NCMUG Fall 2015:
Potential Updates to North Carolina Travel Demand Models

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Agenda

• Goals and Outcomes
• Impetus for Change
• Potential Issues
• Managed Lanes
• Superstreets
• What can be done?
Goals and Outcomes
Goals

• Share recent findings
• Alert model custodians to recent rulings
• Help determine path forward
Outcomes

Make some decision soon

- Deciding to decide later is acceptable
- Deciding sufficient data does not exist is also acceptable
- Choosing not to decide may no longer be acceptable

Document decisions
Impetus for Change
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Recent best practice updates
- NCHRP 716
- NCHRP 765

Recent court rulings
- Yadkin Riverkeeper v NCDOT et al (Monroe Bypass)
- Catawba Riverkeeper Foundation v NCDOT (Garden Parkway)
- Midewin Heritage Association v Illinois DOT et al (Illiana Tollway)
- 1000 Friends of Wisconsin v USDOT et al
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- Yadkin Riverkeeper v NCDOT et al (Monroe Bypass)
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Impetus for Change

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Recent court rulings
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- Catawba Riverkeeper Foundation v NCDOT (Garden Parkway)
- Midewin Heritage Association v Illinois DOT et al (Illiana Tollway) – Rationality and SE Data
- 1000 Friends of Wisconsin v USDOT et al
Impetus for Change

Highly volatile landscape
Not much guidance yet
Open to lawsuits
  • Can be mitigated with documentation (hopefully)
Potential Air Quality Issues
Potential forecast issues
  • Not fiscally constrained?
  • Impacts to projects near managed lanes
Improvements may be pragmatic over theoretical
Potential Issues
Potential Issues

Given guidance and court rulings we can identify issues

Issues would impact:

• Air Quality Findings
• Conflict with Fiscal Constraint
• Impact General Patterns
Potential Issues

The following issues have been identified by STFE:

• Managed Lane Connectivity
• Superstreet Coding
• Socio-economic Forecasting

Focus on the first two
Socio-Economic forecasting needs more guidance
Potential Issues – Managed Lanes
Managed Lanes - Background

Many initially coded as HOV Lanes
Now tolled at levels to maintain ~50 MPH
Frequently on facilities with 100K AADT
Ubiquitous long term plans
Smaller impact in fiscally constrained plans
Managed Lanes – Toll Responsiveness

Models not terribly responsive to value of toll

- US 74 in Metrolina
- I-40 in Triangle
- I-540 in Triangle
- NC 147 in Triangle
Managed Lanes – Toll Responsiveness

Makes sense with roadway networks
Limited competing Parallel Paths
Managed Lanes – Access Changes

Models are responsive to access changes and presence of ML

- Presence of ML increases corridor 5% to 15%
- Presence of access may have a greater % change

Small changes to managed lanes access have noticeable impacts

Impacts are generally localized

General corridor trends prevail
Managed Lanes – Total Growth

12.8% Growth

7.3% Growth
Managed Lanes – Total Growth

14.2% Growth

13.3% Growth

15.7% Growth
Managed Lanes – Access Change

22.8% Change
Managed Lanes - Summary

Initially coded as HOV Lanes
Included lots of access
Level of access may no longer be accurate
Managed Lanes – Why is this a problem?

Still a lot of access from initial HOV coding

Some improvement, but maybe not enough

Conflict with fiscal constraint?
• Did cost assume a certain amount of access?
• Did the models provide more than that level?

Does the additional access impact our findings on sensitivity to toll values?
Managed Lanes – MRM Network

ML to GP Connection

Direct Connect to Y-line
Managed Lanes – TRM Network

ML to GP Connection
Managed Lanes - Summary

No longer HOV
• Now Express lanes

Need to focus on access points

Latest plans have much less access than shown in model

Impacts all over the network

Will localized impacts all over the network impact Air Quality findings?
Potential Issues - Superstreets
Superstreets - Background

Becoming more common
Being used as a retro fit in urban/suburban areas
Not modeled very frequently now
Frequently on regionally significant facilities
Superstreets – Locations

Wilmington – US 17 (Existing)
Superstreets – Locations

Kannapolis – Poplar Tent Road (existing)
Superstreets – Locations

Raleigh – US 70 (proposed)
Superstreets

Why is this important?
Traffic flows like water

Superstreets are:
• A bigger pipe
• A smoother pipe
Superstreets – Bigger Pipe

Not as critical
Capacity governed by signal timing
Can develop reasonable capacity from HCS
Generally being done now
Superstreets – Smoother Pipe

More critical going forward
Smoother pipe means different volume delay curve

• What is the general shape of this curve?
• Are speeds maintained better on superstreets than on arterials?
• Does this impact shortest paths?
What can be done?
What can be done?

First Issue: Decide what should be done

• Unnecessarily upsetting the apple cart?
• Any impact on AQ findings?
• Is now the correct time?
• Is it worthwhile given the roadway network?
What can be done?

Second issue: Decide and Document

• NEPA allows rational actions – Identify Reasons

• Judges are not experts – Write in layman terms

• If we don’t decide someone will decide for us
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Last issue: Remember precedents

- NEPA threshold is “not irrational”
- Recently upheld in Illiana Toll Case
- Not an undo burden to address
Question and Answers
NCDOT Contacts

- Traffic Forecasting Service Account:
  - TrafficForecast@ncdot.gov
  - If you don’t know where to turn to e-mail this account

- NCDOT State Traffic Forecast Engineer:
  - Brian Wert, PE, bmwert@ncdot.gov, 919-707-0974

- https://connect.ncdot.gov/projects/planning/Pages/ProjectLevelTrafficForecasting.aspx