Understanding Reliability

*Establishing the foundation for achieving reliable travel times*

This project of the second Strategic Highway Research Program (SHRP2) will set out the basic concepts needed to address travel-time reliability. It has been developed to provide both a simple method for predicting reliability and a richer model that will include some key causal factors, such as a means to reflect the lanes blocked and the duration of incidents and work zones. These models will be applicable to planning, the evaluation of strategies to improve travel-time unreliability, and enhancements to other models.

The Solution

This project defines travel-time reliability, explains the importance of travel-time distributions for measuring reliability, and recommends specific reliability performance measures. An important conclusion of the study is that **actions to improve operations, reduce demand, and increase capacity all can improve travel-time reliability**. The study reexamined the contribution of the various causes of non-recurring congestion. Models for predicting non-recurring congestion were developed using two methods based on empirical data. A large and comprehensive dataset was compiled in order to conduct the research. The details of assembling the data to estimate predictive models are described for others who wish to conduct similar work. The research resulted in a two sets of models: the first relates the mean travel time on a segment to some measure of the variability in travel time. This easy-to-apply model set only requires that the analyst (or analytic procedure) provide the mean travel time along a segment. The second set of predictive models requires more inputs that reflect key contributors to travel-time unreliability.

**How can you learn more?**

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**About SHRP2 Implementation**

The second Strategic Highway Research Program is a national partnership of key transportation organizations: the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the Transportation Research Board. Together, these partners conduct research and deploy products that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the Nation’s highway system.