOODS MOVEMENT: 1.4 MILLION JOBS

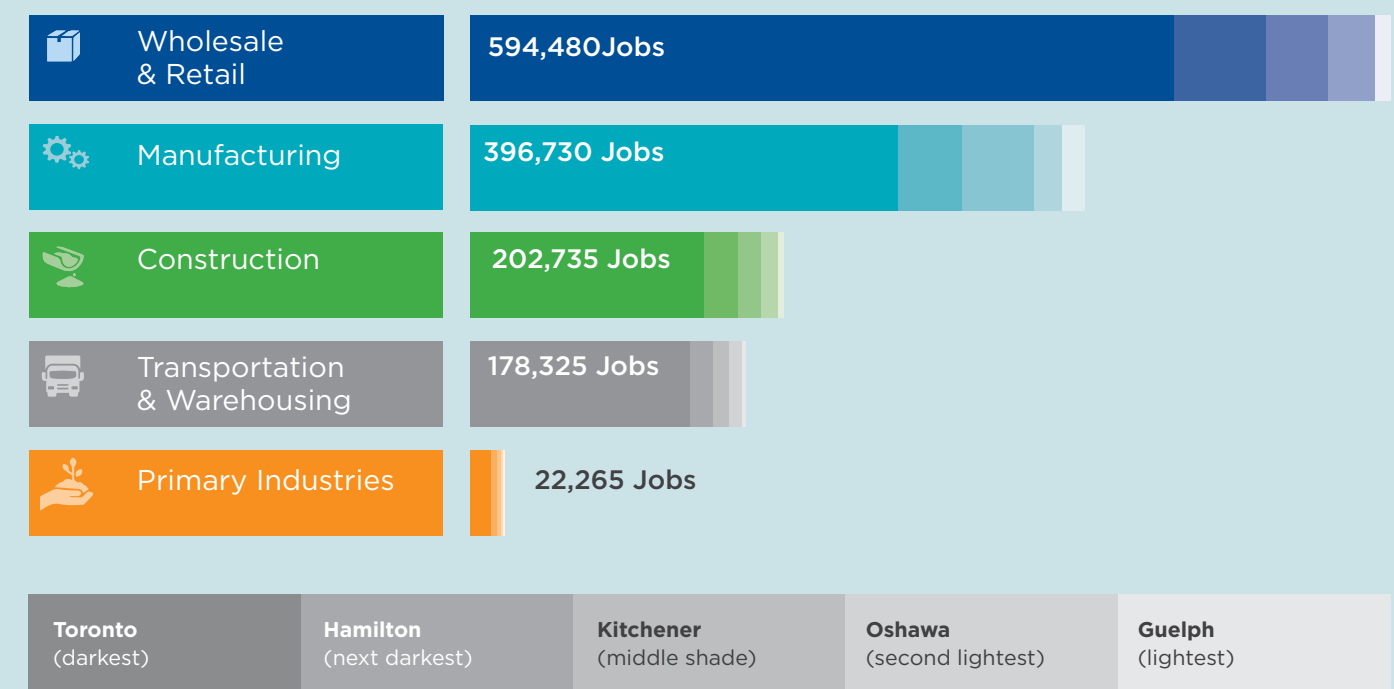
Manufacturing (397,000)	Transportation & Warehousing (178,000)
Wholesale & Retail (594,000)	Primary Industries (22,000)
Construction (203,000)	

SOURCE: CPCS analysis of data from Statistics Canada and the Conference Board of Canada

GOODS MOVEMENT JOBS

The largest generators of employment in the Toronto-Waterloo Innovation Corridor include wholesale and retail, and manufacturing (Figure 7).

FIGURE 7: Employment in Goods Movement Industries in the Toronto-Waterloo Innovation Corridor



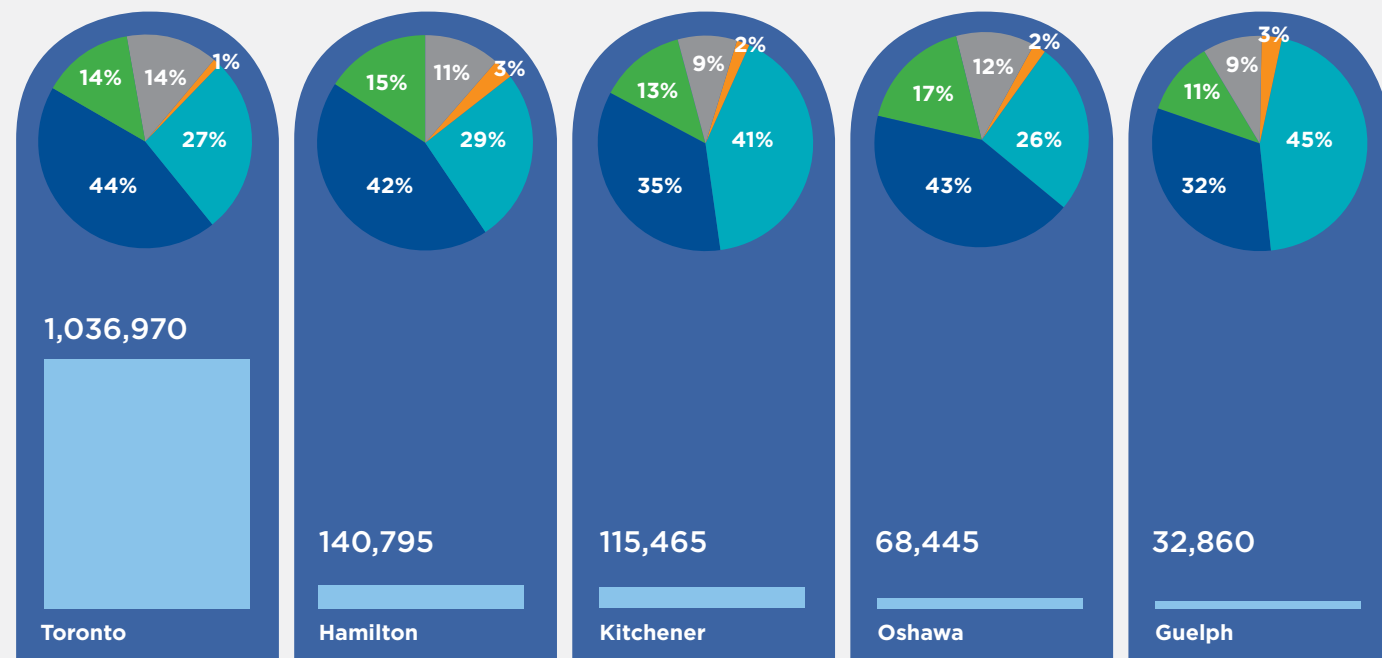
SOURCE: CPCS analysis of data from Statistics Canada's National Household Survey (2011)



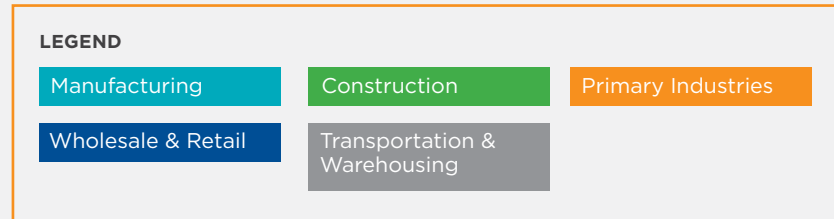


As with GDP, the majority of jobs are within the Toronto CMA (Figure 8). Manufacturing is the largest generator of employment in the Guelph and Kitchener CMAs, and wholesale and retail the largest employer in the Toronto, Hamilton and Oshawa CMAs.

FIGURE 8: Goods Movement Jobs by Census Metropolitan Area



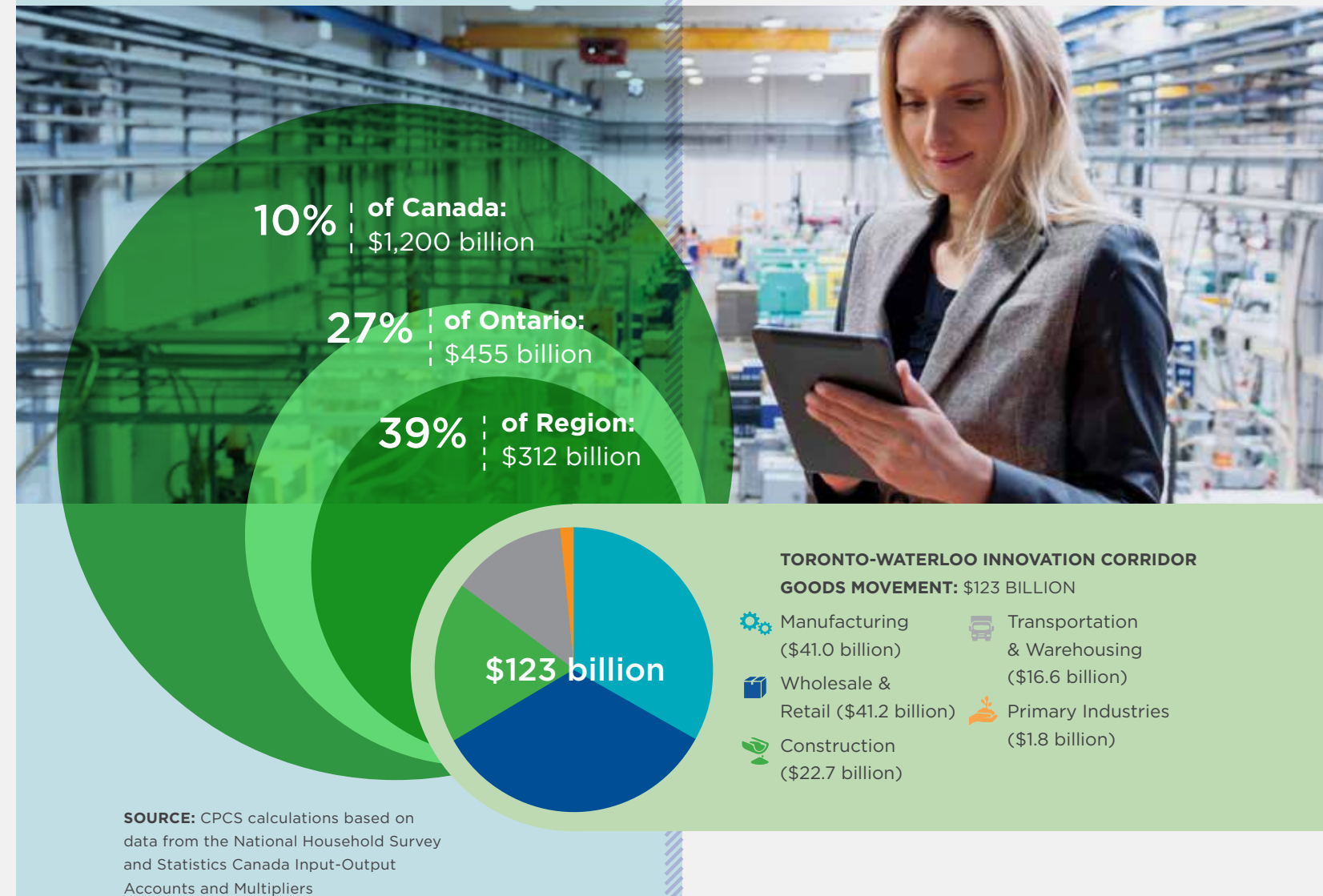
SOURCE: CPCS analysis of data from Statistics Canada's National Household Survey (2011)



WAGES & SALARIES

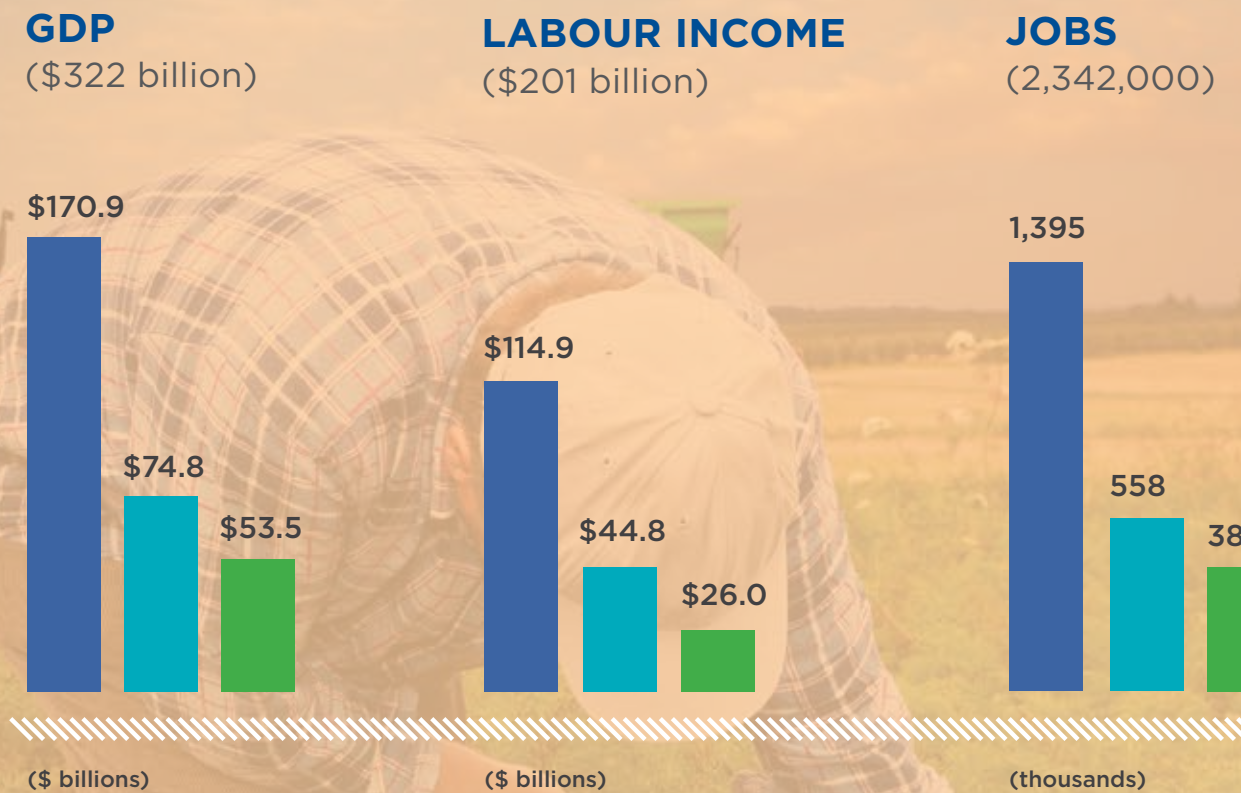
Goods movement industries generate \$123 billion in labour income (wages and salaries) in the Region.⁸ This represents 39% of all labour income in the Region, 27% of all labour income in Ontario, and over 10% of all labour income nationally. Top labour income-generating industries are wholesale and retail, followed by manufacturing.

FIGURE 9: Toronto-Waterloo Innovation Corridor Goods Movement Labour Income as a Share of Total Labour Income



The economic activity generated by goods movement can also have impacts in other sectors. Taking the ice cream example above, the purchase of ice cream leads to economic activity for suppliers to the businesses directly involved in planting, growing, harvesting feed for cows, processing milk, production and handling, and restaurants and retail locations. Further economic activity is generated when labour income earned in goods movement industries and by their suppliers is spent on other goods and services.⁹ Adding indirect and induced effects to direct goods movement activity, goods movement industries in the Region generate up to \$322 billion in GDP, \$201 billion in labour income and 2.3 million jobs.

FIGURE 10: Economic Impacts of Goods Movement in the Toronto-Waterloo Innovation Corridor



SOURCE: CPCS calculations

LEGEND

- Direct Impacts
- Supplier Impacts
- Impacts from Re-Spending of Income



THE ECONOMIC IMPORTANCE OF CLUSTERS

The concept of business clusters offers another perspective on the economic importance of goods movement. A cluster is a group of related businesses that benefit from locating in proximity to one another. Benefits include access to a large and skilled labour force, a diverse mix of suppliers, shared infrastructure, and networks of knowledge and learning, including through the Region's educational institutions.

FIGURE 11: GDP per Worker in Transportation & Warehousing (2011)



THE ECONOMIC IMPORTANCE OF CLUSTERS



AN ESTABLISHED CLUSTER

The **Region of Peel** consists of Brampton, Mississauga, and Caledon, and hosts the largest goods movement cluster in Canada. Peel is home to Pearson Airport, Canada's largest airport by freight volumes; CN's Brampton intermodal terminal, its largest in North America; and five 400-series highways. Peel Region is also home to many large distribution centres for prominent companies such as Walmart, Canadian Tire and Canada Post.

SOURCE: "Goods Movement in the Region of Peel" (peelregion.ca)



AN EMERGING CLUSTER

The **Town of Milton** is an example of a rapidly developing freight cluster. As the Region grows, distribution activity is moving outward, notably to the western GTHA. Milton is home to large distribution centres for companies like Lowe's, Whirlpool and Sobeys. Meanwhile, CN has announced plans to build a \$250 million intermodal and logistics hub adjacent to its main line in Milton, to meet its growth needs as the Brampton terminal reaches capacity.

SOURCE: "Milton Logistics Hub" (cn.ca)



A LARGE FREIGHT FACILITY

The **Port of Hamilton** offers an example of a somewhat different goods movement cluster more focused on industrial and agricultural products. It is the largest Canadian port on the Great Lakes, receives approximately 600 vessel calls per year, and handles large volumes of minerals, coal, fuel, and agricultural and other products. The port is critical to the steel-making industry in Hamilton as well as for small grain producers in Southern Ontario.

SOURCE: "Port of Hamilton Economic Impact Study"



The Region's goods movement GDP reflects its role as the single most important hub for goods movement activities in Canada. Freight flows into and out of the Region from across the country and around the world. Toronto Pearson and Hamilton John C. Munro International Airports are respectively the first- and third-most important airports in Canada for handling cargo, together accounting for more than 40% of air cargo in Canada.¹⁰ The Pearson Airport area employed almost 300,000 people as of 2011, making it the second largest concentration of employment in Canada after downtown Toronto.¹¹ The Region's marine ports (Hamilton, Oshawa and Toronto) ship and receive goods from across Canada and around the world. Canada's two largest railways (CN and CP) connect the Region with points throughout North America. For example, 40% of intermodal (containerized) traffic handled by CN moves through its intermodal terminal in Brampton, the largest such facility in Canada. Hundreds of trucking and courier companies provide critical last-mile pick-up and delivery as well as fast and direct long-distance connections. Finally, the Region's warehouses distribute goods within the Region and, in many cases, across Canada.

All of this transportation and warehousing activity is supported by a deep network of service businesses such as brokers, lawyers and other professionals specialized in transportation, as well as suppliers of all of the goods and services required to move vast volumes of freight. This clustering and specialization is one factor that makes transportation and logistics businesses

more productive (in terms of average GDP per worker) than those in Ontario or Canada as a whole (Figure 11).

The federal government is investing billions in strengthening national trade corridors to support Canadian goods movement industries. Seamless multi-modal options in the Toronto-Waterloo Innovation Corridor—from reliable highways to sufficient intermodal capacity—are critical for the future global competitiveness of the Region's businesses.

For residents of the Region not involved in goods movement, the benefit of this cluster is that the Region is able to competitively sell goods and services across Canada while creating jobs and economic activity here.




CONCLUSION

Goods movement directly accounts for over one-third of economic activity in the Toronto-Waterloo Innovation Corridor (Figure 12). But to focus on these numbers—as significant as they are—understates the true economic importance of goods movement. Our daily lives would quickly come to a halt without goods movement. Were goods not delivered when and where needed, our economy simply could not function. Constraints on rapid, reliable, safe, economical and environmentally sustainable goods movement, such as traffic

congestion, have a tangible impact on our quality of life.

This report is the first in the Board's *Movement of Goods Series* exploring the importance of goods movement to the Region. The next report will focus on the physical side of goods movement, describing freight generators and attractors as well as key bottlenecks. Future reports will build on this foundation to explore potential policies and investments to improve goods movement, and describe the cost implications of goods movement for individuals and businesses at a more detailed level.

FIGURE 12: Summary of Direct Economic Impacts in the Toronto-Waterloo Innovation Corridor

SECTOR	GDP	JOBS
 Manufacturing	\$64.3 billion	396,730
 Wholesale & Retail	\$55.6 billion	594,480
 Construction	\$24.2 billion	202,735
 Transportation & Warehousing	\$24.1 billion	178,325
 Primary Industries	\$2.8 billion	22,265
Total	\$171 billion	1.4 million



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ENDNOTES

1. The Greater Toronto and Hamilton Area refers to the City of Hamilton, the City of Toronto, Durham Region, Halton Region, Peel Region and York Region. This area is similar (though not exactly the same) as the combination of the Hamilton, Oshawa and Toronto Census Metropolitan Areas (CMAs).
2. Metrolinx (2008) "Costs of Road Congestion in the Greater Toronto and Hamilton Area," December.
3. Ontario Ministry of Municipal Affairs and Housing (2013) "Growth Plan for the Greater Golden Horseshoe - Office Consolidation."
4. Ontario Ministry of Municipal Affairs and Housing (2013) "Growth Plan for the Greater Golden Horseshoe - Office Consolidation."
5. CPCS analysis of the Ontario Ministry of Transportation's 2012 Commercial Vehicle Survey.
6. The concept of economic activity is how much is produced (i.e. sales) less the cost of all of the inputs used in production.
7. The Toronto CMA includes the following 23 municipalities: Ajax, Aurora, Bradford West Gwillimbury, Brampton, Caledon, East Gwillimbury, Georgina, Halton Hills, King, Markham, Milton, Mississauga, Mono, New Tecumseth, Newmarket, Oakville, Orangeville, Pickering, Richmond Hill, Toronto, Uxbridge, Vaughan, Whitchurch-Stouffville.
8. Calculated using Statistics Canada Input-Output Accounts (Received per request from Statistics Canada). Statistics Canada notes in the IO accounts: "The 'labour income' variable in the IO accounts combines 'wages and salaries',

"supplementary labour income" and the labour income portion of "gross mixed income" (the net income of the unincorporated sector). The return to capital portion of "gross mixed income" is combined with the "gross operating surplus" variable."

9. Called an induced impact. To estimate the indirect and induced impacts of goods movement in the Region, economic multipliers from Statistics Canada input-output accounts are applied to the direct impacts to estimate the indirect and induced impacts. In order to account for potential double counting (output from one goods movement industry is also input into another goods movement industry and is therefore counted twice when calculating indirect and induced impacts), the indirect and induced impacts have been reduced by the inputs between the goods movement sectors analyzed in this report using Statistics Canada Input-Output tables. Including indirect impacts likely underestimates the total impact of the industries since this does not account for new household spending, while including induced impacts likely overestimates total impacts given fixed assumptions about incomes and household spending.
10. Statistics Canada (2015) "Air Carrier Traffic at Canadian Airports -2015," Table 2-1, p. 12. Vancouver International Airport ranks second nationally between Toronto and Hamilton.
11. Blais, Pamela (2016) "Unlocking the Potential of the Airport Megazone". Neptis Policy Brief, October.



**TORONTO
REGION
BOARD OF TRADE**

ABOUT THE TORONTO REGION BOARD OF TRADE

Founded in 1845, Toronto Region Board of Trade is the chamber of commerce for Canada's largest urban centre, connecting more than 12,000 members, business professionals and influencers throughout the Toronto region. The Board fuels the economic, social and cultural vitality of the entire Toronto region by fostering powerful collaborations among business, government, thought leaders, and community builders. The Toronto Region Board of Trade's vision is to make Toronto one of the most competitive and sought after business regions in the world. Learn more at bot.com and follow us at [@TorontoRBOT](https://twitter.com/TorontoRBOT).



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