Dynamic Traffic Modelling for York Region

Lessons Learned and Prospection

Kevin Ye
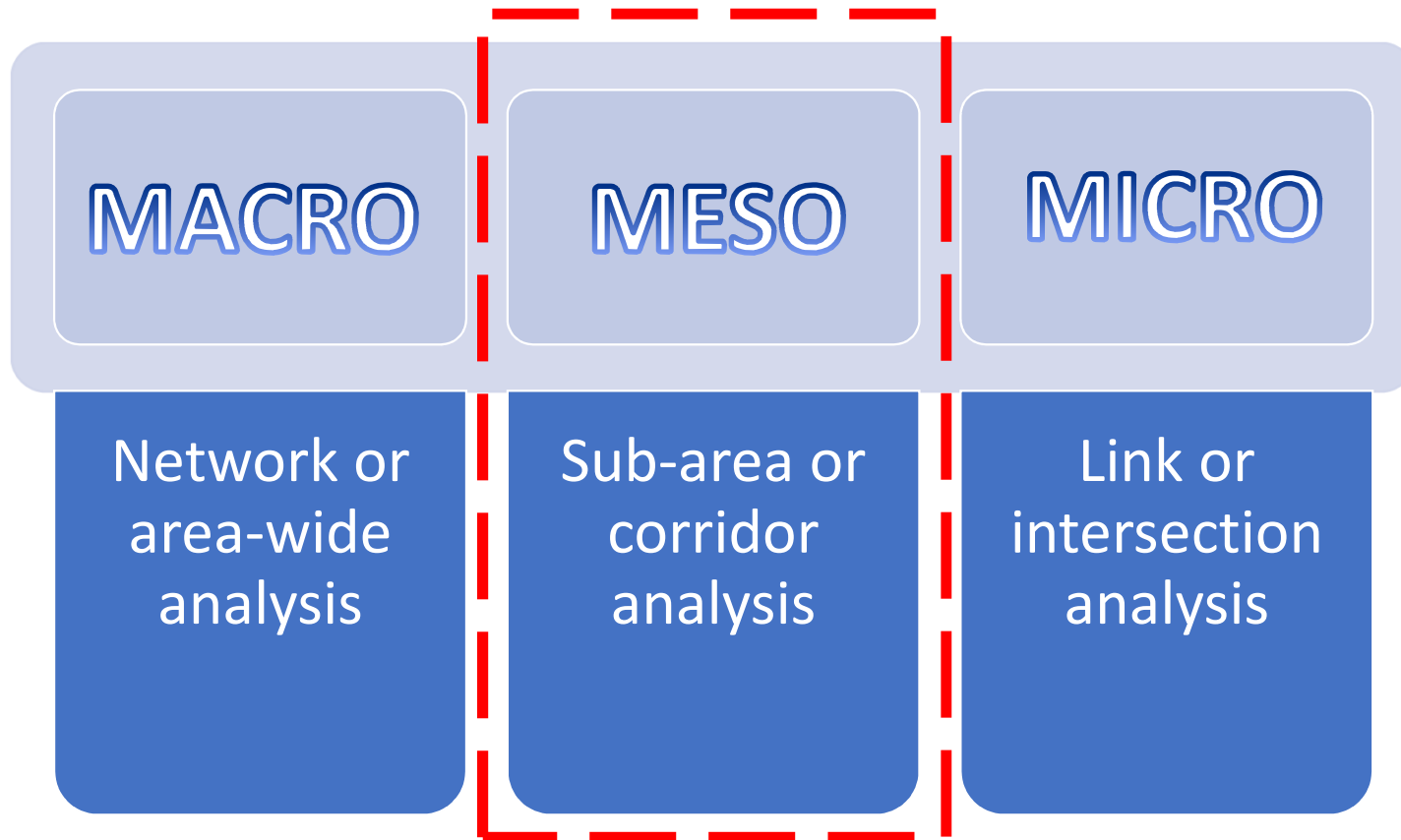Transportation Planning, York Region
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Background

Over two decades' practices of 4-stage travel demand forecasting modelling to plan or improve York Region Transportation System

- To identify improvements to support growth
- To understand the impacts of development
- To evaluate the benefits/costs of infrastructure investments
- To understand the impacts of potential socio-economic policies

Types of modelling

| MACRO	MESO	MICRO
Network or area-wide analysis	Sub-area or corridor analysis	Link or intersection analysis

Why do we use meso (subarea) model?

- Purpose: to provide more detailed, time-sensitive and accurate analysis for a subarea or corridor
- Applications
  - Transportation studies for secondary plan and sub-area TMPs
  - Evaluation of congestion relief strategies, such as road expansions, HOV, and dedicated bus lanes etc.
  - Assessment of traffic impacts caused by road blockage and traffic signal changes
  - EAs – needs analysis and design options

Evaluation and Selection of DTA Software

- Evaluation of various mesoscopic modelling software packages took place in 2004 (Paramics, Vissim, and Dynameq)
- Selection of Dynameq
  - Easy to create subarea network and traversal matrix from Emme
  - Shorter computing time required to converge to equilibrium
  - Simple and efficient visualization and analytical tools

Subarea Model (Meso) – Box Grove
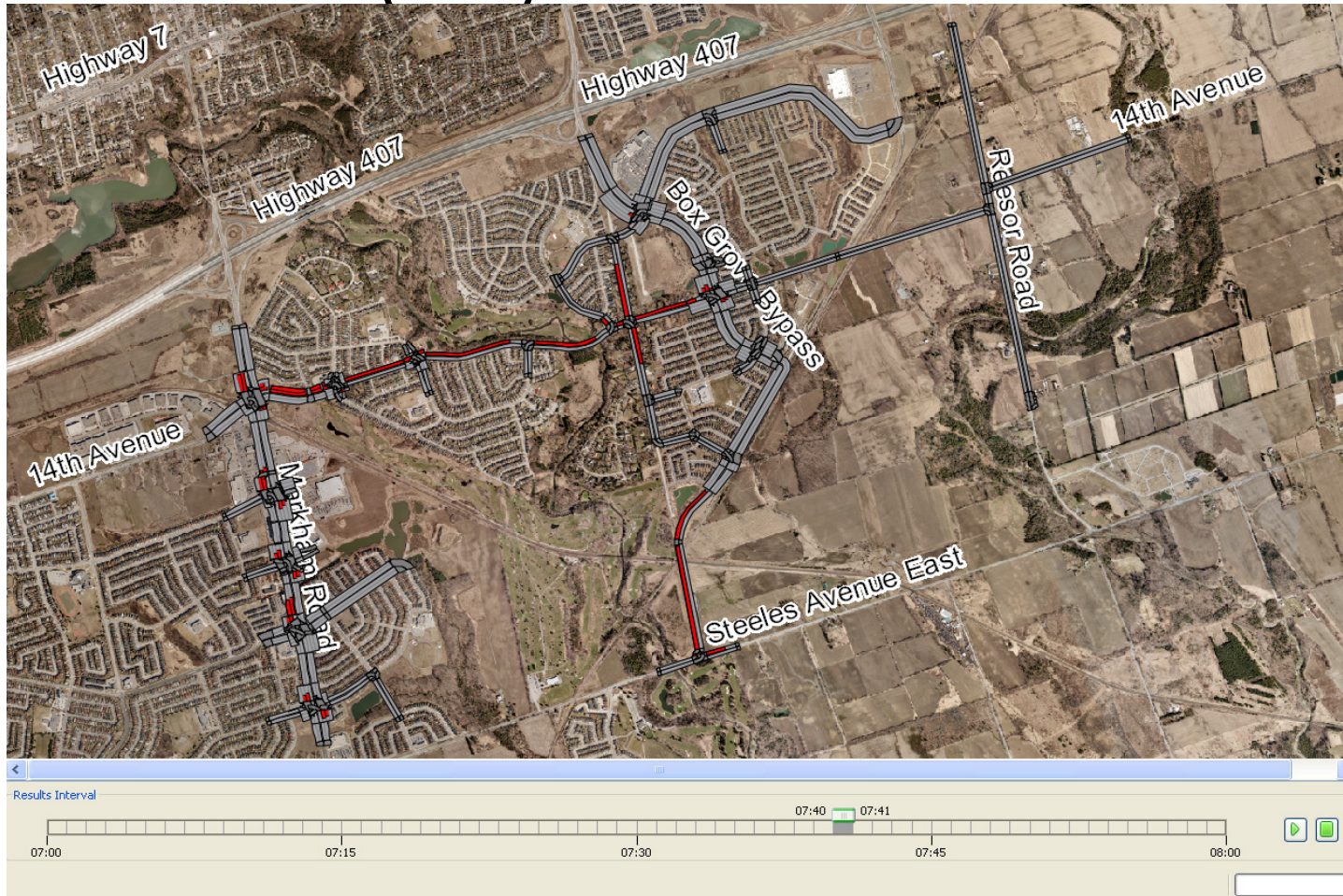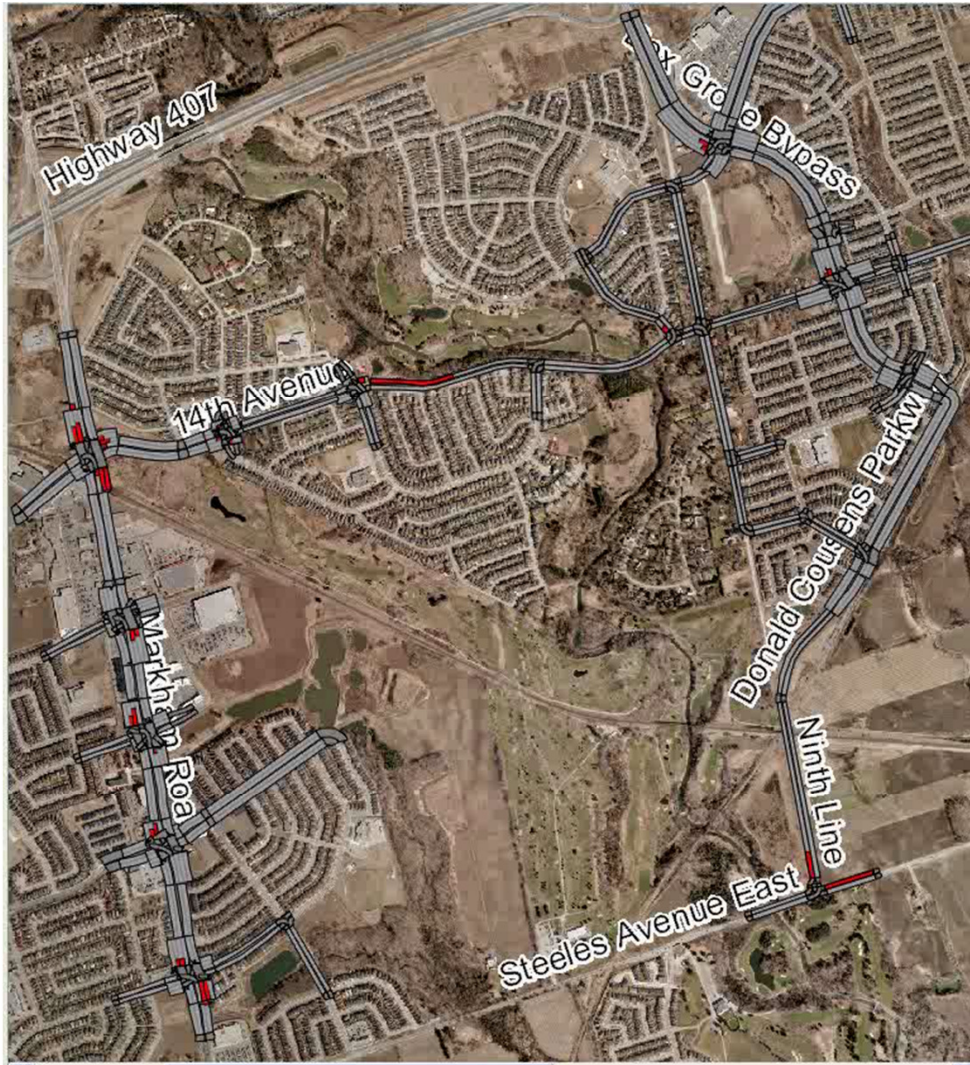
Dynameq

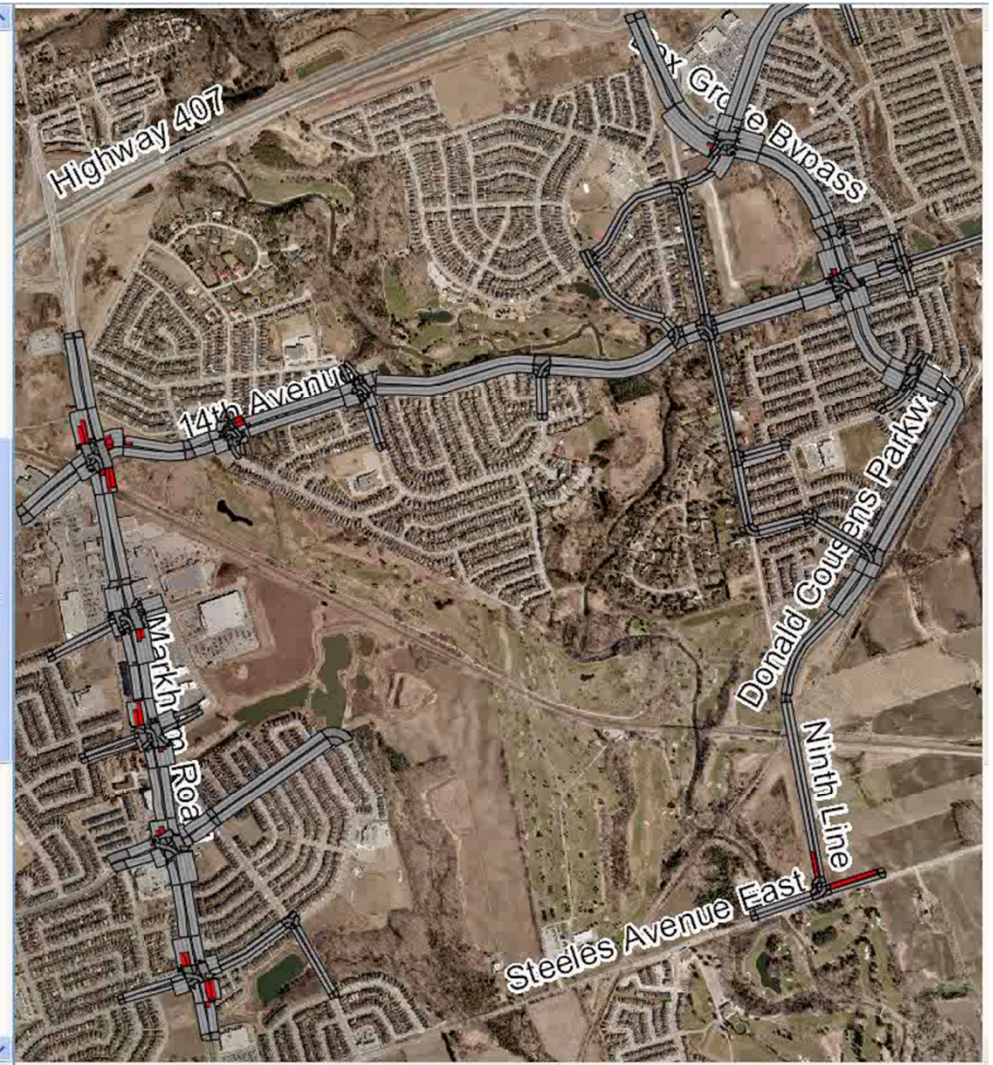# Subarea Model (Meso) — Box Grove

Base

4-Lane Steeles

Lessons Learned

DTA Projects:

- Challenges of Model Expansion
  - Road Network (e.g. split zones, network expansion)
  - Demand conversion
- Lack of Integration with Macro and Micro Models
  - Missing Feedback Loop from Meso to Macro
  - Unable to optimize signal timing plans
- Time-consuming Calibration and Validation
  - Traffic Assignment Parameters
  - Adjustments to traversal matrices

Next Steps

Short Term:

• Reach out to internal stakeholders and assess needs for DTA applications
• Engage and establish working groups to ensure effective collaboration with stakeholders
• Identify and secure funding for region-wide DTA model
• Re-assess DTA software packages

Medium-Long Term:

• Develop road map and BCAs for DTA applications
• Develop integrated ABM-DTA approach
• Incorporate real-time data (e.g. bluetooth) into development of DTA applications
• Implement adaptive traffic control and signal optimization

Questions / Discussion

THANK YOU

York Region