

Development of Tools to Address Key Issues in Long Range Transportation Planning
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Background

This project has resulted from a compilation of three Research Problem Statements from the Tennessee Department of Transportation (TDOT): 1) Assessment of Macro Trends and Their Impact on Travel Demand, 2) The Transportation Land Use Connection in Rural and Small Urban areas and 3) Development of a Comprehensive Statewide Data Collection Plan. Thus, the project was designed to address three key interrelated long range transportation planning topics and their associated problems: impacts of societal trends, the transportation-land use connection and the data required for conducting transportation planning.

Research Problems Addressed

Projecting the demand for travel in the future is an integral aspect of the long-range transportation planning process. Inherent in the forecasting process is the assumption that future travel will represent an extrapolation of current travel, socio-demographic, economic, and technological trends. However, new paradigms may be emerging which are not simply extensions of past trends. Historically, these “new” trends have not been formally considered in the long-range planning process. The implications of these macro-trends on travel behavior and how can they be analyzed with respect to the transportation plans developed were investigated.

Transportation and land use are intrinsically linked. The type of built environment that is developed on a parcel of land has transportation implications and every transportation action affects land use. Many TDOT projects are located outside the boundaries of MPOs. In these areas it can be very difficult to coordinate transportation and land use decisions. Unfortunately, there is not a single location where TDOT planners can go to find the necessary tools for making quantitative linkages between transportation and land use in small urban and rural areas. The project examined the possibility of bringing the resources together in a single location.

Data are needed for almost all aspects of transportation planning and are especially critical for travel demand analysis and modeling. This is true for TDOT at the statewide level, for MPOs at

the metro area and for RPOs and others conducting planning in rural areas. The question facing the planners at TDOT and other organizations in Tennessee is, "What is the most efficient way to utilize the limited resources for acquiring the various data needed to perform transportation planning and analysis?" This project studied that question initially and then evaluated options for a standardized household travel survey.

Solutions

These three issues are not unique to Tennessee though circumstances in the state may warrant tailored solutions. Each topic was thoroughly researched by assessing how the problems have been addressed in other states and at the national level. Particular attention was given to states with characteristics similar to Tennessee's. Interviews were conducted with those involved in these issues throughout Tennessee and when possible, quantitative data were gathered and inventoried.

Project Objective

The objective of this research project is the development of three readily usable tools to aide TDOT and MPO planners in their efforts to conduct long range transportation planning in Tennessee.

Project Findings

This research resulted in three key results including the following:

1) Report NCHRP 750 Volume 6 and the accompanying software, Impacts 2050, provide valuable insights into key socio-demographic trends and the potential impacts on travel behavior. Impacts 2050 is a flexible, sophisticated SD model which will provide outcomes over a 50 year time period for various scenarios. While four scenarios are pre-packaged—momentum, technology triumphs, global chaos, and gentle footprint—user-selected scenarios can easily be developed. The extensive data input requirements render this tool best suited for application applied by the four largest TPOs in Tennessee. For selected applications, Impacts 2050 may provide the following:

- Good information from the report/tool regarding key trends for use in LRTP narrative
- A framework for quantitative scenario planning
- Assists in assessing relative future impacts of socio-demographic trends
- Possibility of serving as basis for estimates of future socio-demographic variables

2) An online transportation and land use toolkit was developed. The core of the toolkit is the 100 plus documents organized by major and subtopics. It is comprised of resources in the following six major transportation/land use topical areas: Overview of Integrated Planning,

Local, Regional & Statewide Planning, Functional Classification, Integrating Transportation and Land Use, Coordinated Planning Tools, Technical Analysis Tools, Health and Transportation. The toolkit includes resources from throughout the country. However, the one missing element is a linkage of the national resources to Tennessee specific applications and the associated Tennessee resources. The content of the toolkit can be found at - <http://www.transportplanningtoolkit.com/>.

3) The research found that the development and implementation of a standardized statewide household travel in Tennessee is indeed feasible. Several models were found where other state DOTs and their MPOs cooperated and coordinated efforts to plan, develop and implement surveys that were useful to all parties involved. The research highlights examples of coordinated survey efforts that were found in California, Ohio, Florida, Utah, Massachusetts and Connecticut. It is unlikely that any of the examples would transfer well to Tennessee without modification. However, elements could be borrowed from several states and adapted for application to the data collection and planning needs of Tennessee agencies. Especially, intriguing elements include the smartphone applications developed for use in Ohio and Florida.