



Movement of Goods Series

Report #4: Policies to Improve Goods Movement

FEBRUARY 2018

FOREWORD

For decades, the competitiveness of the Toronto-Waterloo Corridor (the Corridor)—Canada’s largest manufacturing and transportation hub—has been hampered by a lack of collaboration, focus and policy alignment on the need for efficient goods movement. Prior to the Board’s Movement of Goods series, this issue was flying under policy-makers’ radar with little or no data to inform a comprehensive, multimodal strategy.

Over the course of three reports released throughout 2017, the Board revealed the economic importance of goods movement industries in the Corridor, identified challenges and bottlenecks keeping goods idling in traffic and measured the impact of delays and congestion on business and consumers. Through the Board’s research, produced with our partner CPCS, we now know that delays to the \$3 billion worth of goods moving through the Corridor every day cost each household \$125 per year in higher prices for goods.

While our research focused on factors specific to the Corridor, the impact of delayed goods movement is national in scope: cost increases affect consumers across Canada and finding solutions to our challenges will involve all levels of government and industry.

The Board’s findings informed much of the discussion at our 3rd Annual Transportation Summit: Accelerating the Movement of People & Goods, presented by SNC-Lavalin in November 2017. We gathered more than 300 members of the region’s transportation community, raised awareness of the goods movement issue and generated buy-in for these proposed solutions and policy positions.

In this, our final report in this series, we propose recommendations to enhance goods movement by 1) optimizing use of existing infrastructure; 2) targeting investment in new projects; 3) improving transportation and land use coordination; and, 4) resolving conflicts on our major downtown arteries. Inspired by the strategies of city regions from Seattle to the Region of Peel, these comprehensive and evidence-based recommendations will inform policies that provide concrete, real-life solutions to the congestion challenges faced in the Corridor daily.

This series is a first step in the right direction, but we still need more data to fill the existing gaps. In the coming year, we’ll continue collaborating with our partners and industry stakeholders across sectors to produce further research to develop a multimodal strategy connecting the Corridor.

Goods movement is as critical to accelerating the movement of people to get the region moving again. With upcoming 2018 provincial and municipal elections, the challenges and solutions to the efficient movement of people and goods through the region must be top-of-mind for those who are running and those casting a ballot.

It’s time to remove the barriers and develop a multimodal strategy that connects the Corridor right down to the last mile to keep us moving.



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 Corridor (the Corridor) is well known to both residents and visitors.

Less directly felt is the effect of traffic congestion on goods movement: slow and unreliable transportation hurts the Corridor's competitiveness by increasing the cost of doing business. Stores, restaurants, hospitals and plants cannot afford to risk late and unreliable shipments.

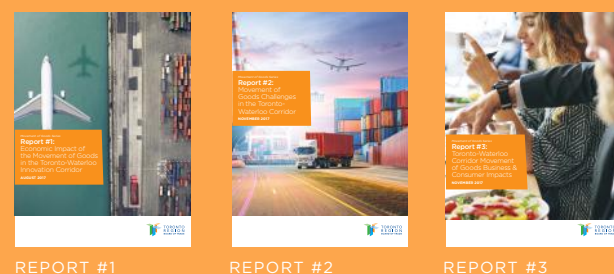
From exporters getting goods to international markets to consumers enjoying stocked grocery shelves, goods movement underpins the high quality of life the Corridor's residents enjoy. This series takes a multimodal perspective, describing how air, marine, pipeline, rail and trucking interact

in moving goods across the Corridor (the Corridor is illustrated in Figure 1).

This report is the Board's fourth report in its Movement of Goods Series. It takes the findings presented in the first three and proposes tangible policy recommendations that will help set the Corridor on a path to creating a comprehensive multimodal goods movement strategy. Each recommendation is supported by specific examples of successful solutions from within the Corridor and beyond. Before we get into solutions, it is important to take stock of the significant challenges affecting the Corridor.

MOVEMENT OF GOODS SERIES REPORTS

- **Report #1:** Economic Impact of the Movement of Goods in the Toronto-Waterloo Innovation Corridor—released August 2017
- **Report #2:** Movement of Goods Challenges in the Toronto-Waterloo Corridor—released November 2017
- **Report #3:** Toronto-Waterloo Corridor Movement of Goods Business & Consumer Impacts—released November 2017



CHALLENGES RECAP

"Report #2: Movement of Goods Challenges in the Toronto-Waterloo Corridor" identified four key challenges. These challenges go beyond specific regulatory and policy issues unique to a single mode; they reflect common themes identified in extensive Toronto Region Board of Trade consultations.¹ This series of reports focuses on issues that are specific to the Corridor, rather than national in scope—although solutions to these challenges may involve all levels of government as well as industry.

Challenge: Road Congestion. Many of the Corridor's most important freight corridors are severely congested, especially Highway 401.

Challenge: Land Use Conflicts. As the Corridor grows, residential land uses are continuing to expand and are putting pressure on traditional industrial lands and corridors relied on for the movement of goods by all modes.

Challenge: Last-Mile Connectivity. The "last mile" refers to the transportation of goods to their final destination, for example a retail outlet, manufacturing plant or resident's doorstep. Most last-mile deliveries are made by trucks which share road space with other users, increasing the likelihood of

conflicts. (Similarly, the "first mile" is important for manufacturers in the Corridor shipping products across Canada and beyond.)

Challenge: Need for Strategic Vision. Despite the importance of the movement of goods to the economy, goods movement needs and issues have traditionally not been afforded the same level of policy attention, nor public consciousness, as passenger needs. Proper strategic vision means not just long-term thinking, but also coordination and collaboration among stakeholders.

These challenges matter because movement of goods industries are responsible for \$171 billion in gross domestic product (GDP) and 1.4 million direct jobs—more than one-third of all GDP and jobs in the Corridor. Yet traffic congestion alone costs every household in the Corridor an extra \$125 per year in higher prices for everyday goods and hurts the Corridor's economic competitiveness.

FIGURE 1: The Toronto-Waterloo Corridor



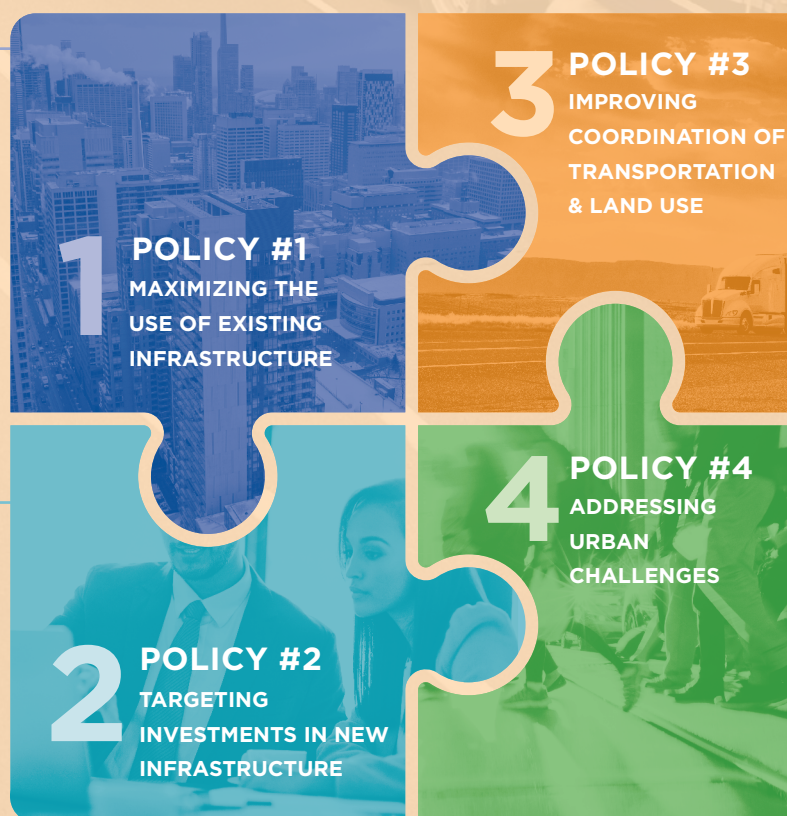
4 POLICY RECOMMENDATIONS FOR THE CORRIDOR



The Board is putting forward four policies that will not only address these challenges, but enhance the movement of goods and increase economic prosperity and quality of life in the Corridor. Each policy recommendation contains tangible directives to move the recommendations from idea to action.

To a large extent, a mega-region like the Toronto-Waterloo Corridor cannot simply build its way out of traffic congestion and other transportation issues. However, much can be done to make better use of the infrastructure that already exists.

In a growing Corridor, new infrastructure is critical where existing (and better used) capacity can no longer handle increasing passenger and freight demand.



1 POLICY #1
MAXIMIZING THE USE OF EXISTING INFRASTRUCTURE

3 POLICY #3
IMPROVING COORDINATION OF TRANSPORTATION & LAND USE

2 POLICY #2
TARGETING INVESTMENTS IN NEW INFRASTRUCTURE

4 POLICY #4
ADDRESSING URBAN CHALLENGES

Land use planning must support, rather than hinder, the movement of goods industries that underpin our economic prosperity.

In a dynamic region such as the Corridor, urban conflicts are not entirely avoidable, yet these conflicts can be reduced and diminished through planning, design and technology.

POLICY #1:
MAXIMIZING THE
USE OF EXISTING
INFRASTRUCTURE



Making our Roads & Highways Smarter

WHAT IT MEANS

Taking advantage of rapidly emerging technologies to improve mobility on our roads and highways.

WHAT IT ADDRESSES

- Road Congestion
- Last-Mile Connectivity

DIRECTIVES

The Province and municipalities should speed up the adoption of smart technologies with proven benefits, focusing deployment on roads and highways that carry high volumes of trucks.

WHAT WE CAN DO

IMPLEMENTING SMART TRAFFIC SIGNALS

Picture this: The light turns green for an advance left turn, but there are no vehicles waiting to turn. How much time is wasted by trucks, cars, buses and pedestrians waiting for this redundant signal?

Existing Technologies: According to the US Federal Highway Administration, existing adaptive signal control technologies using traditional sensors (e.g. pavement loops) improve travel time by 10 to 50% or more.² Much of the road network in the Corridor does not take full advantage of even existing technologies.

Smart Signals: New technologies have further promise. Emerging smart signals use cameras and sensors to respond to traffic patterns in real-time, and machine learning to improve performance over time. These systems work best when connected to one another, and eventually to vehicles. One study found that large benefits could be achieved with just 35% of vehicles connected to smart signals.³ **Example:** Pittsburgh's next-generation smart signals have reduced travel time by 25%. Developed by a spin-off of Carnegie Mellon University, these signals are in place at 50 intersections, expanding to 200 of the city's 600 intersections in the near future.⁴ In 2017 the City of **Toronto** launched a pilot project to implement smart signals at 22 intersections, testing separate technologies along two corridors with the idea of selecting one for larger-scale deployment.⁵

Truck Signal Priority is a tool that can be used to extend green signals for trucks to accommodate for the slow acceleration and deceleration time of trucks—resulting in reduced pollution and less delay for all vehicles.⁶

Urban Areas: In dense urban areas with bicycles and pedestrians, it is not rare for a single turning vehicle to block a lane for an entire cycle. Trucks in particular have difficulty manoeuvring. Smart, responsive signals have potential to better regulate the flow of all modes of transportation.

IMPROVED HIGHWAY OPERATIONS

Aside from the 407, major highways across the Corridor have very few "smart" features.

Highway Operations: Stop-and-go highway traffic is inefficient and unsafe. Variable speed limits, posted on overhead gantries and updated in real-time, can smooth traffic flow and diminish stop-and-go conditions. Hard shoulder running allows use of wide shoulder lanes at congested times, increasing capacity. Ramp metering, widely used in US states like California, can help regulate traffic flow. **Example: "Smart motorways"** using variable speed limits and hard shoulder running are in widespread use in the United Kingdom. Ramp metering (QEW) and bus shoulder lanes (DVP) have limited use in the Corridor. Although presently at an early stage, MTO's high occupancy toll (HOT) lanes have the potential to incorporate smart features.

Rapid accident clearance helps avoid long, unexpected delays, which are extremely costly for the transportation industry. **Example: The Ontario Provincial Police and Halton Region** use drones developed in Waterloo to quickly record accident scenes, cutting this clearance process from 1-2 hours to 15 minutes.⁷ The City of **Toronto** has launched "quick-clear squads" on municipal highways, a program it has found to have benefit-cost ratios of 10:1.⁸ Implementing more advanced event data-recording **telematics devices** (black boxes) in vehicles would also reduce investigation times and make first response more effective and efficient.

SMARTER ENFORCEMENT

Theoretical improvements are not much use if road users do not obey the rules.

More should be done in the Corridor to reduce incidences of vehicles making illegal turns and "blocking the box" (failing to clear the intersection). Toronto has rolled out red light cameras and is planning to deploy traffic wardens at major intersections in 2018.⁹ Big cities around the world like Tokyo and London make widespread use of traffic wardens or video technology to smooth traffic flow at intersections and increase law abidance.

POLICY #1:
MAXIMIZING THE
USE OF EXISTING
INFRASTRUCTURE



WHAT WE CAN DO

LEVERAGING HIGHWAY 401 EXPRESS LANES

The Highway 401 express lanes are designed to provide faster travel for vehicles, including trucks, travelling longer distances along the highway. Yet due to traffic congestion, these lanes are not fulfilling their function.

Highway 401 is the most important artery for goods movement in the Corridor, by truck volumes. Yet it is also the artery with by far the most truck delay. Even on the 401, most delay is caused by heavy passenger traffic, which represents about 90% of total traffic in peak hours.¹⁰ As well, the cost for a truck stuck in traffic is typically several times higher than the cost for a passenger vehicle.

Leveraging the 401 express lanes could involve a range of implementation mechanisms, e.g. providing a single dedicated lane for trucks (with electronic enforcement), or converting the entire express lane to a “true” express system that gives priority to trucks (potentially alongside buses and high-occupancy toll/high-occupancy vehicle (HOT/HOV) users).

SHIFTING TRUCKS TO THE 407

Highway 407 provides seamless, uncongested travel through the Corridor. Shifting trucks to the 407 could improve truck travel speeds while freeing up road space on other corridors such as the 401.

Highway 407 manages flow through the use of time-of-day pricing, which helps increase throughput while maintaining reliable travel speeds. While some fleets already use Highway 407 for just-in-time shipments, a common issue among shippers and trucking companies is the high cost—a cost that is ultimately passed through to consumers.

Incentives to support trucking companies in shifting trips to Highway 407 could be one method of increasing truck speeds and reliability in the Corridor, while reducing the greenhouse gas emissions that come from diesel vehicles in stop-and-go traffic (and shifting the Corridor’s pass-through trucks off Highway 401). One source of funding for these incentives could be the Province’s Climate Change Action Plan or revenues generated by the gas tax.



Getting Trucks Moving on our Highways

WHAT IT MEANS

Better managing the flow of traffic on congested highways, in order to provide trucks faster, more reliable travel options through the Corridor.

WHAT IT ADDRESSES

- Road Congestion

DIRECTIVES

The Province should grant trucks preferential use of the Highway 401 express lanes, and/or provide incentives such as rebates or tax credits for shifting trucks from Highway 401 to Highway 407.

Figure 2: Comparison of Truck Flow on 407 vs. Other Corridors



The Corridor’s one managed highway—Highway 407—offers smooth, uncongested travel across the Corridor.

Source: CPCS analysis of MTO, iCorridor (2016). Map shows average weekday peak-hour truck travel speed (the slowest travel speed, in either direction, among average hourly speeds within the time period 6-9 AM and 4-7 PM).





Pushing the Frontier on Transformational Technology

WHAT IT MEANS

Capitalizing on the technological transformation coming to the transportation sector.

WHAT IT ADDRESSES

- Road Congestion
- Last-Mile Connectivity

DIRECTIVES

The Federal Government, the Province and municipalities should actively encourage and foster the development of revolutionary technologies in the public interest, such as autonomous vehicles, to ensure that the Corridor does not fall behind other jurisdictions in terms of regulation, industry collaboration, pilot projects or support to research institutions.

WHAT WE CAN DO

AUTONOMOUS VEHICLES

Autonomous vehicles (AVs)—including cars and trucks—offer tremendous promise to revolutionize mobility, making transportation more efficient, less expensive and much safer.

AVs benefit the movement of goods by improving safety and efficiency for all road users. Electric, autonomous vehicles have the potential to revolutionize travel—reducing crashes by 90%, massively reducing the need for parking space, curtailing emissions and freeing up as much as 50 minutes a day for commuters.¹¹

Autonomous trucks hold particular promise for the long-haul industry.

CONNECTED VEHICLES

Autonomous trucks can provide the opportunity for truck “platooning,” enabling improved safety, efficiency and travel times (including potentially due to reduced hours-of-service limitations).

Truck platooning is an arrangement by which cameras, sensors and vehicle-to-vehicle communications systems maintain a consistent gap between adjacent trucks—enabling trucks to drive one after another at close proximity. Testing for these systems is well under way.

Example: In 2015 the Freightliner Inspiration Truck—tested extensively on **Daimler’s** test circuit in Germany—became the first autonomous truck approved to navigate public roads in the US, with its unveiling at the Hoover Dam.¹³

Example: In 2016, a successful demonstration project at **Texas A&M University** showcased two 18-wheelers travelling in a figure eight formation at 40 mph, and making lane changes.¹⁴

Example: **Transport Canada** has conducted testing to evaluate the fuel savings of truck platooning at its Motor Vehicle Test Centre in Quebec.¹⁵

SMART CITIES

The “Smart City” concept involves leveraging big data, information technology and artificial intelligence to improve every facet of how cities work—from operations to asset management to the customer experience.

Example: **Columbus, OH** won a \$50-million grant from the US Department of Transportation in 2016 as part of the federal Smart City Challenge—with private-sector investment increasing spending to half a billion dollars. The funding is being used to create a comprehensive “smart city” incorporating self-driving electric vehicles, smart grids, smart streetlights and smart transit corridors.¹²

Example: The Toronto Region Board of Trade has been at the forefront of bringing together key players from the private sector and all levels of government, NGOs and universities for **Smart Cities Summits** in 2016 and 2017. The Board created a Smart Cities Working Group with the City of Toronto, and is developing an approach to support municipalities in the Corridor in their responses to the recently announced federal Smart Cities Challenge.

HYPERLOOP

Hyperloop is a proposed technology that would use vacuum tubes to transport people and goods at up to 1,000 km/h.

Although at a nascent stage of development, hyperloop has potential to revolutionize transportation.

Example: **Transpod** is a Toronto-based start-up designing a hyperloop that would cut travel times for people and goods between Toronto and Montreal to under an hour.¹⁶ The impacts on intercity movement of goods could be substantial.

POLICY #2:
TARGETING
INVESTMENTS IN NEW
INFRASTRUCTURE



Making sure the
numbers add up

WHAT IT MEANS

Making sure scarce resources are invested in the right projects, and properly accounting for the movement of goods.

WHAT IT ADDRESSES

- Road Congestion
- Strategic Vision

DIRECTIVES

Governments at all levels should prioritize transportation infrastructure investments using rigorous business cases. Governments should explicitly account for the movement of goods in business case analysis, including for transit investments that shift people from personal vehicles and free up road capacity for goods movement.

WHAT WE CAN DO

STRICT BUSINESS CASE FRAMEWORK

Given the high dollar cost of many new infrastructure projects, policymakers should target investments with a focus on rigorous business cases.

Investing Wisely: Simply put, scarce resources should be spent where they have the biggest impact on improving mobility and other social benefits such as air pollution and safety. The Corridor cannot afford low value-for-money projects that do little to move the needle on regional mobility.

Making a Difference: The vast majority of traffic on highways is passenger rather than commercial traffic. Building a high-quality transit network that provides commuters across the Corridor with real alternatives to driving would benefit the movement of goods by reducing the number of commuters competing for peak usage of roads and highways.

Quick Wins: Large expenditures are not always needed. An important opportunity is to take advantage of “quick wins,” i.e. projects or programs with low cost and high value-for-money. One example is Metrolinx’s **Smart Commute** program, which has an estimated benefit-cost ratio of 6:1.¹⁷ This initiative works with employers to reduce single-occupancy vehicle commuting, thereby removing cars from congested highways. Some of the tools that are used include carpool ride-matching, flexible work arrangements and discounted transit pass programs. 330 employers in the Corridor currently participate in the program.

ACCOUNTING FOR THE MOVEMENT OF GOODS

Accounting for the movement of goods in business case analyses would support informed decision-making by ensuring these analyses properly capture benefits to freight as well as passengers.

Valuing Trucks: Trucks typically have a higher value of time and reliability than passenger vehicles—meaning the cost of delays is higher. Yet this reality is not sufficiently reflected in regional business case frameworks. Metrolinx’s business

case guidance has no recommended values for truck value of time or value of reliability,¹⁸ while MTO uses different values where truck volumes are available but does not evaluate truck reliability separately.¹⁹

Truck Volumes: Truck volume data are often not comprehensive, and are based on surveys and models rather than new data sources such as fleet GPS data. Better synthesizing new and existing data sources would improve the quality of truck volume data across the Corridor, supporting better decision-making.

Explicitly Considering Trucks: Data is useless if it is not applied. Business case analyses for transportation projects in the Corridor typically include very little or no meaningful analysis of goods movement issues. An integrated approach is needed that considers all aspects of land and road use so that projects avoid creating unintended consequences.

Example: The **Adelaide St.** bike lane in Toronto crosses in front of major receiving docks, creating congestion and safety concerns as arriving trucks are often made to circle around the block multiple times.

Example: As a counter-example, the reliability impacts on goods movement vehicles were one of the factors explicitly considered in the recent decision to replace rather than remove the **Gardiner Expressway** in Downtown Toronto²⁰ (a position the Toronto Region Board of Trade supported).



POLICY #2: TARGETING INVESTMENTS IN NEW INFRASTRUCTURE



Leveraging Senior Government and Private Funding

WHAT IT MEANS

Ensuring needed projects—public or private—actually get built.

WHAT IT ADDRESSES

- Road Congestion
- Strategic Vision

DIRECTIVES

Stakeholders in the Corridor should leverage all available federal funding, including by developing a list of the top mutually agreed-to projects that would improve the movement of goods in the Corridor. Governments at all levels should enable private investment in the Corridor through supportive regulations and policies.

WHAT WE CAN DO

LEVERAGING GOVERNMENT FUNDING

Working together to secure funding for the Corridor.

Given the Corridor's status as Canada's pre-eminent logistics and distribution hub, the Corridor should **leverage all available funding** to invest in supporting its nationally significant infrastructure. Furthermore, drivers and taxpayers in the Corridor should not bear the sole burden of increased congestion and road repairs associated with the transportation of goods destined to (and benefiting) the entire country.

The Government of Canada's **National Trade Corridors Fund** comprises \$2 billion in funding to make Canada's trade corridors more efficient and reliable, as part of a planned \$10.1 billion expenditure over 11 years on trade and transportation corridor projects.²¹ That figure includes \$5 billion for trade and transportation corridors as part of the newly launched Canada Infrastructure Bank, which seeks to attract private investment to finance infrastructure projects that have revenue-generating potential and are in the public interest.²²

The **Province of Ontario** is also investing heavily in infrastructure—\$190 billion over 13 years starting in 2014-15 (which includes things like new schools and hospitals in addition to roads and transit).²³

One way to leverage funding would be for the Toronto Region Board of Trade to assume a leading role similar to similar to CargoM in Montreal, identifying a common suite of improvements in the Corridor and working with government to ensure that investment timelines are practical and attainable for private-sector partners (see "Bringing It All Together:").

The government and private sector should also do more jointly to invest in **non-infrastructure solutions**, for example technological deployments, innovative goods movement practices, skills development, education in fields like computer science and business intelligence, incubation hubs, and data collection and dissemination.

FOSTERING PRIVATE INVESTMENTS

Making sure the Corridor facilitates private investment to support regional growth.

While some projects require public funding, there are others that the private sector is fully willing to fund alone. Private investment depends on a predictable regulatory framework. Where projects support the Corridor's regional needs, policymakers should work to reduce bureaucratic red tape that slows or delays these projects unnecessarily, and right-size approvals processes to ensure they are proportional to the scale and scope of the project.

Example: Milton Logistics Hub: CN's existing Brampton Intermodal Terminal is nearing capacity, with container volumes rising 56% from 607,000 container units in 2009 to 949,000 container units in 2016 (a 6.6% average annual growth rate).²⁴ While CN has substantially invested in the terminal to increase capacity, the railway is at the point where it requires more inland capacity. CN is proposing to invest in building an intermodal terminal on land it owns in Milton, to add 450,000 containers of annual capacity. The Milton Logistics hub could also improve core traffic by directing Southwestern Ontario freight volumes away from more central highways in the Corridor, and potentially incenting companies to locate in more traffic-friendly parts of the Corridor. The project is currently undergoing an extensive federal regulatory review by several government agencies. If it takes private industry six-plus years get approval for modest but critical infrastructure projects such as the Milton Logistics Hub, we are limiting the ability and desire for private sector investments to support Canada's Trade Corridors and, ultimately, limiting Canada's ability to compete on the global stage.

POLICY #3:
IMPROVING
COORDINATION OF
TRANSPORTATION
& LAND USE



**Adopting Good
Practice Guidelines**

WHAT IT MEANS

Applying transportation and land use guidelines supportive of the movement of goods.

WHAT IT ADDRESSES

- Land Use Conflicts

DIRECTIVES

Municipalities should endeavour to incorporate these guidelines into official plans, understanding that urban context differs by municipality.

WHAT WE CAN DO

MTO FREIGHT-SUPPORTIVE GUIDELINES

The Ontario Ministry of Transportation's (MTO) 2016 Freight-Supportive Guidelines²⁵ provide direction to municipalities to support the movement of goods.

The Guidelines are intended for use by municipal planners and civil engineers when updating or reviewing planning policy documents, reviewing development applications or developing transportation plans.

SELECTED EXCERPTS:

- **Freight Audit:** A proactive approach to freight transportation planning, involving identifying freight generators and operating constraints (regulations, route restrictions, inadequate geometrics or loading standards)
- **Protecting Employment Areas:** protecting industrial and/or commercial lands located near identified freight corridors to allow for future development by goods movement industries
- **Residential Sites:** Site design strategies can include the need to accommodate garbage trucks, postal trucks, courier vehicles, service vehicles and moving vans

RAC/FCM PROXIMITY GUIDELINES

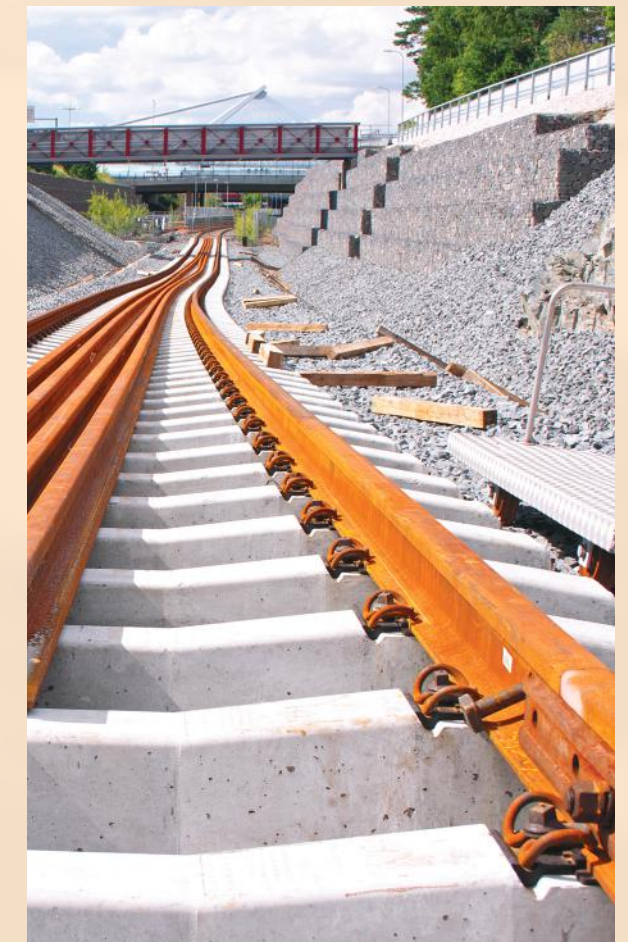
The Railway Association of Canada (RAC) and Federation for Canadian Municipalities' (FCM) 2013 Guidelines for New Development in Proximity to Railway Operations²⁶ provide a comprehensive set of guidelines for use when developing on lands in proximity to railways.

The Guidelines develop awareness around the issues associated with new development along railway corridors, and reflect best practices for use by railways, municipalities and land developers—striking a balance between the needs of railway operators and the desire of municipalities to facilitate residential and other intensification in existing built-up areas.

SOME ISSUES COVERED IN THE GUIDELINES:

- Building Setbacks
- Noise Mitigation
- Security Fencing
- Warning Clauses
- Vibration Mitigation
- Safety Barriers
- Stormwater Management, Drainage
- Construction Issues

Transport Canada similarly provides proximity guidance with its 2013/14 publication "Land Use in the Vicinity of Aerodromes."²⁷



**POLICY #3:
IMPROVING
COORDINATION OF
TRANSPORTATION
& LAND USE**



**Planning Strategically
for Goods Movement**

WHAT IT MEANS

Developing strategic networks and plans to put the Corridor's multimodal transportation infrastructure to its best use.

WHAT IT ADDRESSES

- Land Use Conflicts
- Last-Mile Connectivity
- Strategic Vision

DIRECTIVES

The Province and municipalities should adopt and update multimodal strategic goods movement networks. The Province of Ontario should develop a multimodal strategic plan. Part of this initiative should involve developing a provincial strategy to support marine and air transportation, building on existing initiatives such as SOAN.

WHAT WE CAN DO

STRATEGIC GOODS MOVEMENT NETWORKS

Multimodal strategic goods movement networks (SGMN) identify key corridors for the movement of goods, including access roads connecting to important freight clusters.

Strategic goods movement networks can have many uses, for example:

- Helping to prioritize funding to support corridors that are most important to the movement of goods
- Providing a guarantee of a certain level of maintenance and service (policing, snow and ice control, etc.)
- Directing truck drivers to suitable routes to minimize conflicts with other road users and communities
- Raising awareness of goods movement issues and needs to clearly identify areas of intensified movement of goods activity

Metrolinx is developing a regional SGMN. Some municipalities in the Corridor have developed goods movement networks, though not all are multimodal. Further, one recent study found that only one of 23 Ontario municipalities surveyed has a standalone goods movement plan (others may include networks in other planning documents).²⁸

Example: The **Region of Peel** conducted a 2013 Strategic Goods Movement Network Study (SGMNS). As part of the implementation plan, the Region prioritizes operational, management and capital improvements that support the SGMN. The SGMNS was one of 23 action items in the Region's Strategic Plan adopted by Regional Council in 2012. This plan was developed by the Peel Region Goods Movement Task Force, a forum championed by Peel Region with government partner and private-sector participation.²⁹ This SGMN includes both current and future corridors, including the GTA West Corridor, a planned highway that would connect Highways 427, 410 and 401 serving as an east-west connector north of Brampton, providing greater mobility for both passenger and goods movement.

MULTIMODAL FREIGHT PLANNING

A multimodal freight plan can recommend solutions on how all modes of transportation can better work together to support regional freight needs.

Example: In the United States, each state receiving federal funding under the National Highway Freight Program is required under the FAST Act³¹ to develop a **State Freight Plan** to guide immediate and long-term investments. Elements of this plan include identifying freight system trends and needs, designating critical urban and rural

freight corridors, developing an inventory of freight mobility issues (e.g. bottlenecks), and a freight investment plan that includes a list of priority projects with a description of how funds would be invested and matched.

Example: The Province is developing a 2041 Northern Ontario Multimodal Transportation Strategy³² to guide investment in Northern Ontario.

AN ONTARIO MARITIME STRATEGY

The Province of Ontario does not presently have a maritime strategy, unlike the Province of Québec.

A lack of a maritime strategy limits the ability of the Corridor's ports to work together toward a common vision of how the province's maritime system can best function.

Ex: The **Province of Québec's** Maritime Strategy was completed in 2015. This strategy includes a province-wide assessment of challenges and opportunities, key policy directions, a detailed list of priorities and an implementation framework.³⁰

Some examples of priorities identified in the strategy are:

- Invest in infrastructure
- Establish logistical hubs
- Develop industrial port zones
- Develop short-sea shipping
- Engage in the international promotion of Québec's maritime industries

STRATEGIC PLANNING AROUND AIRPORTS

Air supply chains are critical for transporting high-value or time-sensitive commodities, including electronic equipment and parts, medical equipment, pharmaceuticals, precious metals and parcels.

Example: The **Southern Ontario Airport Network (SOAN)** is a joint initiative of eleven airports including Pearson, Hamilton, Billy Bishop and Waterloo to support future growth in passenger, cargo and aviation demand in the Corridor.³³ Part of this includes developing Pearson as a mega hub, with other member airports filling specific roles.

The GTAA has proposed the establishment of a Regional Transit Centre at Pearson and establishing surface connections between SOAN airports and Pearson.³¹

Locally, airport-adjacent lands need to include plans for sufficient transportation access. Hamilton and Waterloo Regional Airports should be strategically developed with access that looks to future growth, including streamlining road access to these sites to better serve the Southwestern Ontario and Niagara regions.

POLICY #4:
ADDRESSING URBAN CHALLENGES



Better Planning for Truck Deliveries

WHAT IT MEANS

Ensuring plans and policies support rather than hinder truck needs, in helping facilitate the deliveries that keep our businesses' shelves stocked.

WHAT IT ADDRESSES

- Land Use Conflicts
- Last-Mile Connectivity

DIRECTIVES

The Province and municipalities should champion the use of off-peak deliveries, and launch an expanded OPD pilot project, for example focusing on a specific geographic area with significant delivery issues. Municipalities should ensure bylaws are supportive of OPD and should actively ensure delivery needs are accounted for through dedicated delivery areas or other design solutions.

WHAT WE CAN DO

OFF-PEAK DELIVERIES

Off-peak delivery (OPD) refers to deliveries made in the evening or overnight, and is a means of addressing urban congestion in the peak and daytime periods.

OPD can save costs for shippers and carriers by reducing the impact of delay and schedule unreliability in peak periods. OPD can also have benefits for commuters in the Corridor by shifting trucks away from peak traffic. An important factor is receiver (e.g. store, restaurant) needs: while some larger receivers prefer overnight deliveries to stock their shelves before opening for the day, others would incur a large extra cost from paying staff to receive off-peak. Another issue in certain locations is noise (e.g. from refrigerated units, or from trucks backing up).

Many shippers in the Corridor already utilize OPD where feasible. The keys for its success are making sure local bylaws are supportive, building public awareness of its benefits, and instilling OPD as a regular, business-as-usual option for receivers. A cost offset may also need to be provided to support businesses shifting to OPD (including to cover increased labour costs for less desirable working times, at a time when minimum wages are also rising).

Aside from the business-to-business (B2B) market, business-to-consumer (B2C) deliveries are rapidly increasing with the growth in e-commerce. Condo customers will not be receptive to overnight deliveries but may view 7 to 10 p.m. as an option. Parcel lockers and centrally located pickup locations (see next directive) may help resolve this, though with a tradeoff in convenience.

Example: In 2015, the **Ontario Ministry of Transportation** along with municipalities in the Corridor partnered on an OPD pilot coinciding with the Pan Am Games. Benefits of the pilot included decreased highway travel time for trucks, reduced competition for loading bays, fewer parking tickets and reduced driver stress.³⁴

DESIGNING FOR TRUCK NEEDS

Ticketing couriers and trucking companies is not a solution: municipalities need to get serious on planning for truck needs at a local level.

The majority of last-mile deliveries, particularly of end products, are made by truck. No other mode of transportation is able to offer competitive flexibility, efficiency, reliability and price. In some locations, receivers have dedicated truck bays or shared underground loading docks, but in many cases businesses are reliant on curbside delivery.

Trucking companies and couriers are overwhelmed with parking tickets, as enforcement officers are mandated to hover in urban areas, impeding the flow of goods. Tickets are viewed as a cash grab and thereby another cost of doing business that doesn't incent change.

Loading Areas: It is important that municipalities regularly review their designated loading areas to ensure these are sufficient to support local businesses. Delivery needs should also be considered explicitly as road corridors are re-designed according to complete streets principles. Although not all roads will be "designed for" freight, it is important that roads are at least "designed to accommodate" freight vehicles.

Creative design solutions may involve accommodating delivery vehicles in shared spaces. Other creative solutions can involve harnessing the proliferation of **big data** to better understand truck movements and loading patterns, and using this both to inform public decision-making and improve informational awareness among truck drivers.

The bottom line is that delivery needs must be taken seriously alongside other municipal objectives. If curbside space is unavailable for trucks, new buildings should be mandated to accommodate truck needs in the least impactful way possible, including through underground loading docks.

POLICY #4: ADDRESSING URBAN CHALLENGES



Getting Creative on Last-Mile Solutions

WHAT IT MEANS

Bringing new technology and creative solutions to bear—to help serve the growing demand for quick on-demand parcel deliveries.

WHAT IT ADDRESSES

- Last-Mile Connectivity

DIRECTIVES

Private-sector innovations in last-mile delivery are growing by leaps and bounds. Municipalities and all other levels of government should ensure that the Corridor's regulatory and planning framework accommodates rapidly changing innovative approaches. Municipalities should work with private-sector partners to facilitate pilot programs, and develop strategic plans to accommodate and manage the growing demand for rapid, on-demand deliveries to businesses and consumers.

WHAT WE CAN DO

URBAN CONSOLIDATION APPROACHES

Urban consolidation centres (UCC) work by pooling freight to and from multiple shippers/receivers in an urban core, reducing the number of trucks in the core.

Traditionally, UCCs can serve a specific geographic area or in other cases a single site (such as a shopping centre). These have been used to varying degrees of success in several European cities.³⁵ The final delivery from UCCs often uses environmentally friendly vehicles such as electric vehicles or electrically assisted bicycles.

Another approach is **UPS's Access Point** program, which consolidates parcels at accessible business establishments for pickup, enabling customers to receive parcels at their convenience, and avoiding the need for repeated delivery attempts.

Similarly, **Canada Post's FlexDelivery** uses postal outlets and parcel lockers as a solution that combines convenience with centralized delivery. Customers have the option to choose where the parcel is delivered—for example, customers can choose to pick up a parcel in the postal outlet within the office tower in which they work.

OTHER MODES OF TRANSPORTATION

Walmart in the US is trialling an approach that uses store employees to make last-mile deliveries for online orders in their personal vehicles.⁴⁰ **UberRUSH** is a delivery program operational in New York, San Francisco and Chicago that delivers parcels of up to 30 pounds (by bike) or 50 pounds (by car).⁴¹ Several companies in the Corridor use bikes for meal and courier deliveries. **UPS** is deploying a cargo bike delivery pilot in Toronto, an approach it uses successfully in cities around the world such as Frankfurt and Vienna.⁴²

DELIVERY DRONES AND ROBOTS

McKinsey & Company predict that in the future, 80% of parcels will be delivered by autonomous vehicles including drones, with just 20% delivered by humans.³⁶

Amazon Prime Air is an emergent system to deliver packages of up to five pounds in 30 minutes or less using small drones.³⁷ **UPS** has also designed a diesel-electric delivery van that uses delivery drones to drop off packages from the vehicles to customers' front doors, with the drones returning to the vehicle as the driver heads off to the next delivery location.³⁸

Starship Technologies is an Estonian start-up that uses six-wheeled delivery robots for last-mile delivery, with ongoing trials in London, Hamburg and Washington DC, among other cities.³⁹

ZONE-BASED CONGESTION CHARGES

Zone-based congestion charges could help reduce the flow of passenger vehicles in congested areas such as Downtown Toronto. Giving trucks preferred access to congestion charge zones could increase last-mile efficiency for goods movement vehicles. Zone-based charges are in effect in several European cities including London, Stockholm and Milan.





BRINGING IT ALL TOGETHER



Coordinating Stakeholders to Drive Action

WHAT IT MEANS

Making sure the Corridor takes real action in pursuing a clear, coordinated and comprehensive strategy to improve the movement of goods.

WHAT IT ADDRESSES

- Strategic Vision

DIRECTIVES

The Toronto Region Board of Trade should continue to advocate for the needs of the movement of goods industry in the Corridor, including by catalyzing a cluster-based organization similar to CargoM in Montreal. The Board should also work to develop a list of top multimodal projects to leverage federal and other funding, support the effort to develop metropolitan-level goods movement data, and track progress on its recommendations over time.

WHAT WE CAN DO

CATALYZING A CLUSTER-BASED ORGANIZATION

The Toronto Region Board of Trade should work to advance the interests of movement of goods clusters in the Corridor, by catalyzing an organizational approach similar to CargoM in Montreal.

There is a strong need to consolidate the industry into one voice in lobbying the governments for change and action to improve the face of goods movement within the Corridor. Discussions can be refined to subgroups to support the dialogue. These subgroups can be oriented around mode of movement or type of service; some examples might be courier, less-than-truckload (LTL) and last-mile, intermodal, general merchandise, industrial, food and beverage, and automotive.

Example: CargoM—also known as the Logistics and Transportation Metropolitan Cluster of Montreal—is an organization started in 2012 to promote Greater Montreal as an intermodal hub. Specifically, it works to:⁴³

- Initiate projects to enhance the cluster
- Promote Montreal's position as a hub for transportation of goods
- Ensure the sharing of best practices and technologies
- Influence the harmonization and simplification of regulations
- Promote attraction and retention of labour in different sectors of the industry

TRACKING PROGRESS OVER TIME

The Toronto Region Board of Trade should track progress on these recommendations over time, to ensure movement of goods needs are being addressed. It should also periodically review its policies and strategies over time, working closely with stakeholders.

WORKING TOGETHER TO DEVELOP A LIST OF TOP PRIORITIES

One way of strengthening the Corridor's ability to leverage federal and other funding would be for stakeholders, led by the Toronto Region Board of Trade, to develop a **list of mutually agreed-to multimodal top projects** to improve the movement of goods Corridor-wide including for public transit.

Example: Stakeholders in Western Canada worked together to leverage \$1.4 billion in funding to support 60 projects under the Asia-Pacific Gateway Corridor Initiative, from 2005-2015.⁴⁴

WORKING TOGETHER TO IMPROVE DATA

When it comes to the movement of goods, there is a deficit of good public data—particularly at the metropolitan and sub-metropolitan level. For example, Canada does not at present have anything like the US's Commodity Flow Survey which uses large-scale survey data to map out flows by commodity and economic industry for large-and medium-sized metropolitan areas.



CONCLUSIONS

From four policies, this report has identified ten specific action-oriented ways the Corridor can improve the current state of goods movement.

		ADDRESSES			
		ROAD CONGESTION	LAND USE CONFLICTS	LAST-MILE CONNECTIVITY	STRATEGIC VISION
POLICY #1: MAXIMIZING THE USE OF EXISTING INFRASTRUCTURE					
1	• Making Our Roads and Highways Smarter	✓		✓	
	• Getting Trucks Moving on Our Highways	✓			
	• Pushing the Frontier on Transformative Technology	✓		✓	
POLICY #2: TARGETING INVESTMENTS IN NEW INFRASTRUCTURE					
2	• Making Sure the Numbers Add Up	✓			✓
	• Leveraging Senior Government and Private Funding	✓			✓
POLICY #3: IMPROVING COORDINATION OF TRANSPORTATION & LAND USE					
3	• Adopting Good Practice Guidelines		✓		
	• Planning Strategically for Goods Movement		✓	✓	✓
POLICY #4: ADDRESSING URBAN CHALLENGES					
4	• Planning Better for Truck Deliveries		✓	✓	
	• Getting Creative on Last-Mile Solutions			✓	
BRINGING IT ALL TOGETHER					
	• Coordinating Stakeholders to Drive Action				✓



The Toronto Region Board of Trade is building on these reports in launching a multi-year Movement of Goods initiative: The first round of this series created a solid foundation and understanding of the complexities associated with goods movement. As a result the Toronto Region Board of Trade will continue this work in launching a multi-year Movement of Goods initiative. The second round of research will start with a report further exploring:

- Off-peak deliveries
- How to improve regional mobility through the highway network
- How to enhance goods movement around the Pearson Airport cluster

The Board is also exploring the opportunity to produce reports on the following topics:

- Leveraging federal and provincial government funding to support Corridor projects
- Impact of expanding movement of goods e-commerce activity
- Implementing a cluster-based goods movement approach to the Corridor

MOVEMENT OF GOODS REPORT CONTRIBUTORS

TORONTO REGION BOARD OF TRADE REPRESENTATIVES

Natasha Apollonova, Assistant Vice President, Policy

Douglas Goold, Vice President, Policy & Public Affairs

Richard Sookraj, Policy & Government Relations Assistant

ECONOMIC DEVELOPMENT COMMITTEE MEMBERS

Adrienne Fong, Senior Manager, Listed Issuer Services, Toronto Stock Exchange

Andrew Thomson, Chief of Government Relations, University of Toronto

Audrea Golding, Partner, Fragomen Canada

Bill Packham, Executive Managing Director, Desjardins Group

Carolyn Ray, Managing Director, Interbrand Canada

Ella Korets-Smith, Executive Director, TO Health!

Fittipauld Lourenco, Director, Government Affairs (Federal Government and Ontario), Air Canada

Hillary Marshall, Vice President, Stakeholder Relations and Communications, Greater Toronto Airports Authority (Chair)

Joseph Ragusa, Principal, Sussex Strategy Group

Kevin Moshal, Managing Partner, Southern Ontario, Grant Thornton

Lucy Casacia, Vice President, Cities and Infrastructure Projects, Siemens Canada

Patrick Kelly, Dean, School of Engineering Technology and Applied Science, Centennial College

Sharlene McDevitt, Vice President, Treasury & Security Services, JPMorgan

Steven Murphy, Dean, Ted Rogers School of Management, Ryerson University

Susan McLean, Director, Corporate Affairs, MaRS Discovery District

Tarek Emara, Senior Director, PricewaterhouseCoopers

Toby Lennox, President & CEO, Toronto Global

Tom Turner, Senior Vice President, Commercial Sales, Rogers (Vice Chair)

INFRASTRUCTURE COMMITTEE MEMBERS

Andres Sacristan, President & CEO, 407 ETR Concession Company

Angela Iannuzziello, Vice President, Canada Transit Market Lead, AECOM Canada (Chair)

Anthony Primerano, Director, Government Relations, LiUNA; Labourers International Union of North America

Aylin Lusi, Vice President, Public Affairs, UPS Canada

Carmen Wade, Senior Manager, Deloitte

Clark Savolaine, Senior Manager, Deals Advisory, Infrastructure, KPMG

David Gerofsky, President & COO, First Great Corporation

David King, Vice President, Construction & Infrastructure, Aon Canada

Doug Willoughby, Senior Vice President, Transportation, CH2M HILL Canada

Elena Laktionova, Director, Finance, Redpath Sugar

Elliott Silverstein, Government Relations Manager, CAA South Central Ontario

Jack Bittan, Senior Vice President, Business Development, Capstone Infrastructure

Jim Janetos, Partner, McCarthy Tétrault

Jodi Shanoff, Vice President, Consultation & Engagement, Environics Research Group

John McCabe, Vice President, Lafarge Canada

John Piazza, Executive Vice President, OHL Canada

Julia Stefanishina, Director, Consulting and Deals, PricewaterhouseCoopers

Kashif Malik, Head Public Sector, Global Corporate Banking, JPMorgan Chase

Mathew Kattapuram, Senior Vice President, Strategic Business Development, Aecon Group

Mike Campolieti, Business Development Associate, PCL Constructors Canada

Mike Wilson, Managing Director, Transportation Lead, North America, Accenture

Murtaza Haider, Professor, Business Management, Ryerson University

Patrick O'Neill, Vice President, Mobility, Siemens Canada Limited

Paul Lehmann, Director, Government Relations, BMO

Ryan Falconer, Transportation Consulting Leader (Canada), Arup

Stephen Lipkus, Managing Director, HDR Corporation

Stephen Dyck, Vice President, Ontario Government Relations, SNC-Lavalin

Stephen Upton, Director, Special Projects, Tridel

Tom Middlebrook, Senior Vice President, Business Development, ACS Dragados

INNOVATION CORRIDOR CHAMBER CEOS

Jan De Silva, President & CEO, Toronto Region Board of Trade (Co-Chair)

Ian McLean, President & CEO, Greater Kitchener Waterloo Chamber of Commerce (Co-Chair)

David Wojcik, President & CEO, Mississauga Board of Trade

Greg Durocher, President & CEO, Cambridge Chamber of Commerce

Kathleen Dills, General Manager, Halton Hills Chamber of Commerce

Keanin Loomis, President & CEO, Hamilton Chamber of Commerce

Kithio Mwanzia, President & CEO, Guelph Chamber of Commerce

Scott McCammon, President & CEO, Milton Chamber of Commerce

Todd Letts, CEO, Brampton Board of Trade

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POSITIONING THE TORONTO REGION AS A GLOBAL CHAMPION

The Toronto Region Board of Trade is one of the largest and most influential chambers of commerce in North America. Our constant flow of ideas, people and introductions to citybuilders and government officials firmly roots us as connectors for—and with—the business community. Backed by more than 12,000 members, we advocate on behalf of business for policy change to drive the growth and competitiveness of the Toronto region. We act as catalysts to make Toronto one of the most competitive and sought after business regions in the world, which starts with the success of our members. Learn more at bot.com and follow us @TorontoRBOT.



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