OPTIMIZING PERFORMANCE

MOBILITY & SAFETY

MAKING WORK ZONES WORK BETTER

U.S. Department
of Transportation
Federal Highway Administration

Tracking Work Zone Performance in Missouri

Summer 2007

Missouri Department of Transportation

FACT SHEET 14

To meet its goal of improving mobility and safety for travelers and workers in temporary work zones on its highways, the Missouri Department of Transportation (MoDOT) has identified a need to better understand and track work zone performance. In striving for this, MoDOT has implemented a quality assurance review process and three performance measures that assess temporary traffic control design, deployment, operation, and maintenance in temporary work zones. The work zone performance measures effort is part of a larger MoDOT effort – called the "Tracker" project – to assess how well the agency delivers services and products to its customers. In 2006 MoDOT staff inspected 2,296 work zones for quality and used the data gathered as input to develop the measures of work zone performance. Quality assurance inspections and performance measure tracking are part of the MoDOT effort to surpass customer expectations, evaluate policies and work zone devices, and develop guidance and training.

Quality Assurance Inspections

MoDOT central office and district staff perform quality assurance inspections on work zones on a routine basis and conduct district work zone audits on an annual basis. The quality assurance inspection covers 23 specific items related to visual guidance provided to drivers in work zones and 10 items related to traffic flow. Typically, central office staff will perform random work zone inspections while on the road in the course of their normal activities. Strategies at the district level for performing inspections vary, but often district personnel will perform several inspections per day. MoDOT staff use formal inspection worksheets during inspections to develop ratings and reports on three work zone-related performance measures: roadway visibility, safe transportation systems, and uninterrupted traffic flow.

Roadway Visibility

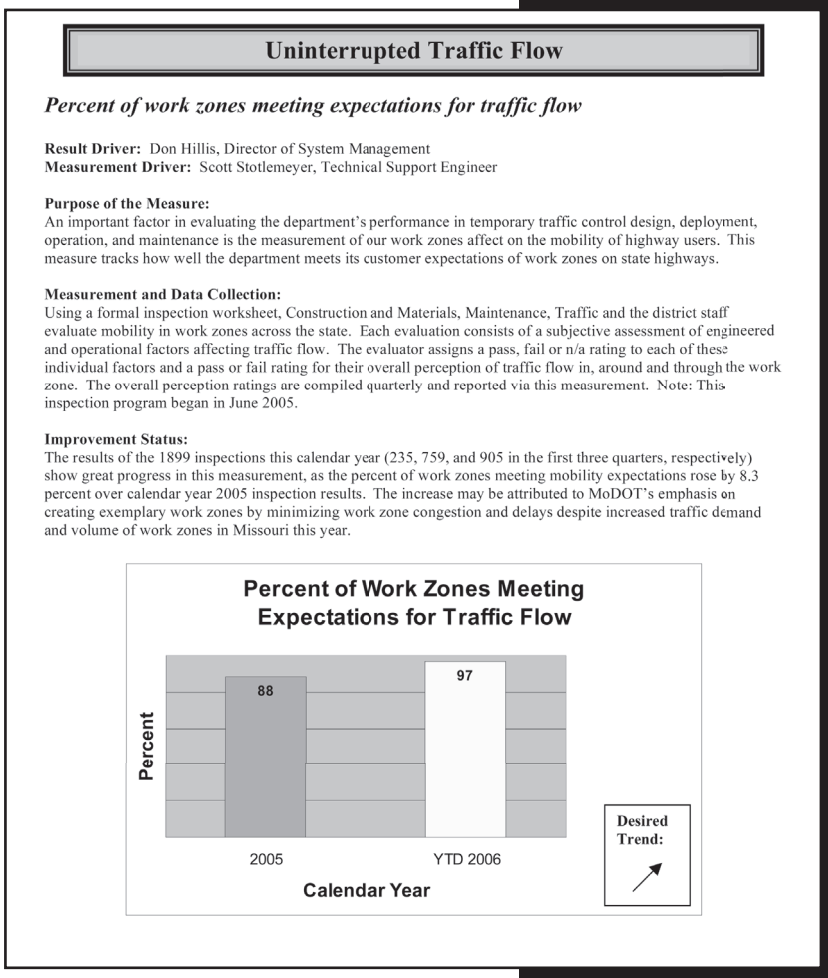
The roadway visibility measure assesses the visual guidance that is provided to motorists within work zones. MoDOT staff use an inspection worksheet to evaluate how well customer expectations are met in terms of visibility. The inspection worksheet includes assessments of all barricades and channeling devices, flashing arrow panels, changeable message signs, temporary pavement markings, flagging operations, and lighting. The results captured by MoDOT personnel show significant progress in this measurement as the number of work zones meeting visibility expectations rose by 6.9 percent between 2005 and 2006 inspection results.

Safe Transportation Systems

The safe transportation systems measure tracks the number of injuries and fatalities that occur as a result of traffic crashes that take place in Missouri work zones. Data for this measure is collected from the standardized vehicle accident report form used by the Missouri State Highway Patrol and local law enforcement agencies. MoDOT staff accesses the statewide crash database, which is populated by information from the standardized accident reports, to identify work zone-related injuries and fatalities. In 2002, Missouri traffic safety representatives added work zone-related crash factors to the standardized accident report forms. Because of the additional factors collected, MoDOT staff are able to calculate the number of fatalities, injuries, disabling injuries, and crashes taking place in work zones. Missouri State Highway Patrol officers were also provided extensive training emphasizing work zone issues and crashes. Reductions in the number of injuries and fatalities over consecutive years is attributed to MoDOT's proactive approach to raising work zone awareness and minimizing impacts on the traveling public.

Uninterrupted Traffic Flow

The uninterrupted traffic flow measure tracks how well customer expectations are met in terms of traffic flow in and near work zones on Missouri roadways. MoDOT personnel use an inspection worksheet to evaluate mobility in work zones throughout the State. The worksheet provides a methodology for a subjective assessment of engineering and operations factors that impact traffic flow in work zones. Each work zone evaluated is given a pass or fail rating on individual factors and an overall rating of pass or fail based on perception of traffic flow in and near each work zone. Factors assessed in this measure include travel speed of vehicles, minimizing reductions to roadway capacity, and whether the lengths of transitions are appropriate. Between 2005 and 2006, the percent of work zones meeting mobility expectations rose by 8.3 percent. MoDOT attributes the increase to their emphasis on meeting customer expectations and minimizing congestion and delays despite increased traffic demand and volume.



Uninterrupted Traffic Flow

Percent of work zones meeting expectations for traffic flow

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Scott Stotlemeyer, Technical Support Engineer

Purpose of the Measure:
An important factor in evaluating the department's performance in temporary traffic control design, deployment, operation, and maintenance is the measurement of our work zones affect on the mobility of highway users. This measure tracks how well the department meets its customer expectations of work zones on state highways.

Measurement and Data Collection:
Using a formal inspection worksheet, Construction and Materials, Maintenance, Traffic and the district staff evaluate mobility in work zones across the state. Each evaluation consists of a subjective assessment of engineered and operational factors affecting traffic flow. The evaluator assigns a pass, fail or n/a rating to each of these individual factors and a pass or fail rating for their overall perception of traffic flow in, around and through the work zone. The overall perception ratings are compiled quarterly and reported via this measurement. Note: This inspection program began in June 2005.

Improvement Status:
The results of the 1899 inspections this calendar year (235, 759, and 905 in the first three quarters, respectively) show great progress in this measurement, as the percent of work zones meeting mobility expectations rose by 8.3 percent over calendar year 2005 inspection results. The increase may be attributed to MoDOT's emphasis on creating exemplary work zones by minimizing work zone congestion and delays despite increased traffic demand and volume of work zones in Missouri this year.

Sample page from the MoDOT Tracker Report dated October 2006

Implications

If individual failures are noted in work zones, the inspector contacts the appropriate district personnel to notify them of the issue and the need for correction. The overall performance measures are compiled each quarter and reported to both the public and senior management at MoDOT. The ratings are used by the Traffic Division to identify the need to develop or refine existing work zone guidelines, specifications, and policies and provide recommendations to the Work Zone Quality Circle (WZQC) for consideration. If acceptable the WZQC then relates the proposed guidelines, specifications, and policies to upper management for approval, denial, or modification.

The MoDOT quality assurance inspection and Tracker initiatives provide valuable feedback for both MoDOT personnel and the traveling public and help MoDOT to achieve its goal of improving safety and mobility in work zones. Since inception, MoDOT's initiatives have achieved positive results in each area of measurement. MoDOT attributes these improvements to the increased emphasis placed on providing temporary traffic control installations that help guide and inform users traveling in construction and maintenance work zones on Missouri roadways. Both the quality assurance inspections and the MoDOT Tracker efforts encourage improvements in visual guidance, traffic flow, and safety in Missouri work zones. Through these efforts, MoDOT strives to surpass the driving public's expectations.

To download a copy of this fact sheet or view other Mobility and Safety fact sheets, visit our Web site at http://www.fhwa.dot.gov/workzones

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