SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

WISE: Work Zone Impacts and Strategies Estimator Software (R11)

An innovative approach and traffic analysis tool for planning work zones earlier to better manage highway reliability and safety across corridors and networks

Challenge

More than half of all traffic congestion is unexpected by travelers and shippers, and a primary cause of this unexpected delay is work zones. While the other sources of unexpected delay such as traffic incidents and bad weather cannot be controlled by transportation agencies, drivers believe that transportation agencies can better plan and schedule work zones. As a result, the accountability of agencies – and the frustration of travelers – is generally more intense in response to work zones than these other sources of congestion and delay. In addition, work zones can be hazardous. Work zones involving temporary lane closures can increase your probability of being involved in certain types of crashes. [1]

Careful performance-based planning and scheduling of work zones in a given year along a corridor or across a network can avoid some delay, mitigate the effects of delay that cannot be avoided, and improve both the travel time reliability and safety of the overall transportation system.

Solution

WISE was created to support decisions to plan and schedule work zones at the regional program ("mesoscopic") level along multiple highway routes within a corridor or network. Historically, decisions about when and where to schedule construction projects and associated work zones have been made on a project-by-project basis, primarily in consideration of pavement and bridge needs and available funding. Sometimes, project schedules may be adjusted reactively to avoid some of the worst combinations of work zone delay within a corridor or network. WISE offers a proactive alternative that relies on existing traffic data in the form of transportation planning dynamic traffic assignment models – specifically through the simulation-based dynamic traffic assignment DynusT software. WISE is designed to consider projects that create traffic impacts for at least a few weeks, and is not generally intended to consider very short term construction or maintenance projects lasting less than a week.

Save Lives

Better coordinated work zone scheduling can reduce the number of work zone-related crashes by providing alternate routes that allow motorists to avoid work zones altogether.

Save Money

An optimized renewal programming schedule can reduce the agency's expenditures on mitigation strategies.

Save Time

Careful planning and scheduling of work zones can mitigate or avoid some work zone delays.

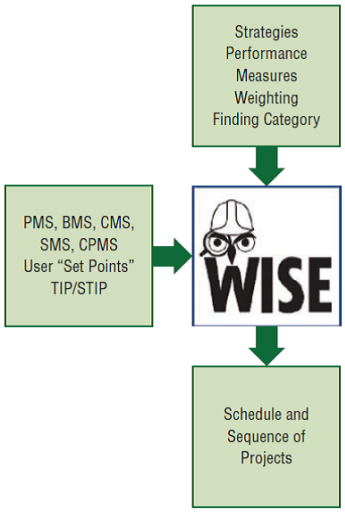
RELIABILITY

Products from the Reliability SHRP2 focus area help transportation organizations improve travel reliability by reducing congestion through incident reduction, management, response, and mitigation.

Continued on next page.

Visit: www.fhwa.dot.gov/GoSHRP2
Learn more about products, case studies, and implementation assistance.

In practice, WISE is a decision support system for use by planners and engineers to help them evaluate the traffic impacts of work zones to better schedule/sequence a set or program of projects and determine other strategies to reduce the overall impacts. WISE has the capability to evaluate the regional impact of various strategies such as day/night operations, accelerated construction techniques, and traveler/community information campaigns. WISE evaluates renewal projects at both the planning and the operations levels. When used as a planning tool WISE develops an optimized renewal programming schedule that minimizes the total cost of delays to the public and agency construction cost. When used at the operational level it evaluates the impact of individual strategies at the project level and provides results that can then be used as part of an iterative procedure with the planning analysis.



(The diagram illustrates how decision-maker inputs are blended by WISE with transportation improvement program (TIP/STIP) considerations of Pavement Management, Bridge Management, and other management system outcomes (PMS, BMS, CMS, SMS, CPMS).)

Benefits

Coordinated and well-planned work zones within a transportation improvement program across a corridor or region will reduce mobility, safety, and economic impacts of highway renewal activities. By integrating WISE into practice as an improvement program development tool, agencies will continue to evolve their culture towards transportation systems management and operations (TSM&O), while enhancing their community credibility in highway system development and renewal.

[1] http://www.cmfclearinghouse.org/study_detail.cfm?stid=57

The Implementation Assistance Program

Implementation assistance is available to help State departments of transportation (DOTs), metropolitan planning organizations (MPOs), and other interested organizations deploy SHRP2 Solutions. A range of opportunities is available to raise awareness of SHRP2 Solutions and to encourage early adoption of these products. Application periods are offered approximately twice per year. Each product selected for implementation assistance has the potential to deliver more efficient, cost-effective programs to meet the complex challenges facing transportation today.

How can you learn more?

Visit: www.fhwa.dot.gov/GoSHRP2

- Additional product information
- Information about how this product is being used in the field
- Contact information for peers who are familiar with this product
- Links to research reports

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About SHRP2 Implementation

The second Strategic Highway Research Program (SHRP2) is a partnership of the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and the Transportation Research Board (TRB). TRB completed the research, and now FHWA and AASHTO are jointly implementing the resulting SHRP2 Solutions that will help the transportation community enhance productivity, boost efficiency, increase safety, and improve the reliability of the Nation's highway system.