

Average travel indices and speeds 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 average speeds on various freeway sections. The desired trend is for the travel index 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:

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

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:

As shown on the graph, the freeway systems in the Kansas City region continue to perform in the mid to upper-80 percentile range during the peak hours, as compared to the free-flow condition. The morning peak dropped slightly from 0.90 in the fourth quarter of fiscal year 2009 to 0.87 in the first quarter of fiscal year 2010. The evening peak increased from 0.85 to 0.89. I-70 westbound at Blue Ridge Cutoff experienced some night construction, which impacted the morning rush hour in September. The congestion was short lived, but was consistent for about 0.5 miles at this location. Most of the Kansas City region has been free from significant work zone impacts. Construction associated with the Paseo Bridge continues to contribute to some slow downs in the morning commute southbound into downtown. This area should see some dramatic slow downs over the next few years due to the KC ICON bridge

replacement project. Additional information on the construction activities along I-29/35 can be found at www.kcicon.org.

St. Louis metropolitan region:

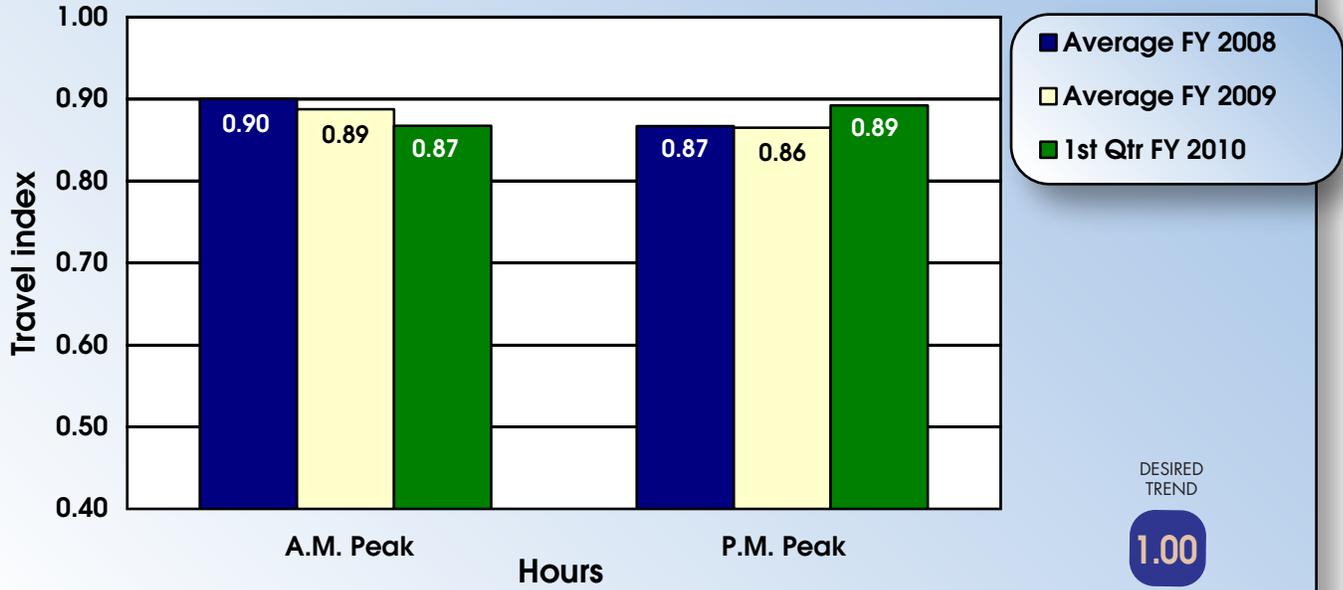
As shown on the graph, the freeway systems in the St. Louis region are performing in the 80-percentile range in the morning and evening peaks for this quarter. The morning peak travel index decreased only slightly from last quarter dropping to 0.87 from 0.88. The evening peak travel index increased from 0.75 to 0.81. The sensor located at Park and 7th on I-55 has not been operational this quarter. This is a Traffic.com sensor and they have been notified of the issue.

There was a significant increase in the amount of incidents (crashes, work zones, and special events), especially Level 3 (more than 2 hours) incidents. While these incidents are spread out over the entire route, and not centralized to the sensor where readings are collected, it could be considered a potential reasoning for the decrease in travel index for the fourth quarter. Another indicator that this decrease in travel index may be incident related, is that there has not been any significant increase in traffic volumes anywhere on the interstate system. The closure of a portion of I-64 continues to be the main regional impact to traffic. Additional information on the construction activities along I-64 can be found at www.thenewi64.org.

Statewide:

The statewide average speed on rural routes continues to perform efficiently, recorded at 69.77 miles per hour for this quarter, which is a slight increase from last quarters reading of 69.67. Expect several resurfacing projects on rural interstates this upcoming construction season funded both from traditional sources as well as from the American Recovery and Reinvestment Act. A list project activities can be found at www.modot.org.

Travel Index on Selected Freeway Sections Kansas City Metropolitan Averages



KANSAS CITY

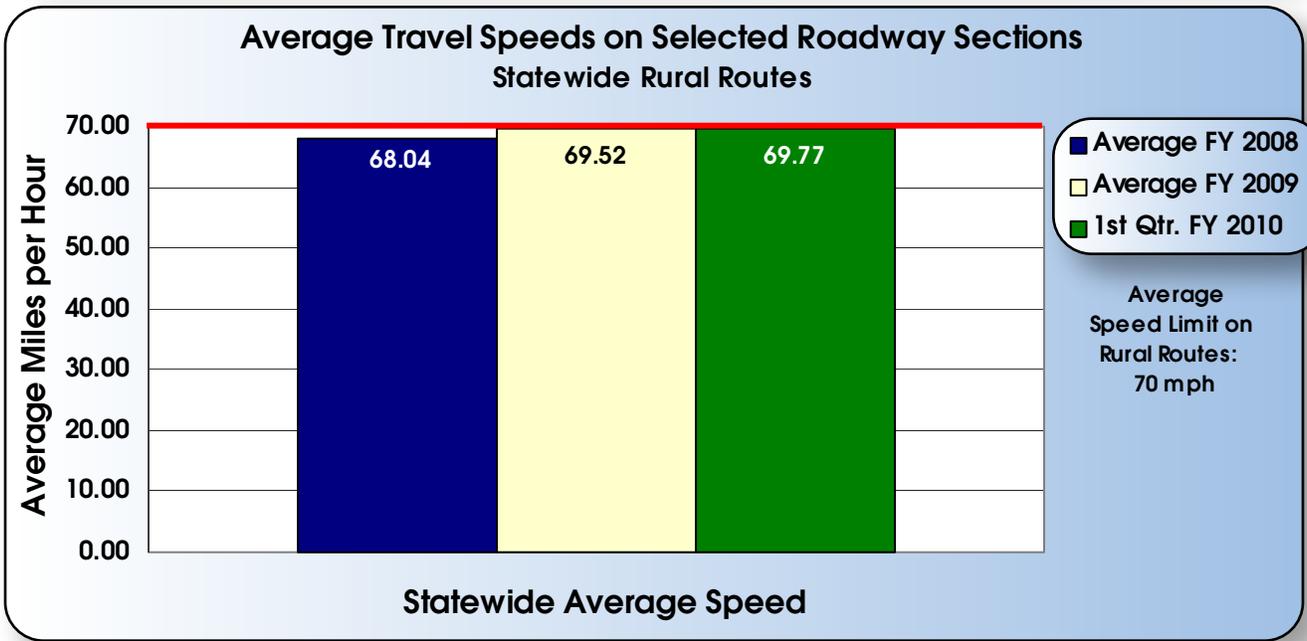
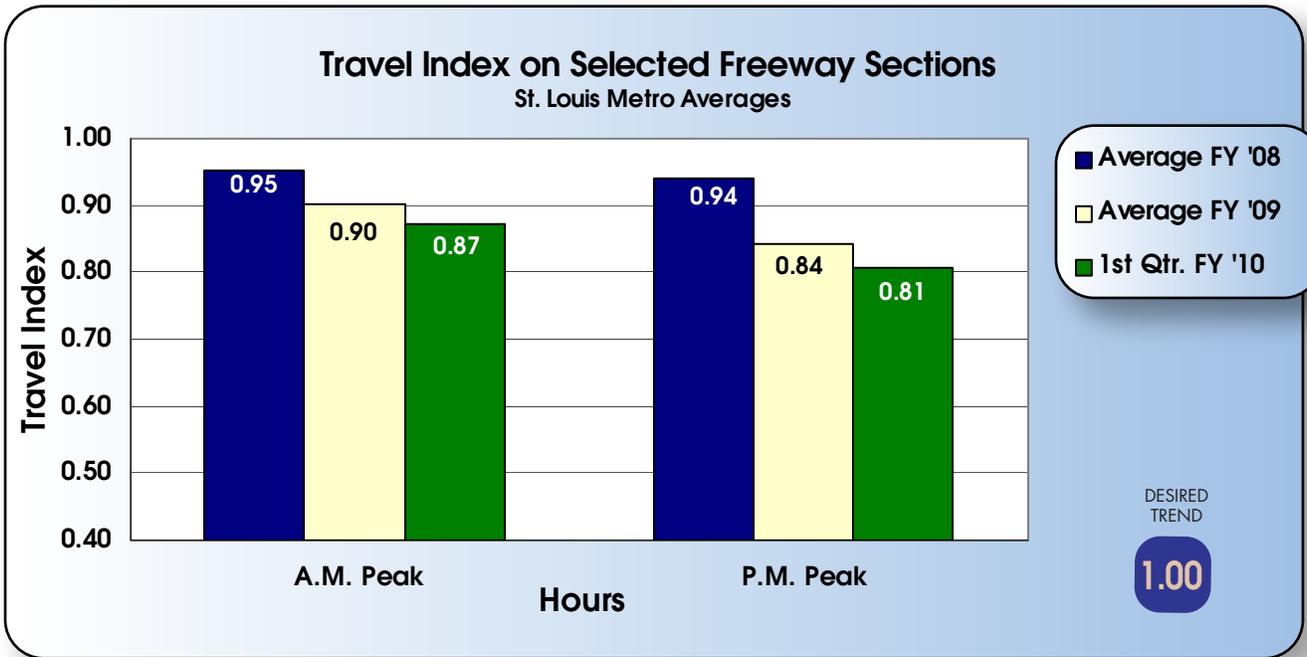
AM - Regional Mobility

PM - Regional Mobility



- High Mobility
- Medium Mobility
- Low Mobility

UNINTERRUPTED TRAFFIC FLOW



Average rate of travel on selected 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 selected 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 various arterials. Data is collected from driving each route twice during a.m. and p.m. peak times and timing how long it takes to traverse the route. The travel time is compared to the speed limit and the travel time factor determined. As the travel time factor approaches 1.00, traffic is moving at the speed limit. Data collection began in the second quarter of fiscal year 2007. Data for this measure is updated quarterly.

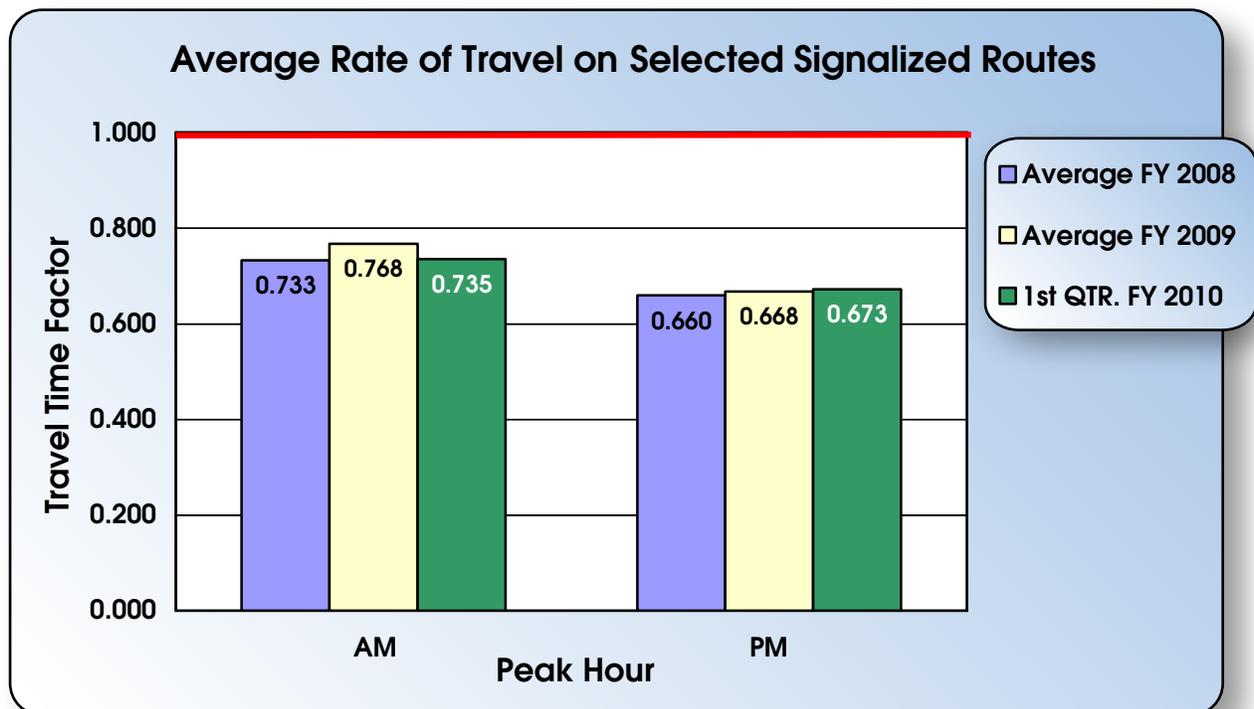
Improvement Status:

For first quarter fiscal year 2010, the average statewide travel time factor for a.m. peak is 0.735 and

p.m. peak is 0.673. Overall performance is 0.704.

The a.m. peak travel time factor is approximately six percent higher than p.m. peak travel time factor. First quarter data shows the p.m. peak for arterials operating higher than the average for fiscal year 2008 and 2009 while the a.m. peak operates higher than the average for fiscal year 2008 but lower than the average for fiscal year 2009. For first quarter fiscal year 2010, the a.m. peak travel time factor is seven-tenths of a percent lower than the first quarter fiscal year 2009 a.m. peak travel time factor and the p.m. peak travel time factor is approximately two percent higher than the first quarter fiscal year 2009 p.m. peak travel time factor.

The average rate of travel on selected signalized routes has changed due to variations in traffic flow, construction, timing changes, controller malfunctions, and installation of a traffic adaptive system.



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

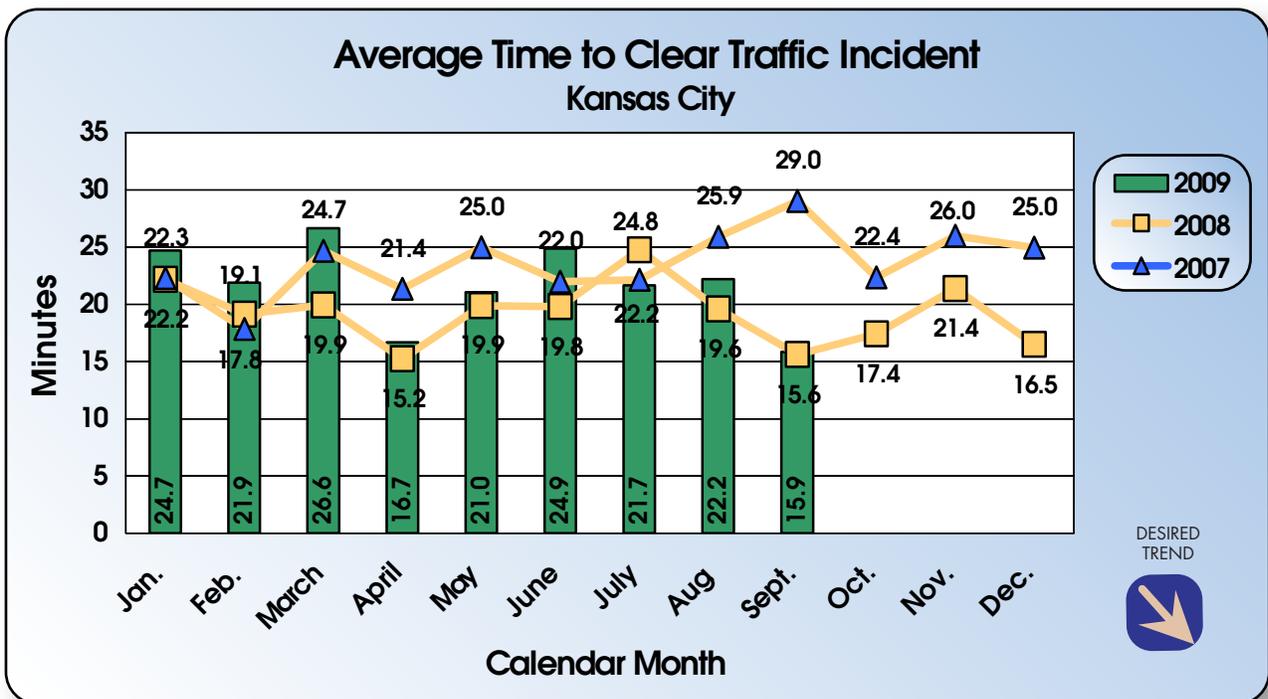
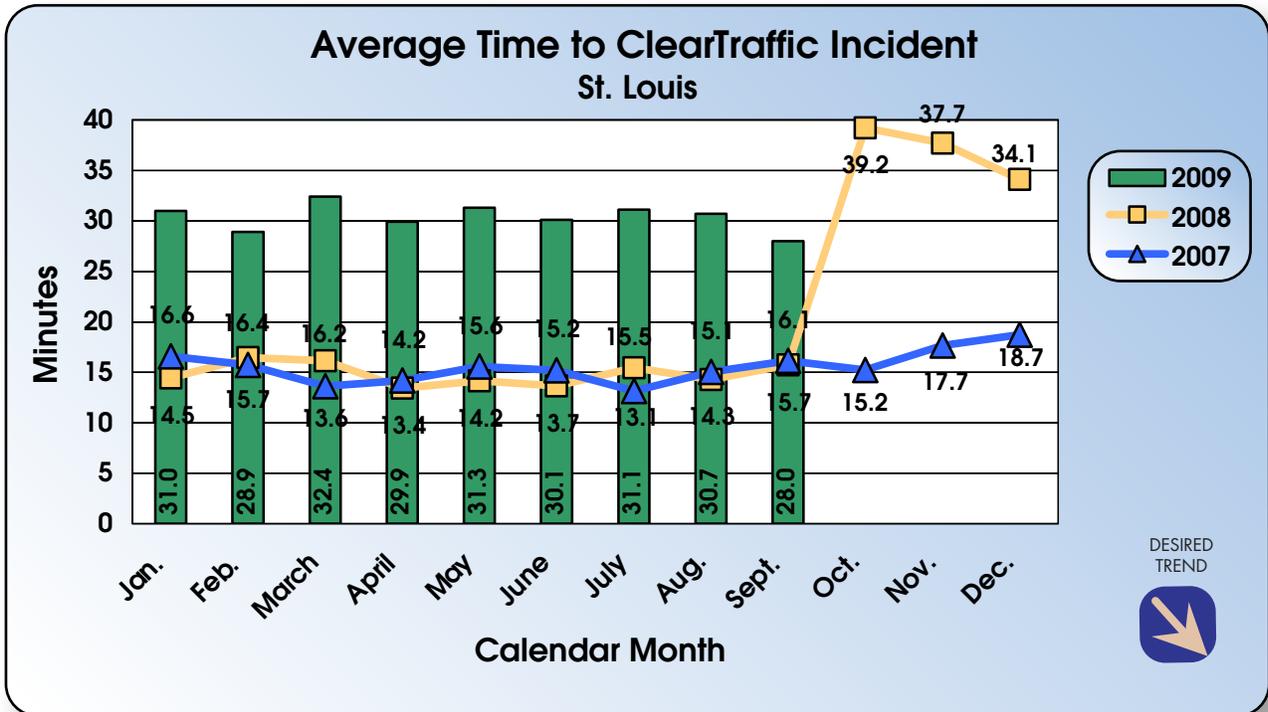
On September 1, 2009, Kansas City moved to a new software and hardware platform, (TranSuite and SQL), giving them the ability to do more detailed tracking of time to clear incidents, Motorist Assist activities and interoperability with Operation Greenlight and the arterial signal systems.

Improvement Status:

St. Louis recorded 524, 527, and 496 incidents respectively for the months of July, August, and September utilizing ATMS. St. Louis’ data includes considerably more incidents because St. Louis monitors more freeway miles than the Kansas City area.

Kansas City collected data on 223, 208, and 225 incidents respectively for the months of July, August, and September.





Average time to clear traffic backup from incident-1d

Result Driver: Don Hillis, Director of System Management

Measurement Driver: Rick Bennett, Traffic Liaison Engineer

Purpose of the Measure:

This measure tracks the amount of time it takes to return traffic flow back to normal after a traffic incident. A traffic incident is any unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road.

Measurement and Data Collection:

“All lanes cleared” and “clear backup” times are being recorded by MoDOT’s Traffic Management Centers in Kansas City and St. Louis. Average times to clear traffic backups are calculated from these recorded times. Kansas City reports capture when a backup is relieved as an automated process. The Kansas City area has devices to collect data along portions of interstates 435 and 70. In October 2008, St. Louis began using advanced transportation management system (ATMS) devices to collect data. The number of incidents that data is collected on in St. Louis has gone from approximately 50 to 500.

Improvement Status:

St. Louis area routes have larger traffic volumes that create more significant congestion problems than in Kansas City.

St. Louis’ times to clear traffic backup continue to show a marked decrease from previous years. This is due to the increase in the number of incidents for which data is being reported. Prior to October 2008,

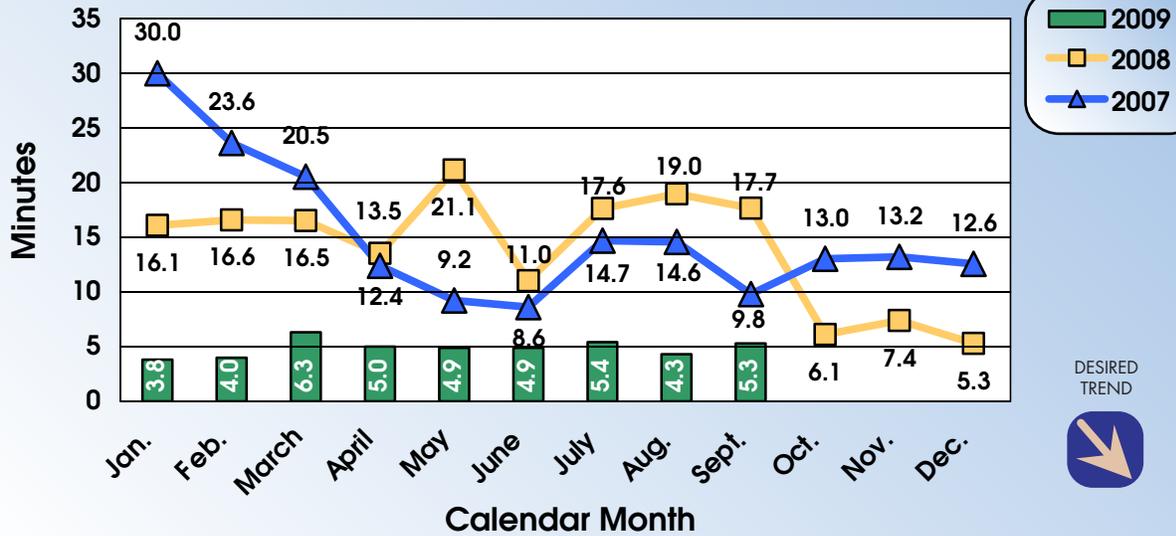
the only incidents for which data was available were those incidents the TMC could monitor by camera. As a result of the increase in data collected due to the improvements to the ATMS system, St. Louis shows a much lower average time to clear traffic backup.

Kansas City continues to have fairly consistent times to clear backup from an incident.

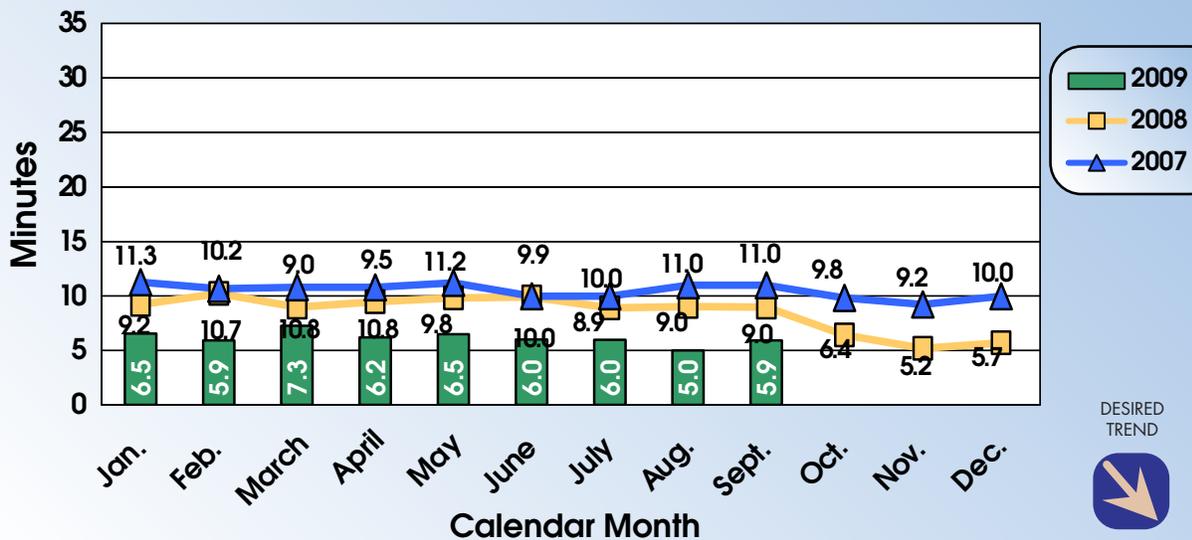
Renewed efforts in developing long-term partnerships with local agencies and law enforcement have increased the awareness of MoDOT’s expectations for quick clearance and open roadways.



Average Time to Clear Traffic Backup From Incident St. Louis



Average Time to Clear Traffic Backup From Incident Kansas City



Number of customers assisted by the Motorist Assist program-1e

Result Driver: Don Hillis, Director of System Management

Measurement Driver: Rick Bennett, Traffic Liaison Engineer

Purpose of the Measure:

This measure is used to gauge the use of the Motorist Assist programs on our state roadways, because traffic incidents impact Missouri's transportation system capacity. An incident is any unplanned event that creates a temporary reduction in roadway capacity that impedes normal traffic flow. 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. MoDOT's Motorist Assist operators are able to respond to nearly every incident, major or minor, in the areas they cover.

Measurement and Data Collection:

The Motorist Assist operators record each assist and then prepare a monthly summary. Kansas City operators patrol approximately 105 freeway miles. In October 2008, St. Louis added a 22-mile section of I-55 to their patrol route, which brings the total freeway miles St. Louis operators patrol to approximately 192.

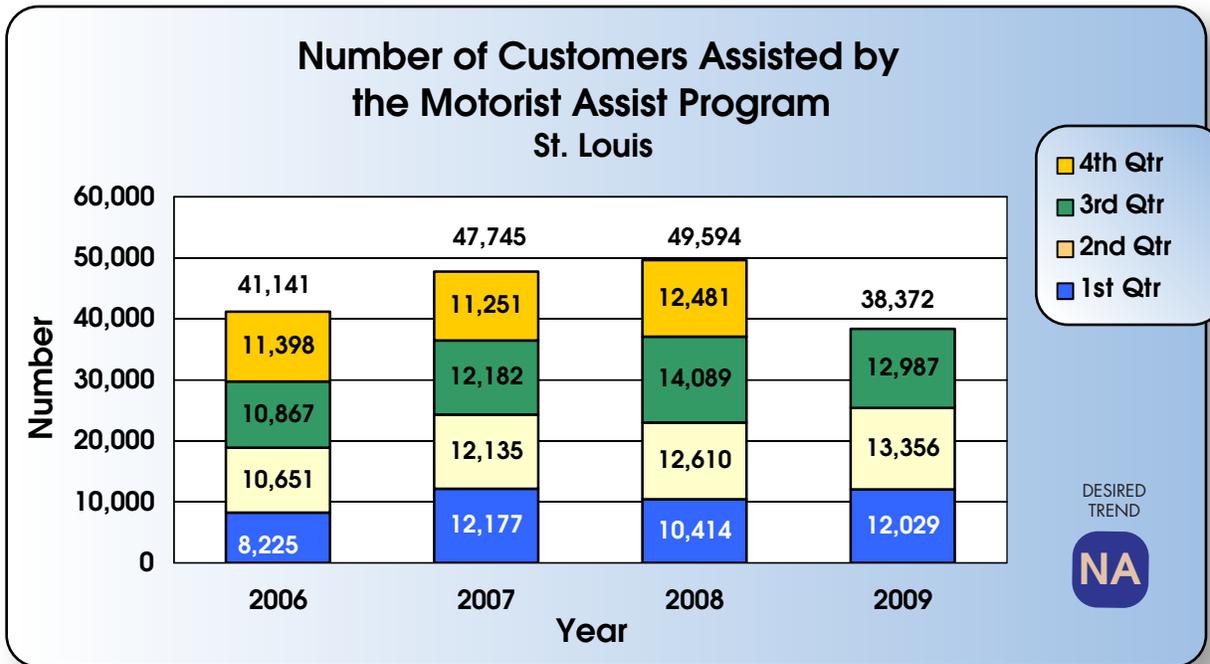
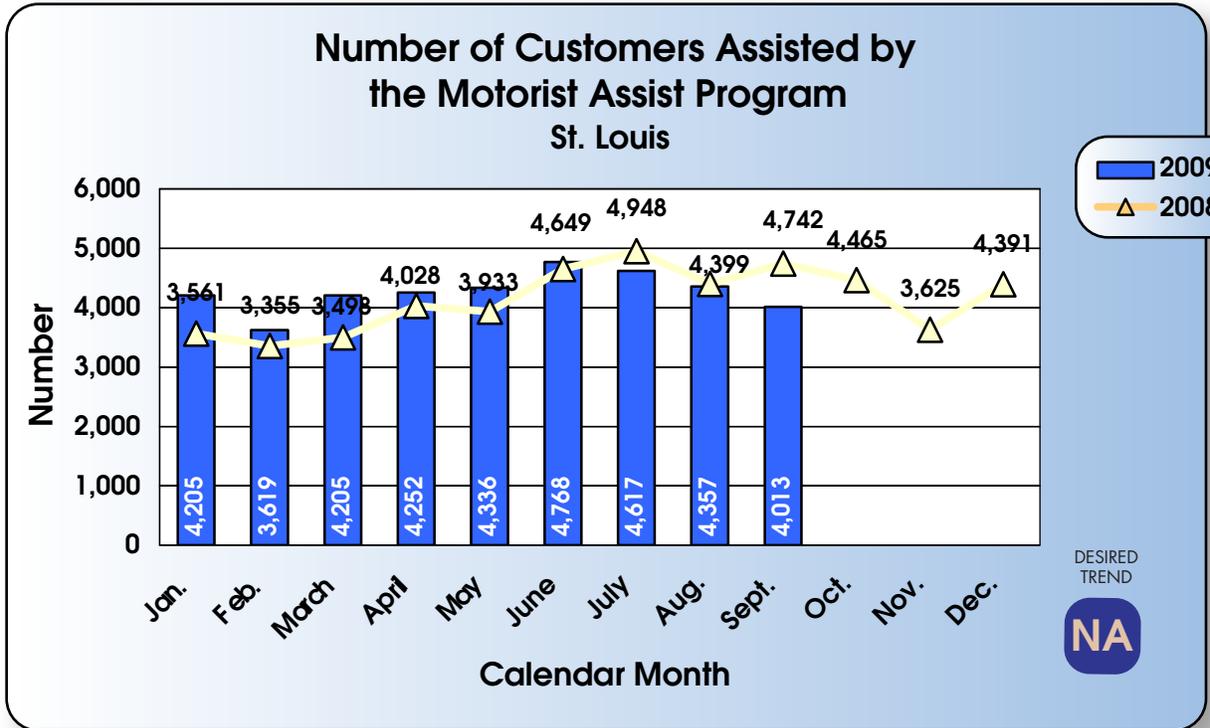
In January 2008, MoDOT partnered with St. Louis County to develop the Interstate 64 Traffic Response Service Patrol to ease congestion created by the reconstruction on the I-64 corridor. The I-64 Traffic Response Service Patrol provides similar services to motorists as the MoDOT Motorist Assist program on the arterials impacted by the closure of I-64. The I-64 Traffic Response Service Patrol records each assist and prepares a monthly report.

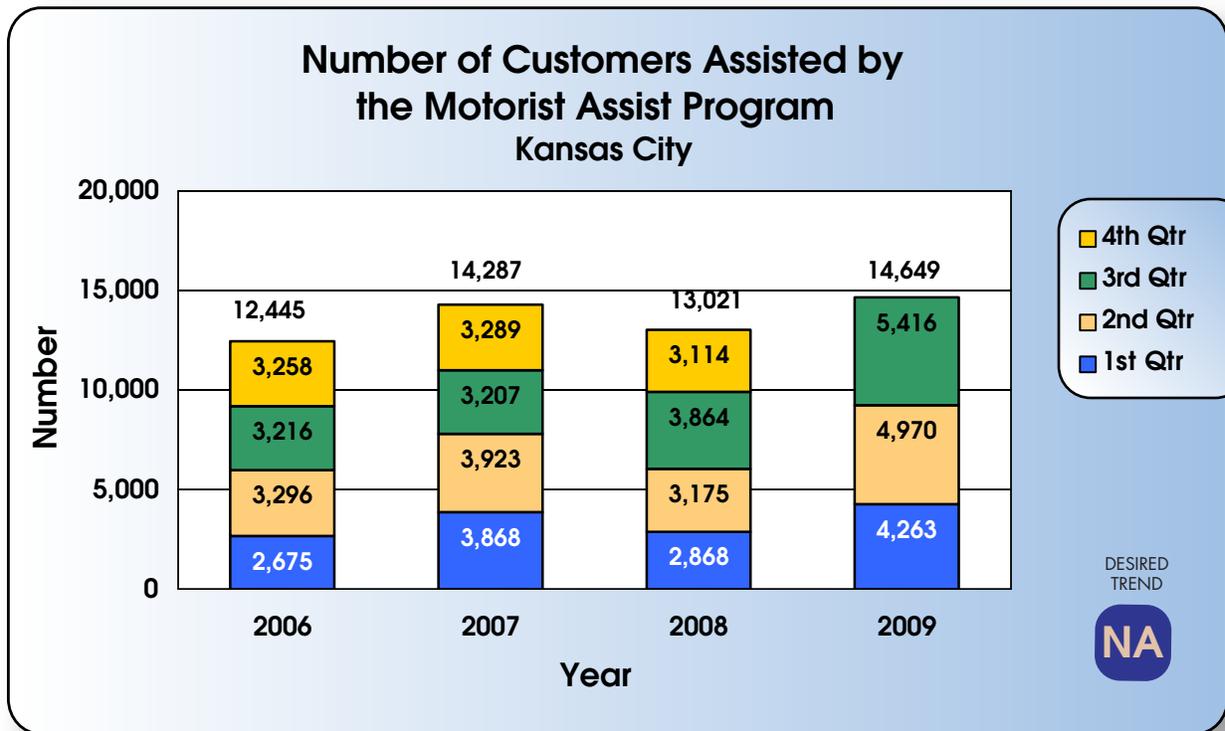
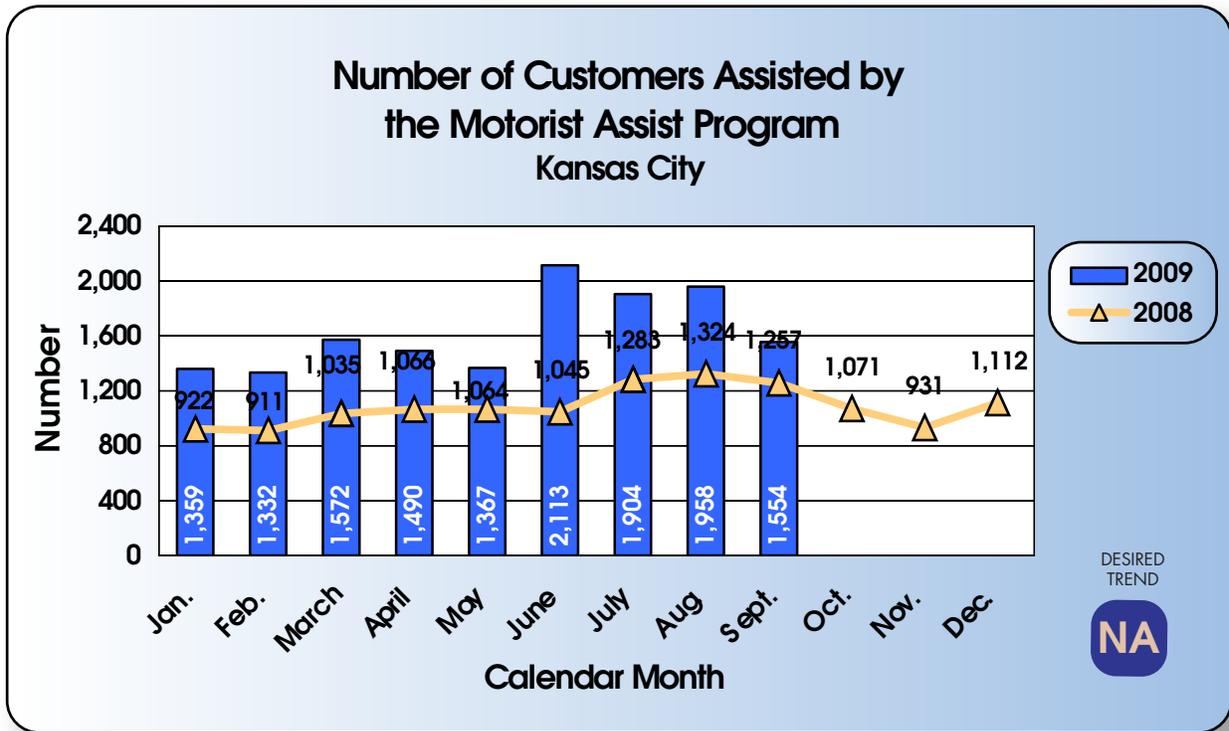
Improvement Status:

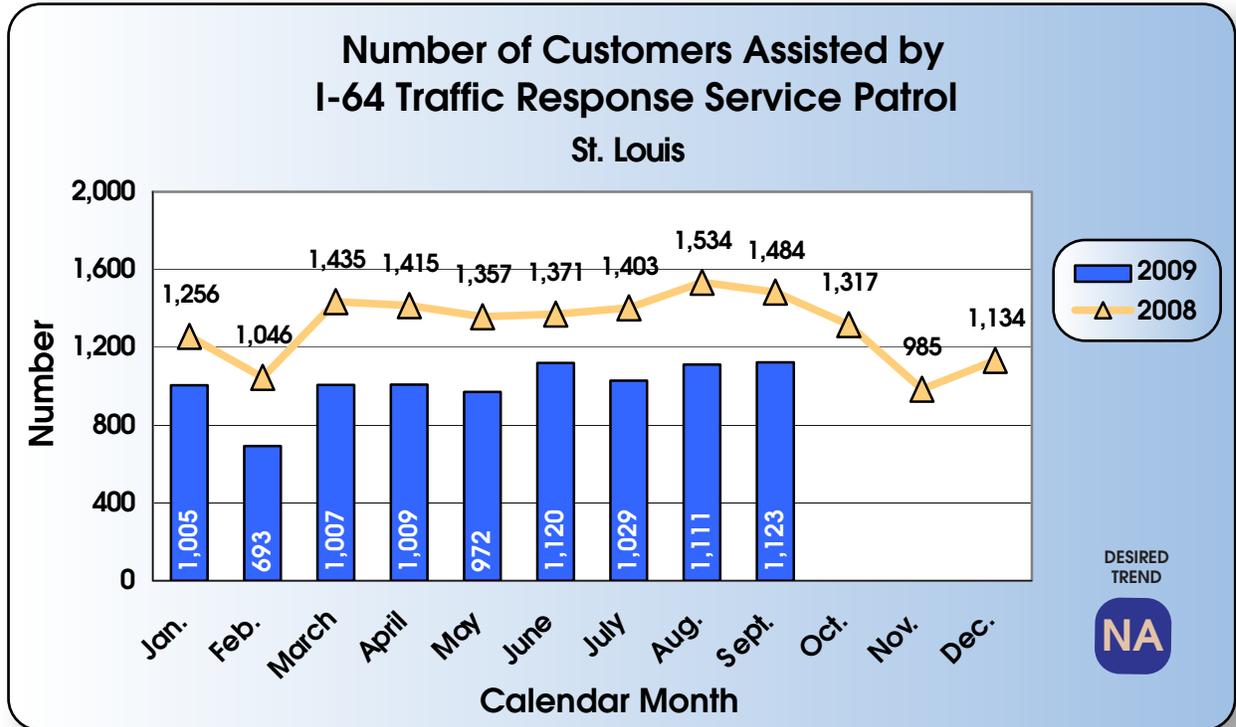
This data demonstrates that the Motorist Assist program in both St. Louis and Kansas City continue to provide a valuable service to motorists on the urban freeways in both metropolitan areas.

Over the last year, the motorist assist program in Kansas City has expanded coverage to 7 days a week. This has resulted in a marked increase in the number of assists provided.









Percent of Motorist Assist customers who are satisfied with the service-1f

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Rick Bennett, Traffic Liaison Engineer

Purpose of the Measure:

This measure helps evaluate services provided through MoDOT's Motorist Assist Program, specifically, whether the customers who use the program are satisfied with the service. Information received provides direction on how to better serve our customers and keep traffic moving safely and efficiently.

Measurement and Data Collection:

Motorist Assist operators distribute survey cards to customers. Data from the cards is compiled and tabulated by Heartland Market Research, LLC. Surveys with selections identifying that the service was "probably" or "definitely" valuable were tabulated as "satisfied" for this measure.

In January 2008, MoDOT partnered with St. Louis County to develop the Interstate 64 Traffic Response Service Patrol to ease congestion created by the reconstruction on the I-64 corridor. The I-64 Traffic Response Service Patrol provides similar services to motorists as the MoDOT Motorist Assist program, however, it patrols the arterials impacted by the closure of I-64. The I-64 Traffic Response Service Patrol distributes a separate but similar survey card to its customers.

Improvement Status:

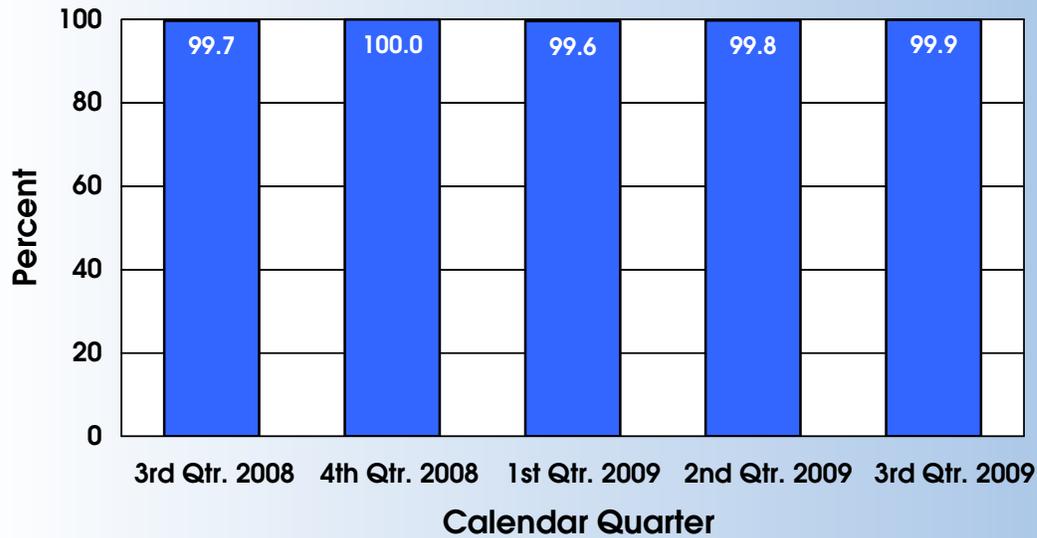
A record 1,592 motorist assist surveys were received for the third quarter of 2009.

This data agrees with information provided by customers on prior comment forms - almost all customers are satisfied.

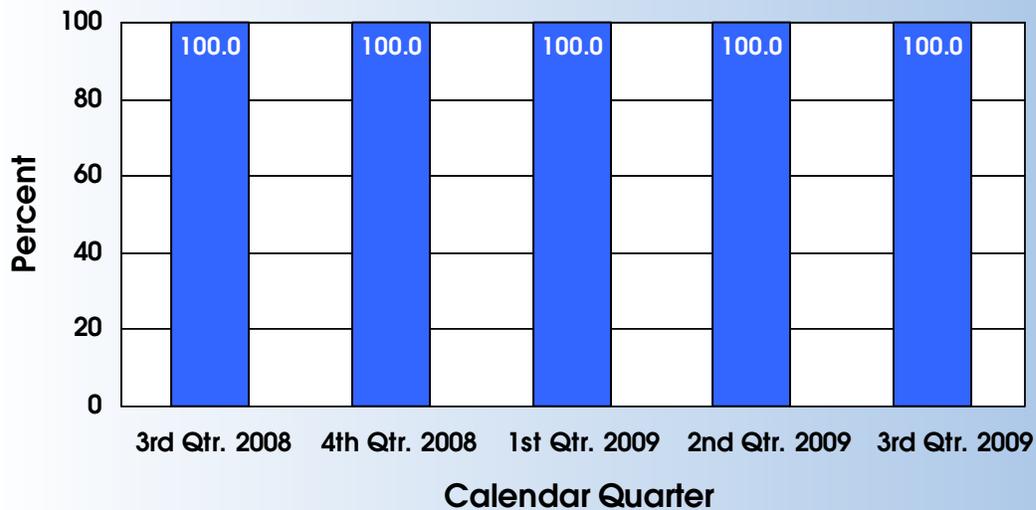
- **Third Quarter 2008,**
 - 1,410 Motorist Assist surveys received
 - 228 I-64 Traffic Response surveys received
- **Fourth Quarter 2008,**
 - 1,366 Motorist Assist surveys received
 - 142 I-64 Traffic Response surveys received
- **First Quarter 2009,**
 - 1,413 Motorist Assist surveys received
 - 126 I-64 Traffic Response surveys received
- **Second Quarter 2009,**
 - 1,504 Motorist Assist surveys received
 - 124 I-64 Traffic Response surveys received
- **Third Quarter 2009,**
 - 1,592 Motorist Assist surveys received
 - 164 I-64 Traffic Response surveys received



Percent of Motorist Assist Customers Who Are Satisfied With the Service



Percent of I-64 Traffic Response Service Patrol Customers Who Are Satisfied With the Service



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

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

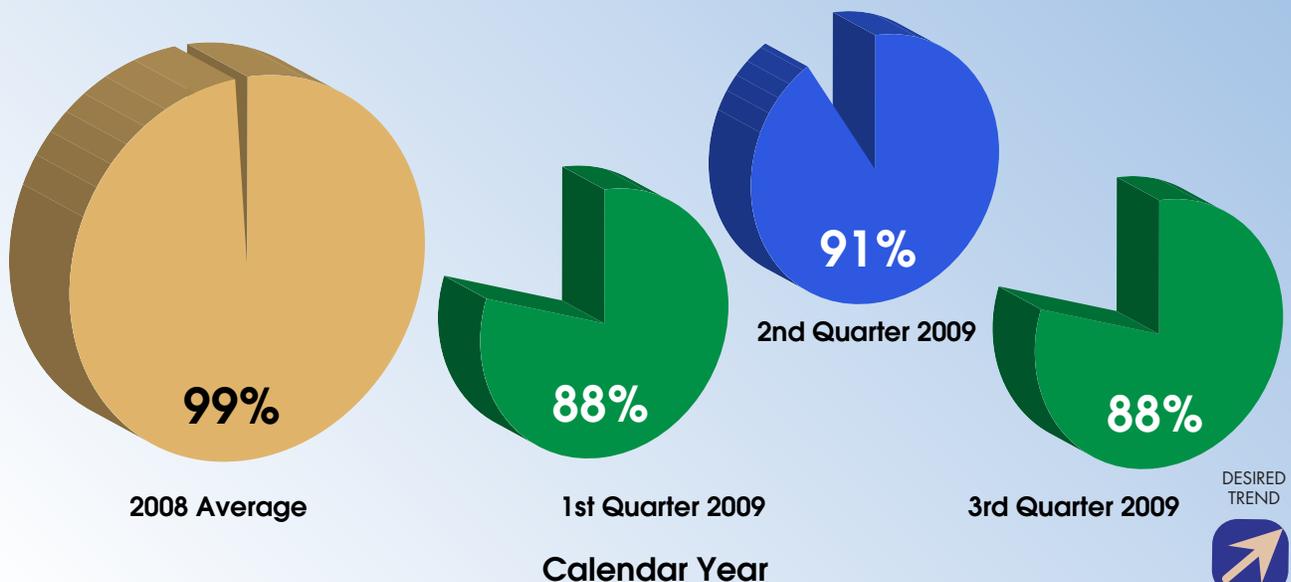
measurement. The survey is on the MoDOT website at the following address:

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

Improvement Status:

Compilation of the 1,933 surveys completed by the traveling public and MoDOT staff between January and September of this calendar year resulted in a decrease of positive satisfaction rating from 91 to 88 percent for work zone traffic flow. Since this is the first year the traveling public has had an opportunity to provide formal feedback on work zones, no historical data is available. For comparison purposes, the 2008 yearly average results of our technical staff inspections are included. The revised evaluation technique will allow MoDOT to align our priorities with that of our customers.

Percent of Work Zones Meeting Expectations for Traffic Flow



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

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 was 0.8 hour less than the previous winter. The average time to meet the performance objectives on the minor highways was the same as 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. Strategies to improve these numbers include implementing best practices, pursuing equipment enhancements, testing new materials and continued training of snow removal employees.

