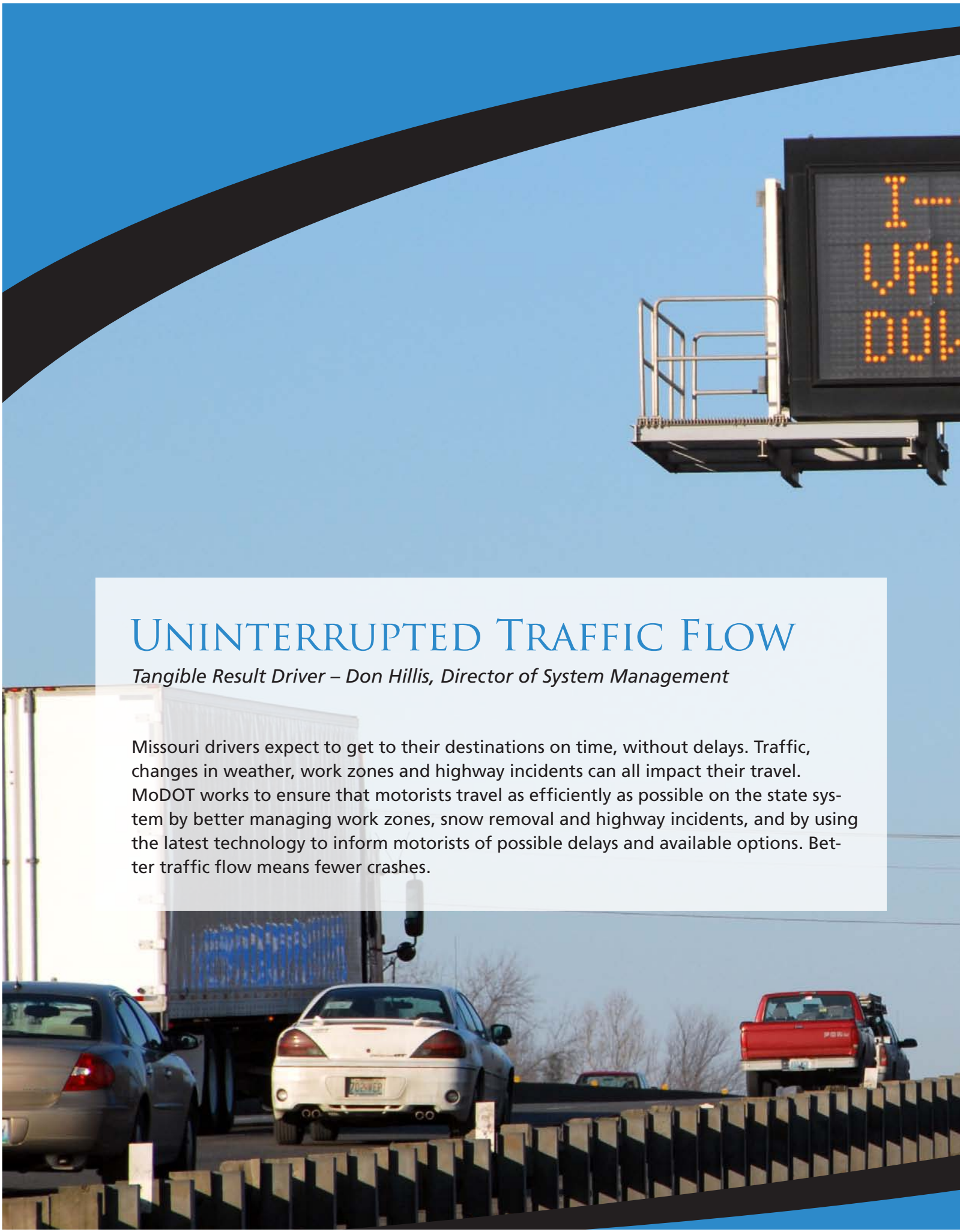


Uninterrupted Traffic Flow

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.

TRACKER

MEASURES OF DEPARTMENTAL PERFORMANCE

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 travel index values and 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. The desired travel index is to remain at or near a value of 1.00. A value of 1.00 is representative of a free-flow condition. 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:

Travel Index = Average speed/Free flow speed

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

10-Mile Travel Time = 10 miles/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.

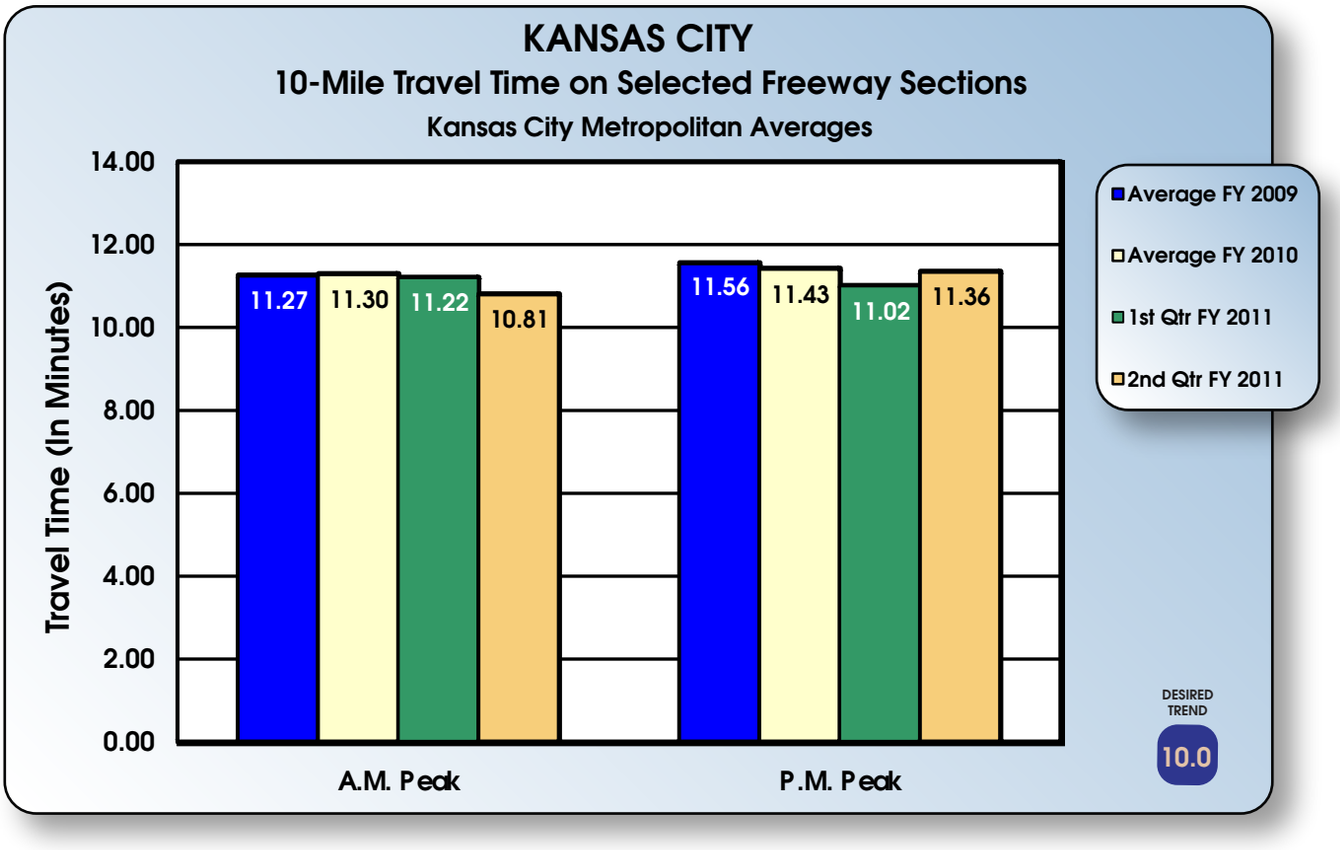
Improvement Status:

Kansas City metropolitan region:
The morning peak ten-mile travel time in Kansas City decreased from 11.22 in the first quarter of fiscal year 2011 to 10.81 for this reporting period. The evening peak travel index increased slightly from 11.02 in the first quarter of fiscal year 2011 to 11.36 for this reporting period. Travelers experienced only minor delays during their peak commutes due to the normal recurring congestion.

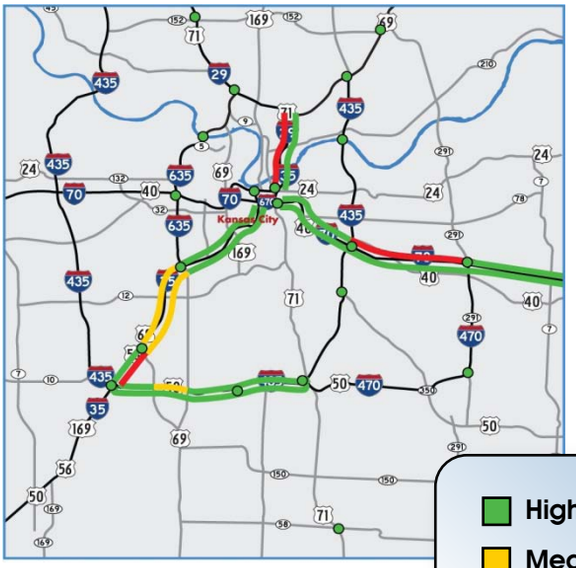
For the Kansas City metropolitan region, work zones continue to affect average speeds and travel time reliability for two major corridors (I-35 and I-70). Construction continues on the following projects throughout the region: kcICON on I-35 just north of downtown, the reconstruction of I-70 and the rebuilding of the 435/I-70 interchange. Construction associated with the Paseo Bridge continues to contribute to some slowdowns in the morning commute on southbound I-35 into downtown. This area will continue to see some dramatic slowdowns over the next few years due to the kcICON bridge replacement project. Increased situational awareness facilitated through incident management and dissemination of traveler information in and around these work zones result in minimal impacts to the traveling public. Additional information on the construction activities along I-29/I-35 can be found at www.kcicon.org.

St. Louis metropolitan region:
The morning peak ten-mile travel time in St. Louis increased slightly from 10.95 in the first quarter of the fiscal year to 10.97 in this reporting period. The performance of the system in the evening peak decreased slightly to 12.16 for this reporting period, down from 12.21 in the previous reporting period.

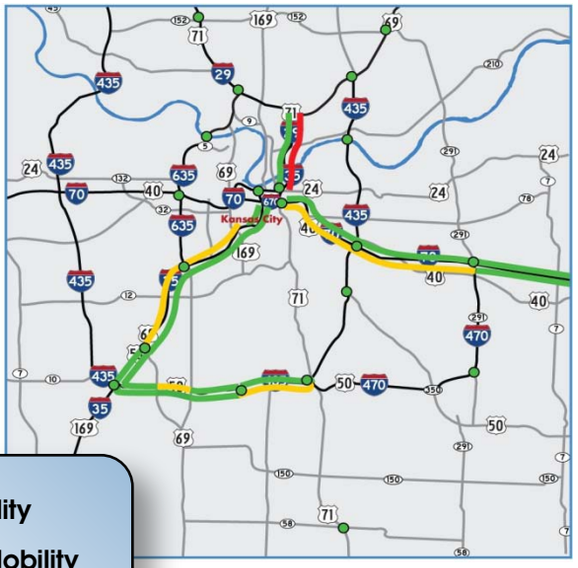
The regional mobility maps also reflect very similar values from the previous quarter to the current quarter. The a.m. movements along northbound I-270 at I-44 and the eastbound movement along 40/61 at I-270 experience the most significant slowdowns due to recurring congestion. Likewise, for the p.m. movements, the slowdowns are shown along the same routes but for the returning commuter.



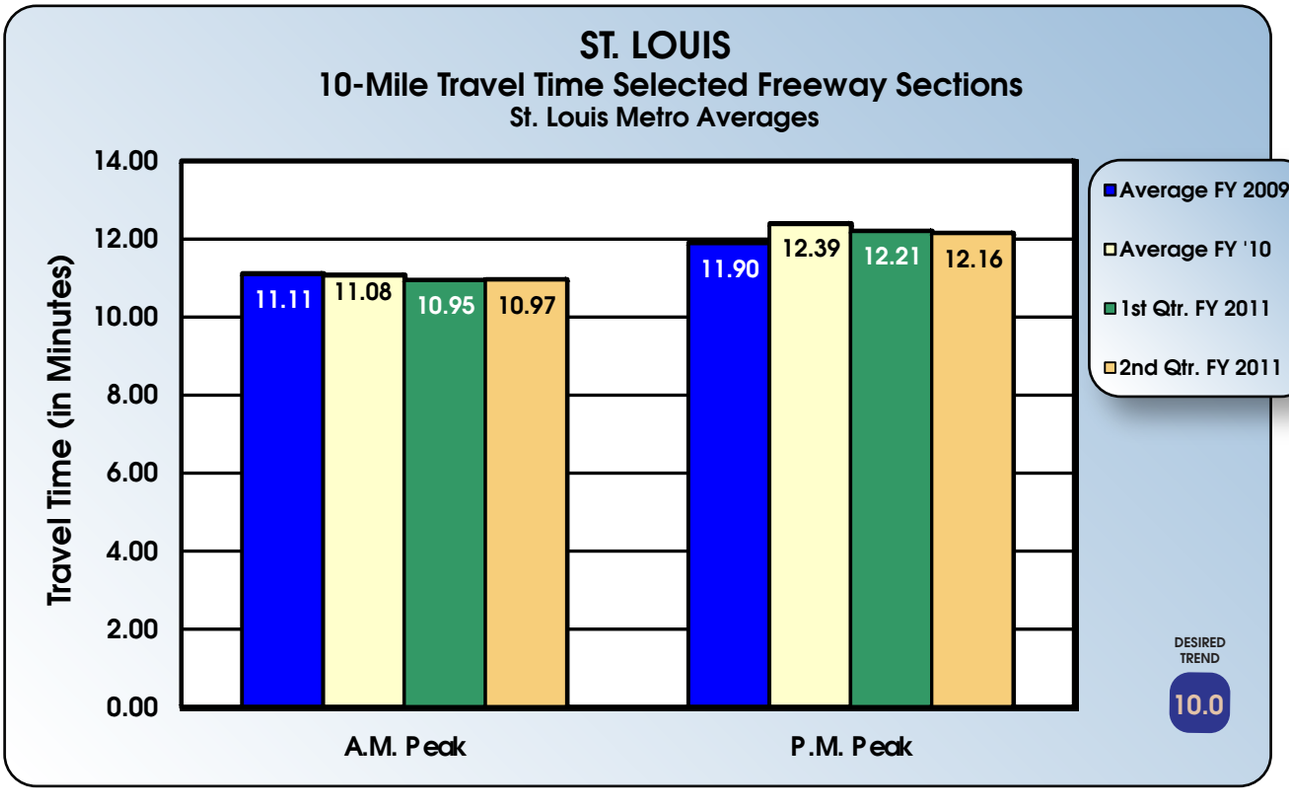
AM – Regional Mobility



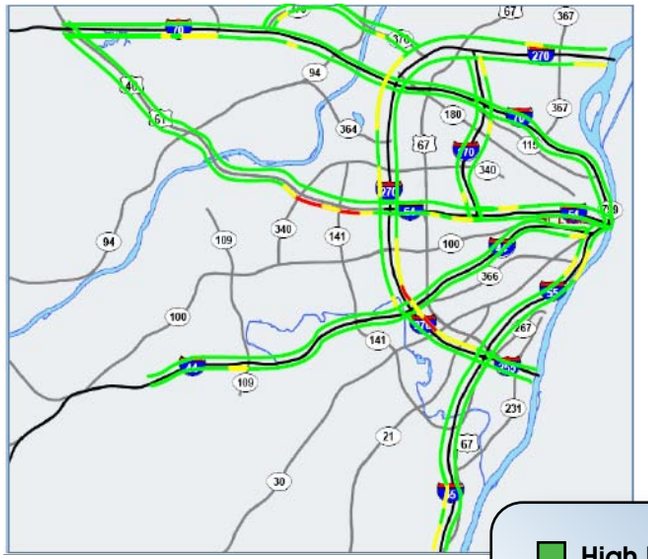
PM – Regional Mobility



High Mobility
Medium Mobility
Low Mobility



AM – Regional Mobility



PM – Regional Mobility

High Mobility
Medium Mobility
Low 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:

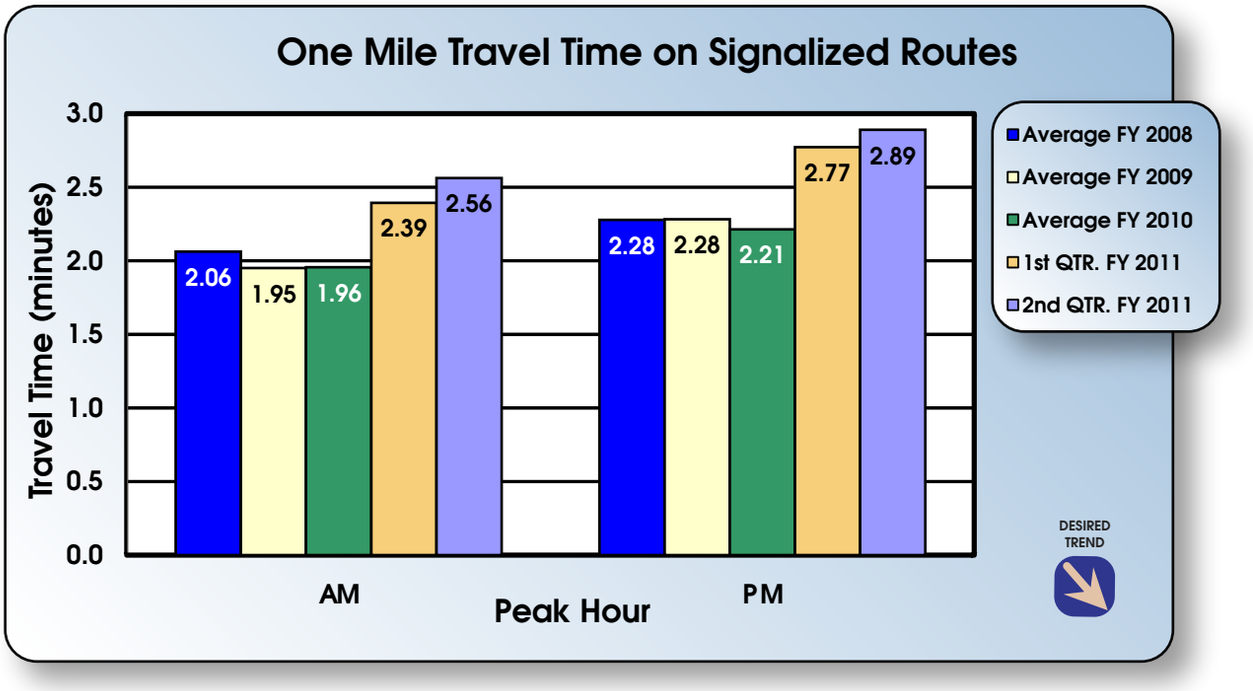
Travel times are measured on random arterials. Travel times are collected by driving each route twice in each direction during a.m. and p.m. peak times and timing how long it takes to traverse the route. The travel time is divided by the length of the route and then all routes averaged together to determine the statewide a.m. and p.m. 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 times for first quarter fiscal year 2011are based on 29 random routes and 48 random routes for second quarter fiscal year 2011.

For second quarter fiscal year 2011, the average statewide travel time per mile is 2.56 minutes for a.m. peak and p.m. peak is 2.89 minutes. This equates to an average speed per mile of 23 mph for a.m. and 21 mph for p.m. The a.m. peak travel time is two mph faster than p.m. peak travel time.

The average rate of travel on random signalized routes has changed due to construction, timing 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.

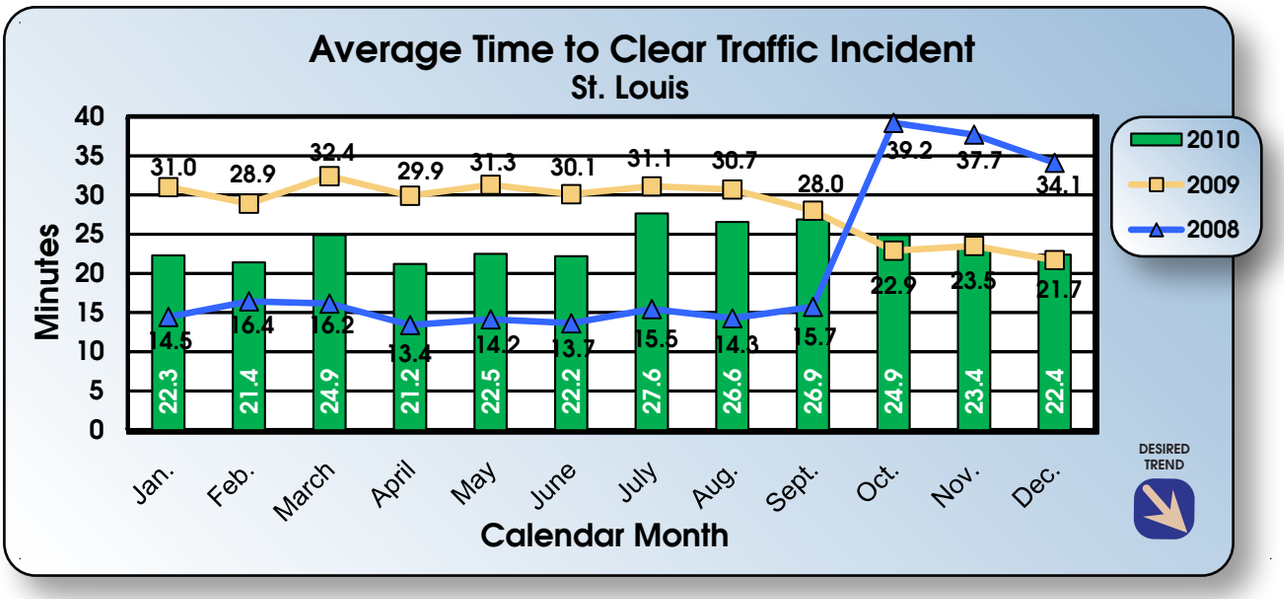
On September 1, 2009, Kansas City moved to a new software and hardware platform, (TranSuite and SQL), giving them the ability to do more detailed tracking of time to clear incidents, Motorist Assist activities and interoperability with Operation Greenlight and the arterial signal systems. In July 2010, Kansas City Scout went to retrieving 100 percent of its data from the TranSuite SQL databases.

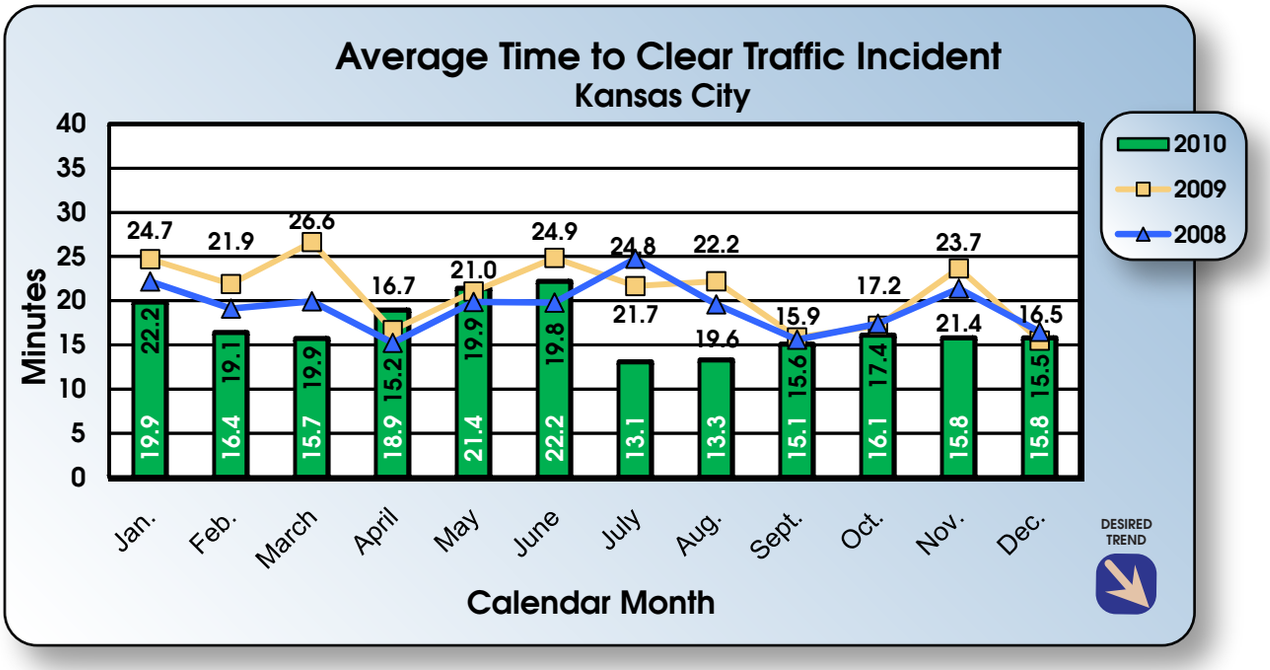
Improvement Status:

St. Louis recorded 393, 447 and 515 incidents respectively for the months of October, November, and December. Time to clear traffic incidents has decreased compared to the previous three months, and remained fairly consistent compared to the same time period last year.

Kansas City collected data on 728, 755, and 637 incidents respectively for the months of October, November, and December. It should be noted that the time to clear traffic incidents was decreased by almost eight minutes in November compared to 2009.

Kansas City continues to show improvement in clearing accidents by providing quick clearance training to several metropolitan law enforcement agencies, utilizing the Master Vehicle Mover and the dispatching of Motorist Assist from the TMC.




Average Time to Clear Traffic Incident
Kansas City
Minutes
40
35
30
25
20
15
10
5
0
2010
2009
2008
Jan. 24.7 22.2 19.9
Feb. 21.9 19.1 16.4
March 26.6 19.9 15.7
April 16.7 15.2 18.9
May 21.0 19.9 21.4
June 24.9 19.8 22.2
July 24.8 21.7 13.1
Aug. 22.2 19.6 13.3
Sept. 15.9 15.6 15.1
Oct. 17.2 17.4 16.1
Nov. 23.7 21.4 15.8
Dec. 16.5 15.5 15.8
DESIRED TREND
Calendar Month


SUPERVISOR
MoDOT
MOTORIST ASSIST

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 and weather related events. 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:

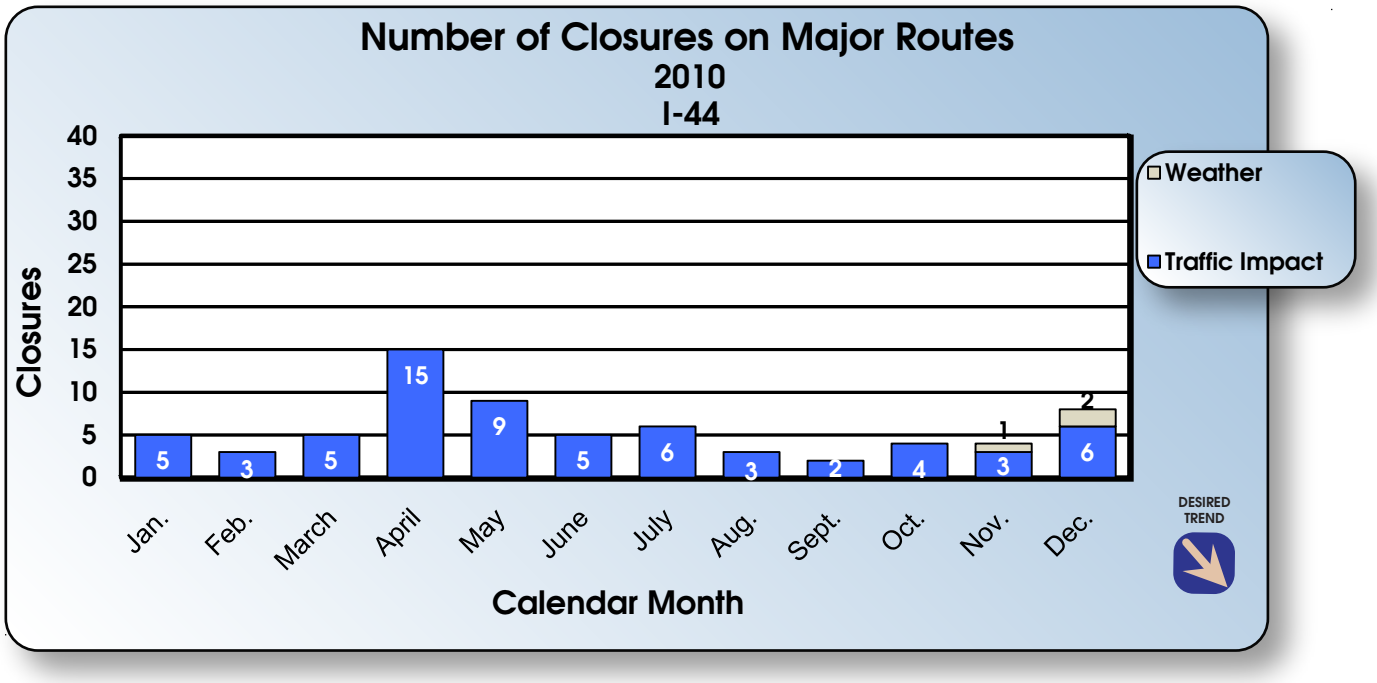
Major route closures that have an actual or expected duration of one hour or more are entered into MoDOTs Transportation Management System (TMS) for display on the Traveler Information Map on MoDOT's website. The numbers of closure events are tracked in the TMS system.

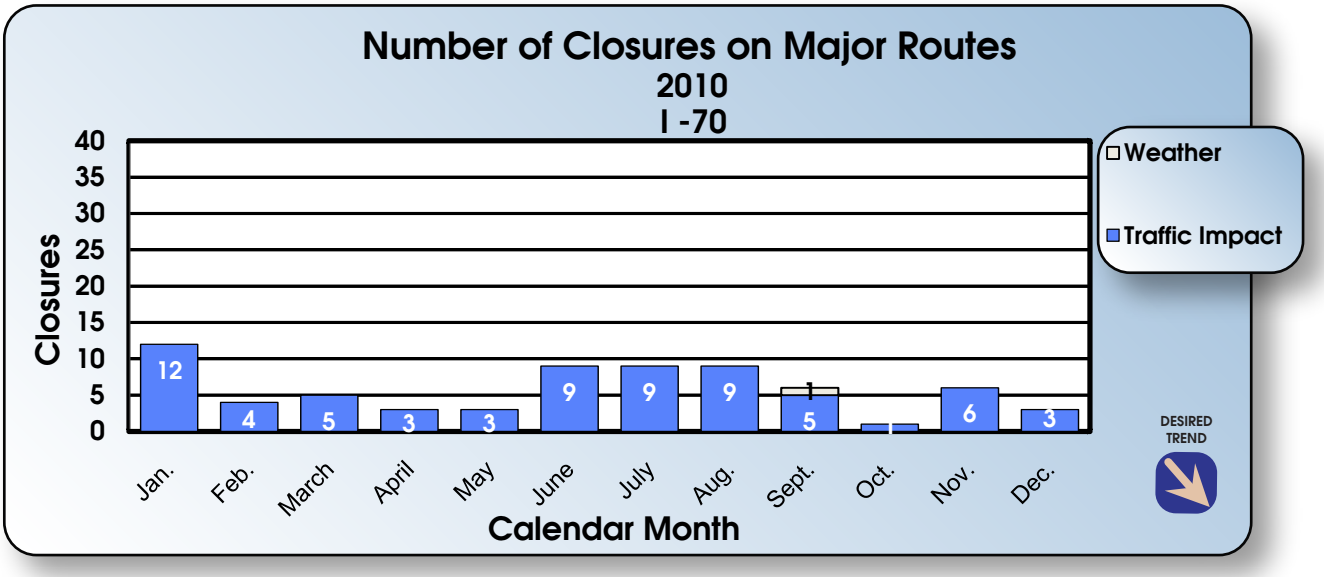
Improvement Status:

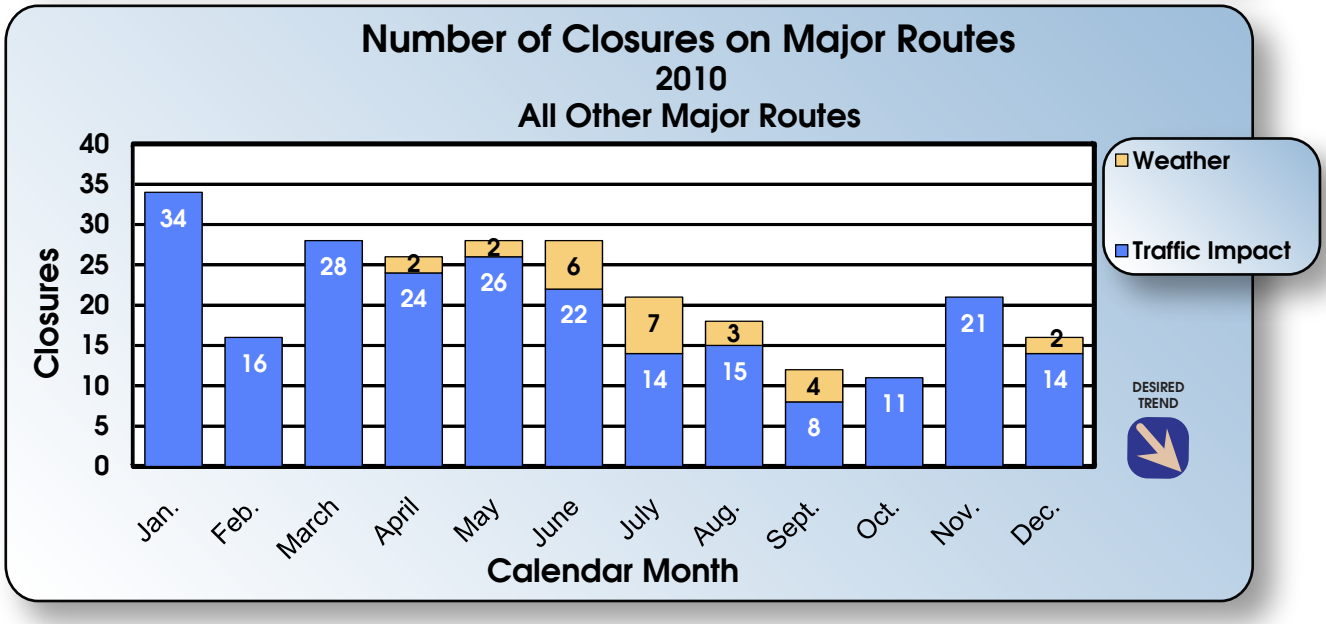
For the fourth quarter of calendar year 2010, traffic crashes where the cause for all the closures in October, November and December on I-70.

On I-44, a majority of the closures in the fourth quarter of calendar year 2010 were related to traffic crashes. However, in November, there was one closure due to a flood, and in December, there were two closures related to winter weather.

In addition to traffic crashes and floods, police emergencies, bridge damage, debris on the roadway, utility damage and other closures 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.

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:

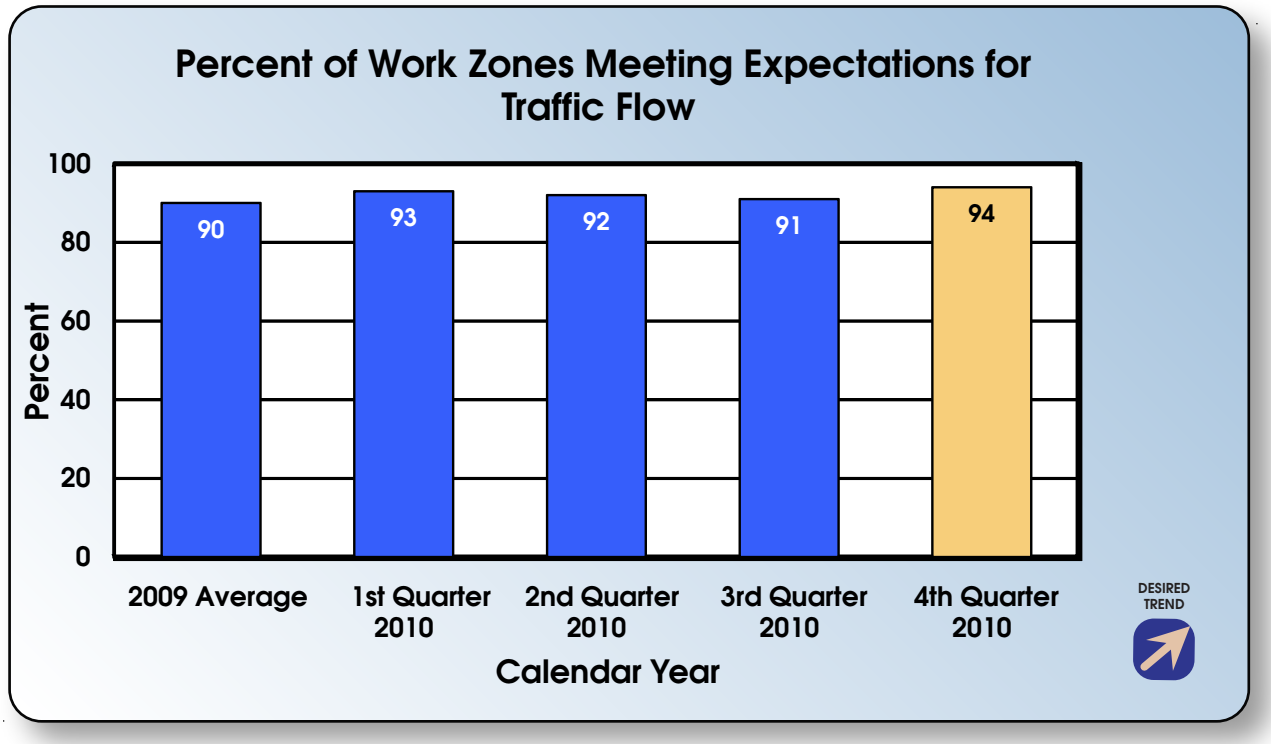
An important factor in evaluating the department's performance in temporary traffic control design, deployment, operation and maintenance is the measurement of work zones' affect on the mobility of highway users. This measure tracks how well the department meets customer expectations of traffic flow 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 323 surveys performed by the traveling public and MoDOT staff between October and December of this calendar year resulted in a positive satisfaction rating of 94 percent for work zone traffic flow. This is a 3 percent increase in customer satisfaction from the 91 percent reported in the third quarter and a 4 percent increase over the 90 percent customer satisfaction reported for the calendar year 2009.



Time to meet winter storm event performance objectives-1f

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

Purpose of the Measure:

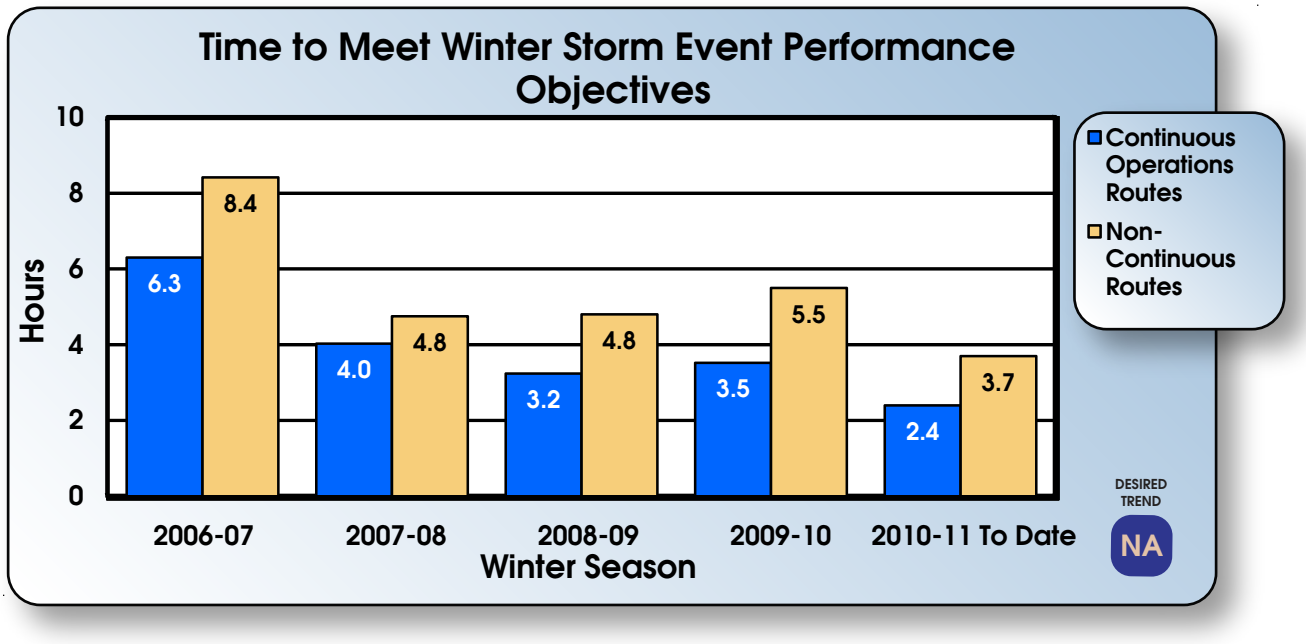
This measure tracks the amount of time needed to perform MoDOT's snow and ice removal efforts.

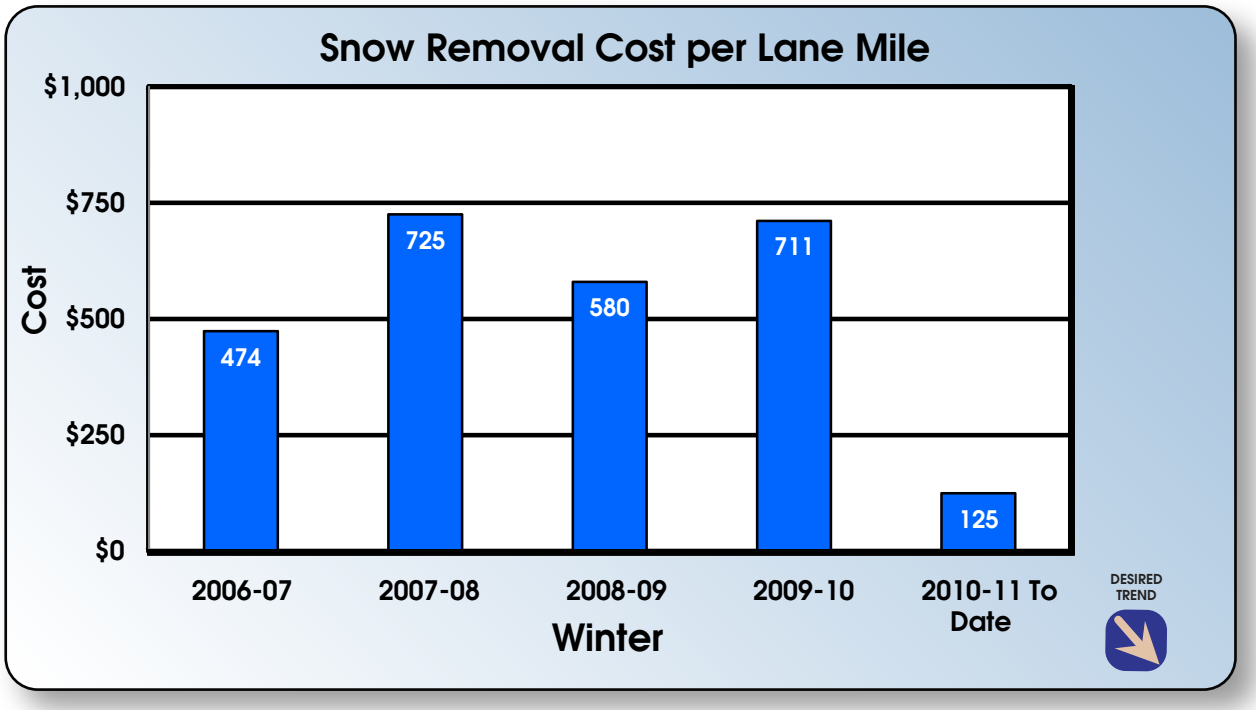
Measurement and Data Collection:

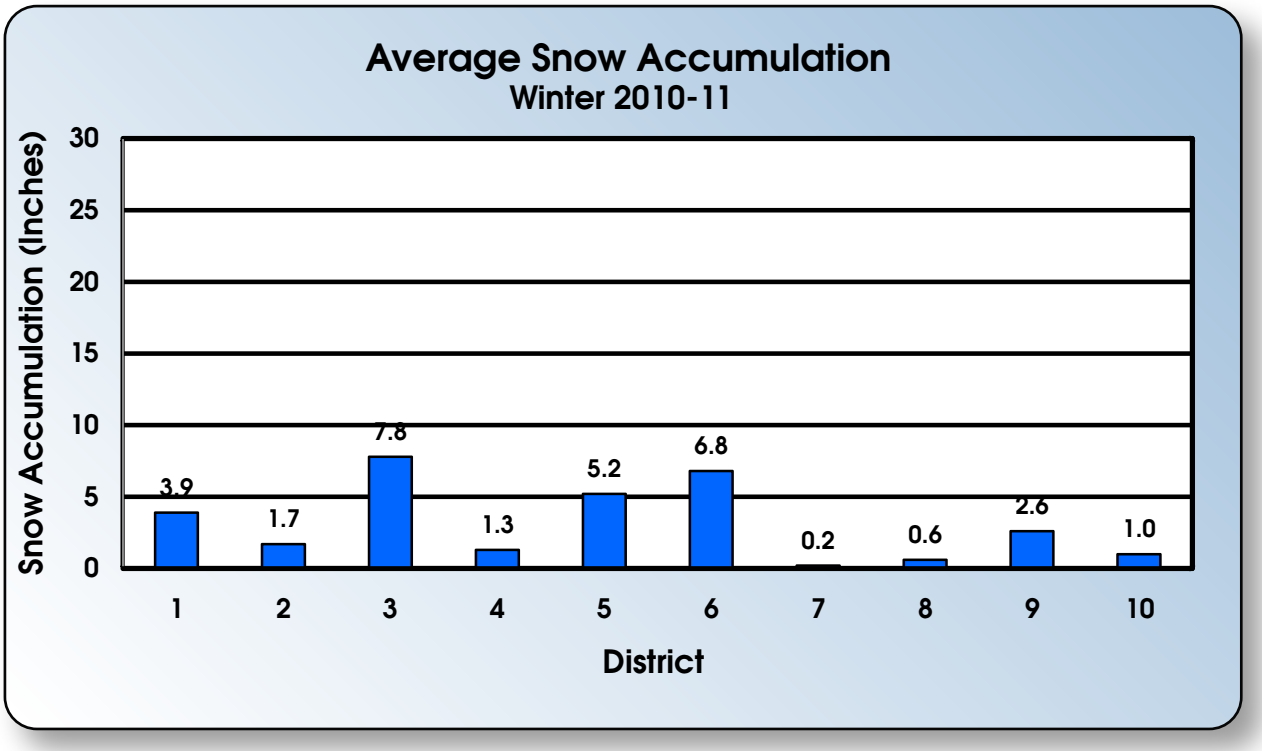
This data is collected in the winter event database. This measurement tracks the average time involved in this process so improvements can be made. After each winter event, such as a snow or ice storm, area maintenance personnel submit a report indicating how much time it took to meet the performance objectives for the continuous and non-continuous operations routes. The continuous operations routes consist of all major highways and regionally significant minor highways. The non-continuous operations routes are all remaining lower volume minor highways. After a storm ends, the objectives are to restore the continuous operations routes to a mostly clear condition as soon as possible and have the lower-volume, non-continuous operations routes 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 publications. The time in hours is the statewide average for the entire winter season. The costs per lane mile and the accumulation by district are also provided to help evaluate the winter performance.

Improvement Status:

As of December 31, 2010, the average time to meet the performance objectives on the continuous operation highways is 1.1 hour less than the previous winter. The average time to meet the performance objectives on the non-continuous operation highways is 1.8 hours less than last winter. To date, this winter has produced an average of three events across the state with at least a trace of accumulation in each district. The time to meet the performance objectives will vary based on the amount of snow received, the duration and the intensity of the storm. Strategies to improve these numbers include implementing best practices, pursuing equipment enhancements, testing new materials and continued training of snow removal employees.




Snow Removal Cost per Lane Mile
$1,000
$750
$500
$250
$0
Cost
474
725
580
711
125
2006-07
2007-08
2008-09
2009-10
2010-11 To Date
Winter
DESIRED TREND


Average Snow Accumulation
Winter 2010-11
Snow Accumulation (Inches)
30
25
20
15
10
5
0
3.9
1.7
7.8
1.3
5.2
6.8
0.2
0.6
2.6
1.0
1
2
3
4
5
6
7
8
9
10
District

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