Analytical Methods to Support Performance-Based Transportation Planning

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Abstract

The paper and presentation will focus on the application of performance measures in multimodal transportation planning at the state and regional level. The authors have recently completed Phase I of NCHRP Research Project 8-32(2), Development of a Performance-Based Planning Process. This study explored past and current applications of quantitative performance evaluation to planning decision-making. In one of several focused areas of investigation, current methods of data collection, manipulation, and analysis were reviewed to assess their ability to support development of performance measures, beyond traditional measures of highway capacity and utilization such as v/c ratio and delay.

The study found that although multimodal measures of performance are gaining wider acceptance in the transportation planning profession, the actual experience in application falls short of conceptual frameworks. Difficulties have been encountered in several areas, notably in data collection and the inability to forecast less common data such as might be applied in measurement of system reliability, or goods movement, for example.

Methodological improvements are suggested to capitalize on more highly automated data collection and manipulation techniques resulting from deployment of “intelligent” technologies on highway and transit systems. In addition, improvements to demand forecasting and analysis models are suggested which will help provide the types of data needed to populate multimodal performance measures that highlight factors such as transportation system reliability, total throughput of persons or goods, or tradeoff between alternative modes.

A second phase of research on NCHRP 8-32(2) is expected to be well underway by the time of the Dearborn conference. This second phase will focus explicitly on the application of performance-based methods in a variety of case studies drawn from around the United States. Probable case studies will include examples of utilization of ITS-collected data for planning purposes, travel model improvements to generate performance indicators, public and private sector measurement of freight movement performance, and shared data resources. Examples from the Phase II research should be available for presentation and discussion at the conference.

In summary, Project 8-32(2) draws together elements from a variety of topic areas that should be of interest to conference attendees, including intelligent transportation systems, travel demand forecasting, data collection issues, and multimodal planning.