



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

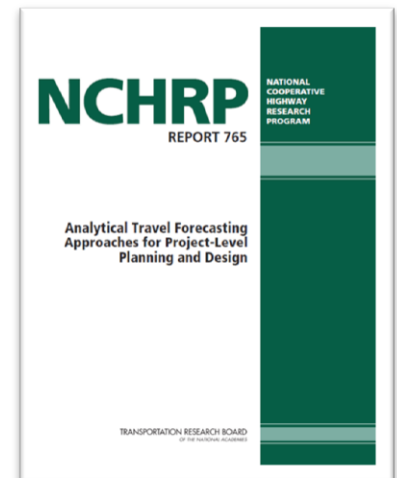
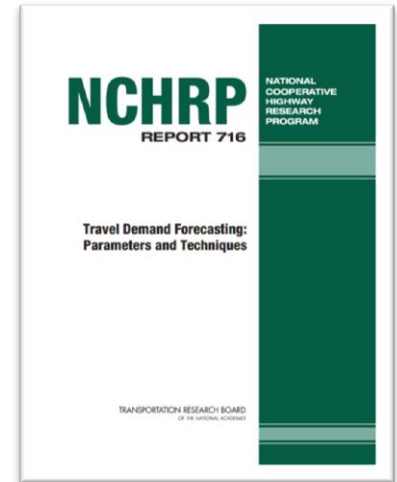
Impetus for Change

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



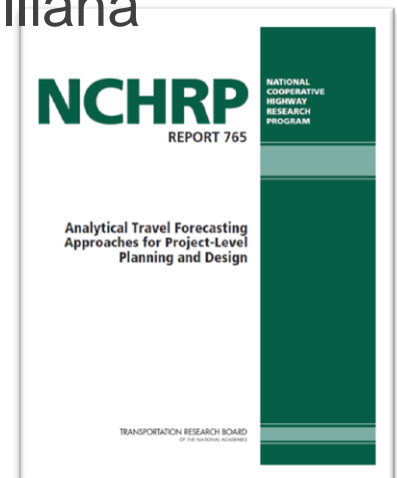
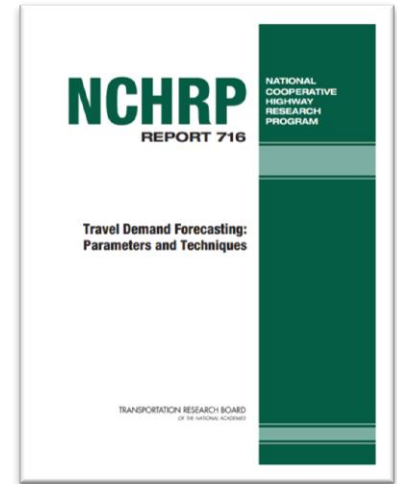
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Recent best practice updates

- NCHRP 716
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Recent court rulings

- Yadkin Riverkeeper v NCDOT et al (Monroe Bypass)
- **Catawba Riverkeeper Foundation v NCDOT (Garden Parkway)**
– **Documentation and SE Data**
- Midewin Heritage Association v Illinois DOT et al (Illiana Tollway)
- 1000 Friends of Wisconsin v USDOT et al



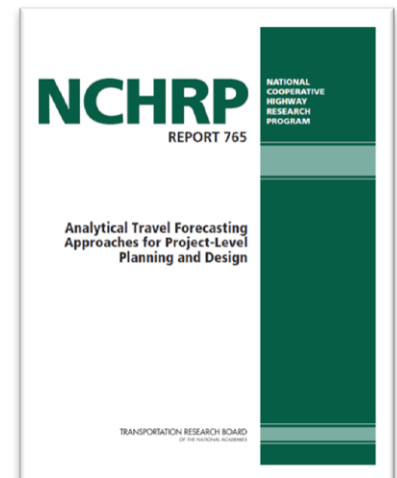
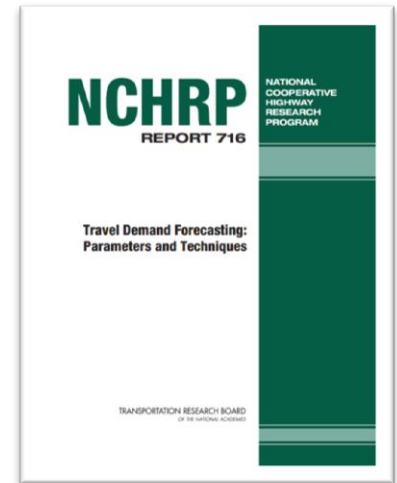
Impetus for Change

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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) – 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

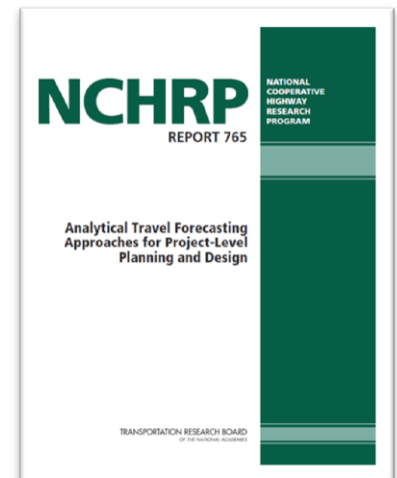
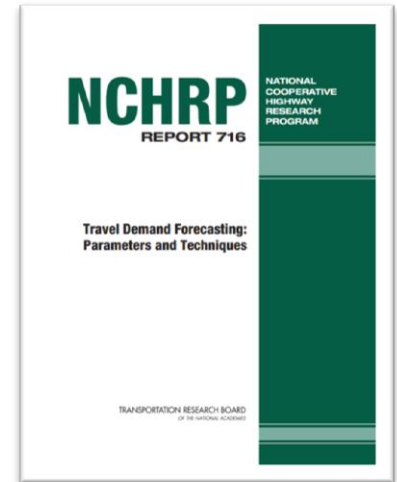
- Can be mitigated with documentation (hopefully)

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

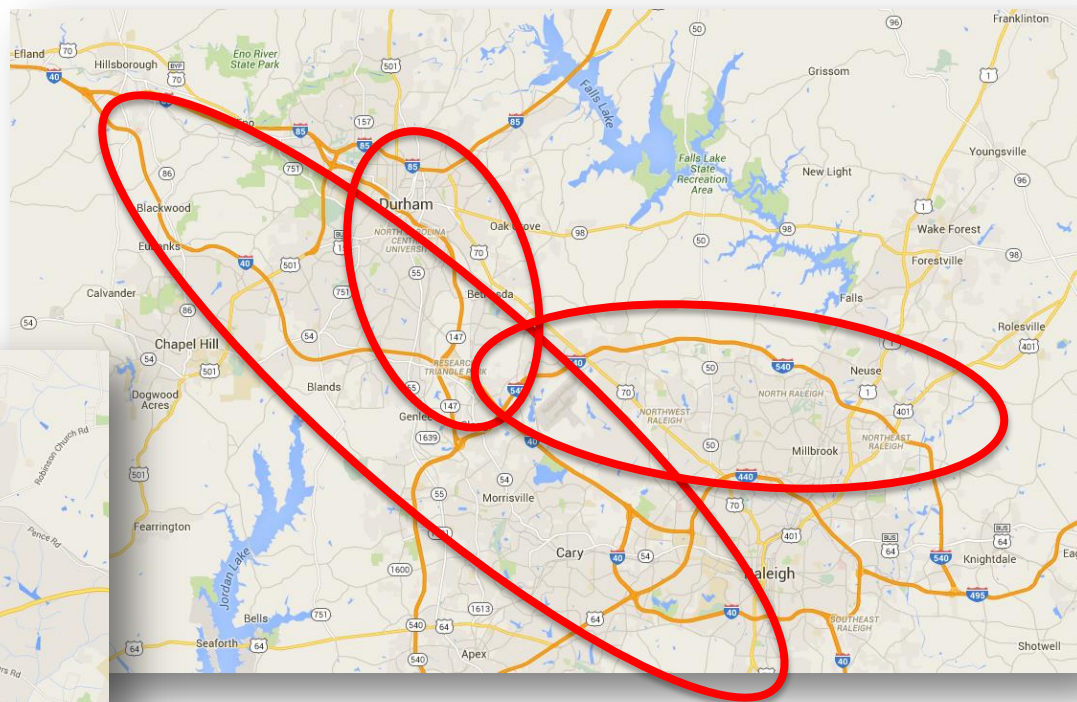
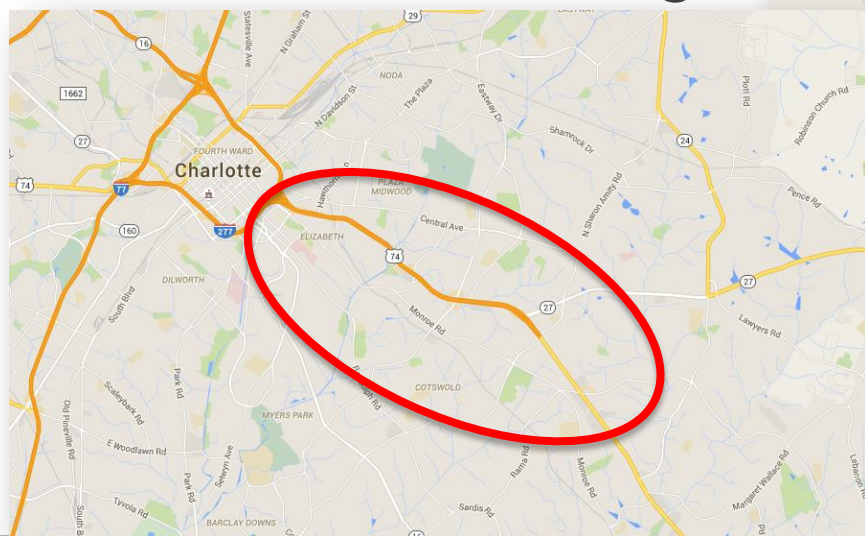
Ubiquitous long term plans

Smaller impact in fiscally constrained plans

Managed Lanes – Toll Responsiveness

Models not terribly responsive to value of toll

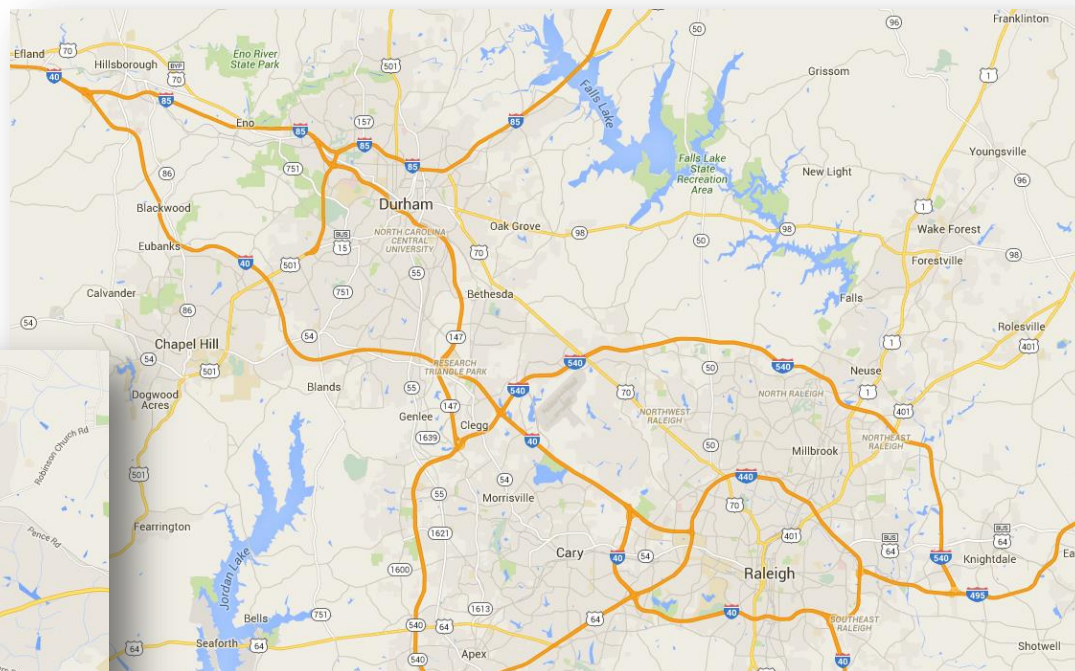
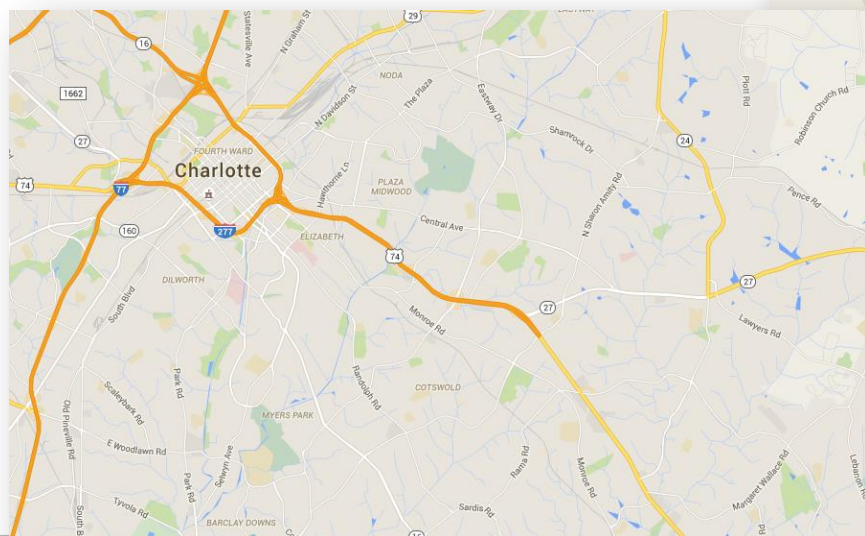
- US 74 in Metrolina
- I-40 in Triangle
- I-540 in Triangle
- NC 147 in Triangle



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

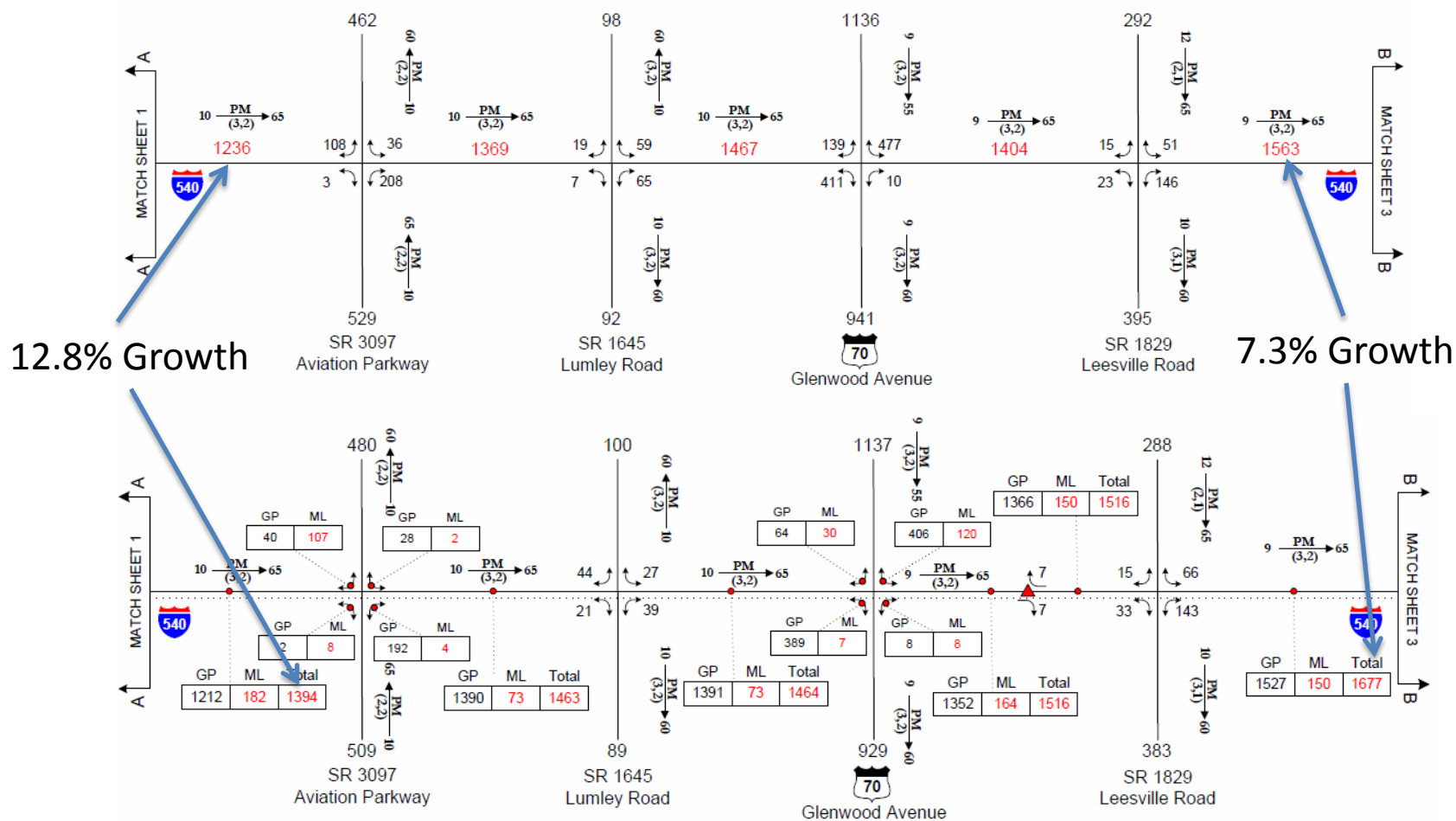
- Presence of ML increases corridor 5% to 15%
- Presence of access may have a greater % change

Small changes to managed lanes access have noticeable impacts

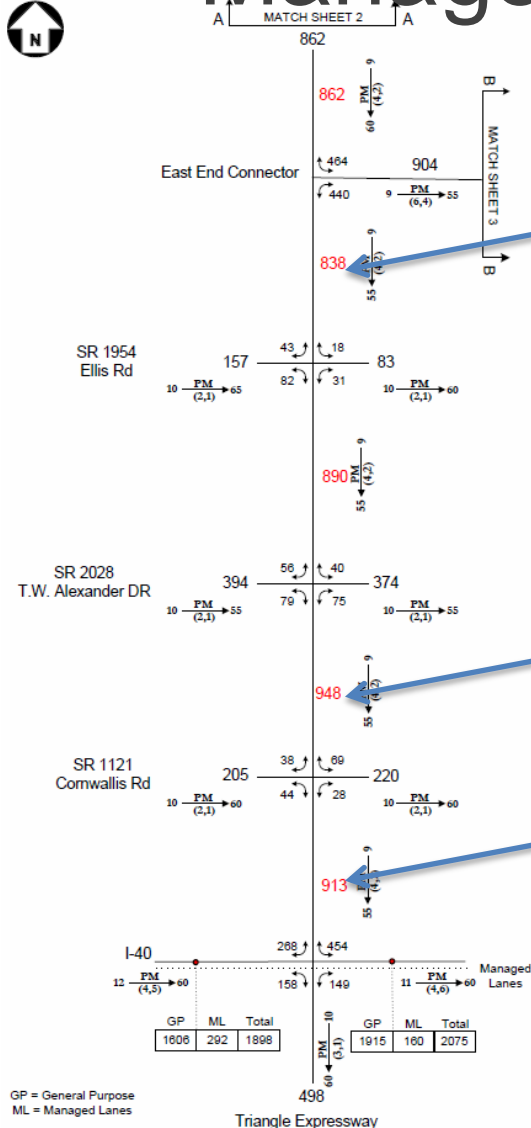
Impacts are generally localized

General corridor trends prevail

Managed Lanes – Total Growth



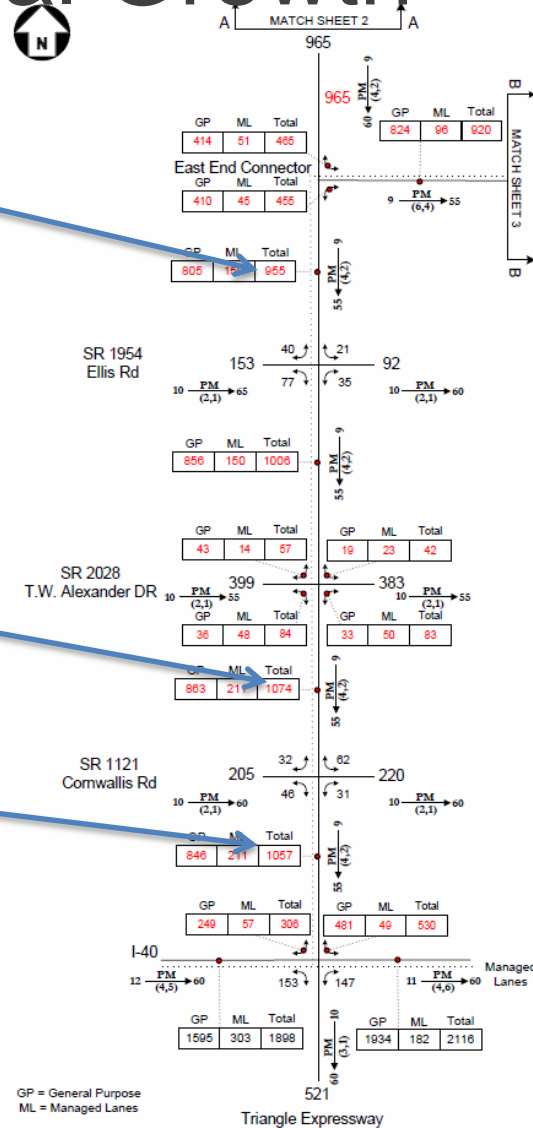
Managed Lanes – Total Growth



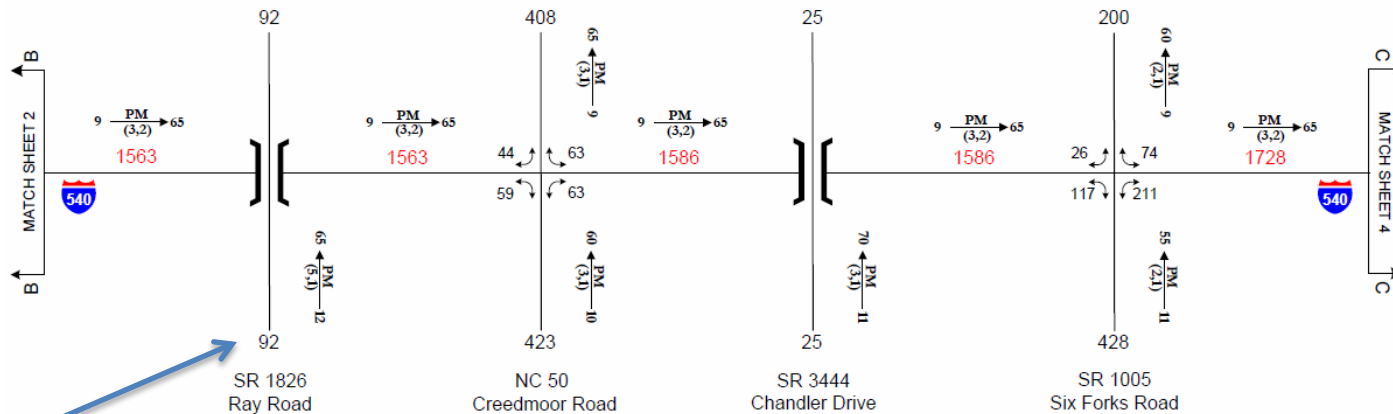
14.2% Growth

13.3% Growth

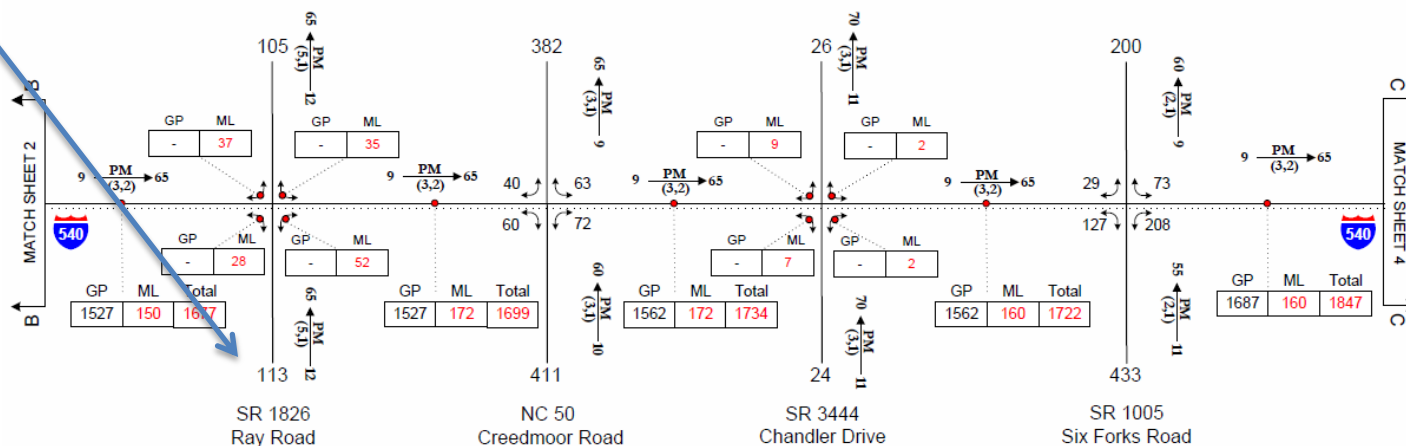
15.7% Growth



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

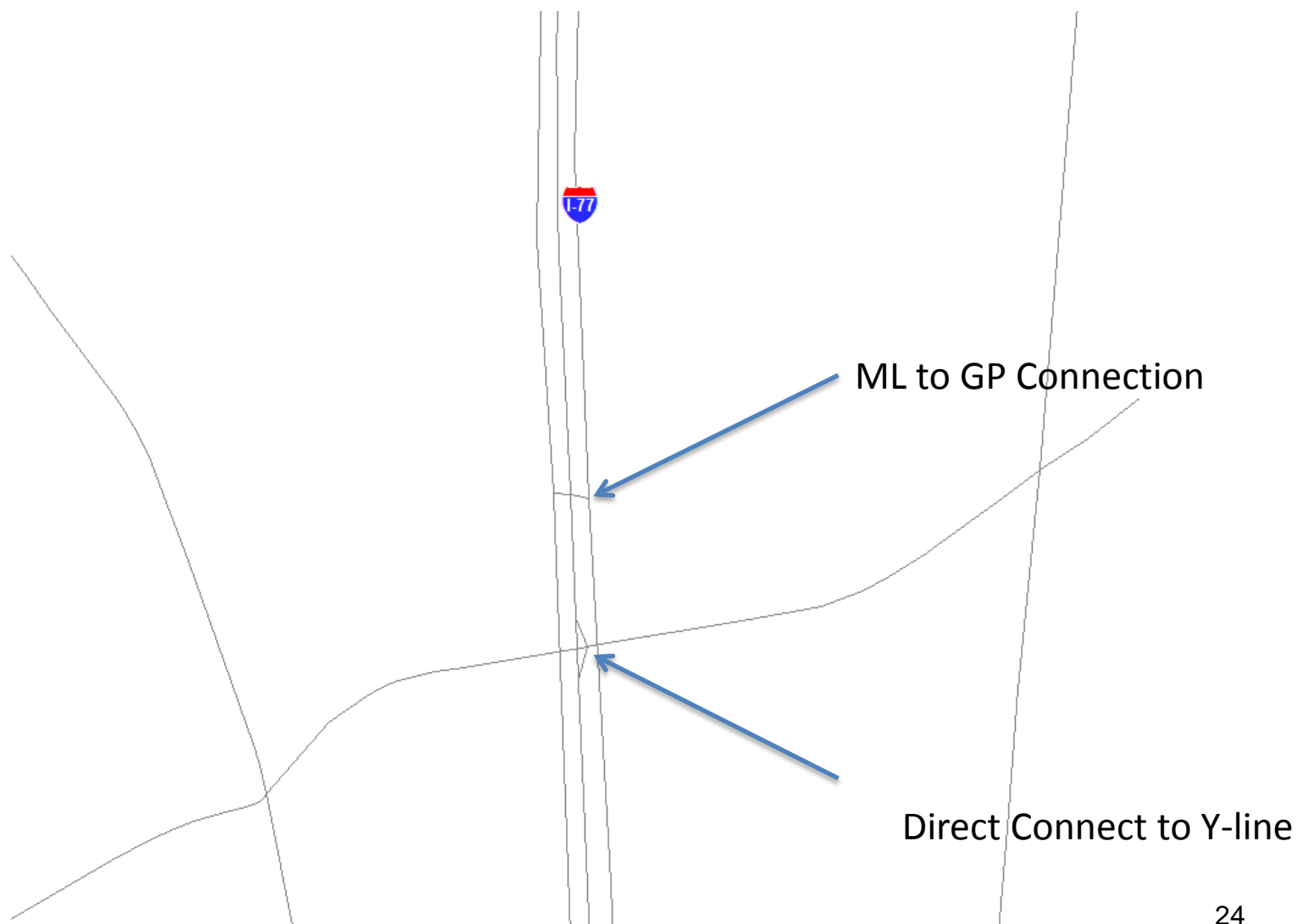
Some improvement, but maybe not enough

Conflict with fiscal constraint?

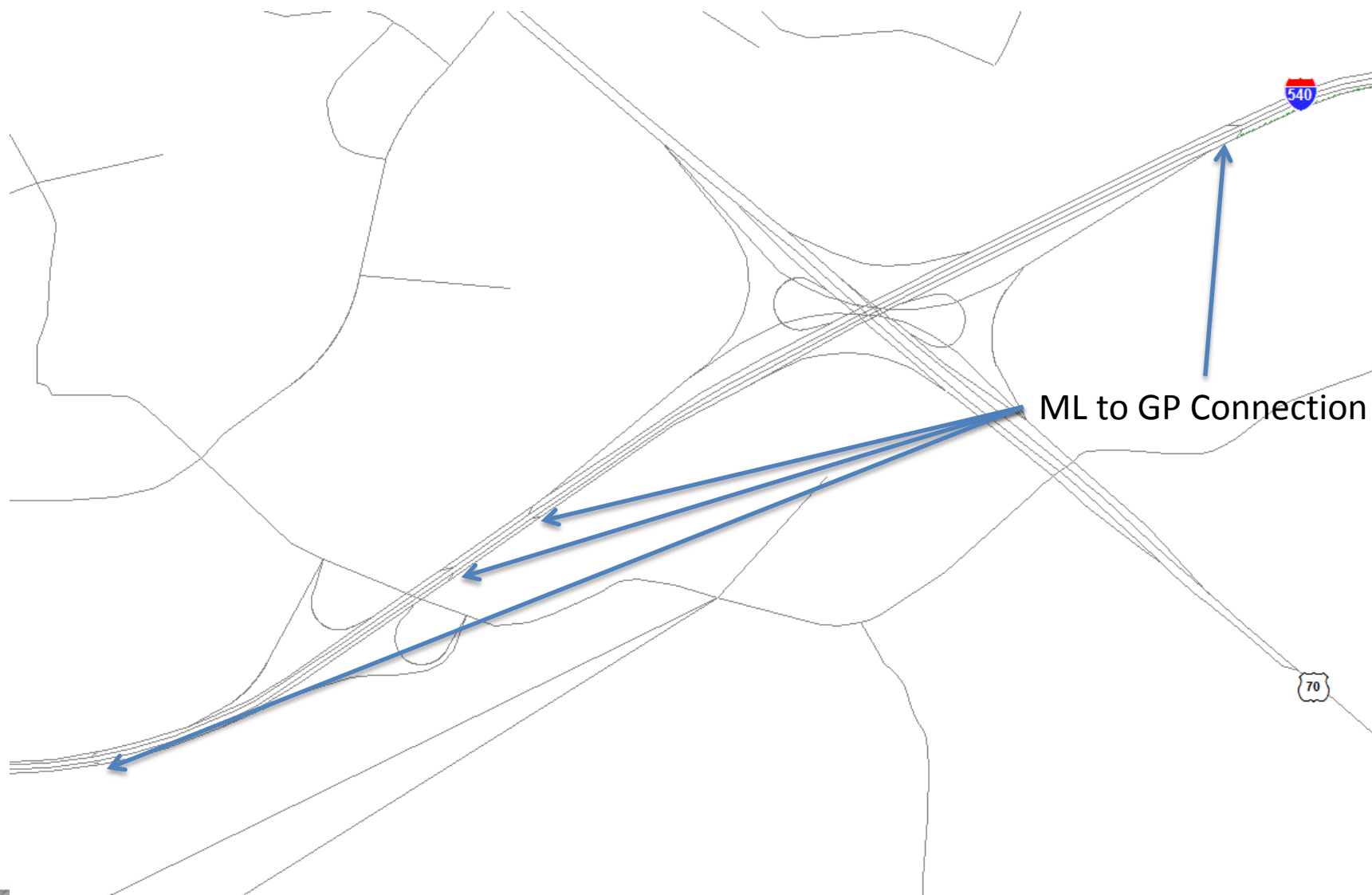
- Did cost assume a certain amount of access?
- Did the models provide more than that level?

Does the additional access impact our findings on sensitivity to toll values?

Managed Lanes – MRM Network



Managed Lanes – TRM Network



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

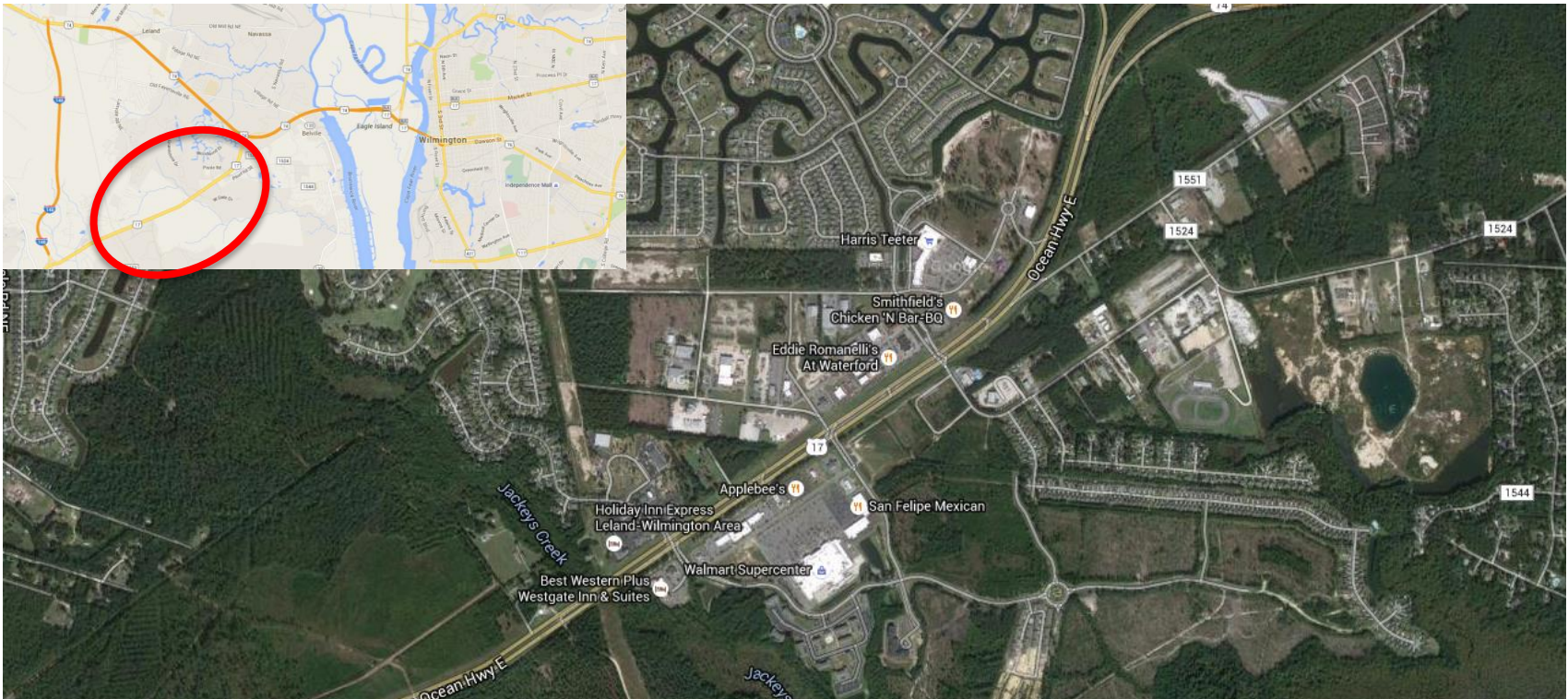
Being used as a retro fit in urban/suburban areas

Not modeled very frequently now

Frequently on regionally significant facilities

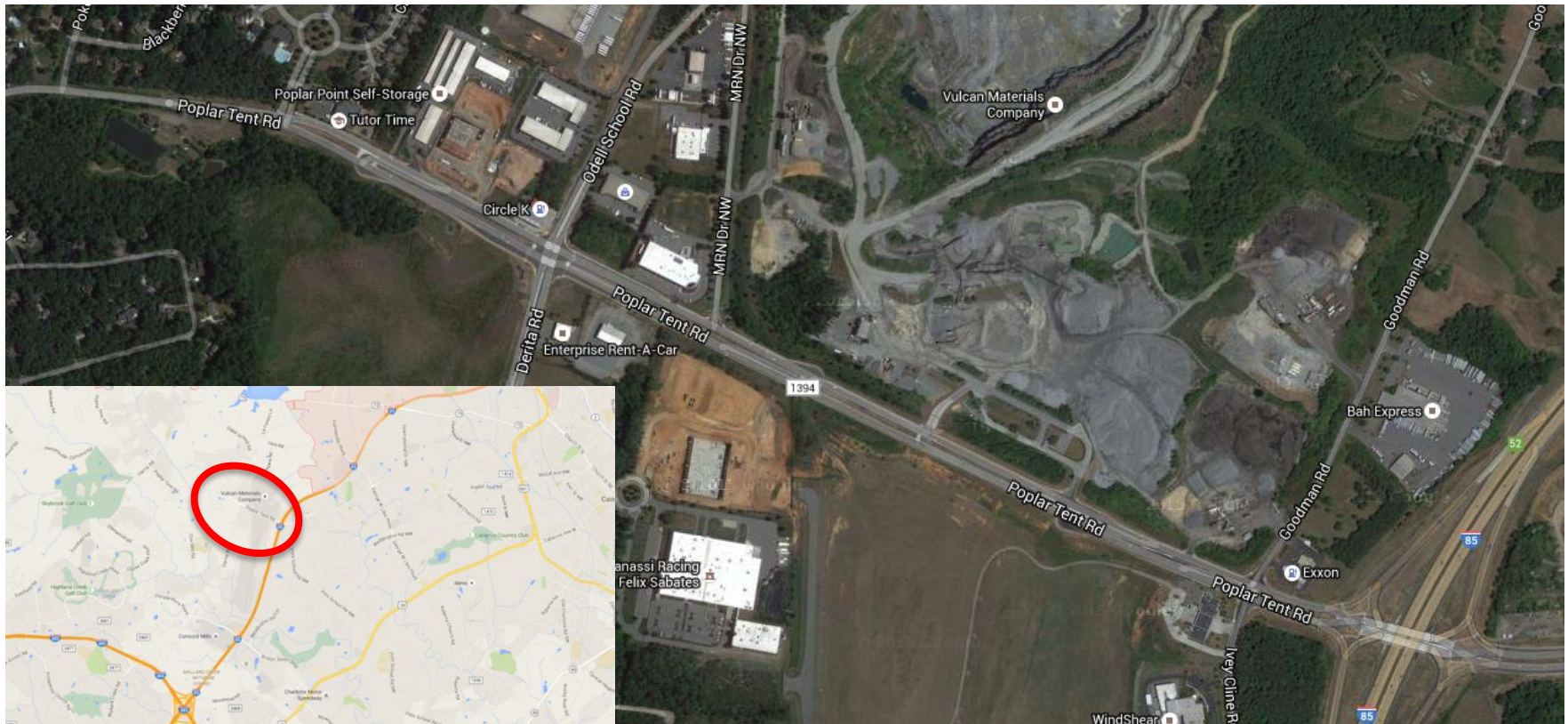
Superstreets – Locations

Wilmington – US 17 (Existing)



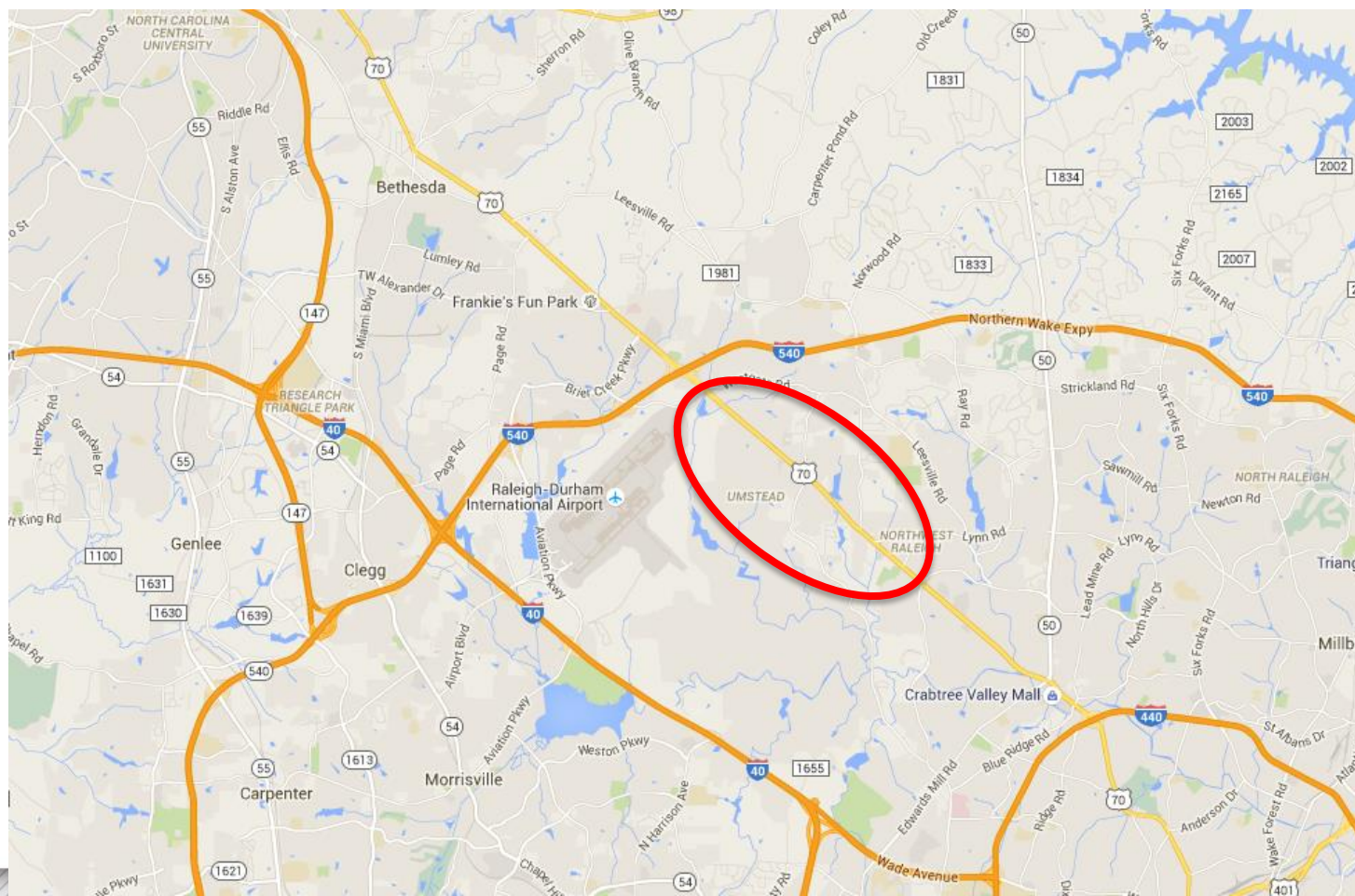
Superstreets – Locations

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

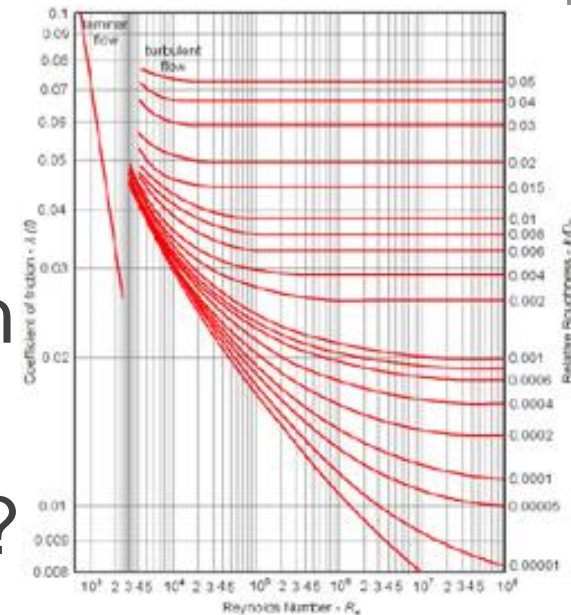


Superstreets – Smoother Pipe

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

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

What can be done?

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>