



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

PURPOSE OF THE MEASURE:

This measure tracks the mobility of significant state routes in St. Louis, Kansas City, Springfield and Columbia.

MEASUREMENT AND DATA COLLECTION:

Travel time data for most state routes is collected via roadside detectors and other technologies. For a few routes, travel times are collected manually by driving the route at least twice in each direction. To assess mobility, MoDOT compares travel times during 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 95th percentile travel time, which is the time motorists should plan in order to reach their destinations on time 95 percent of the time. The maps display the mobility of specific sections of roadways during rush hour.

Travel times and reliability on major routes-5a

Minimizing 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 July to September 2014, the average travel time in St. Louis was 10.13 minutes during morning rush and 10.92 minutes during evening rush for a 10-mile trip. For Kansas City, the average travel time was 10.29 minutes during the morning and 10.84 minutes during the evening. These 10-mile travel times are averages for all freeway segments in the regions.

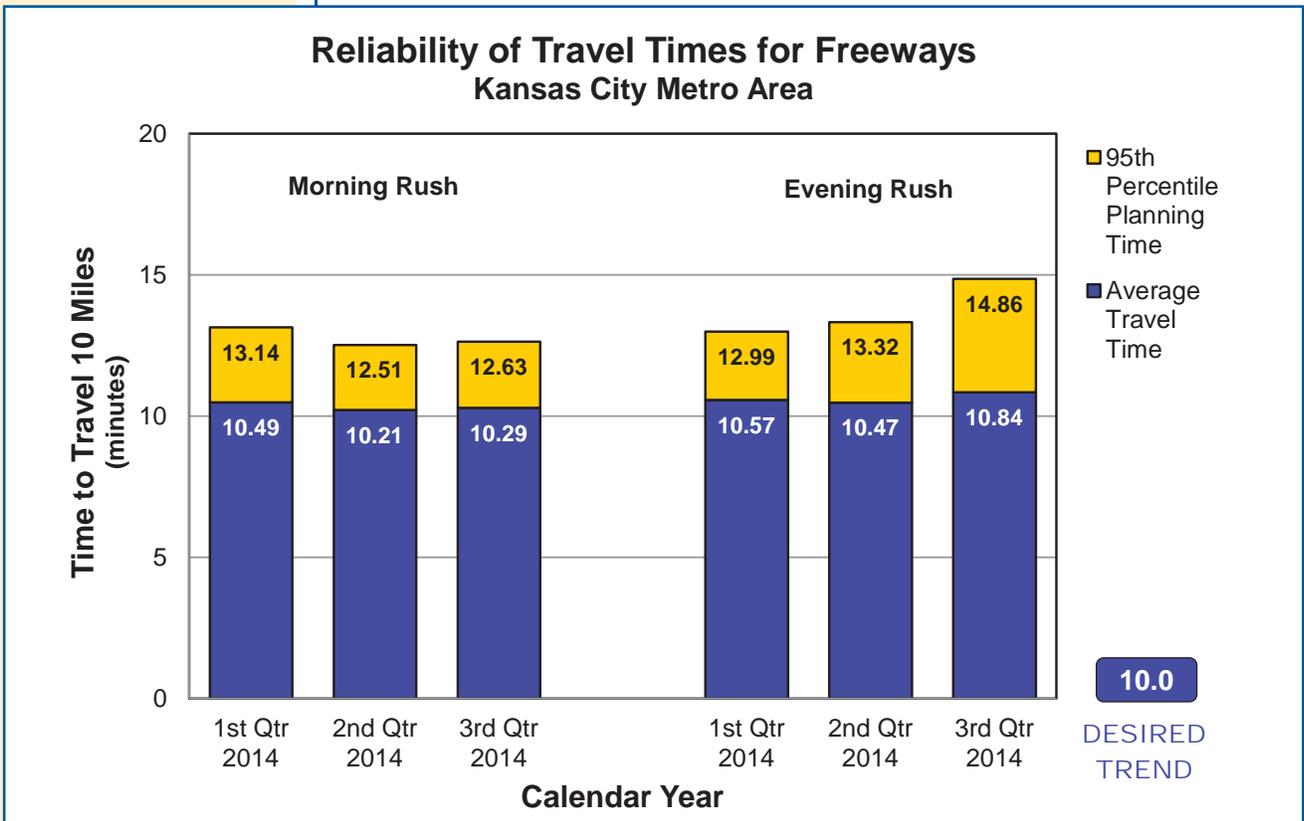
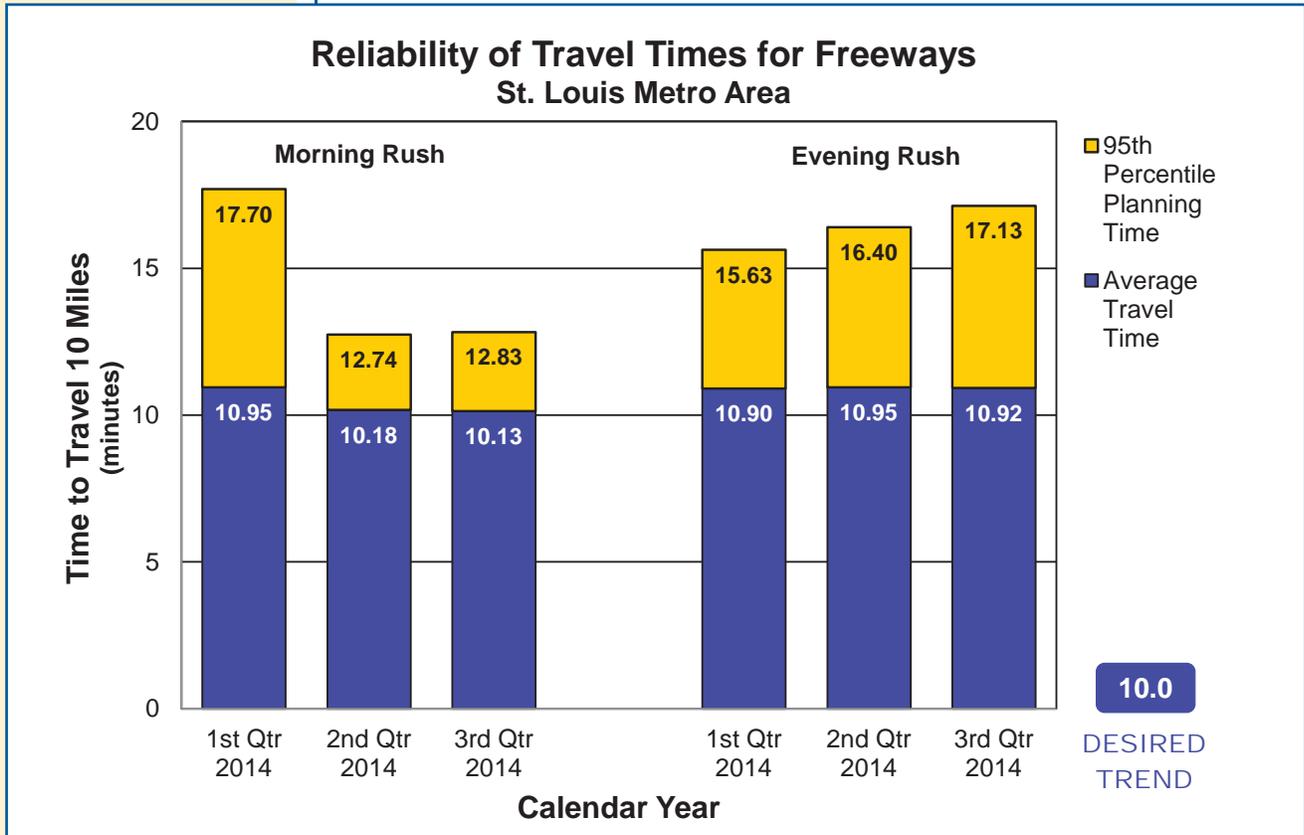
Individual freeway segments within St. Louis and Kansas City experienced significantly longer travel times than the regional averages. For example, during the morning rush, northbound I-270 north of I-44 had an average 10-mile travel time of 18.4 minutes. Likewise, in Kansas City, eastbound I-70 east of I-435 had an average 10-mile travel time of 24.2 minutes during the evening rush.

For days when the overall traffic conditions for a region are worse than average, looking at the 95th percentile planning time is a way to capture that data. Average 10-mile planning times for the regions this quarter ranged from 12.63 minutes in Kansas City during the morning rush to 17.13 minutes in St. Louis during the evening rush. Once again, individual freeway segments experienced even longer planning times. To ensure on-time arrival during the worst days along some segments, customers needed to plan as much as four times the amount of time needed to travel during free-flow conditions. Some of the most unreliable segments this quarter occurred in the evening rush and included I-270 NB at McDonnell, I-270 SB from Page Ave. to Olive, and I-70 EB from the Manchester Trafficway to the Blueridge Cutoff.

Access to new traffic data is now continuously available for many arterial routes. Most delays on arterial routes are caused by traffic signals and various access points. Arterials that experienced low mobility during the quarter included: portions of MO 21 southbound in St. Louis and southbound Stadium Blvd. in Columbia during the morning rush; and portions of MO 94, Olive, and Page in St. Louis, MO 13 in Springfield, and Route AC and Stadium Blvd. in Columbia during the evening rush.

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.

OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM



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AM Mobility



Kansas City Area



Saint Louis Area



Columbia Area



Springfield Area

OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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.

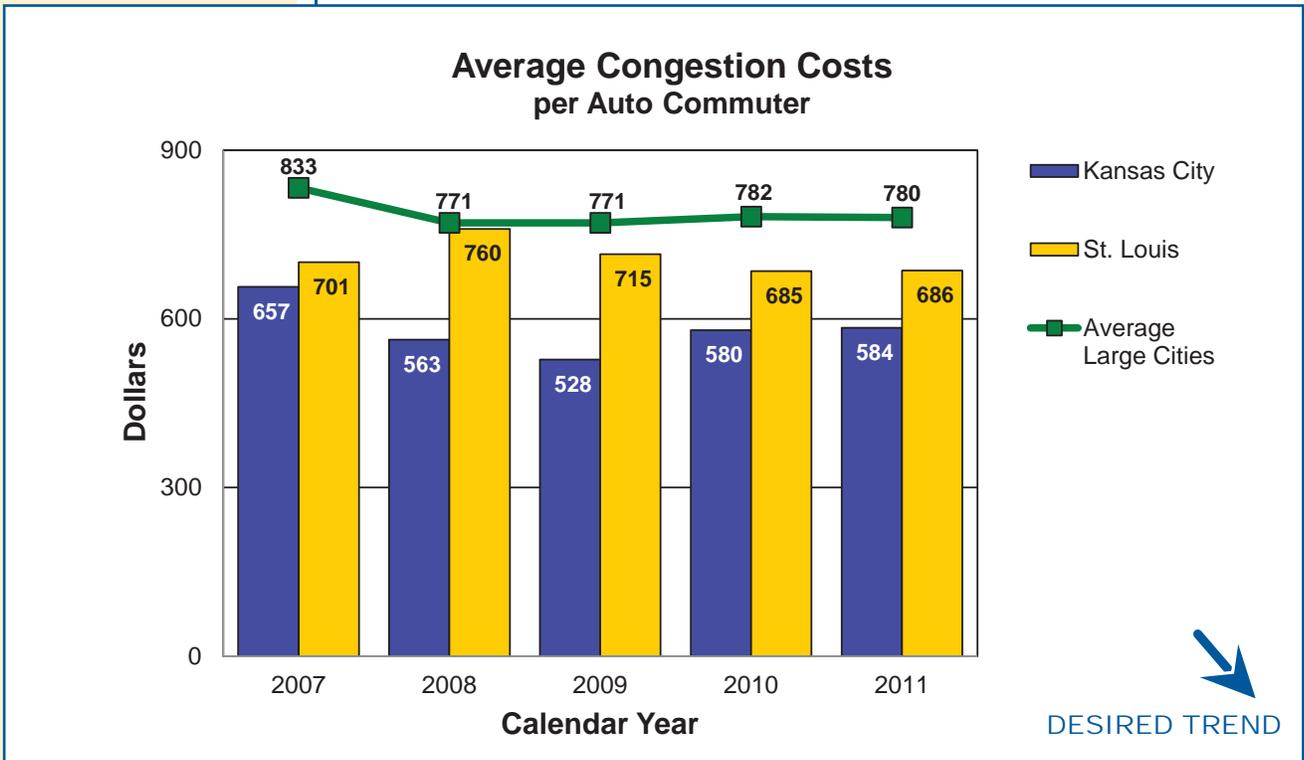
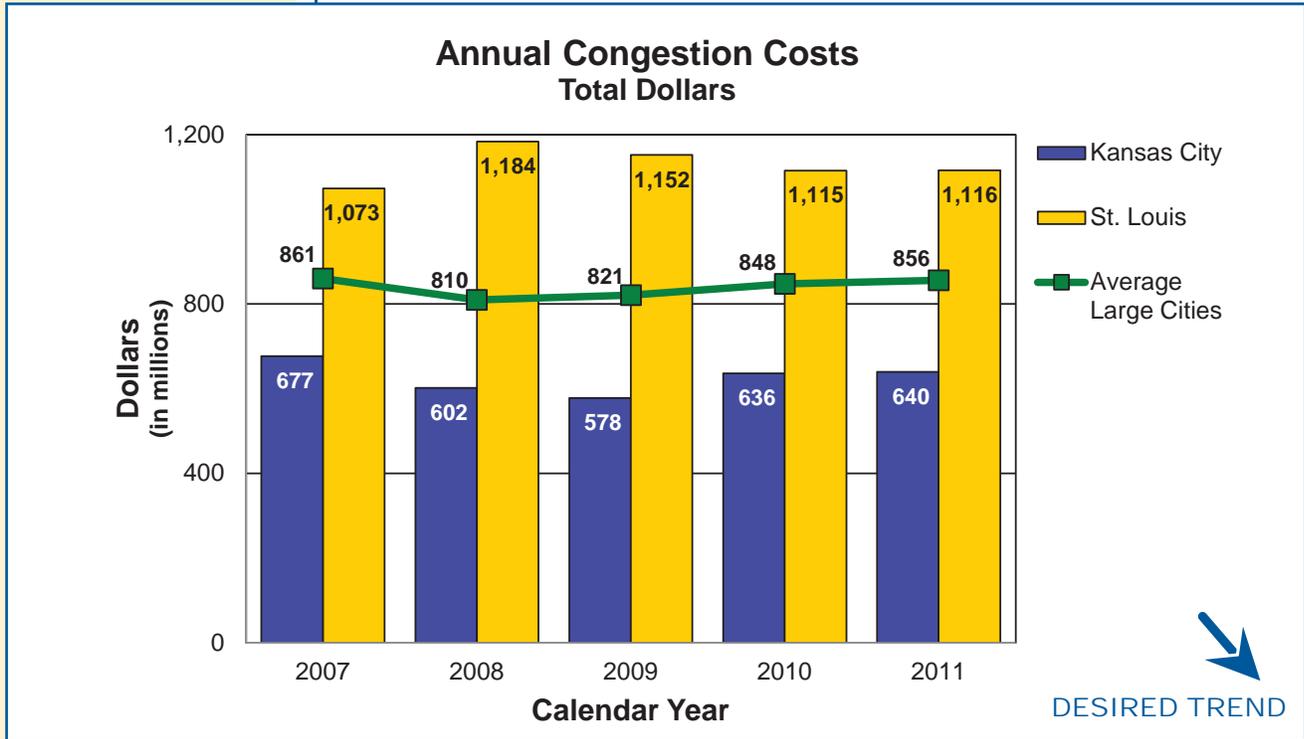
The Kansas City and St. Louis metro regions both fall within the category of large urban areas, according to the Urban Mobility Report. Large urban areas have populations between one million and three million people. Other cities considered to be large urban areas include Minneapolis-St. Paul, Nashville, 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. Responding to and quickly addressing the incident (crashes, flat tires and stalled vehicles) improves system performance.

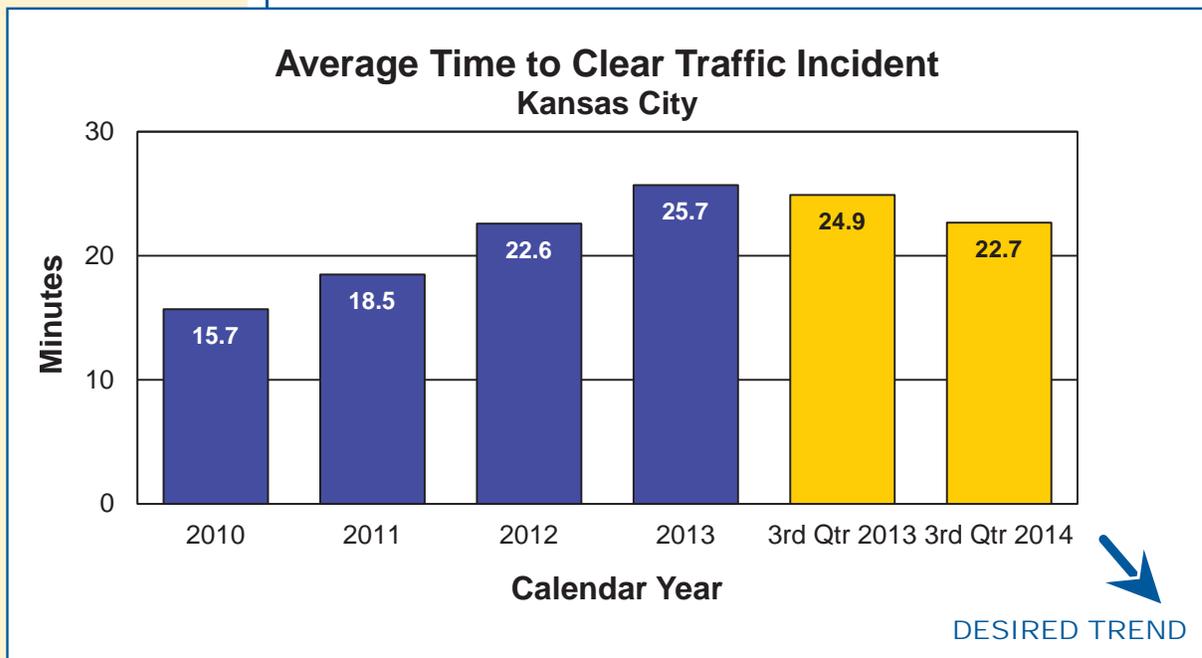
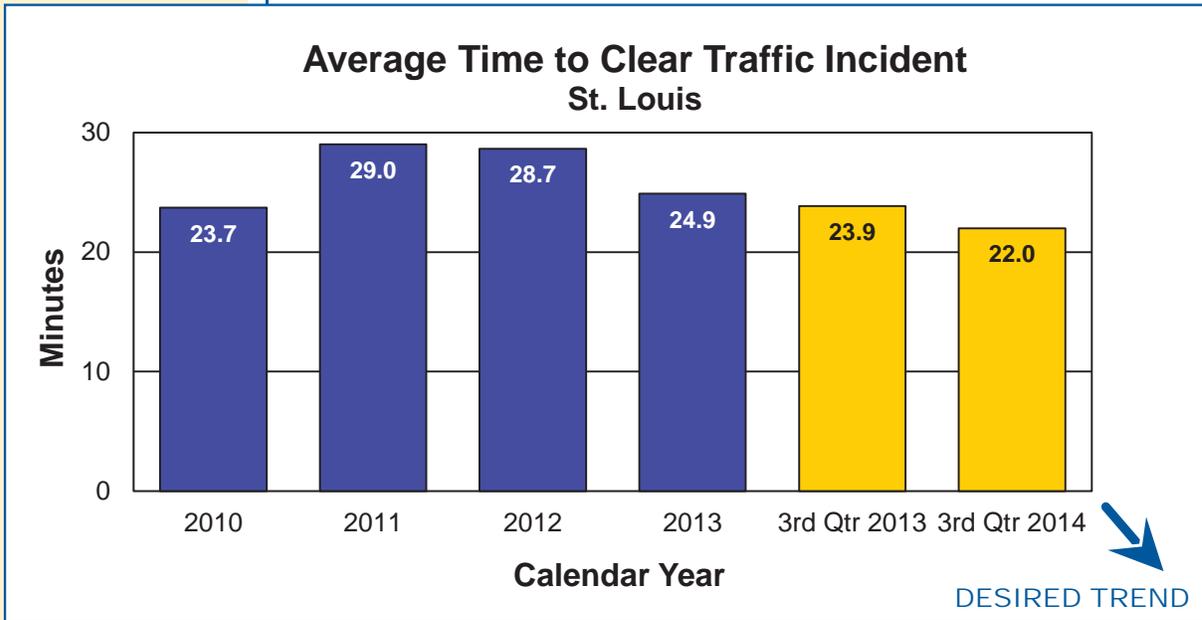
St. Louis recorded 572 incidents in July, 678 in August, and 573 in September. The average time to clear traffic accidents was 22 minutes, a decrease of 8 percent compared to the third quarter of 2013.

Kansas City recorded 750 incidents in July, 761 in August, and 769 in September. The average time to clear traffic incidents was 22.7 minutes, a decrease of 9 percent from the third quarter of 2013.

St. Louis and Kansas City have demonstrated quick clearance of incidents with yearly averages of 25 minutes and 21 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.

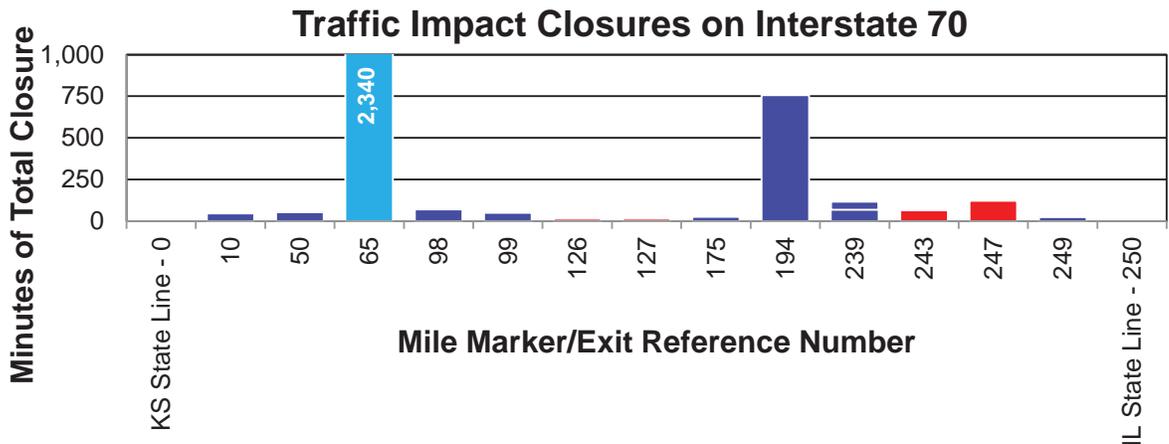
Fourteen complete closures or blockages occurred on I-70 this quarter: three in July, three in August, and eight in September. There were no closures in the month of July that exceeded 90 minutes. During August, there was a flood closure that lasted 39 hours in Saline County that occurred on the outer road but was mistakenly entered as a mainline impact. During September, there were two closures that exceeded 90 minutes; a cross median fatality on wet pavement that involved several commercial motor vehicles and passenger vehicles in Warren County and the second was a police emergency for a shooting in St. Louis City.

MEASUREMENT
AND DATA
COLLECTION:
The interstate route closures 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.

On Interstate 44, five complete closures or blockages occurred, all due to vehicle crashes: two in July and three in August. In Pulaski County, a fully engulfed commercial bus created a closure greater than 90 minutes in August.

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

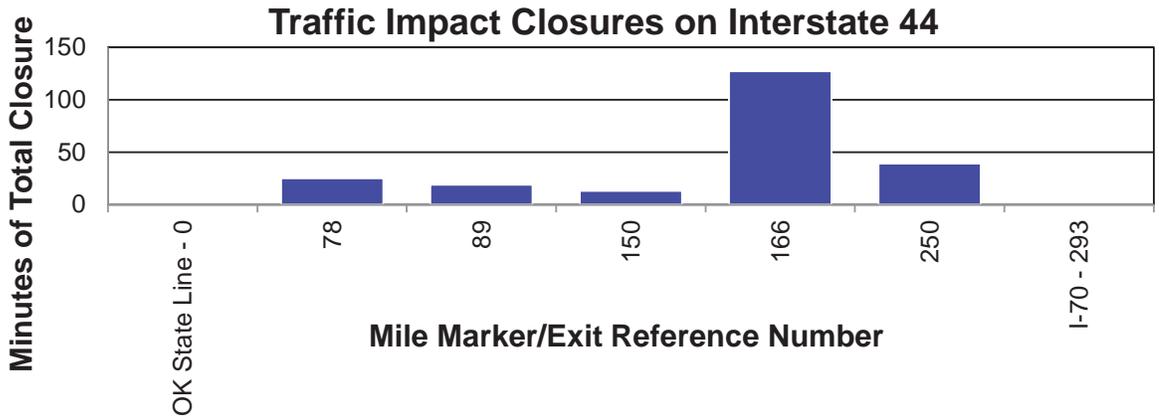
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- Other (Planned)
 - Police Emergency
 - Vehicle Crash
 - Winter Weather Closure/Flood
 - Utility/Bridge/ Roadway Damage/Debris
- △ 0 – 30 Minutes
□ 31-90 Minutes
☆ 91+ Minutes

SYMBOL	COUNTY	DIR	MILE MARKER	START DATE	TYPE	DURATION (H:MM)
■	JACKSON	W	10.66	16-Sep-14	VEHICLE CRASH	0:46
■	LAFAYETTE	E	50.46	1-Sep-14	VEHICLE CRASH	0:53
★	SALINE	W	65.57	7-Aug-14	FLOOD	39:00
■	COOPER	W	98.85	25-Jul-14	VEHICLE CRASH	1:10
■	COOPER	W	99.61	25-Jul-14	VEHICLE CRASH	0:50
▲	BOONE	E	126.55	24-Sep-14	POLICE EMERGENCY	0:15
▲	BOONE	W	126.59	24-Sep-14	POLICE EMERGENCY	0:15
▲	MONTGOMERY	W	175.18	24-Jul-14	VEHICLE CRASH	0:26
★	WARREN	W	193.72	10-Sep-14	VEHICLE CRASH	12:37
■	ST. LOUIS	E	239.49	28-Sep-14	VEHICLE CRASH	0:48
■	ST. LOUIS	W	239.49	28-Sep-14	VEHICLE CRASH	1:08
■	ST. LOUIS	E	242.81	5-Aug-14	POLICE EMERGENCY	1:05
★	ST. LOUIS CITY	E	247.17	4-Sep-14	POLICE EMERGENCY	2:02
▲	ST. LOUIS CITY	W	248.56	13-Aug-14	VEHICLE CRASH	0:24

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- Other (Planned)
- Police Emergency
- Vehicle Crash
- Winter Weather Closure/Flood Closure
- Utility/Bridge/Roadway Damage/Debris



- Other (Planned)
 - Police Emergency
 - Vehicle Crash
 - Winter Weather Closure/Flood
 - Utility/Bridge/ Roadway Damage/Debris
- △ 0 – 30 Minutes □ 31-90 Minutes ☆ 91+ Minutes

SYMBOL	COUNTY	DIR	MILE MARKER	START DATE	TYPE	DURATION (H:MM)
▲	GREENE	E	78.44	3-Aug-14	VEHICLE CRASH	0:25
▲	GREENE	W	88.93	21-Jul-14	VEHICLE CRASH	0:19
▲	PULASKI	E	150.04	13-Aug-14	VEHICLE CRASH	0:13
☆	PULASKI	W	166.49	6-Aug-14	VEHICLE CRASH	2:07
■	FRANKLIN	E	249.61	10-Jul-14	VEHICLE CRASH	0:39

RESULT DRIVER:
Paula Gough,
District Engineer

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MEASUREMENT
DRIVER:
Jerica Holtsclaw,
Design Liaison Engineer

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

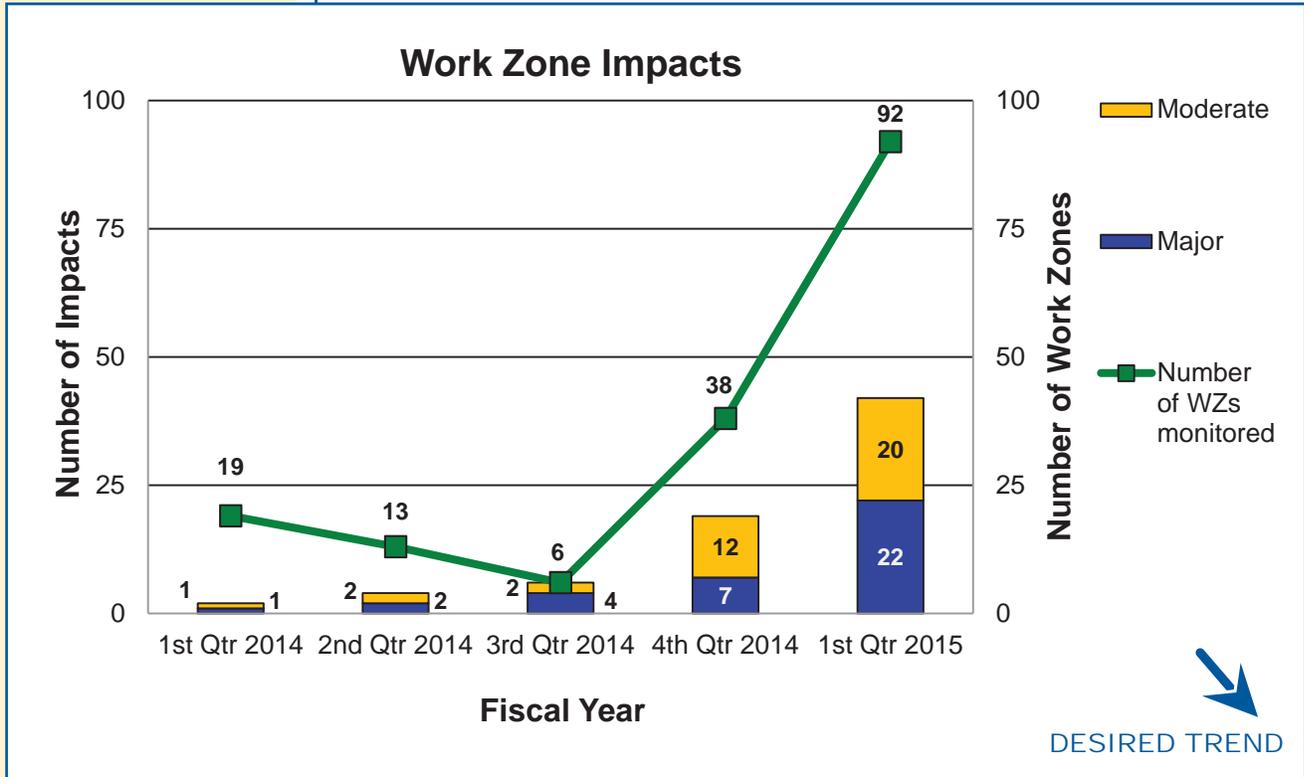
MEASUREMENT
AND DATA
COLLECTION:
Work zone impacts are
collected by conducting
visual observations or using
automated data collection.
Recent updates to traffic
data collection methods
allow for more work zones
to be evaluated. An impact
is defined as the additional
time a work zone adds to
normal travel. They are
categorized 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. 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. To get a wider range of data and better understand the impact work zones have on motorists, the department has increased the number of work zones it monitors each quarter. The department monitored 92 significant work zones this quarter, with 22 major impacts and 20 moderate impacts. Eighteen major impacts were in the Northeast District with 15 impacts attributed to one work zone. Also, there were two major impacts in the St. Louis District and one major impact in both the Northwest District and the Kansas City District. Based on work zone surveys received this quarter, 49 percent are satisfied with timeliness when traveling in a work zone.



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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 con-
centrations 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. Envi-
ronmental Protection Agen-
cy's air quality standards.
At this time, the department
collects data on oxides of
nitrogen, volatile organic
compounds, fine particulate
matter and carbon monox-
ide. 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.

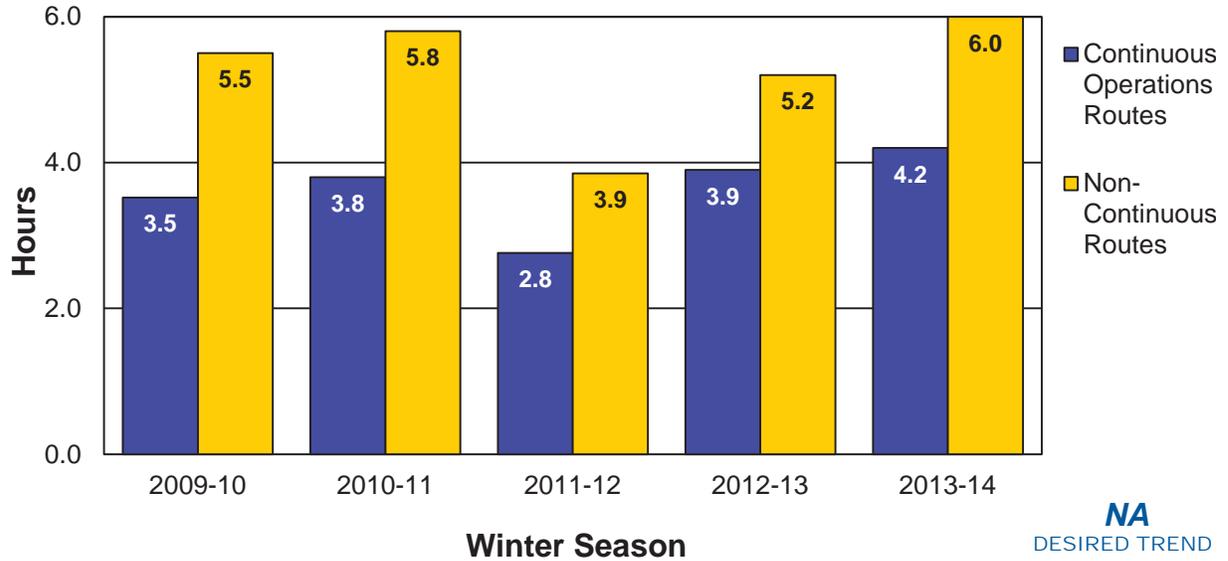
Time to meet winter storm event performance objectives-5g

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.

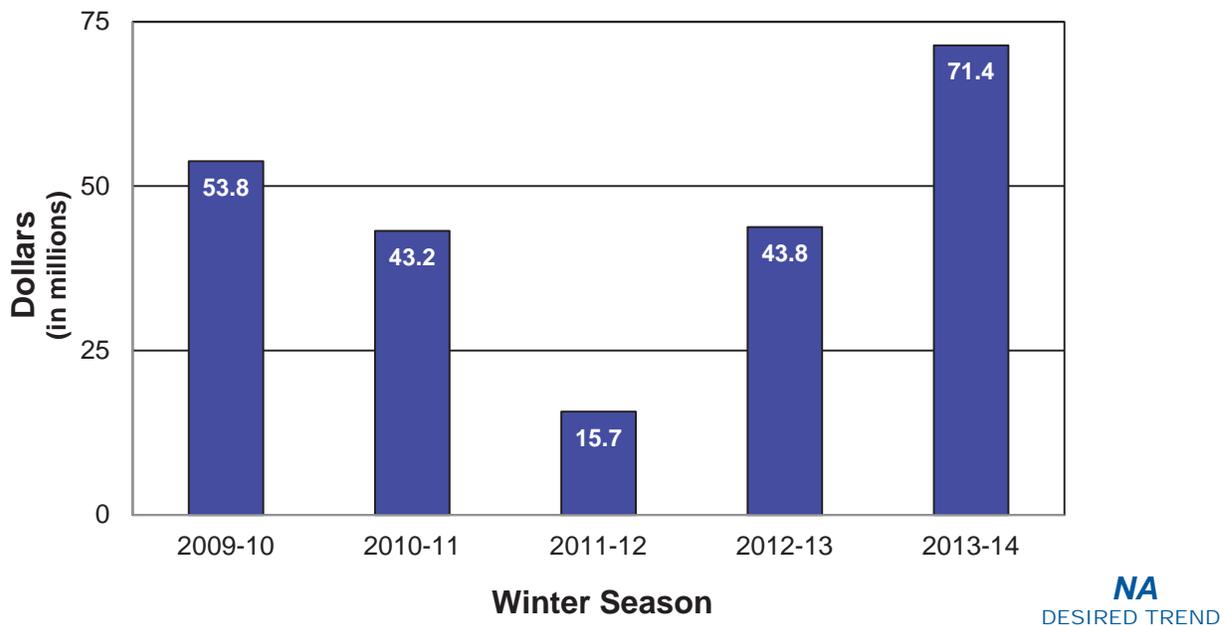


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Time to Meet Winter Storm Event Performance Objectives



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 has been responsive to public requests for improved accessibility and has been proactive in many areas to make systematic improvements when opportunities arise and limited funding allows. MoDOT has improved more than \$12.4 million worth of ADA facilities in the right of way since 2008. There is still more work to do as there is more than \$138.8 million worth of work left to complete on the 2010 ADA Transition Plan inventory.

Unfortunately, a dwindling revenue stream for construction projects at both state and federal levels makes it 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.

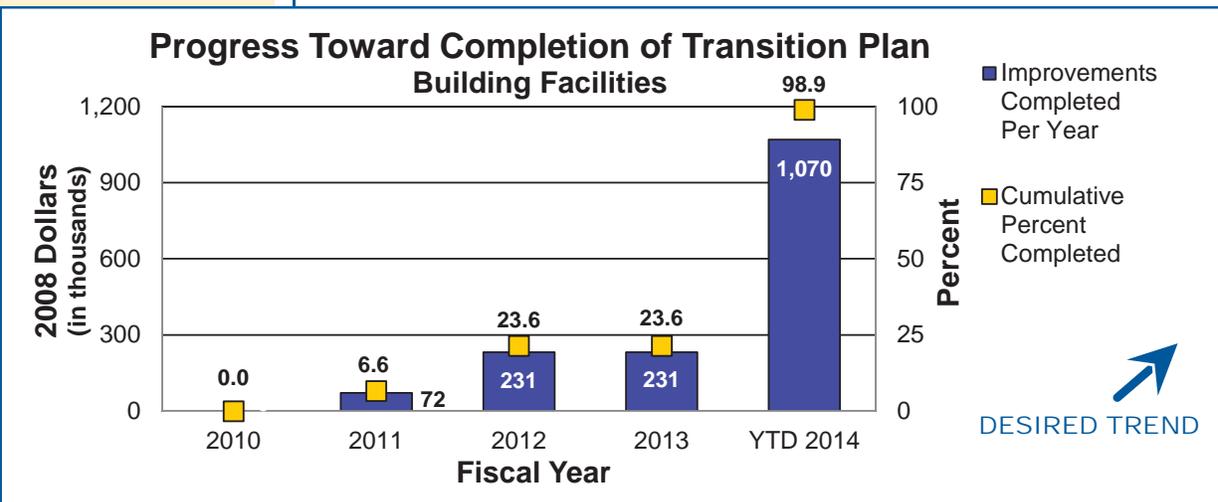
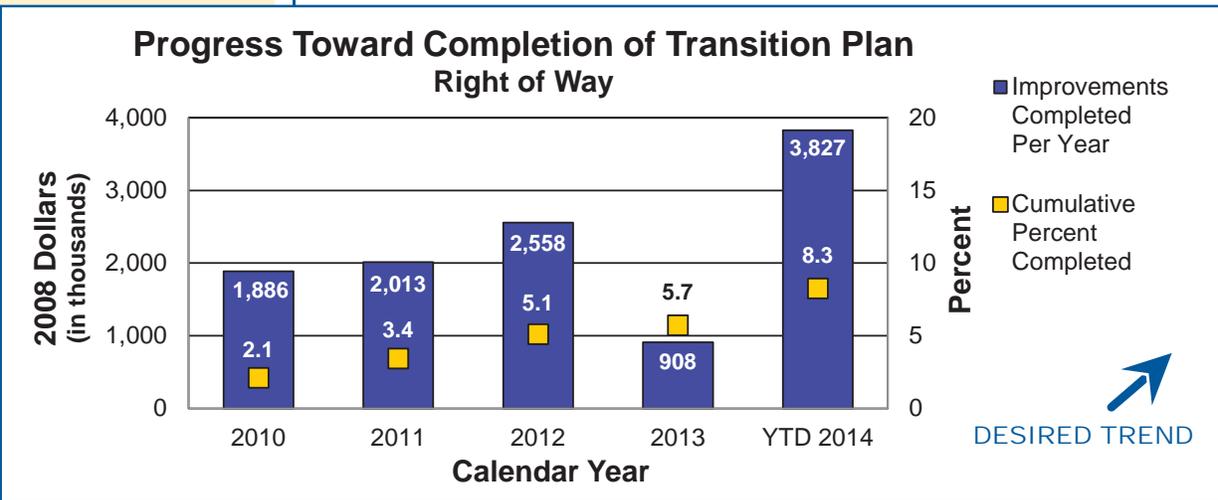
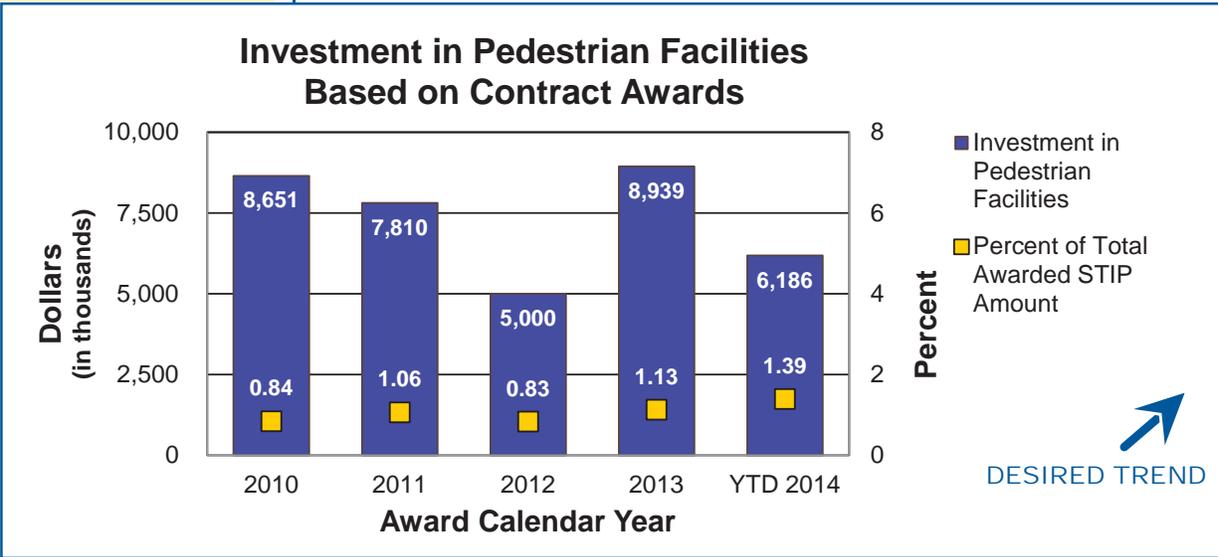
MoDOT's investment in pedestrian facilities so far in calendar year 2014 totals \$6.19 million. This exceeds the \$5 million invested in 2012 and is on pace with the 2013 total of \$8.9 million. MoDOT committed to complete ADA improvements, including cross slope corrections, as work is being done on the adjacent roadway section in the 2010 Transition Plan.

Reporting of Transition Plan improvements for 2014 shows \$3.82 million of work has been completed in the first nine months of 2014, a huge increase over the \$908,000 of completed improvements in 2013.

ADA compliance in MoDOT facilities is nearing completion with six of the seven districts showing ADA improvement projects are 100 percent completed. The Southeast District has just \$12,000 of ADA work to complete.



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RESULT DRIVER:
Paula Gough,
District Engineer

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MEASUREMENT
DRIVER:
Amy Ludwig,
Administrator of Aviation

PURPOSE OF
THE MEASURE:
This measure tracks pas-
senger use of modes other
than highways in Missouri.

MEASUREMENT
AND DATA
COLLECTION:
Airline passenger counts
are obtained from the Fed-
eral Aviation Administration
and from individual airports.
Washington is the bench-
mark due to its comparable
population. Ferry passenger
data is compiled from the
New Bourbon and Missis-
sippi County ferryboats,
services owned and oper-
ated by Missouri public port
authorities. Amtrak supplies
Missouri River Runner pas-
senger counts. Urban and
rural transit services provide
transit passenger data, with
Wisconsin as the bench-
mark. Aviation and transit
data is updated annually
– in January and October,
respectively – while ferry-
boat and rail data is updat-
ed quarterly.

Use and connectivity of modes of transportation-5i

Planes, trains, ferries and transit are vital means of transport for Missouri-ans. 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.

Bad economic times usually drive customers away from air travel and can cause cutbacks in transit services. The number of airline passengers has remained fairly steady from 2009 to 2013.

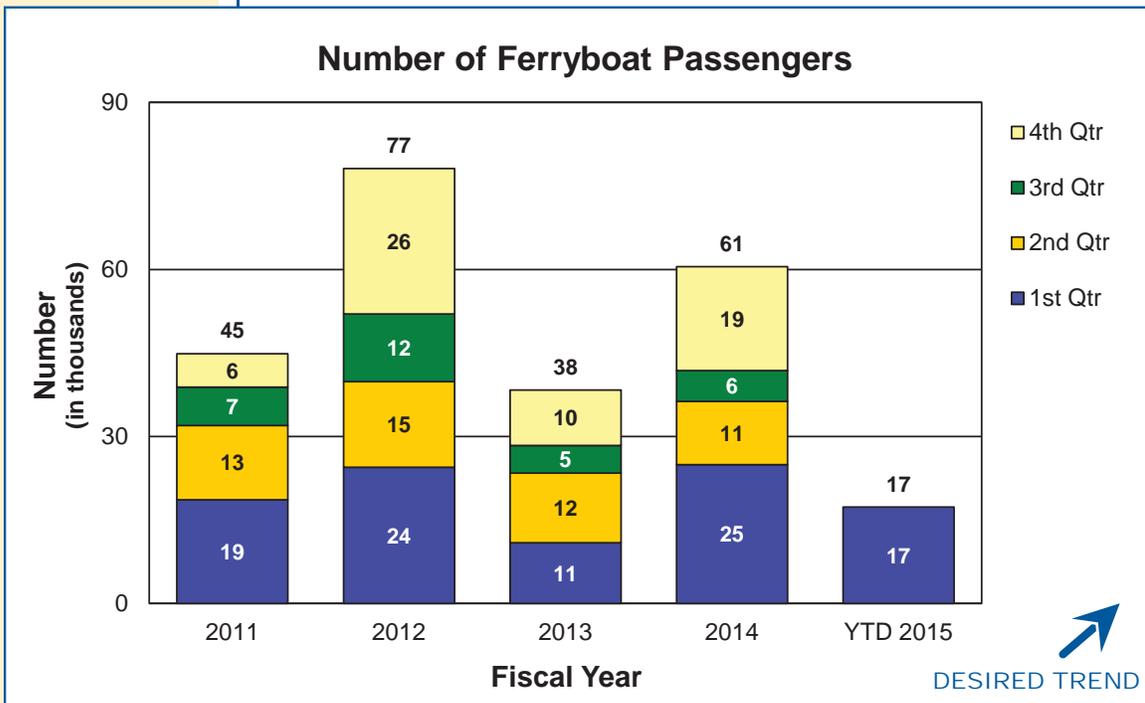
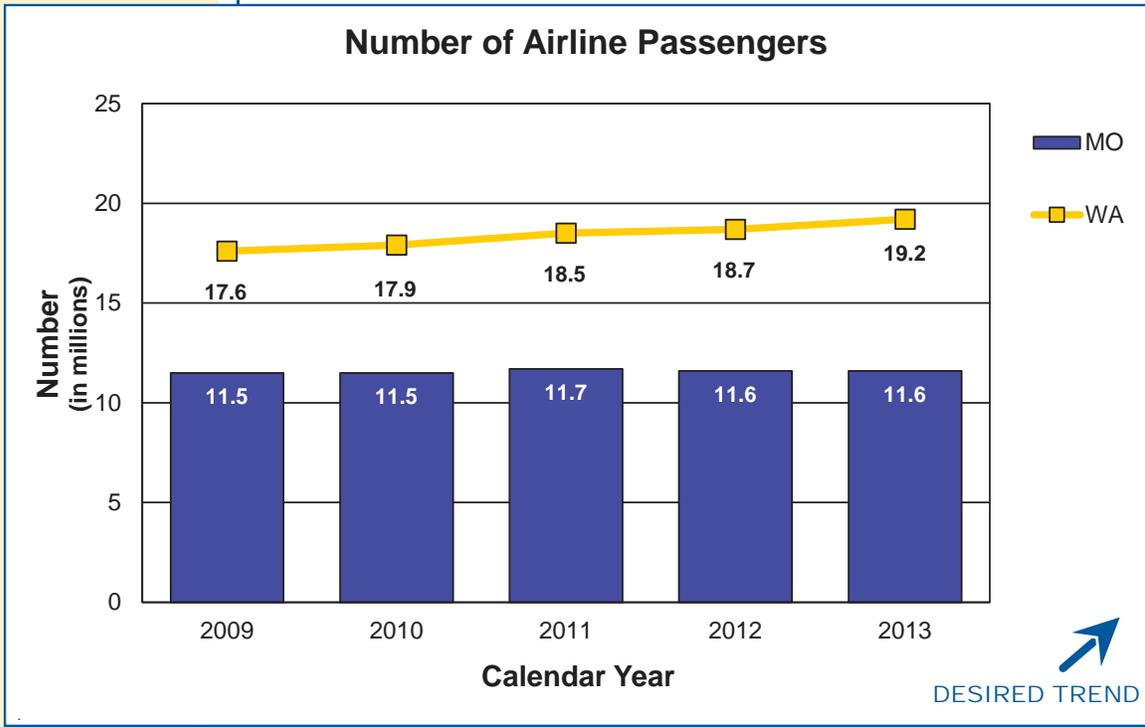
The number of ferry boat passengers decreased from nearly 25,000 pas-
sengers in the first quarter of fiscal year 2014 to just over 17,000 in the first
quarter of fiscal year 2015. Both ferry boats carried less passengers com-
pared to the same quarter of FY 2014. The Mississippi County ferry was out
of service for 10 days in August for emergency repairs. Because the summer
is typically the busiest time of year for ferry boat ridership, this interruption in
service contributed to reduced riders this quarter.

Ridership held relatively steady as Missouri River Runner trains carried
53,613 passengers in the first quarter of FY 2015, slightly more than in the
same period last year. However, Missouri's passenger trains saw a signifi-
cant decrease in on-time performance for the quarter, falling from 95 percent
in the first quarter of FY 14 to 80 percent in FY15. Delays to on-time perfor-
mance can primarily be attributed to steadily increasing freight train traffic,
weather, track work and equipment or mechanical failures.

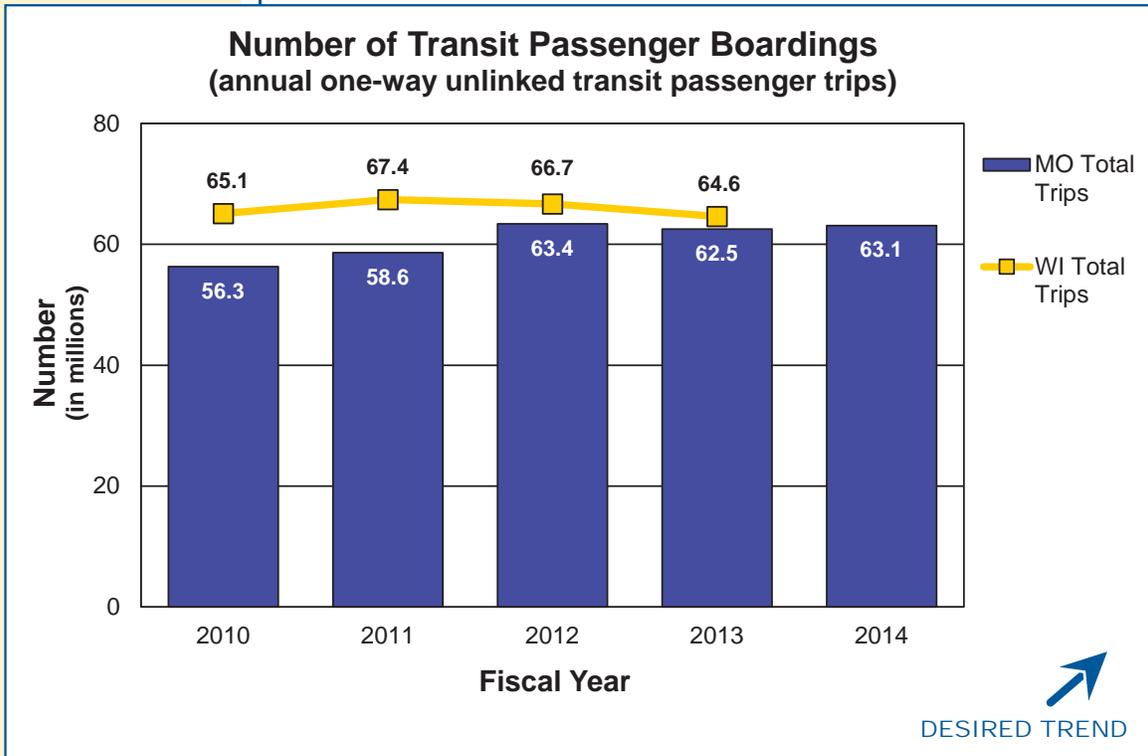
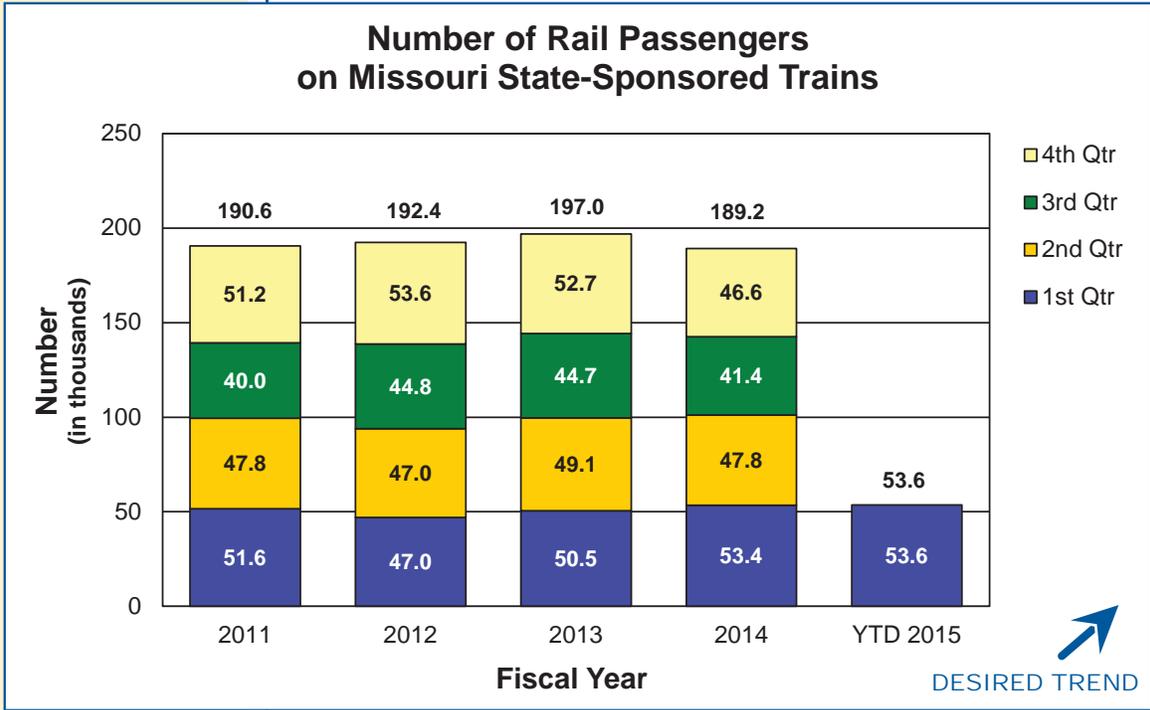
In FY 2014, transit ridership remained steady. Transit ridership increased
from 62.5 million trips in FY 2013 to 63.1 million trips in FY 2014. Metro tran-
sit ridership saw an increase of 2 percent ridership while non-metro transit
ridership saw a decrease of almost 30 percent ridership. Both of these shifts
can be largely attributed to Cape Girardeau's ridership now being counted
as metro transit ridership instead of rural. Even so, almost all of the reporting
rural transit agencies experienced declines in ridership from FY 2013 to FY
2014.

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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