Project Summary

Texas Department of Transportation

0-6395-TI: Modeling Revenue for Use in Developing Reasonable Expectations of Revenue for Long Range Plan Development

Background

The Texas Department of Transportation (TxDOT) recognized the importance of revenue and expenditure to internal long-term forecasts as well as to the states 25 metropolitan planning organizations (MPOs). Furthermore, TxDOT recognized the need to increase the level of transparency in the revenue and financial forecasting process. Toward that end, TxDOT developed the Joint Analysis Using Combined Knowledge (J.A.C.K.) model as a spreadsheet-based financial planning and forecasting tool. The original purpose of Project 0-6395-TI was to assess the usefulness and viability of the J.A.C.K. model in fulfilling its intended purpose. The original research was divided into three phases:

- assessing the accuracy and validity of the model and proposing fundamental improvements as necessary,
- investigating potential improvements to an expanded, more comprehensive J.A.C.K. model, and
- producing a report on the research findings and submitting an improved model.

During the course of the research, the project direction changed significantly to focus entirely on providing significant model revision, increasing analytical capabilities, and making the model accessible to a wide audience. As a result, what originally was named the J.A.C.K. model was substantially revised, expanded and renamed the Texas Revenue Estimator and Needs Determination System (T.R.E.N.D.S.) model.

What the Researchers Did

The researchers developed the T.R.E.N.D.S. model as a web-based tool to provide transportation planners, policy makers, and the public with a tool to forecast revenues and expenses for TxDOT for the period 2010 through 2035 based on a user-defined level of transportation investment. The user, through interactive windows, can control over 70 variables related to assumptions regarding statewide transportation needs, population growth rates, fuel efficiency, federal reimbursement rates, inflation rates, taxes, fees, and other elements. The output is a set of tables and graphs showing a forecast of revenues, expenditures, and fund balances for each year of the analysis period based on the user-defined assumptions.

Research Performed by:

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In addition, a set of sub-models was developed for the 25 metropolitan planning areas in the State. With these sub-models the user can forecast revenues from local option fuel taxes, vehicle miles traveled fees, and registration fees for the period 2010 through 2035 under alternative assumptions of fuel efficiency and population growth.

While MPOs and other local entities do not currently have local option authority for the adoption of these fees, there is considerable discussion of the Texas Legislature allowing them to have such authority in the near future. With the model's local option capability, these entities will have the ability to assess how legislative changes might affect revenue availability and consequently their transportation plans.

The model can be accessed at http://trends-tti.tamu.edu/ and is available to TxDOT, MPOs, interest groups, and the general public. In addition, a User's Guide is available on the T.R.E.N.D.S. model website for those needing assistance.

What They Found

During both the development and implementation phases the T.R.E.N.D.S. model has contributed significantly to the analytical capability of MPOs and other entities across the State in three important ways. First, the process of developing the model fostered detailed discussions among TxDOT analysts and MPO personnel about the appropriateness of a wide array of assumptions and significantly increased the understanding of the data needs of both. Second, the model significantly increased transparency relative to key financial assumptions and revenue forecasts. Third, the model provided all interested parties with access to the same data sets and revenue and expenditure forecasting techniques without regard to their prior level of expertise.

What This Means

The T.R.E.N.D.S model puts, for the first time, a powerful analytical tool in the hands of analysts at TxDOT, MPOs, and transportation interest groups, as well as the general public. It provides these entities with the ability to assess various transportation funding scenarios under a number of alternative assumptions. Because the User's Guide explains the model's methodology in detail, transparency in both revenue and expenditure estimates is significantly increased.

Because the T.R.E.N.D.S. model is maintained and updated on a monthly basis with the latest cash flow forecasts issued for TxDOT, it continually reflects the latest changes in the cash condition and financial plans of the department and allows all potential users to have an accurate and uniform set of data upon which to base their analysis.

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