



OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

Paula Gough, District Engineer

Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE



Missourians expect to get to their destinations on time, without delay regardless of their choice of travel mode. We coordinate and collaborate with our transportation partners throughout the state to keep people and goods moving freely and efficiently. We also maintain and operate the transportation system in a manner to minimize the impact to our customers and partners.

RESULT DRIVER:
Paula Gough,
District Engineer

OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

MAP-21

MEASUREMENT
DRIVER:
Jon Nelson,
Traffic Management and
Operations Engineer

Travel times and reliability on major routes-5a

PURPOSE OF
THE MEASURE:
This measure tracks the
mobility of significant state
routes in St. Louis, Kansas
City, Springfield and Colum-
bia.

Minimizing travel times and delays on the state's most traveled routes is essential to operating a reliable and convenient transportation system. The desired outcome for any route is a safe flow of traffic at the posted speed limit. From January to March 2014, it took customers, on average, 12.75 minutes during the morning rush and 12.99 minutes during the evening rush to travel 10 miles on interstate routes in St. Louis. For interstates in Kansas City, it took customers, on average, 11.14 minutes during the morning rush and 11.32 minutes during the evening rush to travel 10 miles. This is the equivalent of driving about 50 mph.

MEASUREMENT
AND DATA
COLLECTION:
Travel time data for many
state routes is continuously
collected via roadside de-
tectors and other technolo-
gies. For other routes, travel
times are collected manu-
ally by driving the route at
least twice in each direction.
To assess mobility, MoDOT
compares travel times dur-
ing rush hour to free-flow
conditions where vehicles
can travel at the posted
speed limit. This measure
also assesses reliability, an
indicator of how variable
those travel times are on a
daily basis.
The charts in this measure
show the average travel
time and the 80th percen-
tile travel time, which is the
time motorists should plan
in order to reach their desti-
nations on time 80 percent
of the time. The maps dis-
play the mobility of specific
sections of roadways during
rush hour.

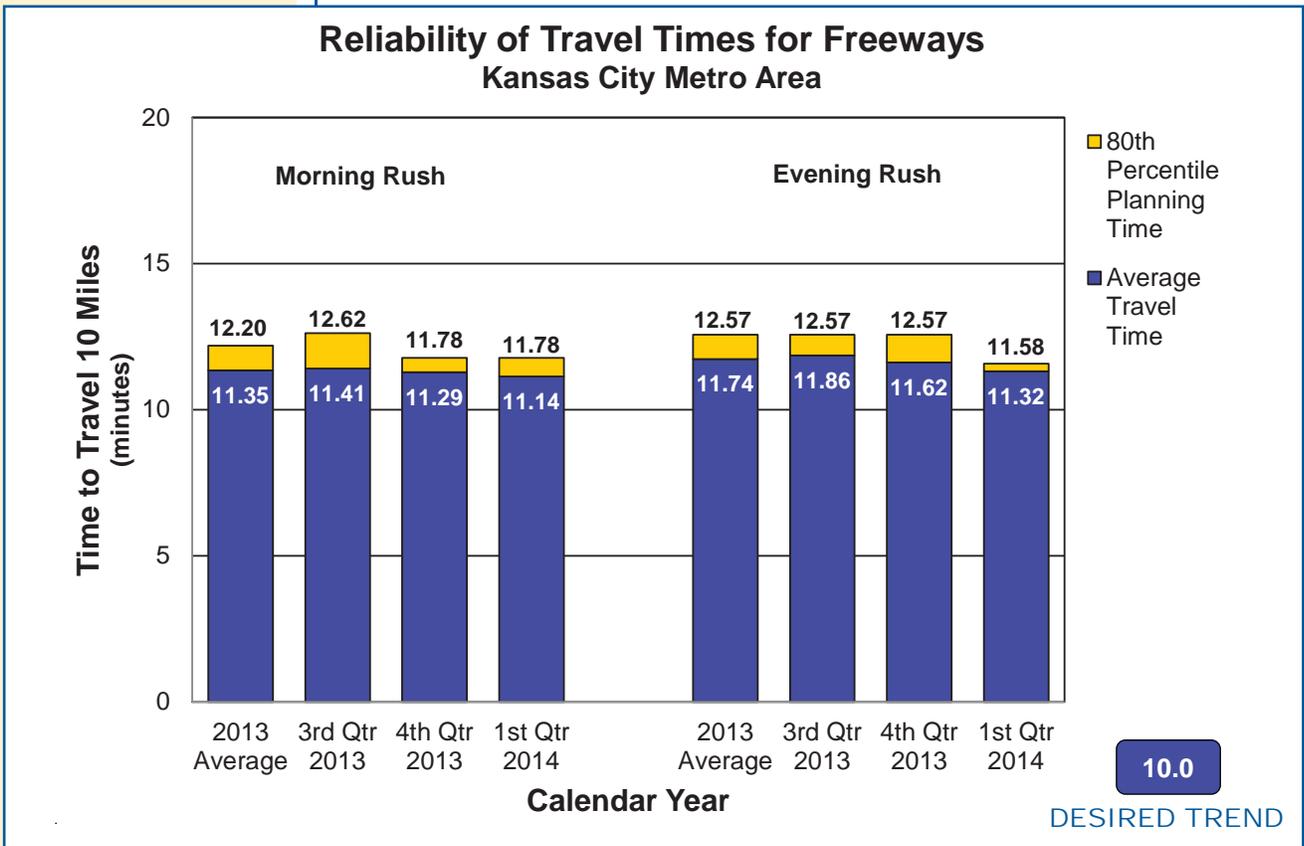
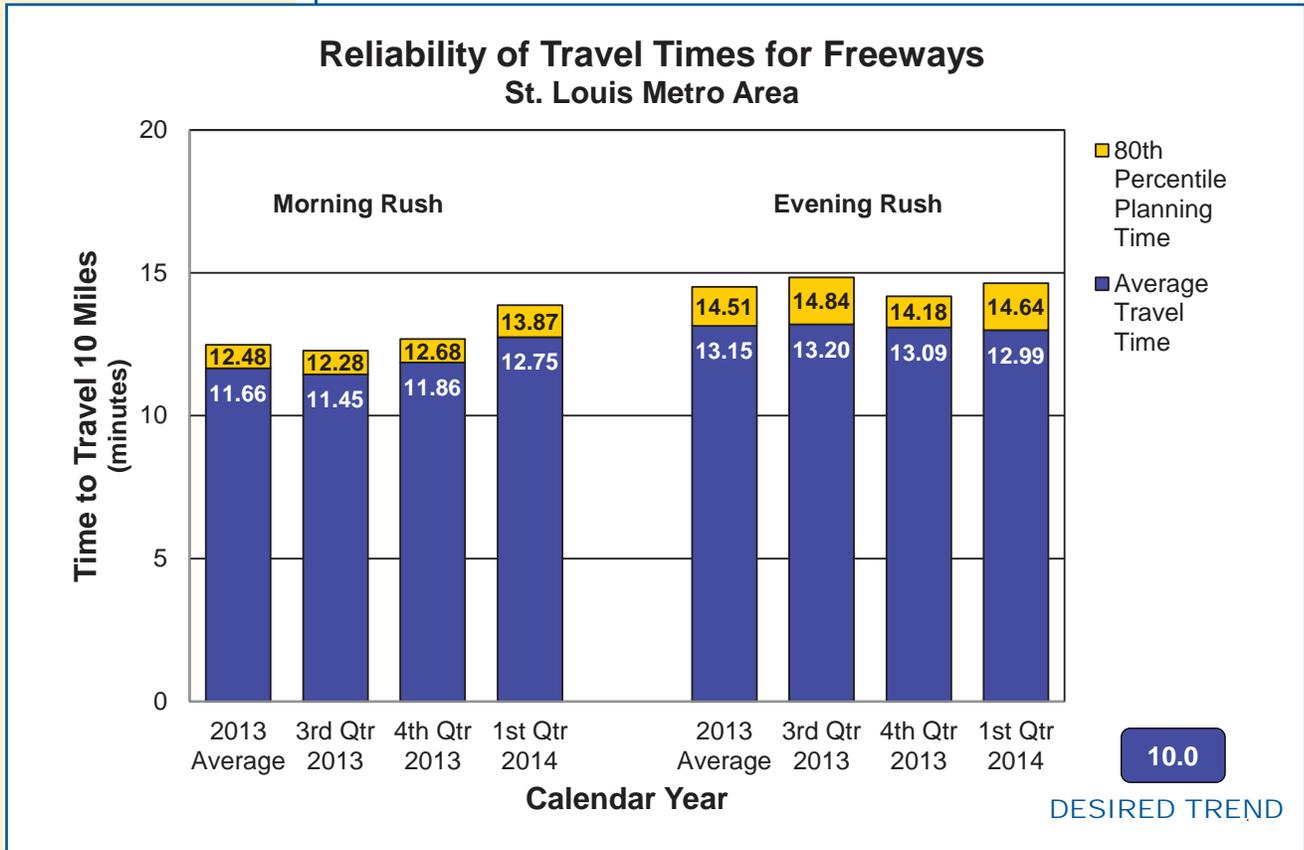
Individual roadways within St. Louis and Kansas City, however, experienced longer travel times than the regional averages. In St. Louis, this was particularly true on I-64 where the average travel times were 14.74 minutes in the morning and 16.33 minutes during the evening. Likewise, I-170 had average travel times of 13.39 minutes in the morning and 15.76 minutes in the evening. In Kansas City, I-35 had the highest average travel times: 13.01 minutes during the morning and 13.74 minutes in the evening. Average rush hours speeds on these routes were between 35 and 45 mph.

Some of the more unreliable travel times this quarter occurred on I-170 and I-64 in St. Louis and I-35 in Kansas City where 10-mile travel times reached as high as 21 minutes. During the most unpredictable days, customers needed to plan as much as one additional minute for every mile traveled, an equivalent of driving 30 mph.

In St. Louis, the heaviest recurring congestion existed on segments of I-64 during both the morning and evening rush and also on I-270 northbound in the morning. In Kansas City, the heaviest recurring congestion occurred in the downtown region. Other interstates, such as I-35, I-70 and I-470, experienced moderate congestion as well. Significant congestion also occurred on Route 291 north of the Missouri River during the evening rush hour. In Columbia and Springfield, most traffic delays occurred on signalized arterial routes, though some moderate congestion did occur in spot locations on certain freeways. For arterials, the most significant congestion occurred on Stadium Boulevard near I-70 in Columbia and on MO 13 (Kansas Expressway) near I-44 in Springfield during both the morning and evening rush hours.

As MoDOT's construction budget continues to shrink over the next few years, the department will be increasingly challenged to invest in projects that improve traffic flow on Missouri's busiest roadways.

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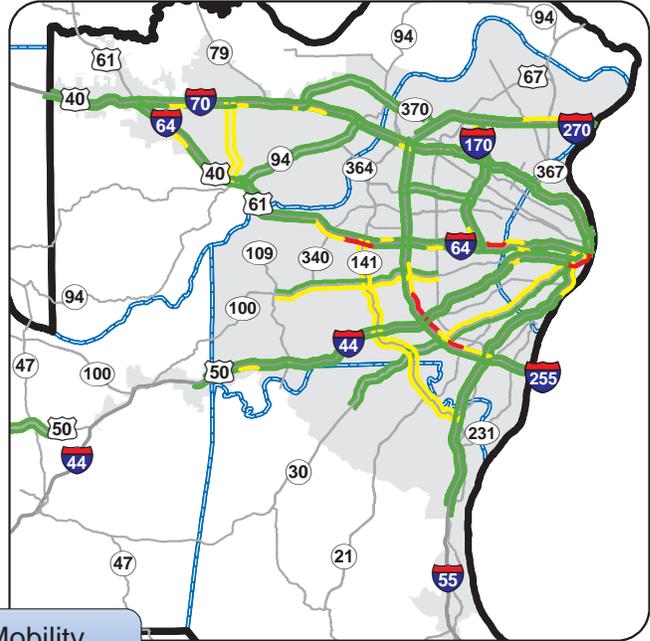


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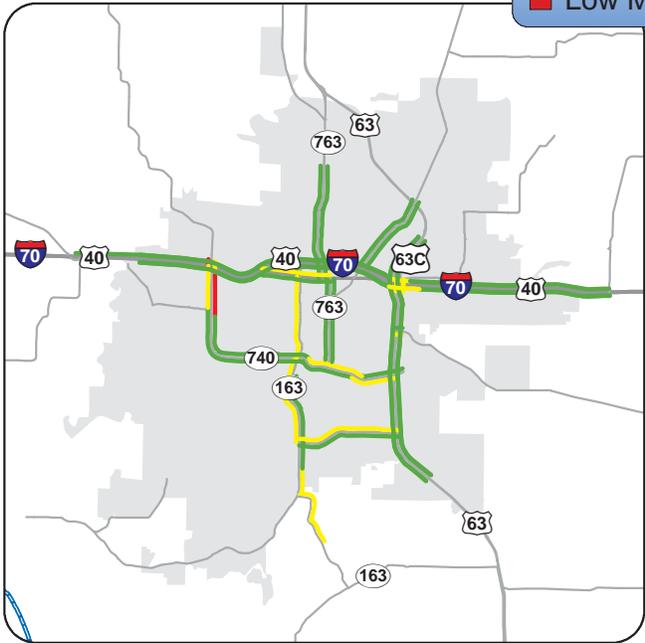
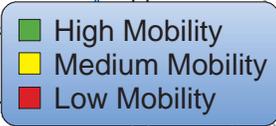
AM Mobility



Kansas City Area



Saint Louis Area



Columbia Area



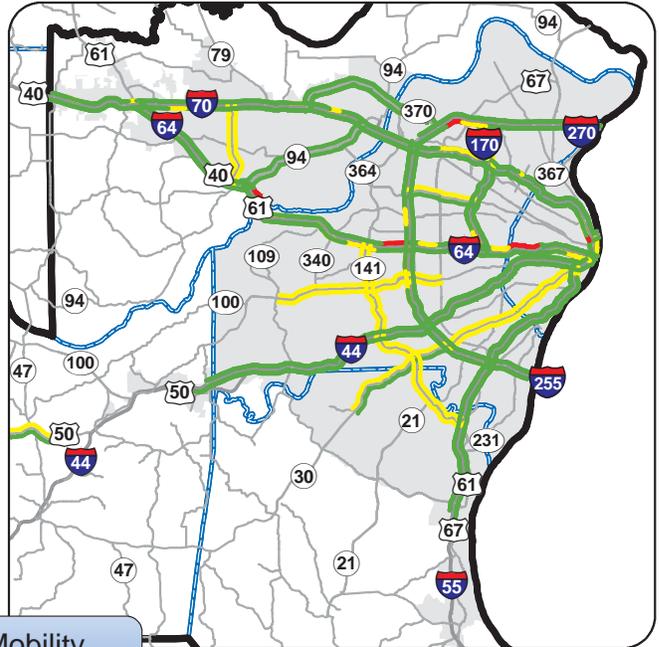
Springfield Area

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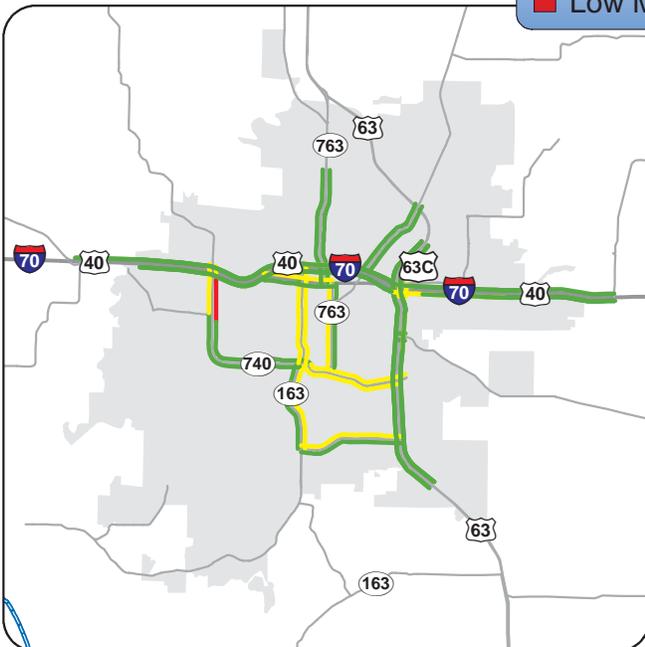
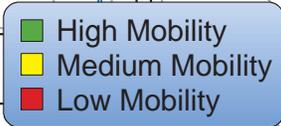
PM Mobility



Kansas City Area



Saint Louis Area



Columbia Area



Springfield Area

RESULT DRIVER:
Paula Gough,
District Engineer

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MAP-21

MEASUREMENT
DRIVER:
Jeanne Olubogun,
District Traffic Engineer

PURPOSE OF
THE MEASURE:
This measure tracks the
annual cost and impact of
traffic congestion to motor-
ists in the areas of motorist
delay, travel time, excess
fuel consumed per auto
commuter and congestion
cost per auto commuter.

MEASUREMENT
AND DATA
COLLECTION:
The Texas A&M Transpor-
tation Institute annually
produces the Urban Mobility
Report. In the 2012 report,
there are hundreds of
speed data points on almost
every mile of major road in
urban America for almost
every 15-minute period
of the average day. This
means 600 million speeds
on 875,000 miles across the
U.S. – an enormous amount
of information to analyze
congestion patterns and
accurately determine what
solutions can be targeted to
specific areas. This mea-
sure will use that data to
evaluate the St. Louis and
Kansas City metro areas
as compared to the es-
tablished average of other
large urban areas around
the country.

Cost and impact of traffic congestion-5b

Recurring congestion occurs at regular times, although the traffic jams are not necessarily consistent day-to-day. Nonrecurring congestion is an unexpected traffic crash or natural disaster that affects traffic flow. When either occurs, the time required for a given trip becomes unpredictable. This unreliability is costly for commuters and truck drivers moving goods which results in higher prices to consumers.

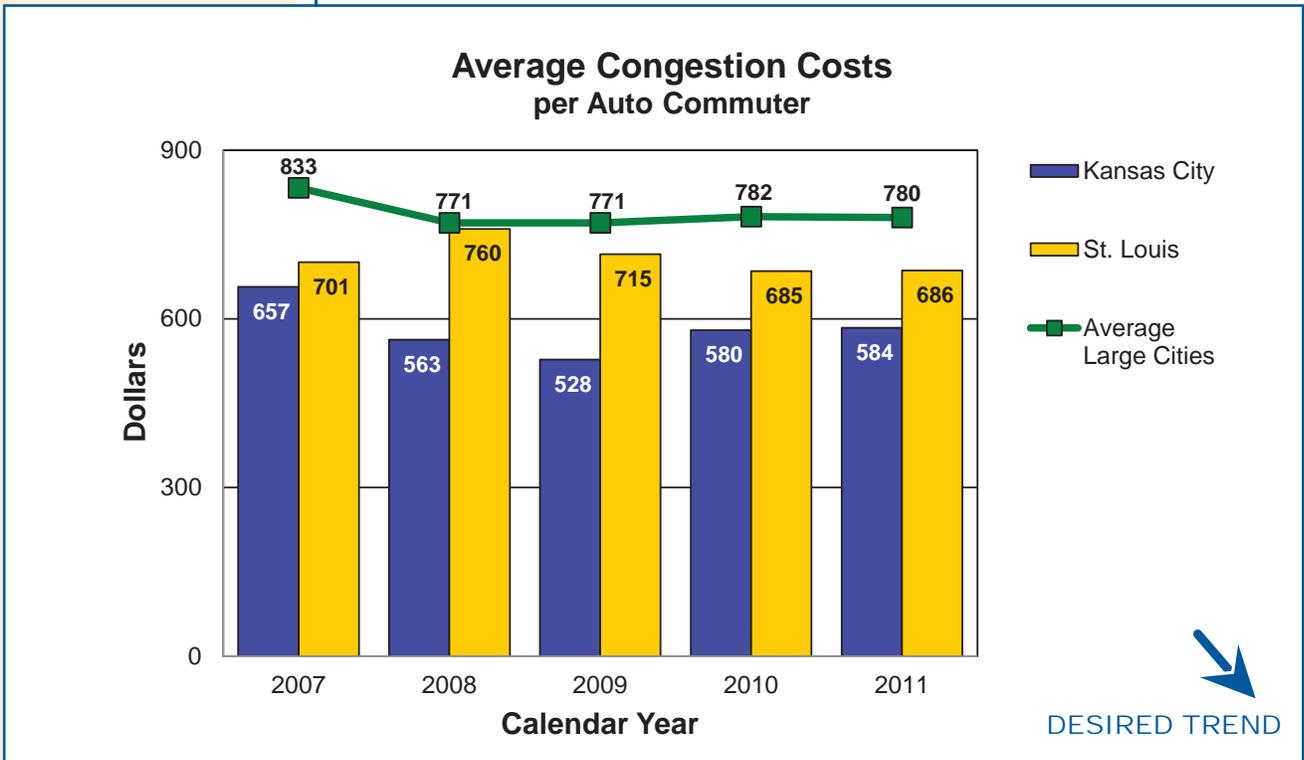
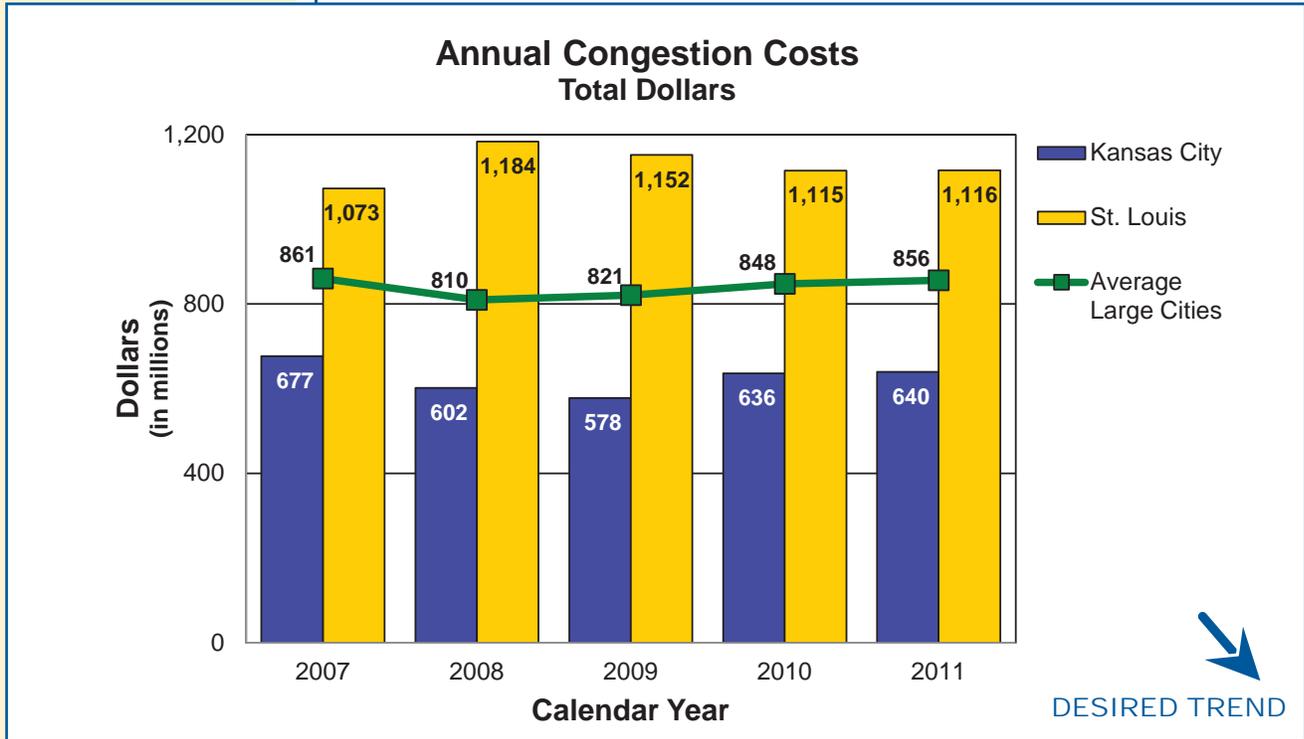
The Kansas City and St. Louis metro regions both fall within the category of large urban areas, according to the Urban Mobility Report. Large urban areas have populations between one million and three million people. Other cities considered to be large urban areas include Minneapolis-St. Paul, Nashville, Indianapolis, Milwaukee and Louisville.

The annual congestion cost totals and the annual congestion cost per auto commuter for Kansas City both follow a similar trend. There is a slight decrease from 2007 to 2009 and a slight increase since 2009. In St. Louis, both measures show a slight increase in 2008 and a slight decrease through 2010.

While the desired trend for both costs is downward, challenges exist in both regions to continue toward this desired outcome. A comprehensive look at congestion is needed, and looking beyond typical solutions of adding capacity is a must. As the department adapts to shrinking revenue streams, the capacity for adding projects will be scarce. Using smarter technology to help guide motorists is a must. Still, the desired outcome is lower congestion costs and an indication that traffic is moving more efficiently.



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RESULT DRIVER:
Paula Gough,
District Engineer

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MEASUREMENT
DRIVER:
Jason Sims,
Traffic Center Manager

PURPOSE OF
THE MEASURE:
This measure is used to
determine the trends in inci-
dent clearance on the state
highway system.

MEASUREMENT
AND DATA
COLLECTION:
Advanced Transportation
Management Systems are
used by the Kansas City
and St. Louis traffic man-
agement centers to record
incident start time and the
time when all lanes are
declared cleared.

Average time to clear traffic incident-5c

A traffic incident is an unplanned event that blocks travel lanes and temporarily reduces the number of vehicles that can travel on the road. The speed of incident clearance is essential to the highway system returning back to normal conditions. Therefore, responding to and quickly addressing the incident (crashes, flat tires and stalled vehicles) improves system performance.

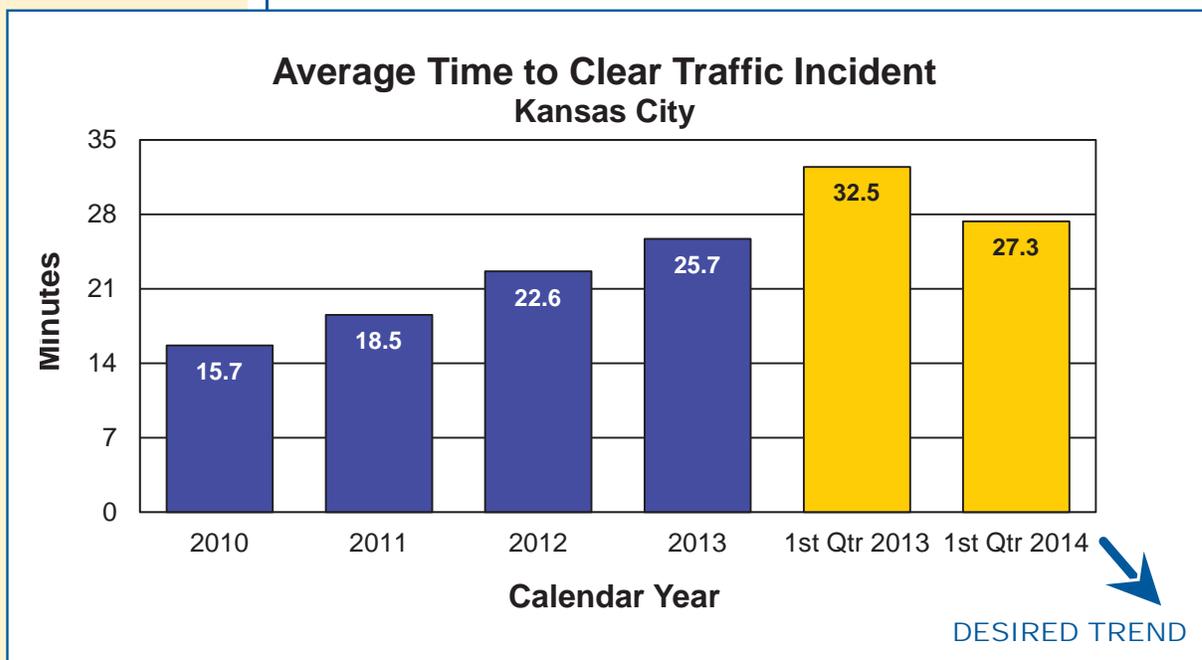
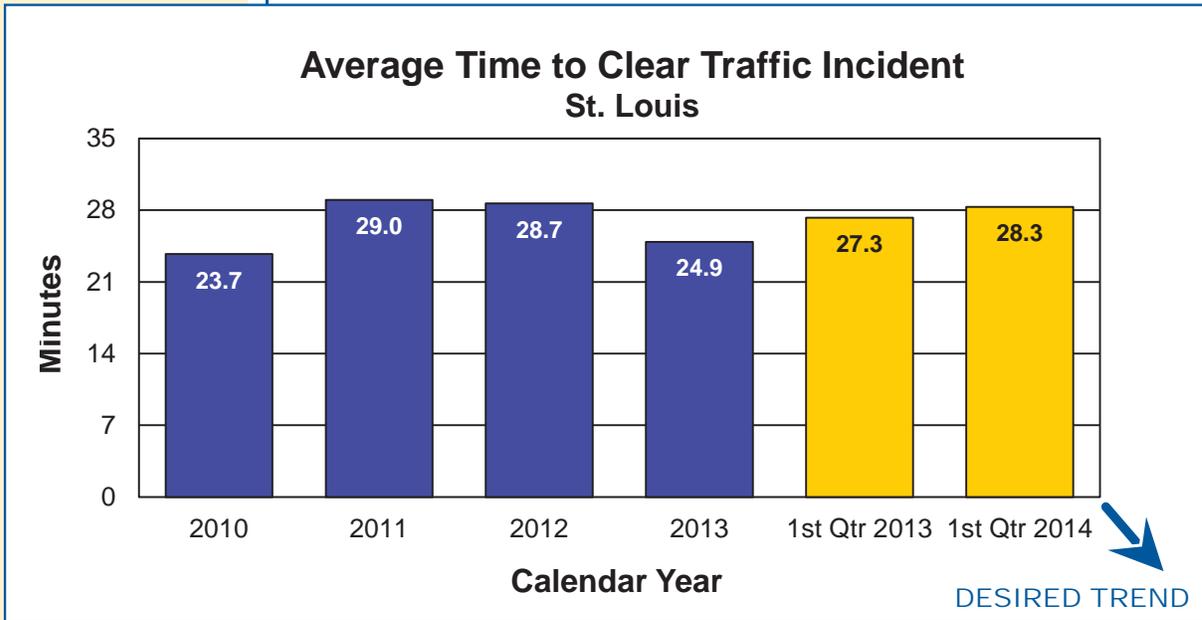
St. Louis recorded 824 incidents in January, 558 in February, and 597 in March. The average time to clear traffic accidents was 28.3 minutes, a slight increase of two percent compared to the first quarter of 2013.

Kansas City recorded 760 incidents in January, 797 in February, and 722 in March. The average time to clear traffic incidents was 27.3 minutes, a slight decrease of one percent from the first quarter of 2013.

St. Louis and Kansas City have demonstrated quick clearance of incidents with yearly averages of 28.3 minutes and 27.3 minutes respectively.



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RESULT DRIVER:
Paula Gough,
District Engineer

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MEASUREMENT
DRIVER:
Rick Bennett,
Traffic Liaison Engineer

Traffic impact closures on major interstate routes-5d

PURPOSE OF
THE MEASURE:
This measure tracks the
closures on Interstate 70
and Interstate 44 due to
various traffic impacts.

Interstates are the arteries that connect our nation and keep people and commerce flowing. When they shut down in Missouri, the country is cut in half. Keeping interstates free-flowing is a top priority for MoDOT, but sometimes nature and vehicle crashes affect the department's ability to keep the interstates moving.

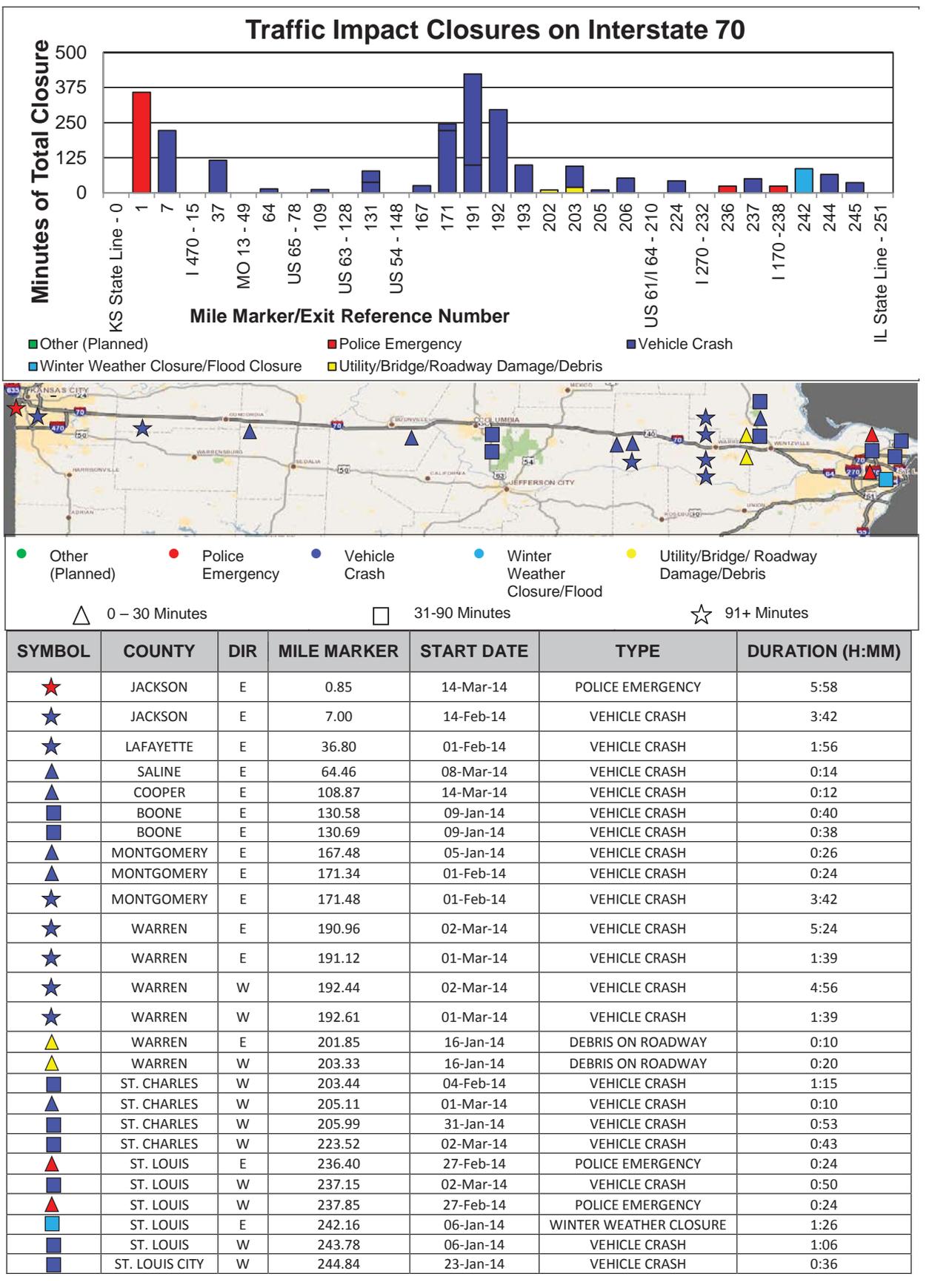
MEASUREMENT
AND DATA
COLLECTION:
The interstate route clo-
sures that have an actual
or expected duration of
30 minutes or more are
entered into MoDOT's
Transportation Management
System for display on the
Traveler Information Map on
MoDOT's website.

Twenty-six complete closures or blockages occurred on I-70: nine in January, seven in February, and 11 in March. In January there were six vehicle crashes, all of which cleared in less than 90 minutes. Both directions of the interstate in Warren County were closed for less than 30 minutes due to debris in the roadway, and I-70 eastbound was closed for 90 minutes in St. Louis County due to winter weather. During February, there were five vehicle crashes, two of which cleared in less than 90 minutes. The three remaining crashes consisted of a multi-vehicle crash with fatality in Jackson County, resulting in a 3½ hour closure; a series of crashes on slick roadways in Montgomery County that blocked the roadway for over 3½ hours; and a single vehicle crash in Lafayette County that had eastbound lanes blocked for two hours due to the slick road conditions. Both directions of I-70 were closed in St. Louis County for less than 30 minutes due to a police emergency. During March, there were nine vehicle crashes, five of which cleared in less than 90 minutes. The four remaining crashes all occurred in Warren County and were a result of an isolated slick stretch of interstate that caused numerous crashes on March 1 and 2. There was a police emergency due to a pedestrian fatality in Jackson County that lasted six hours.

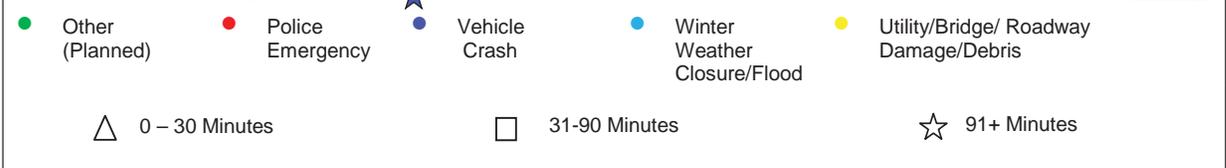
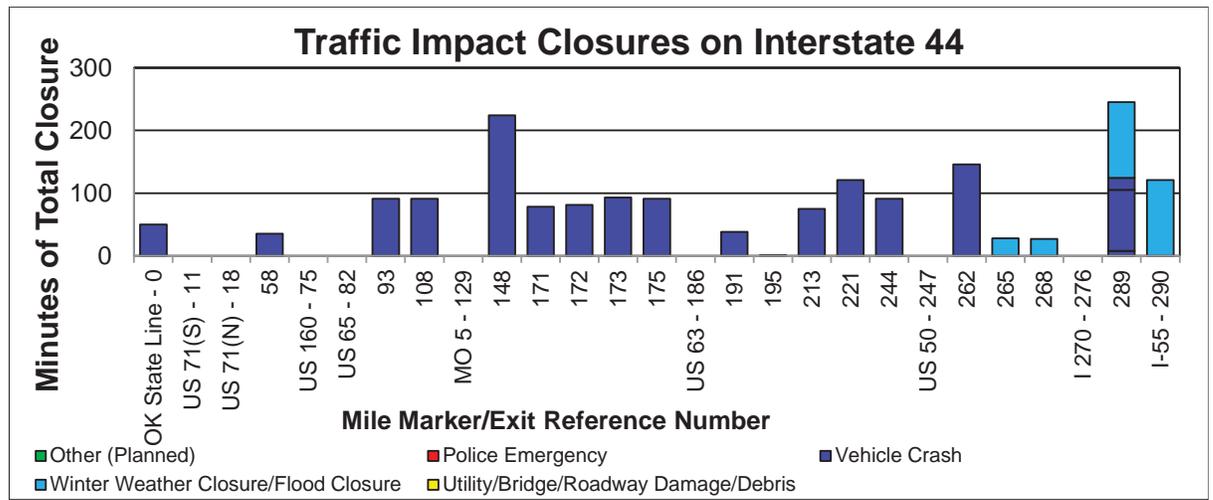
On Interstate 44, 22 complete closures or blockages occurred: seven in January, eight in February, and seven in March. In January there were seven vehicle crashes, two of which cleared in less than 90 minutes. The remaining five were associated with crashes due to slick roadways and cleared in less than 2½ hours. In February there were eight vehicle crashes, seven of which cleared within 90 minutes. The remaining crash was associated with slick roadways and cleared in less than four hours. In March there were three vehicle crashes cleared within 90 minutes. The other four closures were due to winter weather. On March 2, both directions of I-44 were closed in St. Louis County for less than 30 minutes and both directions of I-44 were closed in St. Louis City for two hours.

MoDOT continues to work with all emergency responders to minimize the delay caused by closures on our interstate system.

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SYMBOL	COUNTY	DIR	MILE MARKER	START DATE	TYPE	DURATION (H:MM)
■	NEWTON	E	0.35	29-Mar-14	VEHICLE CRASH	0:50
■	LAWRENCE	E	58.15	04-Feb-14	VEHICLE CRASH	0:35
☆	WEBSTER	E	93.49	06-Jan-14	VEHICLE CRASH	1:31
☆	WEBSTER	W	107.76	05-Jan-14	VEHICLE CRASH	1:31
☆	PULASKI	E	148.17	04-Feb-14	VEHICLE CRASH	3:44
■	PHELPS	W	170.98	15-Feb-14	VEHICLE CRASH	1:18
☆	PHELPS	W	171.79	04-Feb-14	VEHICLE CRASH	1:31
☆	PHELPS	W	173.19	04-Feb-14	VEHICLE CRASH	1:33
☆	PHELPS	E	174.97	04-Feb-14	VEHICLE CRASH	1:31
■	PHELPS	W	191.05	22-Jan-14	VEHICLE CRASH	0:38
▲	PHELPS	E	195.45	05-Jan-14	VEHICLE CRASH	0:01
■	CRAWFORD	W	213.20	04-Feb-14	VEHICLE CRASH	1:15
☆	CRAWFORD	W	220.03	05-Jan-14	VEHICLE CRASH	2:01
☆	FRANKLIN	W	244.04	02-Mar-14	VEHICLE CRASH	1:31
☆	ST. LOUIS	E	261.93	02-Jan-14	VEHICLE CRASH	2:26
▲	ST. LOUIS	W	265.30	02-Mar-14	WINTER WEATHER CLOSURE	0:28
▲	ST. LOUIS	E	268.43	02-Mar-14	WINTER WEATHER CLOSURE	0:27
☆	ST. LOUIS CITY	W	288.52	02-Mar-14	WINTER WEATHER CLOSURE	2:01
▲	ST. LOUIS CITY	W	288.65	08-Mar-14	VEHICLE CRASH	0:19
☆	ST. LOUIS CITY	E	288.76	06-Jan-14	VEHICLE CRASH	1:37
▲	ST. LOUIS CITY	W	289.28	04-Feb-14	VEHICLE CRASH	0:08
☆	ST. LOUIS CITY	E	291.70	02-Mar-14	WINTER WEATHER CLOSURE	2:01

RESULT DRIVER:
Paula Gough,
District Engineer

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MEASUREMENT
DRIVER:
Jason Vanderfeltz,
Design Liaison Engineer

PURPOSE OF
THE MEASURE:
Work zones are designed
to allow the public to travel
through work areas safely
with minimal disruptions.
This measure indicates how
well significant work zones
perform.

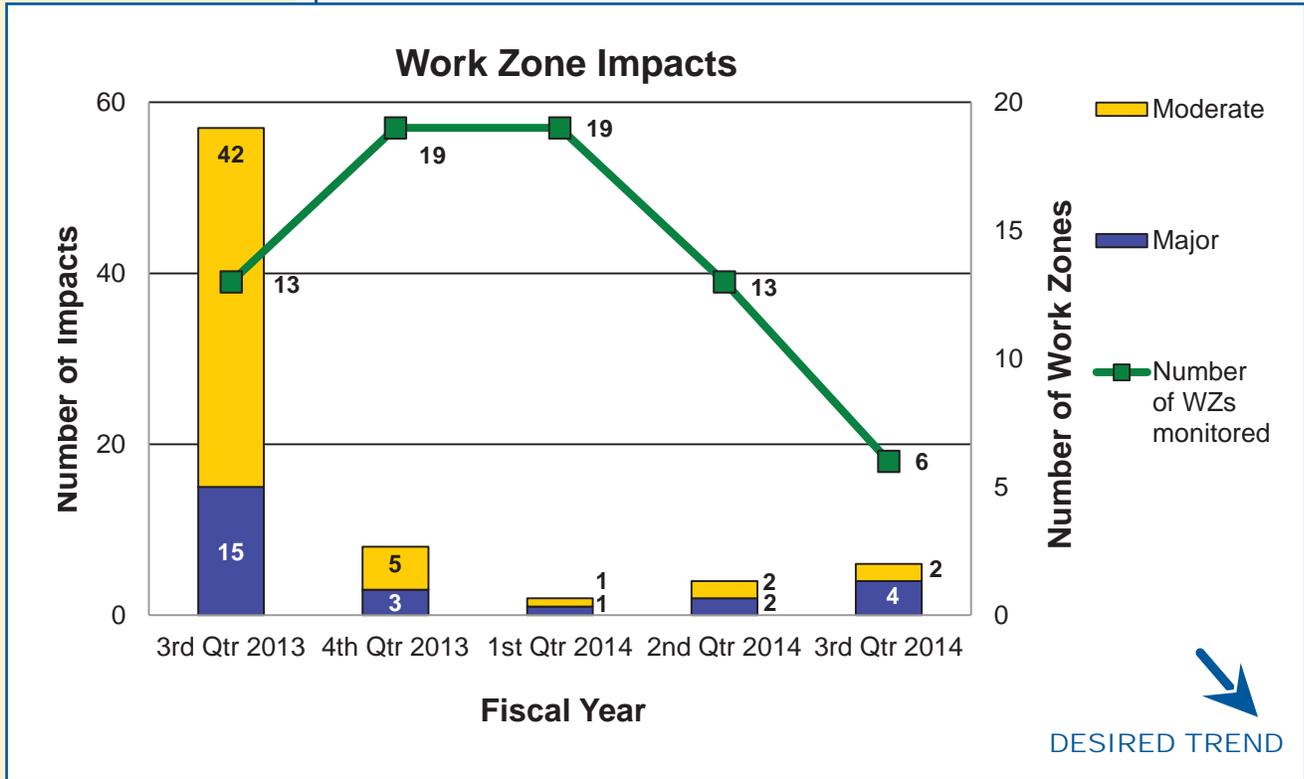
MEASUREMENT
AND DATA
COLLECTION:
Work zone impacts are
collected by MoDOT staff
driving through work zones,
conducting visual observa-
tions or using automated
data collection. An impact
is defined as the additional
time a work zone adds to
normal travel. They are cat-
egorized into three levels: a
minor impact lasts less than
10 minutes; a moderate im-
pact lasts 10 to 14 minutes;
and a major impact lasts 15
minutes or more.

Work zone impacts to the traveling public-5e

Motorists want to get through work zones with as little inconvenience as possible. Based on work zone surveys received this quarter, 65 percent are satisfied with timeliness when traveling in a work zone. MoDOT makes efforts to minimize the travel impacts by shifting work to nighttime hours or during times when there are fewer impacts to the traveling public. The department monitored six significant work zones this quarter, with major impacts showing a 100 percent increase and moderate impacts remained the same as last quarter.



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RESULT DRIVER:
Paula Gough,
District Engineer

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MAP-21

MEASUREMENT
DRIVER:
Mike Henderson,
Transportation Planning
Specialist

Effectiveness of improving air quality-5f

**PURPOSE OF
THE MEASURE:**
This measure tracks concentrations of pollutants in on-road mobile source emissions. In other words, the department is tracking pollution caused by vehicles on the roads.

MoDOT is committed to improving air quality through modifying its daily operations, incorporating employee actions and education, providing information to the public, leading air quality improvements, managing congestion to reduce emissions, providing alternative choices for commuters and promoting the use of environmentally friendly fuels and vehicles.

**MEASUREMENT
AND DATA
COLLECTION:**
MoDOT is still determining what pollutants to track and what concentration levels will align with the U.S. Environmental Protection Agency's air quality standards. At this time, the department collects data on oxides of nitrogen, volatile organic compounds, fine particulate matter and carbon monoxide. Because this measure is part of the latest federal surface transportation act's performance requirements, guidance for measurement and data collection will be established by 2015.

Effectiveness of Improving Air Quality

UNDER DEVELOPMENT

RESULT DRIVER:
Paula Gough,
District Engineer

OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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:
For major highways and
regionally significant
routes, the objective is to
restore them to a mostly
clear condition as soon as
possible after the storm
has ended. MoDOT calls
these "continuous opera-
tions" routes. State routes
with lower traffic volumes
should be opened to two-
way traffic and treated with
salt or abrasives at critical
areas such as intersections,
hills and curves. These are
called "non-continuous
operations" routes. After each
winter event, maintenance
personnel submit reports
indicating how much time it
took to meet the objectives
for both route classifica-
tions.

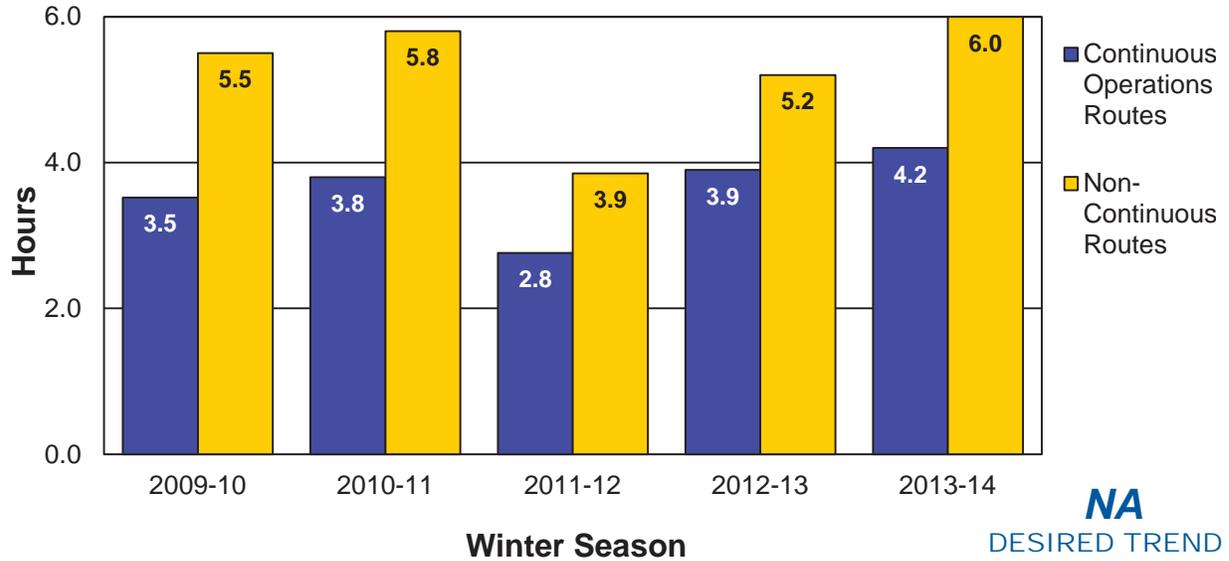
Time to meet winter storm event performance objectives-5g

Knowing the time it takes to clear roads after a winter storm can help the department better analyze the costs associated with that work. MoDOT's response rate to winter events provides good customer service for the traveling public while keeping costs as low as possible. This winter brought several events to the state. It took an average of 4.2 hours to meet MoDOT's objective for continuous operations routes, and an average of six hours for non-continuous routes. These numbers compare favorably with past years. However crews worked over 830,000 hours fighting these snow and ice events at a cost of \$71 million through the end of March. Winter operations, on average, cost about \$46 million dollars per year. The money and time spent on clearing the roads of ice and snow means funds are not available to maintain the roadways in the spring, such as surface improvements, sign repair, brush cutting and drainage work.

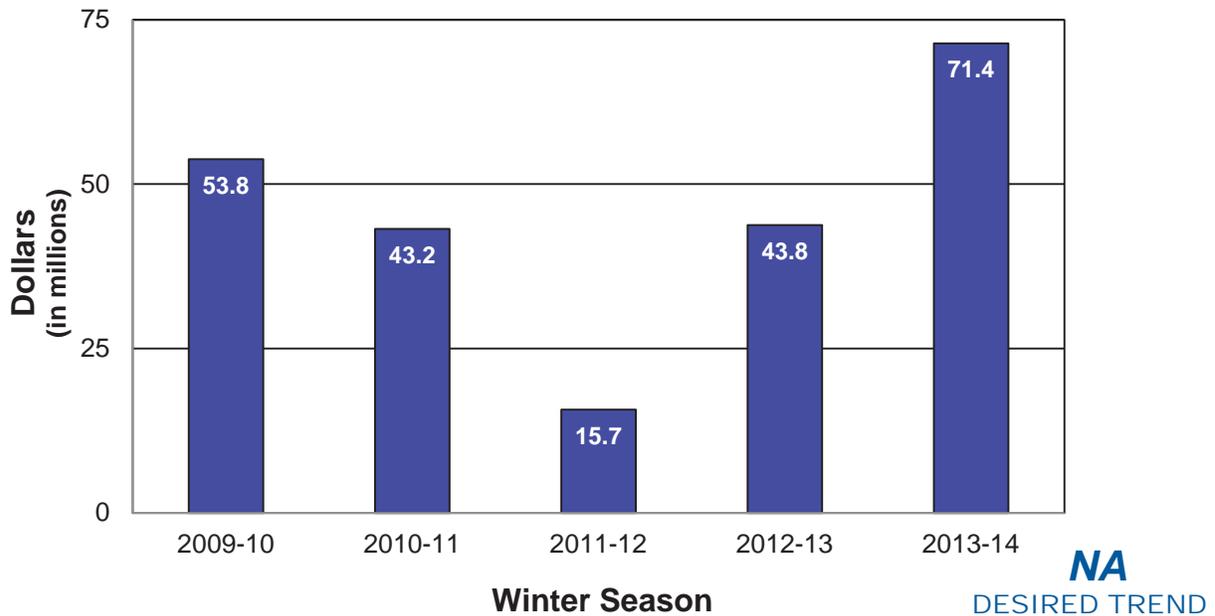


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Time to Meet Winter Storm Event Performance Objectives



Average Cost of Winter Operations



RESULT DRIVER:
Paula Gough,
District Engineer

MEASUREMENT
DRIVER:
Ron Effland, Non-motorized
Transportation Engineer

PURPOSE OF
THE MEASURE:
This measure tracks
MoDOT's investment in
pedestrian facilities and
progress toward removing
barriers. Accessibility needs
occur both within the right of
way, such as sidewalks and
traffic signals, and within
department buildings, park-
ing lots and restrooms. Re-
moval of the barriers listed
in MoDOT's 2010 Transition
Plan is required as part of
the department's compli-
ance with the Americans
with Disabilities Act.

MEASUREMENT
AND DATA
COLLECTION:
Tracking of MoDOT's
investment in pedestrian
facilities is done by col-
lecting awarded contract
amounts for the 20 most
common construction ele-
ments used on pedestrian
projects each year. Transi-
tion Plan progress is based
upon completed work that
has corrected defective
items reported in the August
2010 Transition Plan inven-
tory. The dollar amounts
are based on unadjusted
estimates from 2008 and
will not reflect actual expen-
ditures. This avoids impacts
from inflation or changing
field conditions.

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Bike/pedestrian and ADA transition plan improvements-5h

MoDOT's current Transition Plan reported an inventory of needed ADA improvements totaling more than \$151 million. MoDOT has been responsive to public requests for new facilities and has been proactive in many areas to make systematic improvements when opportunities arise and limited funding allows.

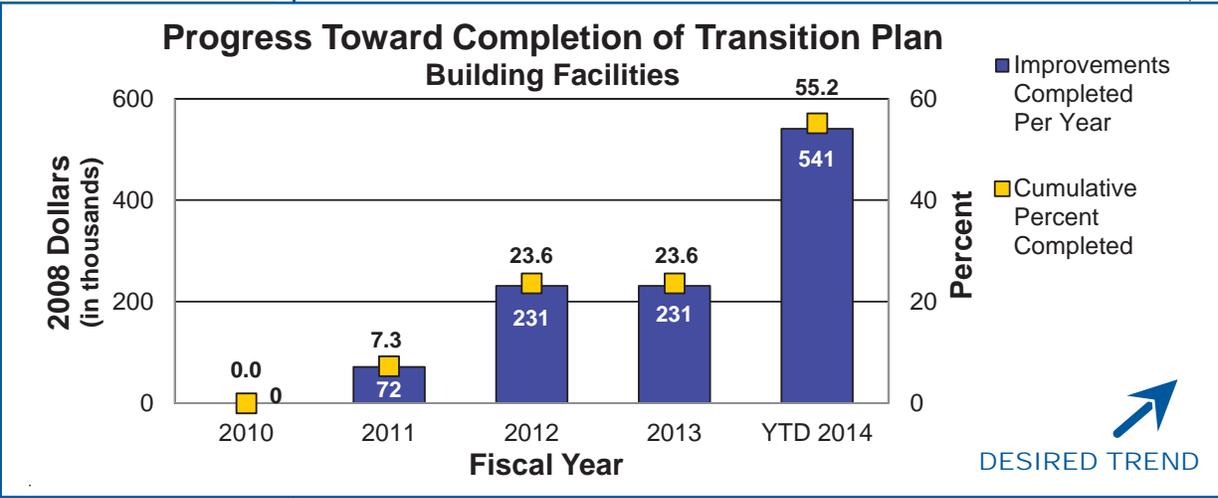
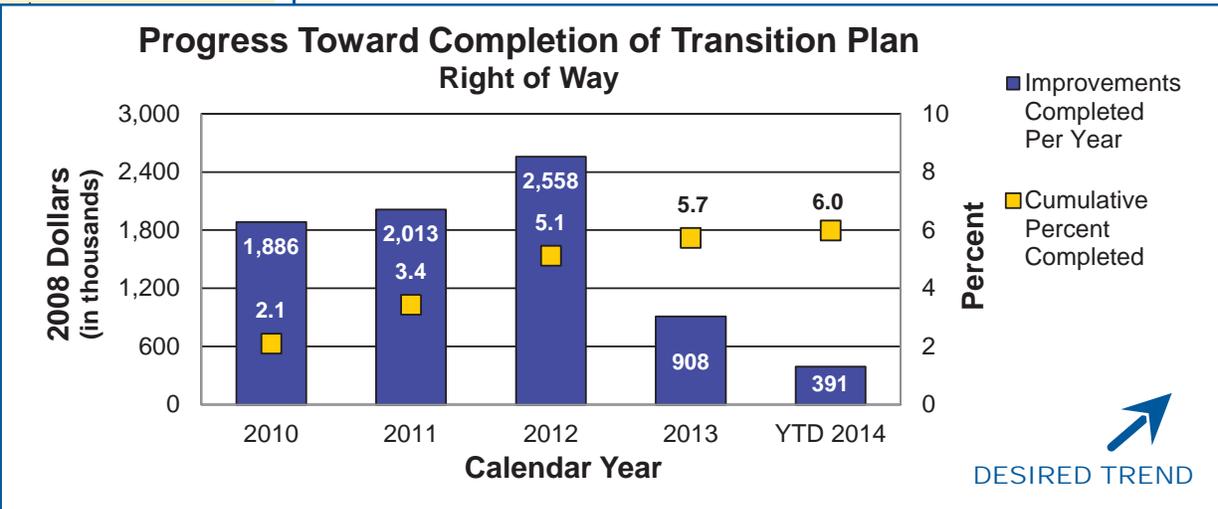
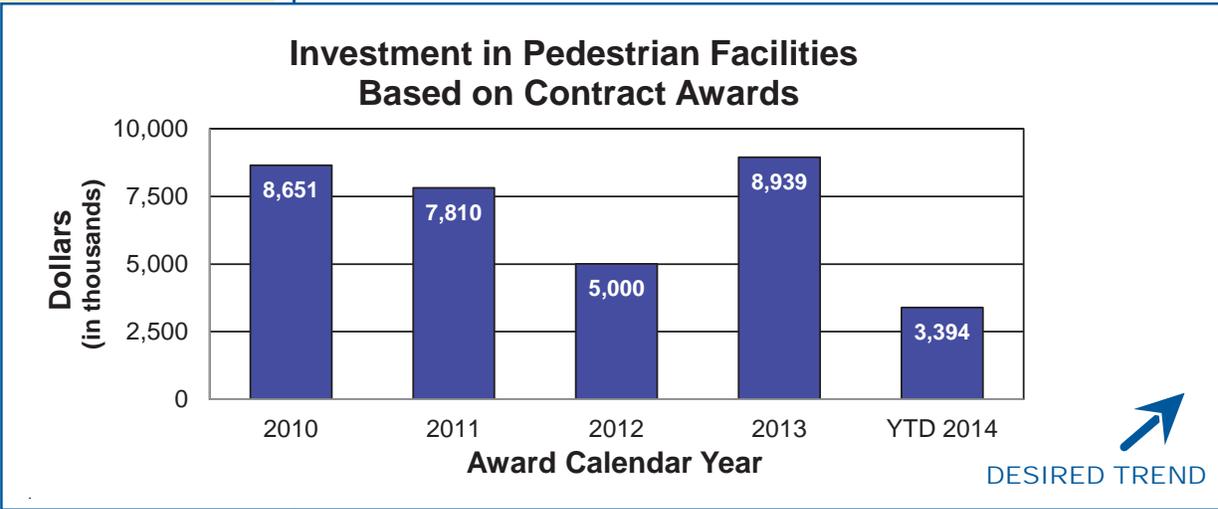
An increased investment in pedestrian facilities is needed to provide a more comprehensive transportation system that meets the expectations of all users. Unfortunately, a dwindling revenue stream for construction projects, at both state and federal levels, makes it very difficult to even maintain existing facilities. Additional funding sources will need to be developed before significant progress can be made in developing the additional pedestrian and bicycling facilities that Missourians desire.

Little progress was made in 2013 toward Transition Plan improvement. Only \$908,000 of improvements were reported to have been completed in 2013, compared to a total of \$2,558,000 reported in 2012. This is a 64.5 percent decrease from the previous year. Reporting so far in 2014 indicates an improvement over last year's performance.

MoDOT increased its annual investment in pedestrian facilities by 79 percent in 2013 over 2012. The increase is a result of a renewed commitment toward making ADA Transition Plan improvements across the state. The work plan is to complete required ADA improvements as work is being done along the adjacent roadway.



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RESULT DRIVER:

Paula Gough,
District Engineer

MEASUREMENT DRIVER:

Amy Ludwig,
Administrator of Aviation

PURPOSE OF THE MEASURE:

This measure tracks passenger use of modes other than highways in Missouri.

MEASUREMENT AND DATA COLLECTION:

Airline passenger counts are obtained from the Federal Aviation Administration and from individual airports. Washington is the benchmark due to its comparable population. Ferry passenger data is compiled from the New Bourbon and Mississippi County ferryboats, services owned and operated by Missouri public port authorities. Amtrak supplies Missouri River Runner passenger counts. Urban and rural transit services provide transit passenger data, with Wisconsin as the benchmark. Aviation and transit data is updated annually – in January and October, respectively – while ferryboat and rail data is updated quarterly.

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Use and connectivity of modes of transportation-5i

Planes, trains, ferries and transit options are vital means of transport for Missourians. Alternative modes of transportation connect Missourians to work, health care and other necessary activities. They also are used to grow Missouri's economy and create jobs. Missouri's current transportation funding for these modes is inadequate and unreliable. As revenues continue to decline, the state is increasingly unable to meet even a portion of the existing needs for these important transportation system components.

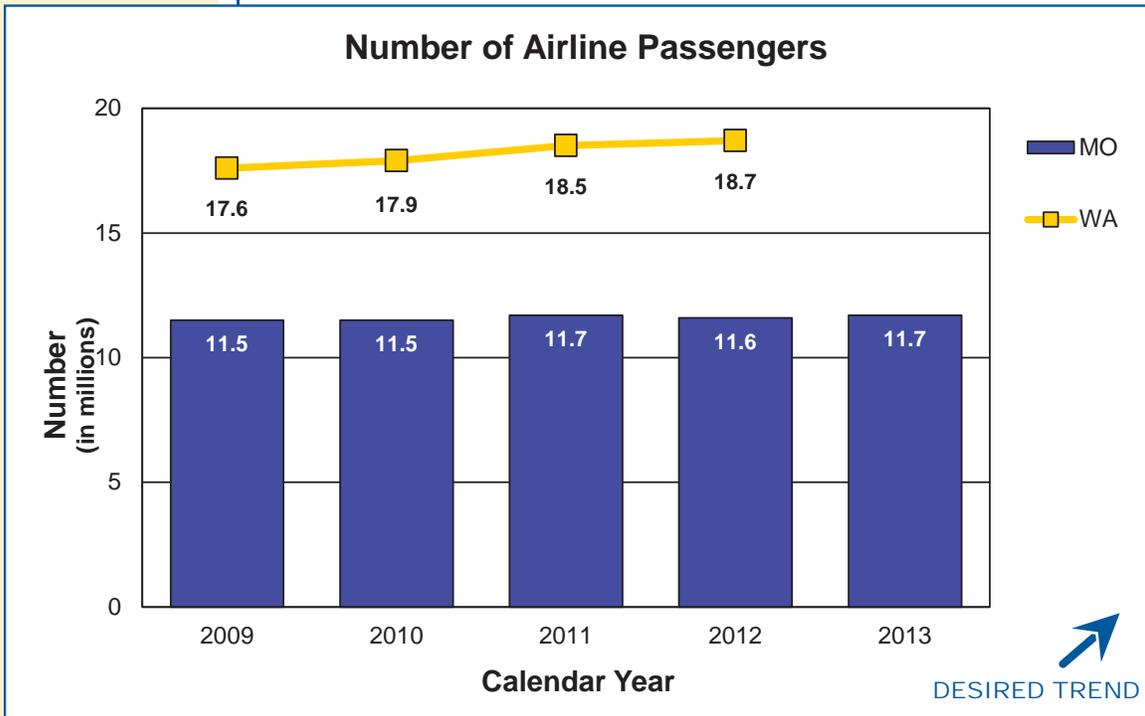
Passengers are slowly returning to commercial airline travel and transit services following recession-related downturns. Bad economic times drive customers away from air travel and can cause cutbacks in transit services. The number of airline passengers in 2012 decreased slightly to the same levels as seen in 2009 and 2010, and preliminary estimates for 2013 suggest passenger enplanements remain steady.

In the third quarter of fiscal year 2014, the number of ferry boat passengers slightly increased compared to the same period a year earlier, but during this quarter in fiscal year 2013, the New Bourbon ferry was out of service for the entire time period. Mississippi County's ferry transported 1,948 fewer passengers this quarter compared to the third quarter of fiscal year 2013, but also operated 34 days fewer. Maintaining ferry service helps alleviate travel time and expenses for travelers who otherwise would have to drive substantially farther to use Mississippi River bridge crossings to reach their destinations.

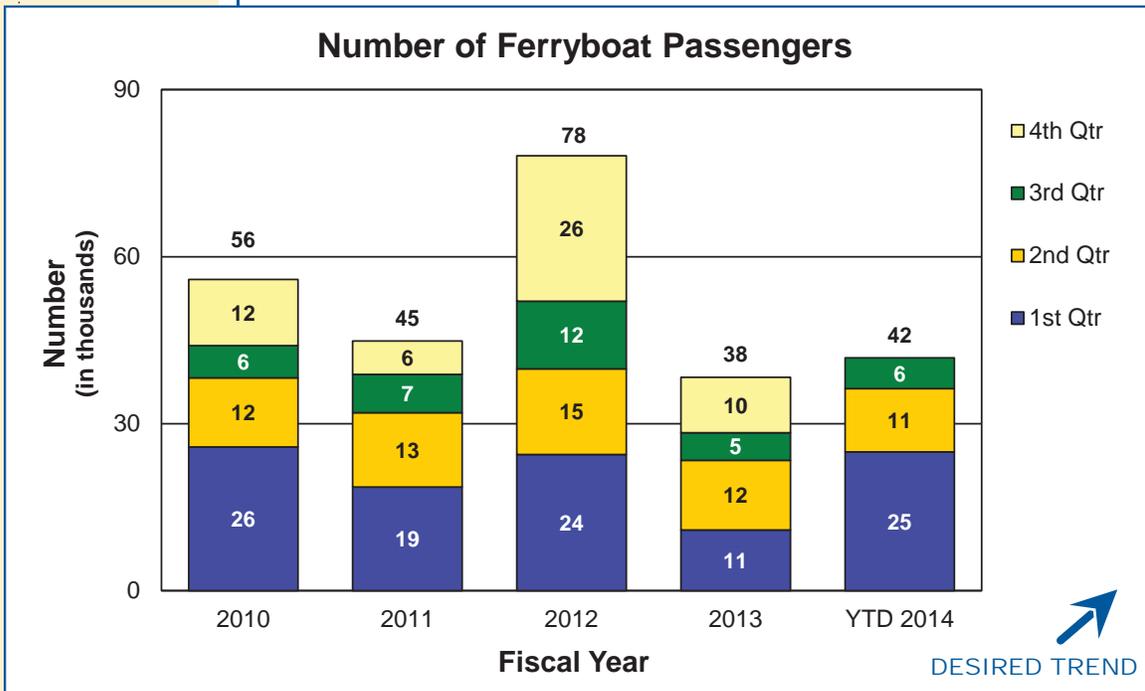
Ridership decreased 7 percent on Missouri River Runner trains from the third quarter of fiscal year 2013 compared to the third quarter of fiscal year 2014. This is likely due to extreme winter weather conditions. Year-to-date ridership is down 1.2 percent from comparable quarters of 2014. The Missouri River Runner is at 91 percent on time performance year to date. Delays to on-time performance in the third quarter of fiscal year 2014 can be attributed to the weather and to increasing freight train traffic. Two new projects are underway to improve on-time performance and safety on the corridor; however, track maintenance work in May and June may cause service delays. Metro transit ridership held relatively stable, while non-metro transit ridership in some regions decreased slightly in fiscal year 2013 to levels similar to 2010 and 2011.

MoDOT continues to support these travel modes by administering federal and state inspection, construction and operational programs, assisting with advocacy efforts and educating the public about the benefits these services provide.

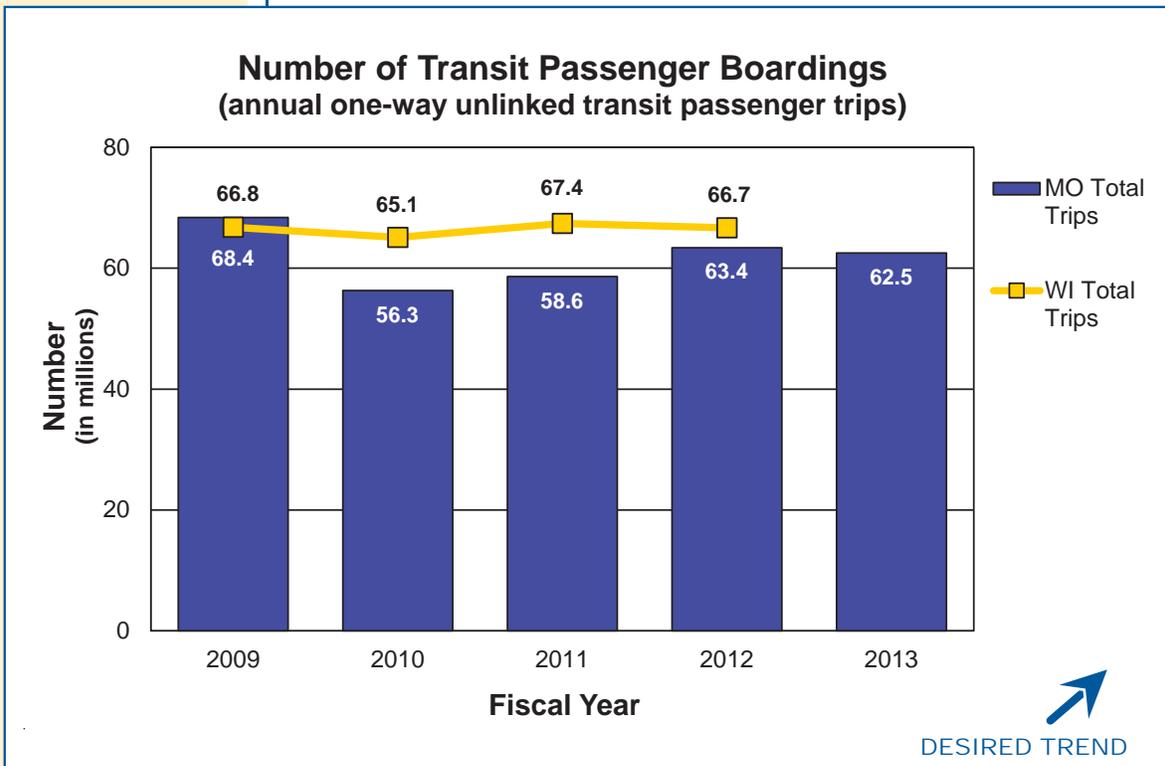
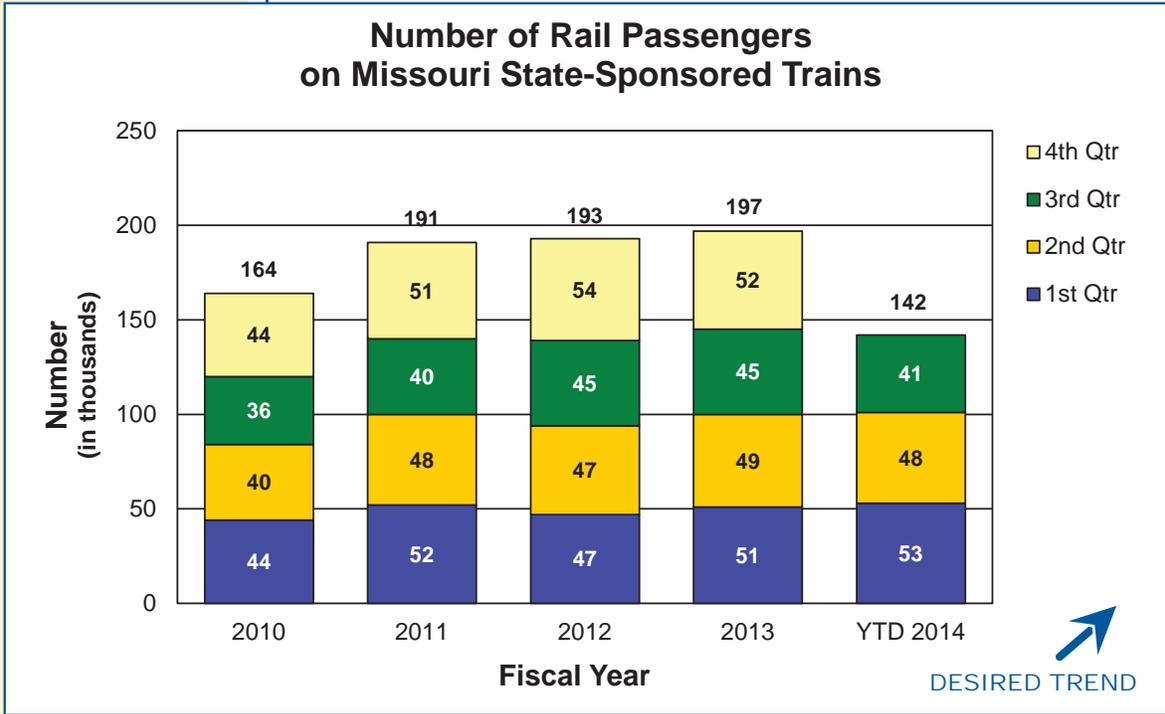
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*2013 data is based on preliminary individual airport statistics. FAA publishes data in October for the preceding year.



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