Uninterrupted Traffic Flow

Tangible Result Driver – Ed Hassinger, District Engineer

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: Ed Hassinger, District Engineer
Measurement Driver: Troy Pinkerton, Traffic Liaison Engineer

Purpose of the Measure:

This measure uses the average travel index values to calculate the ten-mile travel times during the morning and evening peaks on various freeway sections. We identify the peak periods to be the 7 a.m. hour and the 4 p.m. hour respectively based on historical values that suggest these hours to be the peak volume periods. 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.

Measurementa 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 11.43 in the third quarter of fiscal year 2011 to 10.57 for this reporting period.

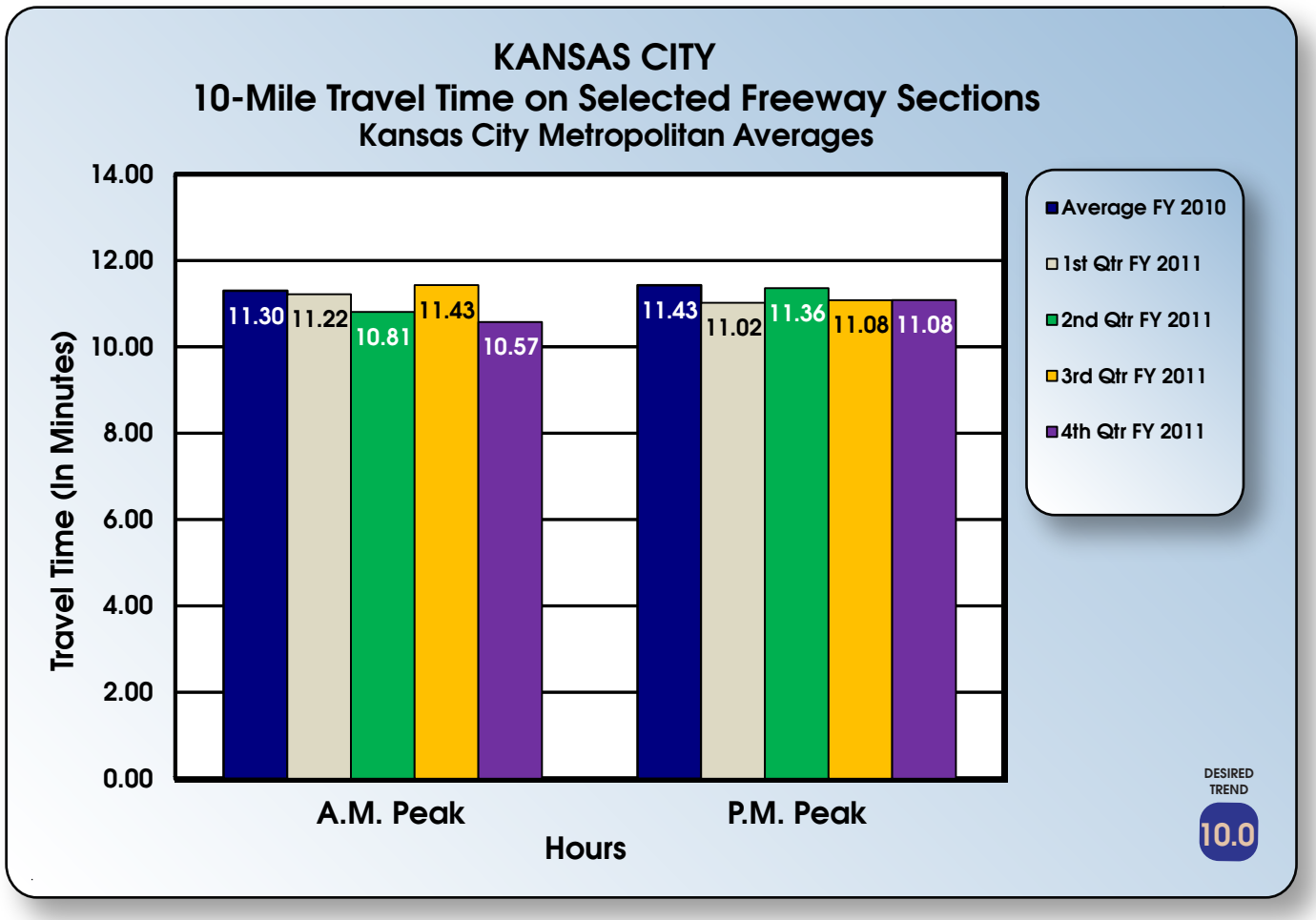
The evening peak travel index remained constant for the second quarter in a row at 11.08. Travelers experienced only minor delays during their peak commutes and are due to the normal recurring congestion.

Mobility improvements continue to be shown to along the I-29/I-35 section that had long been impacted by the construction activities associated with the kcICON project. The intersection construction at I-435 and I-70 and WB I-70 near Blue Ridge Cutoff which includes several bridge projects are currently the areas with the greatest impact to mobility.

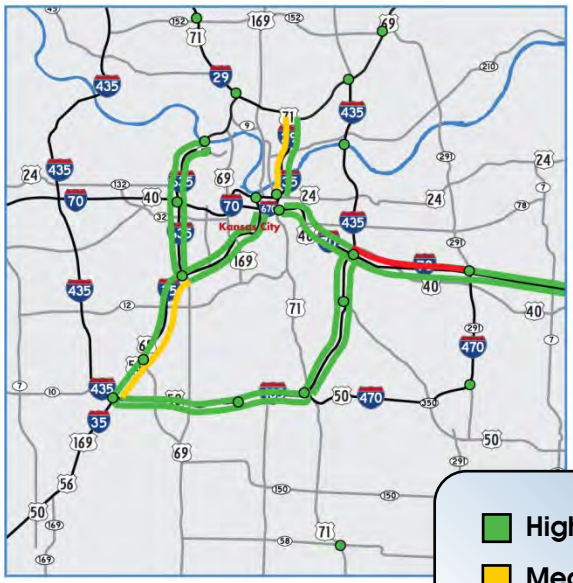
Customers are encouraged to "Rate our Work Zones" at www.modot.org.

St. Louis metropolitan region:
The morning peak ten-mile travel time in St. Louis slightly decreased from the third quarter of 10.92 to 10.89 for the fourth quarter of the fiscal year. The travel time in the evening peak increased from 11.12 in the third quarter to 11.69 to wrap up fiscal year 2011.

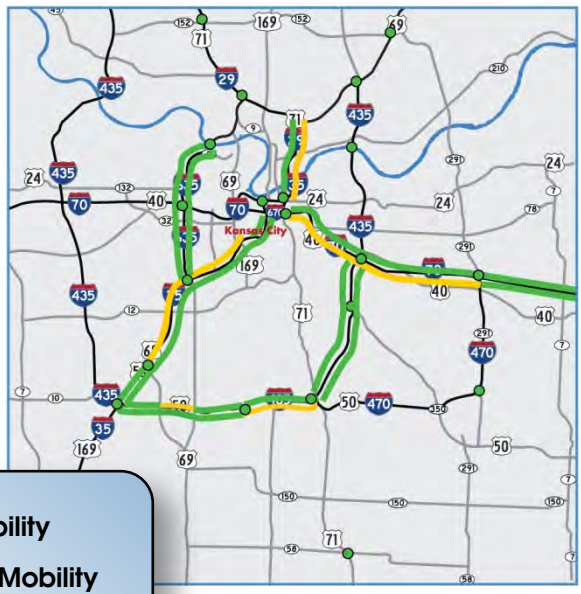
The regional mobility maps show improvements in a few locations as compared to the previous quarter. The morning movements along northbound I-270 at I-44 and the eastbound movement along 40/61 at I-270 experienced the most significant slowdowns due to recurring congestion. The evening commute along eastbound I-70 also experienced slowdowns due to reversible lanes being closed. Another area of congestion occurred near the construction of the new Mississippi River Bridge near downtown. MoDOT's traffic management center, Gateway Guide, now offers a new and improved website. Nearly 300 live camera images, real time information on incidents and work zones with lane closures, personalized MY STL Traffic alerts customized to meet your needs, as well as a mobile friendly version of the site can all be found at www.gatewayguide.com.

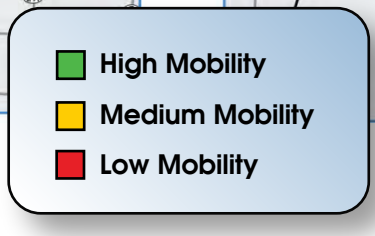


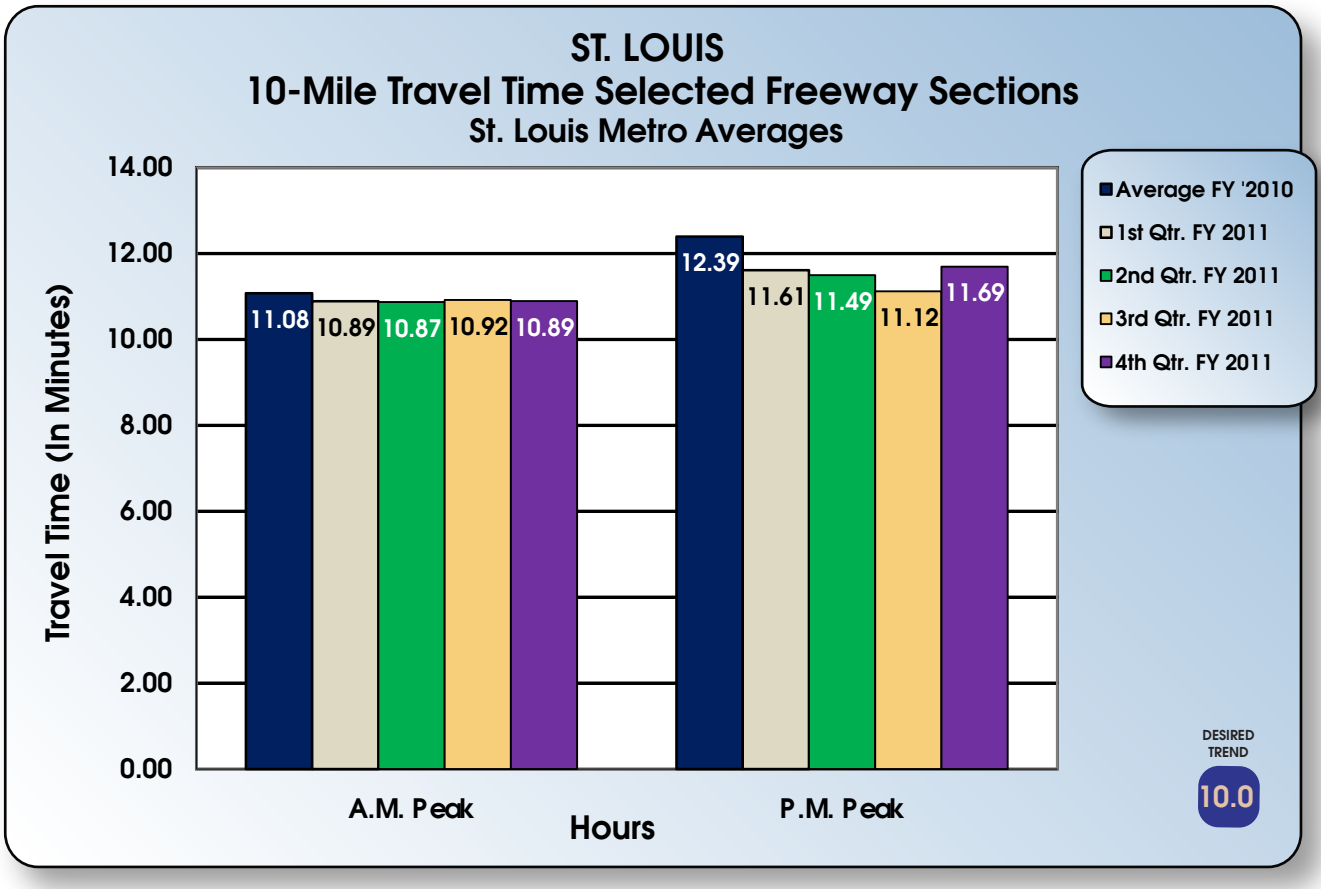
7 AM – Regional Mobility



4 PM – Regional Mobility







7 AM – Regional Mobility

4 PM – Regional Mobility

High Mobility
Medium Mobility
Low Mobility

Average rate of travel on signalized routes-1b

Result Driver: Ed Hassinger, District Engineer
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:

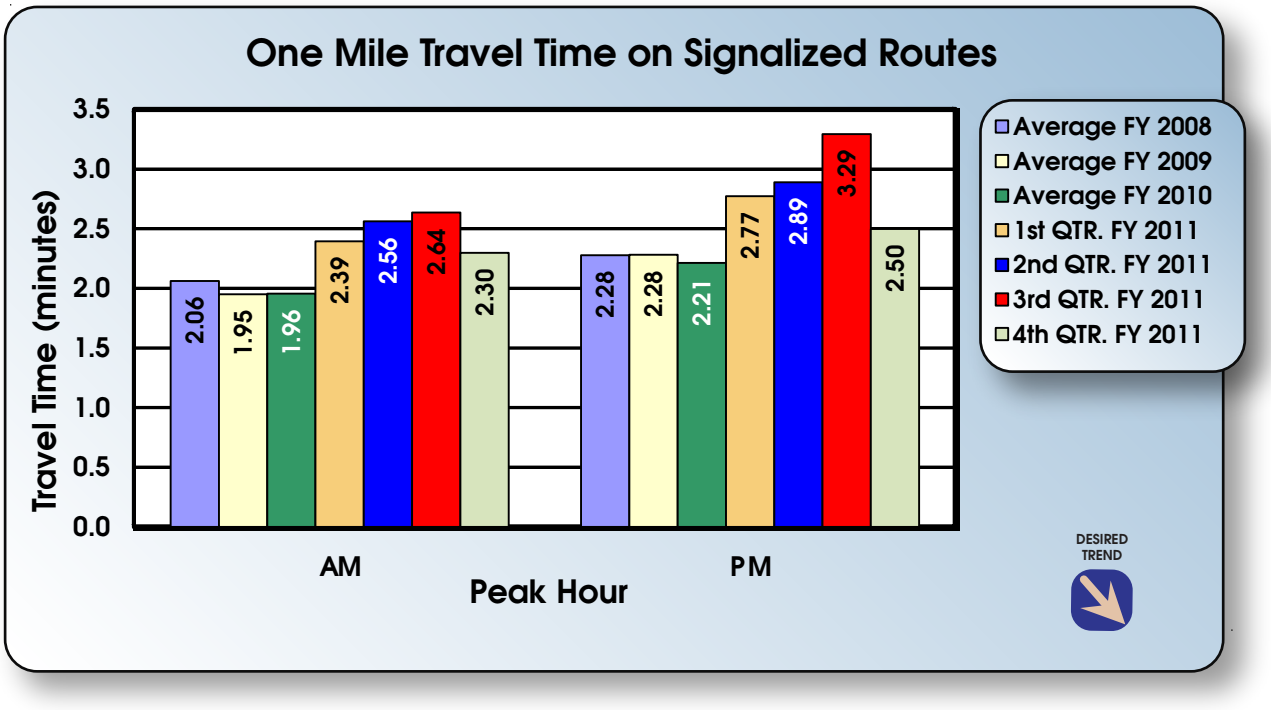
Travel times are measured on random arterials. Travel times are collected by driving each route twice in each direction during a.m. and p.m. peak times and timing how long it takes to traverse the route. The travel time is divided by the length of the route and then all routes averaged together to determine 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 2011 are based on 29 random routes, 48 random routes for second quarter, and 50 random routes for third and fourth quarter fiscal year 2011.

For fourth quarter fiscal year 2011, the average statewide travel time per mile is 2.30 minutes for a.m. peak and p.m. peak is 2.50 minutes. This equates to an average speed of 26 mph for a.m. and 24 mph for p.m. The a.m. peak travel time per mile is two mph faster than p.m. peak travel time per mile. The average travel time per mile for fiscal year 2011 is 2.47 minutes for the a.m. peak and 2.86 minutes for the p.m. peak. These are larger than the a.m. peak and p.m. peak average travel times per mile, respectively, for fiscal years 2008, 2009, and 2010.

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: Ed Hassinger, District Engineer
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 February of 2011, St. Louis moved to a new ATMS software program.

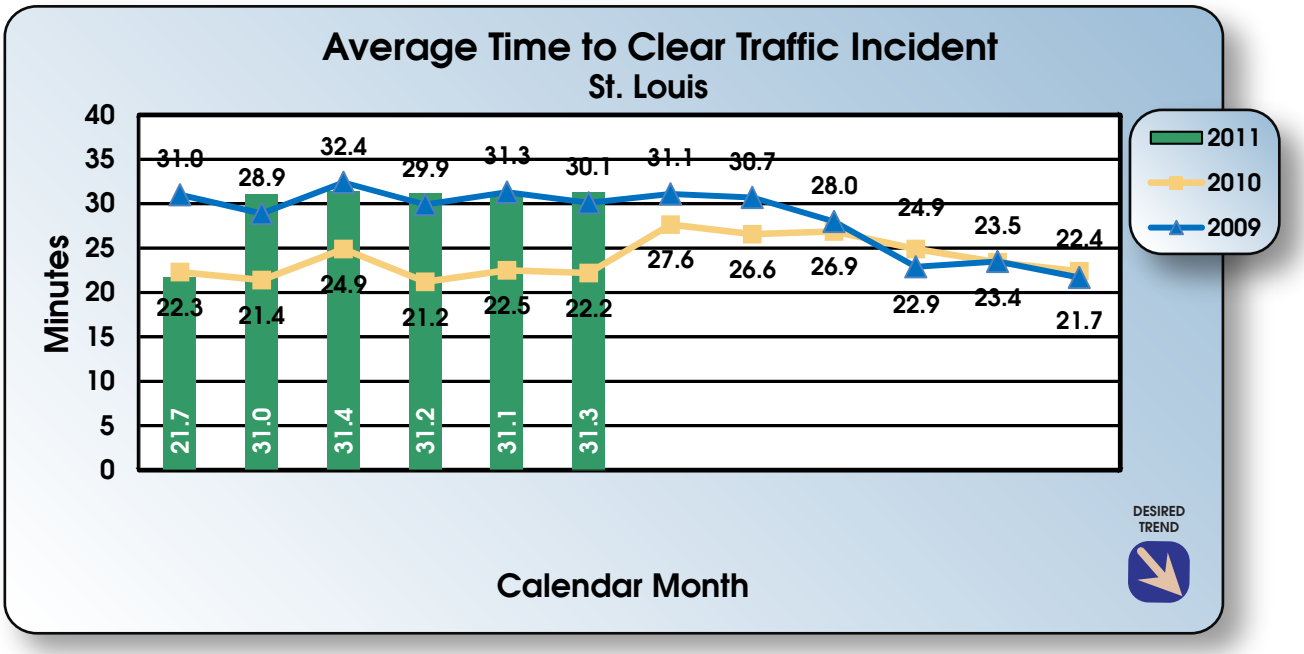
In July 2010, Kansas City Scout went to retrieving 100 percent of its data from the TranSuite SQL databases.

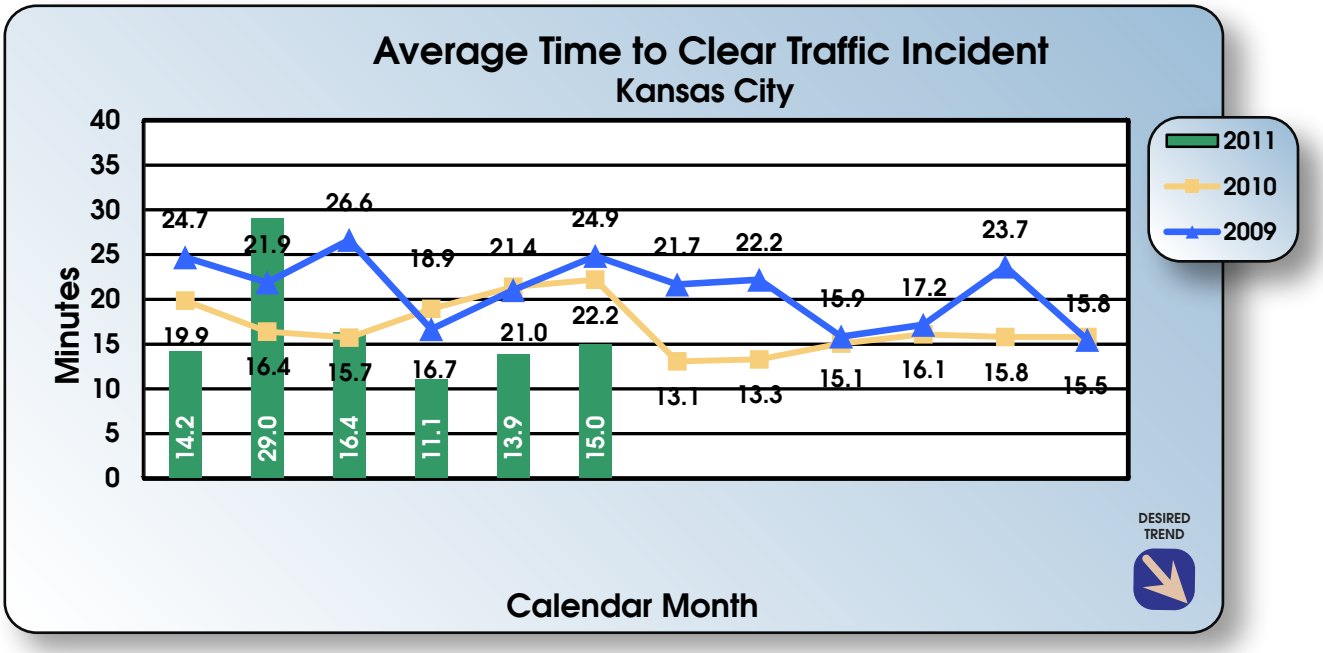
Improvement Status:

St. Louis recorded 384, 349 and 354 incidents respectively for the months of April, May and June 2011. The continued increase can be attributed to the operators' unfamiliarity to the new ATMS software program that was installed in February. St. Louis continues to train operators in the new system. This has lead to a reduced number of incidents that for which all data has been captured. The number of reported incidents in St. Louis has decreased because St. Louis is only reporting incidents that occur on the mainline of the Interstate routes.

In April and June there were crashes that took 322 minutes and 342 minutes, respectively, to clear. This increased the average time two minutes per incident for each month. In May, there was one crash that took 164 minutes to clear. This increased the average time to clear by one minute for the month

Kansas City collected data on 745, 707, and 756 incidents respectively for the months of April, May and June 2011. The increase in time to clear incidents in the Kansas City area for June is a reflection of the 20 long term incidents that had an average duration of 268 minutes each.




Average Time to Clear Traffic Incident
Kansas City
Minutes
40
35
30
25
20
15
10
5
0
2011
2010
2009
24.7
21.9
26.6
18.9
21.4
24.9
21.7
22.2
15.9
17.2
23.7
15.8
19.9
16.4
15.7
16.7
21.0
22.2
13.1
13.3
15.1
16.1
15.8
15.5
14.2
29.0
16.4
11.1
13.9
15.0
DESIRED TREND
Calendar Month


SUPERVISOR
MoDOT
MOTORIST ASSIST

Number of closures on major routes-1d

Result Driver: Ed Hassinger, District Engineer
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 MoDOT's 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.

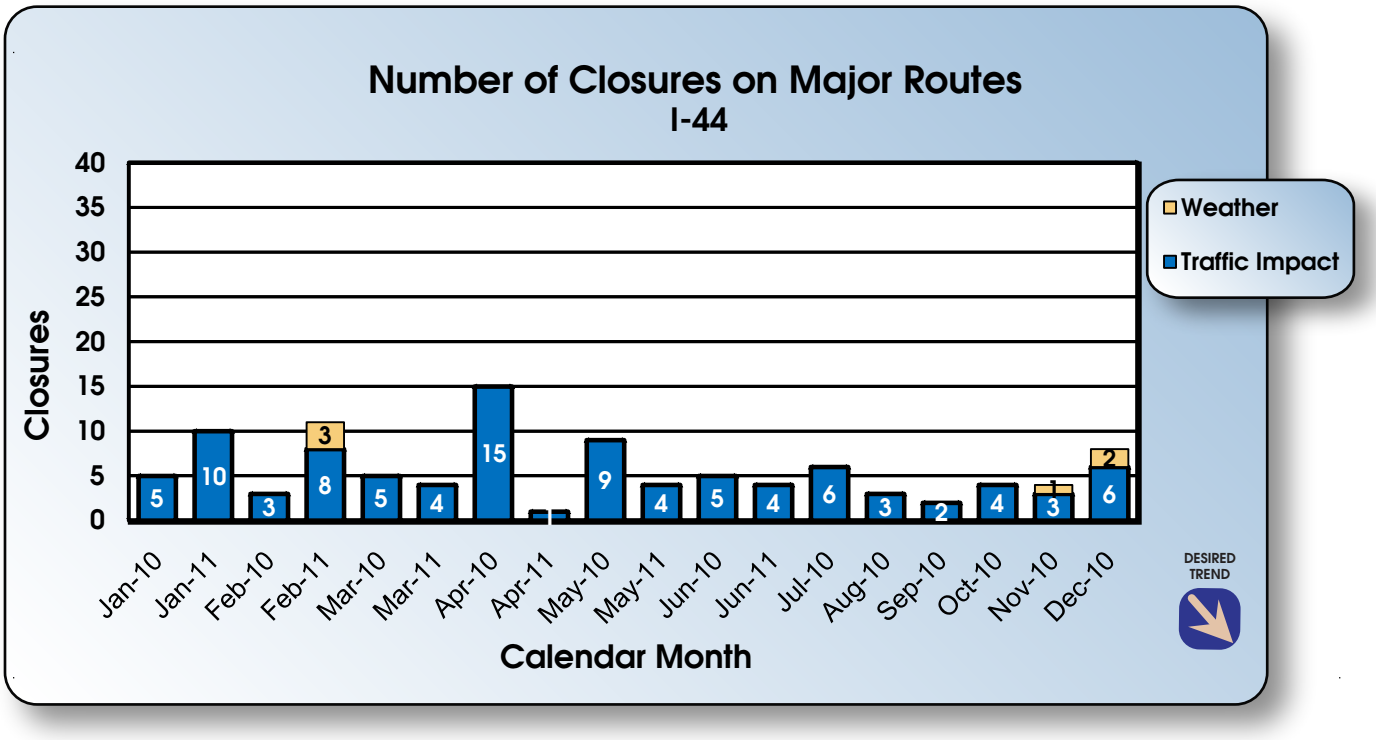
Improvement Status:

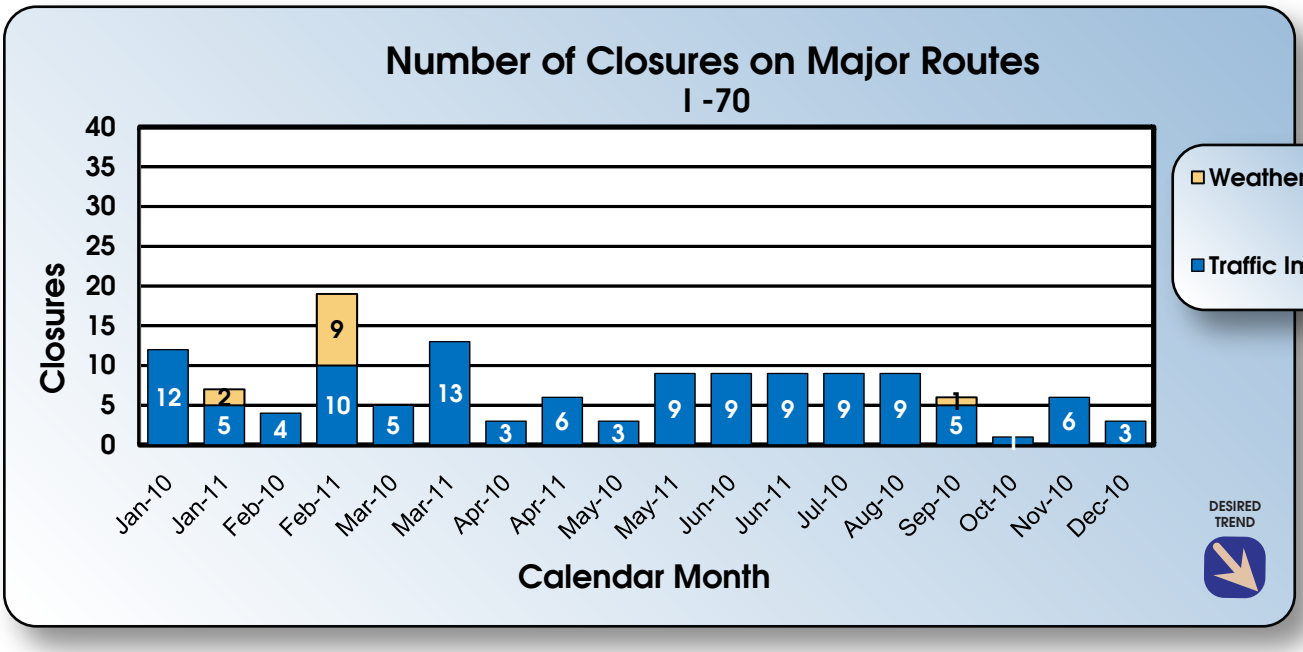
All weather closures on major routes are flood related closures associated with flooding in the Mississippi and Missouri River basins.

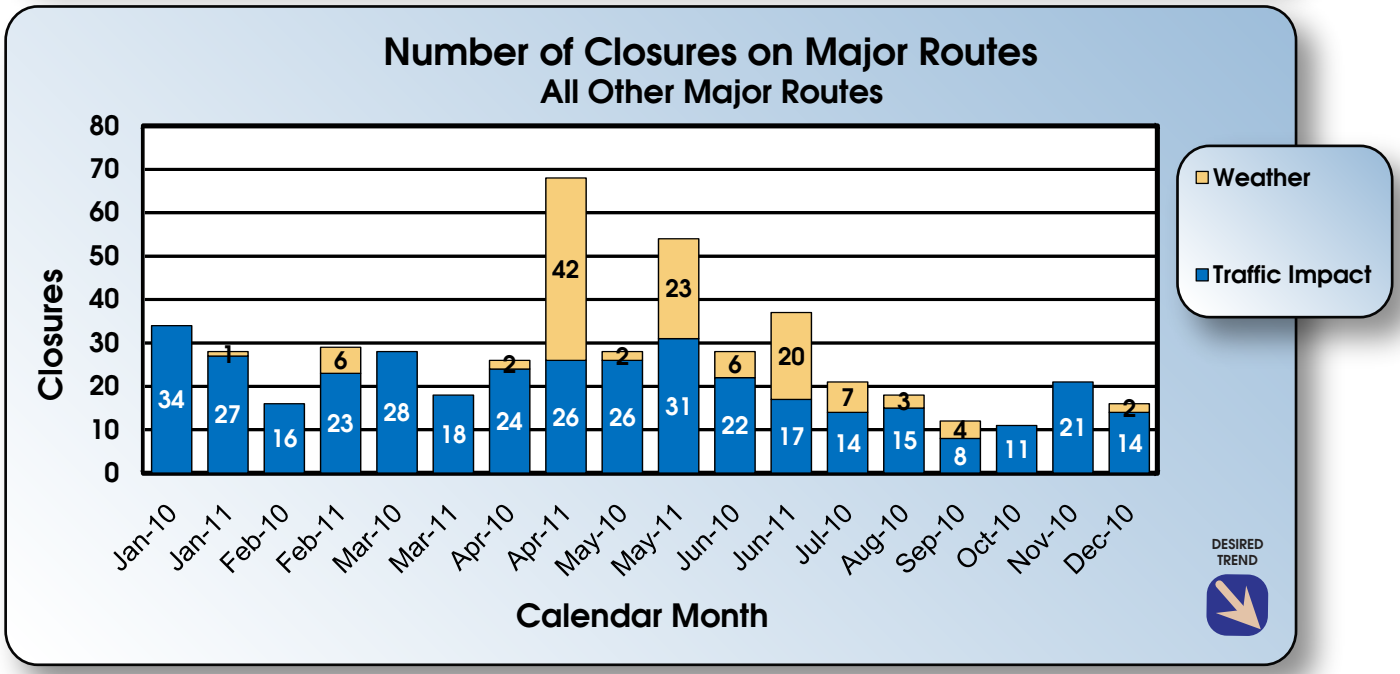
On I-44, a majority of the closures in the second quarter of calendar year 2011 were related to traffic crashes or police emergencies.

On I-70 the traffic impact closures were related to traffic crashes, utility damage, and debris on the roadway and police emergencies.

Traffic crashes, police emergencies, 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.

Statewide text report of road closures

Tips for using the map

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

Result Driver: Ed Hassinger, District Engineer
Measurement Driver: Dan Smith, Traffic Management & Operations Engineer

Purpose of the Measure:

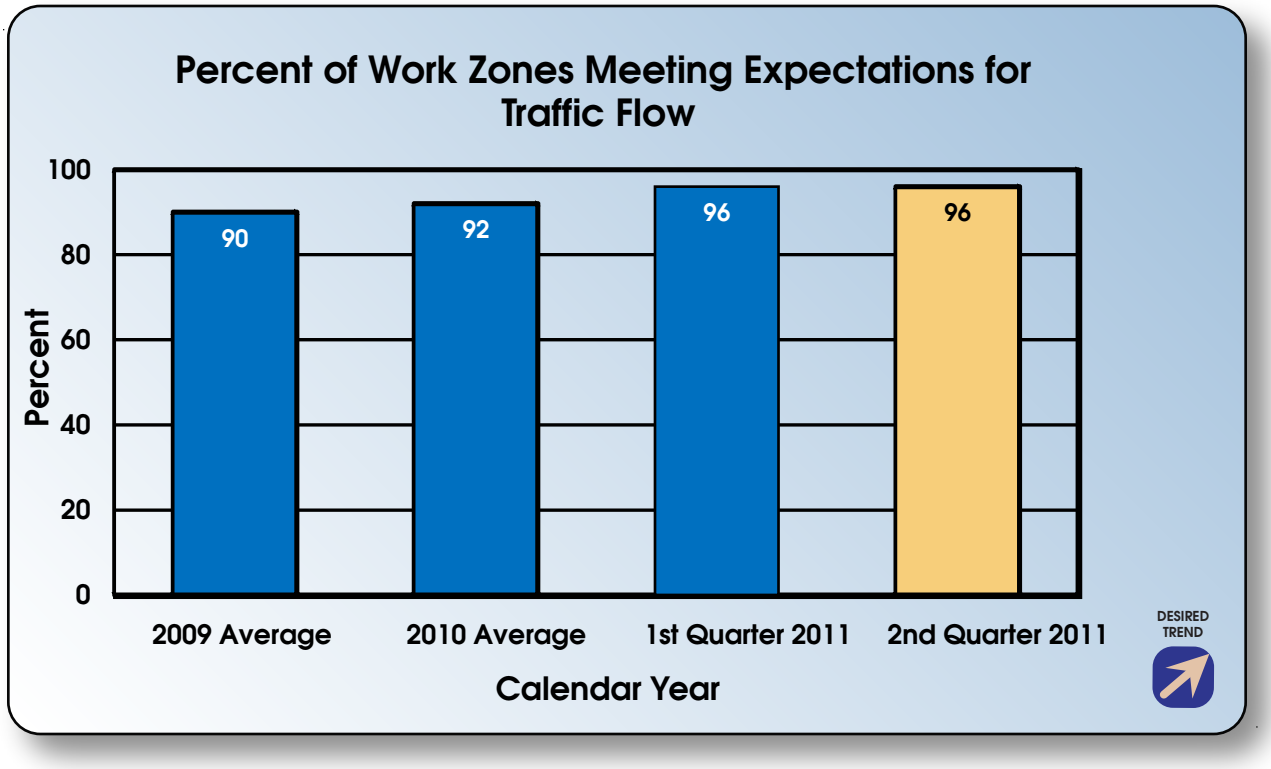
An important factor in evaluating the department's performance in temporary traffic control design, deployment, operation and maintenance is the measurement of work zones' affect on the mobility of highway users. This measure tracks how well the department meets customer expectations of traffic flow 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 1,191 surveys performed by the traveling public and MoDOT staff between April and June of this calendar year resulted in a positive satisfaction rating of 96 percent for work zone traffic flow. Second quarter customer satisfaction expectation has maintained the same percentage as first quarter, and is a four percent increase from the 92 percent customer satisfaction reported for the calendar year 2010.



Time to meet winter storm event performance objectives-1f

Result Driver: Ed Hassinger, District Engineer
Measurement Driver: Tim Jackson, Maintenance Liaison Engineer

Purpose of the Measure:

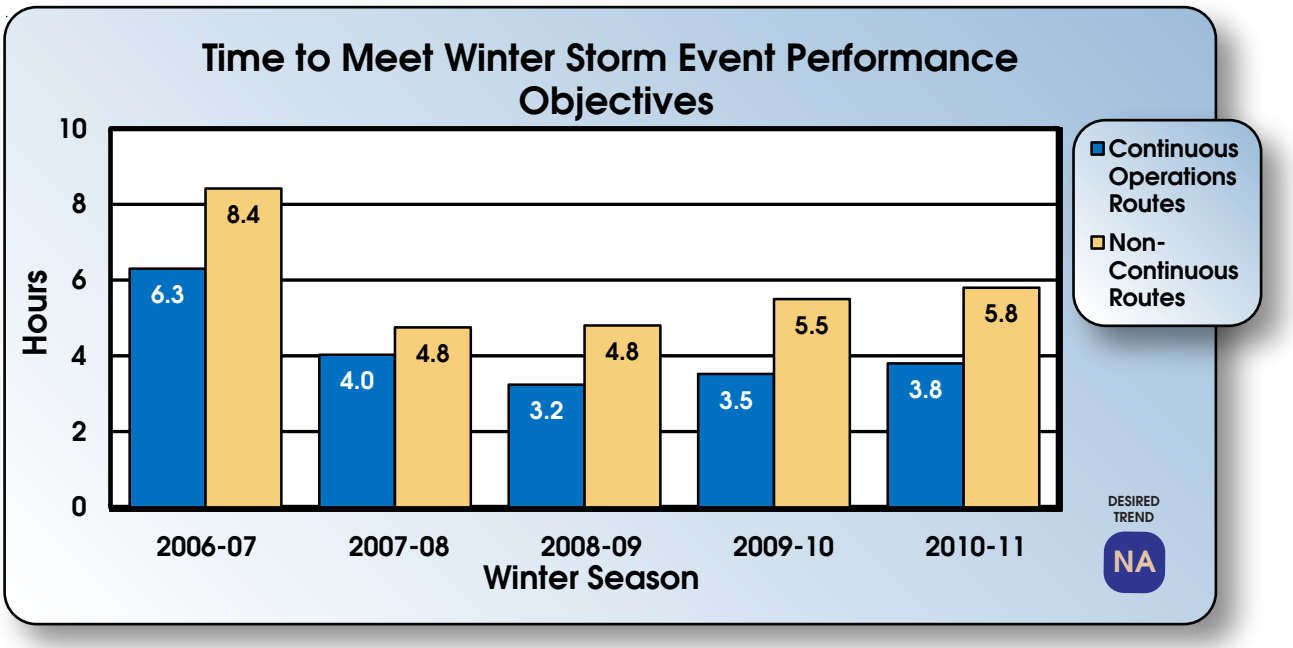
This measure tracks the amount of time needed to perform MoDOT's snow and ice removal efforts.

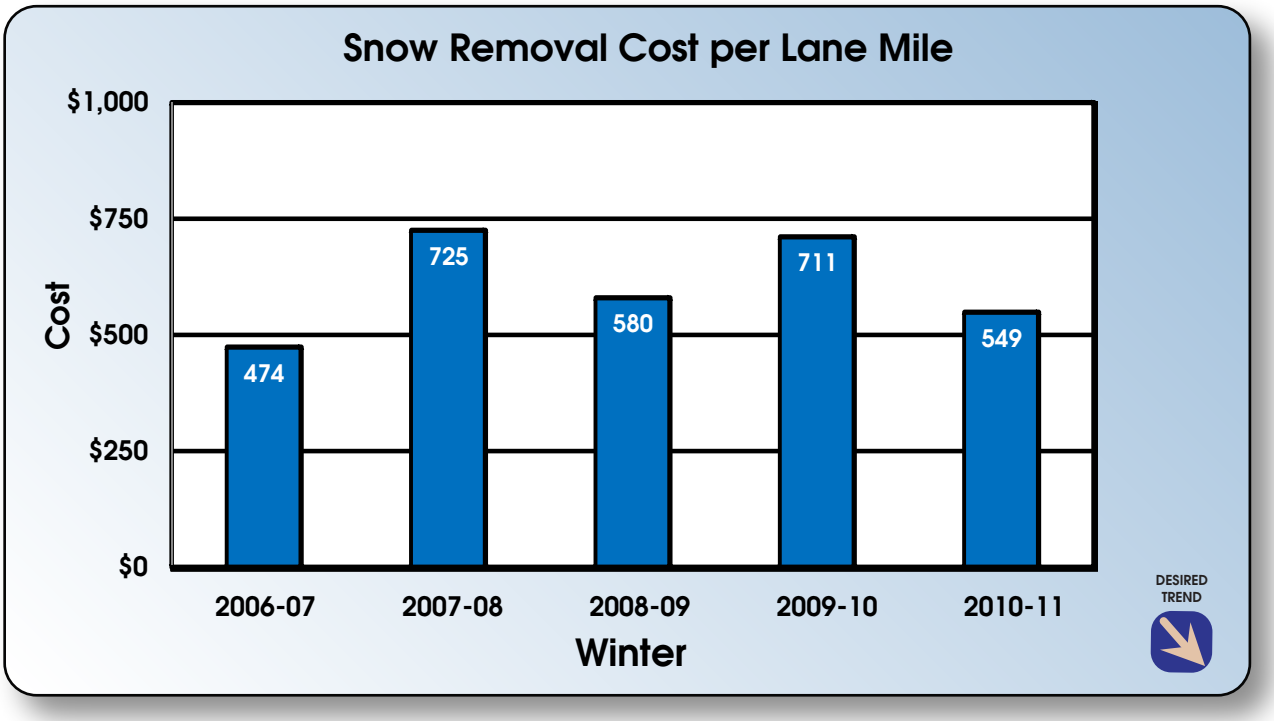
Measurement and Data Collection:

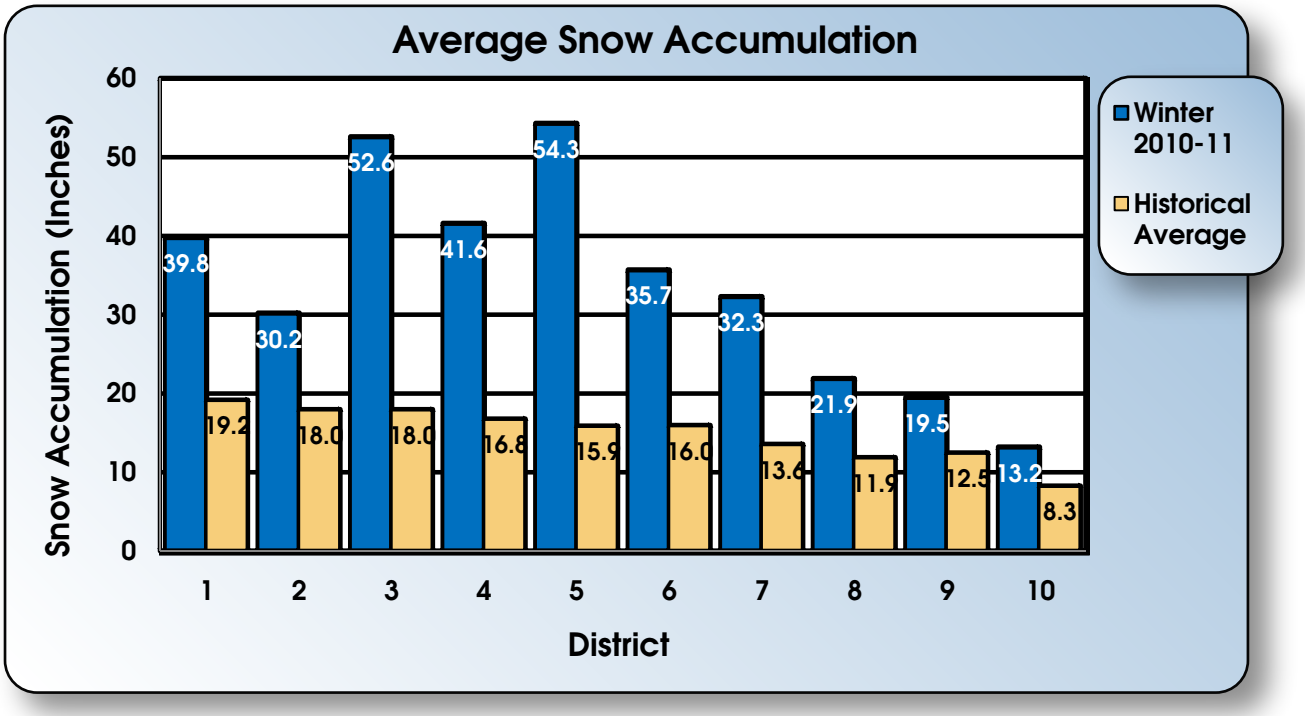
This data is collected in the winter event database. This measurement tracks the average time involved in this process so improvements can be made. After each winter event, such as a snow or ice storm, area maintenance personnel submit a report indicating how much time it took to meet the performance 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:

The average time to meet the performance objectives on both the continuous operations highways and the non-continuous operations highways were slightly more than the previous winter. This winter produced an average of 11 events across the state with at least a trace of accumulation in each district. The actual number of events per district varied from seven to 15. The storm of January 31 to February 2, with around 20 inches of snow, did take a longer time to meet the performance objectives and was a reason the numbers were higher this 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.




Snow Removal Cost per Lane Mile
$1,000
$750
$500
$250
$0
Cost
474
725
580
711
549
2006-07
2007-08
2008-09
2009-10
2010-11
Winter
DESIRED TREND


Average Snow Accumulation
Snow Accumulation (Inches)
60
50
40
30
20
10
0
39.8
19.2
30.2
18.0
52.6
18.0
41.6
16.8
54.3
15.9
35.7
16.0
32.3
13.6
21.9
11.9
19.5
12.5
13.2
8.3
1
2
3
4
5
6
7
8
9
10
District
Winter 2010-11
Historical Average

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