

# NEVADA DEPARTMENT OF TRANSPORTATION

## FFY 2015 RESEARCH PROBLEM STATEMENT

### I. PROBLEM TITLE

Development and Implementation of a Statewide Pilot Project for Standardized Traffic Incident Management (TIM) Performance Measurement and Reporting in Nevada

### II. PROBLEM DESCRIPTION

To help justify TIM programs, the quantification of TIM program benefits using performance measurement has been evolving, and recent research and guidance exist to guide the standard collection of TIM performance data. Despite this work and a push from FHWA to collect standard TIM performance measures, current practices vary widely from state to state and sometimes even from region to region within a particular state. While there are a few leading states and local areas with respect to TIM performance measurement, within these leading agencies there remains a wide range of practices and approaches to TIM performance data collection, analysis, and reporting.

In addition to the push by FHWA for the collection and reporting of standard TIM performance measures, MAP-21 will place requirements for the reporting of a wide range of performance measures. While MAP-21 does not specifically require the reporting of TIM performance measures, it will require states to report on congestion and safety performance measures, both of which are directly related to TIM, as consequences of traffic incidents include non-recurring traffic congestion and secondary incidents.

What is needed is to take the recent research and guidance on the standardized collection and reporting of TIM performance to the next level. FHWA is looking for pilot implementation projects that can be highlighted and further guide implementation nationally. Nevada DOT is well-positioned to serve as a pilot location for statewide implementation of TIM performance measurement.

### III. OBJECTIVE

The objective of this project is to develop and implement a statewide pilot project for standardized, TIM performance data, analysis, and reporting in Nevada using the recent research and emerging guidance on TIM performance measurement.

The anticipated deliverables include: deployment of a statewide pilot incident management database with standardized data and performance reporting, a statewide TIM performance dashboard, and a final report describing the research and deployment approach, process, findings, and recommendations for full deployment.

### IV. CURRENT PRACTICE AND RELATED RESEARCH

For nearly a decade, FHWA has supported the advancement of TIM performance measurement. To provide consistency in TIM performance measures, the 2005-2009 Focus State Initiative involved 11 participating states and resulted in three standard TIM performance measures: roadway clearance time, incident clearance time, and secondary incidents. Following in 2011, FHWA conducted the TIM Performance Metric Adoption Campaign in which TIM-specific metrics from 40 metropolitan areas were gathered and examined for consistency with FHWA definitions. The project also established a national baseline for the three standard TIM performance measures and recommended methods for maintaining and expanding TIM performance measurement.

Most recently, TRB sponsored NCHRP 07-20: Guidance for the Implementation of TIM Performance Measurement, which is currently in progress. The objective of NCHRP 07-20 is to provide guidance on the consistent use and application of TIM performance measures, including a model TIM performance measures database schema, scripts, and example applications, reporting, and visualization of TIM performance

measures. The anticipated products include a written guidance document and a web-based version of the guidance. Both are expected in early 2015.

A review of current practices reveals that many organizations have yet to adopt TIM performance measurement as a formal process. Several of the leaders in TIM performance measurement include the Nevada DOT, the Arizona Department of Public Safety (AZDPS), the Virginia DOT, and the Florida DOT. While all are leaders in their field, each takes a different approach to the collection of TIM performance data. For example, VDOT's primary sources of TIM performance data include the regional traffic operation centers and an automated feed from the Virginia State Police computer aided dispatch system. Because VDOT does not use information from the police incident reports for TIM performance analysis, the majority of VDOT's TIM performance data is for interstate highways only, albeit statewide. The AZDPS has taken a different approach, as it collects TIM performance data via an electronic crash report available through its Traffic and Criminal Software (TraCS) license. To date, the AZDPS has focused on collecting and reporting TIM performance data in the Phoenix area; however, there are plans to go statewide in July 2014.

Nevada DOT launched a unified TIM program in 2008. The state is divided into three groups or districts for the TIM program: northern urban, southern urban and statewide. The northern and southern coalitions focus primarily on urban issues, and the statewide coalition focuses on rural issues. The statewide coalition was formed in 2012 to address TIM issues in rural areas of the state. Unique challenges faced by rural areas include the response time to incidents that occur in remote locations, wildfires, and availability of resources.

In the southern urban center incident tracking is accomplished through the Southern Nevada's Freeway and Arterial System of Transportation (FAST) center. Data for TIM are shared in a monthly report to the operational and management committee for TIM as well as NDOT. Several performance measures are used (particularly in the urban center in both northern and southern Nevada), including: time of vehicle removal to the shoulder, number of incidents, number of incidents managed, number of incidents on the shoulder in 10 minutes or less, incidents that block two or more lanes, remaining incidents, and travel time. Currently the majority of the incidents are reported via TMC operators and 911 dispatches.

## **V. RESEARCH METHODOLOGY**

The research methodology for this project will involve working with NDOT and the TIM partners statewide to conduct an assessment of the TIM data sources (e.g., TMCs, 911 dispatch, police), incident databases (e.g., type of database, data elements), and incident data flow/exchange (within agencies, between agencies), as well as the consistencies and inconsistencies in these systems and processes across the state. In addition, the research will involve the development of the approach for the standardized collection, analysis, and reporting of TIM performance measures statewide, a plan for implementing a pilot project to demonstrate the concept of statewide TIM performance reporting, and implementation of a statewide pilot project. Depending on the available funding, the research may also consider the addition of a statewide TIM performance dashboard, as well as exploring the feasibility of real-time analysis and reporting on TIM performance.

This project would be amongst the first pilots for standardized statewide TIM performance measurement and reporting, and would be the first to apply the guidance set forth in NCHRP 07-20 (still pending) regarding implementation of TIM performance measurement. As such, Nevada would be a model for other states.

## **VI. IMPLEMENTATION POTENTIAL**

The proposed research falls under Stage IV of research deployment. Should the pilot project be successful, the implementation potential of the research will be high. Should the pilot project result in one or more modifications necessary for successful implementation, these modifications would be needed prior to implementation. A potential institutional issue that might be a barrier to implementation is the sharing/exchange of data between agencies. For example, certain types of data may need to be collected that

are not currently being collected, which may require agreements or arrangements to be made between stakeholders.

## **VII. URGENCY AND PAYOFF POTENTIAL**

According to a senior FHWA official, we are currently “losing the battle” in collecting TIM performance measures. With recent research and emerging guidance on the implementation of TIM performance measurement, as well as the performance measure reporting requirements of MAP-21, the time is now to begin demonstrating the potential payoffs of standardized TIM performance measurement and reporting at the state level.

There are a number of benefits of performance measurement for TIM programs. The development, collection, and analysis of performance measures could assist TIM partners in Nevada in identifying “hot spots” where countermeasures, policies, and/or strategies could be implemented to improve TIM performance. In addition, TIM performance measurement could help Nevada to demonstrate accountability, process efficiency, and improvements over time. Finally, TIM performance measurement could improve inter-agency communications and support future planning efforts in the state.

In addition, as previously stated, MAP-21 will place requirements for the reporting of congestion and safety performance measures. By better understanding statewide TIM performance through the collection and analysis of traffic incident data, Nevada DOT and its partners can work to identify and develop strategies, countermeasures, and policies that could improve not only TIM performance, but also overall congestion and safety performance.

## **VIII. ESTIMATED BUDGET**

The estimated budget for this project is \$150,000.

## **IX. DATE AND SUBMITTED BY**

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## **X. NDOT CHAMPION, COORDINATION, AND INVOLVEMENT**

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Coordination and collaboration with NDOT and FAST RTC will be vital to the project's success. The research team will need to work with the NDOT Champion, the technical advisory committee, and other TIM stakeholders such as Nevada Highway Patrol to gather data and other information as part of the assessment. NDOT and other partners will need to provide input in various points of the research since this is a pilot program being tested for the first time.