Project Overview

• BLA is working for TDOT under an on-call planning contract

• This Task Order is for the development of sub-area analysis capabilities using the statewide model

• Three corridor studies were selected as test cases
  – SR 206 Extension
  – Henderson Bypass
  – Celina Bypass

• All three studies investigate new-alignment facilities
SR 206 Project

- Tipton and Fayette Counties are getting suburban development
- Munford-Brighton-Atoka area is a focus area for growth
- Lacking E-W access to I-40
- SR 206 is proposed to be extended to US 70
Statewide Model

- ODME calibration
- Tool for statewide systems planning
- Not ideal for local studies
Statewide Model

- Only 13 TAZ in the study area
- More detail needed
- Not practical to add detail to statewide model

Tennessee Statewide Model
Subarea Model Development and Analysis
Statewide Model

• No links for several state routes, including SR 206

• Network is much too coarse for this study
Sub Area Detail Added

- Study Area Expanded to 144 Zones
- TAZ data coded from Census and local parcel data
- TAZ forecast controlled to Statewide model TAZ totals
Sub Area Detail Added

- Sub-area network uses all minor collector and above links
- Centroids connected using aerals and parcel data
- Considerations made for future network
### Attaching TRIMS Data

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Attaching TRIMS Data

- TransCAD route system was developed
- Linear referenced TRIMS data can be attached
- Dynamic segmentation

Tennessee Statewide Model
Subarea Model Development and Analysis
Attaching TRIMS Data

- New GIS layer created with merged data from TRIMS
  - AADT
  - Functional Class
  - Lanes
  - Geometrics
  - Area Type
  - Road Name
  - Etc.
Sub Area Model Automation

- Run Statewide Model Traffic Assignment
- Extract Sub-Area Trip Table
- Disaggregate TNSWM Trips to Sub-Area TAZ

Base Year

- Use ODME to Calibrate Sub-Area Trip Table
- Assign Sub-Area Trip Table to Sub-Area Network
- Compute Scenario Level of Service

Forecast Year

- Forecast Growth and Apply to Base ODME
- Assign Sub-Area Trip Table to Sub-Area Network
- Compute Scenario Level of Service
Tennessee Statewide Model
Subarea Model Development and Analysis

Sub Area Model Interface
Post-Model Run Performance Measures

- Automated HCM 2000 Analysis
- Computes LOS for each link
- Produces study area summary statistics
Model Validation

- Model validated to extensive count database
- Count data is from TRIMS, RPO and from Tipton County
- Only daily counts were used
**Model Validation**

**Statewide Model**

- did not include existing SR 206 initially
- had a loading error of 18.12% in the study area
- had a RMSE of 47.5% in the study area

**Sub-Area Model**

- includes significantly more detail
- has overall loading error of -0.13%
- has overall RMSE of 24.34%
- SR 206 has a loading error of 0.40% and RMSE 20.77%
Model Results

2030 No Build

2030 No Build w/I-69

2030 Alt 1

2030 Alt 1 w/I-69
Model Results

2030 No Build

2030 No Build w/I-69

2030 Alt 1

2030 Alt 1 w/I-69
Project Status

- SR 206 Extension modeling is complete and being reviewed
- TransCAD modeling tools and sub-area analysis procedures can be used for the next two demonstration projects
- BLA has provided a draft User’s Guide
- BLA will provide a training session to TDOT staff in January
- Questions or comments are welcome