INTRODUCTION

In 1995 the Wisconsin Department of Transportation (WisDOT) concluded a long-range statewide transportation planning process called TRANSLINKS 21. At its completion, TRANSLINKS 21 outlined a comprehensive transportation system to move people and goods efficiently, strengthen the economy, protect the environment, and support the quality of life within Wisconsin.

This paper focuses on the multi-modal, intercity, passenger transportation analysis component of TRANSLINKS 21. The scope of this “multi-modal intercity freight” analysis is defined as follows:

• “Passenger” refers to the transportation of people instead of goods or commodities. The TRANSLINKS 21 planning process included a parallel “multi-modal intercity freight” analysis.

• “Intercity” travel comprises longer distance trips generally between states, counties, and major urban areas. This does not include “local” travel within urban areas, which was addressed in TRANSLINKS 21 through the existing metropolitan planning organization (MPO) planning process at the local level.

• “Multi-modal” refers to the analysis of more than one mode, or method of travel. The TRANSLINKS 21 intercity passenger analysis addressed the following existing and future intercity modes of travel:
  - Automobile, including car/van/truck travel by highway
  - Air, currently provided by airlines
  - Rail, currently provided by Amtrak
  - Intercity bus, currently provided by Greyhound and other operators
  - Feeder bus/rail - a proposed integrated bus-rail system with coordinated schedules and through ticketing
  - High speed rail - a proposed new rail mode capable of 125 miles-per-hour speeds over improved track

The purpose of the multi-modal intercity passenger analysis was to provide a technical foundation and basis for the evaluation of alternative future multi-modal scenarios and for the selection of a preferred future multi-modal scenario by WisDOT. Specifically, this included developing estimates of future (1.) Travel demand, ridership and revenue, and (2.) Capital and operating costs for each intercity passenger mode under each of the future statewide multi-modal
scenarios. A significant portion of the multi-modal intercity passenger analysis effort was dedicated to the development of base data, models, and related tools for forecasting future travel demands and costs. In particular, this included the development of a new multi-modal intercity passenger model system for the Wisconsin study area - the first such modal system addressing intercity passenger travel demand statewide on a multi-modal intercity passenger analysis to WisDOT for continuing use by WisDOT staff.

The multi-modal intercity passenger analysis consisted of the following key task activities:

- Define study area and geographic detail
- Conduct travel surveys
- Develop travel data base
- Develop multi-modal network/service inputs
- Assemble socio-economic inputs
- Develop multi-modal intercity passenger demand model system
- Define future TRANSLINKS 21 scenarios
- Prepare future cost estimates
- Prepare future travel demand forecasts

Each of these task activities effectively represents an input, a process, or an output of the multi-modal travel forecasting approach applied in the intercity passenger analysis and illustrated by Exhibit 1.

Travel surveys provide the foundation for the multi-modal travel forecasting process. Two types of travel survey data were assembled and collected in the analysis:

- Origin/Destination survey data, which quantify the size of existing current travel markets by trip origin, trip destination, mode, trip purpose, and other characteristics
- Preference survey data, which provide information on travelers’ existing behavior and stated intentions in response to different travel service scenarios

In addition to the travel surveys, the other two key inputs to the multi-modal travel forecasting process include:

- Socio-Economic inputs, which define population growth and changes in economic activity at trip origins and destinations between existing and future forecast year conditions
- Network/Service inputs, which define the level of service (e.g., travel time, travel cost/fare, frequency of departures, etc.) Between trip origins and destinations provided by each mode
These inputs feed the development and application of demand models for multi-modal intercity passenger travel. These models consist of two major components, which address:

- Total travel volumes of intercity passengers by all modes between each origin and destination
- Mode share captured by each competing intercity passenger mode of travel between each origin and destination

The total travel model component addresses growth in total intercity person travel volumes, including both: “Natural” growth resulting from changes in population and economic activity

- “Induced” demand resulting from improvements in the combined levels of service provided by all modes

The mode share model component predicts the market share of total person travel for (1) automobile, (2) air, (3) rail, (4) intercity bus, (5) feeder bus/rail, (6) high speed rail as a function of the level of service (e.g., travel time, travel cost, etc.) Provided by each mode. Forecasted travel demand by mode is then simply the product of the results of the total travel and mode share model components.

In the multi-modal intercity passenger analysis, travel demand forecasts and cost estimates were developed for several different future years and transportation system service scenarios and for the selection of a preferred future statewide multi-modal intercity passenger scenario by WisDOT.