

Smart Freight Symposium

Truck Friendly Measures: Potential Benefits of Managed Lanes for Freight Transportation

November 4, 2019

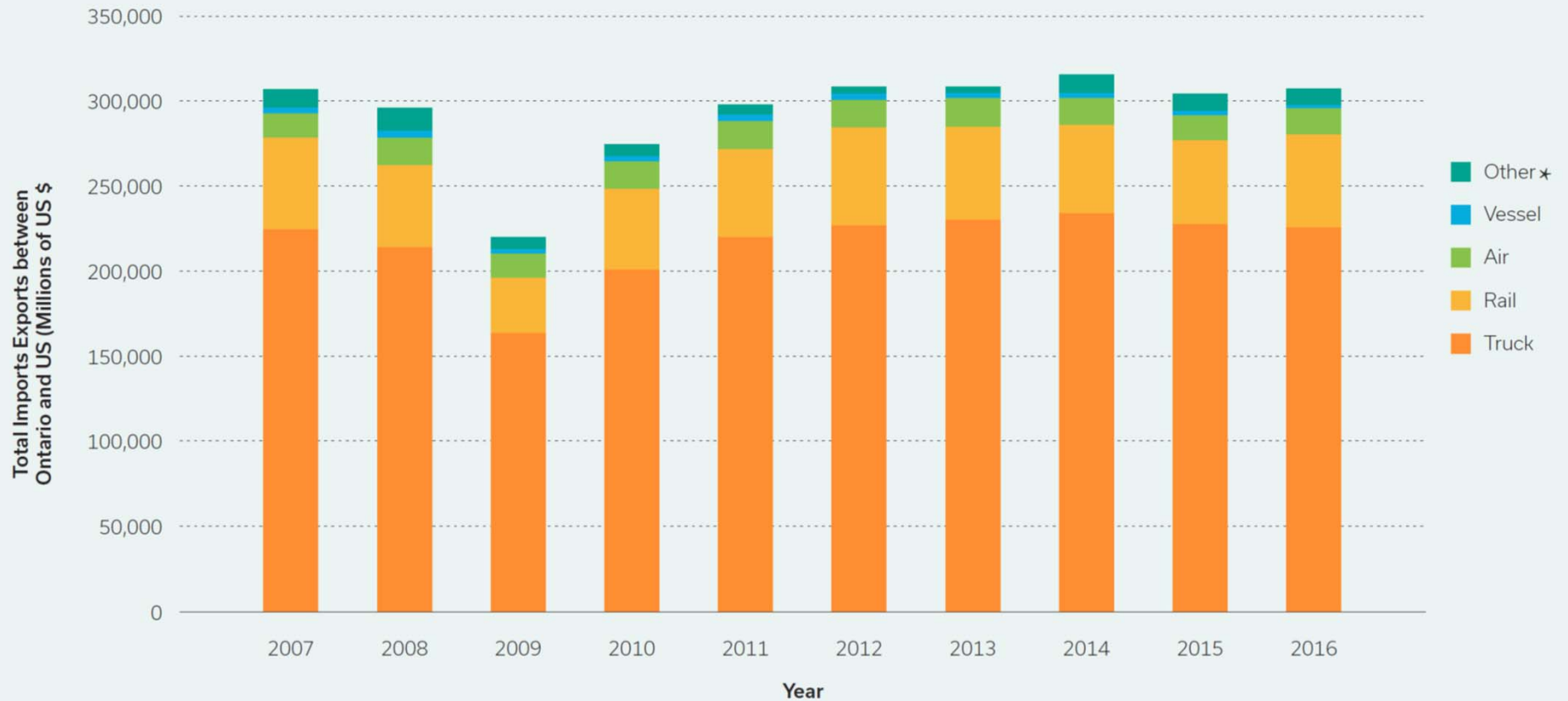
**Dr. Peter Park, P.Eng.
Department of Civil Engineering
Lassonde School of Engineering
York University**



Transportation

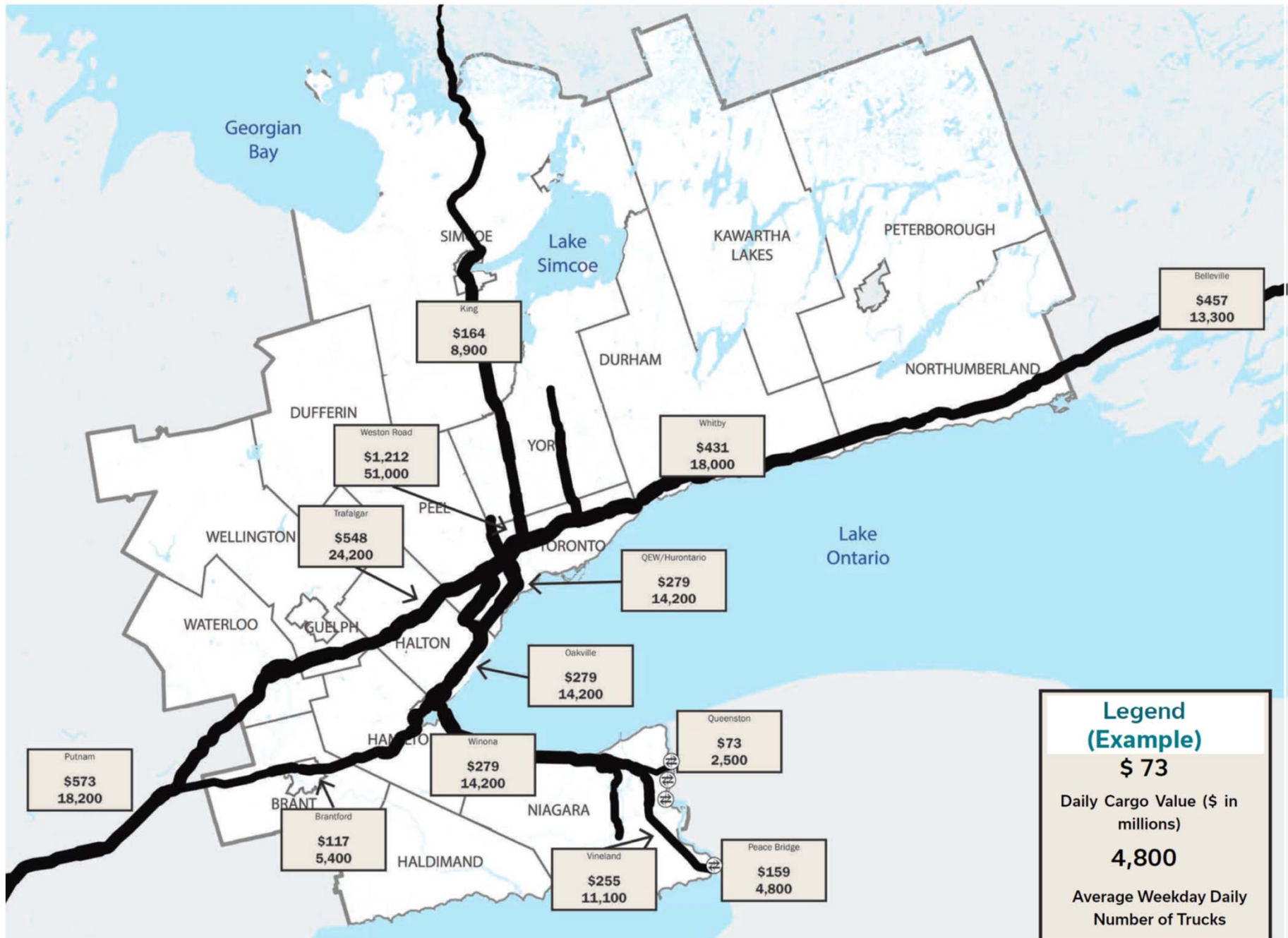
- ❑ The movement of **people** or **goods** from one place (origin) to another (destination)
- ❑ Mobility – still one of the most important priorities for transportation
- ❑ Freight mobility is critical to maintaining jobs and improving local economy
- ❑ We need to ensure efficient movement of goods and services

Modal Share of Imports/Exports



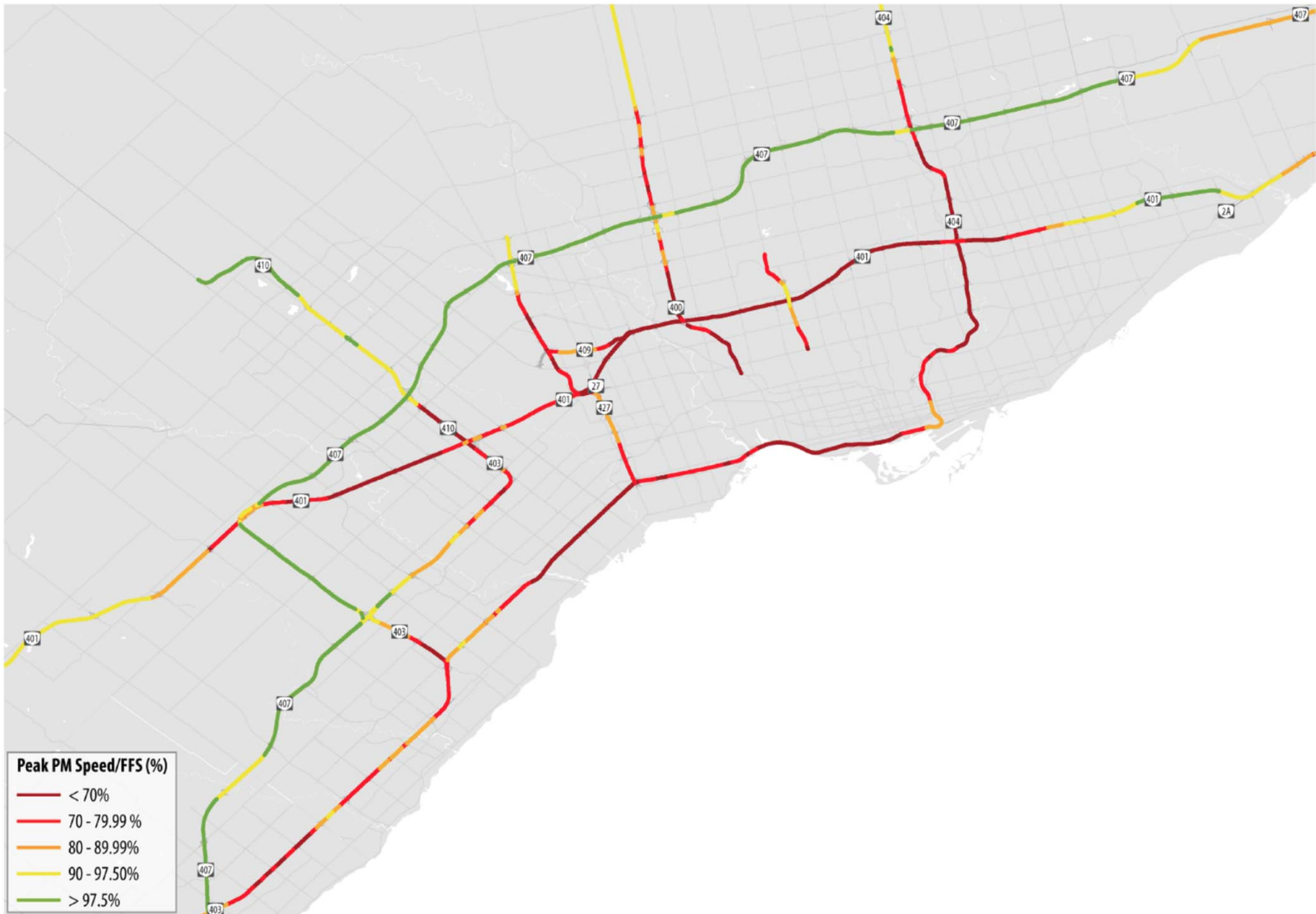
Picture Source: MTO, Greater Golden Horseshoe (GGH) Transportation Plan, Nov., 2017

Value of Goods on GGH Highway



Picture Source: MTO, Greater Golden Horseshoe (GGH) Transportation Plan, Nov., 2017

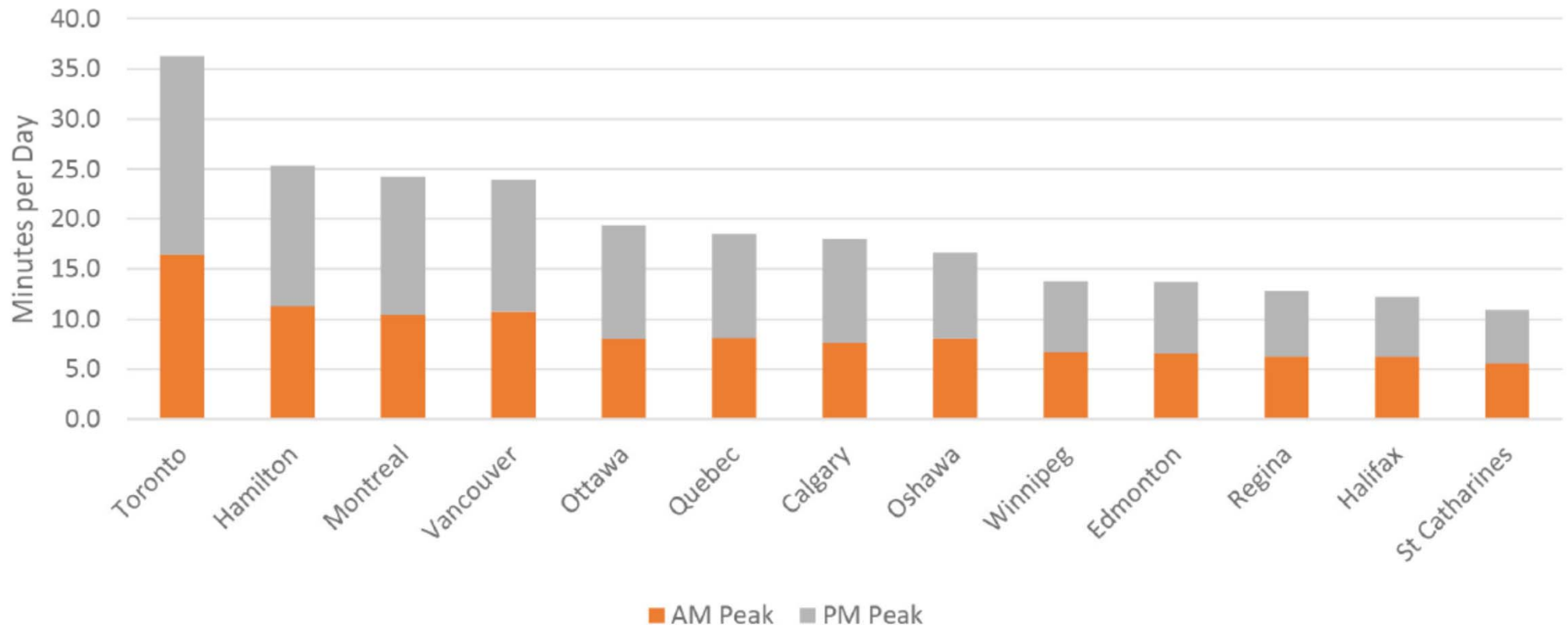
Travel Speed on Highways in GTA



Peak PM Speed (4pm – 6pm)/FFS (%)

Picture Source: CAA, Evaluating Canada's Worst Bottlenecks, 2017

Additional Travel Time Due to Congestion



Additional Minutes of Travel Time per Day Relative to Free-Flow (60 Minute Baseline, AM and PM Peak)

Picture Source: CAA, Evaluating Canada's Worst Bottlenecks, 2017

A Source of Congestion - Large Trucks



Slow truck acceleration
from Full Stop



Large truck blocks traffic
in all lanes

Congestion Mitigation Methods

Increasing
Demand

Limited
Capacity



Dixie & Derry Rd. Intersection (PM Peak)

3 Possible Mitigations

Truck Friendly
Measures (e.g.,
Managed Lanes)
combine all 3
solutions

Increase
Capacity

Reduce
Demand

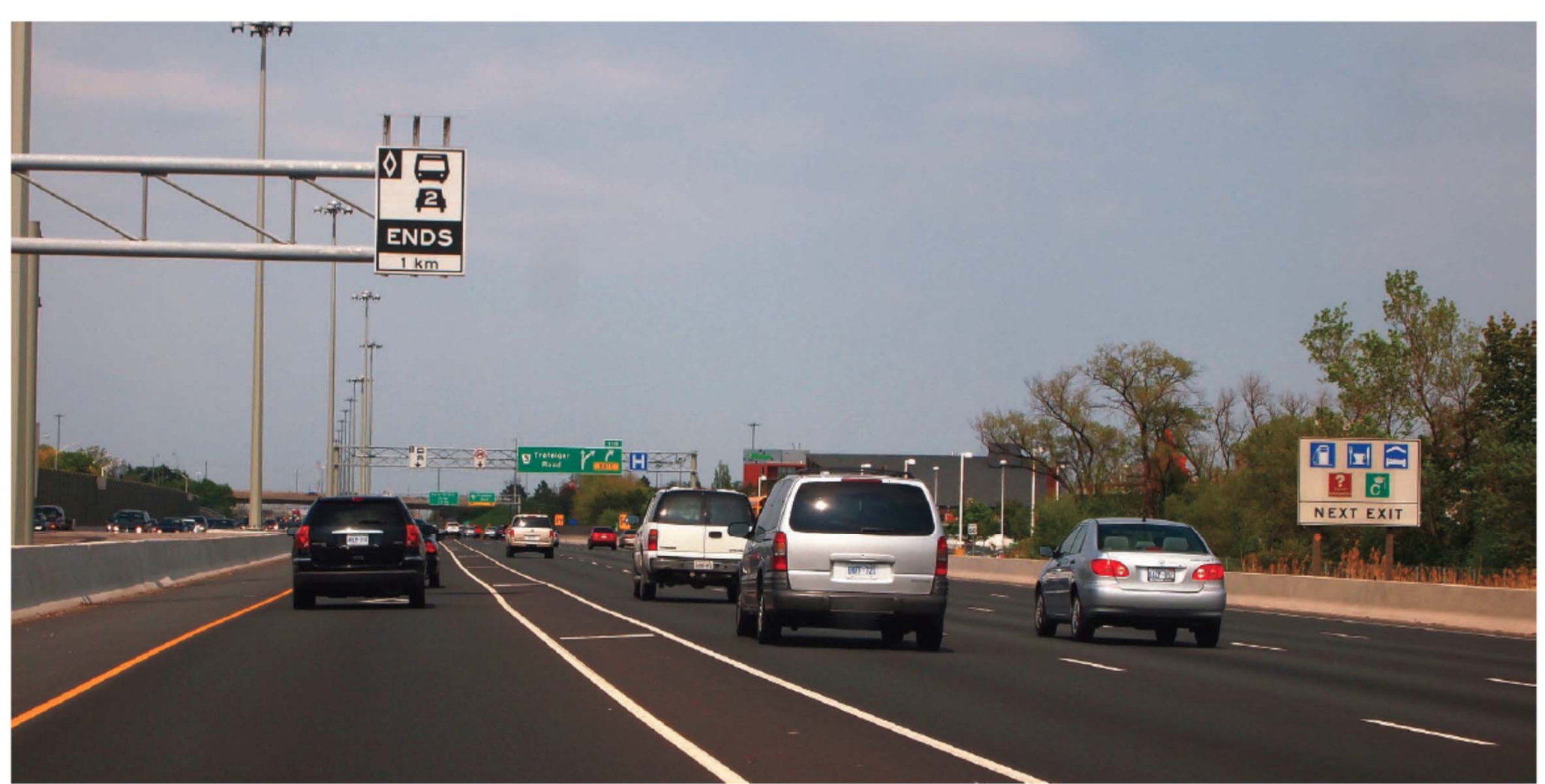
Control
Access

Managed Lanes

- ❑ A managed lane operates separately from the general purpose mainlanes (e.g., lanes for non-heavy vehicles) and incorporates a combination of vehicle eligibility, access control and traffic signal control
- ❑ Goals: Remove bottlenecks and aims to provide congestion-less journeys for the movement of passengers and goods by maintaining adequate levels of service for all users

Existing Managed Lanes (Freeways)

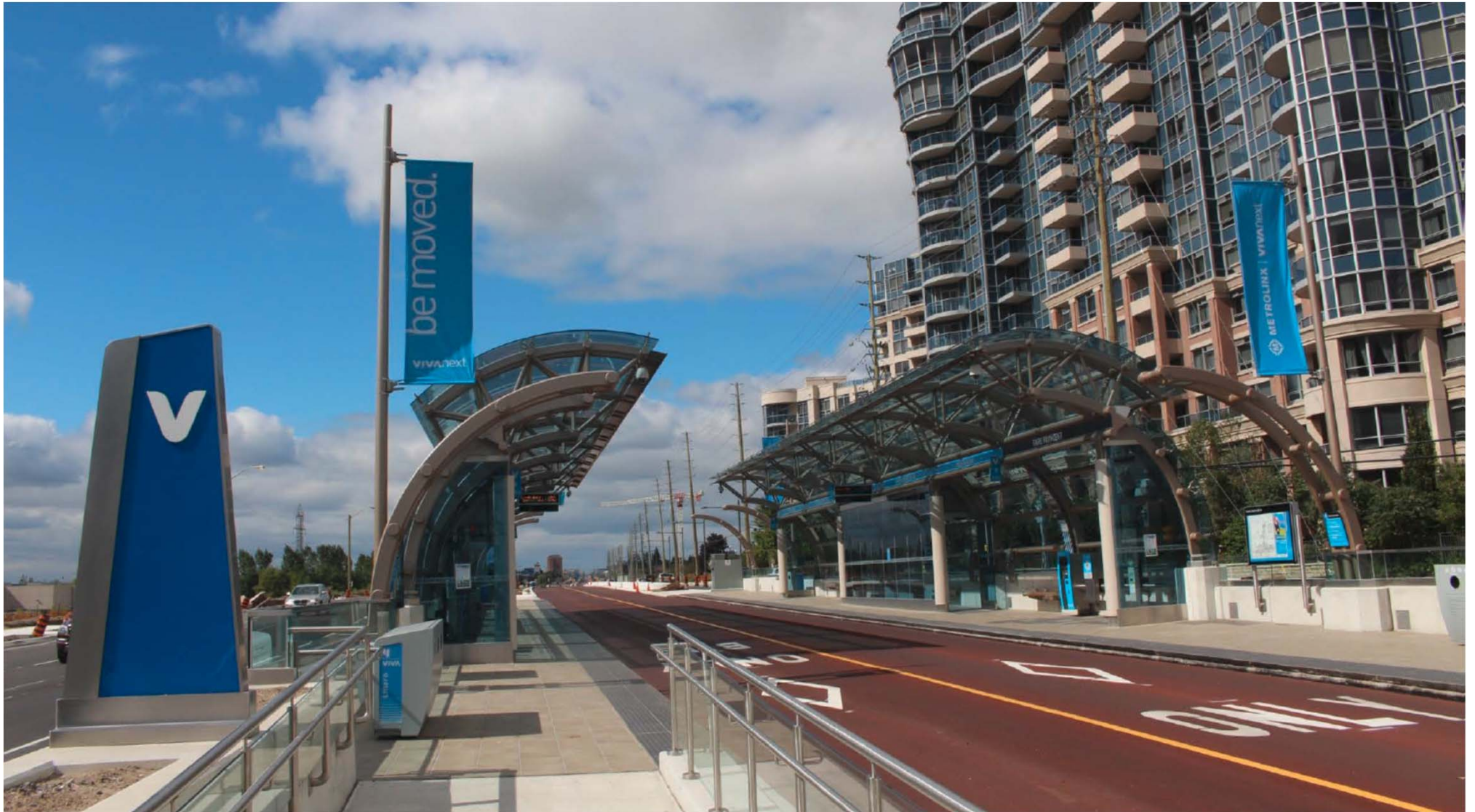
❑ QEW HOV Lanes



Picture Source: MTO, Greater Golden Horseshoe (GGH) Transportation Plan, Nov., 2017

Another Example of Managed Lanes

❑ Highway 7 – VIVA Rapidways



Potential Managed Lanes for Trucks

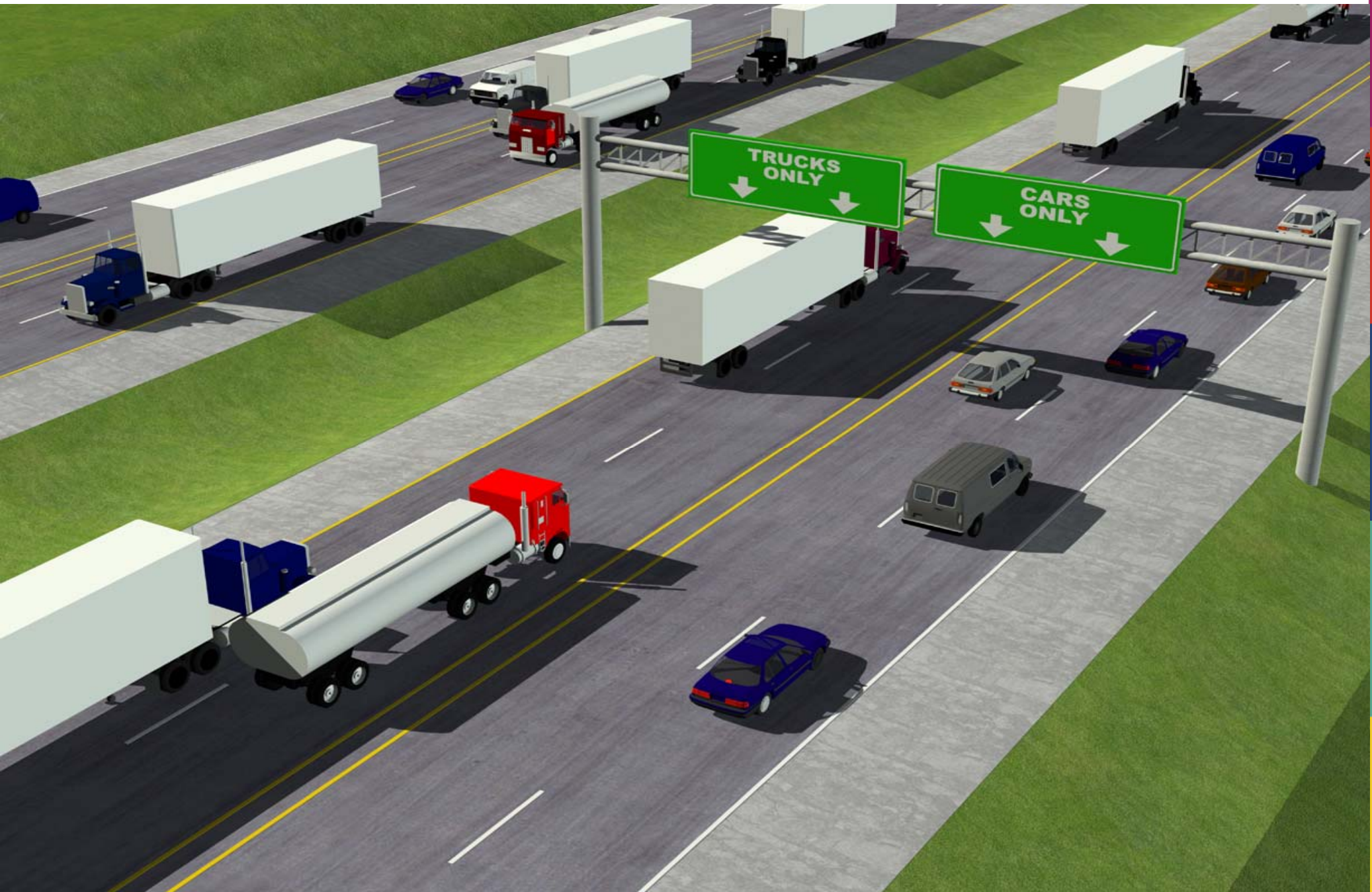
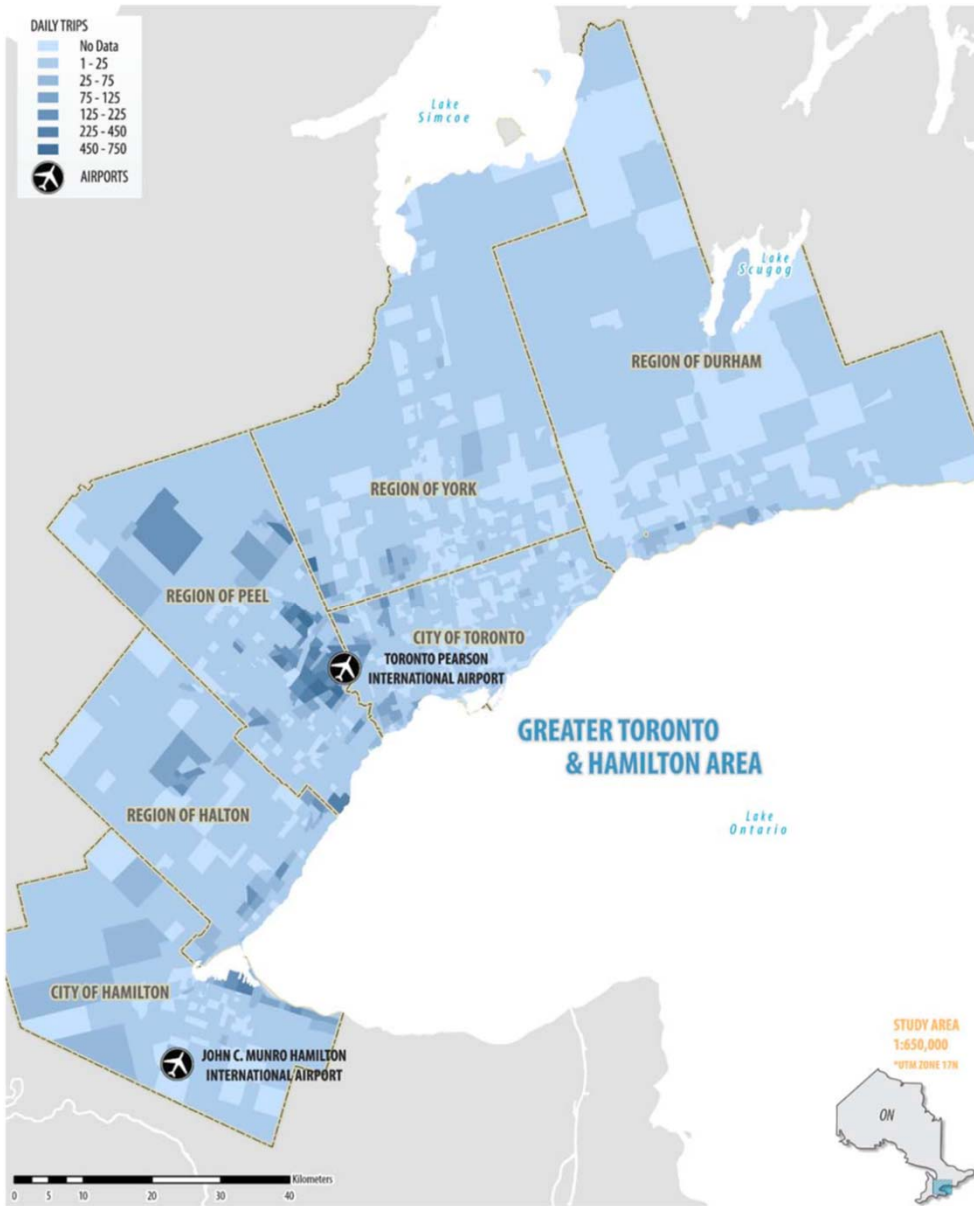


Figure Credit: Arno Hart, Wilbur Smith Associates

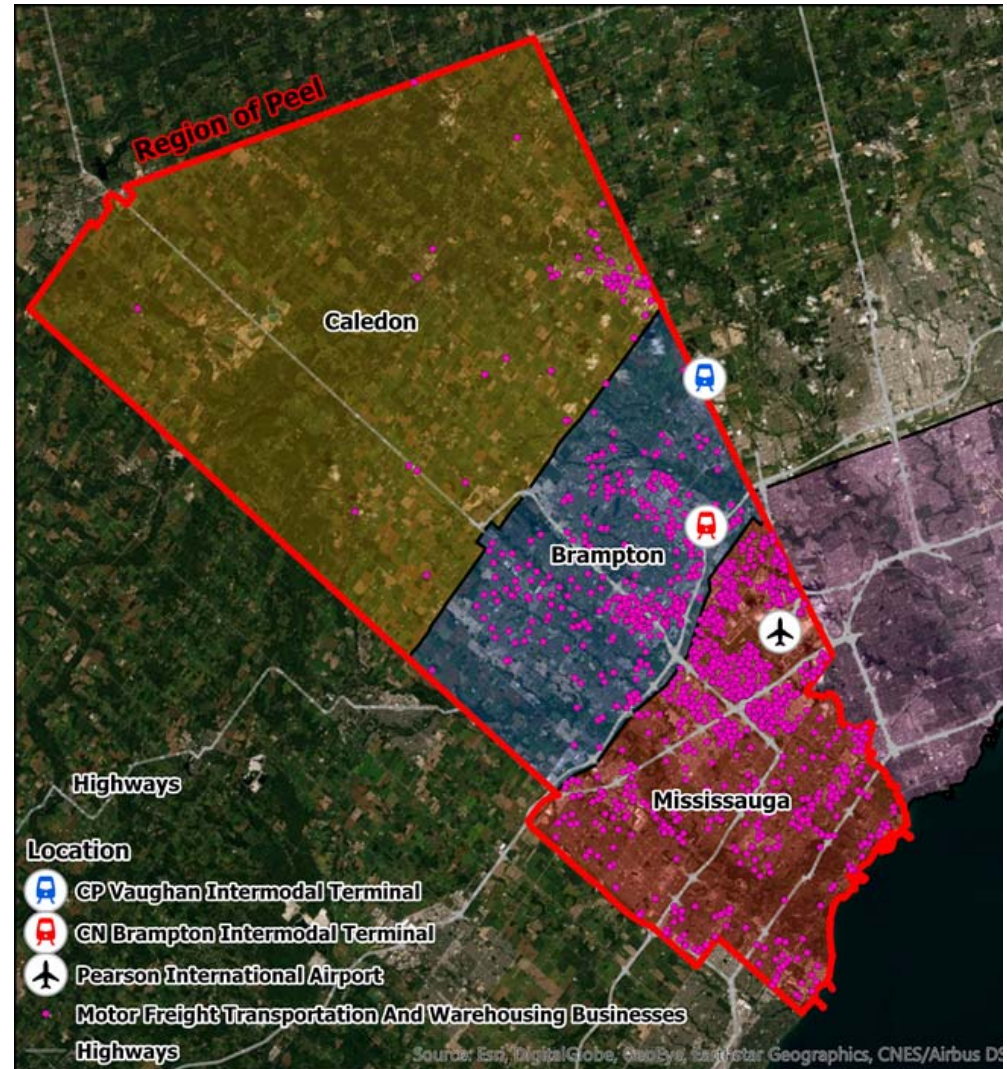
Major Truck Corridors

- ❑ An arterial street (mostly near industrial and commercial areas) that accommodates significant freight movement through the city, and to and from major freight traffic generators
- ❑ Major truck streets generally carry heavier loads and higher truck volumes than other streets in a jurisdiction
- ❑ For such streets, we need to ensure that truck-specific needs are incorporated into design and operational requirements

Major Truck Corridors



Picture Source: MTO, Greater Golden Horseshoe (GGH) Transportation Plan, Nov., 2017



Picture Source: Development of a Data-Driven Systematic Approach for Identifying and Classifying Long-Haul Truck Parking Spaces, 2019

Expected Benefits of Managed Lanes

- ☐ Reduction in congestion
- ☐ Increased goods movement
- ☐ Improvement in traffic safety
- ☐ Establishment of corridor reliability
- ☐ Long-term sustainable mobility

Options for Managed Lanes

❑ Truck Restriction Lanes



<https://streetmix.net>

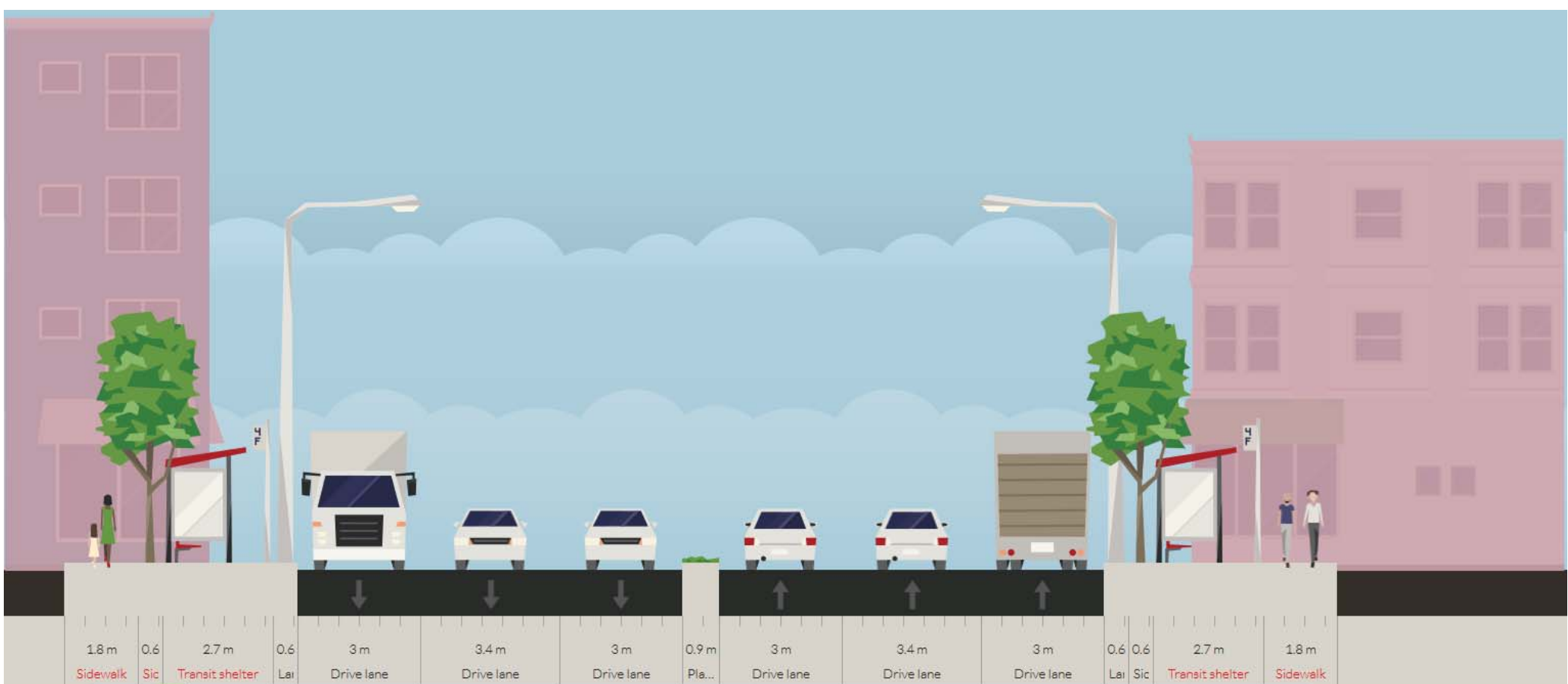
Options for Managed Lanes

❑ Truck Only Lanes (First Lane)



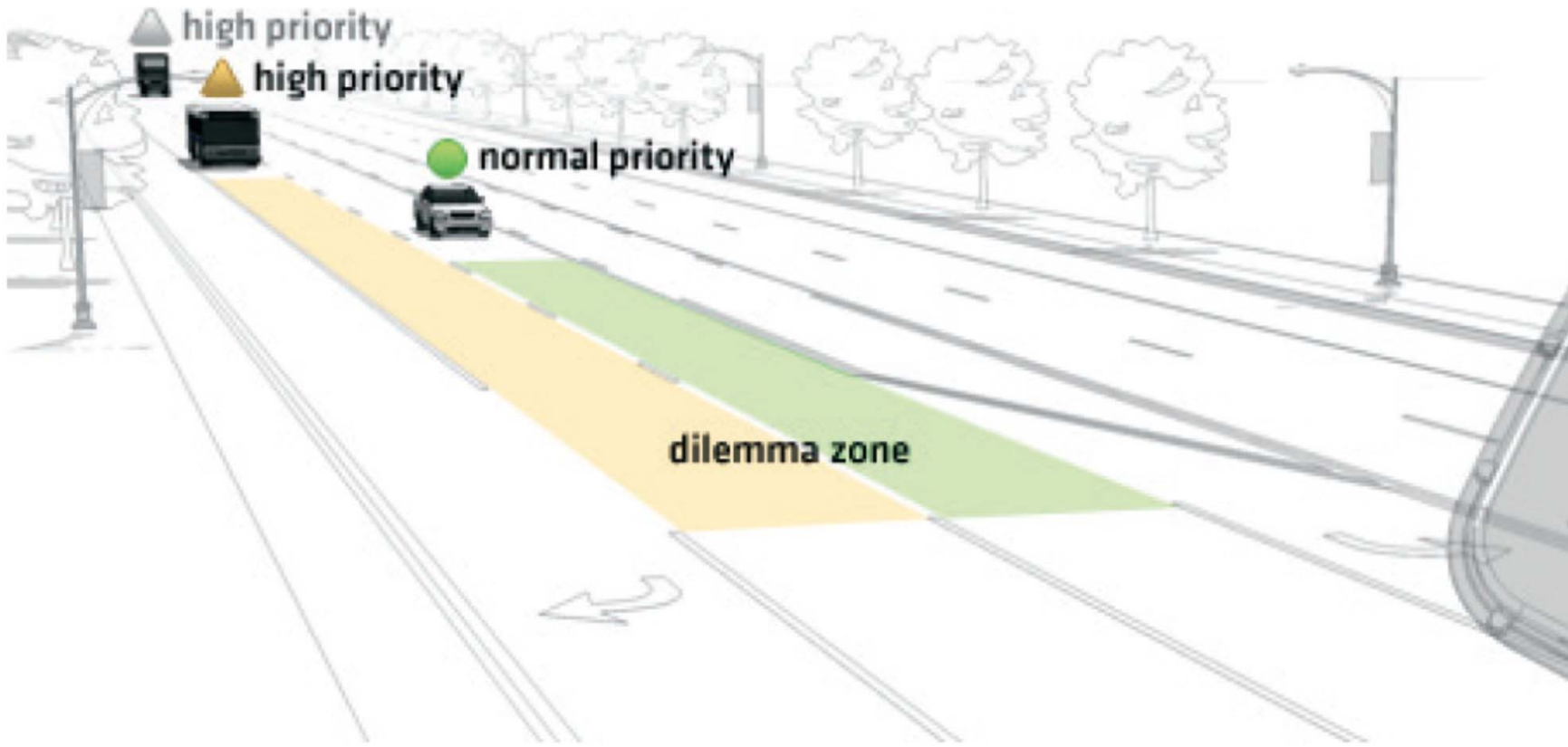
Options for Managed Lanes

❑ Truck Only Lanes (Shoulder Lane)

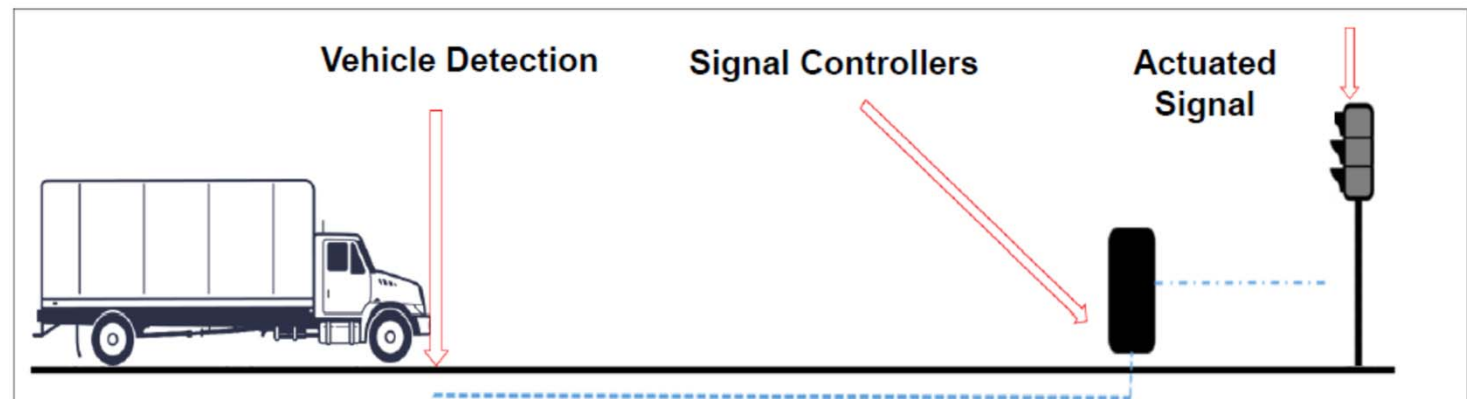


On-Going Tasks

❑ Truck Signal Priority (Dixie Rd.)

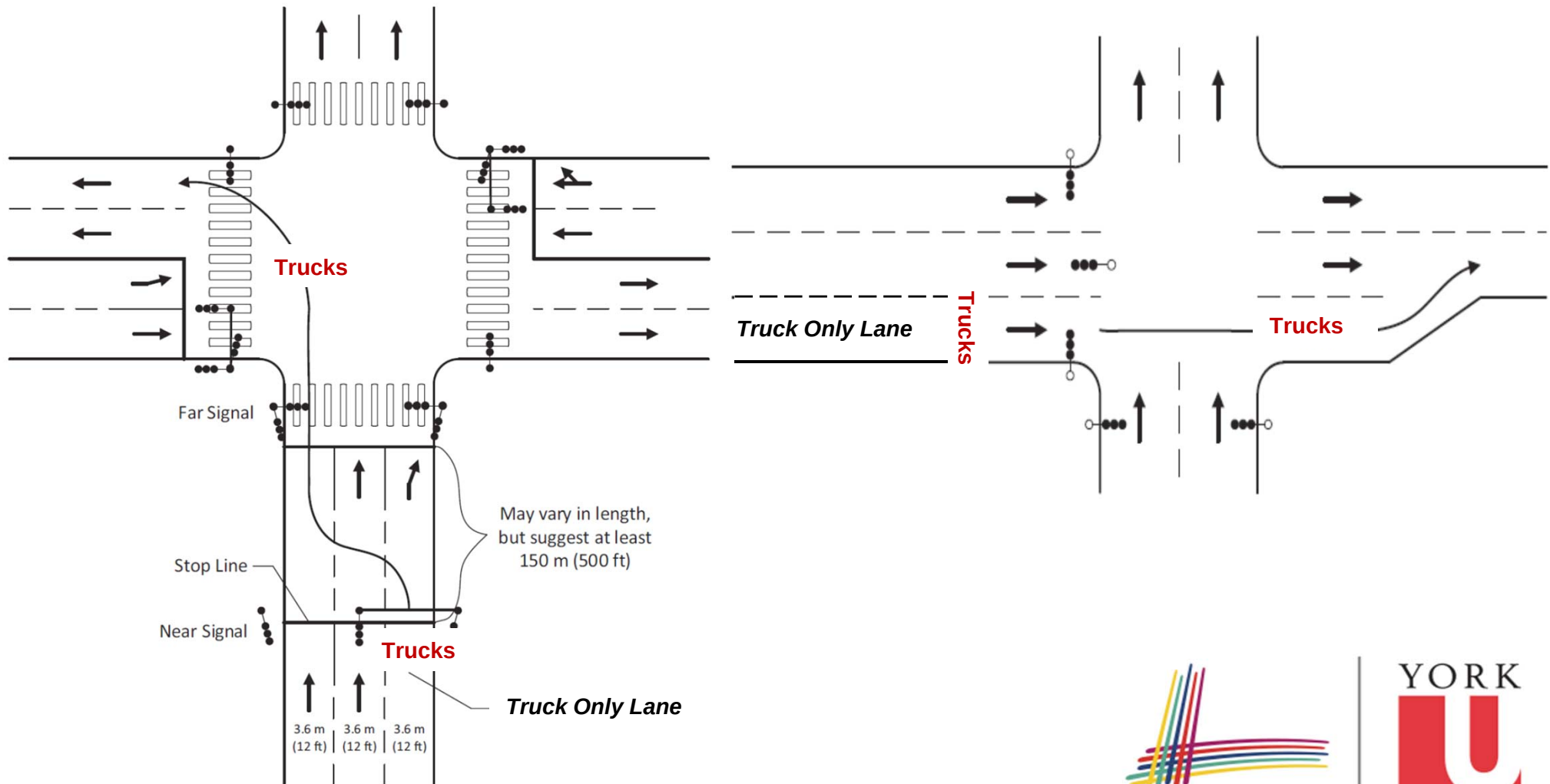


Picture Source: Truck
Signal Priority with
SmartSensor Advance
Extended Range, WX-501-
0107, www.wavetronix.com



On-Going Tasks

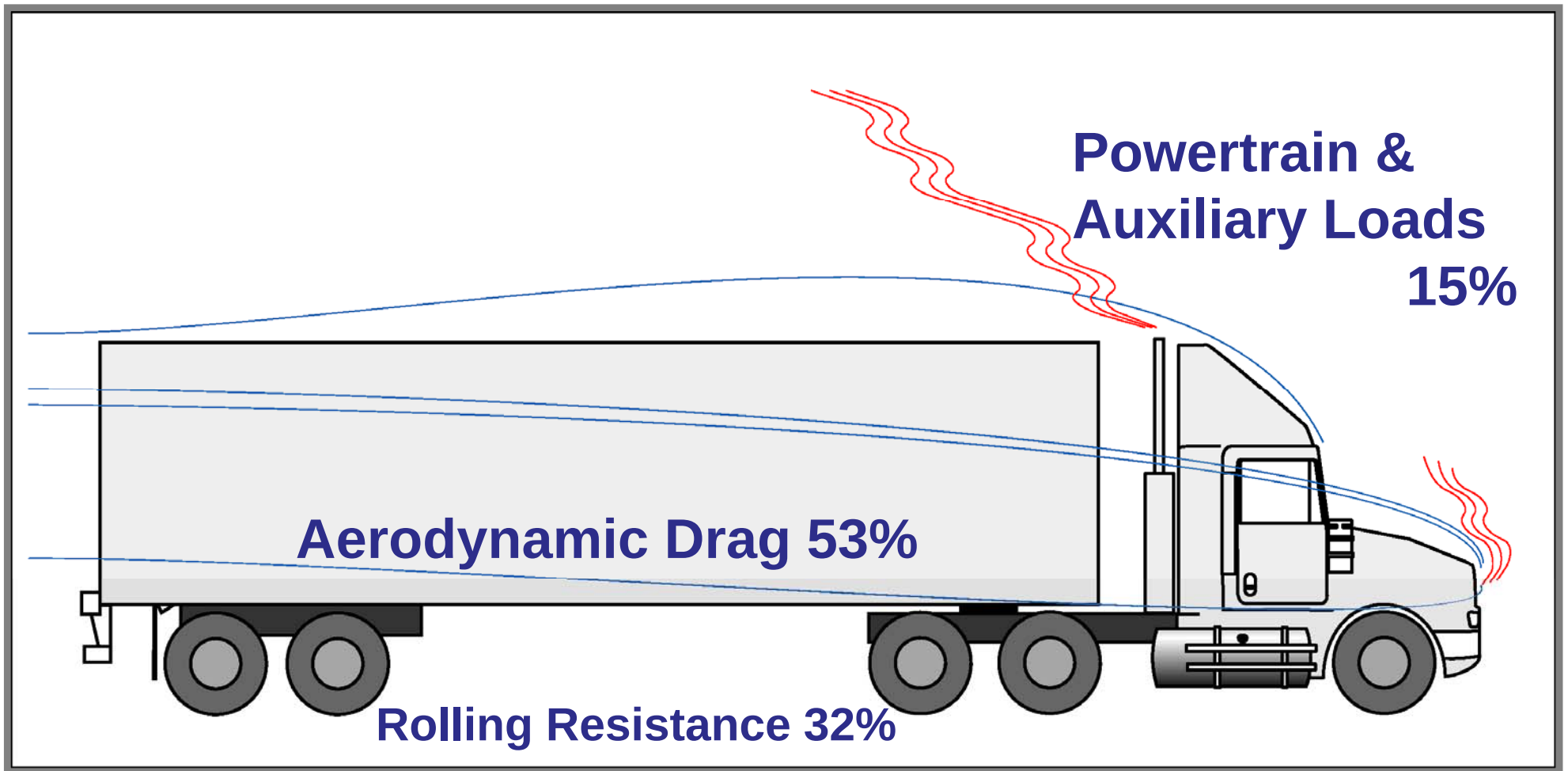
❑ Truck Signal Priority (Queue Jumps)



Picture Source: Identification and Selection of Managed Lane Strategies on Arterials, TRB 2016 Annual Meeting

Future Tasks

- ❑ Impact of Truck Platooning and/or LCVs on Truck Only Lanes



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❑ Impact of Truck Platooning and/or LCVs on Truck Only Lanes

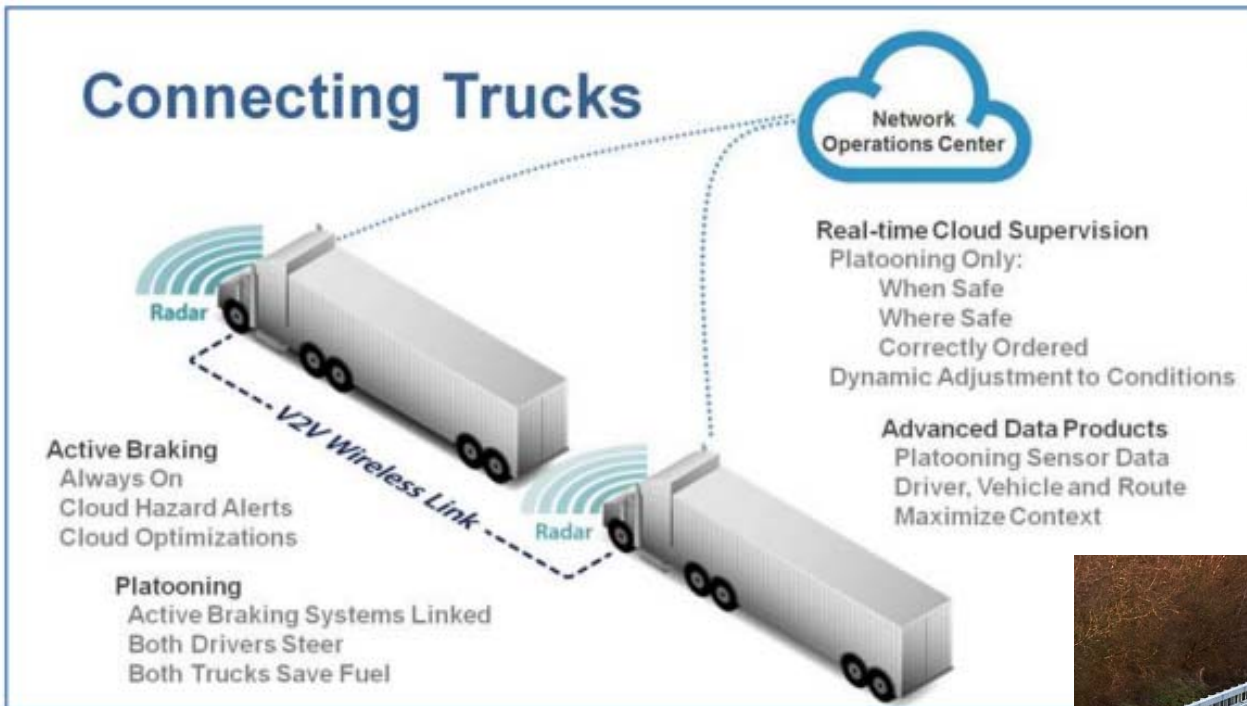


Figure Credit: Highly Automated Commercial Vehicles (HACVs) FMCSA, 2017

Future Tasks

- ❑ Impact of Truck Platooning and/or LCVs on Truck Only Lanes



Questions?