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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:** Troy Pinkerton, Traffic Liaison 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 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. All data is reported for weekdays only, to better represent peak traffic conditions. The data from St. Louis is representative of large sections of roadway, while Kansas City and statewide data are shown at specific sensor locations. Data for each location is updated quarterly.

### **Improvement Status:**

#### Statewide:

Average speed data this quarter is within one to two mph of the posted speed limit for each month at every location with one exception. Average speeds are running about 10 percent less than the posted speed limit on Interstate 35 in Daviess County. As indicated last quarter, many locations reported equipment calibration issues following the aggressive construction season. All locations are being evaluated and calibrated as necessary in order to ensure accurate average speed reporting.

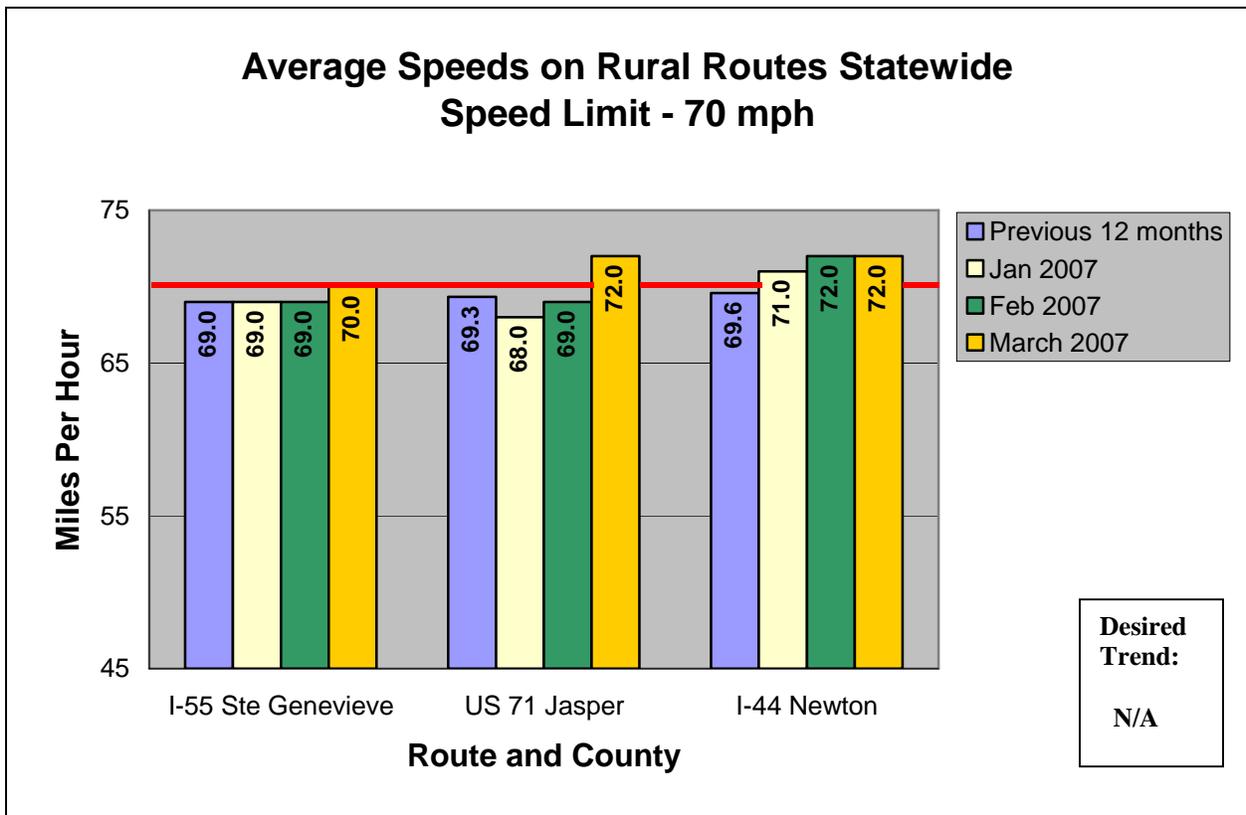
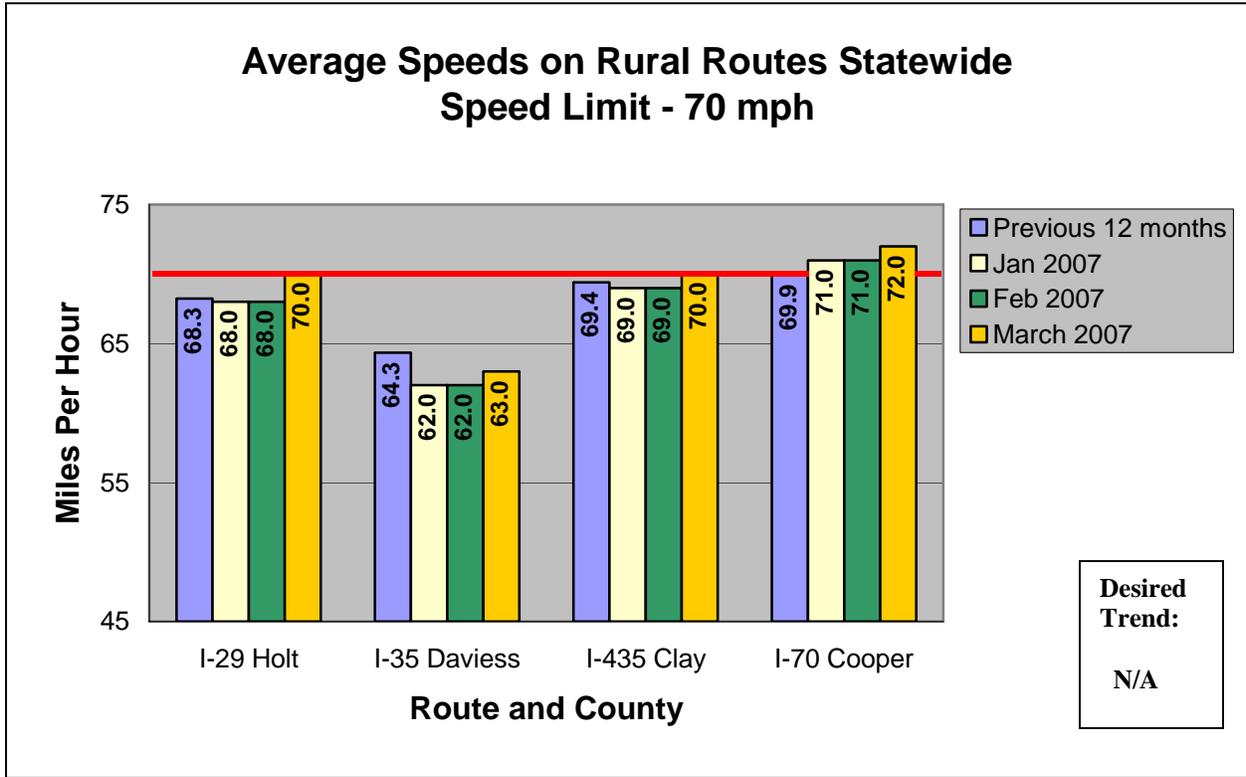
#### St. Louis:

The average speeds in the St. Louis region are consistent as compared to the previous twelve-month averages. Interstates 64 and 170 continue to experience some volatility associated with the peak volumes. The St. Louis region has recently been focused on preparing for the construction associated with the new I-64 project. As a result of these efforts, travel times are now being posted on dynamic message signs along the I-70 corridor.

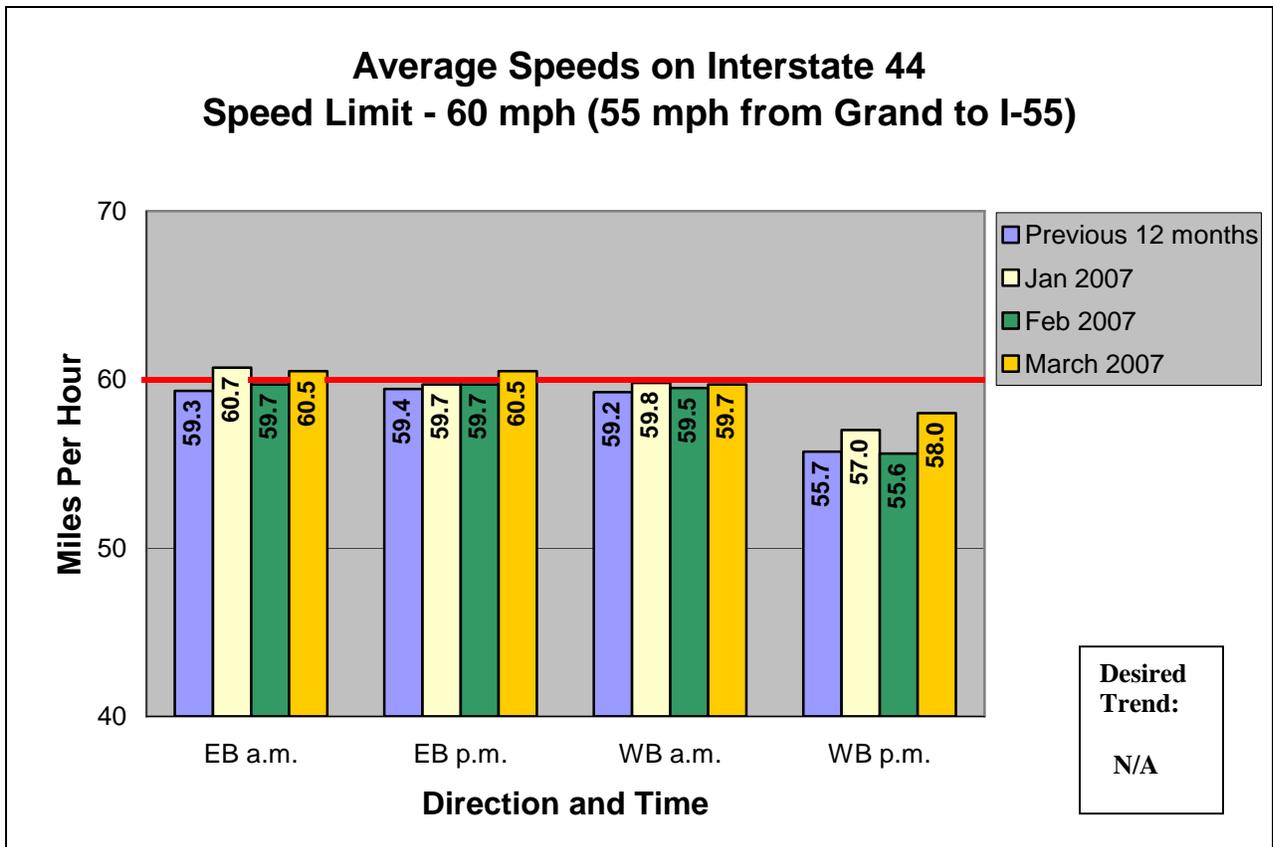
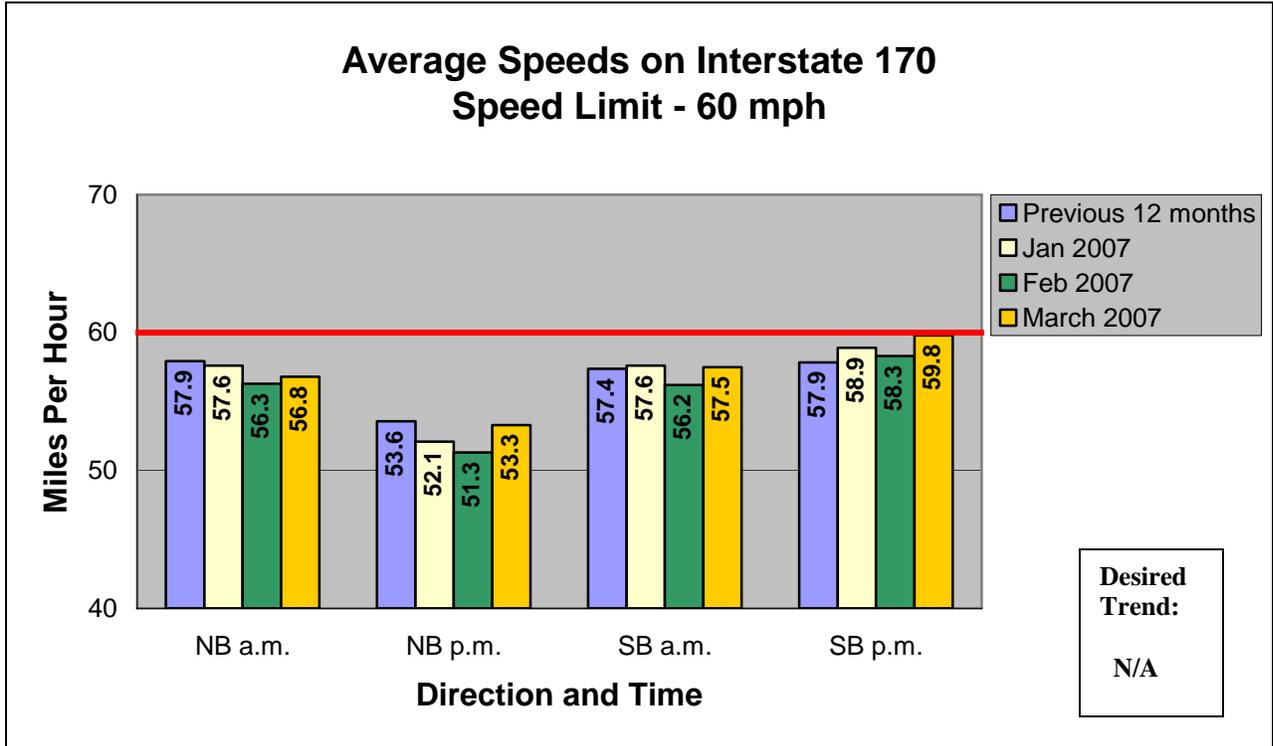
#### Kansas City:

Average speeds in the Kansas City region are also consistent with that of the previous averages and typically due to the large volumes of merging traffic. The general trend in the January to March data shows average speeds on the rise, possibly in part due to the posting of travel times on dynamic message signs throughout the region. Average speeds for January showed a slight drop but rebounded quickly as travelers became accustomed to the travel time messages being displayed.

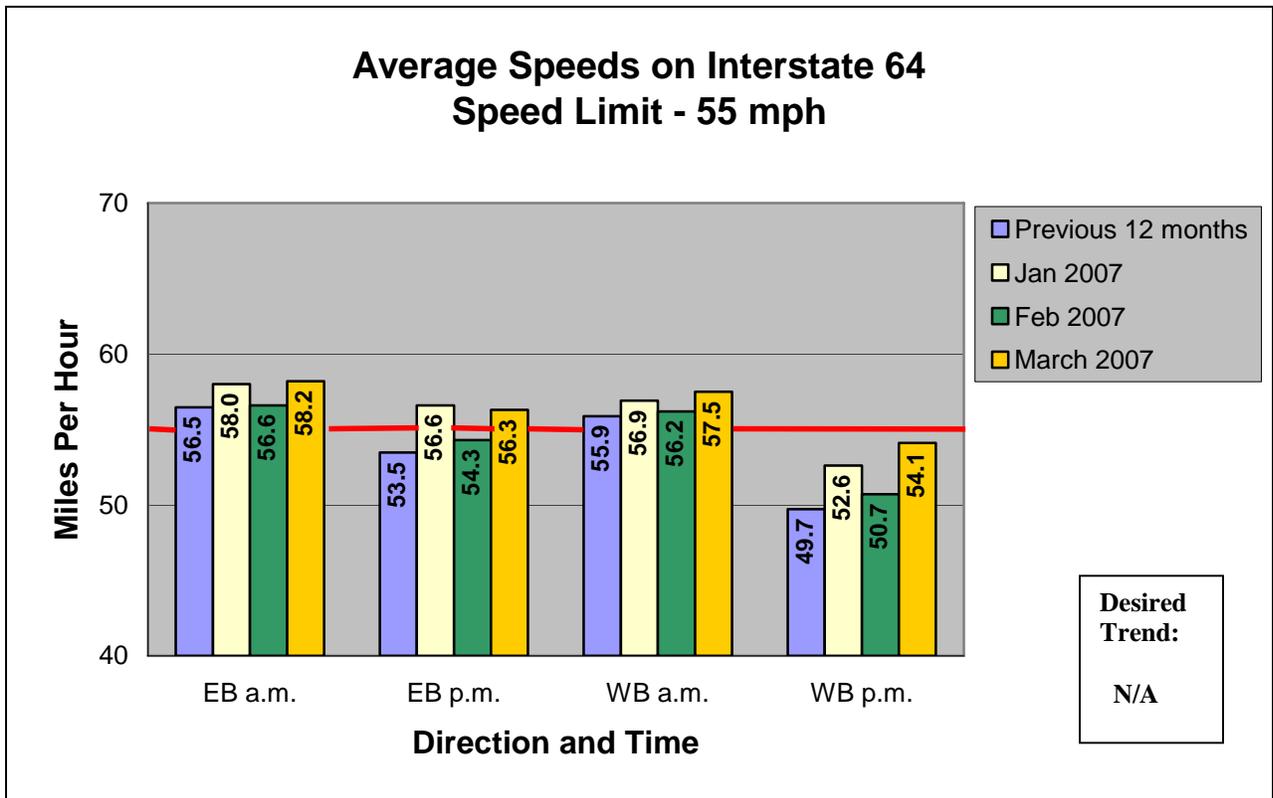
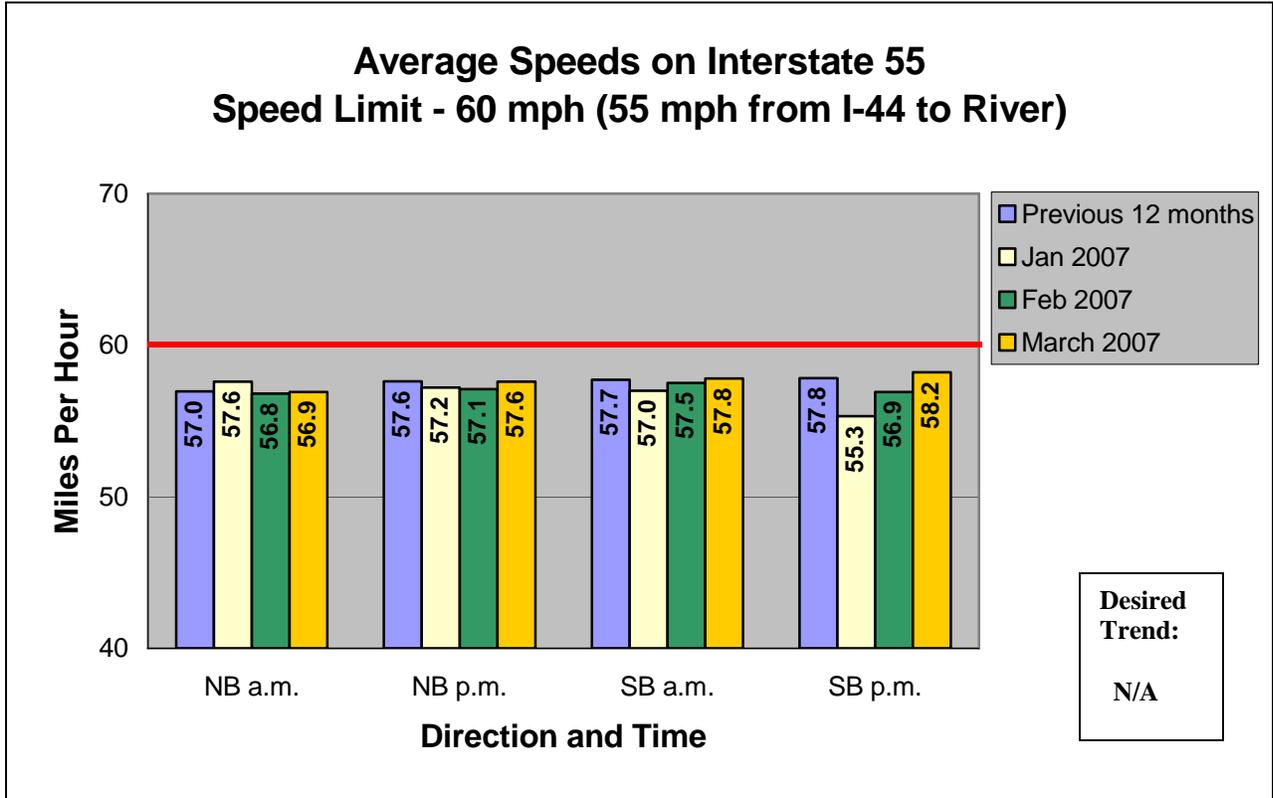
**STATEWIDE**



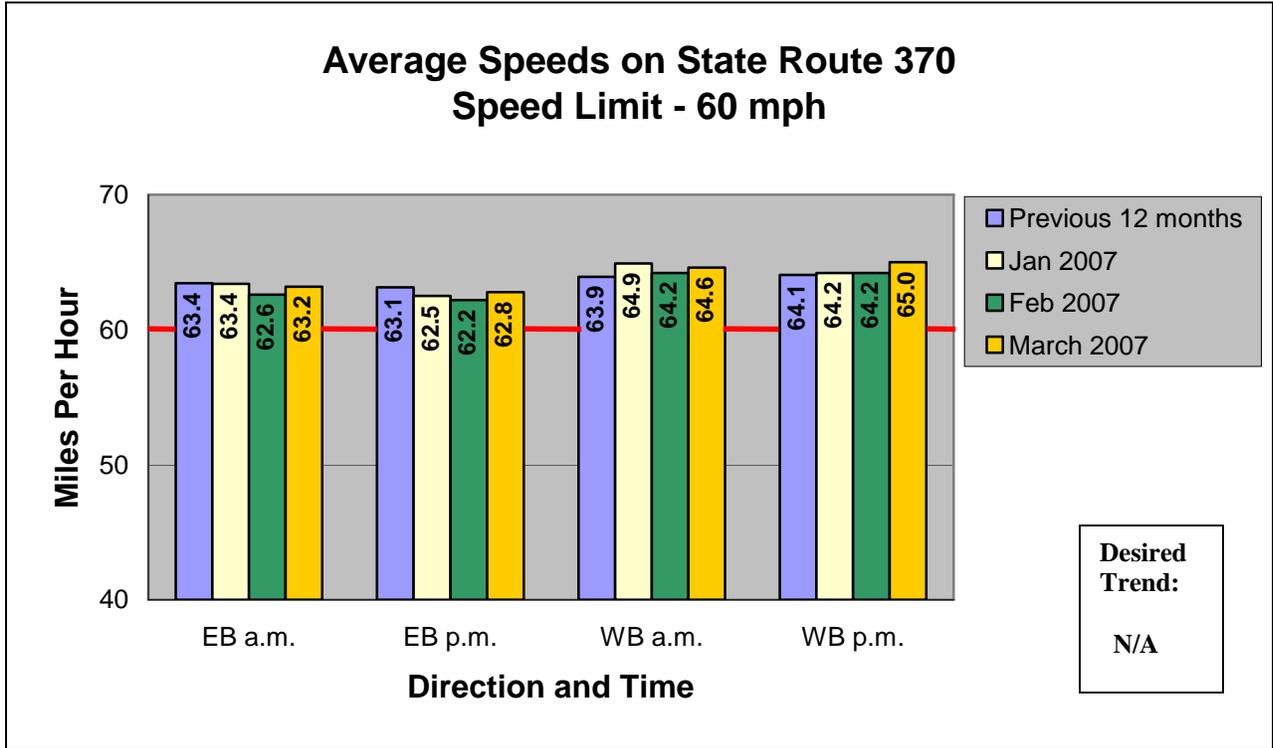
**ST. LOUIS**



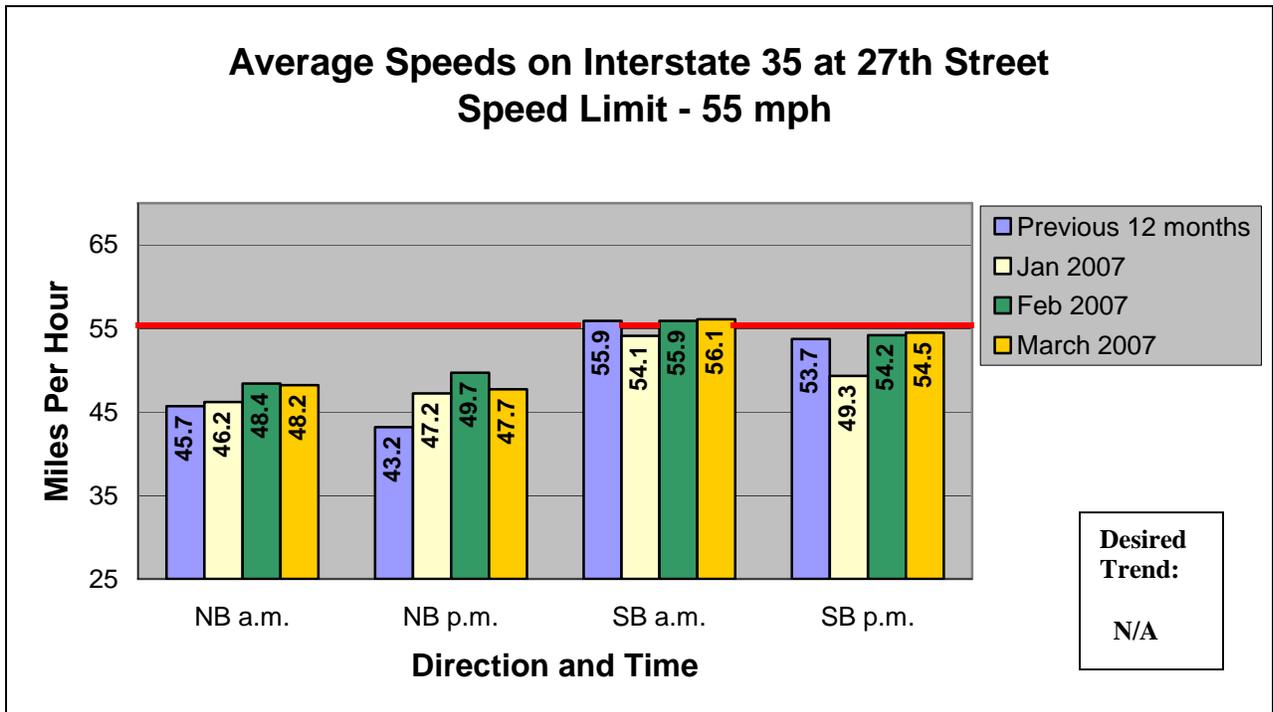
**ST. LOUIS**



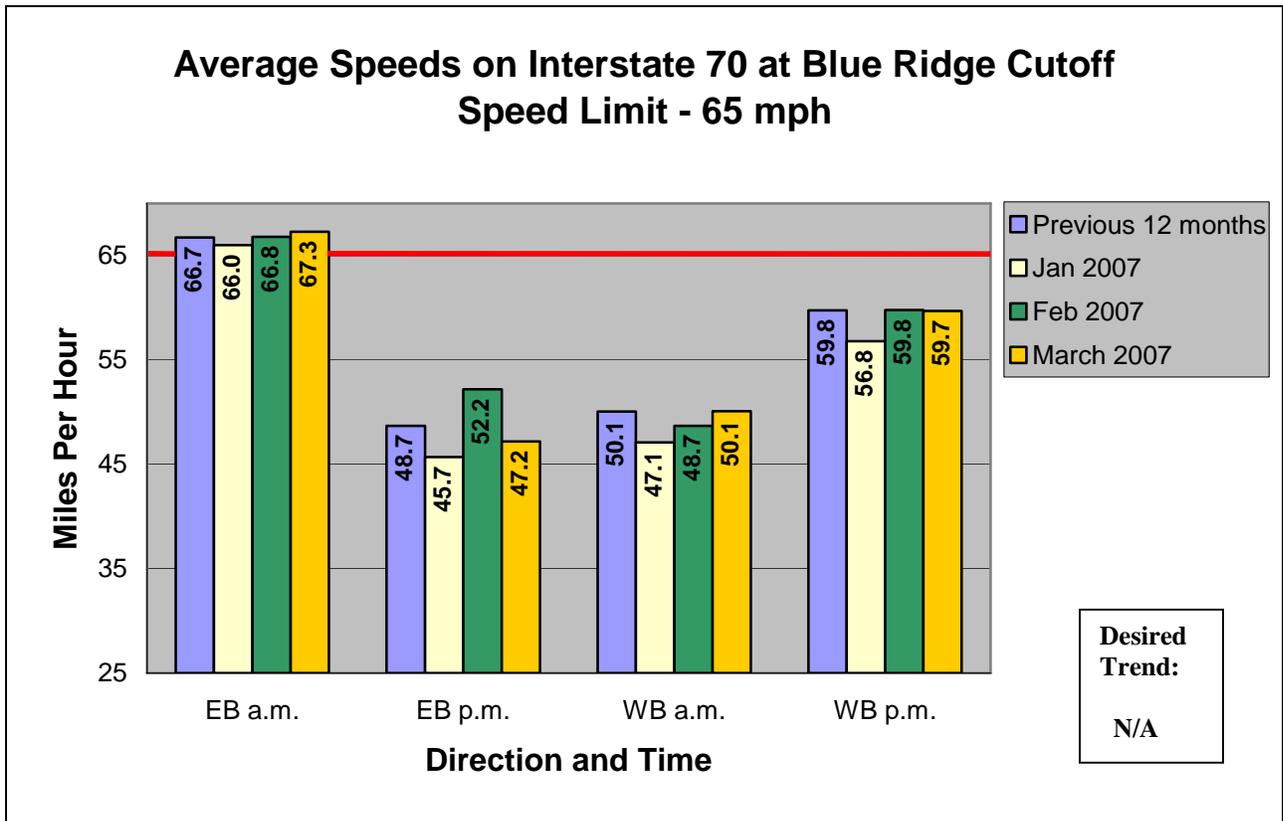
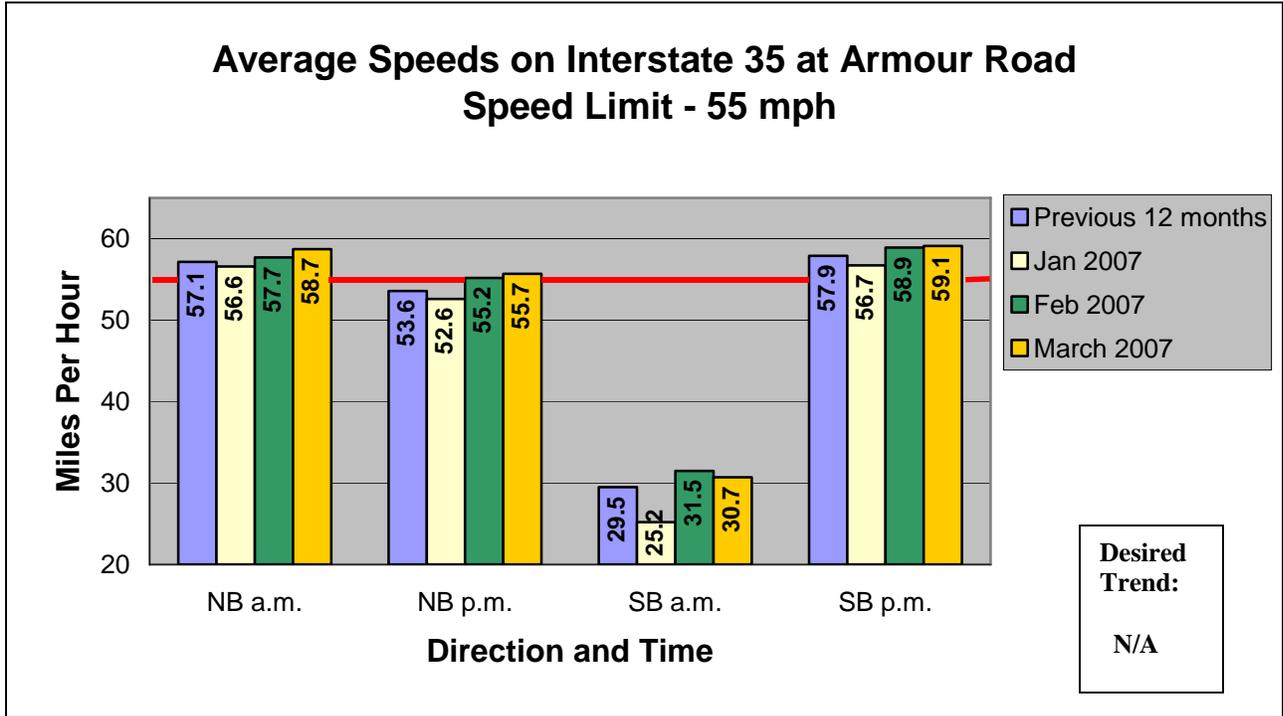
**ST. LOUIS**



**KANSAS CITY**

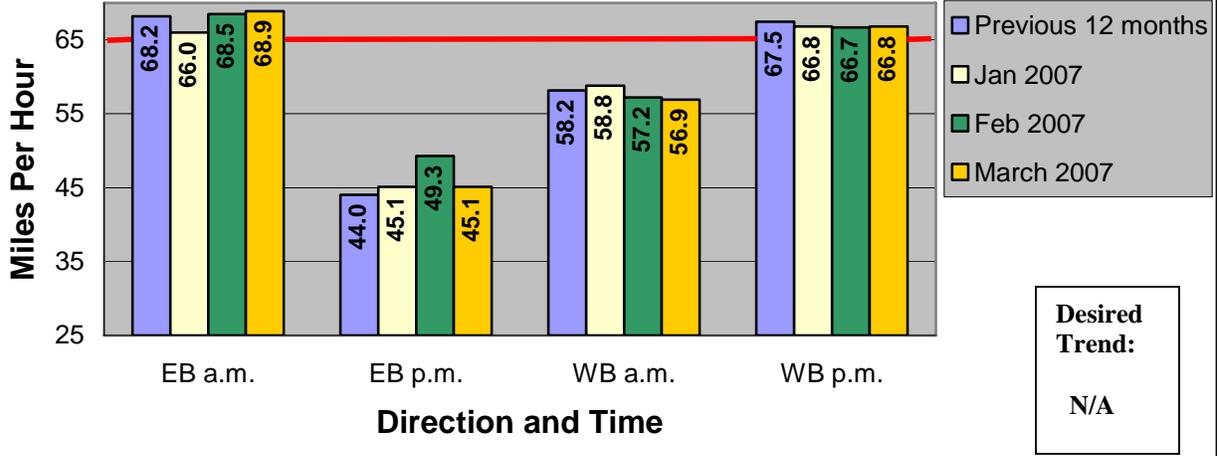


**KANSAS CITY**



KANSAS CITY

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



# Uninterrupted Traffic Flow

## *Average rate of travel on selected signalized routes*

**Result Driver:** Don Hillis, Director of System Management  
**Measurement Driver:** Julie Stotlemeyer, Traffic Liaison Engineer

**Purpose of the Measure:**

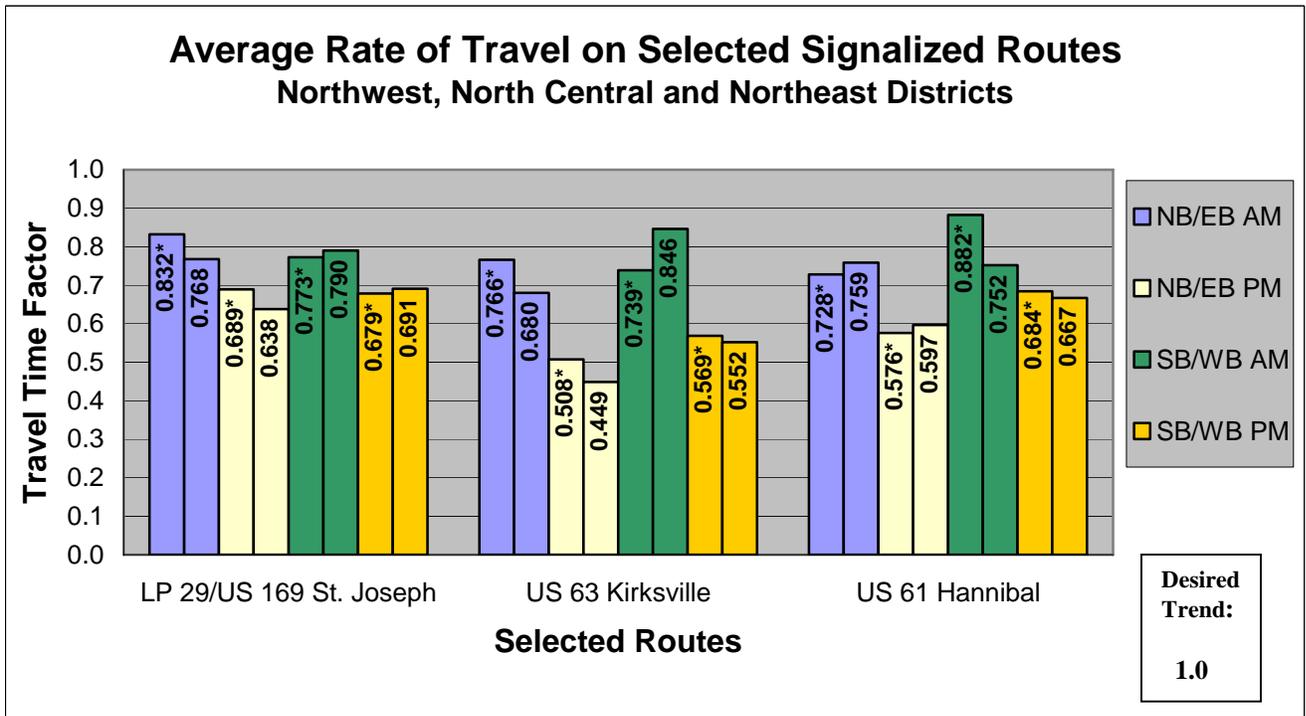
The purpose of this measure is to show how well selected arterials across the state are operating during peak traffic times. As improvements are made to these arterials, such as signal timing or access management, this measure will show the effects of those efforts and decisions on the arterials.

**Measurement and Data Collection:**

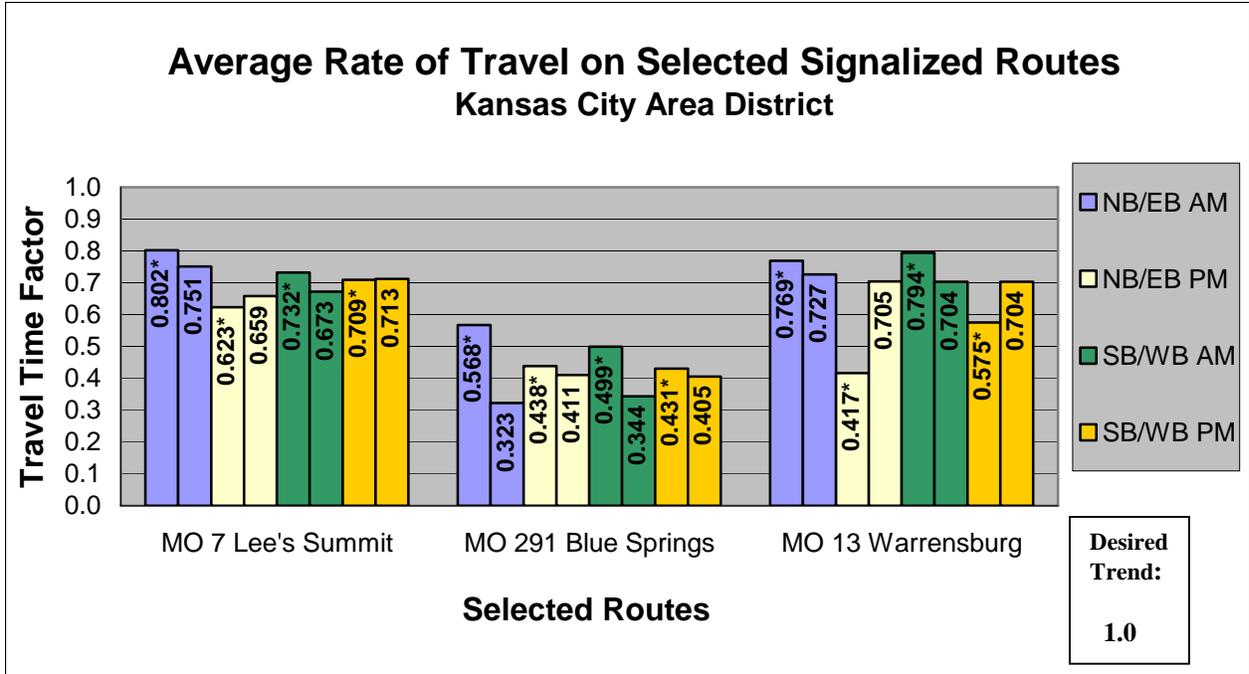
This measure tracks travel times on various arterials. Data is collected from driving each route twice during AM and PM peak times and timing how long it takes to traverse the route. The travel time is compared to the speed limit and the travel time factor determined. The travel time factor for each route should approach 1.0. This indicates traffic is moving at the speed limit. This is a quarterly measure.

**Improvement Status:**

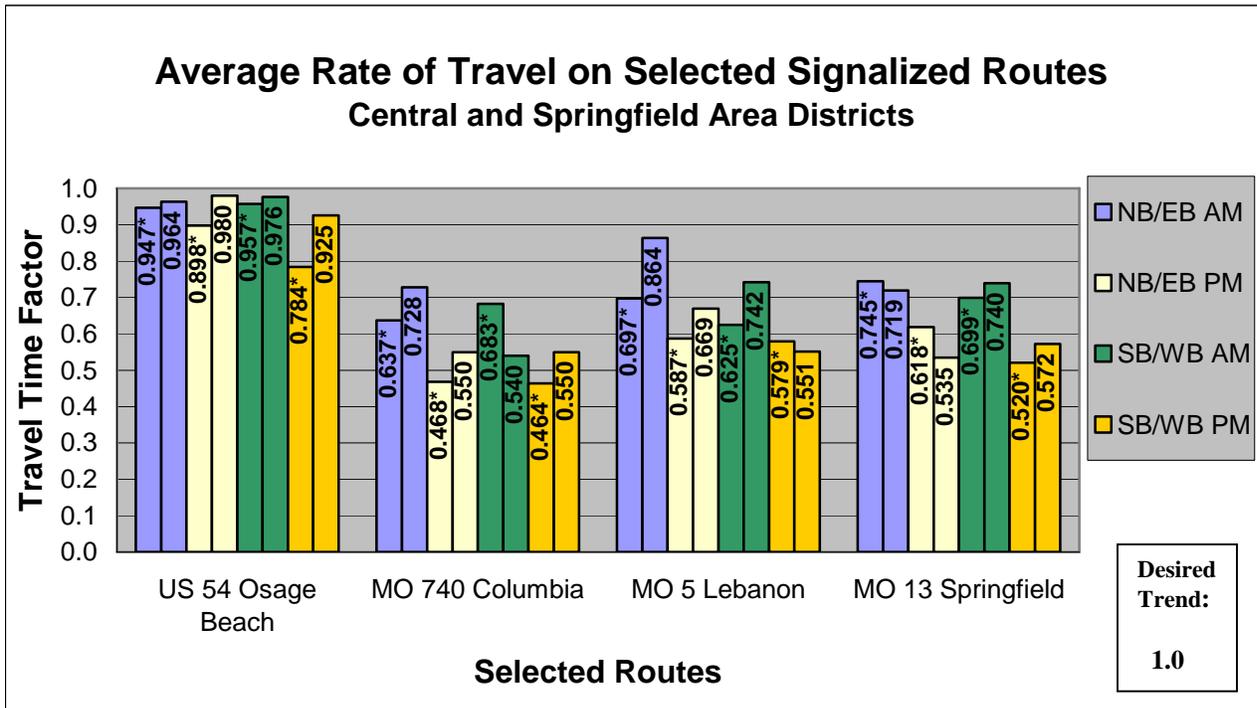
Of the 68 travel time factors for the 17 selected routes, the average statewide is 0.65. Further analysis shows there is no difference for direction of travel but AM peaks are above the average and PM peaks are below. Route 54 in the Central District is operating above 0.9. Nine travel time factors are below 0.5, of which four are AM peaks and five are PM peaks. The largest changes from previous quarter data occur in the Kansas City Area District for the northbound directions of Routes 291 and 13 during the AM and PM peaks respectively. There were increases in 37 travel time factors and 31 decreases. Of those 37, 19 were AM peaks and 18 were PM peaks. Timing adjustments, for one or all signals along the route, were made to eight of the 17 selected routes.



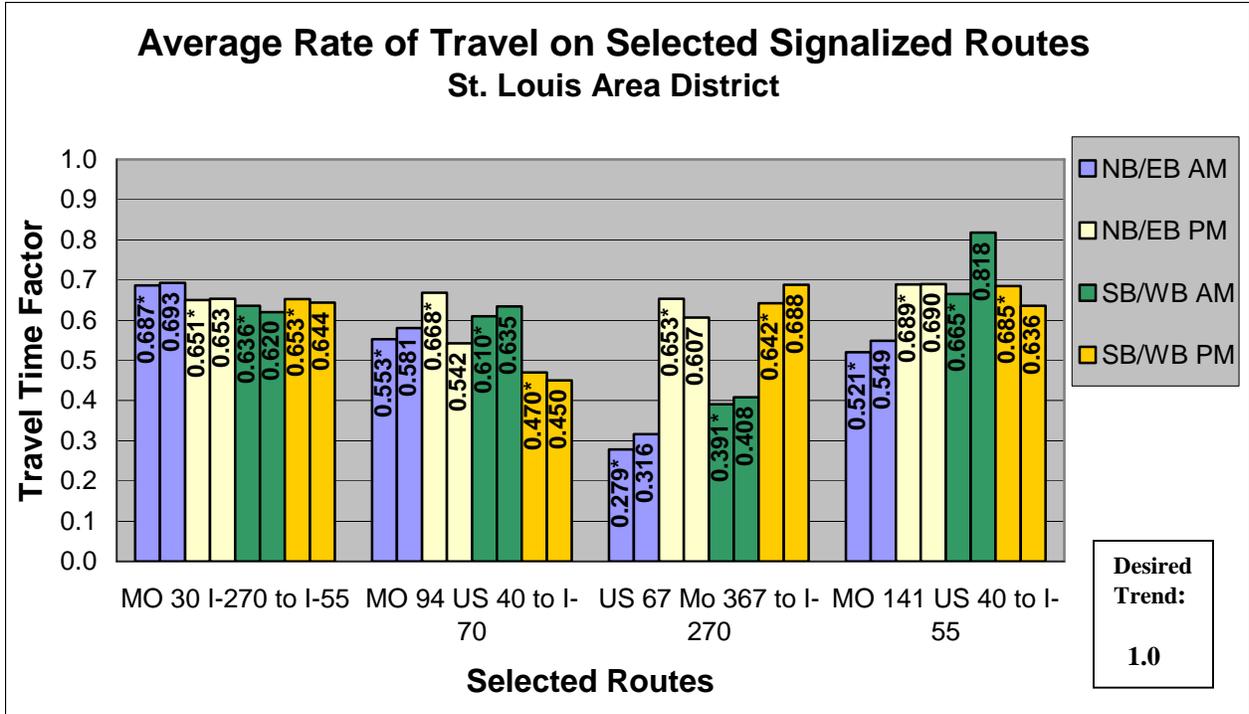
\*Previous quarter data



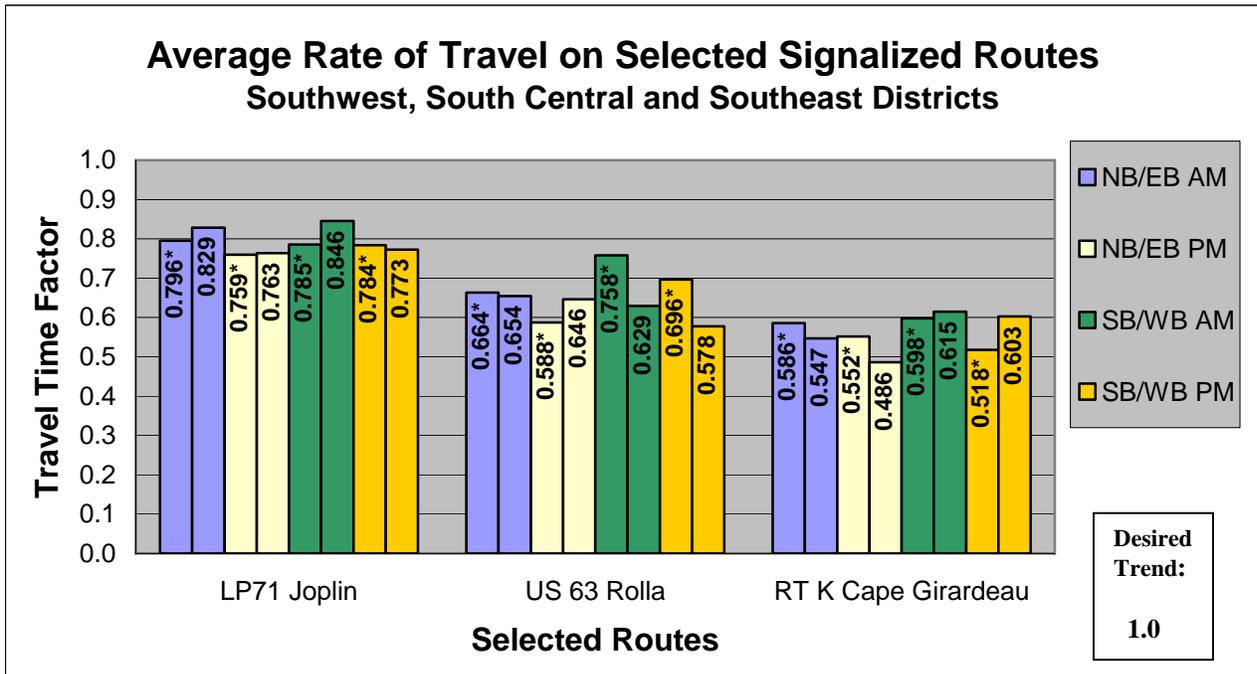
\*Previous quarter data



\*Previous quarter data



\*Previous quarter data



\*Previous quarter data

## Uninterrupted Traffic Flow

### *Average time to clear traffic incident*

**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.

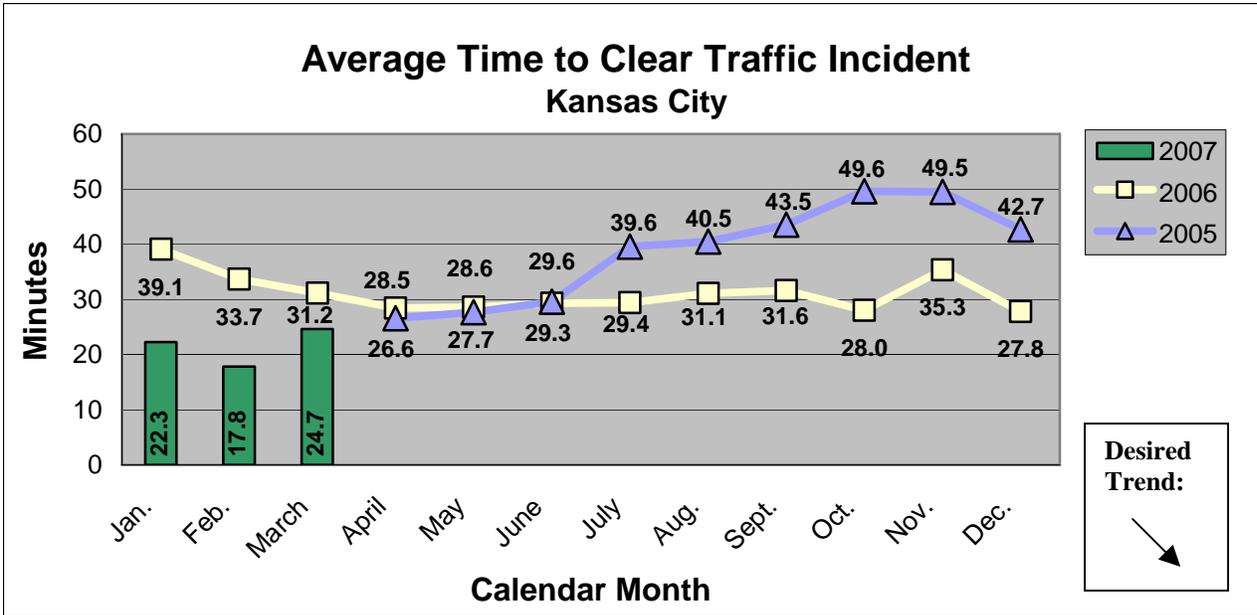
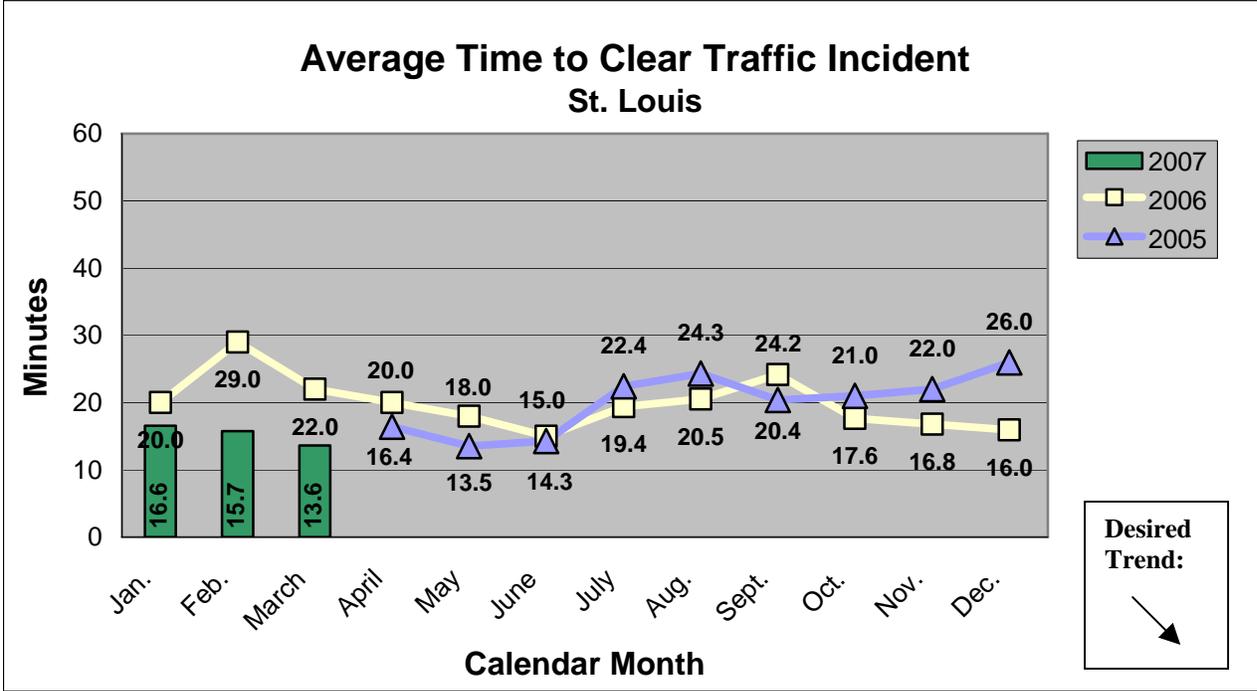
**Measurement and Data Collection:**

Collection of data began March 1, 2005. Motorist Assist operators and Traffic Management Center staff record "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:**

Overall, data shows that both St. Louis and Kansas City areas continued to reduce incident clearance times. Increased efforts in incident management, Motorists Assist and police coordination in both the St. Louis and Kansas City regions continue to support MoDOT's objective of quick clearance and open roadways with the ultimate goal of improving clearance times.

January and March data in Kansas City show a consistent decline for this measure, but February's quicker average time to clear can be attributed to the 114 low-impact incidents. Thirty-five, approximately 25 percent of these incidents, had back-ups that cleared within seven minutes causing a lower "average time to clear" for the month. January and March had 82 and 87 low-impact incidents respectively.



## Uninterrupted Traffic Flow

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

**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:**

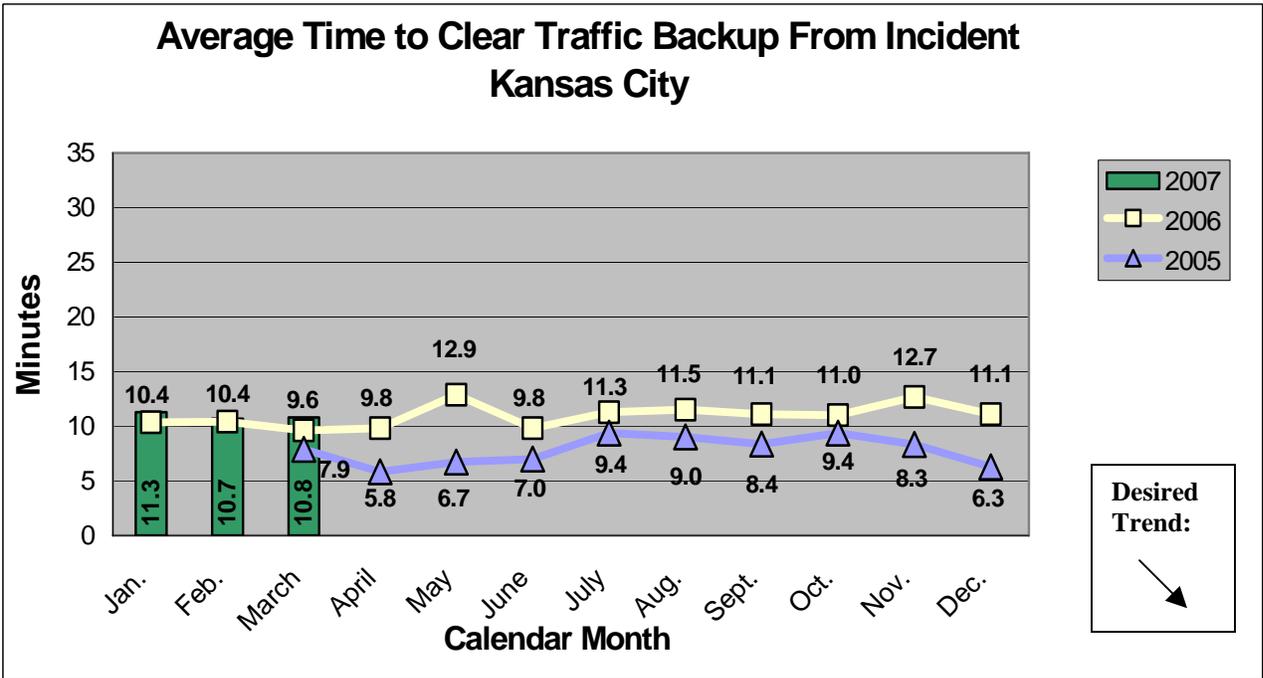
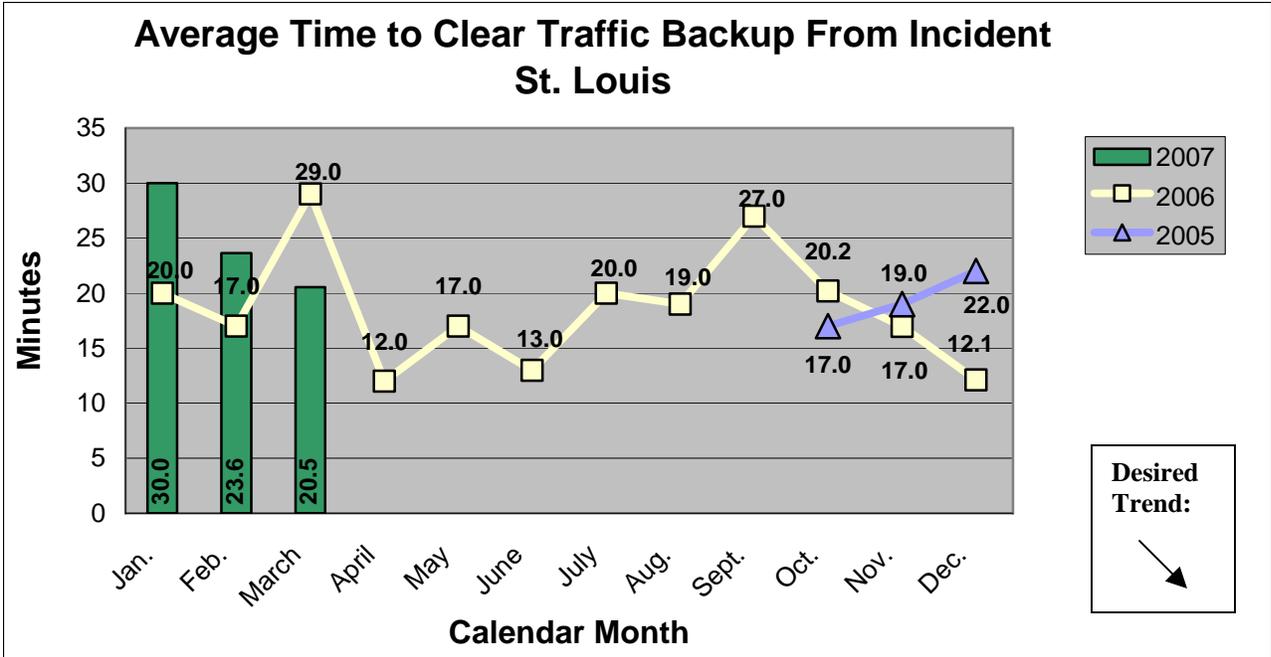
“Lanes cleared” and “clear backup” times are being recorded by MoDOT’s traffic management centers in Kansas City and St. Louis. Average times to clear traffic backups are calculated from these recorded times. In 2005, the Kansas City operators just terminated the incident when they perceived it to be back to “normal” conditions. To standardize that data, Kansas City set up benchmarks of what normal is across the system and automated it to the reports. Starting in January 2006, Kansas City reports were modified to capture when a backup was relieved as an automated process. The Kansas City area 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 continues to record “clear backup” times when they perceived traffic to be back to “normal” conditions. They will use advanced transportation management system devices and software when they become available.

**Improvement Status:**

This data shows clearance times in Kansas City average around 11 minutes, while the St. Louis metro area clearance times are higher. The Kansas City data includes all detected incidents on the KC Scout, the Kansas City emergency response unit, instrumented routes. The St. Louis data is skewed because it only includes a portion of major incidents on the St. Louis freeway network that can be monitored by operators in the traffic management center or by Motorist Assist and Emergency Response personnel on the scene. The St. Louis data does not necessarily capture short-term incidents that clear before a Motorist Assist operator can get to the scene. St. Louis area routes also have larger traffic volumes that create more significant congestion problems than in Kansas City.

The continual decline in the time to clear backups in the Kansas City area can be attributed to the launch of the travel-time system and drivers having real-time information to make informed decisions about detouring away from extended backups.

The unusual spike in St. Louis time to clear backup for the month of January is a result of only having six incidents that the operators were able to monitor on camera to determine when the traffic flow returned to normal. Most of the incidents in January were severe and occurred during peak traffic hours. Clearance times on these six incidents range from 16 minutes to 44 minutes. In February and March the operators tracked the time to clear backup on eight and 15 incidents respectively. Typically there are more than 700 incidents a month on the St. Louis system.



## Uninterrupted Traffic Flow

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

**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. 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. Our Motorist Assist operators are able to respond to nearly every incident, major or minor, in the areas they cover.

**Measurement and Data Collection:**

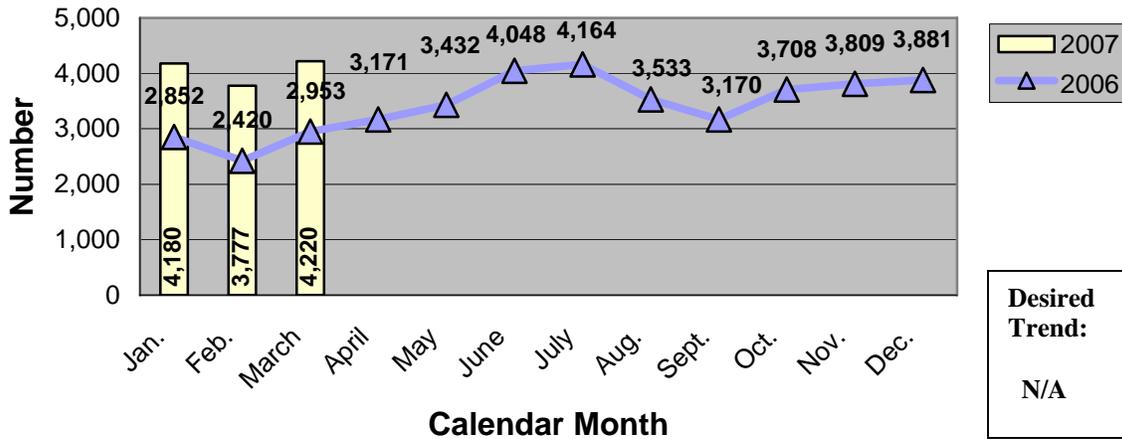
The Motorist Assist operators record each assist and then prepare a monthly summary. St. Louis operators patrol approximately 160 freeway miles, while Kansas City operators patrol approximately 60 freeway miles.

**Improvement Status:**

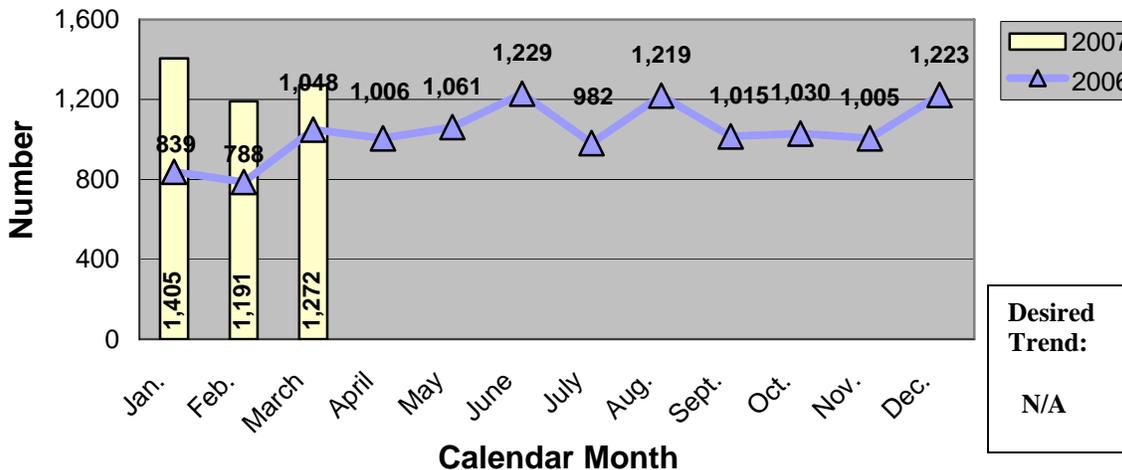
This data demonstrates that the Motorist Assist program in both St. Louis and Kansas City experienced a routine increase in assists due to increased roadway volumes. Typical patterns show increased assists during peak travel season and winter weather and decreased services in late summer and early fall.

The increased number of assists in January correspond to the increased number of stranded motorists and accidents associated with the weather and snow events.

### Number of Customers Assisted by the Motorist Assist Program St. Louis



### Number of Customers Assisted by the Motorist Assist Program Kansas City



## 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, 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.

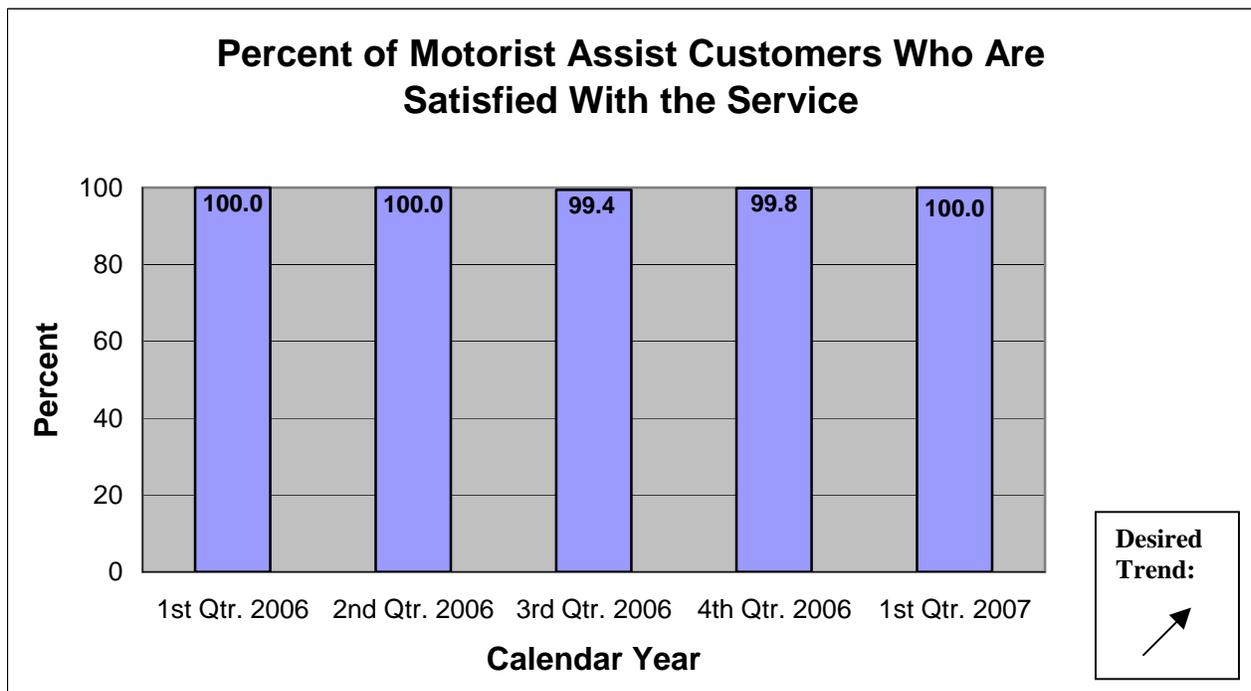
**Measurement and Data Collection:**

Motorist Assist operators 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:**

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

- First Quarter 2006, 380 surveys received
- Second Quarter 2006, 447 surveys received
- Third Quarter 2006, 704 surveys received
- Fourth Quarter 2006, 575 surveys received
- First Quarter 2007, 540 surveys received



## Uninterrupted Traffic Flow

### *Percent of work zones meeting expectations for traffic flow*

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

**Measurement Driver:** Scott Stotlemeyer, Traffic Liaison Engineer

**Purpose of the Measure:**

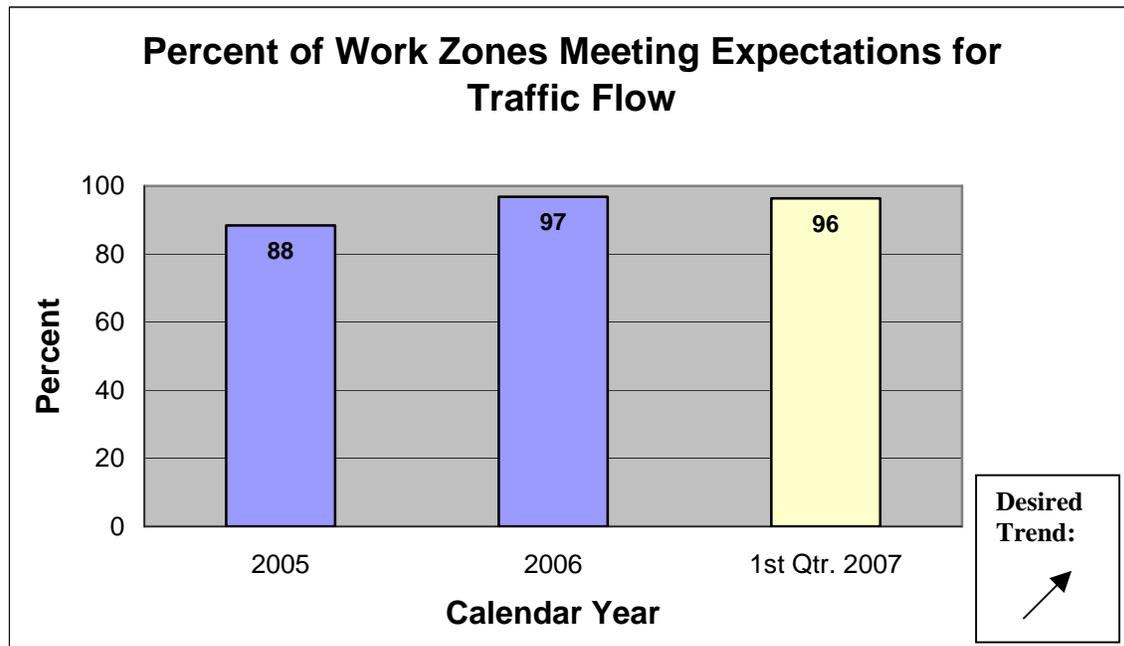
An important factor in evaluating the department's performance in temporary traffic control design, deployment, operation, and maintenance is the measurement of work zones' affect on the mobility of highway users. This measure tracks how well the department meets customer expectations of traffic flow in, around, and through work zones on state highways.

**Measurement and Data Collection:**

Using a formal inspection worksheet, Construction and Materials, Maintenance, Traffic, and district employees 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:**

Compilation of the 357 evaluations performed by MoDOT staff between January and March of this calendar year resulted in a 96 percent satisfaction rating for work zone traffic flow (i.e., a negative perception of traffic flow was recorded in 3.6 percent of the evaluations). This rating is within one-half a percentage point of last calendar year's first quarter and year-end ratings – a year the department showed an 8.4 percent improvement in work zone traffic flow when compared to the previous year's inspection results. Such progress is attributable 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.



# 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 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. Data collection for this measure runs from November through March of each winter season. 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 minor highways to a wet or dry 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 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. This data is updated in the January and April Tracker reports. The time in hours is the statewide average for each month.

**Improvement Status:**

January and February had several large snowstorms that covered most of the state of Missouri. A major ice storm hit southwest, central and south central Missouri in January. The average time to meet the winter event performance objectives has declined over the three months of this quarter. These times will vary based on the amount of snow received, the duration and the intensity of the storm. Strategies to improve these numbers include pursuing equipment enhancements, testing new materials and continued training of snow removal employees.

