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# 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.



## Uninterrupted Traffic Flow

### *Average speeds on selected roadway sections*

**Result Driver:** Don Hillis, Director of System Management

**Measurement Driver:** Eileen Rackers, State Traffic Engineer

**Purpose of the Measure:**

This measure tracks average speeds on various roadway sections. The desired trend is for the average speed to approach the posted speed limit.

**Measurement and Data Collection:**

Data from the St. Louis area is provided through our partnership with Traffic.com. They have installed traffic sensors along five routes in the St. Louis metropolitan area to help monitor traffic conditions. This data is reported for weekdays only, to better represent peak traffic conditions, and is consistent with Kansas City's reporting. The data from St. Louis is for large sections of roadway, while Kansas City and statewide data are shown at specific sensor locations.

**Improvement Status:**

Statewide:

Due in part to an increased number of work zones, some speeds have decreased for this quarter. To help improve average speeds, live traffic data for three Missouri metro areas is available on MoDOT's Web site at [www.modot.org](http://www.modot.org) in the Services section under Traveler Services. Kansas City Scout provides traffic information for Kansas City, Gateway Guide provides traffic information for St. Louis and Ozarks Traffic provides traffic information for Springfield. MoDOT's Web site also provides a work zone map. MoDOT is placing an increased emphasis on managing incidents and work zones to provide uninterrupted traffic flow, including the formation of I-70 and I-44 corridor teams to coordinate incident management and work zone management efforts. The sensors at Interstate 35 in Daviess County are experiencing technical issues and will be repaired this summer. In late May, sensors were replaced at Route 71 in Jasper County. The new sensors more accurately represent the average speeds at this location.

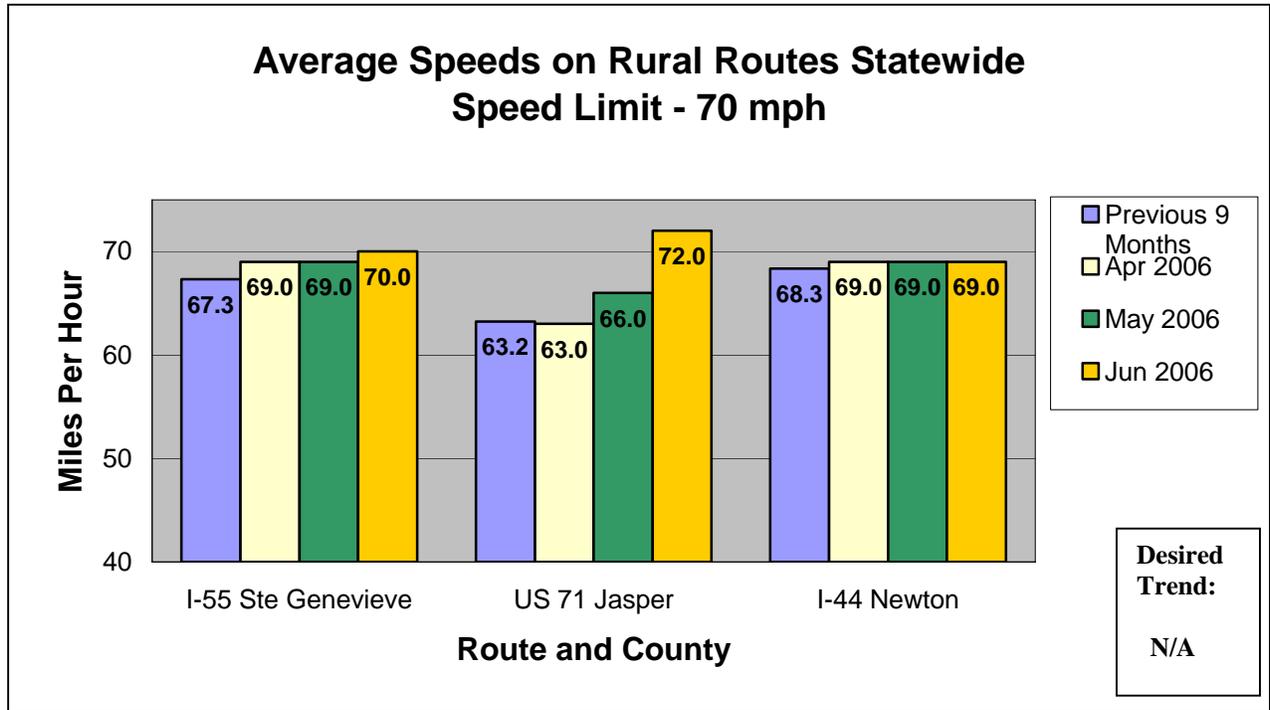
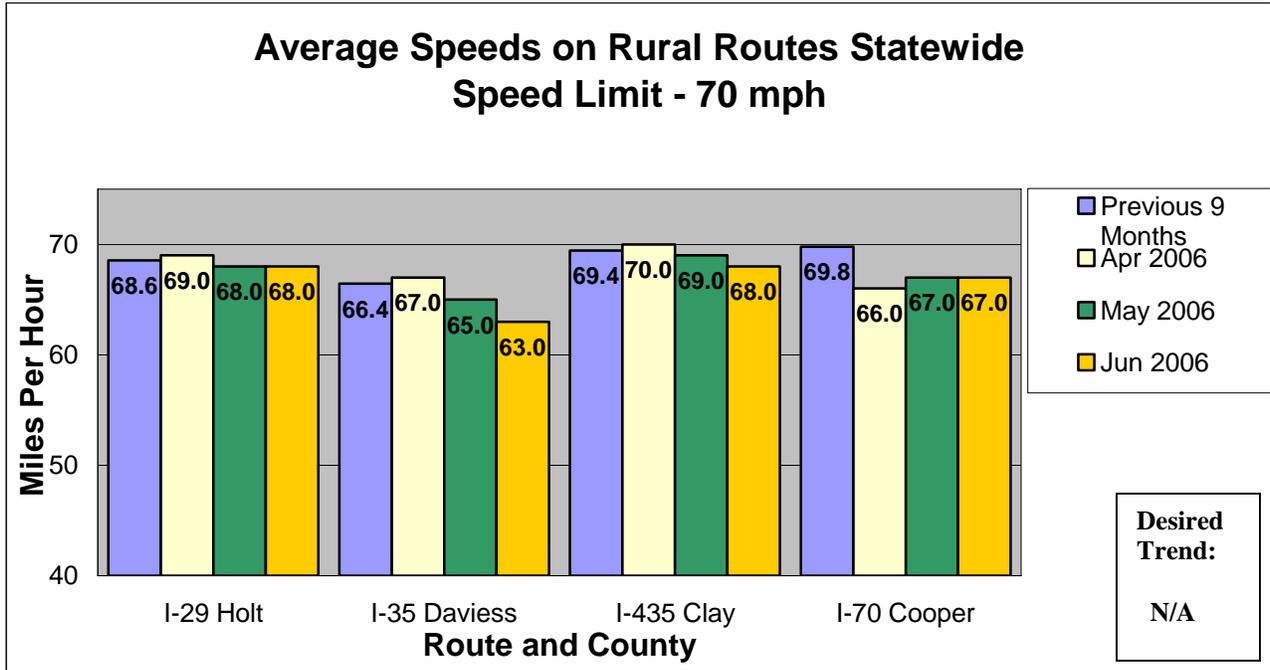
St. Louis:

The traffic volumes in the p.m. peak are higher than those in the a.m. peak, helping explain the decreased speeds during the p.m. peak. The St. Louis district has installed nine new dynamic message signs on Interstate 270 to provide traveler information. The St. Louis district, in partnership with the south central district, is piloting a 24/7 response to MoDOT's customer service number. Also, significant focus has been placed on work zone management. A "smart work zone" has been deployed on Interstate 44 through Eureka that includes traffic sensors, dynamic message signs, traffic cameras and a website, [www.i44eureka.com](http://www.i44eureka.com).

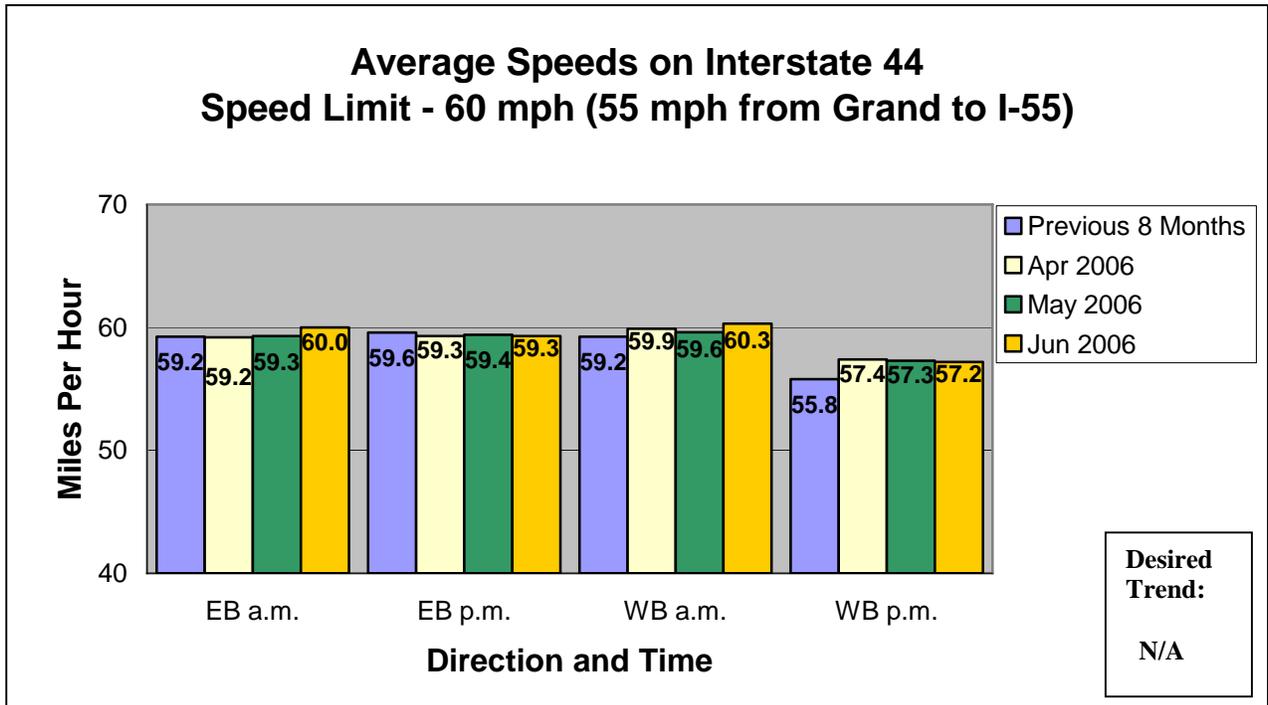
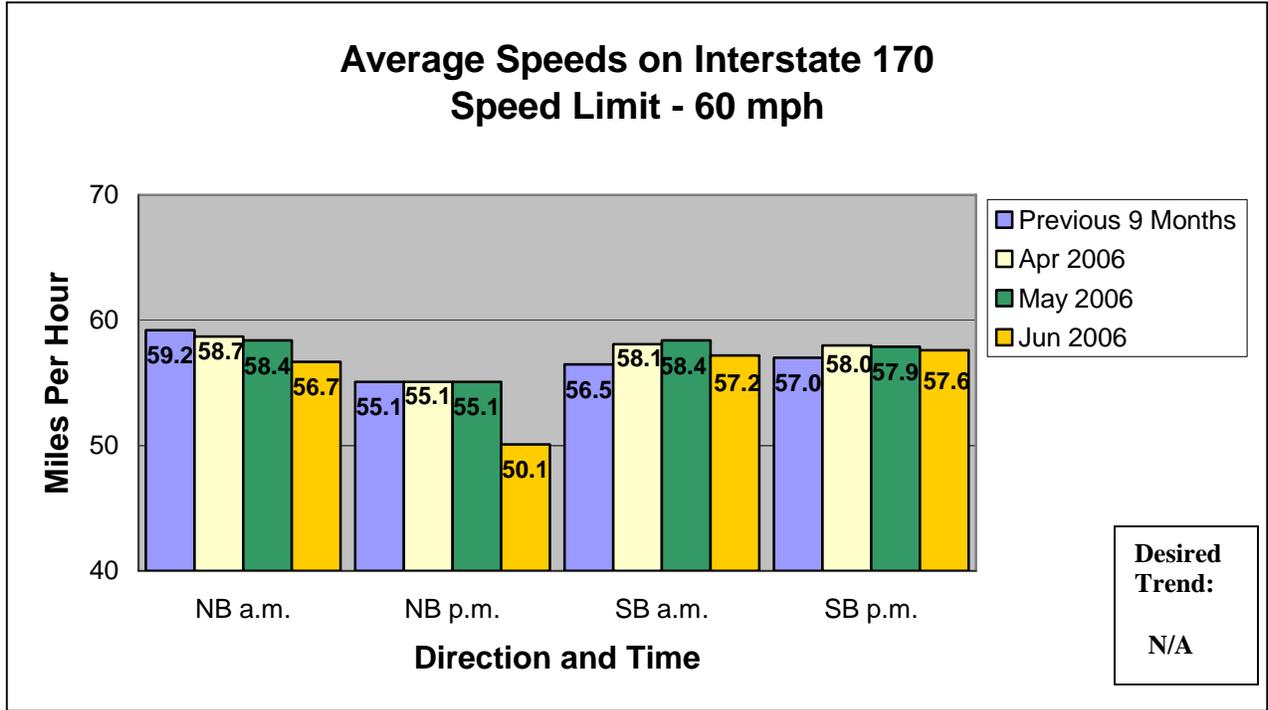
Kansas City:

In Kansas City, eastbound Interstate 435 at 104th Street is historically the most congested during the evening rush; however, recent improvements including a new eastbound Interstate 470 bridge and additional I-435/Route 71 lanes dramatically improved travel speeds over the last several months. The eastbound I-435 movement through the Grandview Triangle is not expected to have any significant changes until later this year, speeds are anticipated to decline slightly as construction picks up, then improve again as additional lanes are opened. Southbound I-35 across the Missouri River is Kansas City's most congested area, so MoDOT has a design/build project planned for the Paseo Bridge and I-35 across the Missouri River.

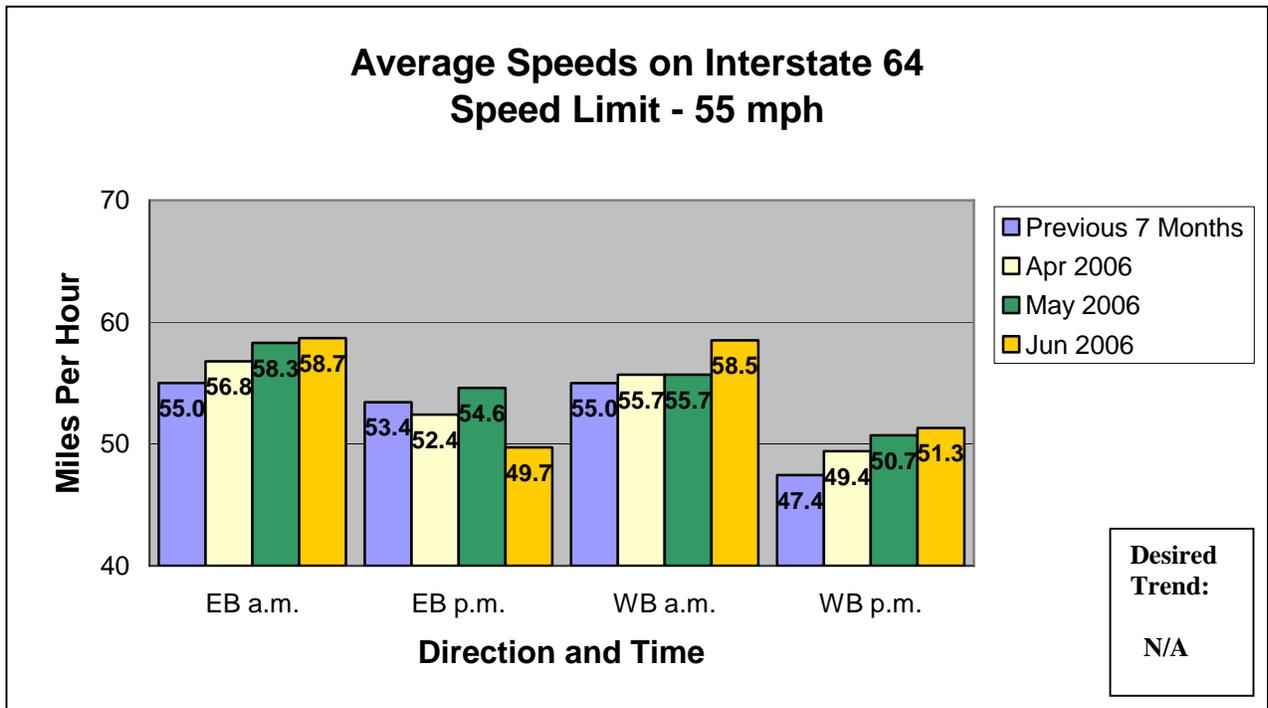
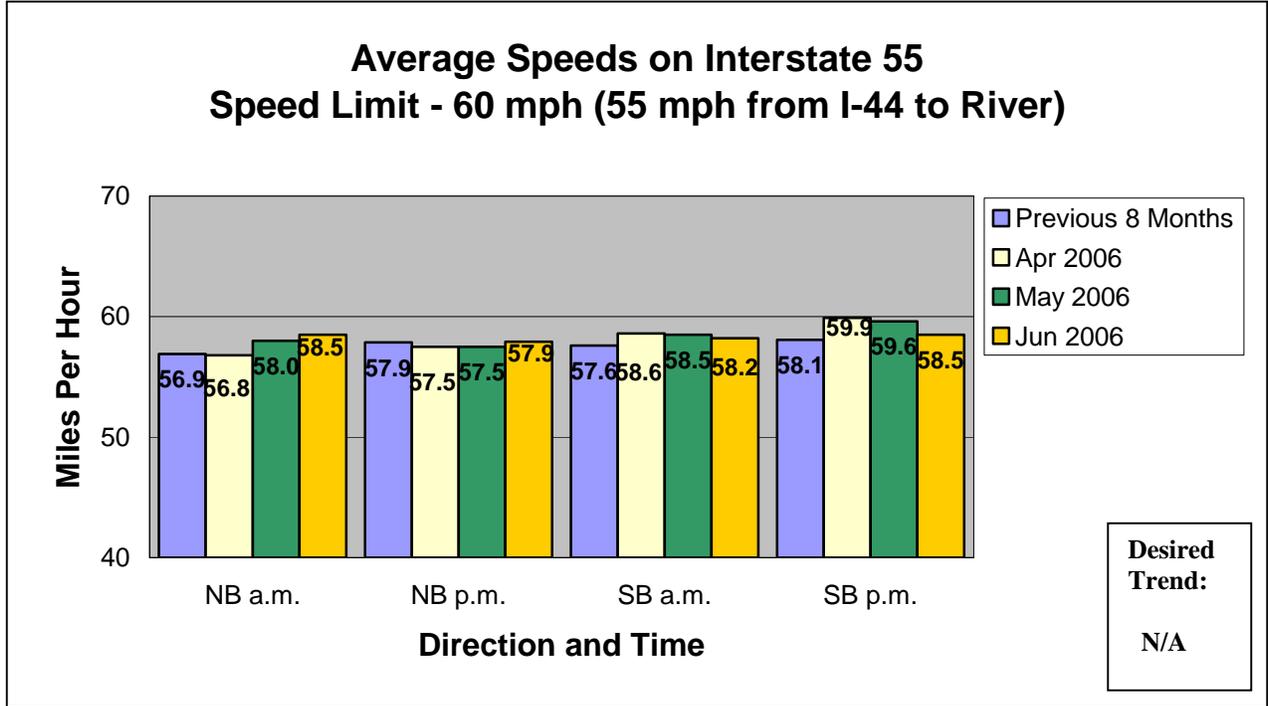
**STATEWIDE**



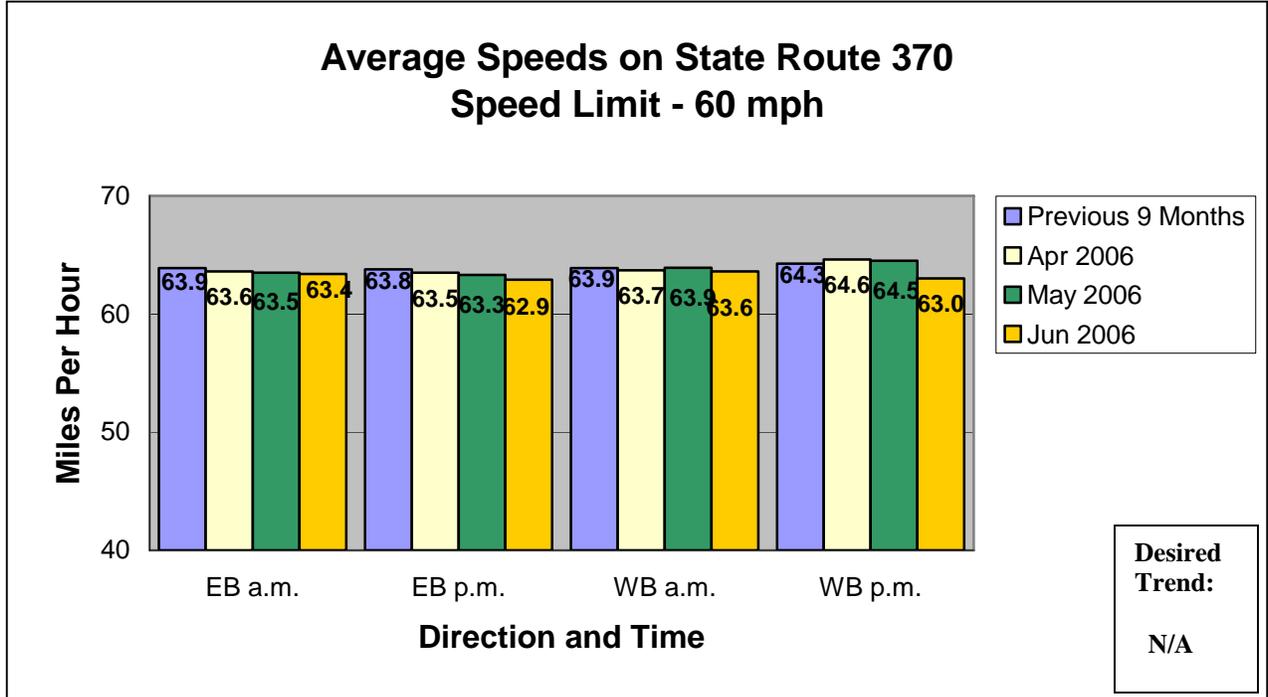
**ST. LOUIS**



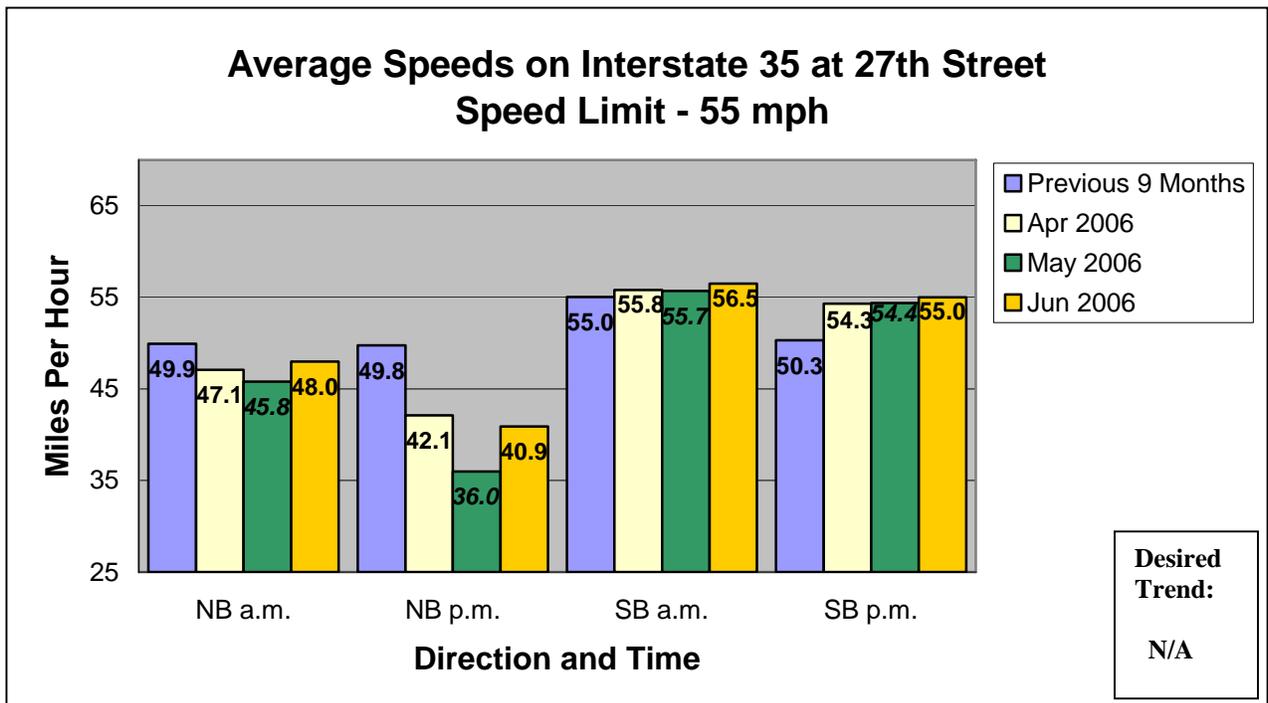
**ST. LOUIS**



**ST. LOUIS**

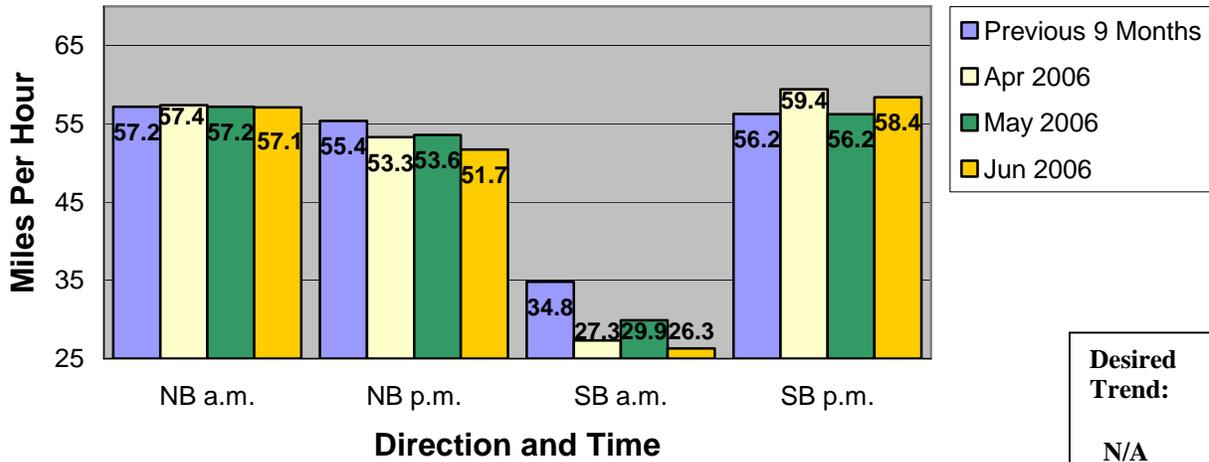


**KANSAS CITY**

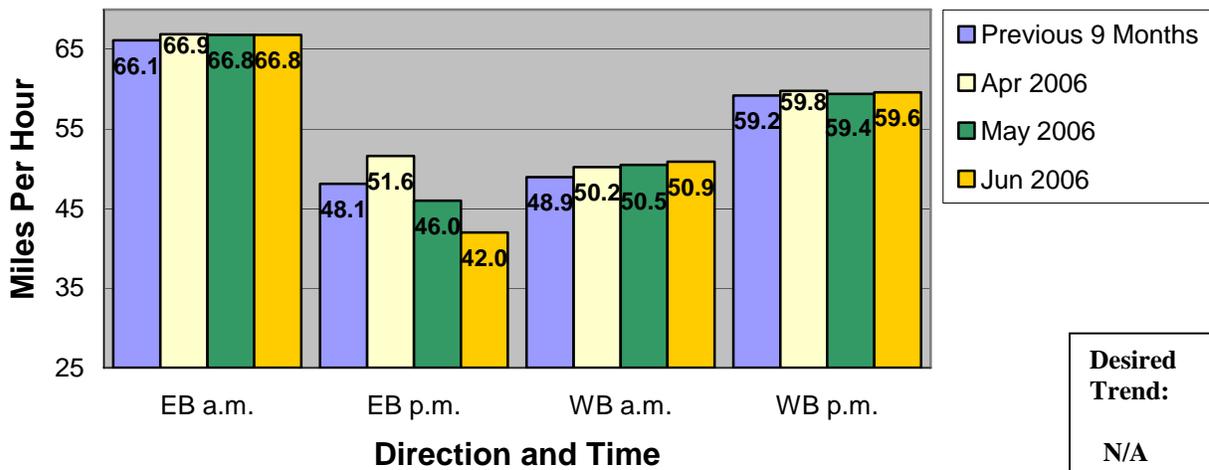


**KANSAS CITY**

**Average Speeds on Interstate 35 at Armour Road  
Speed Limit - 55 mph**

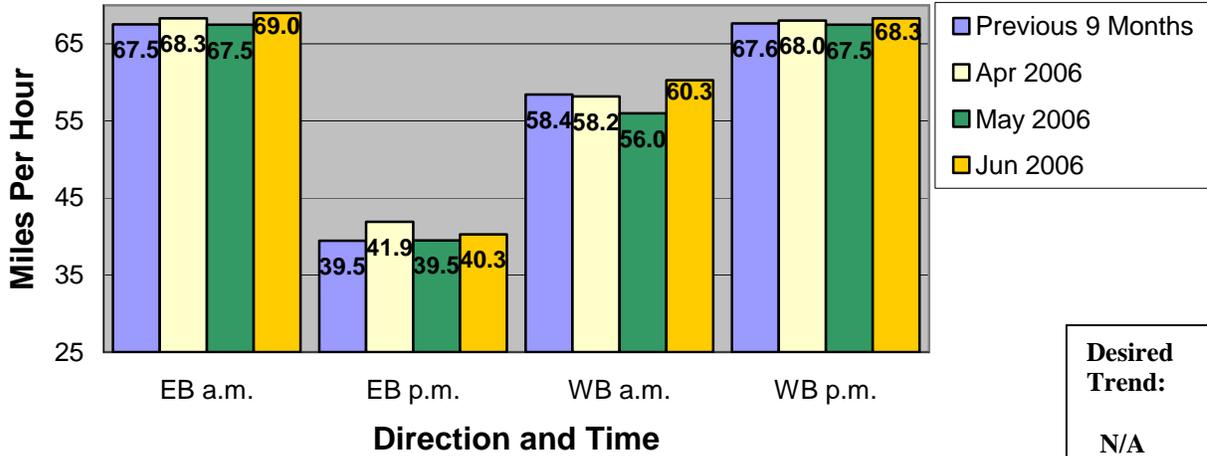


**Average Speeds on Interstate 70 at Blue Ridge Cutoff  
Speed Limit - 65 mph**



KANSAS CITY

**Average Speeds on Interstate 435 at 104th Street  
Speed Limit - 65 mph**



# Uninterrupted Traffic Flow

## *Average time to clear traffic incident*

**Result Driver:** Don Hillis, Director of System Management

**Measurement Driver:** Rick Bennett, Technical Support Engineer

**Purpose of the Measure:**

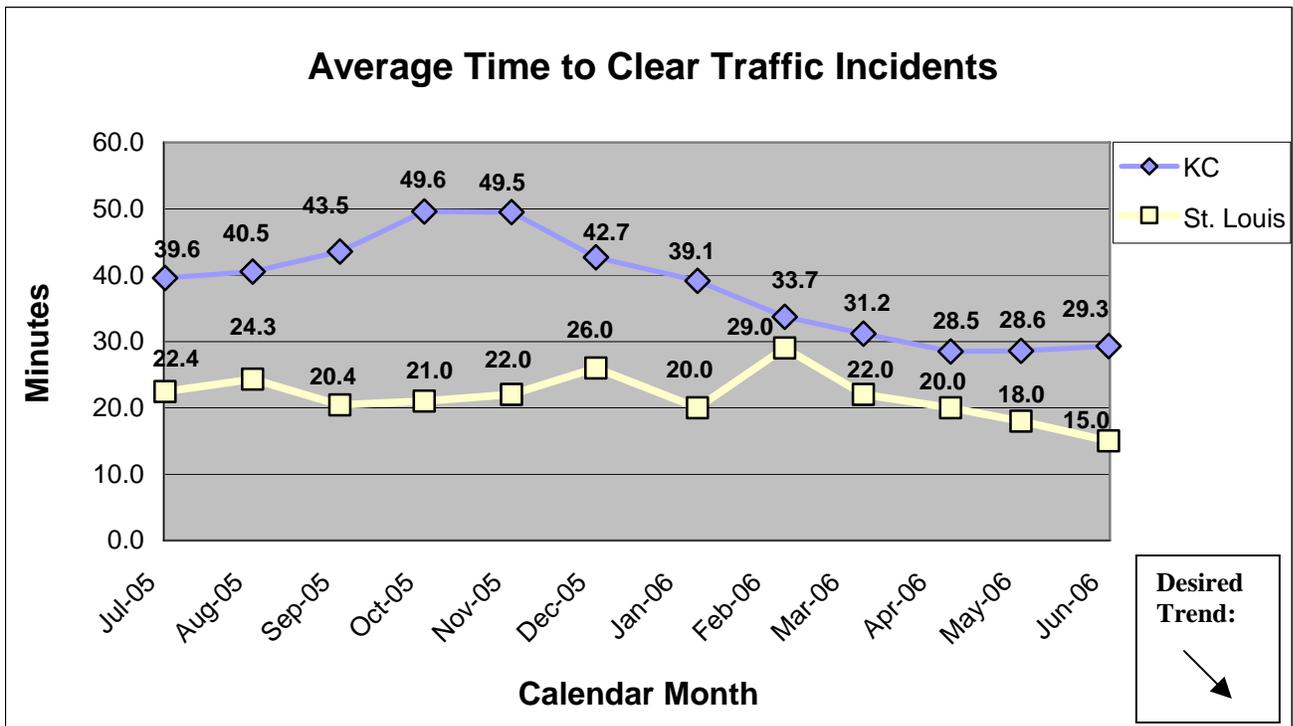
This measure is used to determine the trends in incident clearance on the state highway system. A traffic incident is an unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road. The sooner an incident is removed, the sooner the highway system returns to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

**Measurement and Data Collection:**

Collection of data began March 1, 2005. Motorist Assist operators and Traffic Management Center staff are recording “time of arrival” and the time for “all lanes cleared”. Average time to clear traffic incidents is calculated from these times. The data includes only those incidents handled by Motorist Assist and urban Emergency Response crews in the Kansas and St. Louis areas.

**Improvement Status:**

This data shows that overall, the Kansas City and St. Louis areas are experiencing some improvements in incident clearance times. Upon review of the data, the spike in St. Louis for the month of February was mostly due to a multi-day incident involving an overturned gasoline tanker on MoDOT right of way. Overall, incident clearance times in St. Louis and Kansas City should become similar, with minor seasonal changes due to increased traffic volumes and weather conditions. Renewed efforts in incident management in the Kansas City region should help to develop long-term partnerships and identify MoDOT’s expectations for quick clearance and open roadways with the ultimate goal of improving clearance times.



# Uninterrupted Traffic Flow

## *Average time to clear traffic backup from incident*

**Result Driver:** Don Hillis, Director of System Management  
**Measurement Driver:** Rick Bennett, Technical Support Engineer

**Purpose of the Measure:**

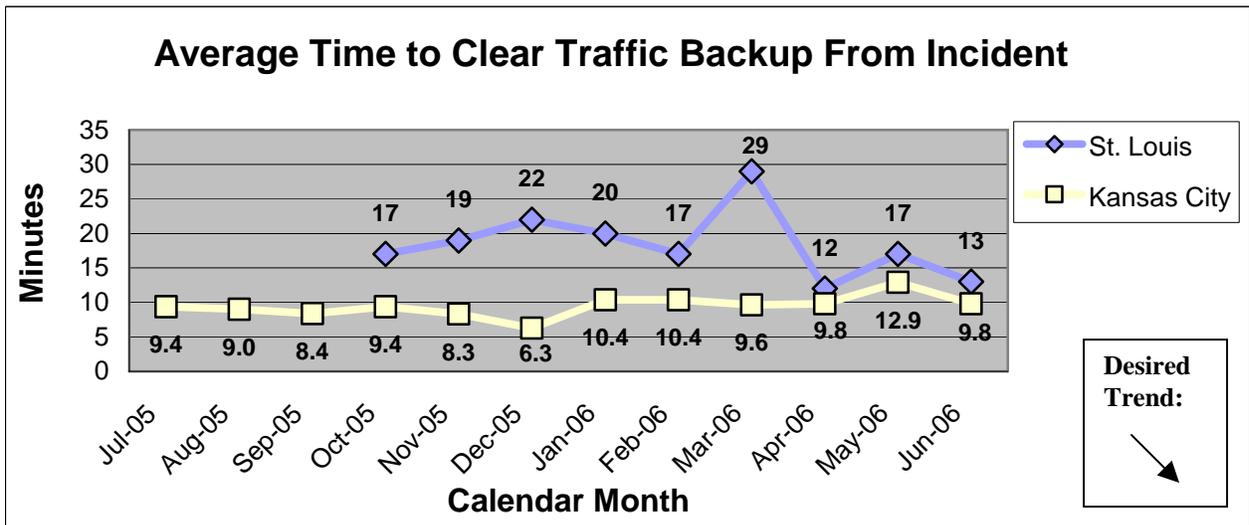
This measure tracks the amount of time it takes to return traffic flow back to normal after a traffic incident. A traffic incident is any unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road.

**Measurement and Data Collection:**

“Lanes cleared” and “clear backup” times are being recorded by the Traffic Management Center operators using automated detection systems. The Kansas City area already has devices to collect data along portions of Interstates 435 and 70. St. Louis collects data manually using video equipment and verification from Motorist Assist operators. St. Louis will use advanced transportation management system devices and software when they come online this summer. Average times to clear traffic backups are calculated from these recorded times.

**Improvement Status:**

This data shows that clearance times in Kansas City average around nine minutes, while the St. Louis metro area clearance times are higher. The St. Louis data is somewhat skewed in its inclusion of most major incidents on the St. Louis freeway network. The St. Louis data does not necessarily capture short-term incidents that clear before a Motorist Assist operator can get to the scene. The Kansas City data includes all detected incidents on the KC Scout, the Kansas City emergency response unit, instrumented routes. St. Louis area routes have larger traffic volumes, which create more significant congestion problems than in Kansas City. The spike in St. Louis data in March 2006 is largely due to two major incidents during peak periods. There are also minor spikes in May 2006 in both St. Louis and Kansas City again due to major incidents during peak periods.



# Uninterrupted Traffic Flow

## *Number of customers assisted by the Motorist Assist program*

**Result Driver:** Don Hillis, Director of System Management

**Measurement Driver:** Rick Bennett, Technical Support Engineer

**Purpose of the Measure:**

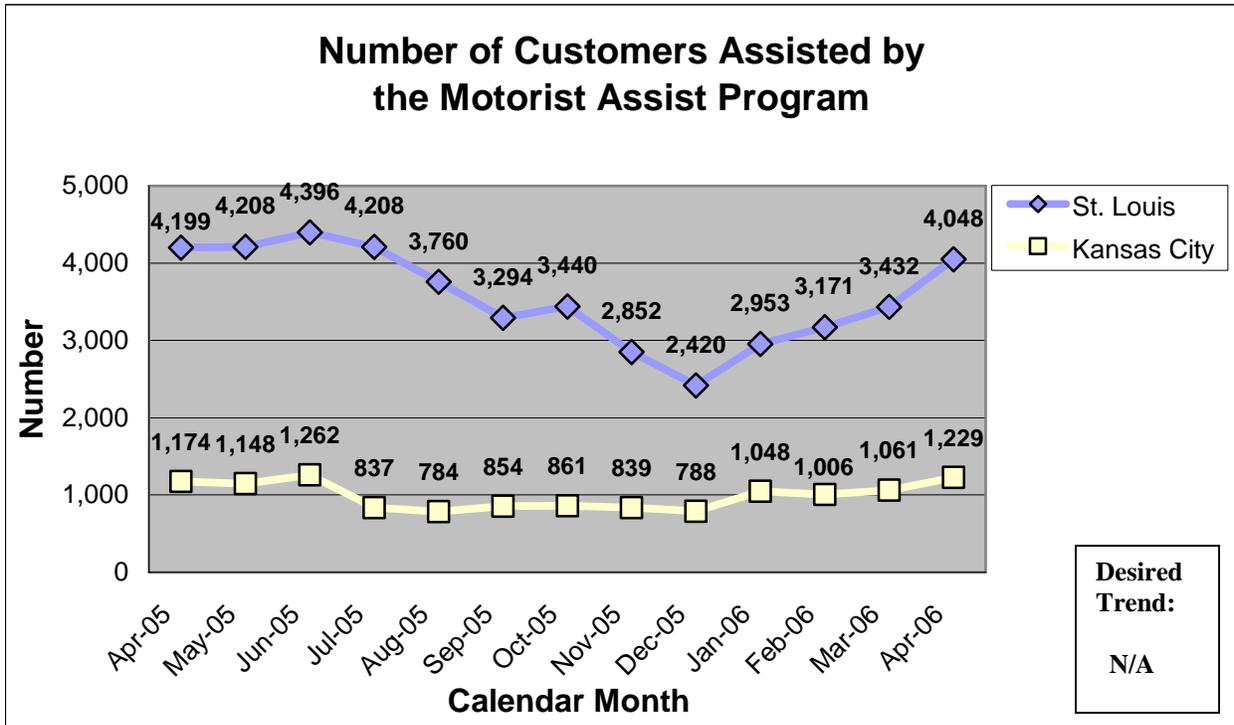
This measure is used to gauge the use of the Motorist Assist programs. Incidents impact Missouri’s transportation system capacity. An incident is any unplanned event that creates a temporary reduction in roadway capacity that impedes normal traffic flow. The sooner an incident is removed, the sooner the highway system returns to normal capacity. Therefore, responding to and quickly addressing the incidents (crashes, flat tires, stalled vehicles, etc.) improves system performance. Our Motorist Assist operators are able to respond to nearly every incident, major or minor in the areas they cover.

**Measurement and Data Collection:**

Monthly data collection began in January 2005. The Motorist Assist operators record each assist and then prepare a monthly summary. St. Louis operators patrol approximately 160 freeway miles, while Kansas City operators patrol approximately 60 freeway miles.

**Improvement Status:**

This data demonstrates that the Motorist Assist program in both St. Louis and Kansas City experienced a routine increase in assists due to increased temperatures and roadway volumes. The sharp increases in assists in the St. Louis area can be attributed to high temperatures and a period of recurring severe weather, which can lead to more breakdowns and collisions. This data also demonstrates a typical pattern of increased assists during peak travel season, followed by a decrease in services in late summer and early fall.



## Uninterrupted Traffic Flow

### *Percent of Motorist Assist customers who are satisfied with the service*

**Result Driver:** Don Hillis, Director of System Management

**Measurement Driver:** Rick Bennett, Technical Support Engineer

**Purpose of the Measure:**

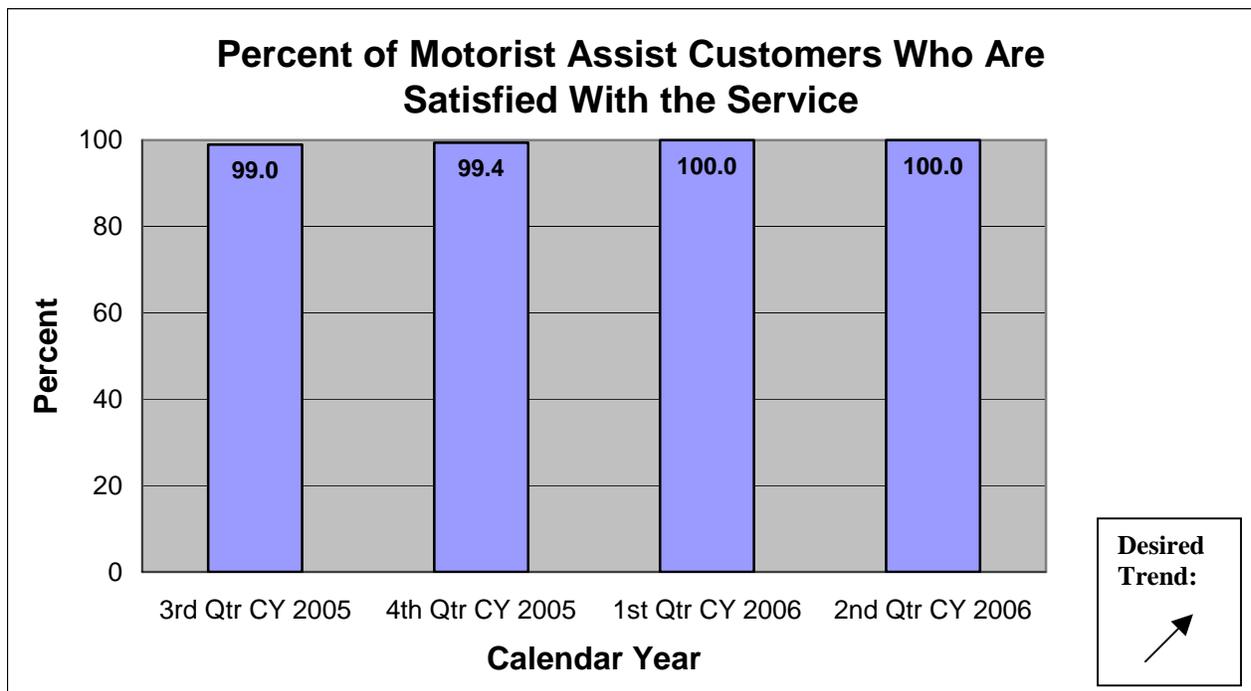
This measure helps evaluate services provided through MoDOT's Motorist Assist Program, specifically whether the customers who use the program are satisfied with the service. Information received provides direction on how to better serve our customers and keep traffic moving safely and efficiently.

**Measurement and Data Collection:**

Motorist Assist operators distributed survey cards to customers starting June 1, 2005. Data from the cards is compiled and tabulated by the Missouri Transportation Institute. Surveys with selections identifying that the service was "probably" or "definitely" valuable were tabulated as "satisfied" for this measure.

**Improvement Status:**

The data for this measure included responses from 204 surveys in the third quarter of fiscal year 2005, 361 surveys in the fourth quarter of fiscal year 2005, 380 surveys in the first quarter of 2006 and 447 surveys in the second quarter of 2006 that were returned to MoDOT by motorists who used the Motorist Assist service in the Kansas City or St. Louis metro areas. This data concurs with the comments that have been historically provided by customers on prior comment forms- almost all customers are satisfied. It should be noted that in more than one year's worth of surveys to date, no respondent has identified dissatisfaction with the program, the operator or the services provided.



# Uninterrupted Traffic Flow

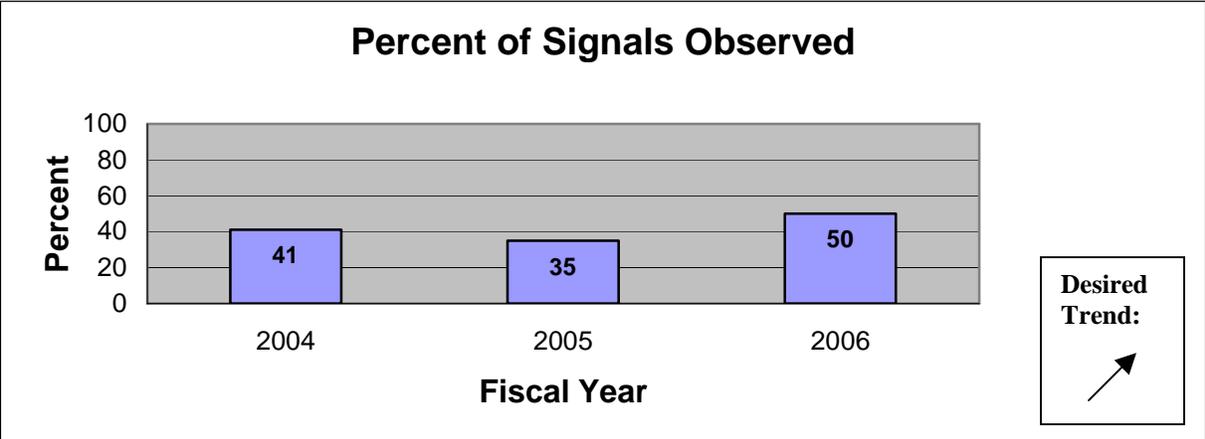
## *Percent of signals observed*

**Result Driver:** Don Hillis, Director of System Management  
**Measurement Driver:** Julie Stotlemeyer, Signal and Lighting Engineer

**Purpose of the Measure:**  
This measure tracks how well the department is monitoring the signal system to improve traffic flow.

**Measurement and Data Collection:**  
Traffic engineers document observed signal data on an observation sheet and the observation date is recorded in the Transportation Management System database. Data is collected from the TMS database to generate the report. A complete signal observation requires personnel to monitor the signal during four different times of day: a.m. peak, noon peak, p.m. peak and off peak.

**Improvement Status:**  
For fiscal year 2006, 50 percent of our signals were observed - an increase of 15% from fiscal year 2005. All signals should be observed each year to ensure proper operation of the signal and verify the signal is managing traffic effectively. Guidance on how to conduct signal observations was developed and distributed. A quality assurance review of five districts was completed, which explains the increase in observed signals.



# Uninterrupted Traffic Flow

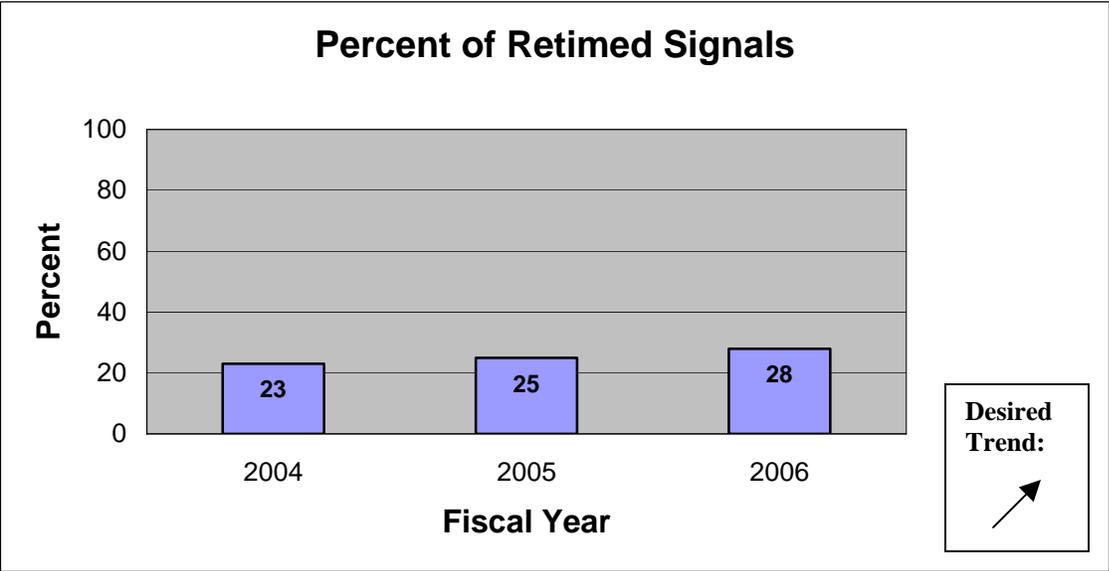
## *Percent of retimed signals*

**Result Driver:** Don Hillis, Director of System Management  
**Measurement Driver:** Julie Stotlemeyer, Signal and Lighting Engineer

**Purpose of the Measure:**  
This measure tracks how well the department is adjusting the timing of the signal system to improve traffic flow.

**Measurement and Data Collection:**  
Traffic engineers recorded retimed signal data and entered the date in the Transportation Management System database. Data is collected from the TMS database to generate the report. MoDOT retimes traffic signals for general observation or in response to a complaint. In most instances, signals are retimed based on observational studies. In order to maintain uninterrupted traffic flow; signals should be retimed at least every three years. Therefore, MoDOT should retime 33 percent of its signal system each year. Retiming signals for efficient operation should involve an in-depth study and this may not be reflected in this measure.

**Improvement Status:**  
The percent of retimed signals has increased by three percent since fiscal year 2005. A quality assurance plan for signal timing was developed and a quality assurance review of five districts was completed. A signal-timing course using computer software to optimize signal timing was conducted in May 2006.



# 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:**

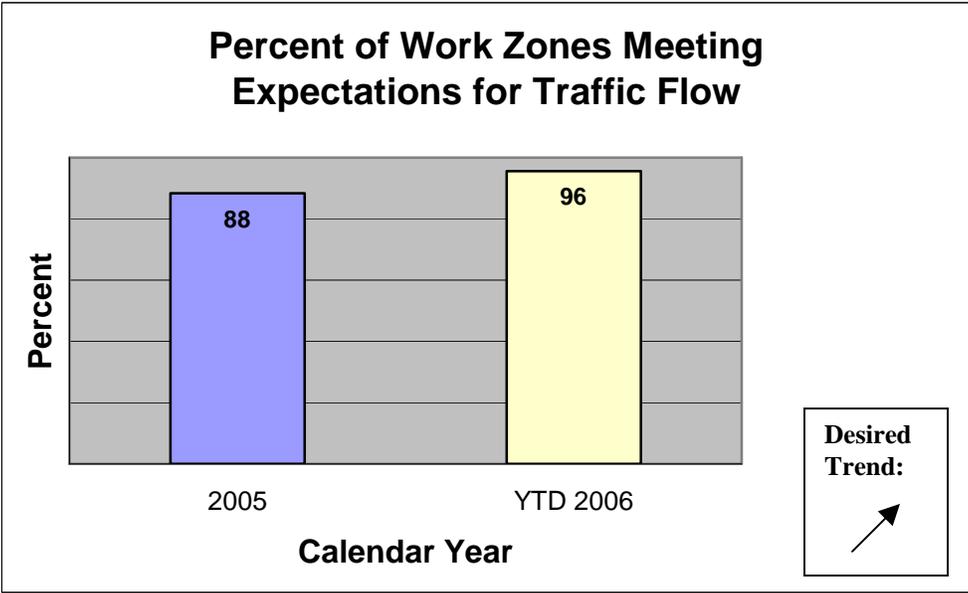
An important factor in evaluating the department’s performance in temporary traffic control design, deployment, operation, and maintenance is the measurement of our work zones affect on the mobility of highway users. This measure tracks how well the department meets its customer expectations of work 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 942 inspections this calendar year (227 in first quarter and 715 in second quarter) show great progress in this measurement, as the percent of work zones meeting mobility expectations rose by 7.2 percent over calendar year 2005. 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.



# Uninterrupted Traffic Flow

## *Time to meet winter storm event performance objectives on major and minor highways*

**Result Driver:** Don Hillis, Director of System Management  
**Measurement Driver:** Tim Jackson, Technical Support Engineer

**Purpose of the Measure:**

This measure tracks the amount of time needed to meet the performance objectives in MoDOT’s snow and ice removal efforts.

**Measurement and Data Collection:**

This data is collected in the Lotus Notes Winter Event database. This measurement will track 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. Data collection began after the first snowfall this winter for inclusion in the January 2006 Tracker. After a storm ends, the objectives are to restore the major highways to a wet or dry condition as soon as possible, restore the higher volume (greater than 1,000 average daily traffic) minor highways to a wet or dry condition as soon as possible, and have the lower volume (less than or equal to 1,000 average daily traffic) minor highways open to two-way traffic and treated with salt and/or abrasives at all 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.

**Improvement Status:**

The two categories for minor highways were averaged into one number for all minor highways. From December to January, the time to meet the winter storm event performance objectives decreased by a small amount. These times remained relatively fixed for the remainder of the winter season due to the fact that there were very few additional snowstorms in Missouri. This winter was a very mild winter for the state in terms of winter events and below-freezing temperatures. An advanced snow removal-training module is being developed for veteran employees and supervisors to increase consistency and efficiency in this area. MoDOT continues to upgrade equipment by providing wider snowplows and towplows to improve efficiency.

