SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

Predicting the Unpredictable: Better Travel-Time Reliability for Busy Roads

New tools help identify the best ways to improve travel-time reliability by addressing the causes of delay

Unexpected traffic delays caused by crashes, work zones, special events or other factors can cause frustration and increased hazards for those who depend on a reliable and safe trip on a predictable basis. More effective planning tools that help reduce congestion can also reap great improvements in safety, in addition to cost and time savings.

A suite of new products developed in the second Strategic Highway Research Program (SHRP2) provides transportation agencies with **predictive tools to plan for and respond to nonrecurring congestion and its cascading effects.** The products will aid in:

- Establishing monitoring programs for mobility and travel-time reliability;
- Incorporating reliability performance measures into transportation planning and programming processes; and
- Incorporating travel-time reliability into the Highway Capacity Manual.

Data and Tools for Reliability Analysis

The Solution

Establishing Monitoring Programs for Mobility and Travel-Time Reliability (L02): This tool provides a blueprint for designing programs to monitor travel-time reliability and a guidebook for designing, building, operating, and maintaining those systems. The guidebook addresses freeways, toll roads, and urban arterials, and provides direction on technical and analytical issues.

Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes (L05): This "how-to" handbook provides the means—including technical procedures—for state and local transportation agencies to integrate mobility and reliability performance measures and strategies into transportation planning and programming

Accurately assessing travel times on heavily traveled roads

FOCUS AREA:
Reliability (L02/L05/L08)

Guidebook, how-to handbook, and analytical procedures to help transportation planners better predict and plan for unexpected travel delays.

Save Lives

- Reducing reliability-related delays will result in fewer incident-related crashes.

Save Money

- Investments in reliability improvements have benefit-cost ratios ranging from 5:1 to 30:1 due to reduced traffic delays and improved safety.
- Less variability in travel time means less time has to be planned for trips. Improved reliability supports efficient freight movement, with national economic benefits.

Save Time

- Tools lead to reduced traffic congestion and traveler delay.
- Preventive measures mitigate problems before serious delays and bottlenecks occur.

Photo Credit: Trevor Wrayton, VDOT

processes. It provides guidance on how to maintain or improve traffic throughput on existing systems before capacity enhancement projects are undertaken or where capacity improvements cannot practically be undertaken. This product will be integrated into the collaborative decision making framework and web-based tool being developed as a part of the SHRP2 Solution known as Transportation for Communities—Advancing Projects Through Partnerships (TCAPP).

Incorporating Travel-Time Reliability into the Highway Capacity Manual (L08): New analytical procedures developed as part of this effort are intended to be incorporated into the Highway Capacity Manual, which will enable planners and engineers to apply travel-time reliability performance measures to major freeways and urban streets in a corridor context.

The Benefits

This suite of tools will help state and local transportation agencies better analyze strategies for addressing causes of non-recurring congestion and improve travel-time reliability. Once these strategies are in place, variability will be reduced, offering more reliable travel times for commuters and other travelers as well as the freight industry. Additional benefits are potential savings in fuel and emissions, a better functioning freight system, and fewer crashes.

Breakthroughs in reliability planning also pave the way for all types of operational improvements to be considered at the same time as more traditional project investments. The result will be more prudent investment of limited dollars and optimal value from existing investments in capacity.

Who will benefit from the use of these tools?

- State and local transportation agencies
- Shippers and receivers
- Business owners
- Commuters

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.

Strategic Highway Research Program

U.S. Department of Transportation | Federal Highway Administration

American Association of State Highway and Transportation Officials ● Transportation Research Board

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