Dynamic Traffic Modeling for TxDOT

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CTR Symposium
The Need
The Need

What paths will drivers take if frontage road left turns are prohibited?
The Need

If we alter ramp configurations, what ramps will drivers take to access their neighborhoods?
The Need

What paths will drivers take to/from work?
The Need

Will this change to a TxDOT roadway lead to cut-through traffic in my neighborhood?
The Need

How are trips on City streets affected by TxDOT’s plans?
Answering the Need
Multi-Level Tools

Macro
Meso
Micro

Comprehensive Insight

[ FHWA Guidelines ]
Dynamic Traffic Assignment

1. Considers capacity in addition to demand
2. Re-routes traffic due to congestion
3. Provides more detailed roadway network
Project 1: SH 71 Overpass Construction in Bastrop
Will SH 71 traffic cut through downtown Bastrop during construction?
Project 2: Mobility 35 Improvements in Central Austin
How will Mobility 35 impact access to neighborhoods?

- Changes to ramp configurations
- Left turn prohibitions from frontage road to 38th ½ Street
Impacts of the Left Turn Prohibition

All Turns Allowed

Left Turns Prohibited
How will Mobility 35 impact access to neighborhoods?

Existing Configuration
PM Peak Period - NB

- Hyde Park/Northfield
- Hancock
- Northfield
- North University
- Cherrywood/Wilshire Wood/Delwood I
- Ridgetop
- Delwood II
- Windsor Park
- Mueller

Legend:
- Blue: 51st St
- Orange: Airport Upper Deck
- Purple: Airport Lower Deck
- Green: Other

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How will Mobility 35 impact access to neighborhoods?

Planned Configuration
PM Peak Period - NB

Exit Ramps

- Barbara Jordan Blvd
- 38th ½ St
- Manor Rd
- Other
Other Applications of Dynamic Traffic Modeling
Project Prioritization
Integrated Corridor Management

ICM Focus

Perform. Mgmt
Archived Data
Modeling & Simulation

Multi-Level Tools
Macro
Meso
Micro

Comprehensive Insight

[Adapted from Wunderlich and Noblis, 2010]

[ FHWA Guidelines ]
Transit

Routes used Between a Set of Origins and Destinations

Boardings and Alightings at Stops
Data Warehouse
Conclusion

• Dynamic traffic models *fill a need* by answering questions that other model types cannot answer

• We are *implementing* these models in practice for TxDOT

• We are also actively conducting *research* to push the state-of-the-art in advanced travel modeling
Questions?

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