Transportation Toronto

How current cultural paradigms cost us more than just money
Transportation Behavior Model

Auto Users

Flux

Transit Users
Induced (Latent) Travel Demand a result of new roads

- Widen roadways/build new roads to decrease gridlock
- Faster-flowing traffic means that people are satisfied with the driving commute
- Demand for the new roadway increases—a result of increased urban growth—further increasing traffic congestion
Transportation Behavior Model

- Auto Users
- Flux
- Transit Users
Population Trends in the GTA

Looking into where the commuters are

Source: Statistics Canada, 2001 Census

Data distributed by Census Subdivision
Population Distribution - Former Cities of Toronto, 1996

- Toronto: 27.4%
- North York: 24.7%
- Scarborough: 23.4%
- Etobicoke: 13.8%
- East York: 4.5%
- York: 6.2%
Employment accessibility within 30 min by transit
Areas with poor access to transit for commuting
Transit Statistics

A quick look at private and public transit use
Private Vehicles - 48% of commuters

- 48% commute by driving whereas only 28% take public transit (2008)
- 80min average round trip
  - 37min on average stuck in traffic
Toronto Transit Commission (TTC) services

- Made over 470 million trips (2010)
- Over 1.5 million riders per weekday
GO Transit services

- 183 Train and 200 Bus trips per day
- 215,000 passengers
- Services an area 100km beyond the City of Toronto
Toronto Transit Commission Case Study

A look at how the TTC functions as the primary municipal public transit operator in Toronto
Overall Route Network

York Region

Durham Region

Peel Region
TTC’s Rapid Transit

- Last expansion: Sheppard subway
- Two lines over capacity
  - Yonge-University-Spadina Subway
  - Scarborough RT
- Expansion not occurring where needed
TTC Surface Network

- Primarily connects to rapid transit lines
- Buses and streetcars
- Connects with other transit systems at borders
  - Some GTA transit agencies operate buses to subway stations
Transit Expansion overseen by Metrolinx

- Government organization receives funding from all levels
- Current expansion projects include:
  - Air Rail Link (ARL)
  - Spadina Subway Extension
  - Eglinton-Scarborough-Crosstown LRT
- Cancelled projects include:
  - Eglinton West Subway
  - Downtown Relief Line (DRL)
  - Transit City LRT and Bus Plan
Rapid Transit Map Circa 2020
People live further from work/school/etc.
People live further from work/school/etc

People travel further to get places
People live further from work/school/etc

People travel further to get places

Decreased efficiency of Public Transit
People live further from work/school/etc

People travel further to get places

Decreased efficiency of Public Transit

People are more likely to drive their cars
People live further from work/school/etc

People travel further to get places

Decreased efficiency of Public Transit

People are more likely to drive their cars

People are stuck in more traffic

MOVING TORONTO FORWARD
People live further from work/school/etc

People travel further to get places

Decreased efficiency of Public Transit

People are more likely to drive their cars

People are stuck in more traffic

More time spent on the road

Less time for productivity/relaxation
People live further from work/school/etc. People travel further to get places. Decreased efficiency of Public Transit.

People are more likely to drive their cars. People are stuck in more traffic.

More time spent on the road. Less time for productivity/relaxation.
More time spent on the road

Increase in emissions

Increase in vehicle wear
More time spent on the road

- Increase in emissions
  - Increase in GHG
  - Increase in PM$_{2.5}$
- Increase in vehicle wear
  - Increased maintenance cost
More time spent on the road

- Increase in emissions
  - Increase in GHG
  - Additional climate impact
  - Increase in PM$_{2.5}$
  - Increase in health-related issues

- Increase in vehicle wear
  - Increased maintenance cost
  - Increase in waste from damaged and worn-out parts
More time spent on the road

- Increase in emissions
  - Increase in GHG
  - Additional climate impact
    - Increase in negative environmental phenomena
  - Increase in PM$_{2.5}$
    - Increase in health-related issues
      - Increased burden on healthcare system
- Increase in vehicle wear
  - Increased maintenance cost
  - Increase in waste from damaged and worn-out parts
  - Negative impact on the environment
More time spent on the road

Increase in emissions
  - Increase in GHG
  - Additional climate impact
    - Increase in negative environmental phenomena
    - Increased cost to repair/prevent damage
  - Increase in PM\textsubscript{2.5}
    - Increased burden on healthcare system
    - Increased healthcare costs

Increase in vehicle wear
  - Increased maintenance cost
    - Increase in waste from damaged and worn-out parts
    - Negative impact on the environment
      - Increase in negative environmental phenomena

People live further from work/school/etc

People travel further to get places

Decreased efficiency of Public Transit

People are more likely to drive their cars

People are stuck in more traffic

More time spent on the road

Less time for productivity/relaxation
Less time for productivity/relaxation

- Increased stress levels
- Decreased personal work productivity
Less time for productivity/relaxation

Increased stress-levels

Increased burden on healthcare system

Decreased personal work productivity

Decrease in corporate productivity
Less time for productivity/relaxation

- Increased stress levels
- Increased burden on healthcare system
  - Increased healthcare costs

- Decreased personal work productivity
  - Decrease in corporate productivity
  - Decrease in competitiveness
Less time for productivity/relaxation

- Increased stress levels
- Increased burden on healthcare system
- Increased healthcare costs

- Decreased personal work productivity
- Decrease in corporate productivity
- Decrease in competitiveness
- Decrease in revenues
People live further from work/school/etc.

People travel further to get places.

Decreased efficiency of Public Transit.

People are more likely to drive their cars.

People are stuck in more traffic.

More time spent on the road.

Increased stress levels.

Decreased productivity.

Increased vehicle wear.

Increased maintenance cost.

Increased healthcare costs.

Increased healthcare system burden.

Decreased personal productivity.

Decreased corporate productivity.

Decreased burden on the healthcare system.

Increased healthcare system costs.

Increased waste from damaged and worn-out parts.

Increased health-related issues.

Increased in health-related illnesses.

Increased in negative environmental phenomena.

Increased in negative environmental phenomena.

Increased cost to repair/prevent damages.

Increased in emissions.

Increased in PM2.5.

Increased in GHG.

Increase in emissions.

Increased in stress levels.

Increased in vehicle wear.

Increased in healthcare costs.

Increased in negative environmental phenomena.

Increased in environmental phenomena.

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Result of 37 min of gridlock/day (Coyne, 2011)
Traffic leads to enormous economic losses

- $6 Billion in lost productivity (Coyne, 2011)
- $500 Million in healthcare and environmental damages (PNAS, 2008; Coyne, 2011; Toronto Board of Trade, 2010)
- $4 Billion in gasoline costs (StatsCan, 2011)
Total Cost: 
>$10 Billion/year
Most could be converted to transit users.
Supporting the Flux Users
Thank you!