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

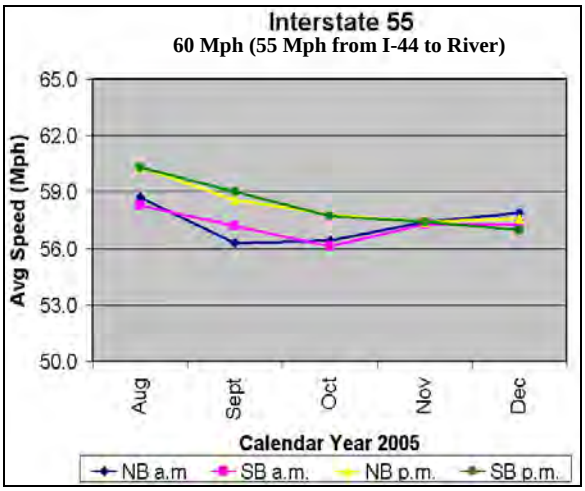
Purpose of the Measure:
This measure tracks average speeds on various roadway sections. Monitoring speeds is a tool for improving transportation system performance.

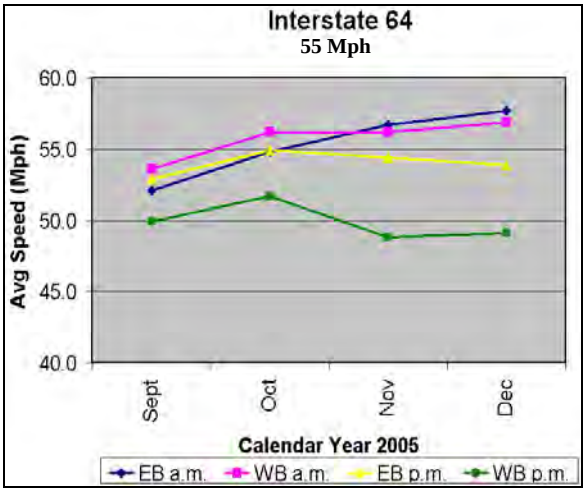
Measurement and Data Collection:
Data from the St. Louis area was provided through our partnership with Traffic.com. They have installed traffic sensors along five routes in the St. Louis metropolitan area to help monitor traffic conditions. Data from the Kansas City area is from sensors installed as part of Kansas City Scout, a bi-state comprehensive traffic and incident management system designed to address regional traffic impacts. Additional sensors maintained by MoDOT Transportation Planning provide traffic information at various locations across the state. In December 2005, MoDOT entered into a contract for statewide traffic data services. These services will provide traffic data, such as speed and travel time, on 5,500 roadway miles using cellular phones as anonymous traffic data probes. This data will allow a statewide approach to proactively managing traffic flow, including improved incident management and traveler information services.

Improvement Status:
To help improve average speeds, live traffic data for three Missouri metro areas is available on MoDOT's website at www.modot.gov 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. Also, MoDOT is placing an increased emphasis on managing incidents to provide uninterrupted traffic flow. In Kansas City, eastbound I-435 at 104th Street has historically been the most congested movement in the evening rush; however, recent improvements including a new eastbound 470 bridge and additional I-435/Hwy 71 lanes dramatically improved travel speeds over the last several months. The desired trend is for the average speed to approach the posted speed limit.

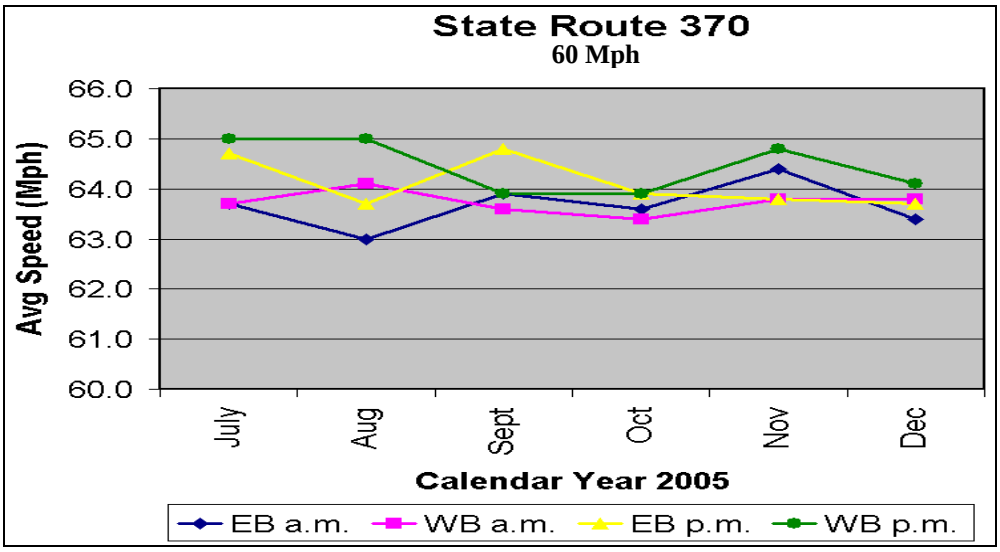
ST. LOUIS

Desired Trend: N/A





Desired Trend: N/A



Desired Trend:

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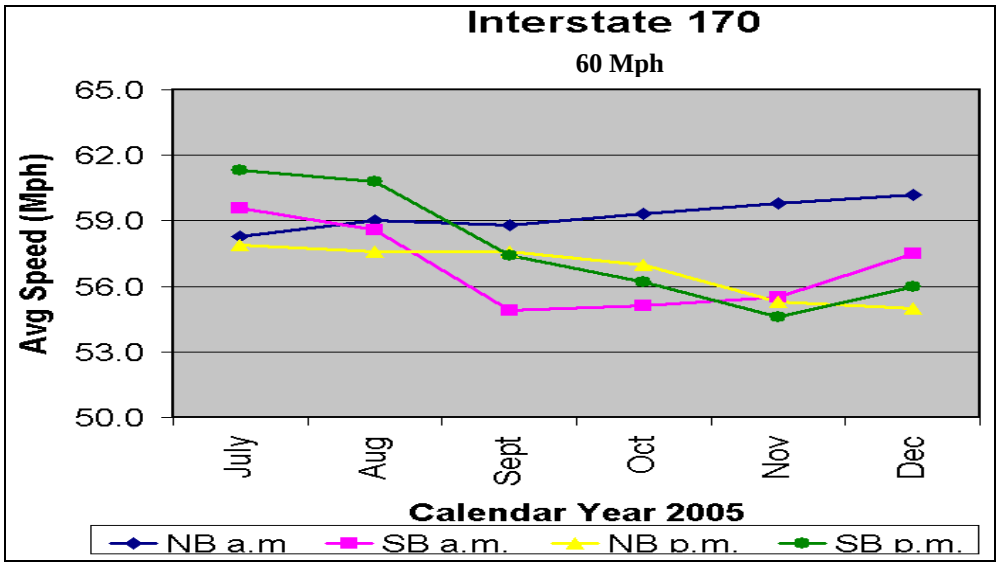
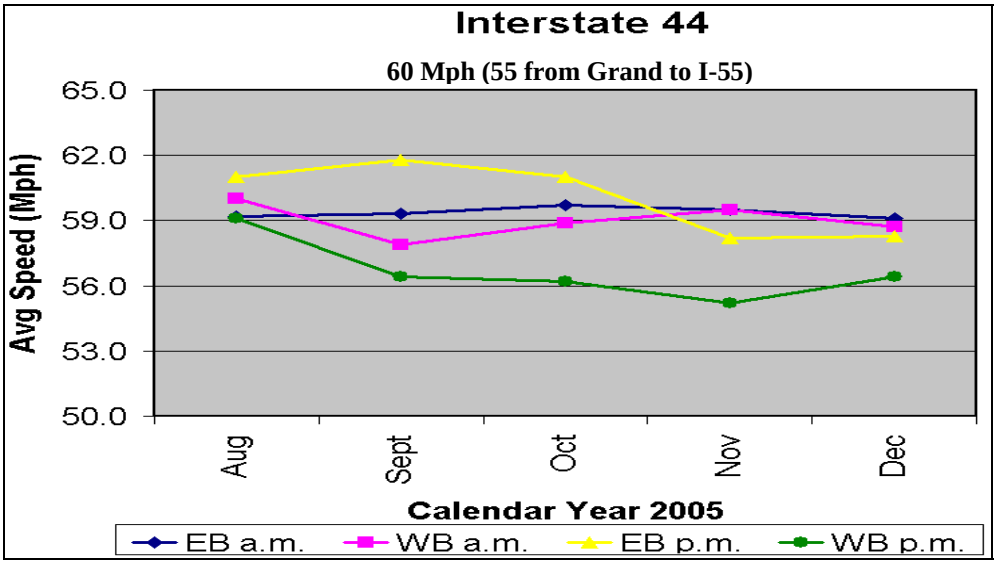


Desired Trend:

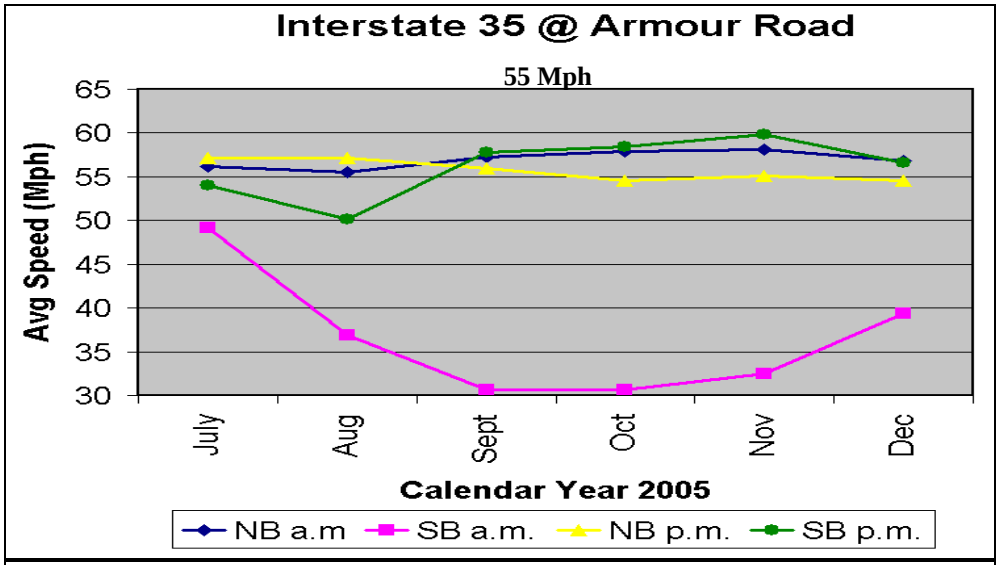
N/A



Desired Trend:

N/A

KANSAS CITY



Desired Trend:

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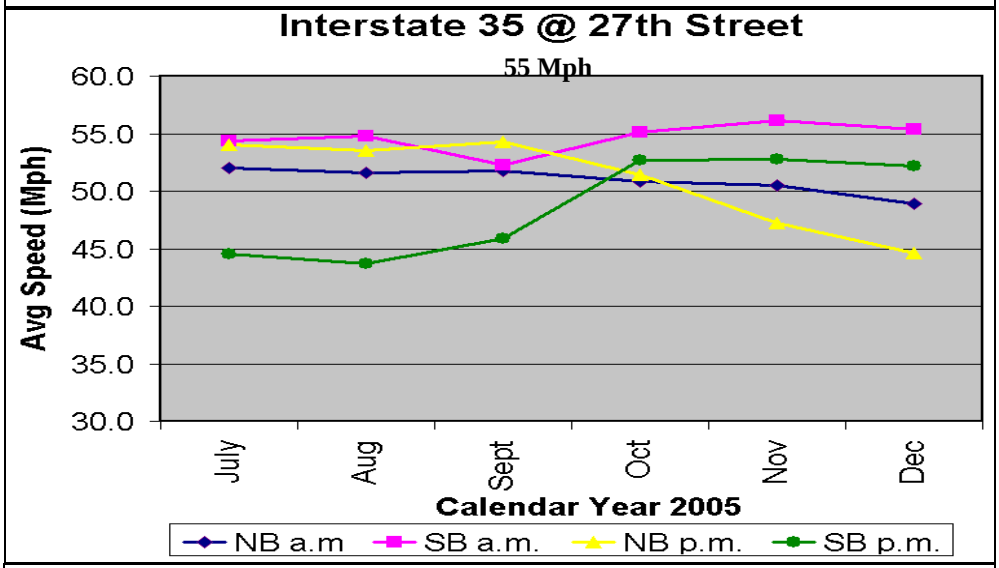

Desired Trend:

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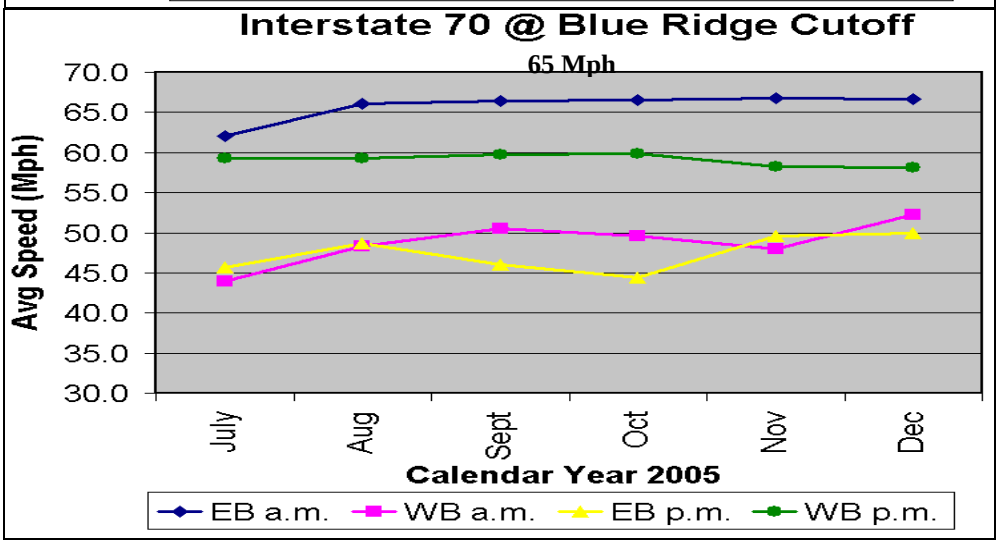
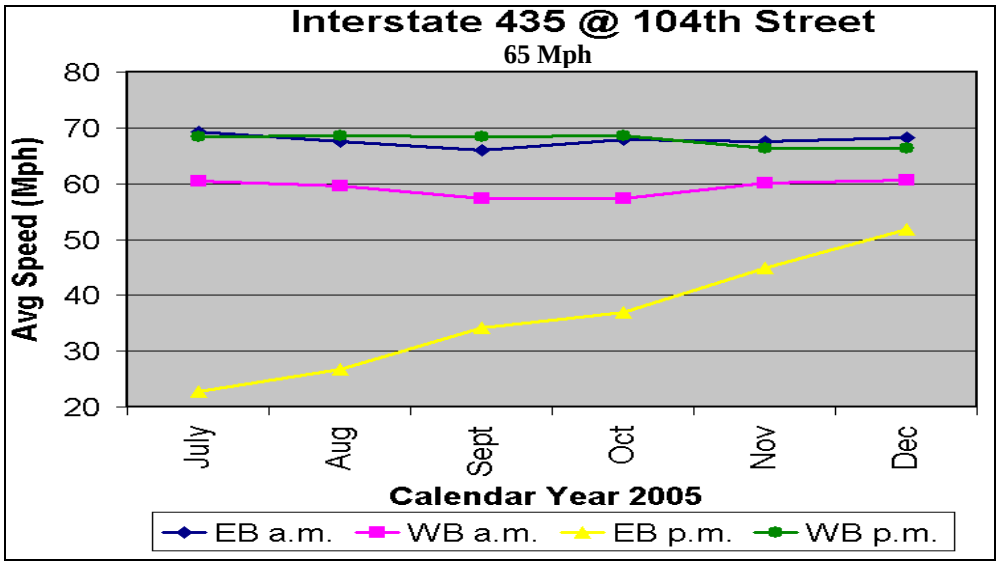


Desired Trend:

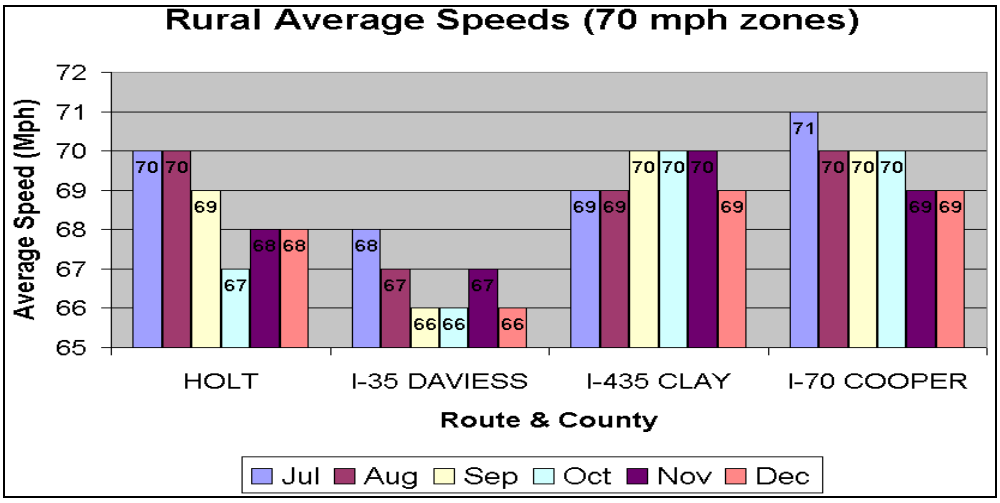
N/A



Desired Trend:

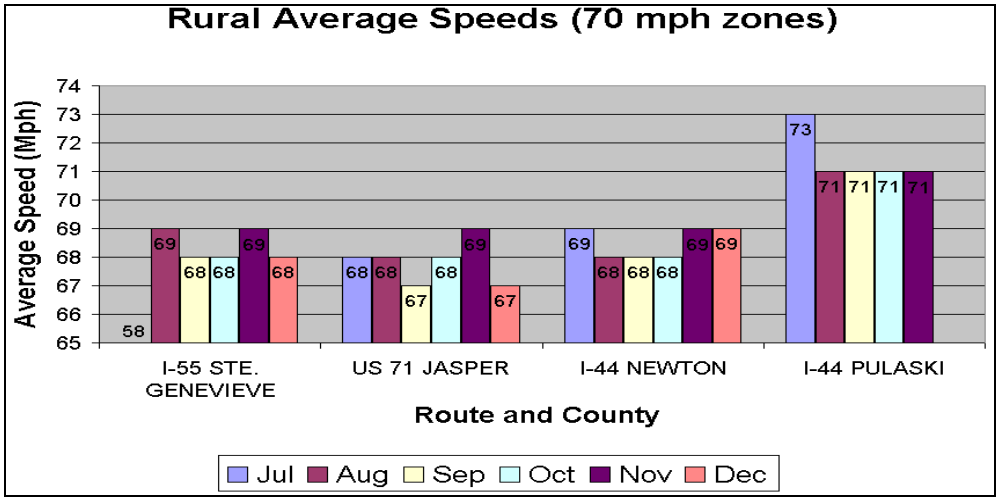
N/A

STATEWIDE



Desired Trend:

N/A



Desired Trend:

N/A

Uninterrupted Traffic Flow

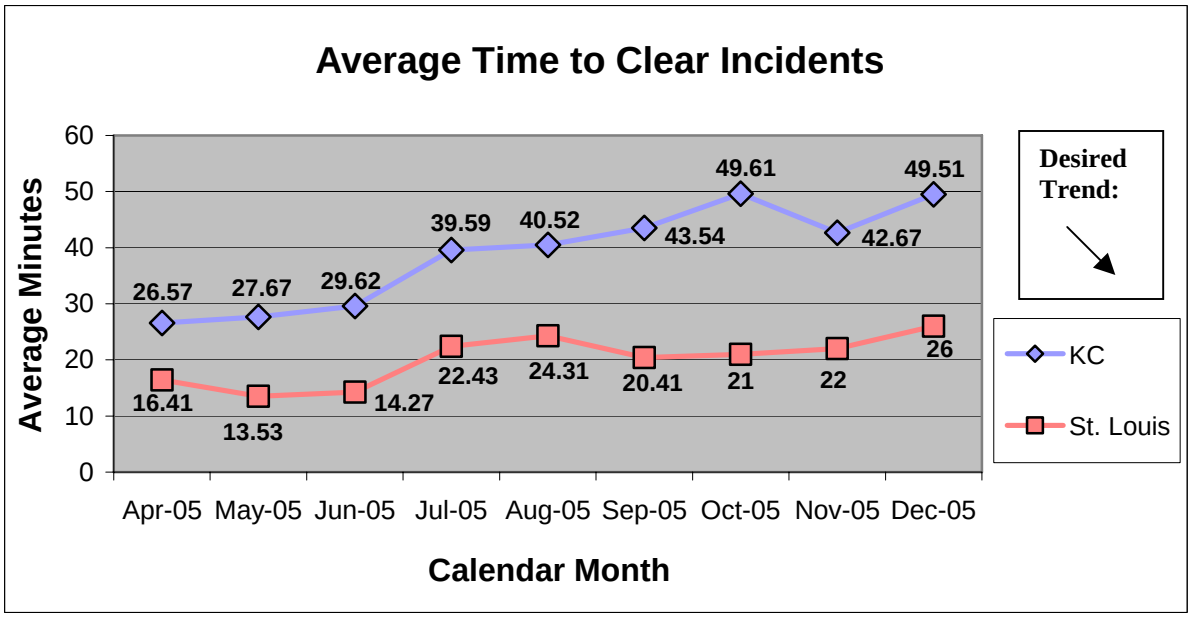
Average time to clear traffic incident

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Bruno, Traffic Studies and Corrections Engineer

Purpose of the Measure:
This measure is used to determine what deficiencies or efficiencies exist in the clearance of incidents 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.

Measurement and Data Collection:
Collection of data began March 1, 2005. "Time of arrival" and the time for "all lanes cleared" are being recorded by Motorist Assist operators and Traffic Management Center staff. Average time to clear traffic incidents is calculated from these recorded times.

Improvement Status:
This data shows that overall, the incident clearance times on urban freeways in Missouri is increasing more rapidly in the Kansas City Metro area than in the St. Louis Metro Area. With no historical data, we will have to monitor this trend in the coming months. Having one full year of historical data will help determine the potential influence of other seasonal factors. While the presence or absence of several large incidents can significantly impact the data on any given month, the overall trend should decrease due to deployment of incident management strategies. Regional working groups comprised of emergency responders and partners across I-44 and I-70 corridors are providing venues for discussion, training and expanded cooperative efforts for rapid incident clearance. Working groups are now forming and meeting in Joplin, Springfield, Rolla, St. Louis, Montgomery City, Columbia and Kansas City. Quick clearance workshops were held in late October 2005 in Joplin, Springfield, Columbia and Kansas City.



Uninterrupted Traffic Flow

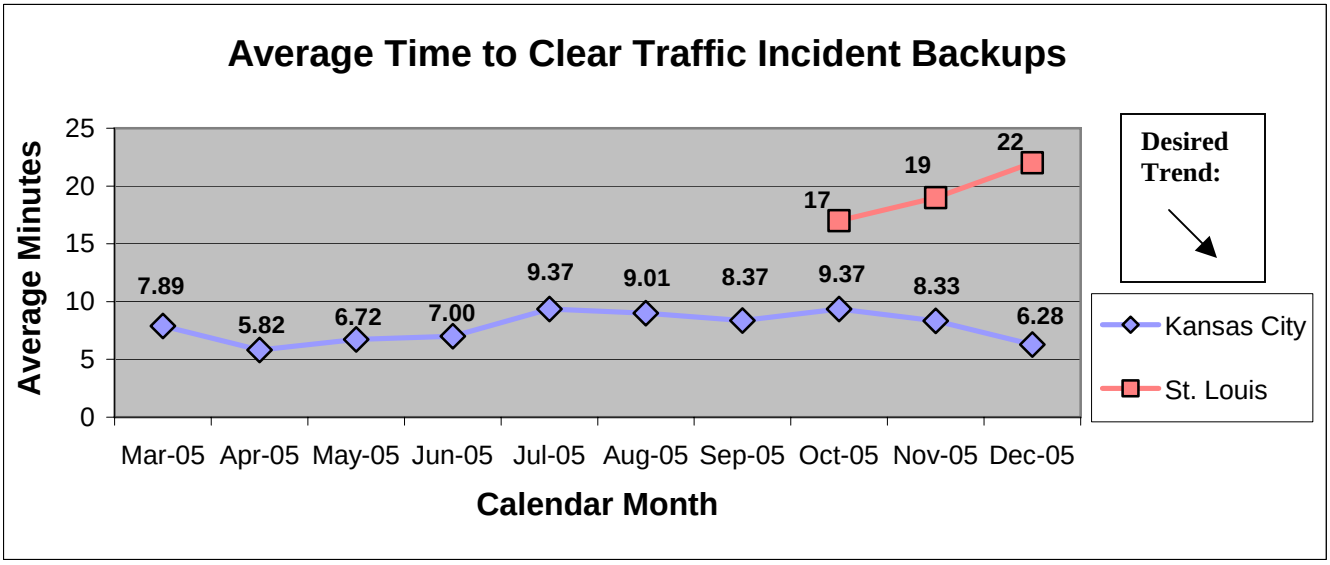
Average time to clear traffic backup from incident

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Bruno, Traffic Studies and Corrections 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" times and "clear backup" times are being recorded by the Traffic Management Center operators using automated detection systems. District 4 (Kansas City) has devices already deployed with data being gathered along portions of I-435 and I-70. District 6 (St. Louis) began collecting data manually using video and Motorist Assist verification. St. Louis will use advanced transportation management system devices and software as soon as they come online during the next several months. Average times to clear traffic backups are calculated from these recorded times.

Improvement Status:
This data shows that congestion clearance times experienced a moderate increase in the third quarter of 2005, with a downward trend starting in the fourth quarter of 2005 in the Kansas City Metro area. The St. Louis Metro data began in the fourth quarter of 2005 and shows an upward trend. As more data becomes available for the St. Louis area, we will be able to have a better understanding of seasonal influences. The presence or absence of large incidents in any single time period can cause significant fluctuations for a small data set. Additionally, the time of day that incidents are occurring will also directly affect the amount of traffic stuck in the queue, and therefore, the amount of time to clear that congestion. The third and fourth quarters included the majority of the peak travel and construction season. This normal increase in traffic demand may also have contributed to the amount of time required to clear an incident. According to the FHWA, each minute of daytime lane blockage in urban areas can result in 4 minutes of residual congestion on average. Quick clearance activities that are currently being promoted statewide will provide for reduced overall delay to motorists, particularly for incidents during peak travel times and peak construction seasons.



Uninterrupted Traffic Flow

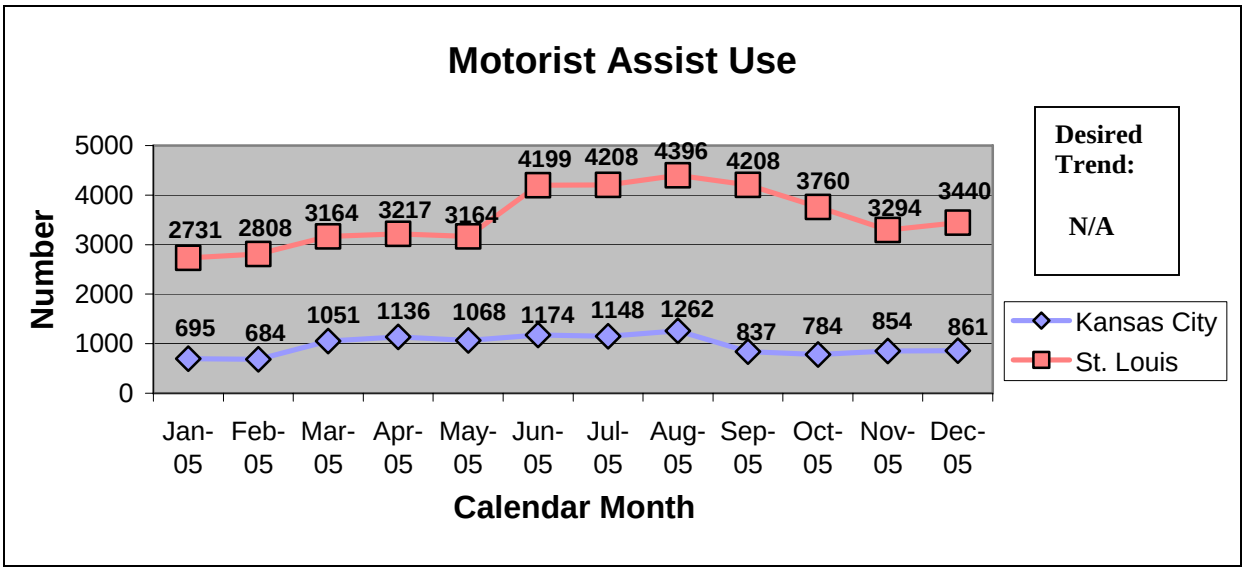
Number of customers assisted by the Motorist Assist program

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Bruno, Traffic Studies and Corrections 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.

Measurement and Data Collection:
Collection of monthly data began in January 2005. The Motorist Assist operators record each assist and then prepare a monthly summary. St. Louis operators patrol approximately 160 freeway centerline miles, while Kansas City operators patrol approximately 60 freeway centerline 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 weather temperatures and roadway volumes. The sharp increase in assists in the St. Louis area is attributable to a spike in temperature and a period of recurring severe weather resulting in increased 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.

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WARD PKWY
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GREGORY BLVD
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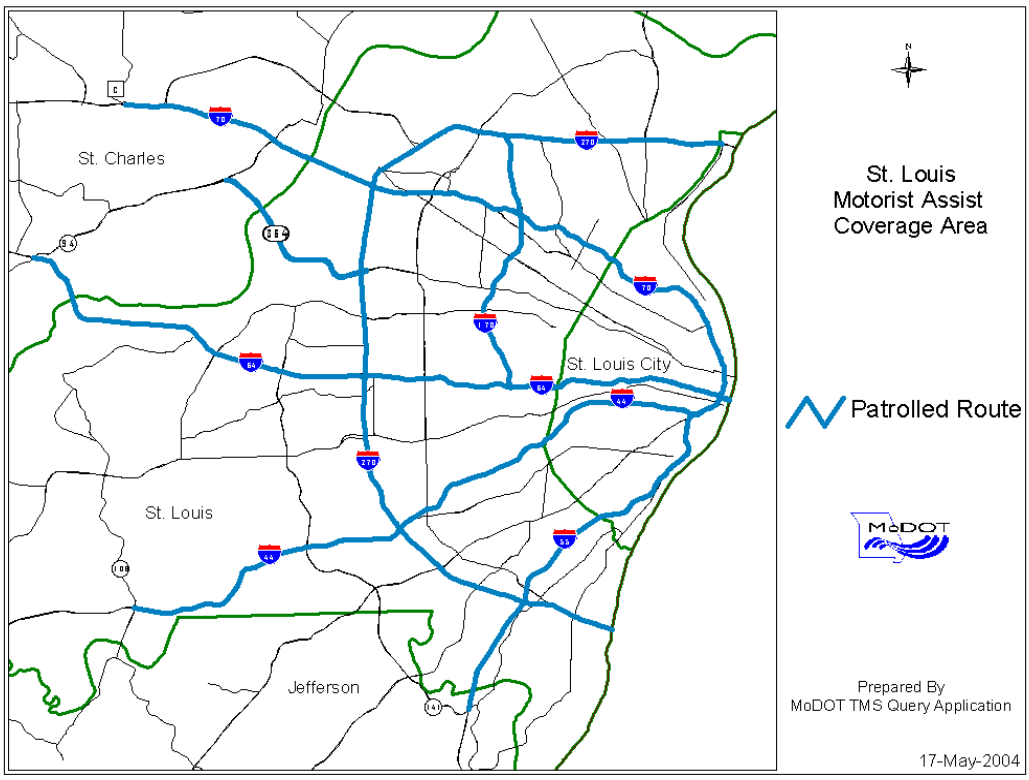
Motorist Assist Zone Map
Kansas City Area
0 1 2 3 4 5 Miles


St. Charles
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St. Louis
Jefferson
St. Louis
Motorist Assist
Coverage Area
Patrolled Route
MoDOT
Prepared By
MoDOT TMS Query Application
17-May-2004

Uninterrupted Traffic Flow

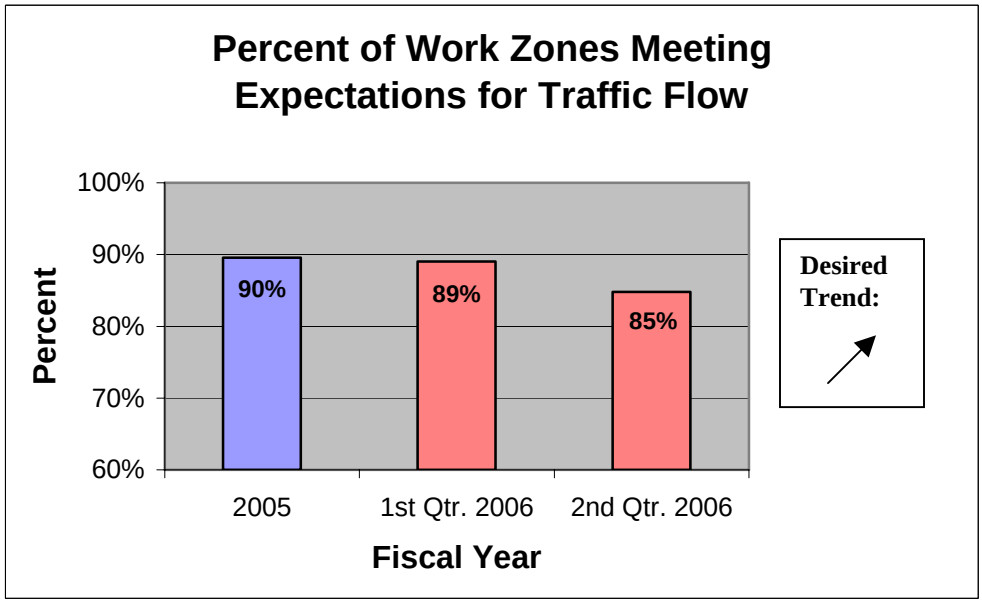
Percent of work zones meeting expectations for traffic flow

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, staff from Construction and Materials, Maintenance, Traffic and the districts 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. A total of 625 inspections (144 in June 2005, 310 in first quarter FY 2006, and 171 in second quarter FY 2006) have been completed since its inception.

Improvement Status:
The percent of work zones meeting traffic flow expectations decreased 4.3 percent this past quarter. The lower percentage does not reflect a relaxation in MoDOT's desire to provide exemplary work zones. Rather, it provides the department with a better baseline of where we are now and identifies opportunity for improvement. Department staff continues to enhance work zone mobility guidance and convey those expectations to contractors, employees, and permittees. As this information becomes part of the culture for those who design, build, and maintain the state's highway system, we expect the percentage reported in this measure to increase.



Uninterrupted Traffic Flow

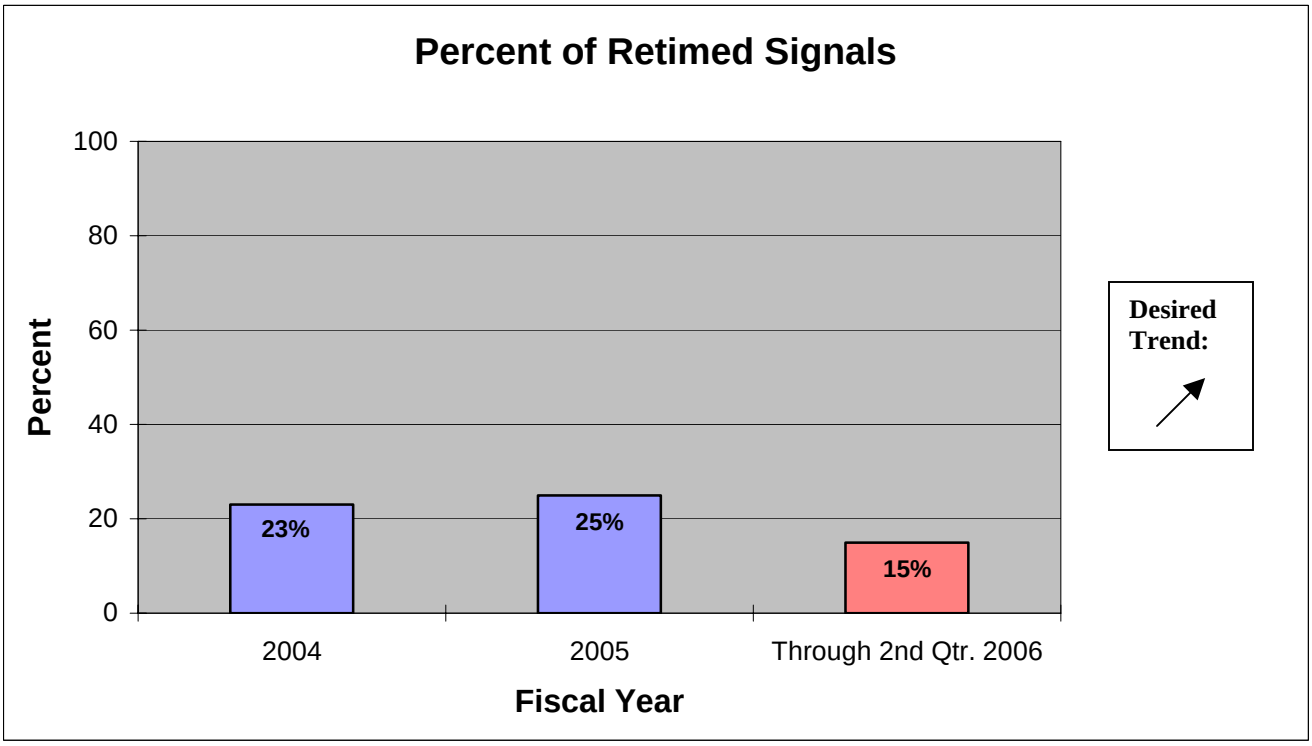
Percent of retimed signals

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 document retimed signal data on a timing sheet. The date of the retiming is recorded in the Transportation Management System database. Data is collected from the TMS database to generate the report. Signals usually operate under several timing plans. Only one portion of the timing plan may have been changed and captured as a retiming. The retiming could have been completed as a result of a customer complaint or a signal observation. Retiming signals for efficient operation should involve quite an in-depth study and this may not be reflected in this measure.

Improvement Status:
We have increased our performance significantly. Second quarter of fiscal year 2005 we retimed seven percent of our signals, an increase of eight percent for FY06. Not every signal may need to be retimed, so we would not expect 100 percent of all signals to be retimed every year. But in order to maintain uninterrupted traffic flow, signals should be retimed at a minimum of every three years. Based on this, we could expect about eight percent to be retimed each quarter (16 percent for two quarters). Therefore, we are just about on target. A quality assurance plan for signal timing has been developed and a quality assurance review of three districts has been completed.



Uninterrupted Traffic Flow

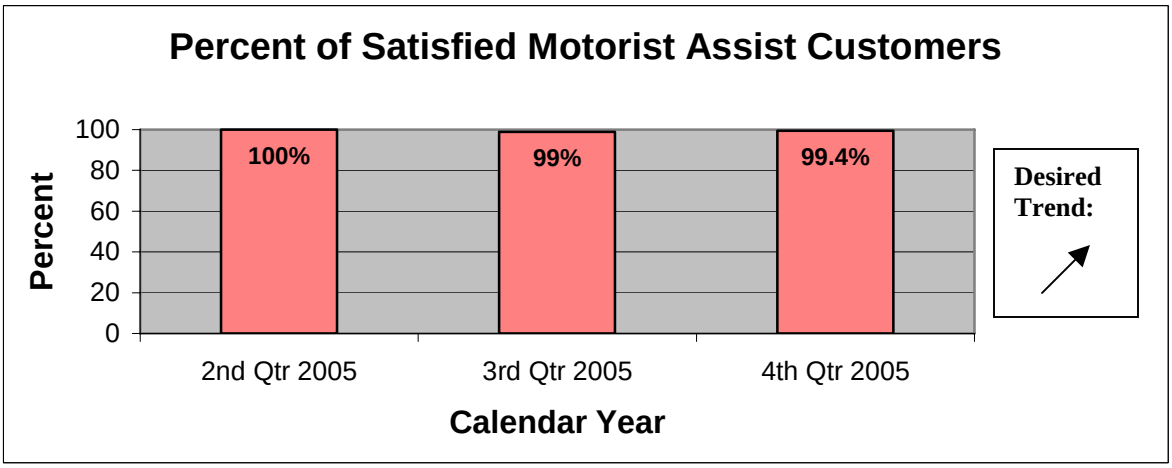
Percent of Motorist Assist customers who are satisfied with the service

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Bruno, Traffic Studies and Corrections 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 began distributing a survey card to customers on June 1 to collect data. Data 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 120 pre-printed survey forms in the second quarter, 204 pre-printed forms in the third quarter and 361 pre-printed survey forms in the fourth quarter that were returned to MoDOT by motorists who used the Motorist Assist service in the Kansas City and St. Louis metro areas. This initial data concurs with the comments that have been historically provided by customers on prior comment forms. The change to 99 percent from the second quarter to the third quarter represents a single respondent out of 204 surveys who selected that they were neither satisfied nor dissatisfied with the service. There were 361 respondents in the fourth quarter of 2005. Of those 361 respondents, 2 selected that they were neither satisfied nor dissatisfied with the service. Based on a specific question in these surveys, 99.5 percent of respondents selected that they believed that MoDOT should continue to provide this service.



Uninterrupted Traffic Flow

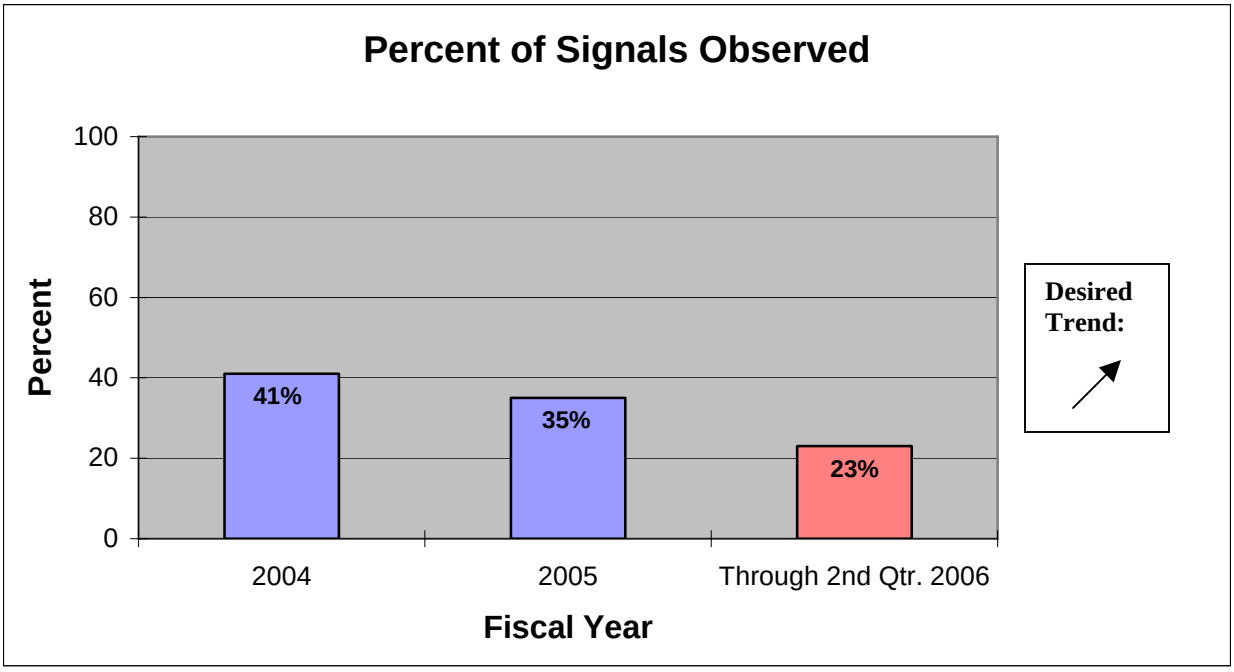
Percent of signals observed

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. The date of the signal observation will be 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: AM peak, Noon peak, PM peak and off peak.

Improvement Status:
For the second quarter of fiscal year 2006 we have made significant progress. Twenty-three percent of our signals, an increase of 13 percent from second quarter fiscal year 2005, have been observed. However, to complete observations on all signals, we should observe approximately 25 percent of signals per quarter (50 percent for two quarters). Therefore we have completed about half of our expected observations through second quarter. All signals should be observed each year with adjustments made to the timing, if necessary, to improve uninterrupted traffic flow. Guidance on how to conduct signal observations has been developed as well as a quality assurance plan for signal observations. A quality assurance review of three districts has been completed.



Uninterrupted Traffic Flow

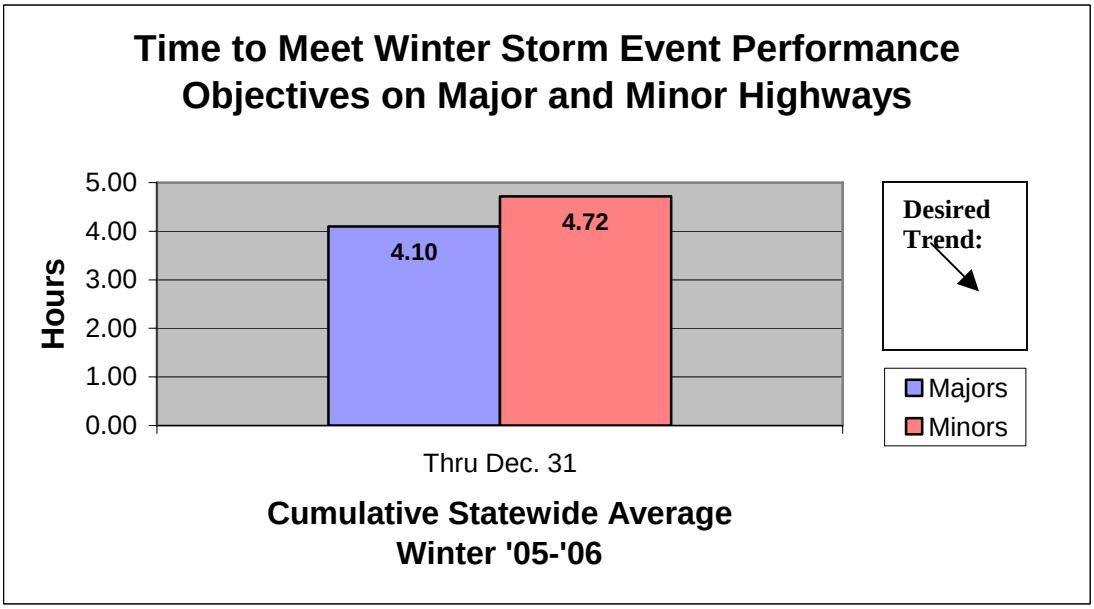
Time to meet winter storm event performance objectives on major and minor highways

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. The objectives are to restore the major highways to a wet or dry condition as soon as possible after a storm's end; to restore the higher volume (greater than 1,000 average daily traffic) minor highways to a wet or dry condition as soon as possible after a storm's end; and to 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 after a storm's end.

Improvement Status: This is the first report for this measure. The two categories for minor highways were averaged into one number for all minor highways. The chart shows that, for the storms we received in December, it took a little over four hours from the end of the storm to return the major highways to a wet or dry condition and approximately four and three quarter hours to meet the performance objectives for the minor highways. We are implementing new equipment such as wider snowplows and training our employees to be more efficient in our snow removal operations.



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