# Project Level Traffic Forecasting Summary of Practices from other States

TNMUG

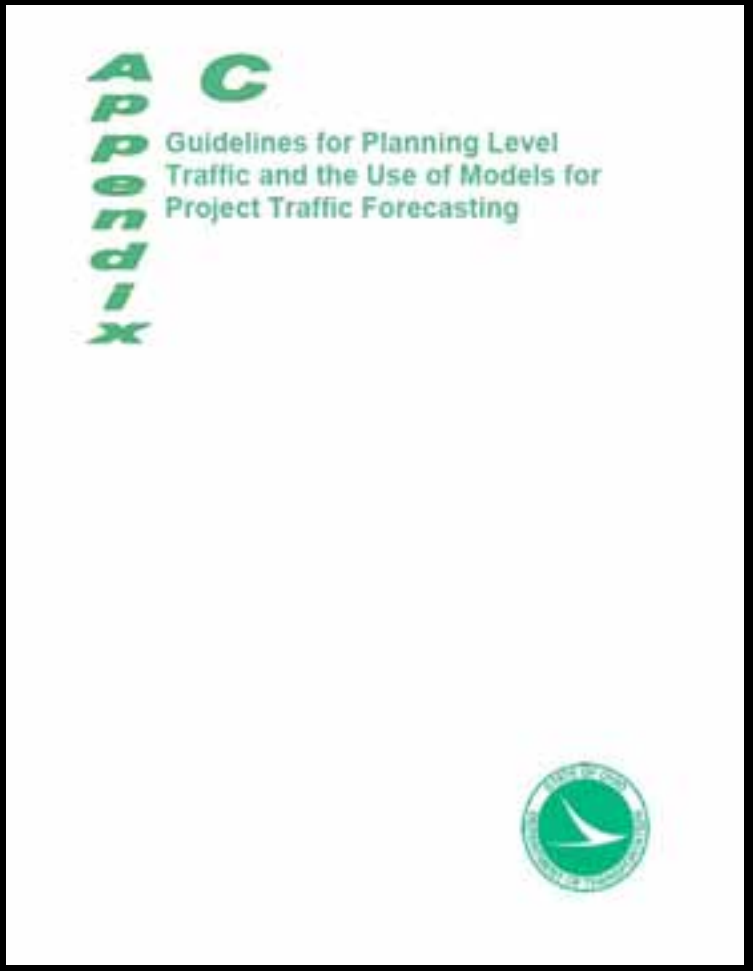
March 6, 2008

# TMIP Listserve Query by Jerry Everett

- 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

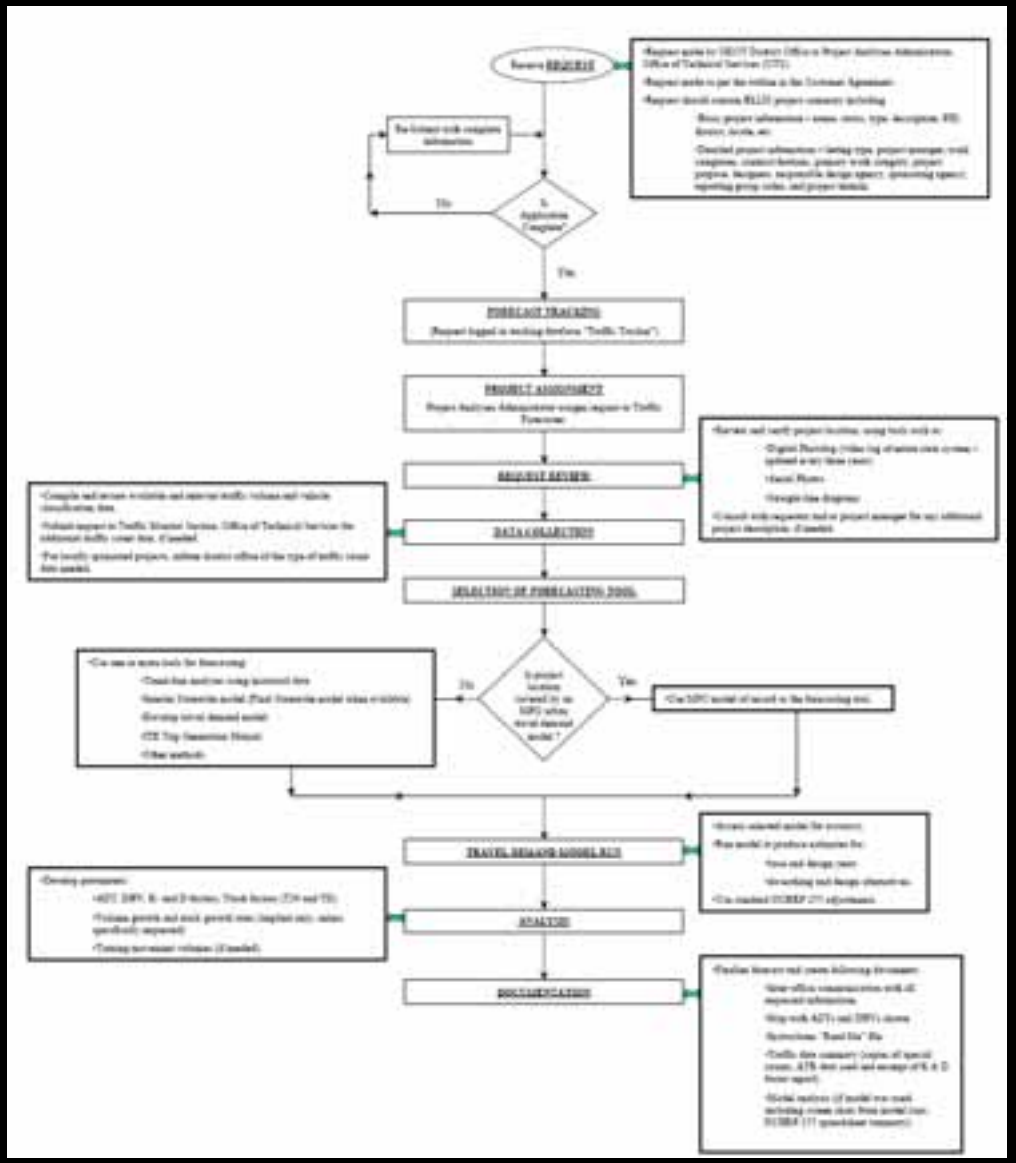
# Ohio DOT


Ohio Department of Transportation
Office of Technical Services
Ohio Certified Traffic Manual
June 2007
Prepared By:
WilburSmith


Appendix C
Guidelines for Planning Level Traffic and the Use of Models for Project Traffic Forecasting

# 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.

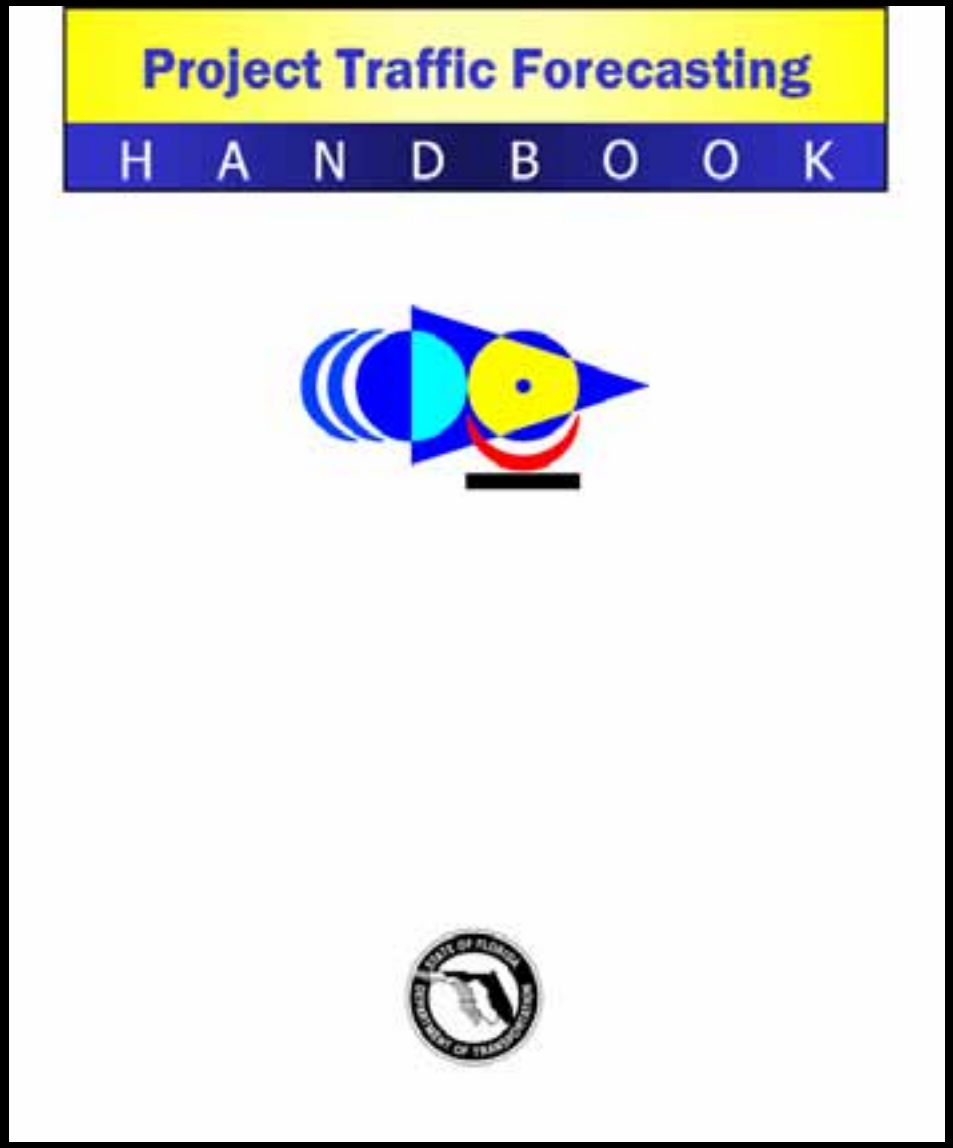
# Ohio DOT's Model Checking, Refining, Adjusting Process

- *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.

# Florida DOT



# Florida DOT Overview

- “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.

# Minnesota DOT

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

# Minnesota DOT

- “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).

# North Carolina DOT

**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:
  - http://www.dot.state.oh.us/urban/CT/Training_Presentation_2007-07-17.pdf
  - http://www.dot.state.oh.us/urban/CT/CT_Manual.pdf
- Florida DOT:
  - http://www.dot.state.fl.us/planning/statistics/pdfs/ptf.pdf
- Minnesota DOT:
  - http://www.dot.state.mn.us/traffic/data/reports/forecastman-link.pdf
- North Carolina DOT:
  - http://www.ncdot.org/doh/preconstruct/tpb/PDF/TF_HANDBOOK_905.pdf