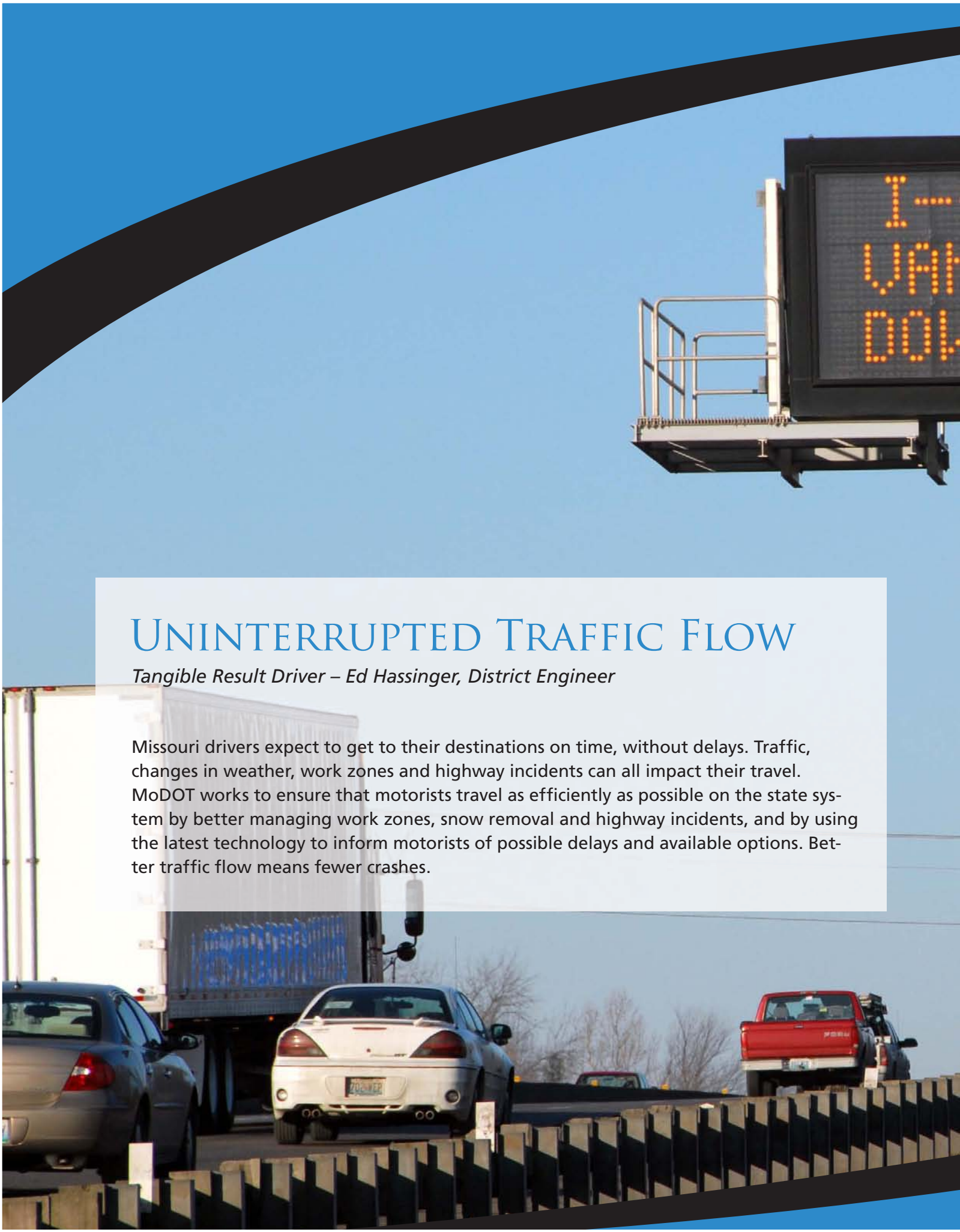


Uninterrupted Traffic Flow

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: Jon Nelson, Traffic Management and Operations Engineer

Purpose of the Measure:

This measure uses the average travel index values to calculate the 10-mile travel times during the morning and evening peaks on various freeway sections. The peak periods are identified as 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.

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 www.gatewayguide.com and information about the traffic management center in Kansas City, KC Scout, can be found at 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:

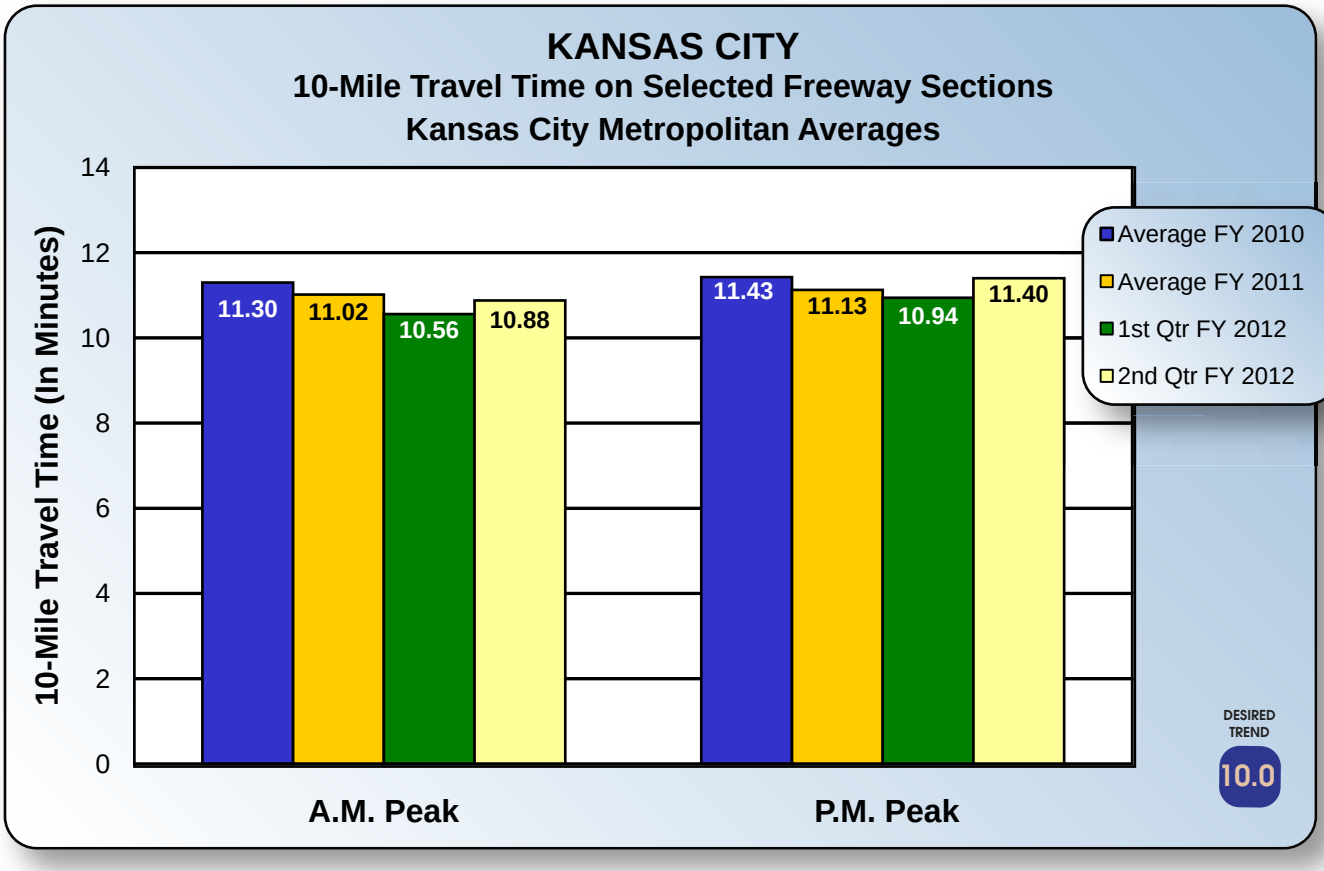
In Kansas City, the average morning peak ten-mile travel time for the second quarter of Fiscal Year 2012 was 10.88. This is slightly higher than the 10.87 ten-mile travel time in second quarter FY 2011. Likewise, the morning peak travel time for this quarter is higher than last quarter (10.56). The average evening peak ten-mile travel time for second quarter FY 2012 was 11.40, up slightly from 11.36 in second quarter FY 2011. Likewise, the evening peak travel time for this quarter is higher than last quarter (10.94).

Mobility for this quarter showed improvement during the morning peak along Interstate 35 South when compared to second quarter FY 2011. When compared to last quarter, the morning mobility along I-70 WB between I-435 and I-470 decreased. The decrease in average speeds may be attributed to ongoing construction work at the Blue Ridge Cutoff and a new lane configuration. For the evening peak, improvements were experienced along I-35 NB north of I-70 when compared to second quarter FY 2011. This same area shows a decrease in mobility when compared to last quarter.

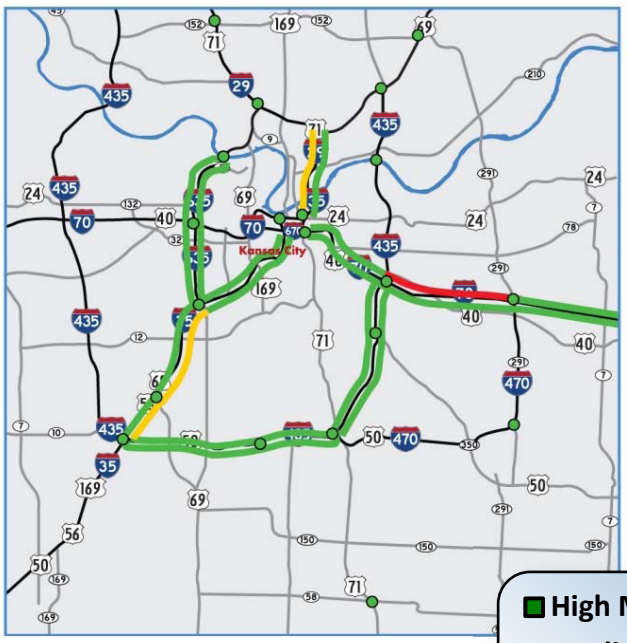
St. Louis metropolitan region:

In St. Louis, the average morning peak ten-mile travel time for second quarter FY 2012 was 11.36, up from 10.87 in second quarter FY 2011. Likewise, the morning peak travel time for this quarter is higher than last quarter (10.89). The average evening peak ten-mile travel time for second quarter FY 2012 was 11.74, up from 11.49 in second quarter FY 2011. Likewise, the evening peak travel time for this quarter is higher than last quarter (11.33).

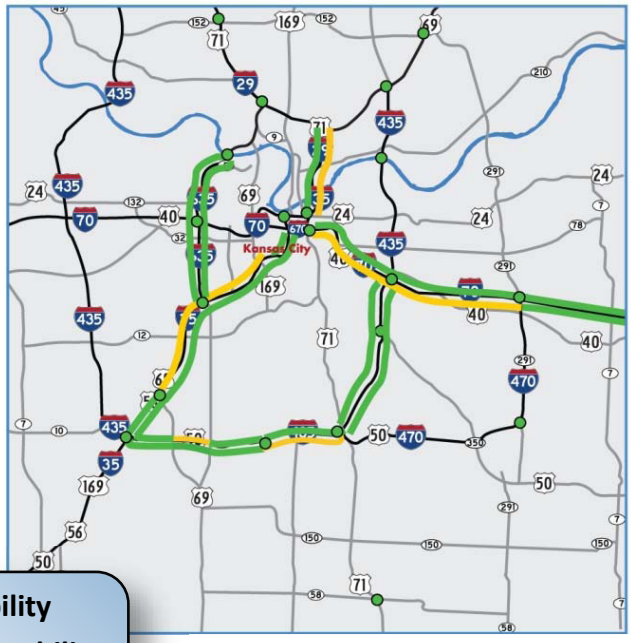
Mobility for this quarter showed slight improvement during the morning peak on I-64 EB when compared to second quarter FY 2011. Likewise, mobility improved on I-270 SB south of I-64 in the evening peak when compared to second quarter FY 2011. Mobility in both areas was consistent with last quarter. The mobility maps show a reduction on I-70 EB near downtown for both the morning and evening peaks. The decrease in average speeds in this area can be attributed to construction work closing the right lane of I-70 EB as well as the express lanes. The express lanes were reopened in December 2011, but the right lane is closed until summer 2012. Recurring congestion continues to be most notable on I-270 NB at I-44 and I-64 EB at I-270 in the morning. In the evening, recurring congestion continues on I-64 WB and I-270 SB.



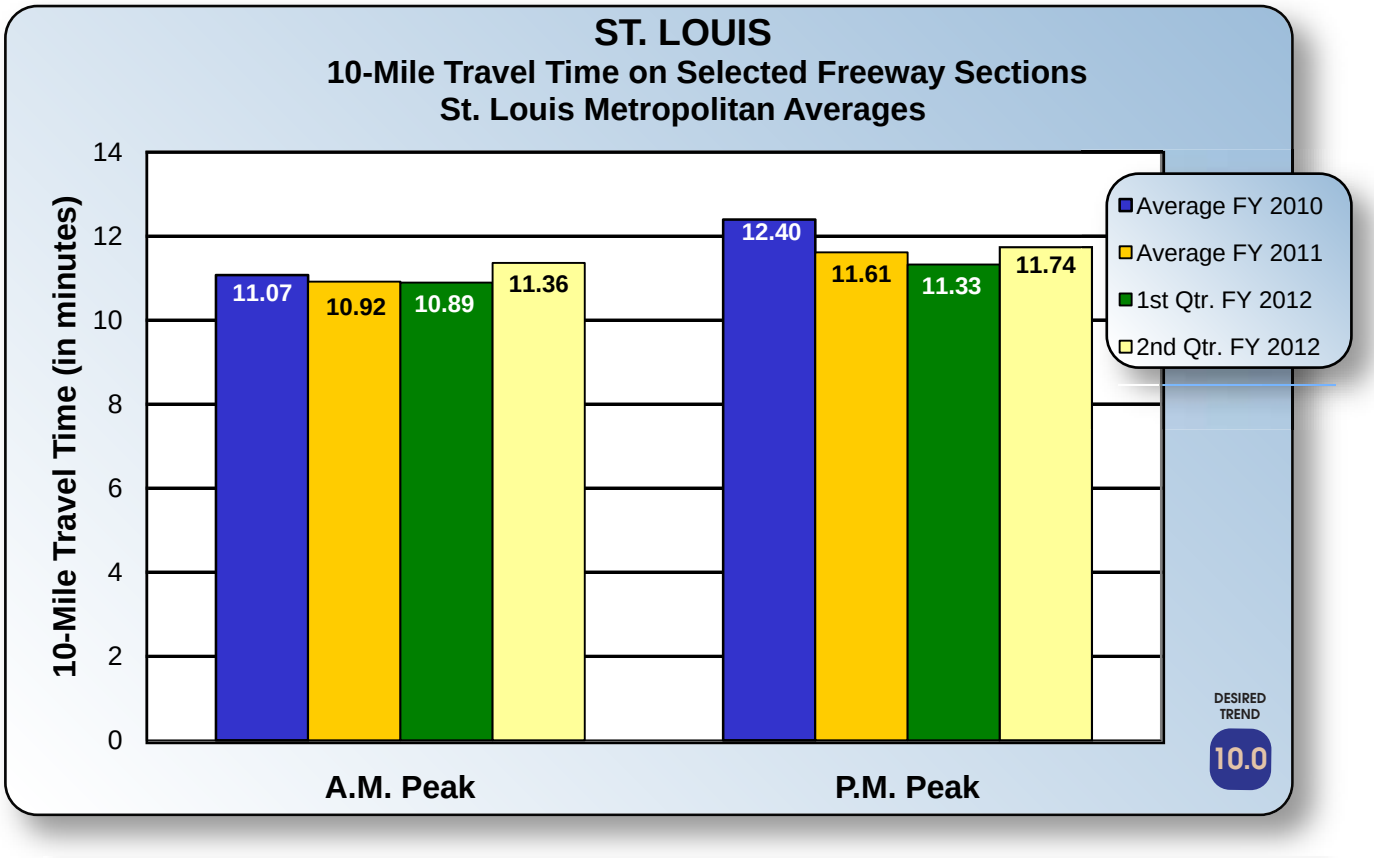
7 a.m. – Regional Mobility



4 p.m. – Regional Mobility

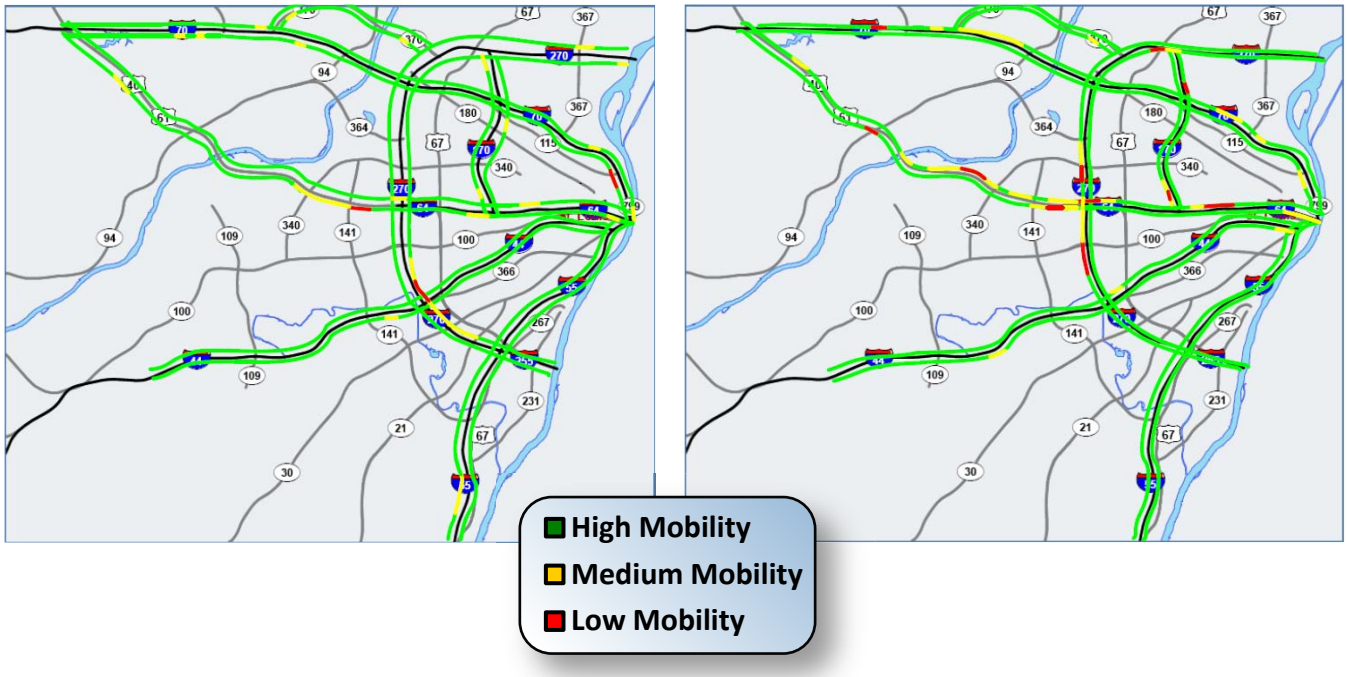


High Mobility
Medium Mobility
Low Mobility



7 a.m. – Regional Mobility

4 p.m. – Regional Mobility



Average rate of travel on signalized routes-1b

Result Driver: Ed Hassinger, District Engineer
Measurement Driver: Julie Stotlemeyer, Traffic Liaison Engineer

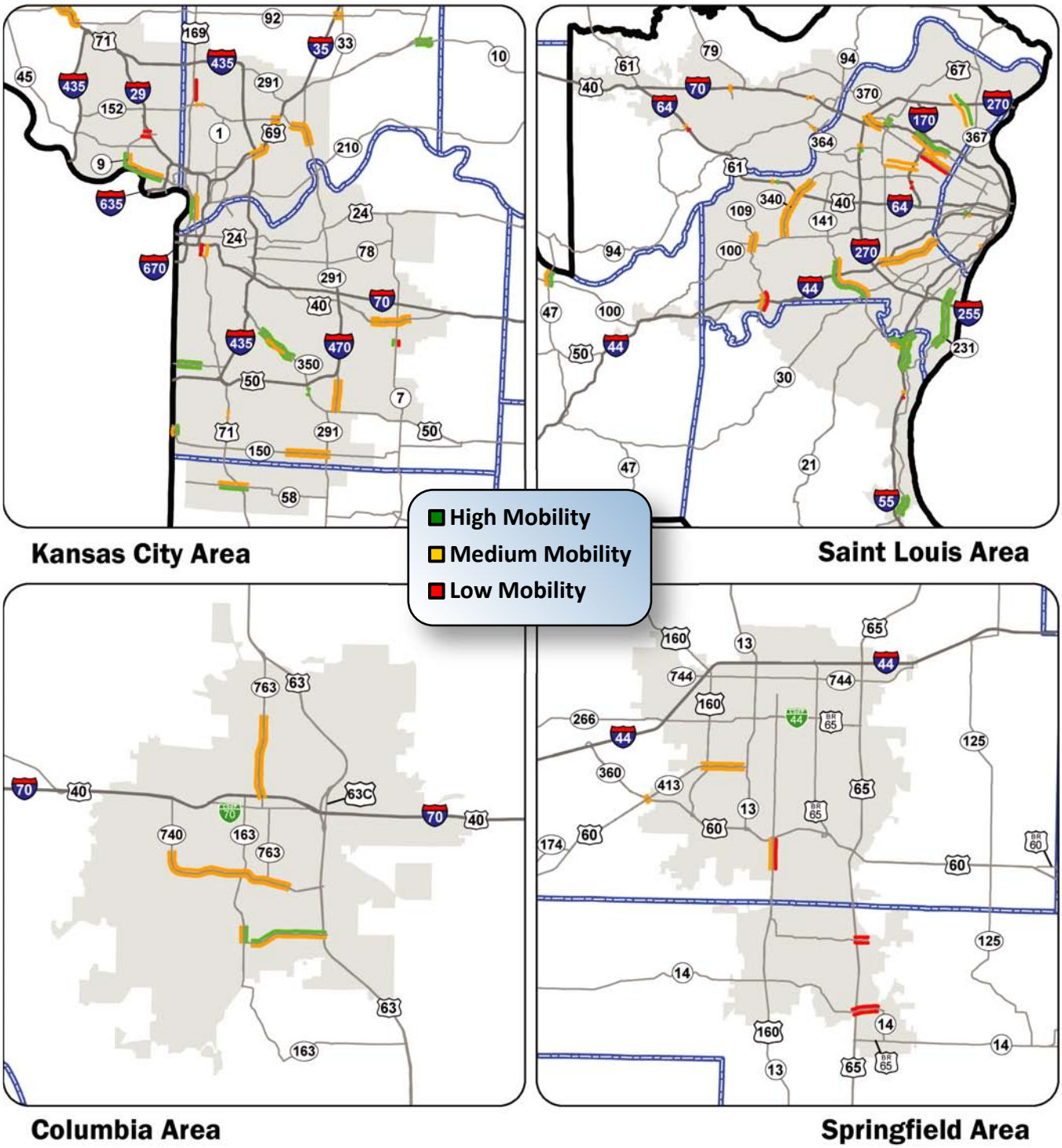
Purpose of the Measure: This measure indicates how well arterials across the state operate during peak traffic times. Statewide, there are approximately 325 arterials. About 180 are randomly selected each year for measurement. As improvements such as signal timing or access management are made, this measure will show the effects those changes and decisions make on the arterial system.

Measurement and Data Collection:
Travel times are measured on random arterials. Travel times are collected by driving each route twice or through automated collection in each direction during a.m. and p.m. peak times and determining how long it takes to traverse the route.

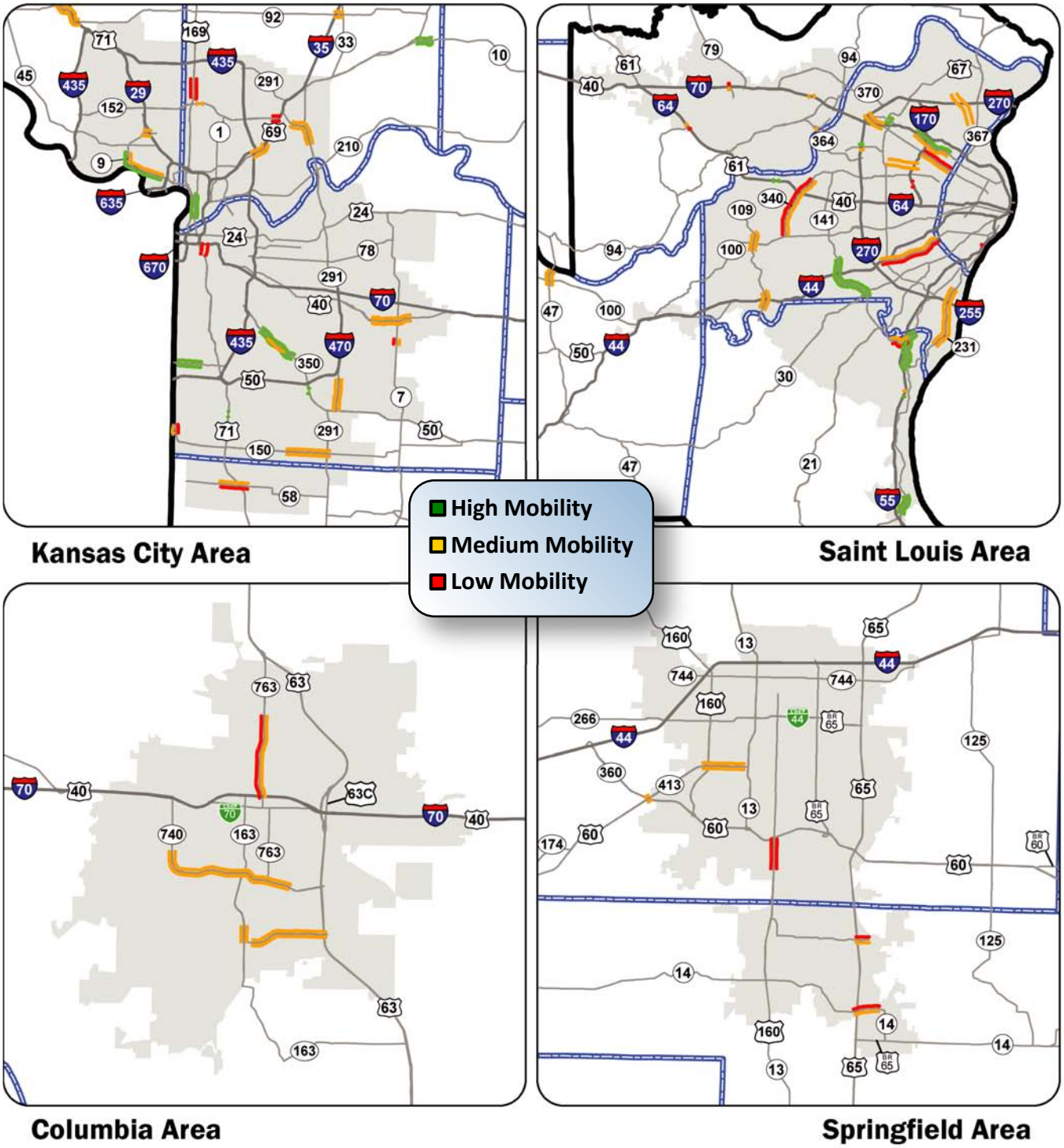
Since speed limits vary for signalized routes, the regional maps show mobility for the a.m. and p.m. peak times as compared to the posted speed limit on the route. High mobility indicates speeds are at 80 percent of the speed limit for the route, medium mobility is 50 to 79 percent and low mobility is less than 50 percent. This measure is updated quarterly.

Improvement Status:
In the second quarter of fiscal year 2012, statewide mobility decreased for the a.m. and p.m. peaks from first quarter of fiscal year 2012. High mobility decreased 10 percent for the a.m. and 11 percent for the p.m. The afternoon peak continues to have the highest percentage of low mobility. Year-to-date, the mobility on signalized routes is 42 percent high, 54 percent medium and four percent low for a.m. and 28 percent high, 62 percent medium and 10 percent low for p.m.

AM Mobility


Kansas City Area
Saint Louis Area
Columbia Area
Springfield Area
High Mobility
Medium Mobility
Low Mobility

PM Mobility


High Mobility
Medium Mobility
Low Mobility
Kansas City Area
Saint Louis Area
Columbia Area
Springfield Area

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 incident (crashes, flat tires and stalled vehicles) improves system performance.

Measurement and Data Collection:

Advanced Transportation Management Systems are used by the Kansas City and St. Louis traffic management centers to record "incident start time" and the time for "all lanes cleared." In February 2011, St. Louis moved to a new ATMS software program.

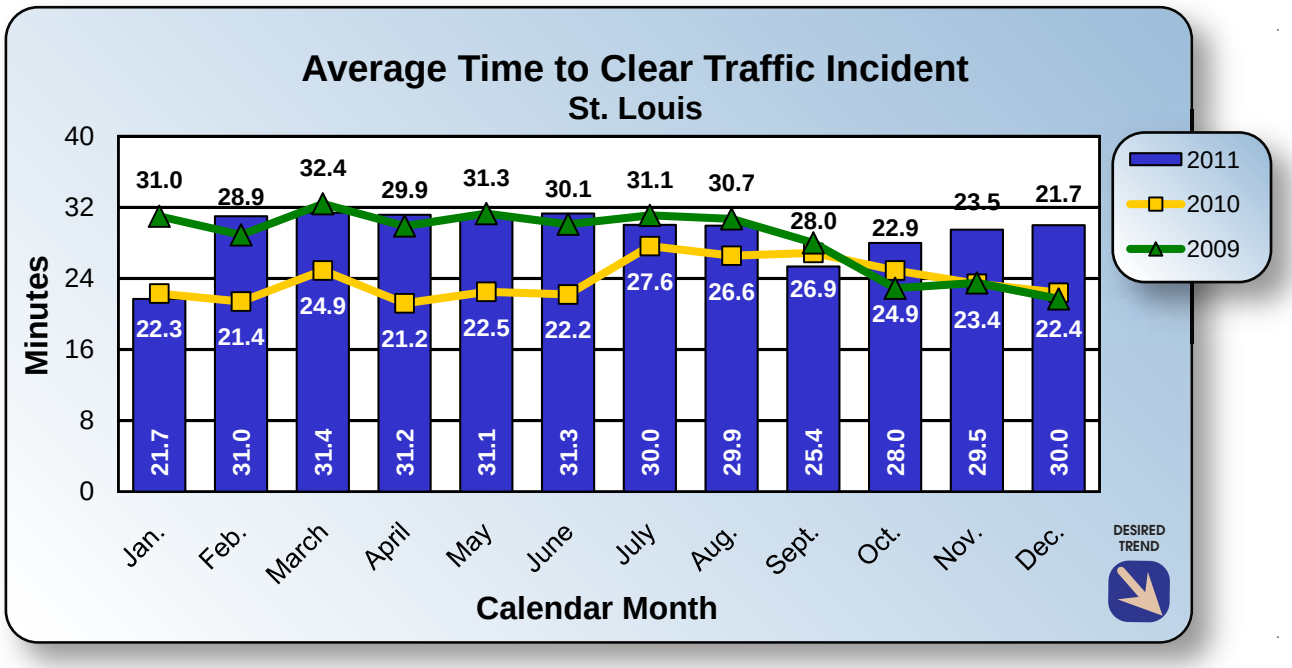
In July 2010, Kansas City Scout began retrieving 100 percent of its data from the TranSuite SQL databases.

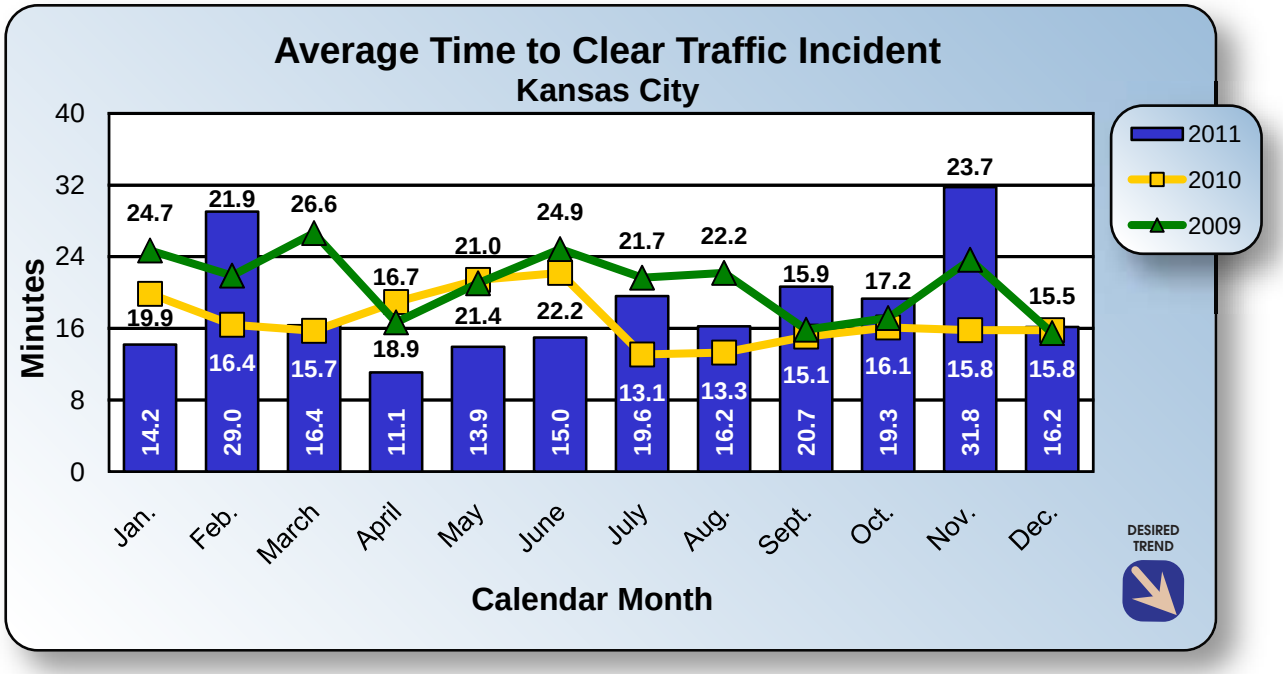
This measure is updated quarterly.

Improvement Status:

St. Louis recorded 322, 414 and 428 incidents, respectively, for the months of October, November and December 2011. The number of incidents for which complete data is collected in the St. Louis District continues to increase as the new ATMS software program becomes more familiar to the operators. The average time to clear an incident in St. Louis remained fairly constant.

The Kansas City District collected data on 670, 634 and 582 incidents, respectively, for the months of October, November, and December 2011. The increase in time to clear incidents in the Kansas City area for November is a reflection of 33 long-term incidents with an average duration of 570 minutes. Twenty-two of those incidents occurred during morning or evening rush hour when reoccurring congestion is the greatest. Congestion increases the time it takes responders to get to the scene and clear it.




Average Time to Clear Traffic Incident
Kansas City
Minutes
40
32
24
16
8
0
Jan. 24.7 19.9 14.2
Feb. 21.9 16.4 29.0
March 26.6 15.7 16.4
April 16.7 18.9 11.1
May 21.0 21.4 13.9
June 24.9 22.2 15.0
July 21.7 13.1 19.6
Aug. 22.2 13.3 16.2
Sept. 15.9 15.1 20.7
Oct. 17.2 16.1 19.3
Nov. 23.7 15.8 31.8
Dec. 15.5 15.8 16.2
2011
2010
2009
DESIRED TREND
Calendar Month


SUPERVISOR
MoDOT
MOTORIST ASSIST

Closures on major interstate routes-1d

Result Driver: Ed Hassinger, District Engineer
Measurement Driver: Rick Bennett, Traffic Liaison Engineer

Purpose of the Measure:

This measure tracks the closures on Interstate 70 and Interstate 44 due to traffic impacts. A traffic impact is any unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road and includes traffic incidents such as vehicle crashes, utility damage, bridge and pavement damage, special events and police emergencies.

Measurement and Data Collection:

The interstate route closures that have an actual or expected duration of one hour or more are entered into MoDOT's Transportation Management System for display on the Traveler Information Map on MoDOT's website. These closure events are tracked in the TMS system.

This measure is updated quarterly.

Improvement Status:

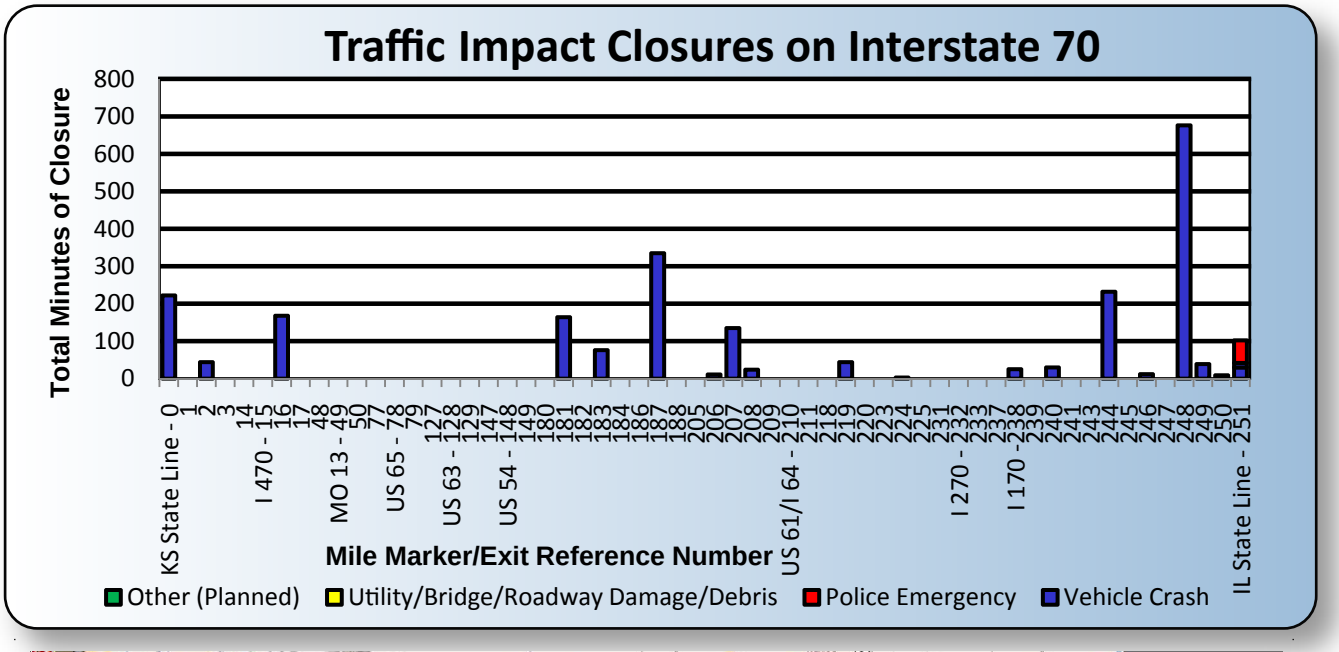
The traffic impact closures on Interstate70 were either vehicle crashes or police emergencies during the last quarter of calendar year 2011. Half of the impacts captured in TMS on I-70 occurred in the St. Louis metropolitan area where instrumented roadways are monitored around the clock by staff in the traffic management center.

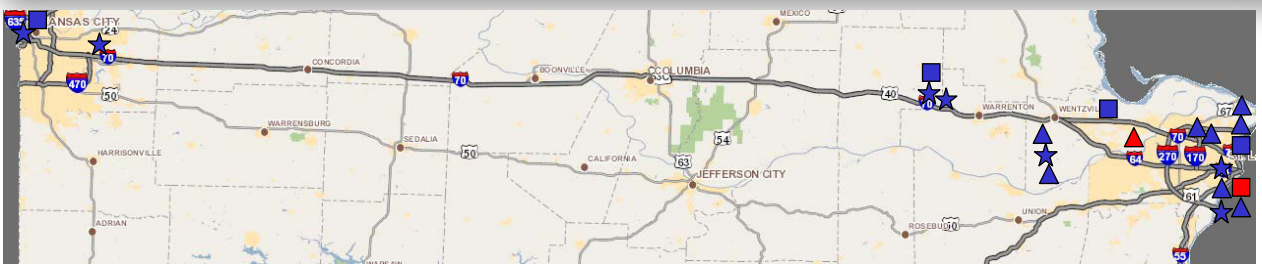
On I-44 the traffic impact closures were either vehicle crashes or due to debris on the roadway.

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

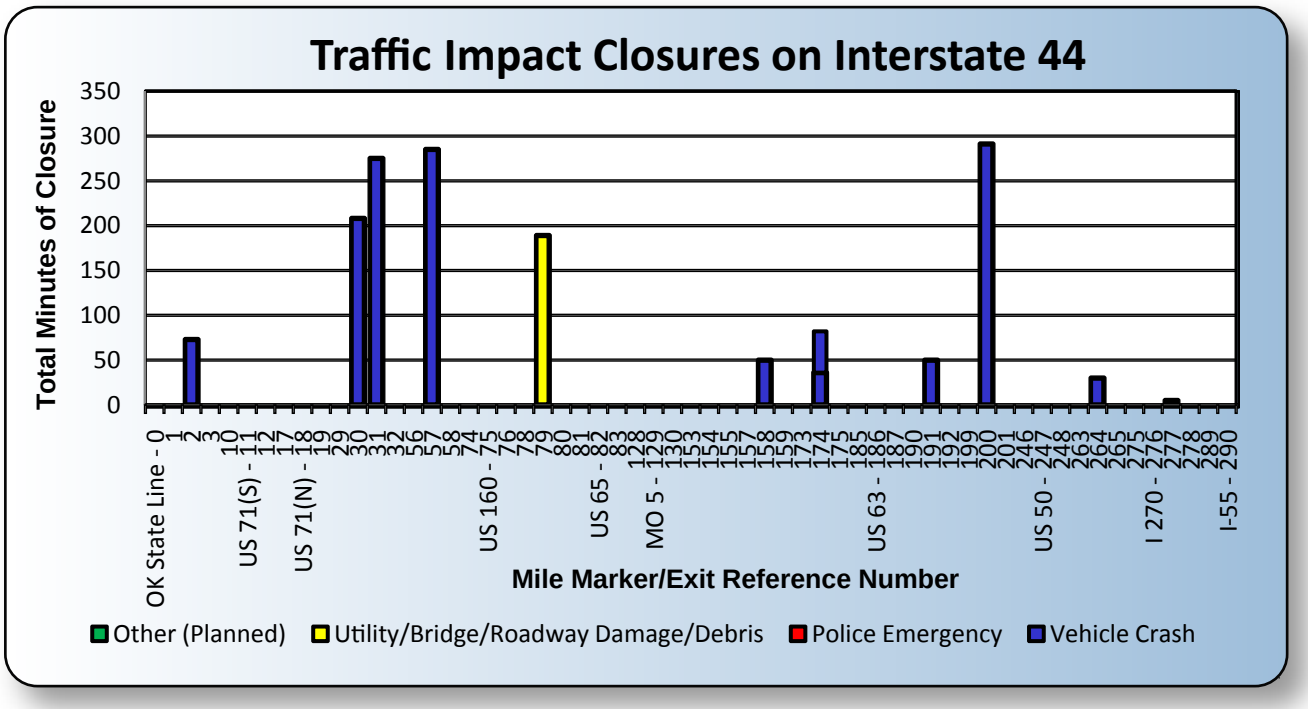




Other (Planned) Utility/Bridge/Roadway Damage/Debris Police Emergency Vehicle Crash

△ 0 – 30 Minutes ☐ 31-90 Minutes ☆ 91+ Minutes

SYMBOL	COUNTY	DIR	MILE MARKER	START DATE	TYPE	DURATION (H:MM)
★	JACKSON	W	0.44	27-Oct-11	VEHICLE CRASH	3:42
■	JACKSON	W	2.71	31-Dec-11	VEHICLE CRASH	0:44
★	JACKSON	W	16.11	10-Nov-11	VEHICLE CRASH	2:48
★	MONTGOMERY	W	181.90	09-Nov-11	VEHICLE CRASH	2:44
■	MONTGOMERY	W	183.64	26-Nov-11	VEHICLE CRASH	1:16
★	WARREN	W	187.02	18-Oct-11	VEHICLE CRASH	5:35
▲	ST. CHARLES	E	206.41	07-Nov-11	VEHICLE CRASH	0:11
★	ST. CHARLES	E	207.40	22-Oct-11	VEHICLE CRASH	2:15
▲	ST. CHARLES	E	208.70	07-Nov-11	VEHICLE CRASH	0:24
■	ST. CHARLES	W	219.60	22-Oct-11	VEHICLE CRASH	0:44
▲	ST. CHARLES	E	224.09	08-Nov-11	POLICE EMERGENCY	0:03
▲	ST. LOUIS	W	238.73	04-Dec-11	VEHICLE CRASH	0:25
▲	ST. LOUIS	W	240.15	22-Oct-11	VEHICLE CRASH	0:30
★	ST. LOUIS CITY	E	244.80	08-Oct-11	VEHICLE CRASH	3:52
▲	ST. LOUIS CITY	E	246.00	26-Oct-11	VEHICLE CRASH	0:12
★	ST. LOUIS CITY	E	248.18	19-Nov-11	VEHICLE CRASH	11:16
■	ST. LOUIS CITY	W	249.42	17-Dec-11	VEHICLE CRASH	0:39
▲	ST. LOUIS CITY	W	250.50	20-Nov-11	VEHICLE CRASH	0:09
■	ST. LOUIS CITY	E	251.08	08-Nov-11	POLICE EMERGENCY	1:00
▲	ST. LOUIS CITY	E	251.18	01-Nov-11	VEHICLE CRASH	0:30
▲	ST. LOUIS CITY	W	251.19	27-Oct-11	VEHICLE CRASH	0:12



Other (Planned) Utility/Bridge/Roadway Damage/Debris Police Emergency Vehicle Crash

△ 0 – 30 Minutes ☐ 31-90 Minutes ☆ 91+ Minutes

SYMBOL	COUNTY	DIR	MILE MARKER	START DATE	TYPE	DURATION (H:MM)
■	NEWTON	W	2.02	27-Nov-11	VEHICLE CRASH	1:13
★	JASPER	W	30.274	11-Oct-11	VEHICLE CRASH	3:28
★	JASPER	E	31.553	02-Dec-11	VEHICLE CRASH	4:35
★	LAWRENCE	W	57.7255	14-Nov-11	VEHICLE CRASH	4:45
☆	GREENE	W	79.7785	31-Dec-11	DEBRIS ON ROADWAY	3:09
■	PULASKI	W	158.9415	16-Oct-11	VEHICLE CRASH	0:50
■	PHELPS	E	174.0395	20-Oct-11	VEHICLE CRASH	0:36
■	PHELPS	W	174.883	05-Nov-11	VEHICLE CRASH	0:46
■	PHELPS	W	191.1635	29-Nov-11	VEHICLE CRASH	0:50
★	CRAWFORD	W	200.826	26-Oct-11	VEHICLE CRASH	4:51
■	ST. LOUIS	W	264.2345	06-Dec-11	VEHICLE CRASH	0:30
▲	ST. LOUIS	W	277.8405	08-Nov-11	VEHICLE CRASH	0:05

Percent of customers satisfied with work zones – 1e

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

Purpose of the Measure:

Work zones are designed to allow the traveling public the ability to travel with minimal disruption and safely through the work area. This measure tracks how well the department meets customer expectations in nine aspects of work zone design.

Measurement and Data Collection:

The motorist perception data is collected from postcard surveys handed personally to motorists by district flaggers and from the Work Zone Customer Survey, which is located on the MoDOT website at: www.modot.mo.gov/workzones/Comments.htm.

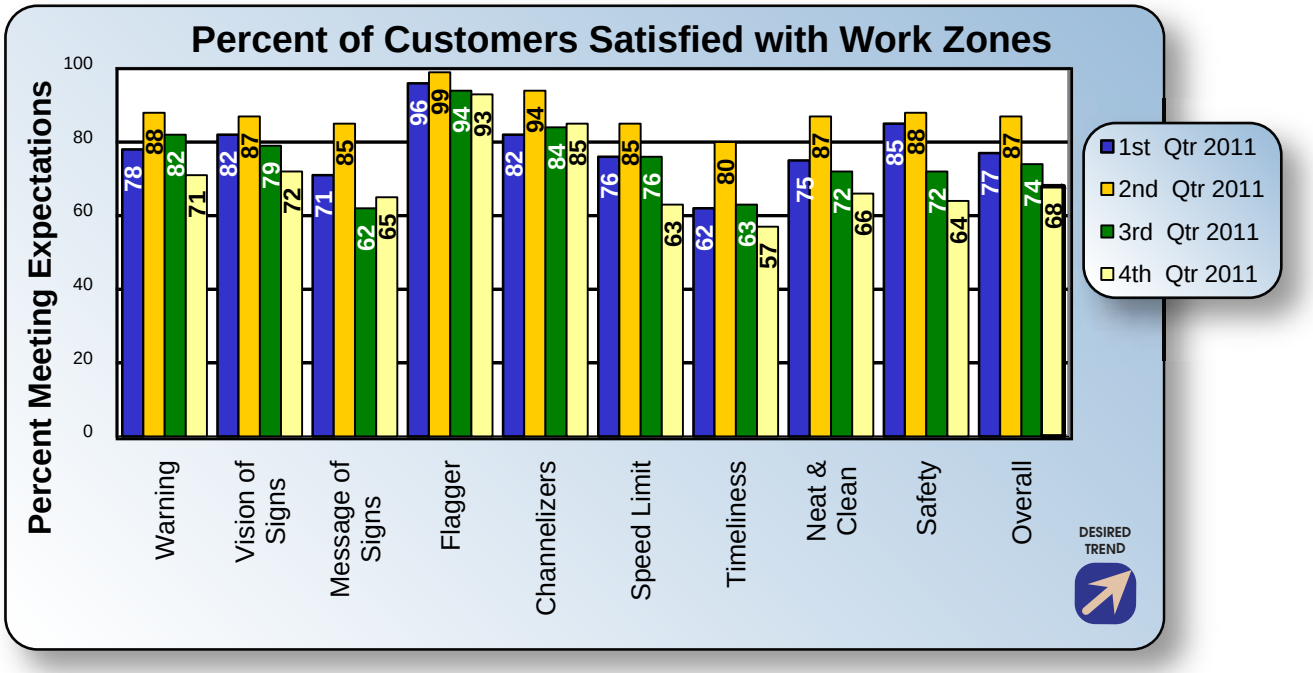
This measure is updated quarterly.

Improvement Status:

In 2011, data from 460 customer surveys was compiled and separated according to questions within the customer survey. Customers indicated whether they agreed that:

- Signs provided enough warning,
- Signs were easy to see,
- Signs provided clear instruction,
- The flagger provided adequate guidance,
- Channelizers provided proper guidance,
- The speed limit was appropriate,
- They were able to travel through the work zone in timely manner,
- The work zone was neat and clean,
- The traveler felt safe in the work zone.

MoDOT experienced an overall decrease of customer satisfaction during the past two quarters. Traveling through the work zone in a timely manner and appropriate speed limits within the work zones received this quarter's lowest customer expectations.



Public Customer Surveys

District	NW	NE	KC	CD	SL	SW	SE	Statewide
No. of 1st Quarter Surveys	16	3	30	6	5	6	0	66
No. of 2nd Quarter Surveys	23	18	64	7	39	8	97	256
No. of 3rd Quarter Surveys	3	4	31	8	14	7	2	69
No. of 4th Quarter Surveys	1	2	30	9	9	15	3	69
Total 2011 Surveys	43	27	155	30	67	36	102	460

Time to meet winter storm event performance objectives-1f

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

Purpose of the Measure:

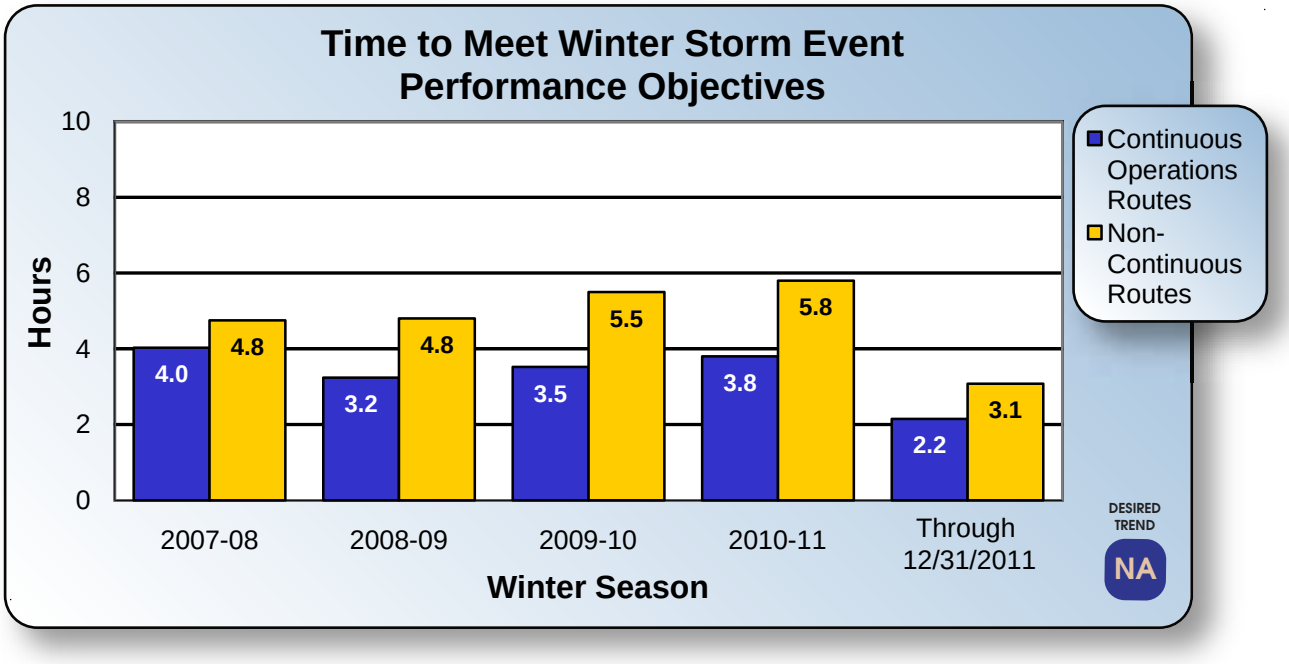
This measure tracks the amount of time needed to perform MoDOT's snow and ice removal efforts.

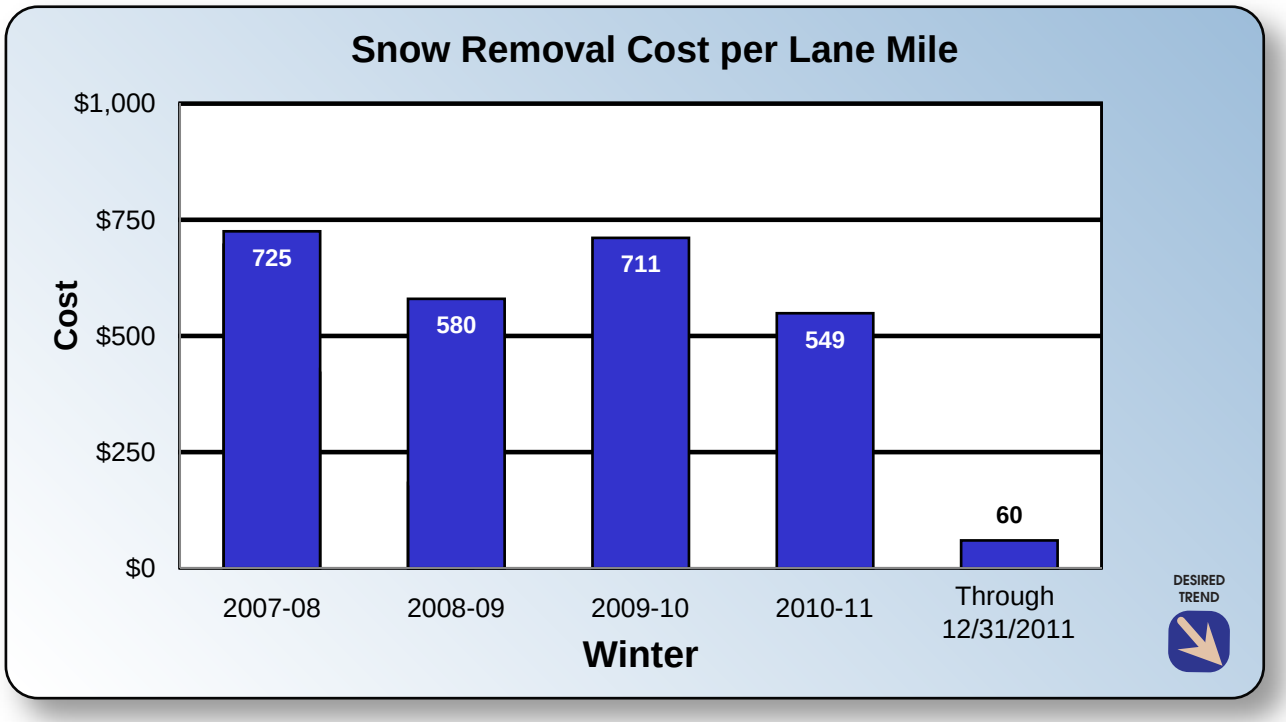
Measurement and Data Collection:

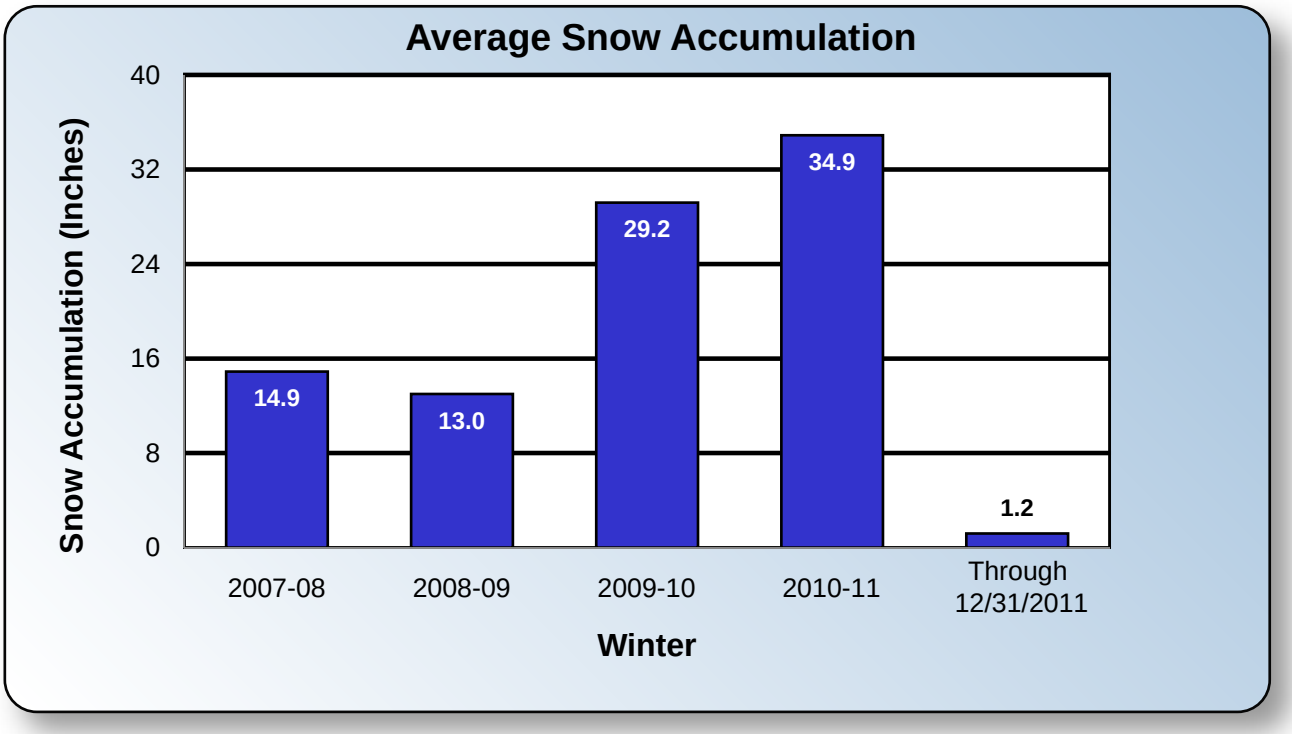
This data is collected in the winter event database. The measure tracks the average time involved in road clearance so improvements can be made. After each winter event, such as a snow or ice storm, area maintenance personnel submit a report indicating how much time it took to meet the performance objectives 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 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 average state snow accumulation help evaluate winter performance.

Improvement Status:

The average time to meet the performance objectives on both continuous operations highways and non-continuous operations highways were lower during the first half of the 2011-2012 winter season than during previous winters. This winter produced an average of 1.2 inches of snow across the state. The time to meet the performance objectives varies based on the amount of snow received, the duration and the intensity of the storm. Strategies to improve 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
725
580
711
549
60
2007-08
2008-09
2009-10
2010-11
Through 12/31/2011
Winter
DESIRED TREND


Average Snow Accumulation
40
32
24
16
8
0
Snow Accumulation (Inches)
14.9
13.0
29.2
34.9
1.2
2007-08
2008-09
2009-10
2010-11
Through 12/31/2011
Winter