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TRANSPORTATION POLICY AND RESEARCH

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Metrolinx Regional Transportation Plan Review Goods Movement Backgrounder and Data Framework

February 26, 2016
Freight Day V Symposium

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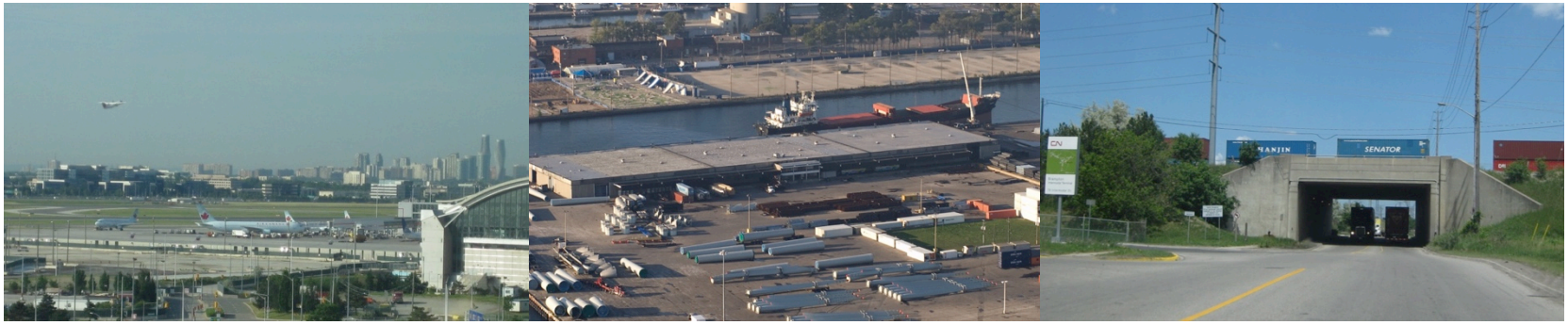
Today's Presentation

- Present overview of a **Goods Movement Backgrounder** (which includes context, issues, opportunities and strategies) and **Urban Goods Movement Data** paper
- These papers will contribute to draft goods movement policies for the updated Regional Transportation Plan (RTP)



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Introductions

- Team
  - David Kriger (David Kriger Consultants Inc.)
  - Vijay Gill (CPCS)

Source: Google Street View

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Overview of the Regional Transportation Plan

- The *Metrolinx Act (2006)* requires a review of the 2008 RTP at least every 10 years since the Act came into force
- Metrolinx is also working with the Province to align with the Coordinated Review of four land use plans – particularly relevance of the Growth Plan for the Greater Golden Horseshoe
- The review of The Big Move is currently underway: a Discussion Paper will be released in late spring on the review. The goods movement work is a key component of the review
- An updated RTP will follow in 2017

Goods Movement Backgrounder

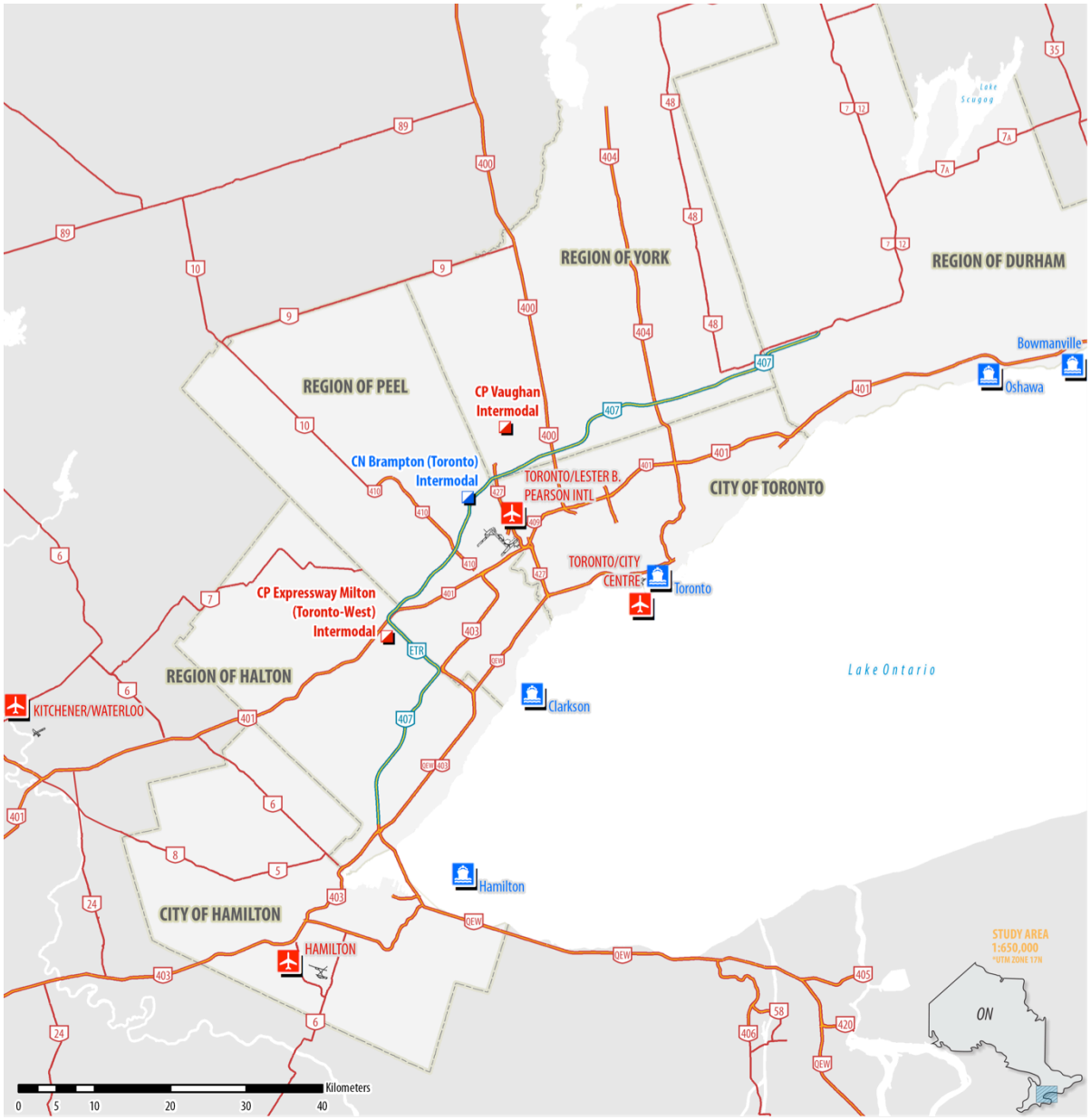
Consultation

- In-depth interviews on issues, initiatives, and opportunities
- Public sector:
  - Transport Canada, MTO, regions and municipalities
- Private sector:
  - CN, CP, and selection of major retailers, airports and ports

Proposed Vision for Goods Movement

- Goal E: Prosperity, Efficiency and Competitiveness:
  - " …. The transportation system will provide better value to households, businesses and governments by supporting the **safe, economical, reliable, fast, and environmentally sustainable** movement of people and goods."
- These five key concepts speak to all perspectives:
  - Engages public *and* private goods movement stakeholders
  - Consistent with overall RTP vision

GTHA Goods Movement Network



- Multi-modal network serves a population of 6^{+} m
- Canada's economic engine
  - Internal and external flows

Bring Stakeholder Perspectives Together

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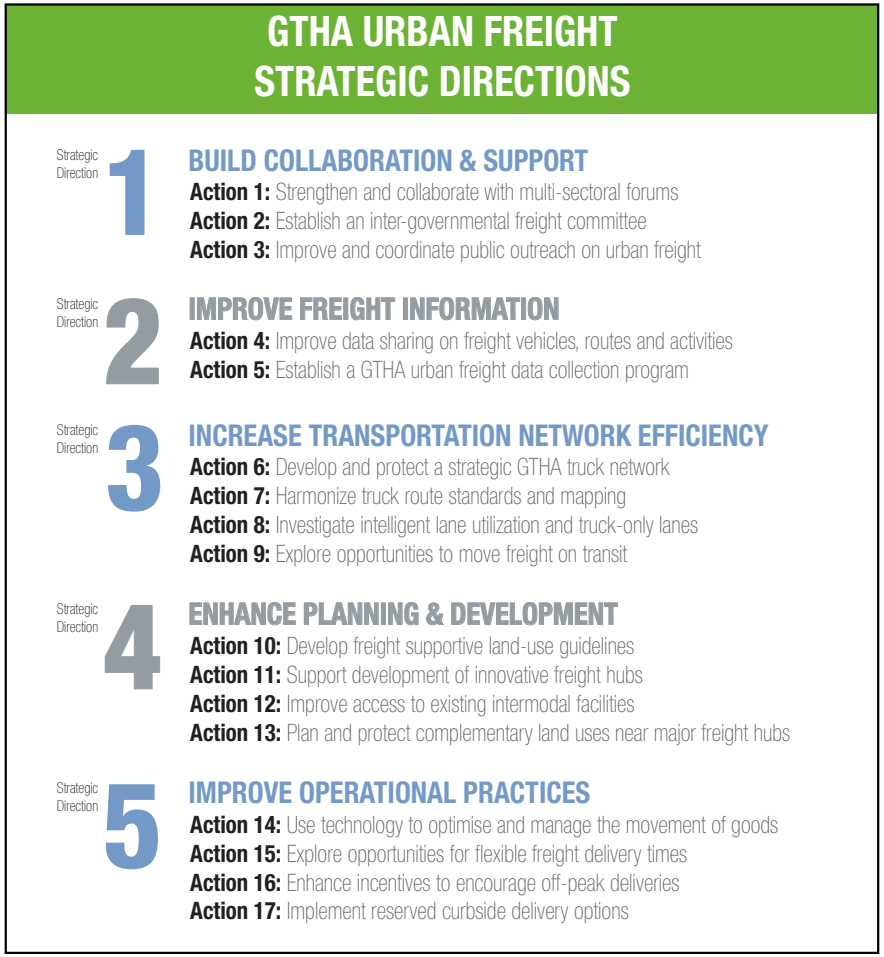
GTHA Goods Movement Trends

- Growth in truck traffic: *outward* across the GTHA, *upwards* in terms of volumes, and *across the day*
  - Same for congestion, GHG emissions and air pollution
- Development at urban / rural boundaries – how to manage?
- E-commerce – what are impacts on B2C / B2B deliveries?
- Growth in express deliveries – how to accommodate better?
- First / last mile access, especially to intermodal terminals
- Interest in shared use corridors – how does goods movement fit?
- Interest in sustainable freight

Three Issues

1. **Managing congestion**
   - Overwhelmingly **the** most important issue for the private sector
   - Goods movement vehicles shoulder a disproportionate share of the economic burden of congestion
2. **Managing land use compatibility**
   - Reduce conflicts: incompatible land uses, freight sprawl v. compact development, conflicts in shared use of corridors
3. **Reducing the environmental impact of goods movement**
   - Fuel use, GHG emissions, air pollutants, noise, vibration

Progress to Date – Goods Movement Action Plan



- Progress on almost all Actions through cooperative and individual agency efforts:
  - Urban Freight Forum
  - Data collection plan
  - Peel strategic truck network (prototype for GTHA)
  - MTO Freight Supportive Guidelines (draft)
  - Protecting freight lands
  - MTO off-peak delivery
  - Research: freight hub planning, truck-only lanes, freight on transit, intelligent transportation systems, transportation management, curbside delivery

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Proposed Updated Strategic Directions and Actions

Opportunity	In Action Plan	New action	Further action
Strategic Direction 1: Build Collaboration and Support			
1. Strengthen UFF's role, while continuing collaboration	✔		✔
2. Continue to work with inter-governmental committee	✔		✔
3. Continue and broaden outreach on urban freight	✔		✔
Strategic Direction 2: Relieve Congestion for Goods Movement			
4. Promote off-peak delivery	✔	✔	
5. Deploy operational / infrastructural priority measures *(including LCVs)*	✔	✔	✔
6. Prioritize goods movement corridors for investment		✔	✔
Strategic Direction 3: Improve Land Use Compatibility			
7. Encourage smart growth for freight	✔		✔
8. Apply Complete Streets approach	✔	✔	
9. Apply freight-supportive land use guidelines	✔		✔
10. Improve incorporation of goods movement into planning process	✔	✔	
Strategic Direction 4: Reduce Environmental Impact of Goods Movement			
11. Study urban distribution (consolidation) centres			✔
12. Study technological and regulatory initiatives *(including road safety)*		✔	✔
Strategic Direction 5: Improve Goods Movement Data			
13. Implement Urban Goods Movement Data Program Phase II	✔	✔	

Key Takeaways

- Goods movement is critical to GTHA's economy and liveability
- Goods movement issues and opportunities complement and support RTP's transit-oriented, sustainable people-movement focus
- Need to engage public and private sectors
  - Backgrounders and companion studies show how Metrolinx will continue to lead and coordinate – e.g., via the Urban Freight Forum

Developing Urban Goods Movement Data, Phase II Work Plan

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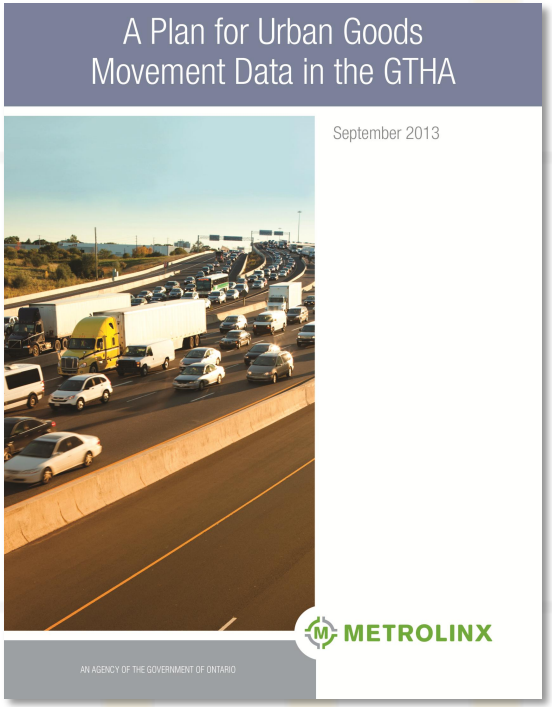
Purpose

- Data are essential to investment planning and analysis
- Metrolinx commissioned 2013 goods movement data plan (Phase I)
- Phase II: Refresh 2013 plan and help Metrolinx and its partners move forward with implementation
- Complements parallel work in support of goods movement component of RTP Review



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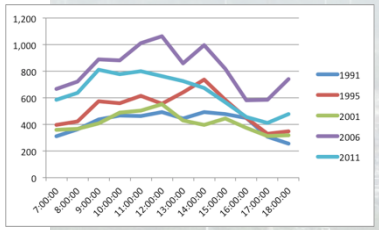
Findings from Phase I

- Six groups of performance indicators identified
  - Economy / productivity
  - Road network performance
  - Commodity / service flow
  - Intermodal performance
  - Commercial vehicle movement
  - Environmental and social impact
- Indicators described in terms of their data elements
  - Example: commodity / service flow expressed in terms of origin-destination pair, commodity type, and so on
- Elements are the basic data building blocks
- Retained in the Phase II data framework for KPIs and modelling

Two Streams of Data



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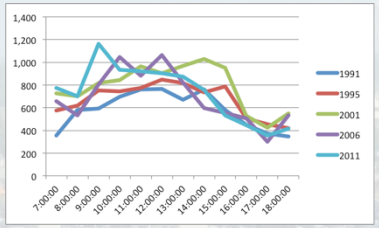

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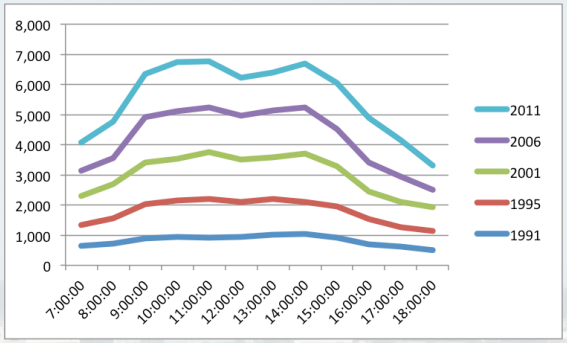

401 w of Renforth

401 at Toronto/Durham bndry

Growth in MT/HT volumes on Hwy 401, WB

Source: CCDRS

- Key Performance Indicators *(where are we?)*
- Models, analysis and forecasting *(where are we headed?)*

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Key Performance Indicators

Outcome	KPI	Method	Data
Travel times	Average GM travel time / travel speed	Weight truck speeds by AADTT and segment length	• Truck counts (AADTTs) for all GTHA highways, arterials • Travel times / speeds
Reliability	GM buffer index	Weight buffer indexes by AADTT and segment length	• Truck AADTTs • 24/7/365 travel times
Cost	GM price index	Report changes in the costs to users of transportation	• GDP by industry
Air pollution / GHG	GM air pollution index (CAC and GHG)	Assign emission factors based on speed, vehicle mix; aggregated	• Truck AADTTs • Travel times / speeds • MTO CAC, GHG emission factors
Safety	GM road accidents / rail accidents involving injuries or fatalities	Aggregate all incidents and weight by truck-/ car-km or tonne-km	• Accident reports • TSB data • Activity estimates

Key Performance Indicators: Summary of Data Needs

- Truck counts by vehicle type across all GTHA highways and arterials, transformable to AADTTs
  - Owners: MTO, Regional Municipalities, Municipalities
  - Status: varies in coverage, completeness, currency
  - Needs: data collection *and* processing
- CAC and GHG emission factors
  - MTO Air Quality and GHG Impacts Guide
- Collision data
- Rail activity
- iCorridor GPS travel times

Travel Demand Forecasting Model

- Analytical tool used to forecast multi-modal travel
- GTHA has several models that forecast urban passenger trips (auto, transit, walking, cycling) … but urban truck forecasting models are limited
- Forecasts are used to
  - Inform policies – e.g., transportation master plans
  - Identify future needs, evaluate solutions, set priorities – e.g., corridor studies, environmental assessments
- Trucks *are* considered, but better analytical depiction is needed to account for unique dynamics, diversity, linkage with economy and so on

Model Development

- Improve trip-based modelling capabilities across GTHA
  - Different capabilities by agency
  - Want consistency across the GTHA
- Move to tour- / activity-based models (TBM/ABM)
  - Adds trip chain ('tour'), improved operational understanding
  - MTO's GGH model is moving this way, but data are limited
- Link to pricing, land use (eventually)
- Potential use of municipal employment survey data
  - Current state of data, obstacles and ideal future alignment

Model Development: Summary of Data Needs

Phases / Timing and Data Elements	How Used in Model Development?	Available?	Need?
Phase I (trip-based → TBM/ABM) / ST-MT			
Population, employment and land use data	Demographic and economic 'drivers' of goods movement	Partial	Augment existing
Establishment / truck OD surveys	Quantify goods movement activity as basis of forecasting (trip chains, stops, what's carried, …)	Partial	Survey / Procure
Establishment / truck OD surveys – carriers/couriers	Quantify activity of commercial transporters	Partial	Survey
External gateway surveys	Quantify activity to, from and through the GTHA, including via intermodal terminals	CVS	Continue CVS
Commercial vehicle counts	Calibrate and validate models	CCDRS, etc.	Expand to 24 hr
Phase II (TBM/ABM) / ST-MT			
Trip records of carriers / couriers	Better depiction of couriers and messengers	Private	Procure
Trip records of public fleets	Better depiction of public fleets in models	???	Needed
Phase III (research) / LT			
Changes in firm attributes	Locational decisions of firms, due to costs, etc.	StatsCan	Survey
Vendor selection / carrier selection data	Improved behavioural choice models	Partial	Survey
Provincial / national / bi-national commodity flow data (Commodity Flow Survey – CFS)	Big picture of what's moving by all modes to, from and through the GTHA	Not available	Need CFS

Potential Model for GM Data

- The Data Management Group works well as a custodian for urban travel data
- Propose that a DMG-Like group be established to:
  - Coordinates and oversees new data collection activities, data processing
  - Integrates new data into MTO databases

- Metrolinx can continue to create research agendas, establish common standards, etc.
- Funding sources for such an effort needs to be established

GM Data Conclusion and Potential Next Steps

- General interest from agencies: challenge is resources
- Incremental approach suggested
  - 'Quick wins' to build on existing data (e.g., extend cordon counts to 24 hour)
  - Analyze (exploit) existing data to show benefits → gain broader interest – e.g., public health, trade
  - Develop common standards – e.g., vehicle classifications, data analysis
  - Leverage successes to add pieces incrementally
  - Fund academic 'Centres of Excellence' to research issues of interest to all governments, private sector - incl. data

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Key Contacts

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