

SHRP 2: Project L08- Incorporation of Travel Time Reliability into the Highway Capacity Manual

Overview

The Highway Capacity Manual (HCM) historically has been among the most important reference guides used by transportation professionals seeking a systematic basis for evaluating the capacity, level of service, and performance measures for elements of the surface transportation system, particularly highways but also other modes. The objective of this project was to determine how data and information on the impacts of differing causes of nonrecurrent congestion (incidents, weather, work zones, special events, etc.) in the context of highway capacity can be incorporated into the performance measure estimation procedures contained in the HCM. The methodologies contained in the HCM for predicting delay, speed, queuing, and other performance measures for alternative highway designs are not currently sensitive to traffic management techniques and other operation/design measures for reducing nonrecurrent congestion. A further objective was to develop methodologies to predict travel time reliability on selected types of facilities and within corridors.

This project developed new analytical procedures and prepared chapters about freeway facilities and urban streets for potential incorporation of travel-time reliability into the HCM. The methods are embodied in two computational engines, and a final report documents the research.

Data Sets

1. **data-dic-I-40-demand.csv** – Demand Information for I-40 Seed File. This dataset was collected for the test facility used in the Freeway Facilities methodology. The freeway methodology was applied to a 12.5 mile freeway facility on Interstate highway 40 (I-40) in the eastbound direction between mile markers 278.5 and 291 near Raleigh, North Carolina
2. **Demand-Multipliers.csv** – This dataset is a combination of US average demand multipliers and demand multipliers specific to the FSG Example site.
3. **WeatherUnderground-Probabilities.csv** – Historical average probabilities of weather events were created from National Weather Service (NWS) meteorological aviation reports (METARs) (data available from WeatherUnderground).