Project Level Traffic Forecasting
Summary of Practices from other States

TNMUG
March 6, 2008
Found that at least 4 State DOTs have instituted formal traffic forecasting procedures that are documented in a “Traffic Forecasting Manual”

- Ohio DOT
- Florida DOT
- Minnesota DOT
- North Carolina DOT
Ohio DOT Process Summary

- Traffic Forecasting Process is summarized in a flow chart
- The MPO “Model of Record” should be used if available
- Committee of the Ohio MUG developed a document to detail procedures for using travel demand models in project forecasting
Summary of Ohio DOT’s Guidelines on Use of Models for Project Traffic Forecasting

- Notes that Models can “aid in the production of traffic forecasts” which means that model volume is not used directly as a project level forecast.

- TDF models were designed for system-level planning analysis and are not necessarily accurate enough for production of segment specific volumes.

- When used carefully, models provide invaluable source of information for creation of project forecasts. When not used carefully they can produce incorrect or illogical results.
Details of Ohio DOT’s Guidelines on Use of Models for Project Traffic Forecasting

- Traffic Forecasts progress through series of refinement that result in four levels that are tied to a separate “Project Development Process”:
  - Raw Model Output
  - Planning Level Traffic
  - Refined Alternative Level Traffic
  - Design Traffic

- Also defined are three levels of projects – minimal, minor and major, with only major projects typically requiring the use of models.

- Major Projects are further sub-divided into normal major, large major and mega categories.
Ohio DOT’s Model Checking, Refining, Adjusting Process

- **Model Checking** – Compare to Base Conditions

- **Model Refining** – Correct Errors in Network and Zonal Data. Add detail to model as needed.

- **Model Adjusting** – Process of changing model parameters to produce better results, such as changing link speeds to produce better results. This is strictly controlled and are only made as a last resort.

- All of the above must be well documented.
Ohio DOT’s Protocol for Obtaining Model Forecasts

- Determine which, if any, model is to be used. The MPO model should normally be used if available, otherwise use the statewide model.

- If MPO model is used, contact MPO to conduct the modeling work unless there is an MOU that specifies ODOT is responsible.

- If the MPO cannot conduct the work in the specified time frame then ODOT will conduct model work.

- If ODOT cannot conduct the work in the specified time frame a consultant will be used.

- The above applies to non-mega projects, mega projects will typically require the project consultant to be responsible for the modeling work.
“Models can be useful tools in developing traffic projections for projects. However, since travel demand models are “planning” vs. “design” tools and must be properly evaluated for reasonableness and consistency”

Provides sections on modeling background for traffic forecasters and likewise what a modeler should know about traffic forecast requirements.
Florida DOT Process for Model Use in Traffic Forecasting

- Modify Interim/Forecast Year Land Use and Network Information.
  - Must be fully documented and coordinated with local agency/MPO.

- Execute the Model Stream.

- Evaluate Model Traffic Output.
  - Check for reasonableness.
  - Should compare against a historical trend line approach. Differences in volume between model and trend line of 10% in high volume areas or 4000 vpd need to be further investigated as to the cause for the difference.

- Document the traffic forecast.
Florida DOT Process for Model Sub-Area Validation and Refinement

- First ensure the entire model area is validated to accurately replicate base year ground counts (validation criteria are provided).

- Procedures and appropriate types of refinements are outlined to enhance model performance in project-affected areas.
Mn/DOT Procedure Manual for Forecasting Traffic on Minnesota’s Highway Systems

Prepared by:
Traffic Forecasts and Analysis Section
Mn/DOT Office of Transportation Data and Analysis
Updated April, 2006
“Traffic Forecasting is the production of future traffic volumes and loads on a specific roadway segment. The projections are derived by trending historic data and considering the effects that future changes in the socio-economic factors will have on the particular segment.

Very little mention of Travel Demand Models – their use is only noted for one area of the State (Rochester).
Guidelines for NCDOT Project-Level Traffic Forecasting Procedures

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June 2002
Summary

- Common theme is that when and where used, travel demand model outputs must be treated with caution with respect to project-level traffic forecasts.

- Very often the model must be further refined to add sufficient detail in the project area, such as modifying land use assumptions and adding roadway network.

- Several references to NCHRP 255 “Highway Traffic Data for Urbanized Area Project Planning and Design”.

- A formalized traffic forecasting manual provides a good resource to help ensure that traffic forecasts are performed consistently and with well documented procedures.
Websites for Traffic Manuals

- Ohio DOT:

- Florida DOT:

- Minnesota DOT:
  - [http://www.dot.state.mn.us/traffic/data/reports/forecastman-link.pdf](http://www.dot.state.mn.us/traffic/data/reports/forecastman-link.pdf)

- North Carolina DOT: