



UNINTERRUPTED TRAFFIC FLOW

Tangible Result Driver – Don Hillis, Director of System Management



Missouri drivers expect to get to their destinations on time, without delays. Traffic, changes in weather, work zones and highway incidents can all impact their travel. MoDOT works to ensure that motorists travel as efficiently as possible on the state system by better managing work zones, snow removal and highway incidents, and by using the latest technology to inform motorists of possible delays and available options. Better traffic flow means fewer crashes.

435
4 BRUNT
INTOWN
4 MIN
6 MIN
10 MIN

KANSAS CITY
SCOUT
getting you there

WWW.KCSCOUT.NET

CAR P

EXIT
70
MILE
12
2

Average travel times on selected freeway sections-1a

Result Driver: Don Hillis, Director of System Management

Measurement Driver: Troy Pinkerton, Traffic Liaison Engineer

Purpose of the Measure:

This measure tracks the average ten-mile travel times during the morning and evening peaks on various freeway sections. The desired trend is to travel ten miles per ten minutes on a 60 mph freeway. This is representative of a free-flow condition. The average ten-mile travel time is calculated using a travel index. The travel index is directly related to the average speed and represents the level of congestion by taking into consideration not only average speed but also the traffic volumes.

The travel index is calculated according to the following equation:

$$\text{Travel Index} = \text{Average speed} / \text{Free flow speed}$$

The ten-mile Travel Time is calculated using this equation:

$$10\text{-Mile Travel Time} = 10 \text{ miles} / \text{Travel Index}$$

Average speeds are taken from sensor data. The free-flow speed is constant and is equal to the highest hourly average speed for any hour in that data set.

Measurement and Data Collection:

Data from the St. Louis and Kansas City regions are provided by MoDOT's traffic management centers. Information about the St. Louis traffic management center, Gateway Guide, can be found at <http://www.gatewayguide.com> and information about the traffic management center in Kansas City, KC Scout, can be found at <http://www.kcscout.net/>. Data for the St. Louis region is also provided through a partnership with *Traffic.com*. Data for each location is updated quarterly.

Improvement Status:

Kansas City metropolitan region:

The morning peak ten-mile travel time in Kansas City increased from 10.85 minutes in the fourth quarter of fiscal year 2010 to 11.22 in this first quarter of 2011. The evening peak ten-mile travel time decreased from 11.73 minutes in the fourth quarter of fiscal year 2010 to 11.02 in this first quarter of 2011. Travelers experienced only minor delays during their peak commutes.

There was a geotechnical failure on an I-470 structure that required an emergency closure and repair during July and August. No obvious impacts were noted due to the changes in Traffic routing for that construction.

The construction at I-70 and I-435 is causing slowdowns along I-70 at Blue Ridge Cutoff. Typically the eastbound direction is affected during the PM rush and the westbound movement is affected during the AM rush.

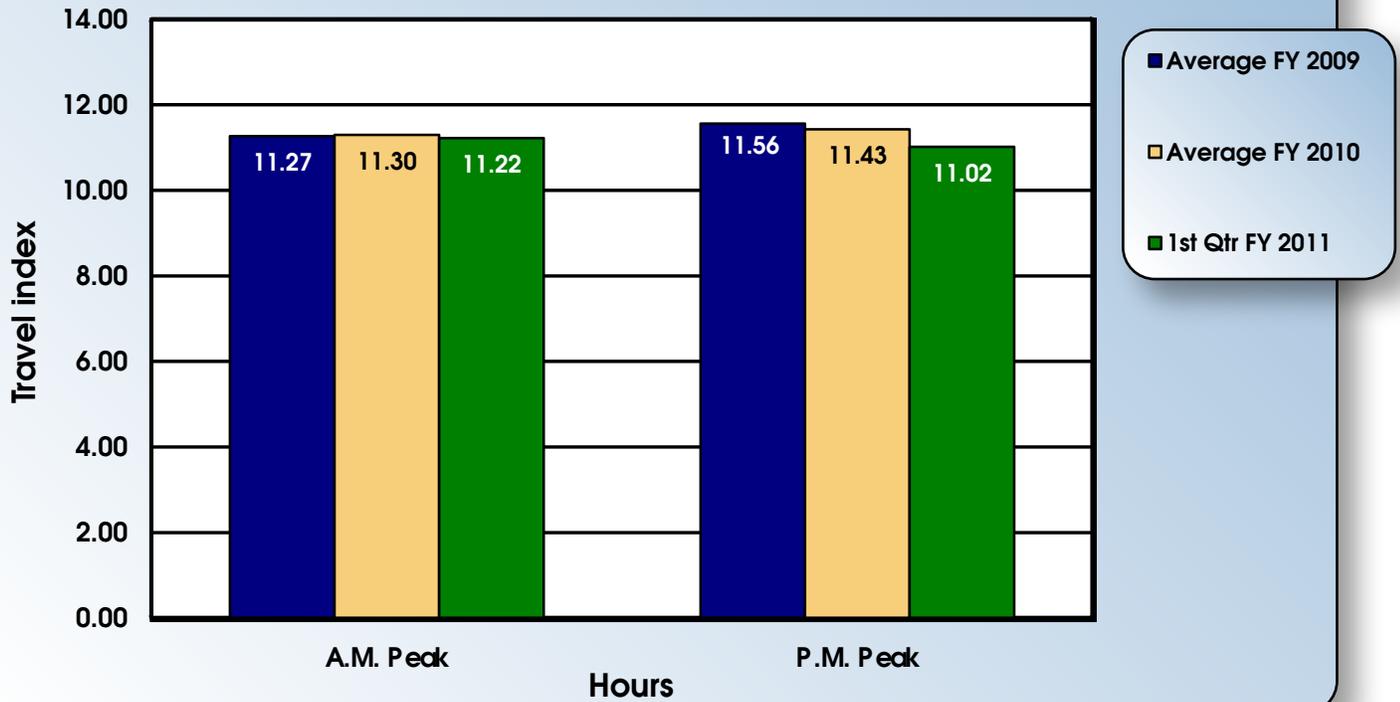
The kcICON project made some significant changes last quarter in lane configurations on I-35 that continues to cause some additional slowdowns specifically in the AM peak in the southbound direction. Construction associated with the Paseo Bridge continues to contribute to some slow downs in the morning commute on I-35 southbound into downtown. This area should continue to see some dramatic slowdowns over the next several months due to the kcICON bridge replacement project. Additional information on the construction activities along I-29/35 can be found at www.kcicon.org.

St. Louis metropolitan region:

The morning peak ten-mile travel time in St. Louis stayed relatively constant going from 10.93 minutes in the fourth quarter of fiscal year 2010 to 10.95 in this first quarter of 2011. The evening peak ten-mile travel time increased only very slightly from 12.16 minutes in the fourth quarter of fiscal year 2010 to 12.21 in this first quarter of 2011. Both are slight improvements on the fiscal year 2010 average.

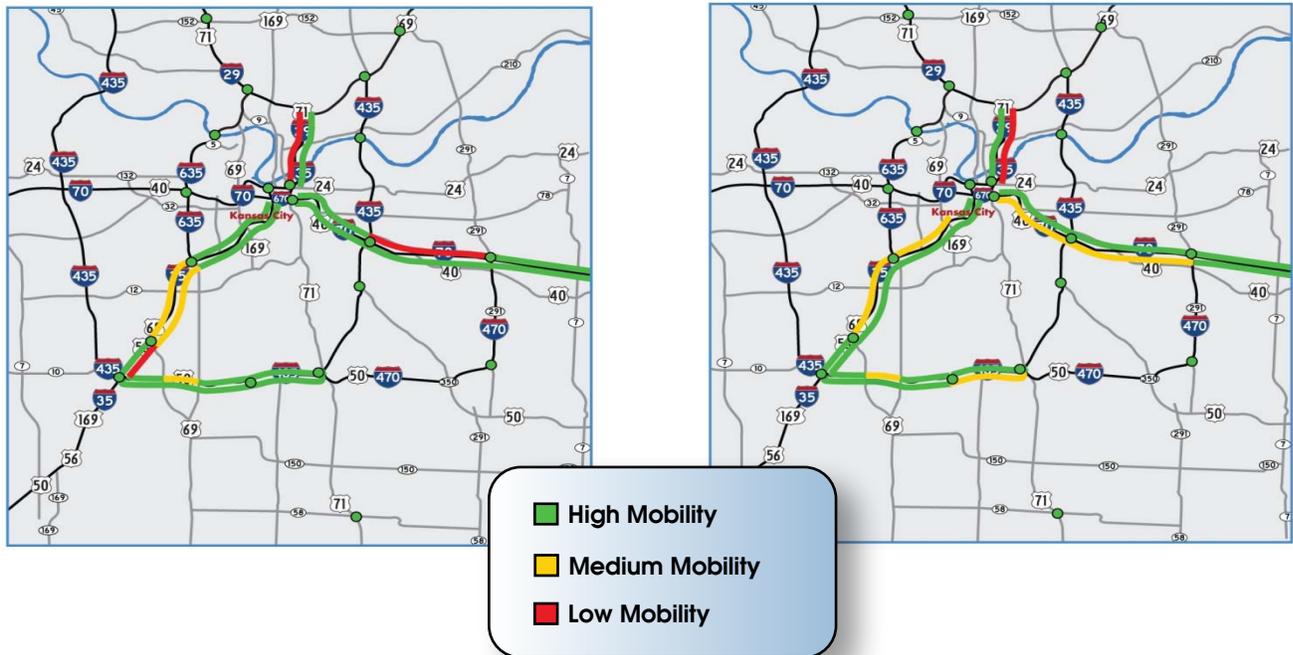
The amount of incidents (crashes, work zones, and special events) continues to be the main contributing factor on the mobility for the region. This construction season is one of the largest in history in terms of the amount of projects concurrently ongoing for the region. Given the increase in number of construction projects in the area and the fact that incidents are responsible for about half of all delay in urban areas, it is encouraging that the travel times continue to remain relatively constant as we enter this first quarter of fiscal year 2011.

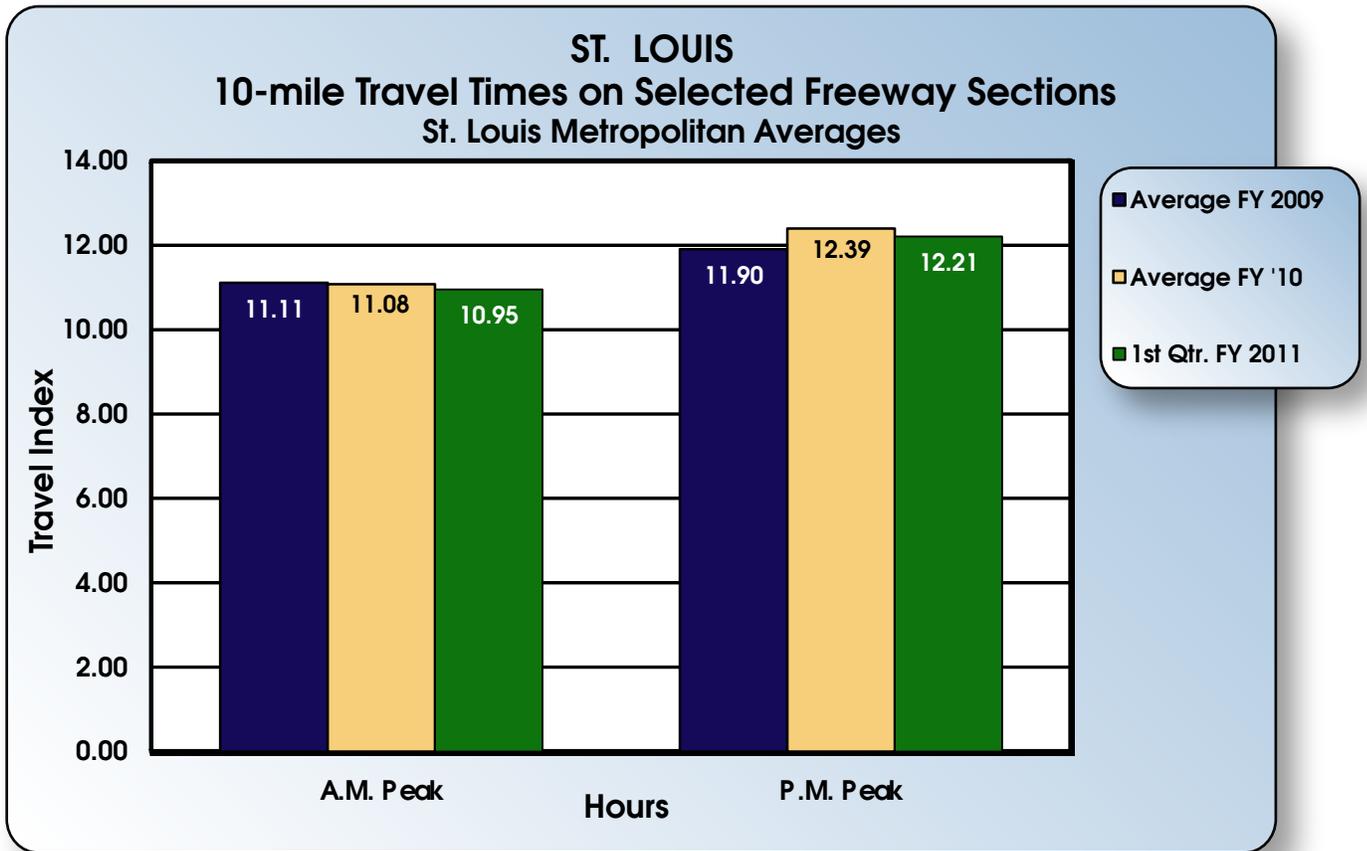
KANSAS CITY 10-Mile Travel Time on Selected Freeway Sections Kansas City Metropolitan Averages



AM – Regional Mobility

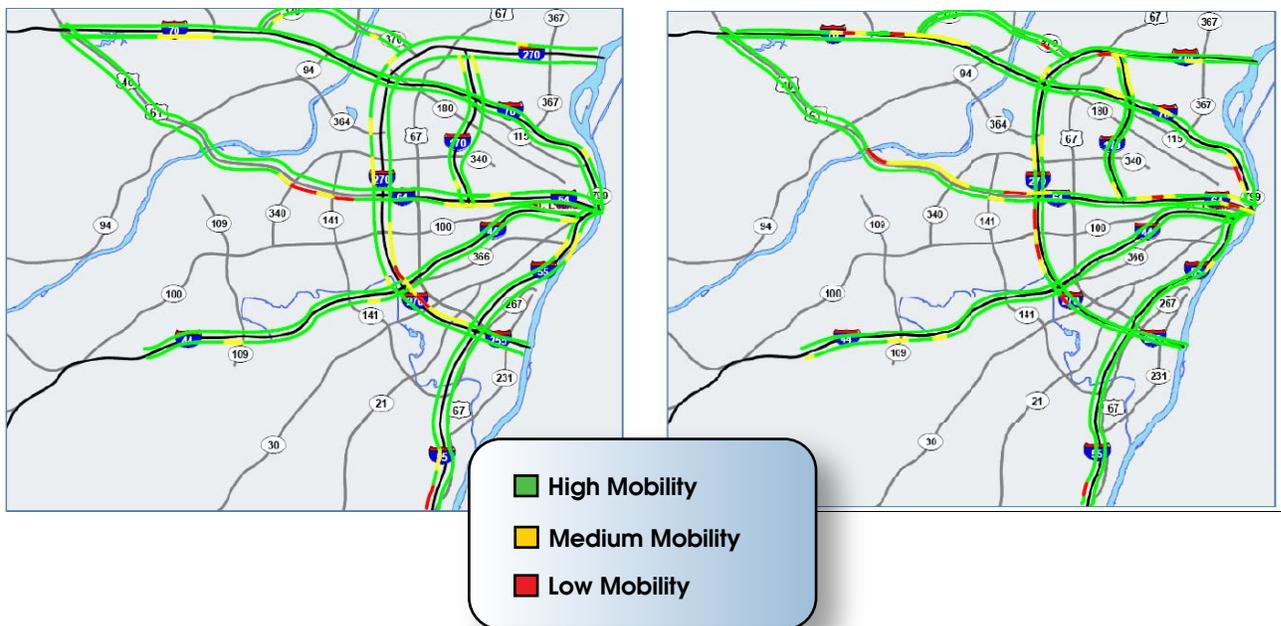
PM – Regional Mobility





AM – Regional Mobility

PM – Regional Mobility



Average rate of travel on signalized routes-1b

Result Driver: Don Hillis, Director of System Management

Measurement Driver: Julie Stotlemeyer, Traffic Liaison Engineer

Purpose of the Measure:

This measure indicates how well random arterials across the state are operating during peak traffic times. As improvements are made, such as signal timing or access management, this measure will show the effects of those efforts and decisions on the arterial system.

Measurement and Data Collection:

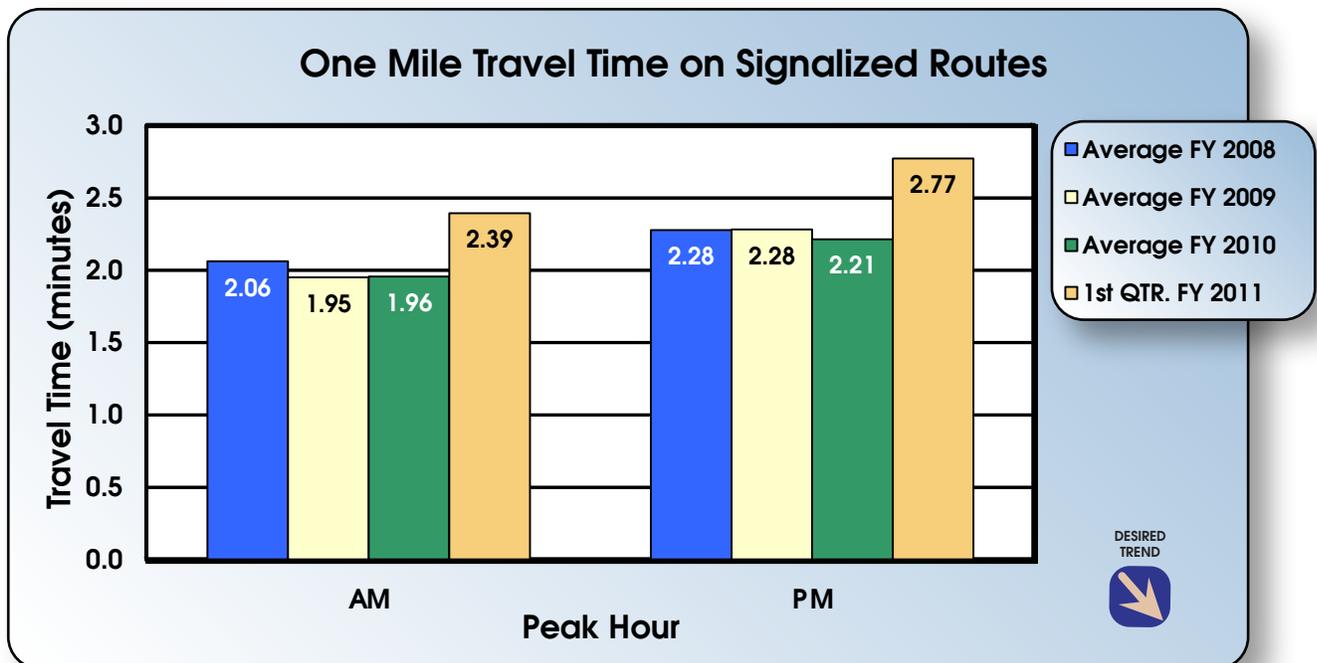
Travel times are measured on random arterials. Travel times are collected by driving each route twice in each direction during AM and PM peak times and timing how long it takes to traverse the route. The travel time is divided by the length of the route and then all routes averaged together to determine the statewide AM and PM peak performance for arterials. The measure indicates the time, in minutes, to travel one mile. This is a yearly measure but data is updated quarterly.

Improvement Status:

The average travel times for fiscal year 2008, 2009, and 2010 are based on travel times collected on the same 17 routes each quarter, whereas the travel for first quarter fiscal year 2011 is based on 29 random routes.

For first quarter fiscal year 2011, the average statewide travel time per mile is 2.39 minutes for AM peak and PM peak is 2.77 minutes. This equates to an average speed per mile of 25 mph for AM and 22 mph for PM. The AM peak travel time is three mph faster than PM peak travel time.

The average rate of travel on random signalized routes has changed due to construction, timing/controller changes, and variations in traffic flow.



Average time to clear traffic incident-1c

Result Driver: Don Hillis, Director of System Management

Measurement Driver: Rick Bennett, Traffic Liaison Engineer

Purpose of the Measure:

This measure is used to determine the trends in incident clearance on the state highway system. A traffic incident is an unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road. The sooner an incident is removed, the sooner the highway system returns to normal capacity. Therefore, responding to and quickly addressing the incidents (crashes, flat tires and stalled vehicles) improves system performance.

Measurement and Data Collection:

Advanced Transportation Management Systems (ATMS) are used by both the Kansas City and St. Louis traffic management centers to record “incident start time” and the time for “all lanes cleared.” In October of 2008, St. Louis switched from using motorist assist arrival times as the “incident start time” to utilizing the time the incident was confirmed in the ATMS usually via CCTV, prior to any responder arriving on the scene, as the “incident start time.” Average time to clear traffic incidents is calculated from these times. In January of 2009, about 20 additional miles of I-70, I-470, and I-435 were added and became operational in the Kansas City urban area.

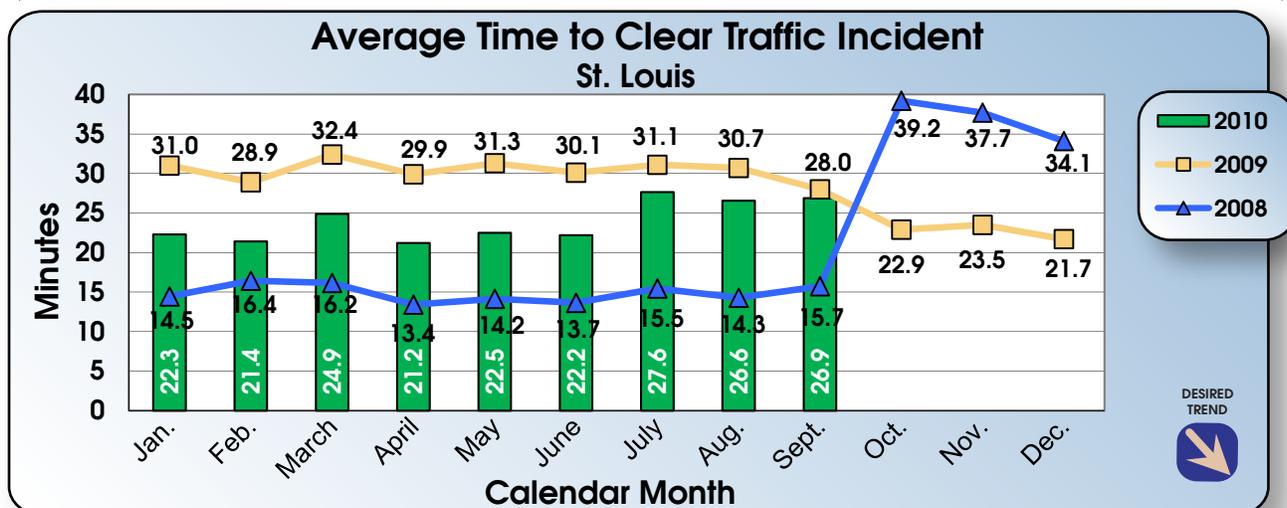
On September 1, 2009, Kansas City moved to a new software and hardware platform, (TranSuite and SQL), giving them the ability to do more detailed tracking of time to clear incidents, Motorist Assist activities and interoperability with Operation Greenlight and the arterial signal systems. In July

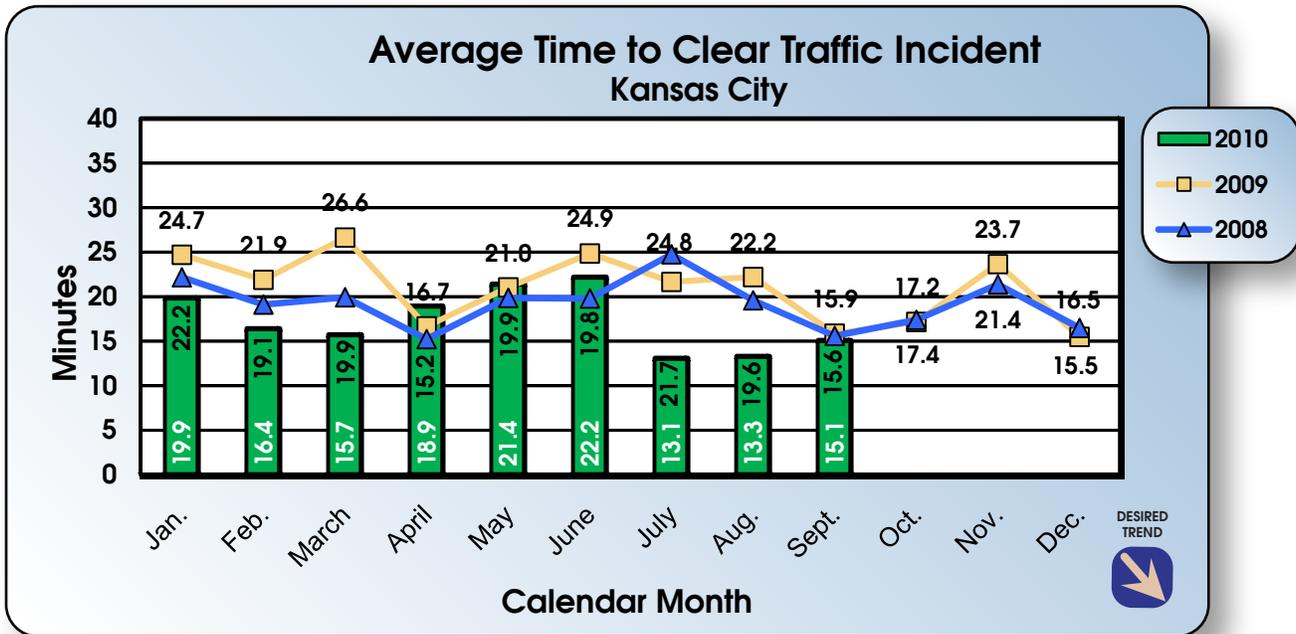
2010, Kansas City Scout went to retrieving 100 percent of its data from the TranSuite SQL databases.

Improvement Status:

St. Louis recorded 521, 480 and 465 incidents respectively for the months of July, August and September utilizing ATMS. The increase in the average time to clear incidents can be attributed to the 13 incidents that took more than three hours to clear. In July, there were five incidents that took more than three hours to clear. Two of the incidents involved commercial motor vehicles, while the other three were caused by a pedestrian fatality, a spilled load and an overpass fence falling across the roadway. In August, there were four incidents that exceeded three hours to clear. All four incidents involved commercial motor vehicles. In September, there were four incidents that exceeded three hours to clear. Two of the incidents involved commercial motor vehicles, one was the result of an overpass being struck and the other was a motor vehicle crash.

Kansas City collected data on 820, 1029, and 943 incidents respectively for the months of July, August and September. July marks one year of archiving and having operators utilize new event manager software. Increases in the sample size due to the electronic tracking of all incidents and greater accuracy of start and end times have significantly reduced Kansas City's time to clear an incident. The incident management program is quickly growing in this region and Scout even has police officers calling in to verify or notify us of exact start and end times of each incident.





Number of closures on major routes-1d

Result Driver: Don Hillis, Director of System Management

Measurement Driver: Rick Bennett, Traffic Liaison Engineer

Purpose of the Measure:

This measure tracks the number of closures on major routes due to traffic incidents. A traffic incident is any unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road and includes floods, winter weather and traffic impacts such as traffic crashes, utility damage, bridge and pavement damage, special events and police emergencies.

Measurement and Data Collection:

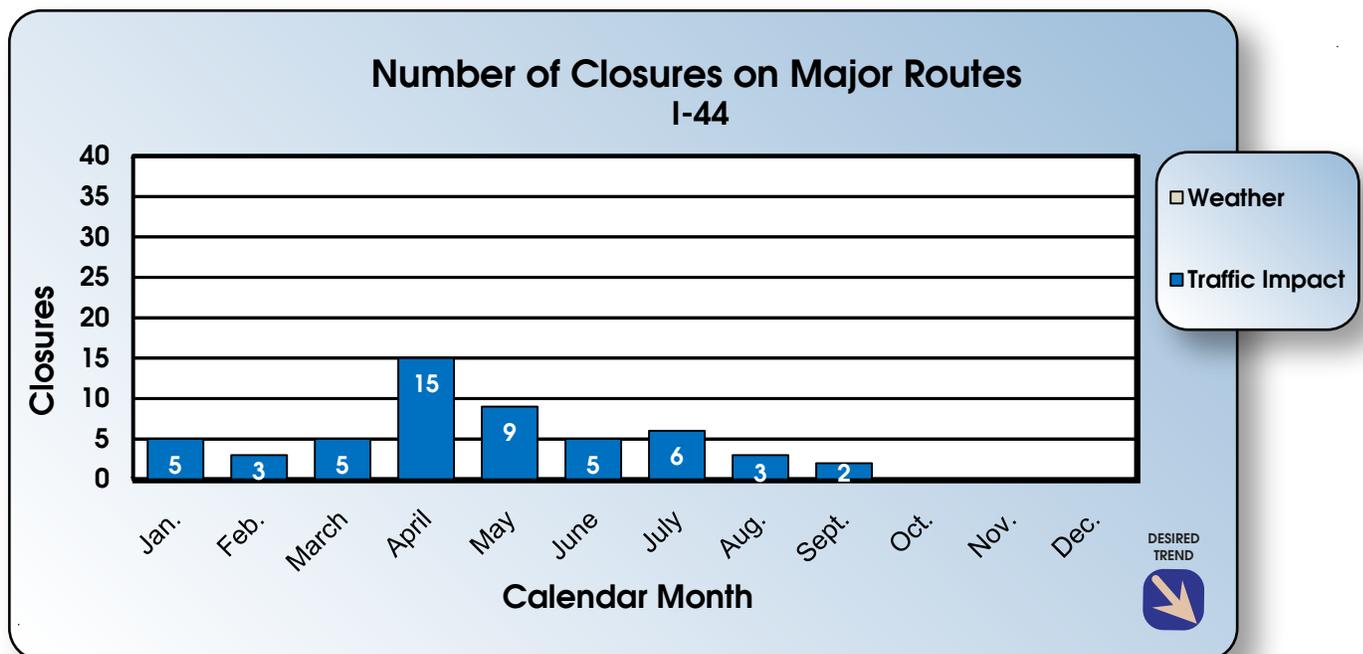
Major route closures that have an actual or expected duration of one hour or more are entered into MoDOT's Transportation Management System (TMS) for display on the Traveler Information Map on MoDOT's Internet. The numbers of closure events are tracked in the TMS system.

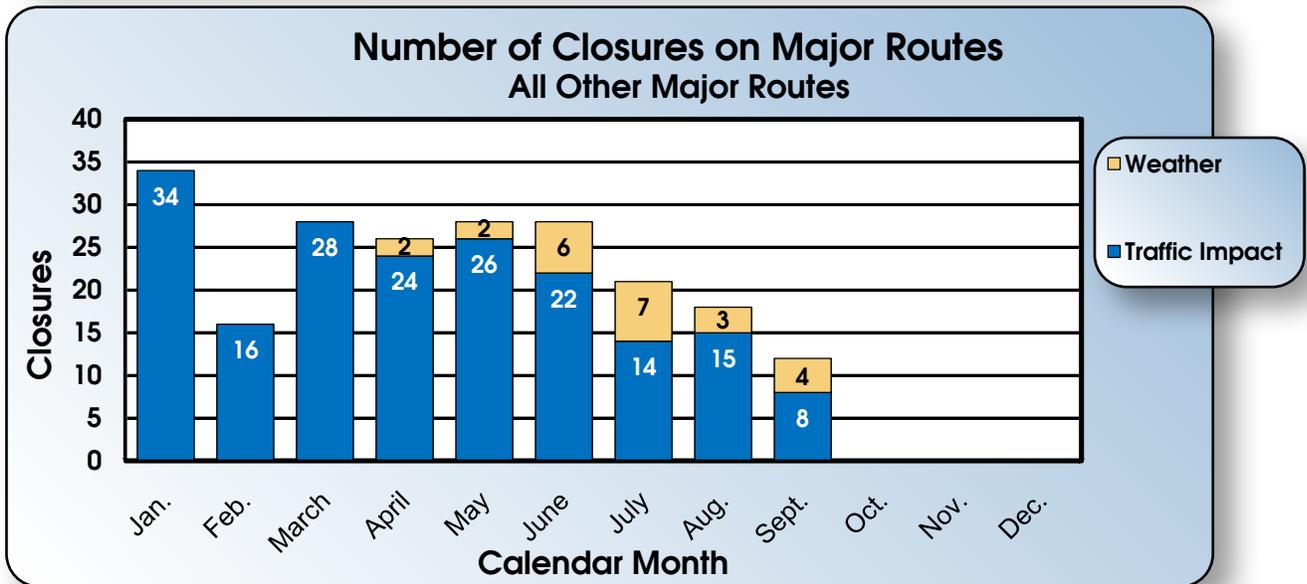
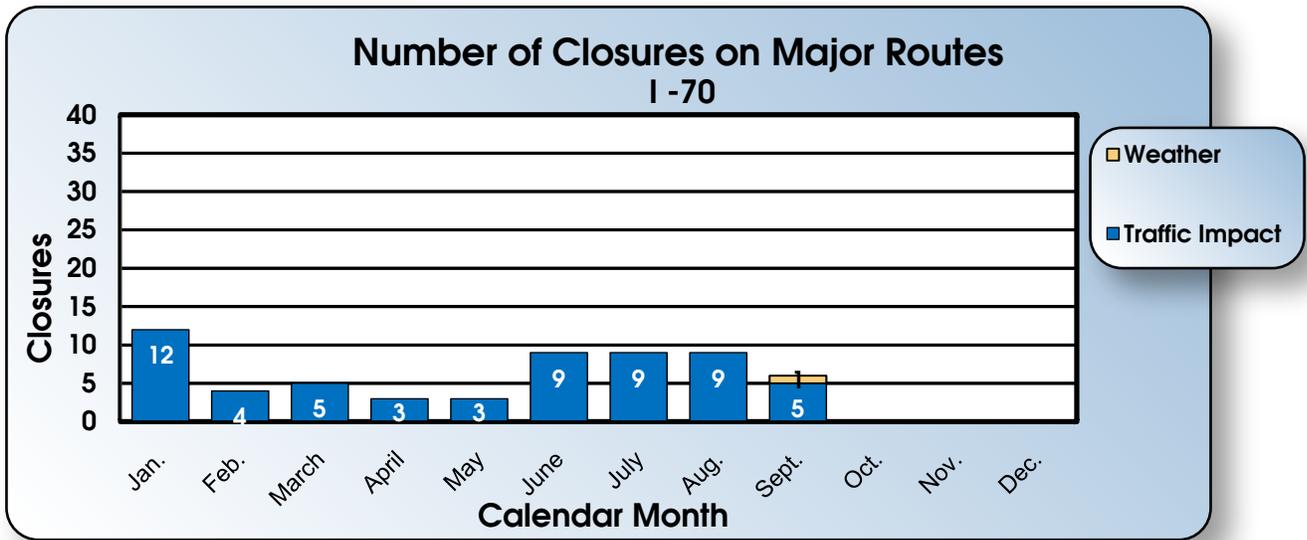
Improvement Status:

On I-70, traffic crashes, debris on the roadway, police emergencies, special events, roadway damage and utility damage contributed to the closures in July, August and September.

On I-44, traffic crashes were the cause of all of the traffic impact closures in July, August and September.

In addition to traffic crashes, police emergencies, roadway damage, bridge damage, debris on the roadway and utility damage attributed to the traffic impact closures on all other major routes.





Traveler Information Map

For work zone location, flooding information and weather-related road conditions visit MoDOT's [Traveler Information Map](#). It's your first source of information when planning your trip across the Show-Me state.



UNINTERRUPTED TRAFFIC FLOW

Percent of work zones meeting expectations for traffic flow-1e

Result Driver: Don Hillis, Director of System Management

Measurement Driver: Dan Smith, Traffic Management & Operations 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 work zones' affect on the mobility of highway users. This measure tracks how well the department meets customer expectations of traffic flow in, around and through work zones on state highways.

Measurement and Data Collection:

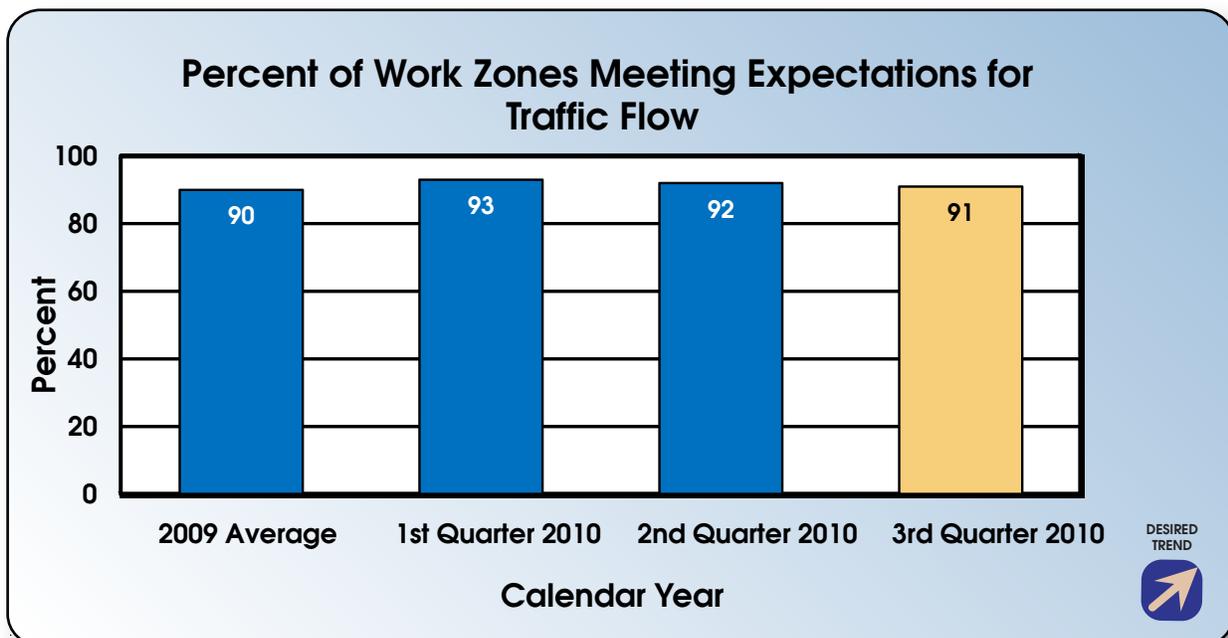
On January 1, 2009, MoDOT provided a Work Zone Customer Survey for the traveling public to provide evaluation of the mobility in work zones across the state. Each survey has several questions that address the sign and flagger instructions, speed limit, travel time, and travel safety. The evaluator assigns a yes, no, or n/a rating to each of the questions. The overall

ratings are compiled quarterly and reported via this measurement. The survey is on the MoDOT website at the following address:

<http://www.modot.gov/workzones/Comments.htm>.

Improvement Status:

Compilation of the 866 surveys performed by the traveling public and MoDOT staff between July and September of this calendar year resulted in a positive satisfaction rating of 91 percent for work zone traffic flow. This is a 1 percent decrease in customer satisfaction from the second quarter's 92 percent and a 1 percent increase from last year's average of 90 percent customer satisfaction.



Time to meet winter storm event performance objectives on major and minor highways- 1f

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Tim Jackson, Maintenance Liaison Engineer

Purpose of the Measure:

This measure tracks the amount of time needed to perform MoDOT's snow and ice removal efforts.

Measurement and Data Collection:

This data is collected in the winter event database. This measurement tracks the actual time involved in this process so improvements can be made. After each winter event, such as a snow or ice storm, area maintenance personnel submit a report indicating how much time it took to clear snow from the major and minor highways. After a storm ends, the objectives are to restore the major highways to a clear condition as soon as possible and have the lower-volume minor highways open to two-way traffic and treated with salt and/or abrasives at critical areas such as intersections, hills and curves as soon as possible. The end of the storm is defined as when freezing precipitation stops accumulating on the roadways, either from falling or drifting conditions. Data collection for this measure runs from November

through March of each winter season, and is updated in the January and April Tracker reports. The time in hours is the statewide average for the entire winter season.

Improvement Status:

The average time to meet the performance objectives on the major highways is 0.3 hour more than the previous winter. The average time to meet the performance objectives on the minor highways is 0.7 hour more than last winter. The time to meet the performance objectives will vary based on the amount of snow received, the duration and the intensity of the storm. This winter has produced several major storms with near blizzard conditions requiring additional time to meet the objectives. Strategies to improve these numbers include implementing best practices, pursuing equipment enhancements, testing new materials and continued training of snow removal employees.

