War of the Forecasts: Model vs Project

Tennessee Model Users Group

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Outline

• Planning in North Carolina
• Modeling in North Carolina
  – Past
  – Present
  – Future

Role of consultants
Outline

- Project level forecasting
  - Evolution
  - Process - handling
  - Procedure - technical

- Lessons learned

Role of consultants
Transportation Planning

- 78,000 miles of roads
- Responsible for project forecasts
- 17 MPOs
  - 3 Regional models (9 MPOs)
  - 8 Individual models
Travel Demand Modeling
The Past

• 70’s - 80’s
  – NCDOT - model expert
  – MPO - land use expert
  – TranPlan

• Into the 90’s
  – CHANGE WAS A COMIN’
Changing Times
Nationally

• ISTEA
  – more requirements
  – regular updates
• Air Quality conformity
• Travel demand modeling
Changing Times
North Carolina

- Planning staff spread thin
- Project level traffic forecasts
- High growth
- Staff turnover...and over...and over
Travel Demand Modeling
The Past

• Our models became stagnant
  – 100% S-E data survey
  – model drives planning schedule
  – 1st Regional model
  – 1 MPO had model that NCDOT could not use
  – Travel Model Improvement Program
Travel Demand Modeling
The Present

- TransCAD
- Different types of models
  - regional models
  - 4-step (minus mode split) models
  - hand allocation and trend line
Travel Demand Modeling
The Future

• Different tool for different needs
  – regional models
  – *standard* 4-step models
  – quick response (under development)
  – manual allocation
  – trend line
Forecasts
Model vs Project

WHAT’S THE PROBLEM?
&
(WHY) DO WE CARE?
Project Level Traffic Forecast Evolution
Project Level Traffic Forecast

Process

- Request is made
- Communicate with Requestor
- Official Review
- Distribution
Request is Made

• Tracking
  – status
  – assignment

• Coordinate with Groups
  – review work load
  – analysis tool (model)
  – project history
Request is Made

- Assignment
  - Planning Group
  - Forecasting Group
  - Consultant
Project Level Traffic Forecast

Process

- Request is made
- Communicate with Requestor
- Official Review
- Distribution
Communicate with Requestor

- State Traffic Forecast Engineer
- Forecaster
  - bridge project 5 months
  - simple widening 6 months
  - major widening/new location > 6 months
Project Level Traffic Forecast

Process

• Request is made
• Communicate with Requestor
• Official Review
• Distribution
Official Review
Internal

State Traffic Forecast Engineer
AND
Forecast Group to Planning Group
OR
Planning Group to Forecast Group
Official Review
Private Engineering Firm

State Traffic Forecast Engineer
AND
Forecast Group
AND
Planning Group
Project Level Traffic Forecast

Process

• Request is made
• Communicate with Requestor
• Official Review
• Distribution
Distribution

- Requestor
- Highway Design
- Project Development and Environmental Planning
- Traffic Engineering
- etc…
Project Level Traffic Forecast

Procedure

- Analysis tools and data
- Scenarios
- Documentation
- Resolution of Issues
Analysis Tools

• Traffic Forecast Utility
  – straight line
  – simple interest
Analysis Tools

• Travel Demand Model (beeware of mixing model output)
Project Level Traffic Forecast

Procedure

- Analysis tools and data
- **Scenarios**
- Documentation
- **Resolution of Issues**
Scenarios

- Base year no-build *
- Base year build
- Future year no-build
- Future year build *
- Other alternatives

* Required Scenario
Project Level Traffic Forecast

Procedure

• Analysis tools and data
• Scenarios
• **Documentation**
• Resolution of Issues
Documentation

If the goal were inconsistency - we would win the gold!

- Planning Group - random
- Forecast Group - better - standard outline
- Consultants - good - establishing expectations and standards
Project Level Traffic Forecast

Procedure

• Analysis tools and data
• Scenarios
• Documentation
• Resolution of Issues
Resolution of Issues

• State Traffic Forecast Engineer
Model vs Project

• Why are they different?
  – assumptions
  – outputs
  – use

• Who cares?
  – public
Model vs Project

• What can we do?
  – better labeling/education
  – documentation

• How is NCDOT doing?
  – getting better and heading in the right direction
Model & Project - Forecasts at Peace

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