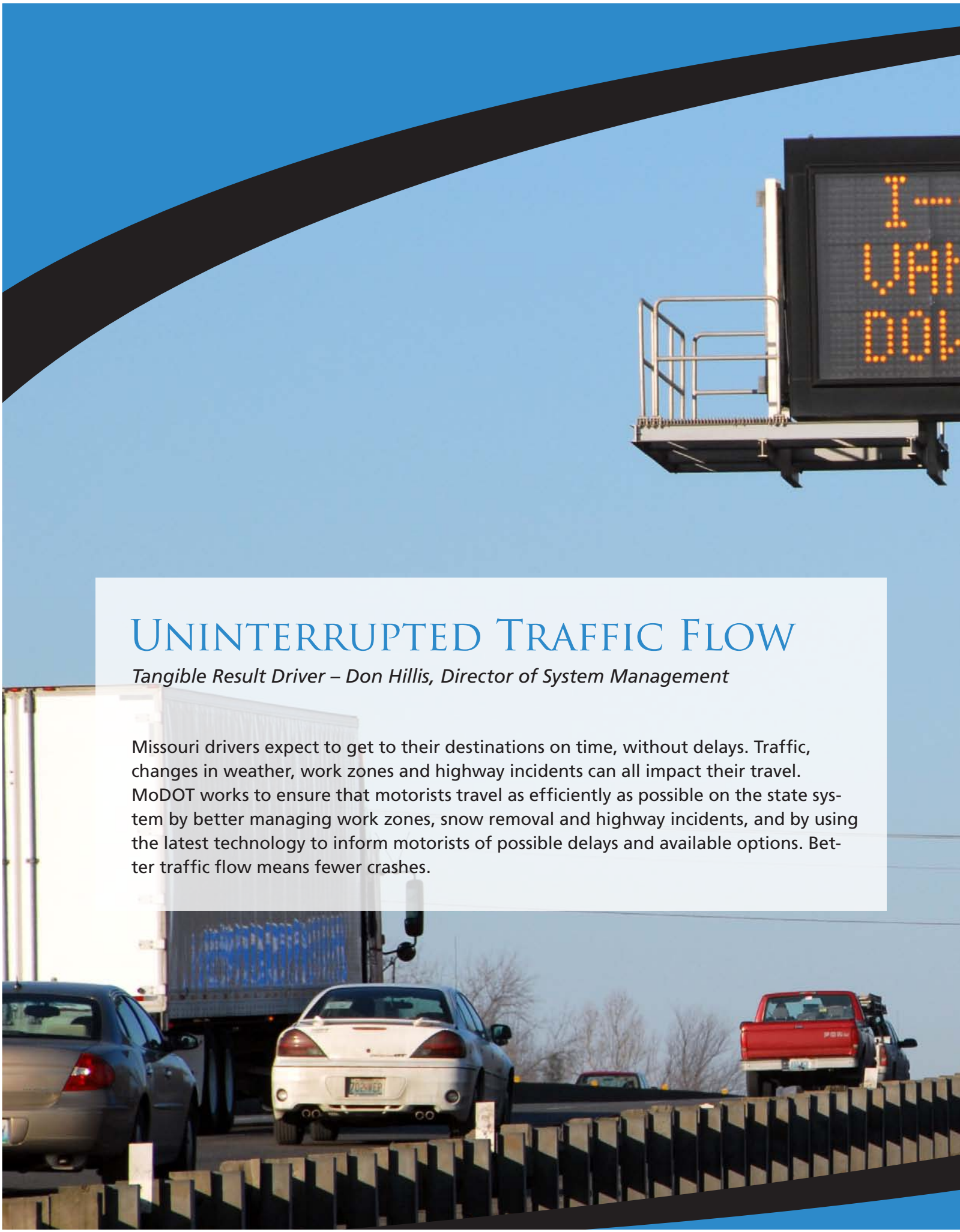


Uninterrupted Traffic Flow

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.

TRACKER

MEASURES OF DEPARTMENTAL PERFORMANCE

Average travel indices on selected freeway sections-1a

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Troy Pinkerton, Traffic Liaison Engineer

Purpose of the Measure:

This measure tracks the average travel index values and average speeds on various freeway sections. The desired trend is for the travel index 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

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 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:

As shown on the graph, the freeway systems in the Kansas City region continue to perform in the mid to upper-80 percentile range during the peak hours, as compared to the free-flow condition. The morning peak increased from 0.86 in the second quarter of fiscal year 2010 to 0.89 in the third quarter of fiscal year 2010. The evening peak decreased from 0.87 to 0.86.

The KCicon project has made some significant changes in lane configurations on I-35 causing some additional slow downs specifically in the AM peak in the southbound direction.

The I-435 Blue Ridge construction has concluded but Kansas City is seeing increased volume throughout this area due to commercial development opening up.

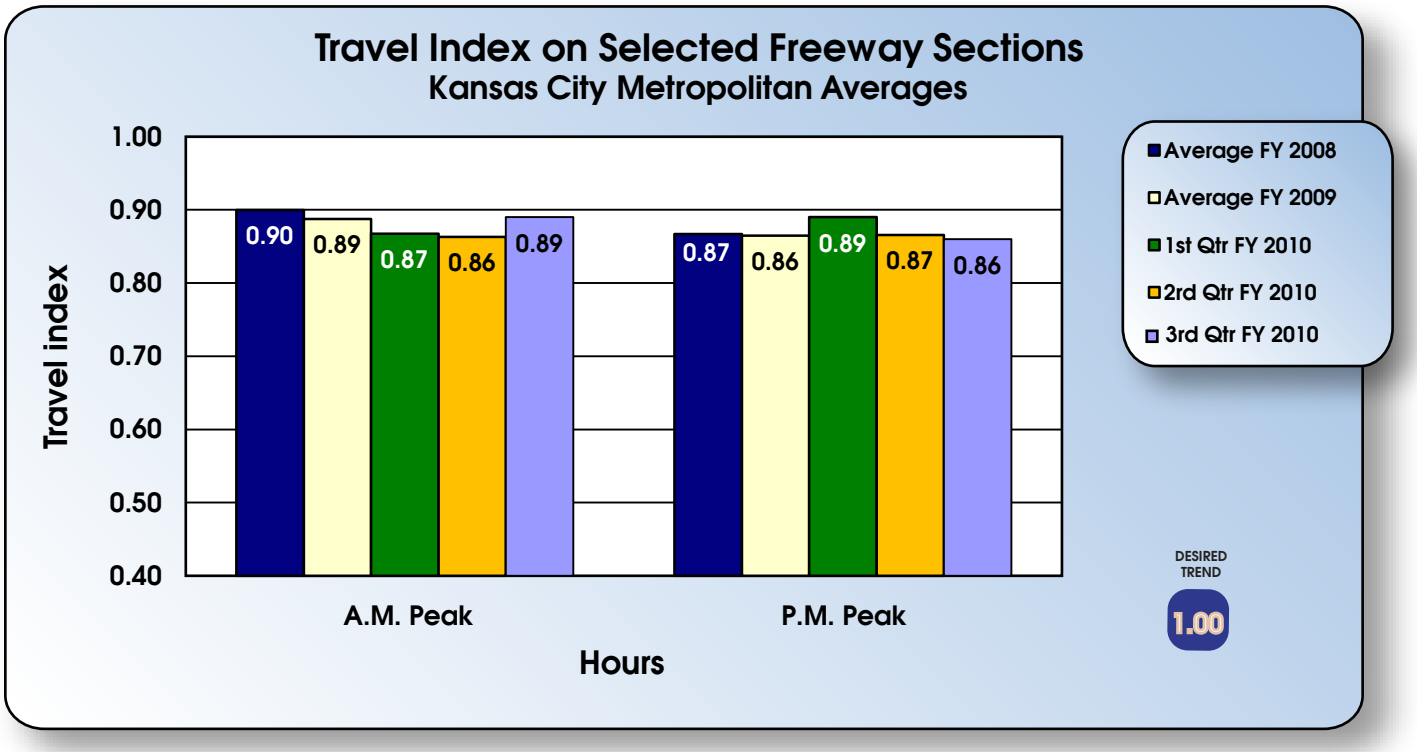
Most of the Kansas City region has been free from significant work zone impacts. Construction associated with the Paseo Bridge continues to contribute to some slow downs in the morning commute southbound into downtown. This area should see some dramatic slow downs over the next few years due to the KCicon bridge replacement project. Additional information on the construction activities along I-29/35 can be found at www.kcicon.org.

St. Louis metropolitan region:

As shown on the graph, the freeway systems in the St. Louis region are performing in the low 90- and 80-percentile range in the morning and evening peak, respectively, for this quarter. The morning peak travel index increased from 0.90 last quarter to 0.92, while the evening peak travel index increased from 0.80 to 0.83 in the third quarter of fiscal year 2010.

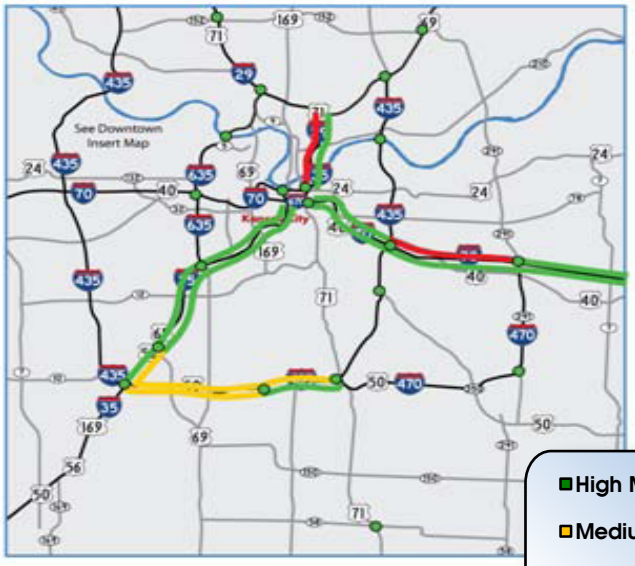
The amount of incidents (crashes, work zones, and special events) for this quarter was slightly higher than the previous quarter. However, the average duration and time within a lane for all incidents was almost identical to the previous quarters in FY10. Due to the fact that incidents are responsible for about half of all delay in urban areas, and because there were no significant changes in traffic volume in St. Louis, it can be inferred that these are the reasons for the travel index to be very similar to second quarter FY10 (only a .02 difference in the AM peak, and a .03 difference in the PM peak).

The opening of I-64 greatly decreased the frequency and intensity of congestion on some routes (I-70, I-44, and I-55), but shifting traffic patterns have caused congestion on some routes that had relatively little mobility issues during the I-64 closure (I-64, certain sections of I-270 and I-170). Due to the positive changes in some areas being offset by some of the negative changes in other areas, the total increase in travel index was only marginally higher over the region as a whole.



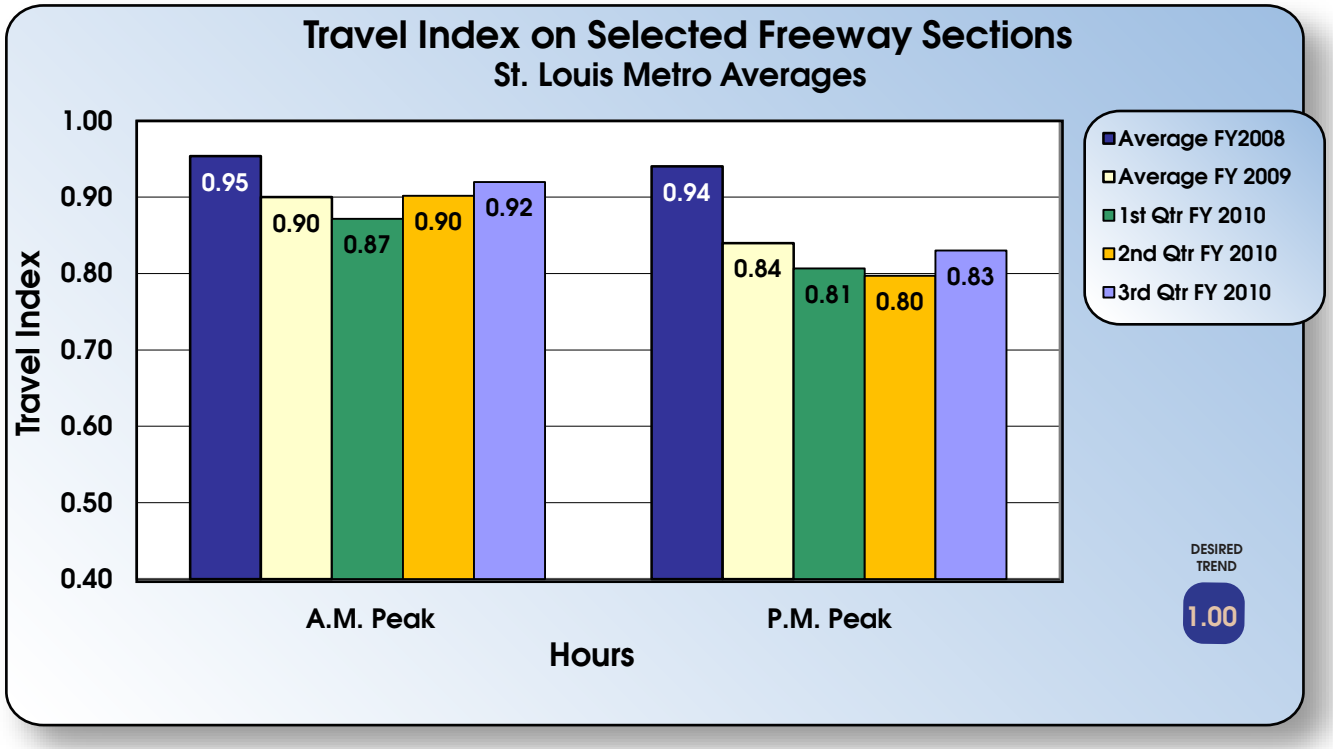
KANSAS CITY

AM – Regional Mobility



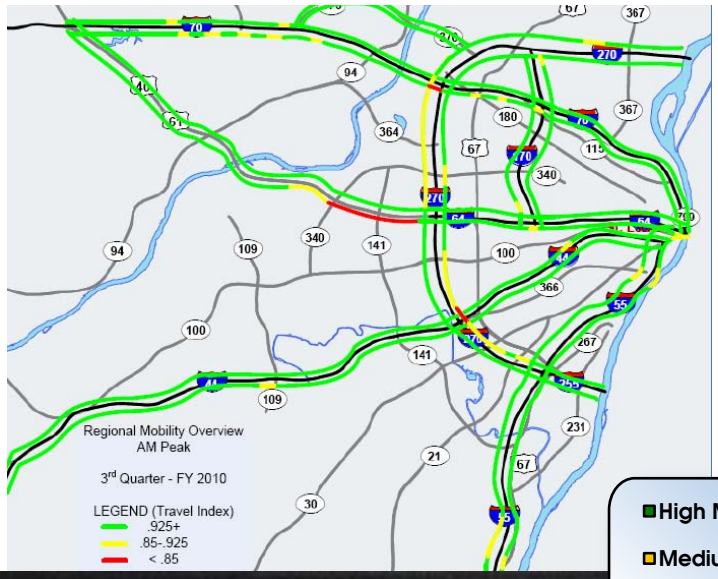
PM – Regional Mobility

High Mobility
Medium Mobility
Low Mobility



ST. LOUIS

AM – Regional Mobility



PM – Regional Mobility

- High Mobility
- Medium Mobility
- Low Mobility

Average rate of travel on selected signalized routes-1b

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

Purpose of the Measure:

This measure indicates how well selected 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.

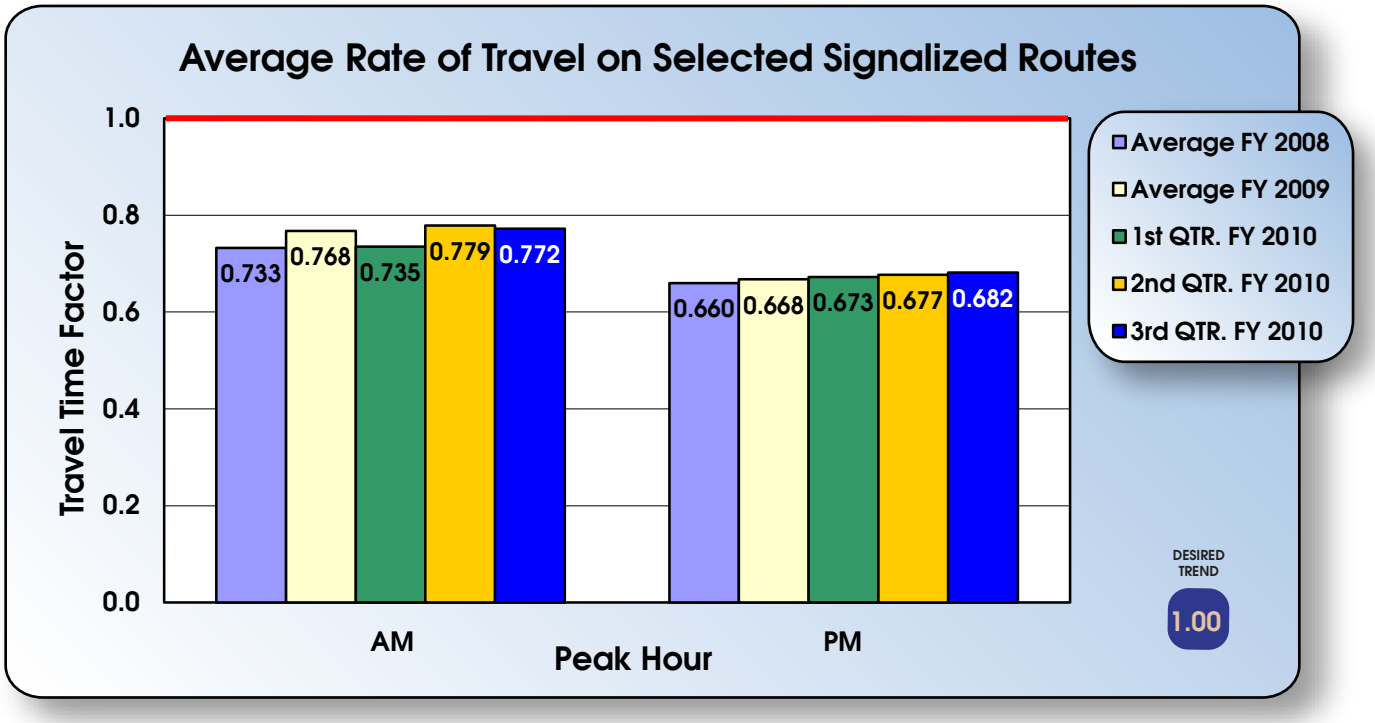
Measurement and Data Collection:

Travel times are measured on various arterials. Data is collected from driving each route twice during a.m. and p.m. 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. As the travel time factor approaches 1.00, traffic is moving at the speed limit. Data collection began in the second quarter of fiscal year 2007. Data for this measure is updated quarterly.

Improvement Status:

For third quarter fiscal year 2010, the average statewide travel time factor for a.m. peak is 0.772 and p.m. peak is 0.682. Overall performance is 0.727. The a.m. peak travel time factor is 9 percent higher than p.m. peak travel time factor. Third quarter data shows the a.m. peak for arterials and p.m. peak for arterials operating higher than the average for fiscal year 2008 and the average for fiscal year 2009. For third quarter fiscal year 2010, the a.m. peak travel time factor is approximately 1 percent lower than the third quarter fiscal year 2009 a.m. peak travel time factor and the p.m. peak travel time factor is 1 percent higher than the third quarter fiscal year 2009 p.m. peak travel time factor.

The average rate of travel on selected signalized routes has changed due to construction, timing changes, installation of a traffic adaptive system, and the opening of a Diverging Diamond Interchange (DDI).



Average time to clear traffic incident-1c

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:

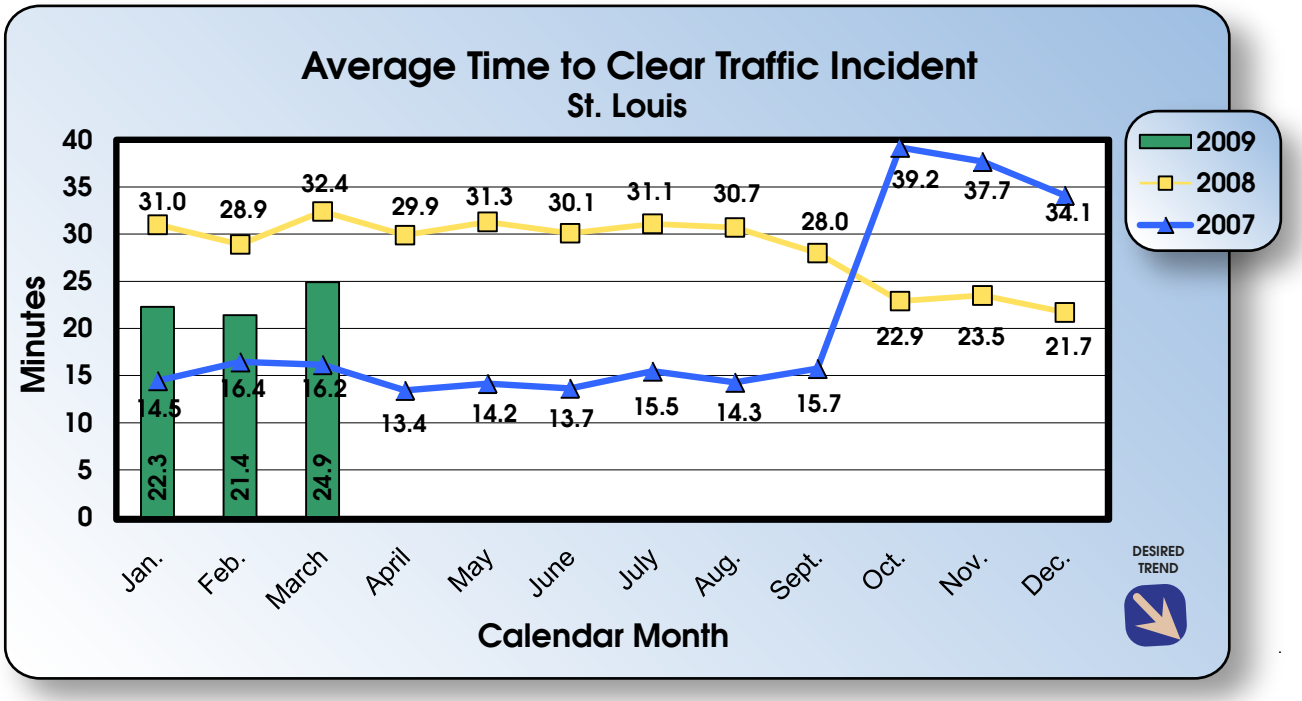
Advanced Transportation Management Systems (ATMS) are used by both the Kansas City and St. Louis traffic management centers to record "incident start time" and the time for "all lanes cleared." In October of 2008, St. Louis switched from using motorist assist arrival times as the "incident start time" to utilizing the time the incident was confirmed in the ATMS usually via CCTV, prior to any responder arriving on the scene, as the "incident start time." Average time to clear traffic incidents is calculated from these times. In January of 2009, about 20 additional miles of I-70, I-470, and I-435 were added and became operational in the Kansas City urban area.

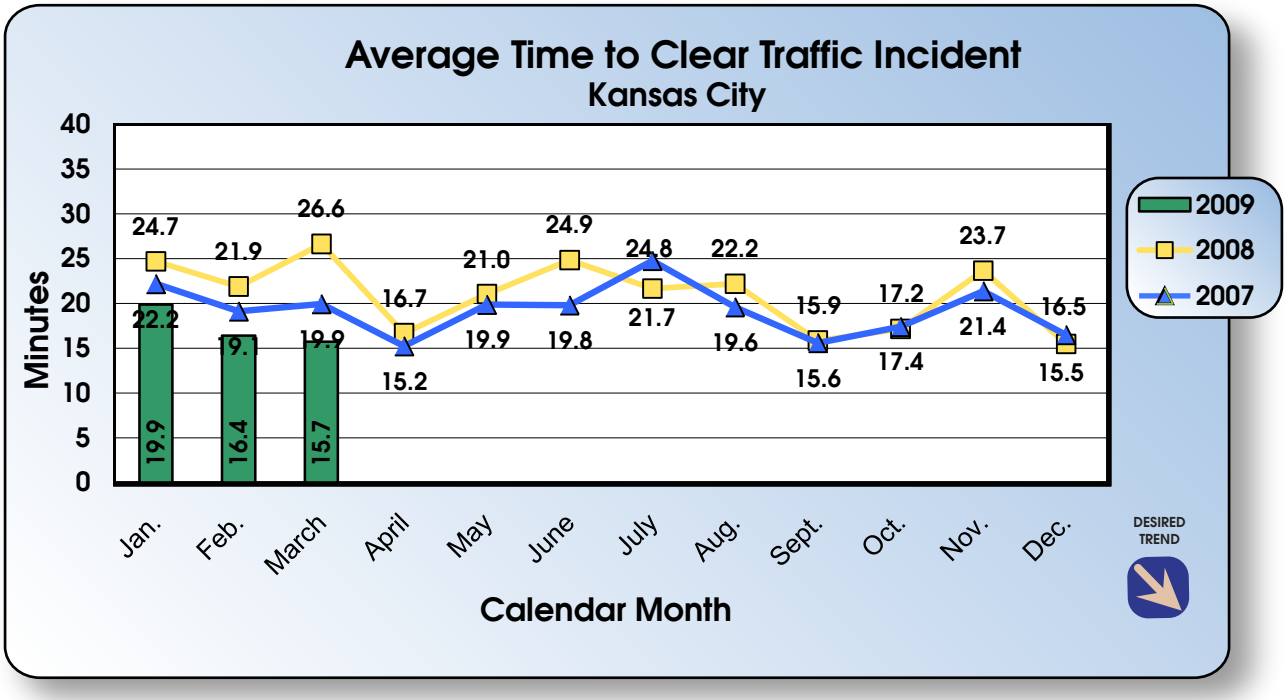
On September 1, 2009, Kansas City moved to a new software and hardware platform, (TranSuite and SQL), giving them the ability to do more detailed tracking of time to clear incidents, Motorist Assist activities and interoperability with Operation Greenlight and the arterial signal systems.

Improvement Status:

St. Louis recorded 611, 537, and 498 incidents respectively for the months of January, February and March utilizing ATMS. Time to clear increased for March due to a number of long duration incidents. There was a nine hour incident on a ramp that involved fuel spillage that lasted overnight. Another longer term incident was a collision involving a vehicle fire that lasted seven hours. Fifty percent of St. Louis incidents were cleared at or below 15 minutes. St. Louis' data includes more incidents because St. Louis monitors more freeway miles than the Kansas City area.

Kansas City collected data on 517, 397, and 499 incidents respectively for the months of January, February and March. The number of short term incidents captured utilizing the ATMS continues to go up (there were almost 350 in March). Most of the increase is due to catching more short term incidents due to Motorist Assistance being dispatched from the TMC, thus lowering the overall average time to clear incidents for the month.


Average Time to Clear Traffic Incident
St. Louis
Minutes
Calendar Month
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
2009
2008
2007
DESIRED TREND
31.0
28.9
32.4
29.9
31.3
30.1
31.1
30.7
28.0
39.2
37.7
34.1
22.9
23.5
21.7
14.5
16.4
16.2
13.4
14.2
13.7
15.5
14.3
15.7
22.3
21.4
24.9


Average Time to Clear Traffic Incident
Kansas City
Minutes
Calendar Month
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
2009
2008
2007
DESIRED TREND
24.7
21.9
26.6
16.7
21.0
24.9
24.8
22.2
15.9
17.2
23.7
16.5
22.2
19.1
19.9
15.2
19.9
19.8
21.7
19.6
15.6
17.4
21.4
15.5
19.9
16.4
15.7

Average time to clear traffic backup from incident-1d

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:

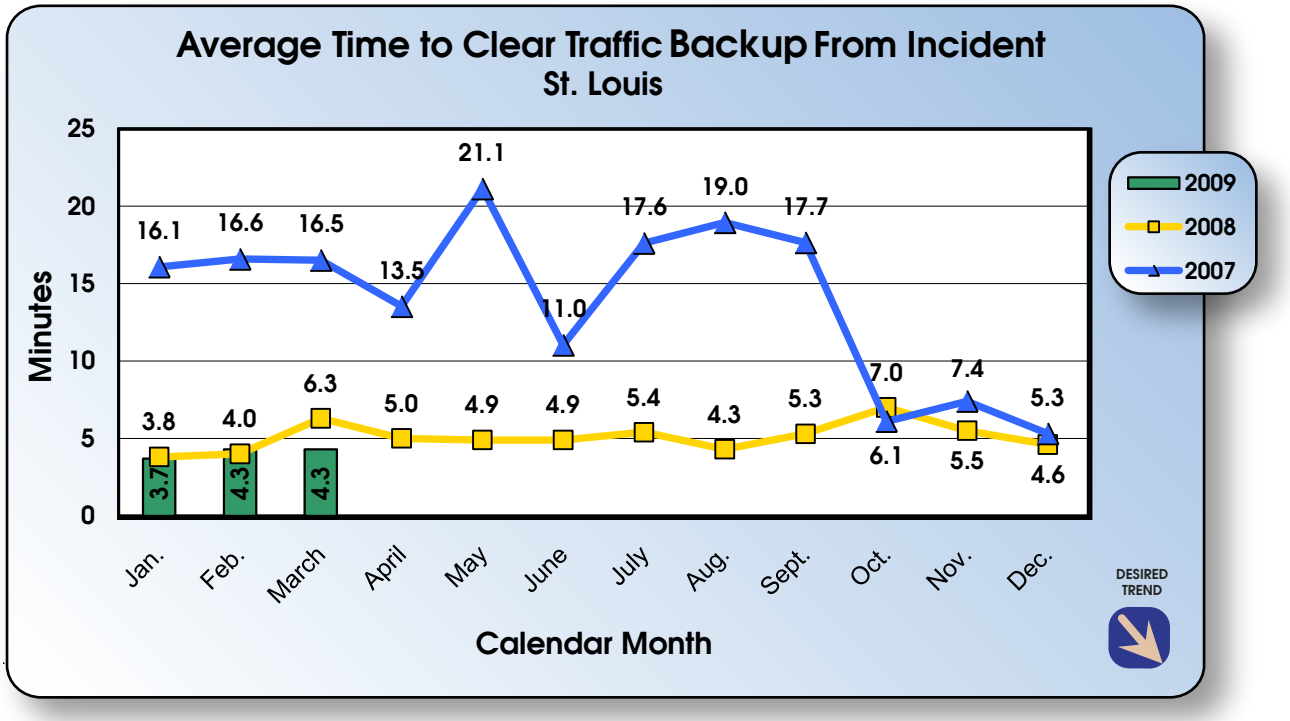
"All lanes cleared" and "clear backup" times are being recorded by MoDOT's Traffic Management Centers in Kansas City and St. Louis. Average times to clear traffic backups are calculated from these recorded times. Kansas City reports capture when a backup is relieved as an automated process. The Kansas City area has devices to collect data along portions of Interstates 435 and 70. In October 2008, St. Louis began using advanced transportation management system (ATMS) devices to collect data. The number of incidents that data is collected on in St. Louis has gone from approximately 50 to 500.

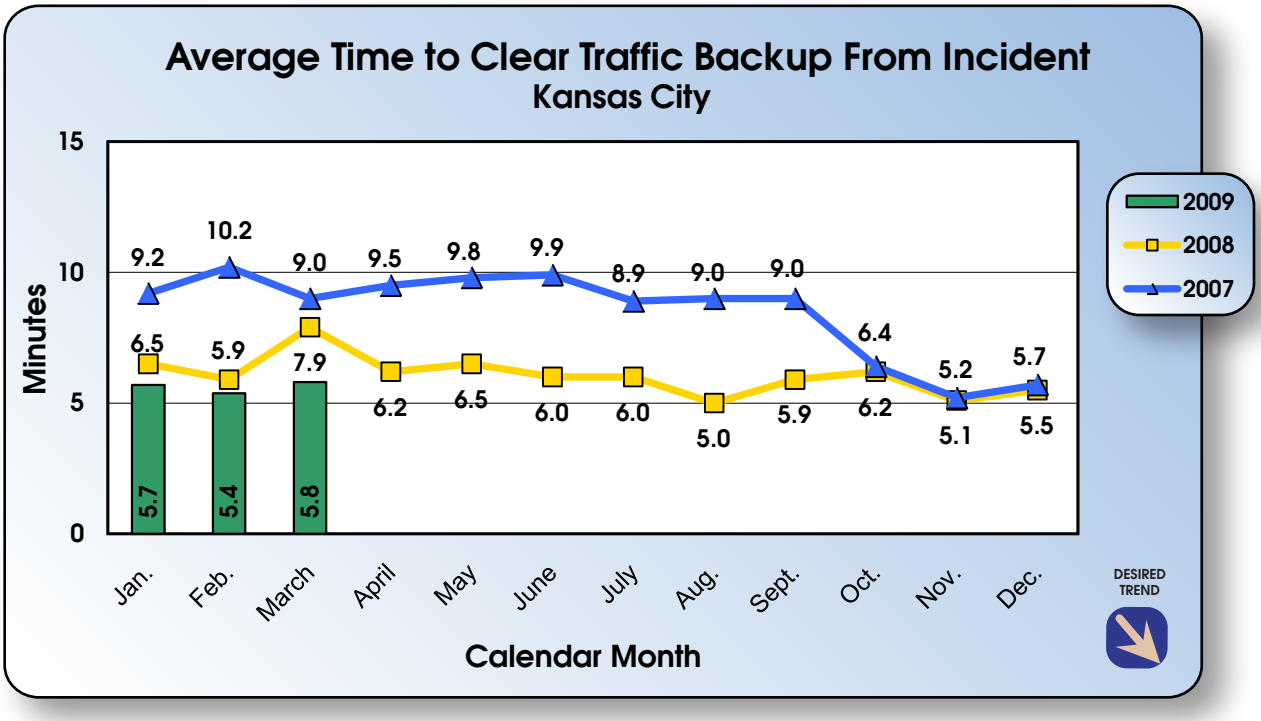
Improvement Status:

St. Louis area routes have larger traffic volumes that create more significant congestion problems than in Kansas City.

St. Louis' times to clear traffic backup increased in February due to one incident that had a recorded backup clearance time of over six hours. The time to clear traffic backup in March did increase over January. The clearance times were all under 66 minutes for the month; however, many of the higher clearance times occurred during the peak hours. Prior to October 2008, the only incidents for which data was available were those incidents the TMC could monitor by camera.

Kansas City continues to have fairly consistent times to clear backup from an incident. Renewed efforts in developing long-term partnerships with local agencies and law enforcement have increased the awareness of MoDOT's expectations for quick clearance and open roadways.


Average Time to Clear Traffic Backup From Incident
St. Louis
Minutes
25
20
15
10
5
0
16.1
16.6
16.5
13.5
21.1
11.0
17.6
19.0
17.7
7.0
6.1
7.4
5.5
5.3
4.6
3.8
4.0
6.3
5.0
4.9
4.9
5.4
4.3
5.3
3.7
4.3
4.3
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Calendar Month
2009
2008
2007
DESIRED TREND


Average Time to Clear Traffic Backup From Incident
Kansas City
Minutes
15
10
5
0
9.2
10.2
9.0
9.5
9.8
9.9
8.9
9.0
9.0
6.4
5.1
5.7
5.5
6.5
5.9
7.9
6.2
6.5
6.0
6.0
5.0
5.9
6.2
5.2
5.7
5.4
5.8
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Calendar Month
2009
2008
2007
DESIRED TREND

Number of customers assisted by the Motorist Assist program -1e

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 on our state roadways, because traffic 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. MoDOT's Motorist Assist operators are able to respond to nearly every incident, major or minor, in the areas they cover.

Measurement and Data Collection:

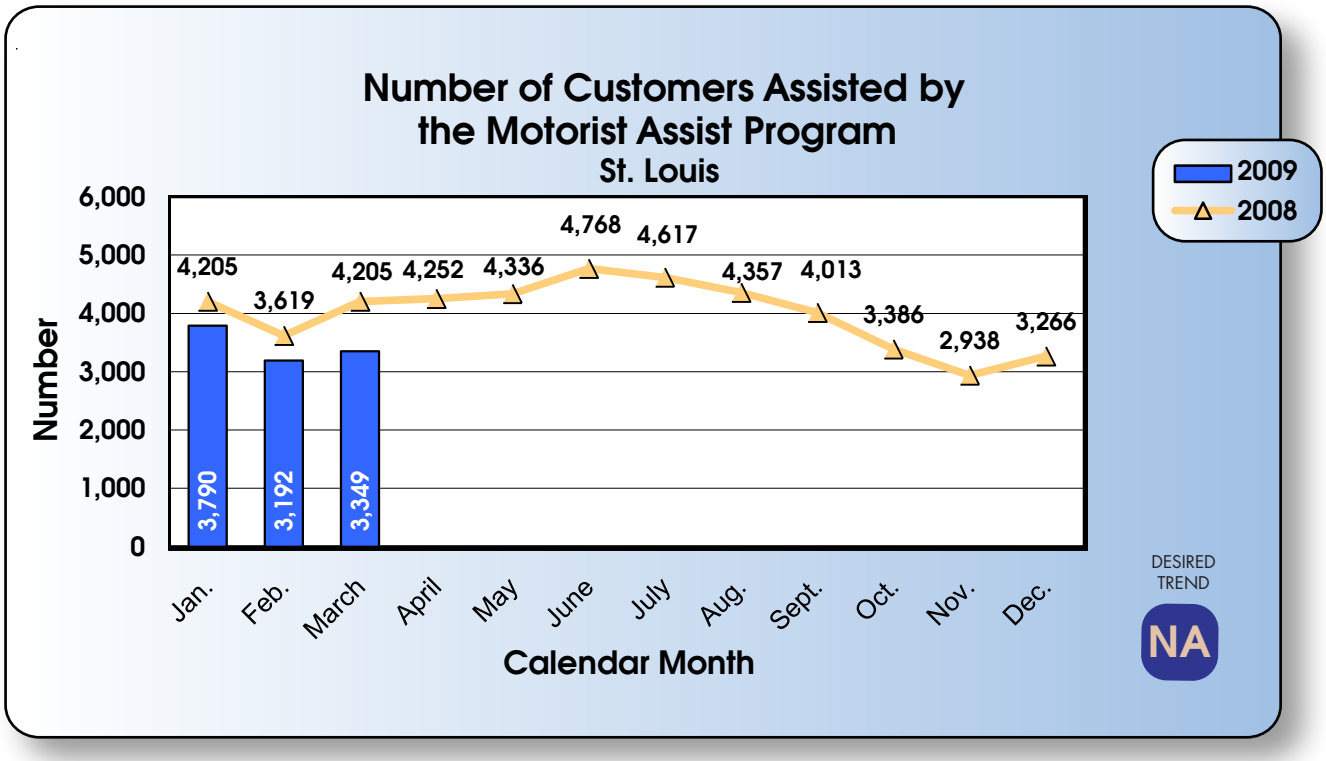
The Motorist Assist operators record each assist and then prepare a monthly summary. Kansas City operators patrol approximately 105 freeway miles. St. Louis operators patrol approximately 192 freeway miles.

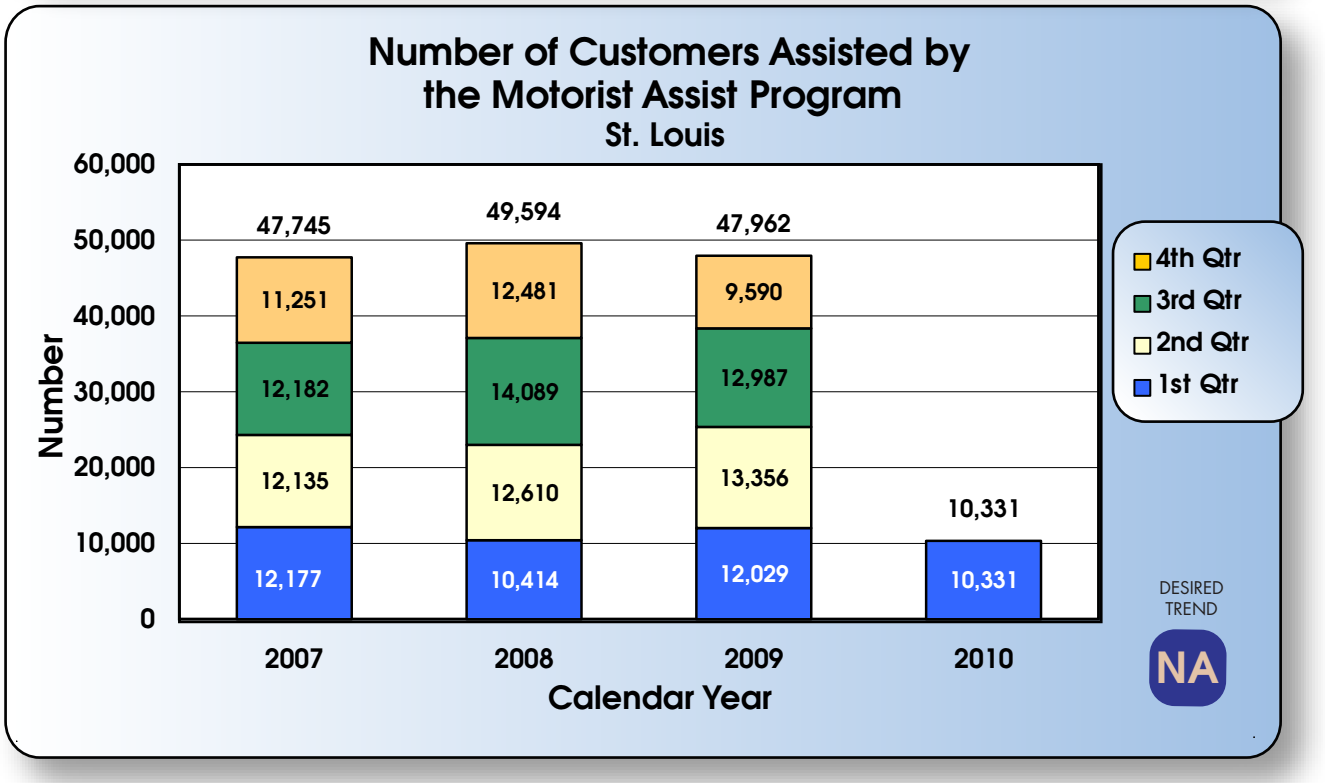
Improvement Status:

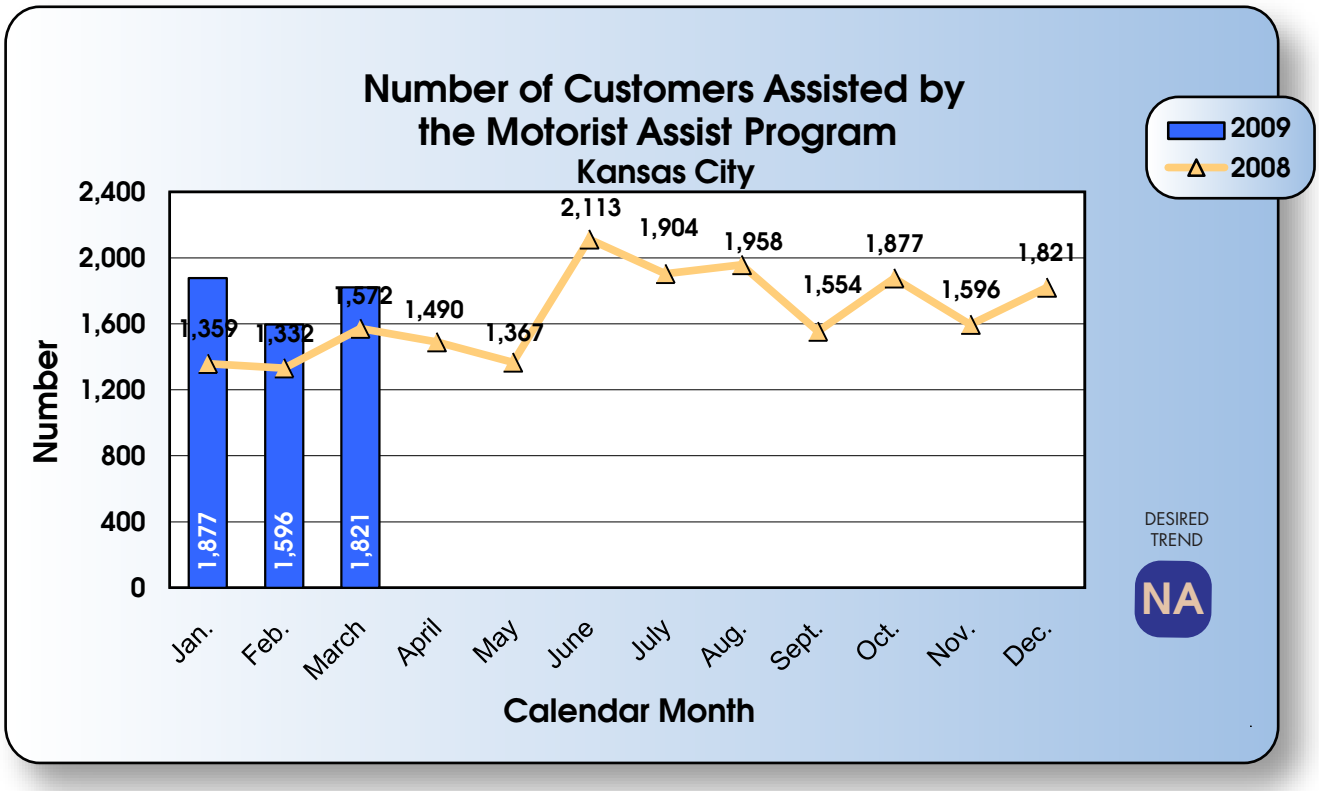
This data demonstrates that the Motorist Assist program in both St. Louis and Kansas City continue to provide a valuable service to motorists on the urban freeways in both metropolitan areas.

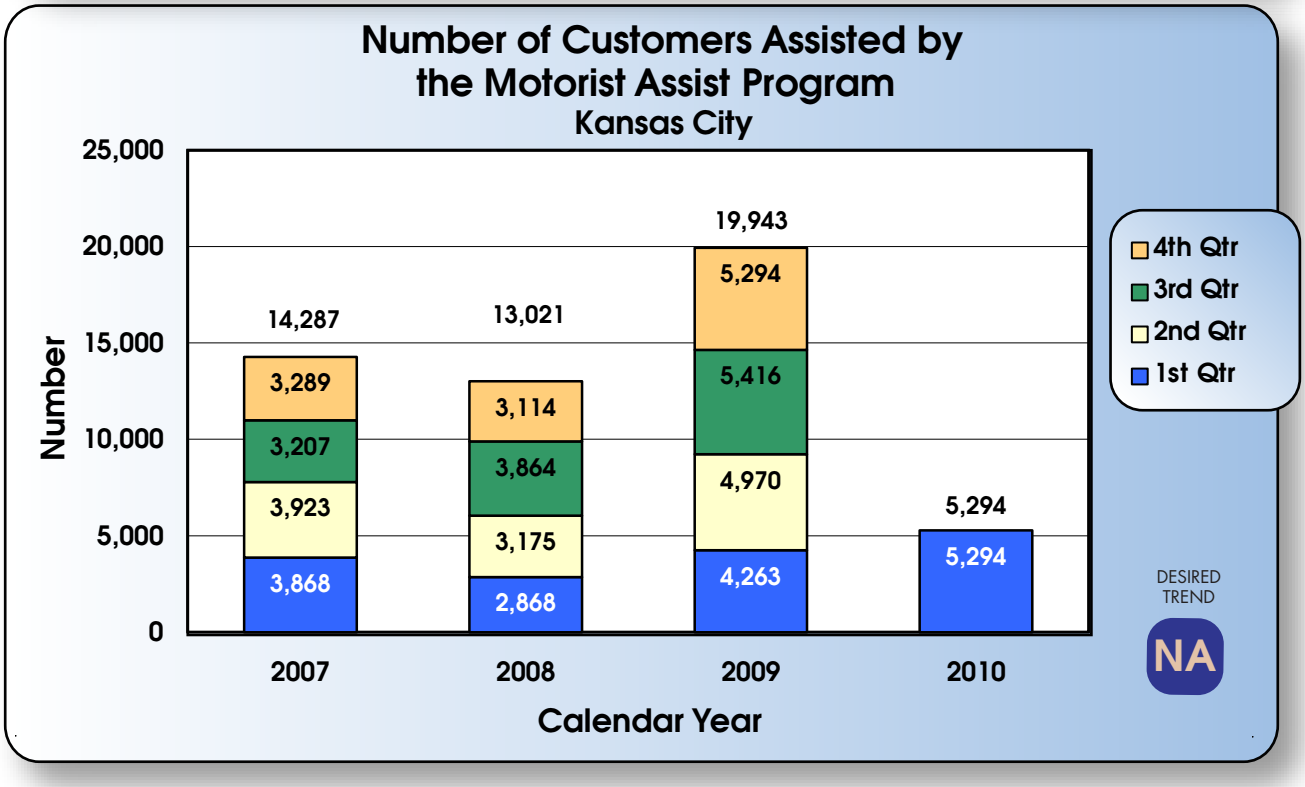
In St. Louis, the trend line for the last quarter is consistent with previous years. However, the decline in assists for the past three quarters and yearly total is reflective of declining staffing levels since July 2009. Man-hour shortages contributed to the reduced overall number of assists for the Motorist Assist organization.

Over the last year, the motorist assist program in Kansas City has expanded coverage to seven days a week. This has resulted in a marked increase in the number of assists provided.


Number of Customers Assisted by the Motorist Assist Program
St. Louis
Number
6,000
5,000
4,000
3,000
2,000
1,000
0
4,205
3,619
4,205
4,252
4,336
4,768
4,617
4,357
4,013
3,386
2,938
3,266
3,790
3,192
3,349
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Calendar Month
2009
2008
DESIRED TREND
NA


Number of Customers Assisted by the Motorist Assist Program
St. Louis
Number
60,000
50,000
40,000
30,000
20,000
10,000
0
47,745
49,594
47,962
10,331
11,251
12,182
12,135
12,177
12,481
14,089
12,610
10,414
9,590
12,987
13,356
12,029
10,331
2007
2008
2009
2010
Calendar Year
4th Qtr
3rd Qtr
2nd Qtr
1st Qtr
DESIRED TREND
NA


Number of Customers Assisted by
the Motorist Assist Program
Kansas City
2009
2008
Number
2,400
2,000
1,600
1,200
800
400
0
1,359
1,332
1,572
1,490
1,367
2,113
1,904
1,958
1,554
1,877
1,596
1,821
1,877
1,596
1,821
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Calendar Month
DESIRED TREND
NA


Number of Customers Assisted by
the Motorist Assist Program
Kansas City
4th Qtr
3rd Qtr
2nd Qtr
1st Qtr
Number
25,000
20,000
15,000
10,000
5,000
0
14,287
3,289
3,207
3,923
3,868
13,021
3,114
3,864
3,175
2,868
19,943
5,294
5,416
4,970
4,263
5,294
5,294
2007
2008
2009
2010
Calendar Year
DESIRED TREND
NA

Percent of Motorist Assist customers who are satisfied with the service-1f

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.

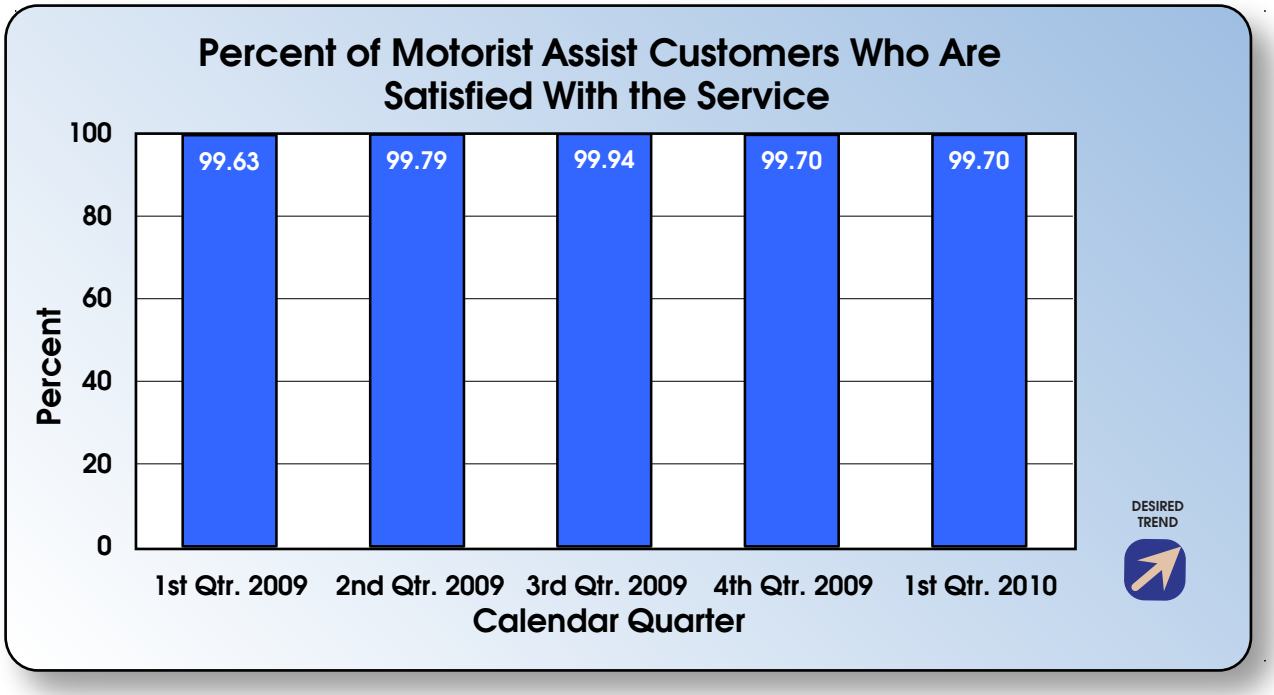
Measurement and Data Collection:

Motorist Assist operators distribute survey cards to customers. Data from the cards is compiled and tabulated by Heartland Market Research, LLC. 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 2009,
  - 1,413 Motorist Assist surveys received
- Second Quarter 2009,
  - 1,504 Motorist Assist surveys received
- Third Quarter 2009
  - 1,592 Motorist Assist surveys received
- Fourth Quarter 2009,
  - 1,010 Motorist Assist surveys received
- First Quarter 2010,
  - 1,368 Motorist Assist surveys received



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

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Smith, Traffic Management & Operations Engineer

Purpose of the Measure:

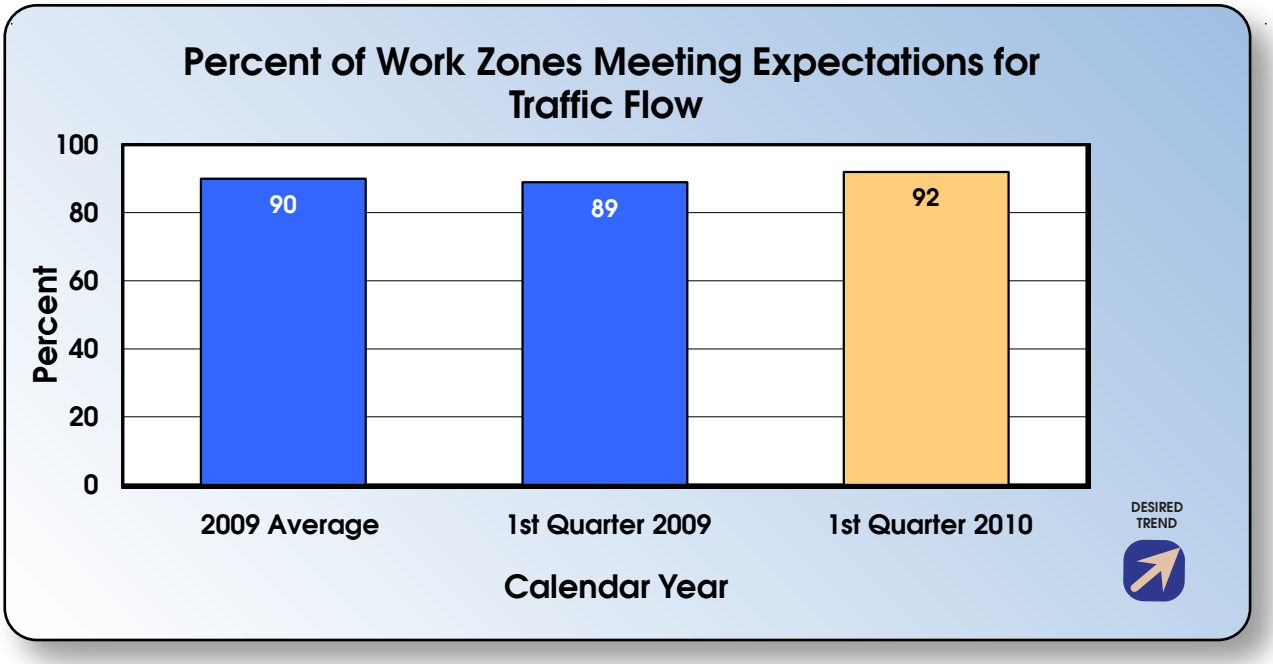
An important factor in evaluating the department's performance in temporary traffic control design, deployment, operation and maintenance is the measurement of work zones' affect on the mobility of highway users. This measure tracks how well the department meets customer expectations of traffic flow 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 248 surveys completed by the traveling public and MoDOT staff between January and March of this calendar year resulted in a positive satisfaction rating of 92 percent for work zone traffic flow. This is a 2 and 3 percent increase in customer satisfaction from last year's average of 90 percent and the first quarter's 89 percent customer satisfaction.



Time to meet winter storm event performance objectives on major and minor highways-1h

Result Driver: Don Hillis, Director of System Management
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 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. After a storm ends, the objectives are to restore the major highways to a clear 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 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 reports. The time in hours is the statewide average for the entire winter season.

Improvement Status:

The average time to meet the performance objectives on the major highways is 0.3 hour more than the previous winter. The average time to meet the performance objectives on the minor highways is 0.7 hour more than last 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. This winter has produced several major storms with near blizzard conditions requiring additional time to meet the objectives. Strategies to improve these numbers include implementing best practices, pursuing equipment enhancements, testing new materials and continued training of snow removal employees.