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TRANSPORTATION POLICY AND RESEARCH



# Approach and Method for Defining a GTHA Strategic Goods Movement Network

Freight Day VI Symposium

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**Solutions** for  
growing economies

# Today's Presentation

1. Study overview
2. Analytical approach to defining key freight clusters and corridors
3. Next steps





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# 1. Study Overview



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# Study Objectives

- To define a high-level, GTHA-wide Strategic Goods Movement Network (SGMN) that connects all major goods generators, intermodal hubs with each other and with the higher-order road/rail networks
  - Steering Committee: Metrolinx (sponsor), MTO and Peel Region
  - Review Group: upper-tier municipalities, TC, airports, marine ports, railways, OTA
  - Build on existing municipal SGMNs / recognize local jurisdictions
  - This presentation covers progress to date (study completion in summer 2017)



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# What is a Strategic Goods Movement Network?

- Hierarchy of road, highway and rail network
  - Industry seeks seamless, direct, reliable, congestion-free connections across the GTHA → more than a truck route
- Will inform evaluation of Metrolinx's proposed RTP alternatives
  - Identify potential conflicts with planned RT network (e.g., rail-rail)
- Can help upper-tier municipalities assess priorities for capital and operational improvements on their networks
  - Also aids corridor and land use planning, Complete Streets, ...
- Looking at today's network: no forecasting, no new links
  - Allows for future updates as needs warrant

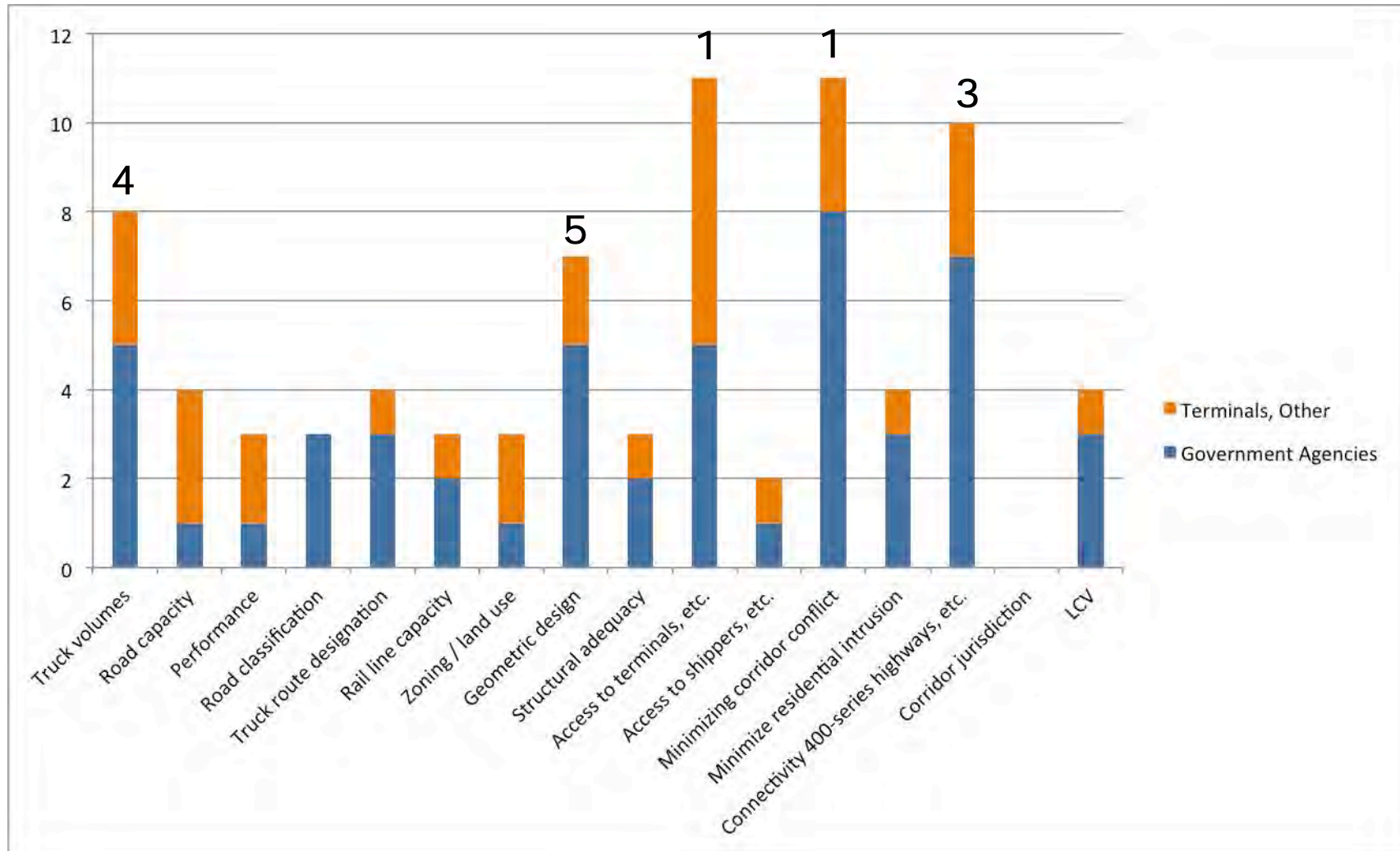
# Approach

- Review literature and conduct stakeholder consultations to develop guidelines for defining the SGMN
  - Talked with upper-tier municipalities, MTO, TC, ports, airports, railways, OTA
- Review municipal SGMNs, truck routes and arterial road networks
- Define key freight generating clusters and key freight corridors in the GTHA, using GPS traces and other data
- Review land use and plans for major transit projects to identify potential conflicts with the proposed SGMN

# Review of Literature: What We Found

- Much activity in the GTHA:
  - Peel, Durham, York and City of Hamilton have defined or are defining SGMNs
  - OPs / TMPs talk to goods movement, but to different extents
  - MTO is conducting GGH Multi-Modal Plan (to 2071)
  - MTO Freight-Supportive Guidelines, OTA Truck Route Guidelines
- Other jurisdictions have examined SGMNs, e.g.:
  - South Carolina, Los Angeles, UK, Australia
- RAC / FCM guidelines: new development in proximity to railway corridors

# Most Important Factors: What We Heard







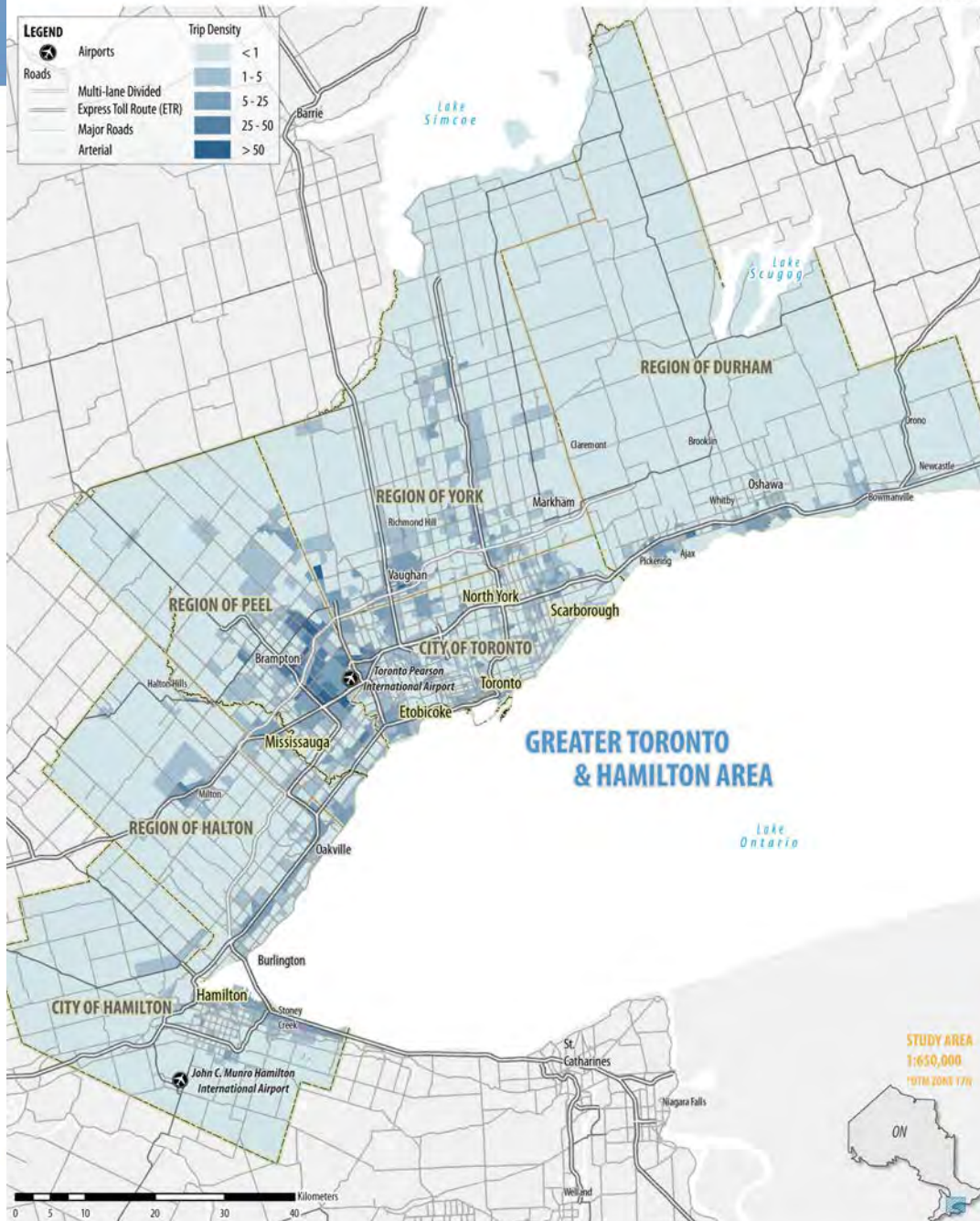
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## 2. Analytical Approach to Defining Key Freight Clusters and Corridors

# Analytical Approach and Data Sources

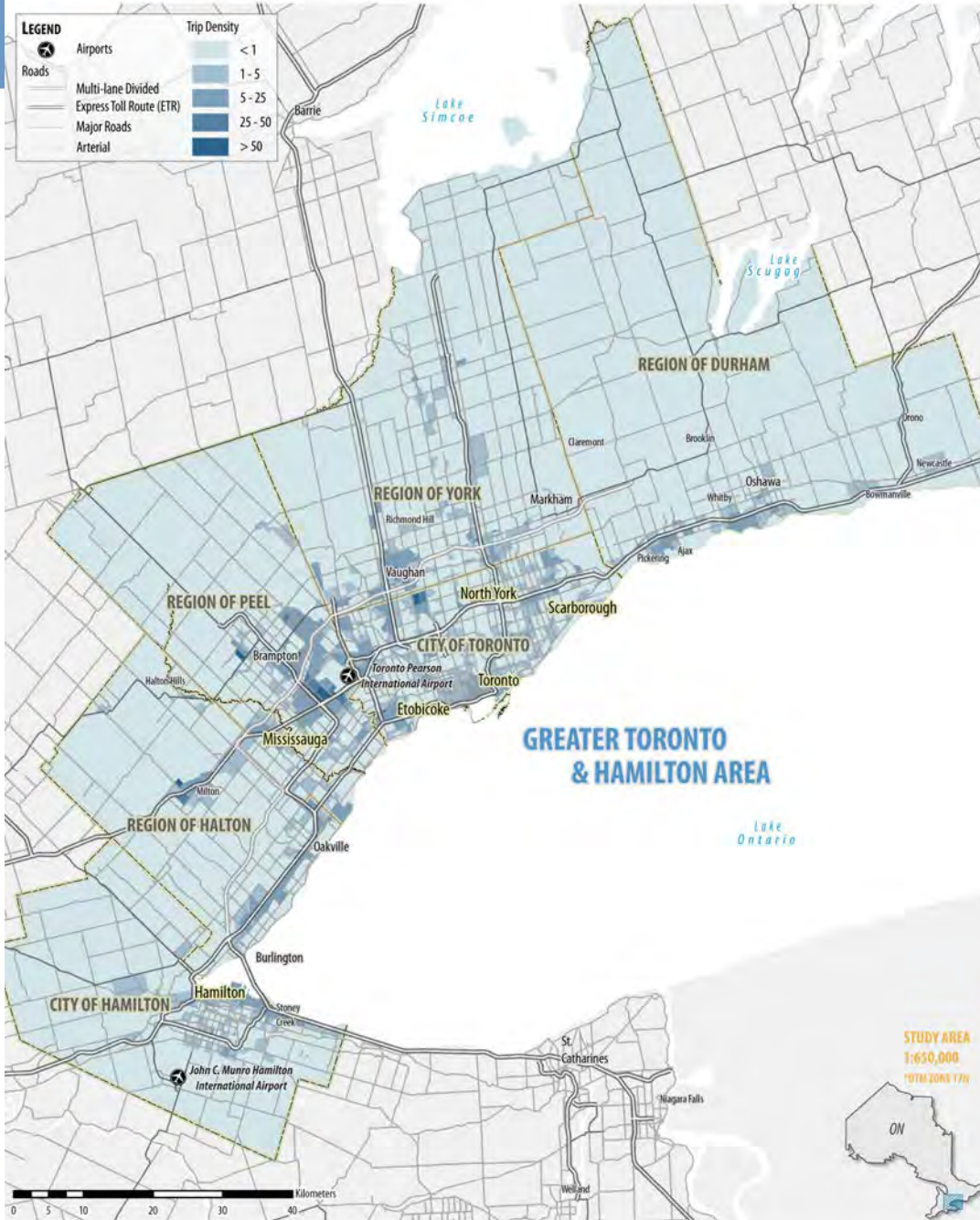
- Define key freight generators ('clusters') and key freight corridors
  - ATRI GPS traces and CVS data to define heavy truck movements to, from, within and through the GTHA
  - Business establishment (employment) data to validate freight clusters
  - Inventory of warehouses, distribution centres and large manufacturing sites from Google Earth
- Overlay onto municipal SGMNs (GIS layers)
- Overlay onto planned LRT alignments (Metrolinx maps)

# Cluster Analysis



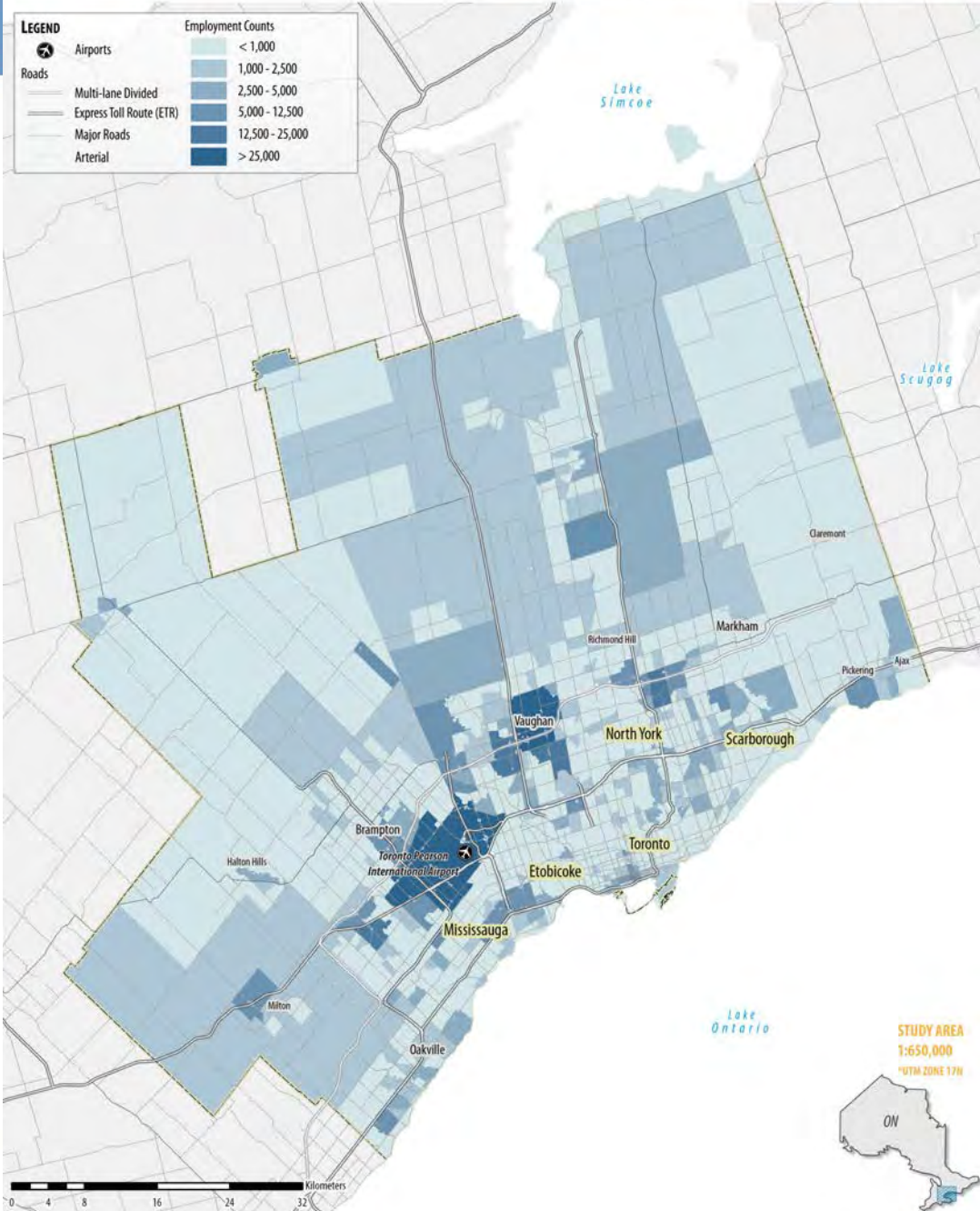
- Density of trip ends by GGH zone for the GTHA, according to CVS data

# Cluster Analysis



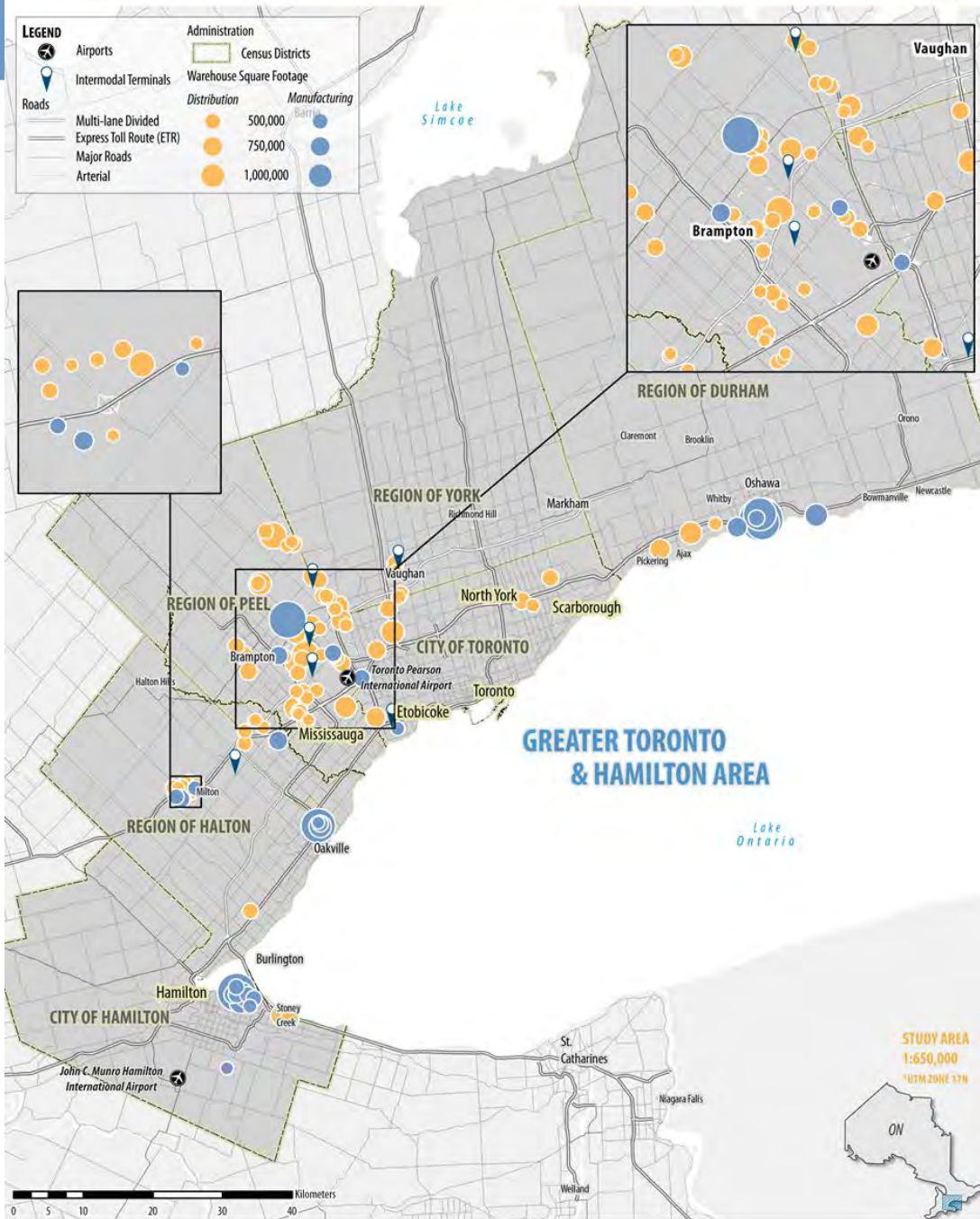
- Trip density according to GPS data. The most notable difference is Downtown Toronto, which has a much more apparent freight density according to GPS as opposed to CVS data.

# Cluster Analysis



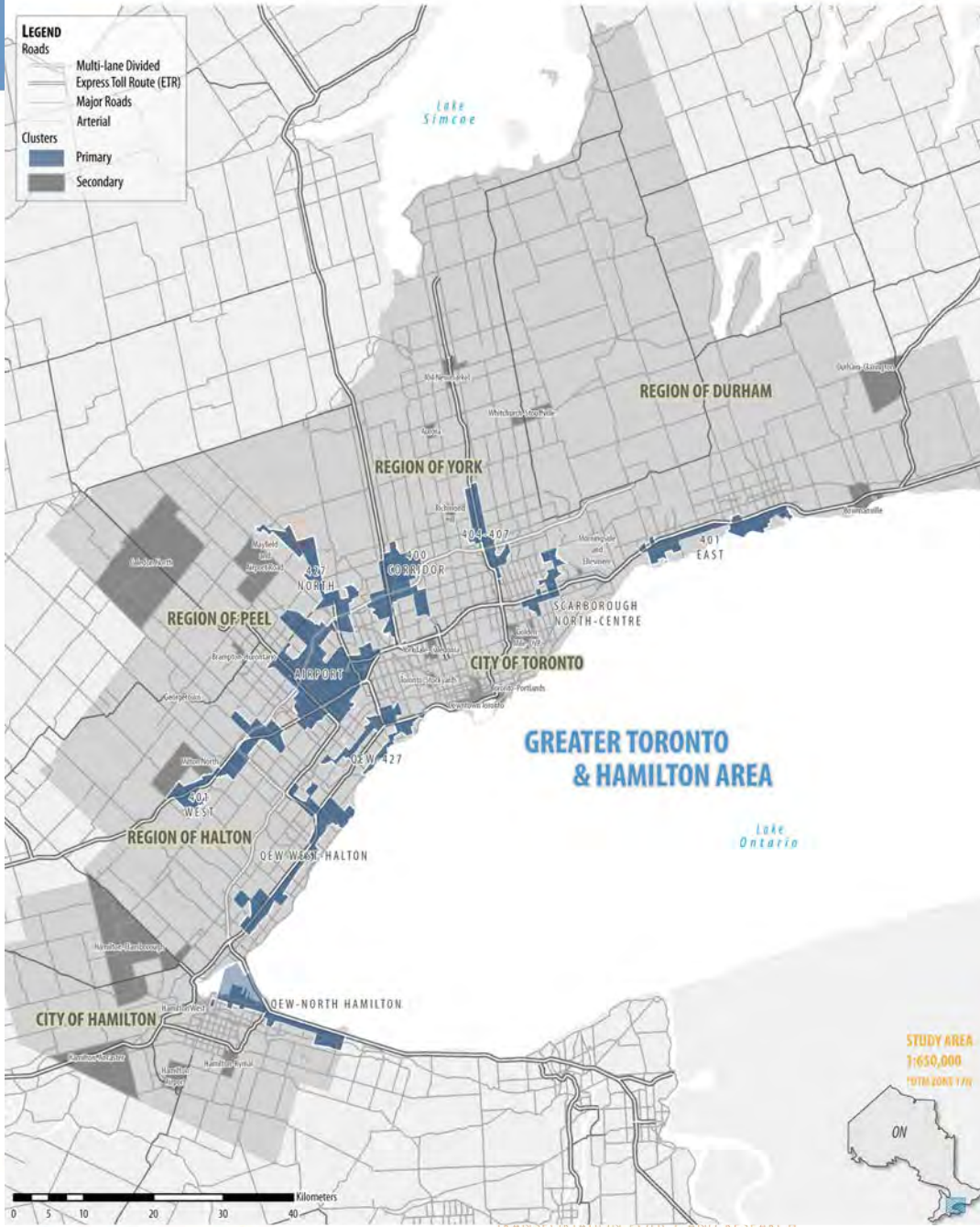
- Density of freight-related employment in the Toronto CMA, by census tract

# Cluster Analysis



- Illustrates the location of large distribution and manufacturing facilities in the GTHA, specifically buildings exceeding a square footage of 400,000 square feet

# Cluster Analysis



- Based on the analysis of CVS, GPS and employment data, ten primary and 22 secondary freight clusters were identified in the GTHA.

# Cluster Definition

- Multi-step process for cluster definition:
  - 1) Identify candidate zones based on total trip ends and trip density
    - Used both CVS and GPS data
  - 2) Define clusters as contiguous combinations of zones
    - Clusters tend to follow major transportation arteries
  - 3) Primary or secondary based on cluster trip volume
    - Average of 10,000 weekly trips (CVS and GPS data)
- Clusters validated by:
  - Employment data, Google Earth, past studies



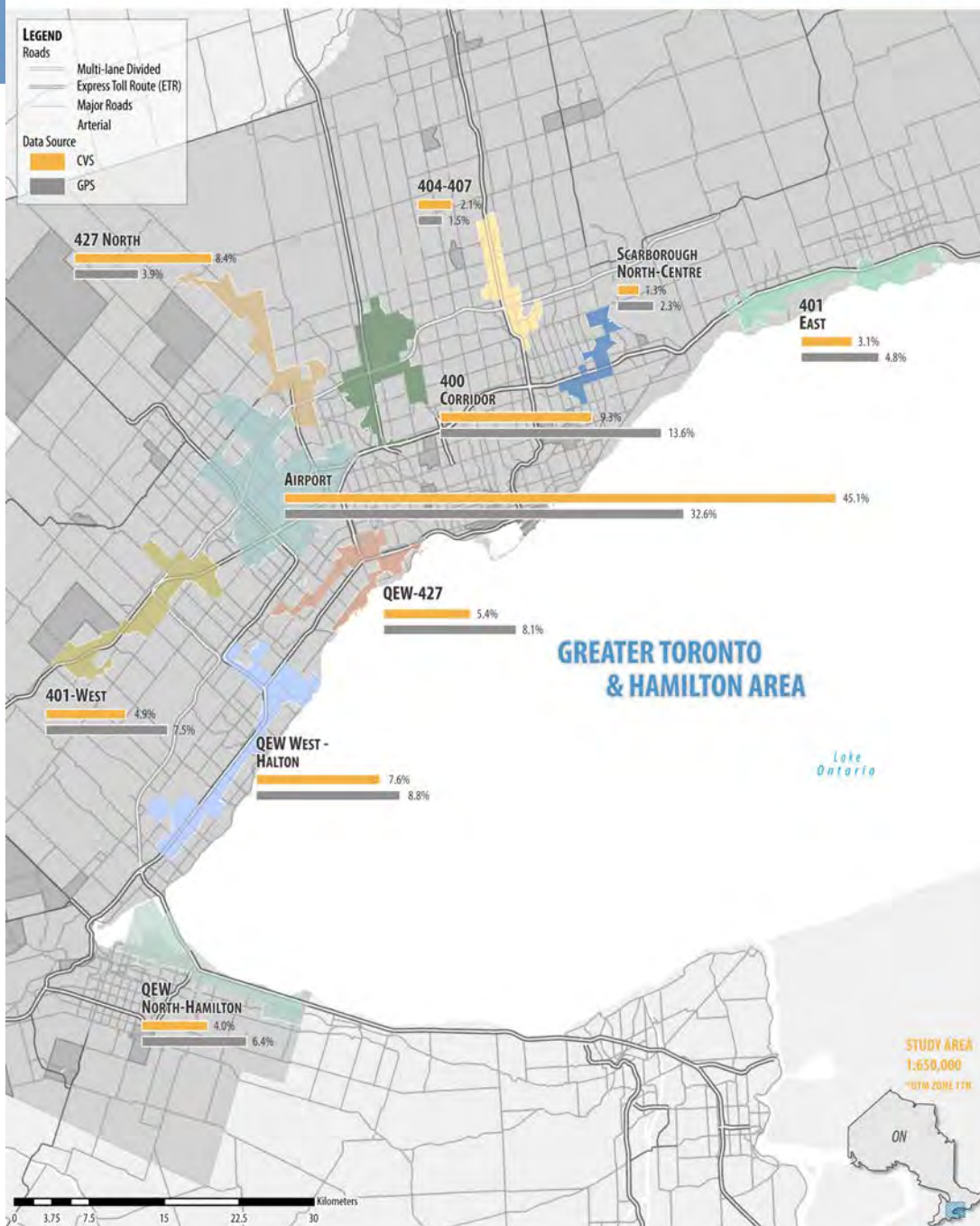
# Primary Clusters

Cluster	Municipalities
Airport	Mississauga, Brampton, Etobicoke
400 Corridor	Vaughan, North York
427 North	Bolton, Vaughan, Etobicoke
QEW West	Burlington, Oakville, Mississauga
QEW-427	Mississauga, Etobicoke
401 West	Milton, Mississauga, Brampton
QEW-North Hamilton	Hamilton
401 East	Oshawa, Whitby, Ajax, Pickering
404-407	Markham, Richmond Hill
Scarborough North-Centre	Scarborough

# Secondary Clusters

Secondary Clusters		
Brampton-Hurontario	Golden Mile-DVP	Aurora
Downtown Toronto	Yorkdale-Caledonia	Clarington North
Caledon North	Richmond Hill	Bowmanville
404 Newmarket	Toronto-Stockyards	Whitchurch-Stouffville
Hamilton- Flamborough	Georgetown	Morningside and Ellesmere
Toronto- Portlands	Hamilton-Rymal	Hamilton West
Milton North	Hamilton-Ancaster	Hamilton Airport
Mayfield and Airport Road		

# Primary Cluster Analysis



- Shows the share of truck trips associated with each primary cluster, according to the two datasets (CVS and GPS)

# Building SGMN Concepts



- Average truck delay for corridors in the GTHA



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## 3. Next Steps

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# Next Steps

- Develop concepts for SGMN, accounting for existing municipal SGMNS, planned LRTs, etc.
  - Review with consulted agencies, terminal owners, ...
- Address specific conflicts and gaps
- Finalize preferred SGMN concept
  - Review with consulted agencies, terminal owners, ...
- Develop implementation and monitoring plans
  - Completion: summer 2017

# Thank you!

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