



# 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.

The desired outcome for any route is safe traffic flow at the posted speed limit. From October to December 2014, the average 10-mile travel time in St. Louis was 10.51 minutes during morning rush and 11.09 minutes during evening rush. For Kansas City, the average travel time was 10.47 minutes during the morning and 10.86 minutes during the evening. All average travel times increased from last quarter.

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 driv-  
ing 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 reli-  
ability, 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 mo-  
torists 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.

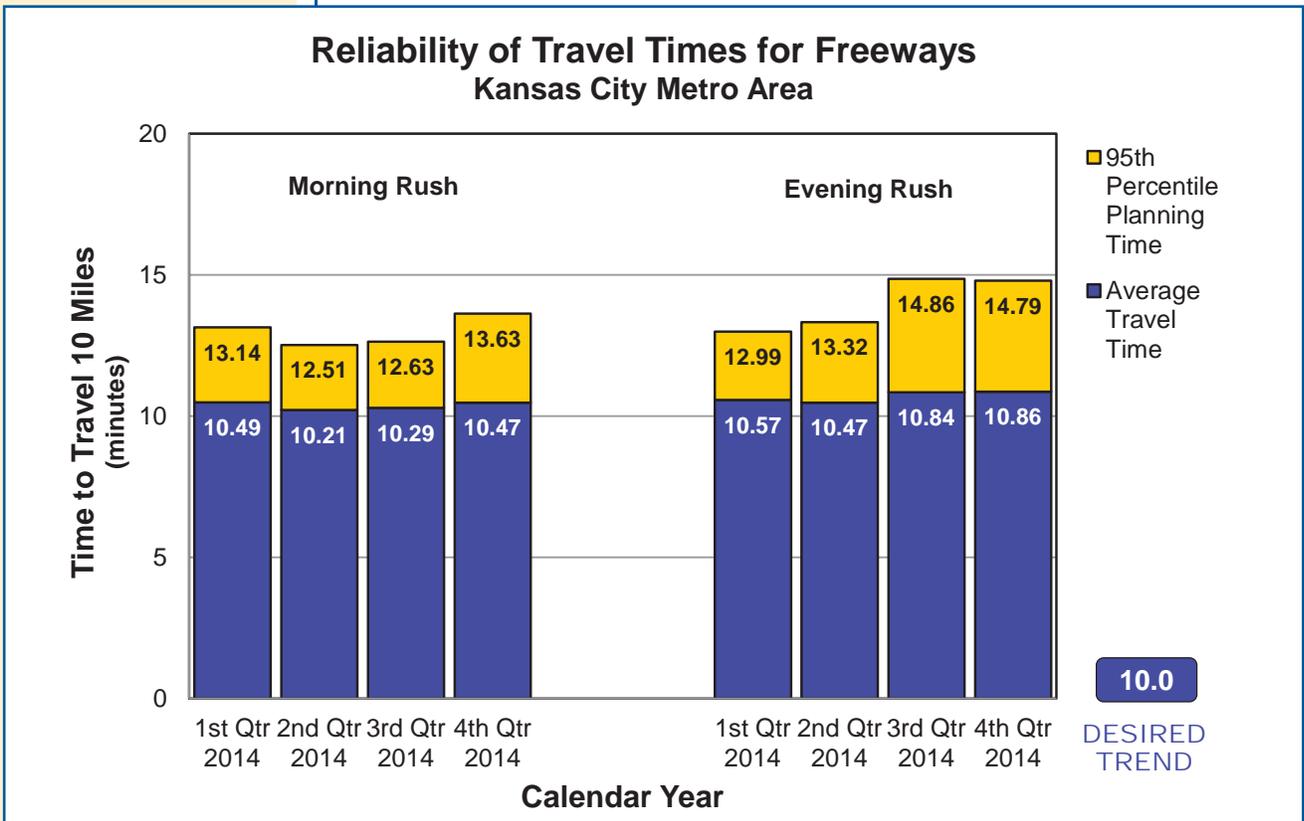
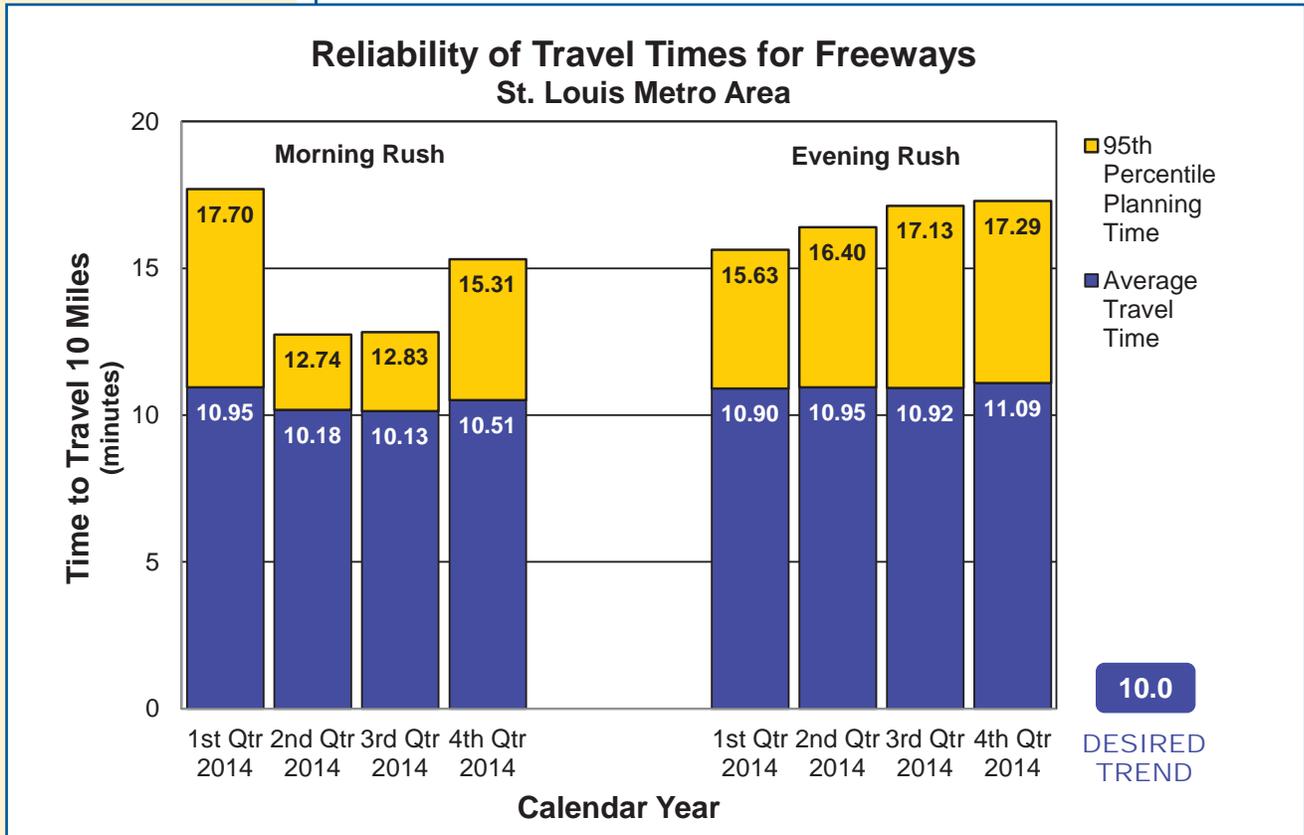
Individual freeway segments within St. Louis and Kansas City experienced significantly longer travel times than the regional averages. For example, during the morning rush, I-270 northbound between I-55 and Route 100 had an average 10-mile travel time around 18 minutes. During the evening rush, portions of I-64 and I-170 experienced travel times more than twice as long as free-flow conditions. Likewise, in Kansas City, westbound I-70 approaching I-435 had an average 10-mile travel time of about 16 minutes during the morning rush, while eastbound I-70 had an average travel time over 17 minutes during the evening rush.

Average 10-mile planning times for the entire regions this quarter ranged from 13.63 minutes in Kansas City during the morning rush to 17.29 minutes in St. Louis during the evening rush. The 95th percentile planning time in St. Louis during the morning rush saw a significant increase from last quarter indicating travel during that time was less reliable this quarter than it was the previous two quarters. Once again, individual freeway segments experienced even longer planning times. During the worst days, customers needed to plan four to five times the amount of time needed to travel during free-flow conditions. Some of the most unreliable segments this quarter during the morning rush were I-270 northbound near I-44, I-64 westbound east of I-170, I-70 westbound between I-470 and I-435 in Kansas City, I-470 westbound west of I-49, and I-35 southbound west of I-435. During the evening rush, the most unreliable segments included I-64 between Chesterfield and downtown, I-170 westbound between I-70 and I-64, I-70 eastbound in Kansas City, and I-435 north of I-70.

Arterials that experienced low mobility during the quarter included: portions of Route 21 and Route 141 in St. Louis and Stadium Blvd. in Columbia during the morning rush; portions of Route 94, Route 141, and Page Ave in St. Louis, Route 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 have limited opportunities to invest in projects that improve traffic flow and reliability on Missouri's busiest roadways.

# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM



# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

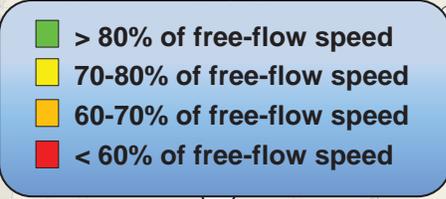
## AM Mobility



Kansas City Area



Saint Louis Area



Columbia Area



Springfield Area

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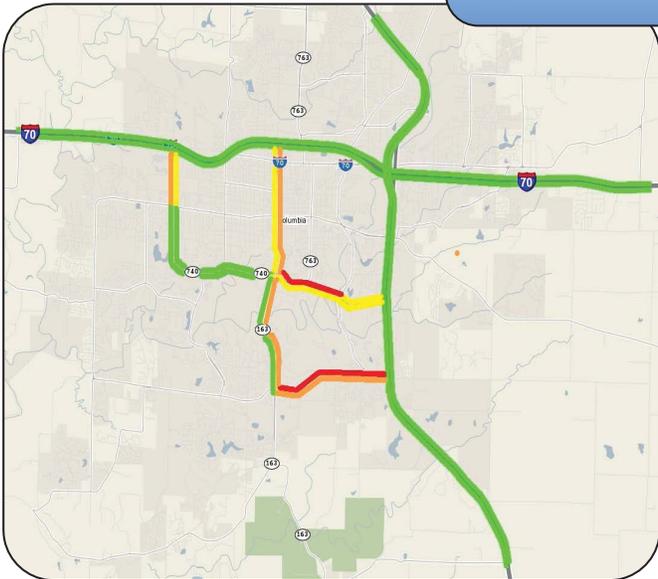
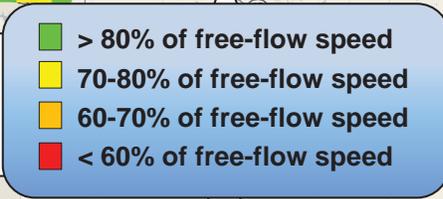
## PM Mobility



Kansas City Area



Saint Louis Area



Columbia Area



Springfield Area

RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

MAP-21

MEASUREMENT  
DRIVER:  
Jeanne Olubogun,  
District Traffic Engineer

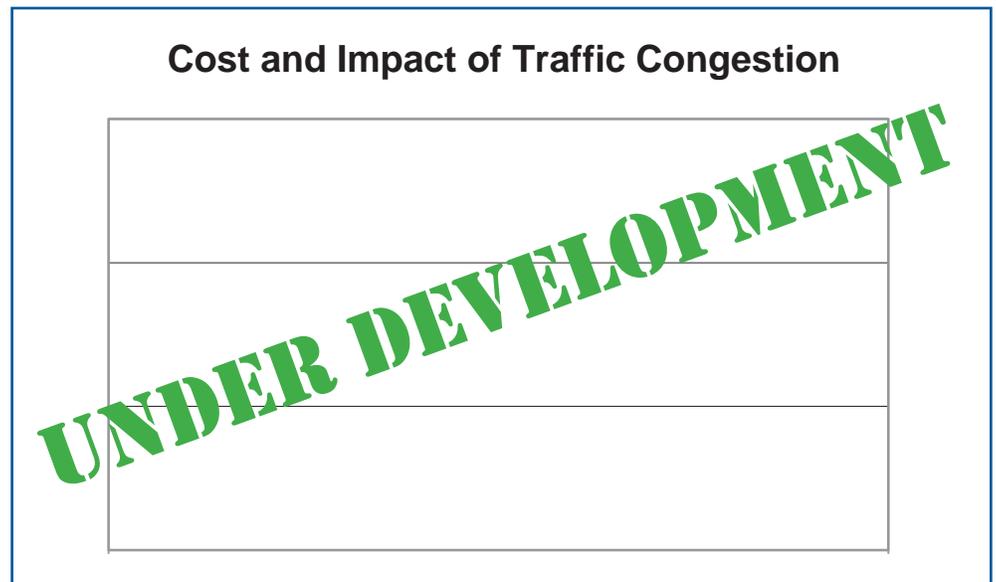
PURPOSE OF  
THE MEASURE:  
This measure tracks the  
annual cost and impact of  
traffic congestion to motor-  
ists in the areas of motorist  
delay, travel time, excess  
fuel consumed per auto  
commuter and congestion  
cost per auto commuter.

MEASUREMENT  
AND DATA  
COLLECTION:  
For previous reporting,  
the department used data  
provided by the Texas A&M  
Transportation Institute,  
which annually produces  
the Urban Mobility Report.  
Beginning with the October  
2014 edition of Tracker, a  
new source of data from  
RITIS is available. A report-  
ing tool available in RITIS  
looks at user delay costs,  
but the department must  
work through the data to  
better understand it before  
presenting it here. RITIS  
also includes historic data,  
so trend lines can be  
tracked and evaluated.

### *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.

While the desired trend for both costs is downward, challenges exist in Missouri's metropolitan regions to continue toward this desired outcome. A comprehensive look at congestion is needed, and looking beyond typical solutions of adding capacity is needed. 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.



RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

MEASUREMENT  
DRIVER:  
Randy Johnson,  
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.

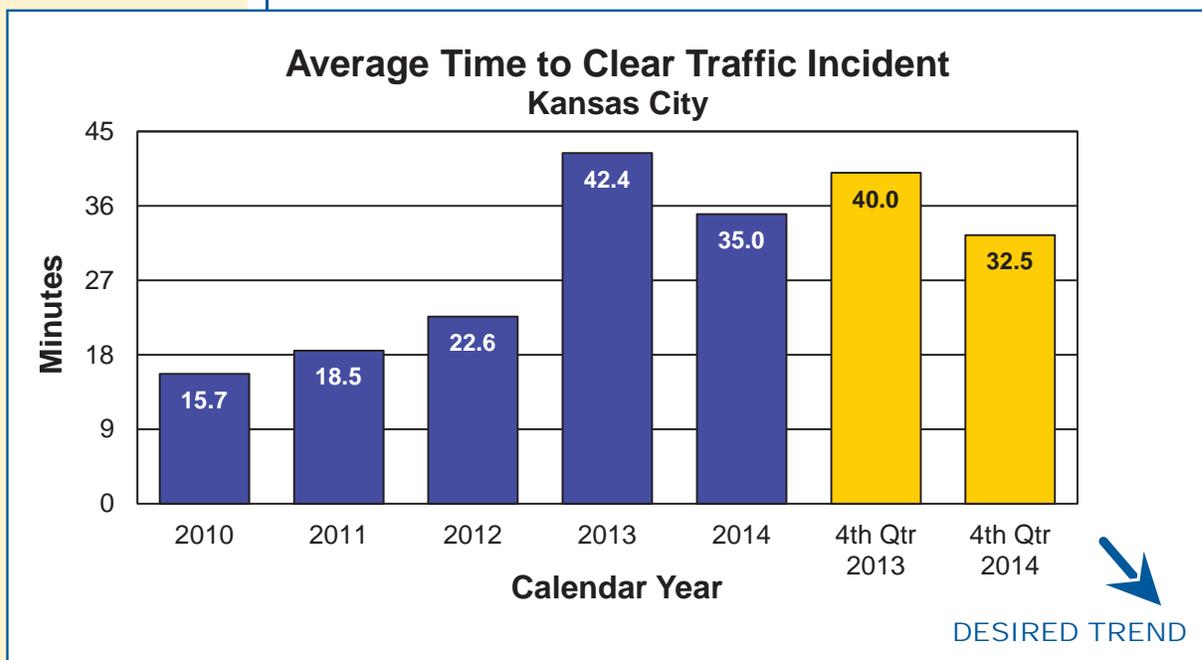
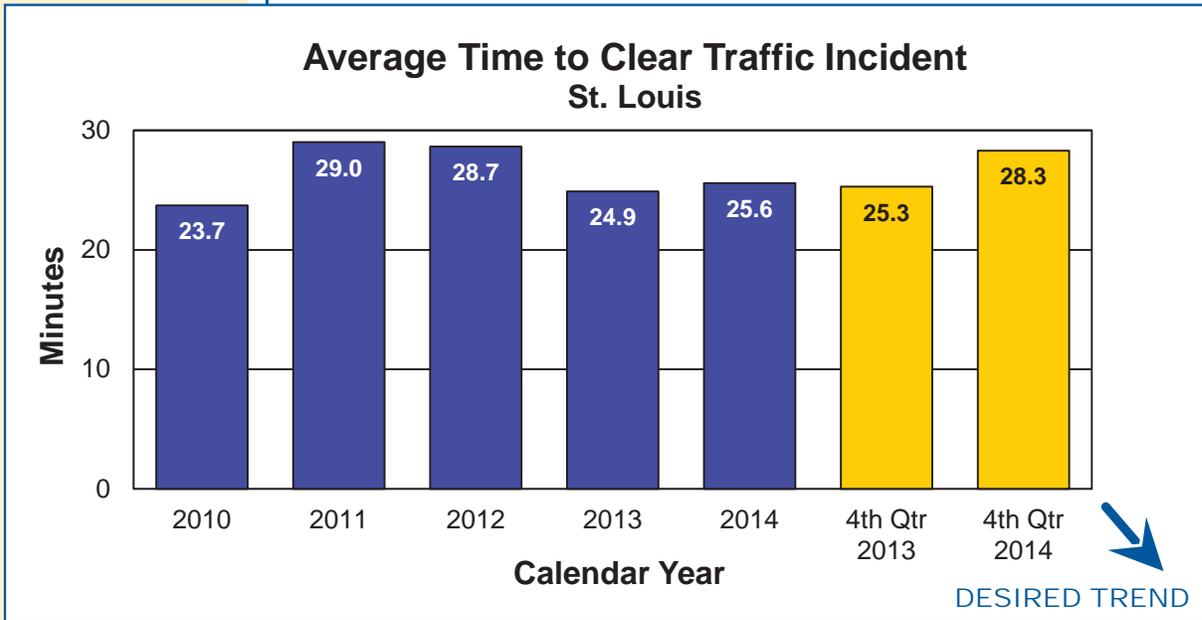
St. Louis recorded 756 incidents in October, 647 in November, and 643 in December. The average time to clear traffic incidents was 28.3 minutes, an increase of 12 percent compared to the fourth quarter of 2013.

Kansas City recorded 828 incidents in October, 830 in November, and 811 in December. The average time to clear traffic incidents was 32.5 minutes, a decrease of 19 percent from the fourth quarter of 2013.

St. Louis and Kansas City have demonstrated quick clearance of incidents with yearly averages of 26 minutes and 35 minutes respectively.



# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM



RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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. 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.

MoDOT is in the process of improving this measure by using real-time traffic data to provide a better picture of the impacts of incidents, as well as improved tracking of efforts to reduce the delays caused by these incidents.

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

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.



RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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.

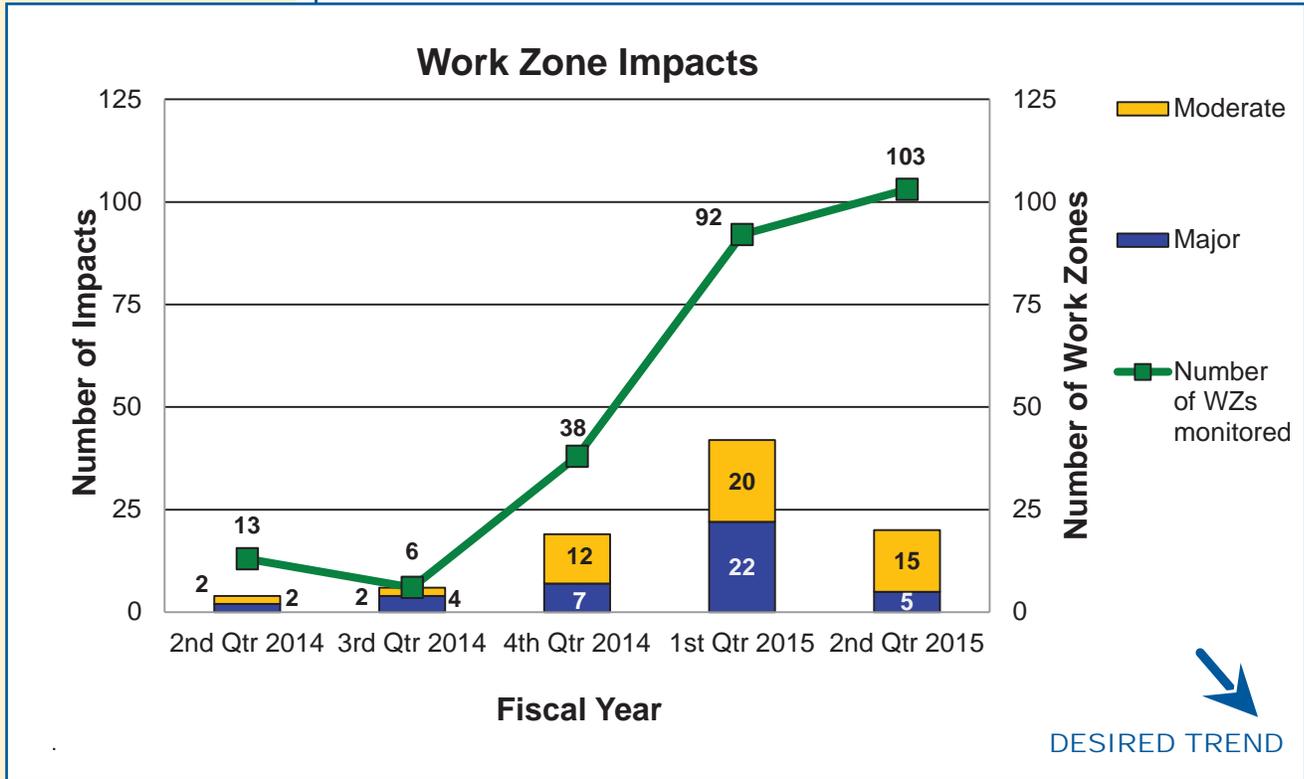
MEASUREMENT  
AND DATA  
COLLECTION:  
Work zone impacts are  
collected by conducting  
visual observations or using  
automated data collection.  
Recent updates to traffic  
data collection methods  
allow for more work zones  
to be evaluated. An impact  
is defined as the additional  
time a work 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 103 significant work zones this quarter, with 5 major impacts and 15 moderate impacts. Two major impacts were in the St. Louis District and one in the Northeast, Southeast and Kansas City Districts. Four of the 20 impacts overall were in the Southeast District due to emergency concrete bridge repairs on I-55 and seven impacts on I-70 design build job in Kansas City. Based on work zone surveys received this quarter, 57 percent are satisfied with timeliness when traveling in a work zone.



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RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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"  
routes. After each winter  
event, maintenance  
personnel submit reports  
indicating how much time  
it took to meet the objec-  
tives for both route classifica-  
tions.

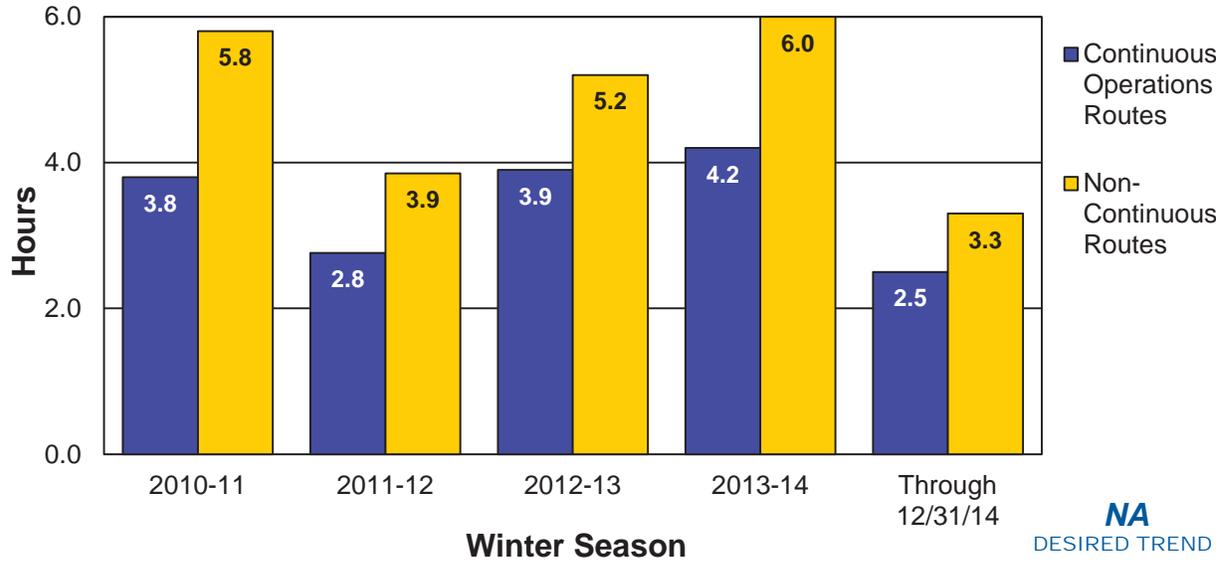
### *Time to meet winter storm event performance objectives-5g*

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. The early winter has been light so far, with a few events and light accumulations of snow and ice. It took an average of 2.5 hours to meet MoDOT's objective for continuous operations routes, and an average of 3.3 hours for non-continuous routes. These numbers compare favorably with the type of storms, but MoDOT still spent 157,000 hours fighting these snow and ice events at a cost of \$13.2 million through the end of December. 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.

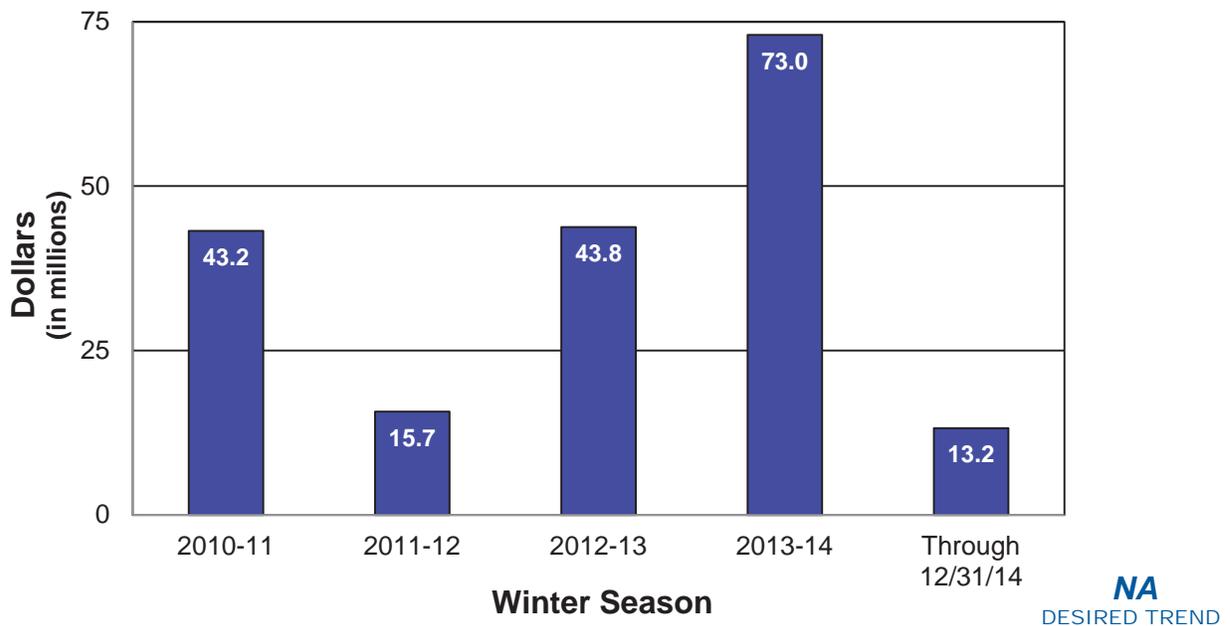


# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

## 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.

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

### *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 \$14.8 million worth of ADA facilities in the right of way since 2008. There is still more work to do as there is more than \$136.4 million worth of work left to complete on the 2010 ADA Transition Plan inventory.

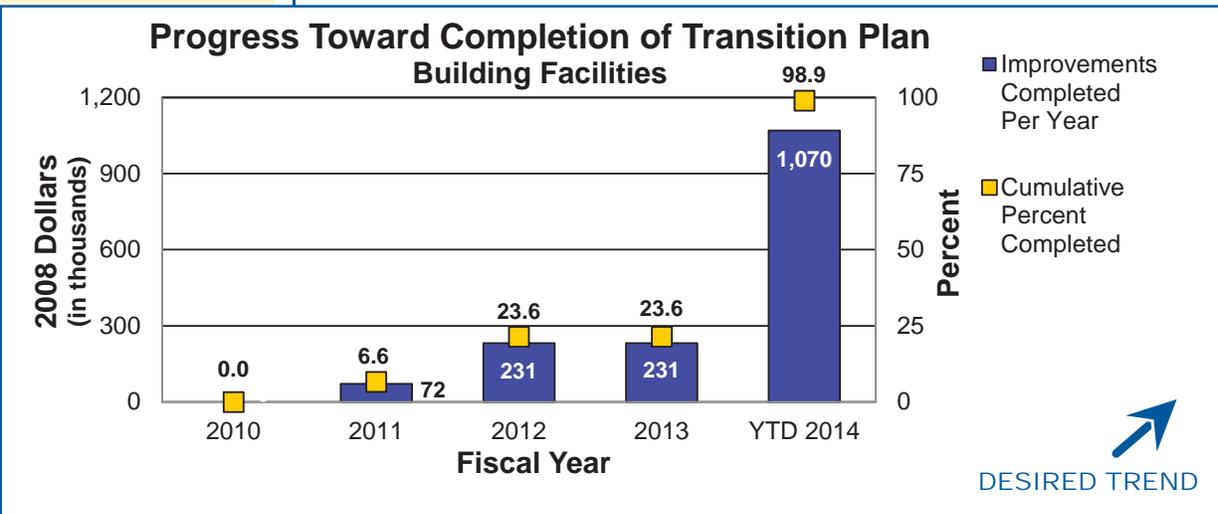
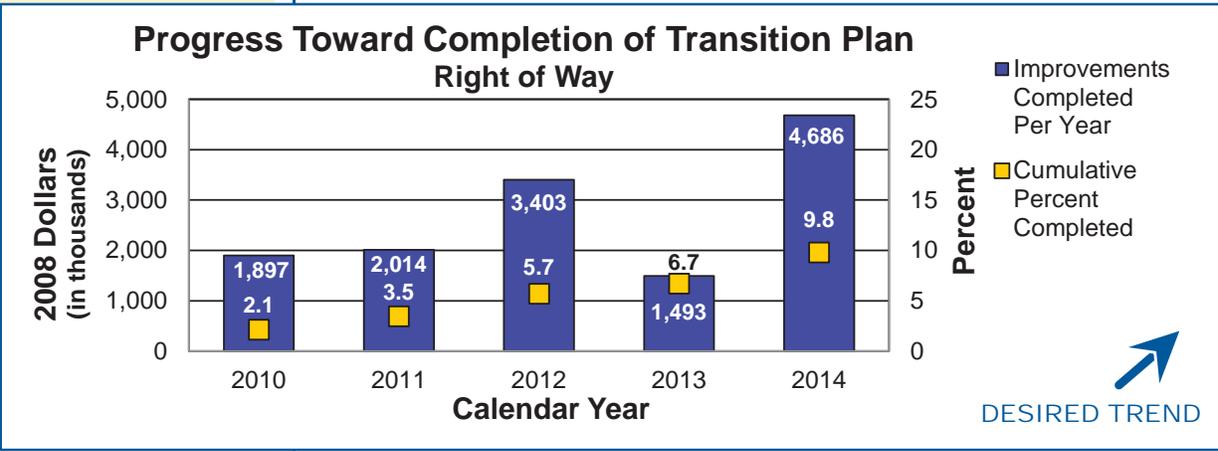
Unfortunately, a dwindling revenue stream for construction projects at both state and federal levels makes it difficult to even maintain existing facilities. Additional funding sources will need to be developed before significant progress can be made in developing the additional facilities that Missourians desire.

MoDOT's investment in pedestrian facilities for calendar year 2014 totals \$11.76 million. This exceeds the \$5 million invested in 2012 and the 2013 investment of \$8.9 million. MoDOT is 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 shows \$4.68 million of work was completed in 2014, a huge increase over the \$1.49 million 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.



# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM



RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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 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.

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 2010 to 2013, but appears to be increasing based on the preliminary estimates of passenger enplanements for calendar year 2014. Due to increasing state Aviation Trust Fund revenues, MoDOT solicited grant applications in November 2014 from commercial service airports for the air service program for the first time since 2010. These grants can be used for air service promotion and marketing and to study potential new routes.

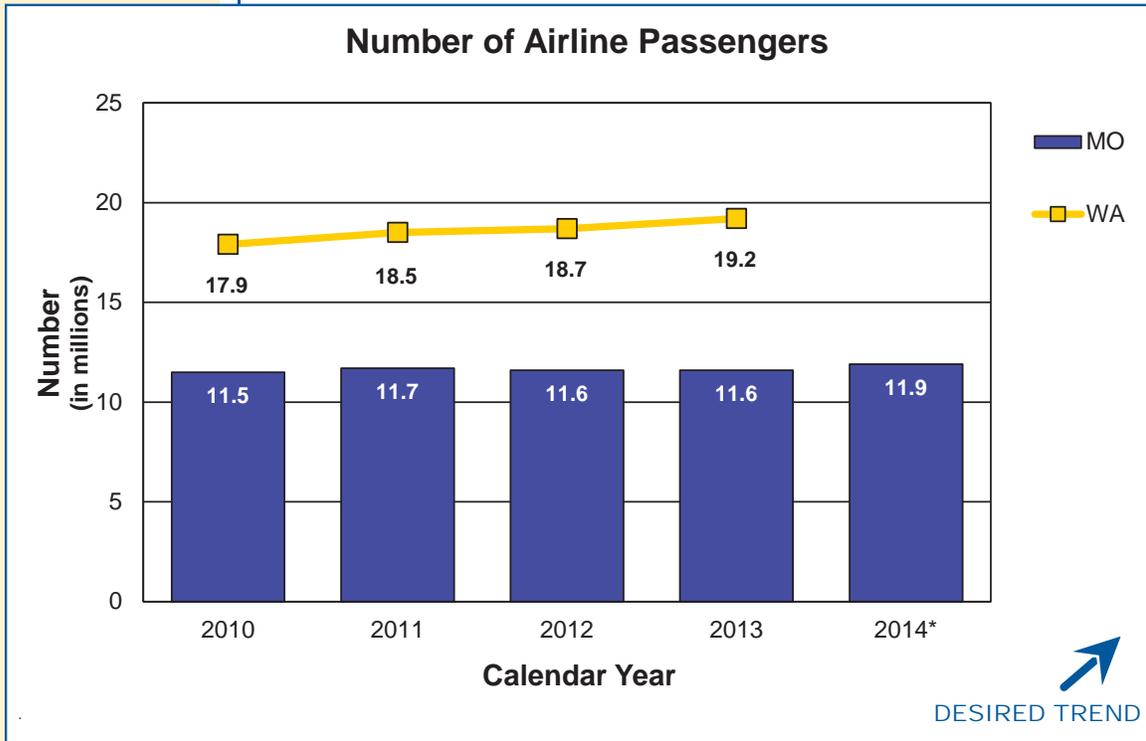
The number of ferry boat passengers decreased from more than 11,000 passengers in the second quarter of fiscal year 2014 to nearly 9,000 in the second quarter of FY 2015. Ferry boat services are used by both passenger vehicles and commercial vehicles. The New Bourbon ferry carried more passengers compared to the same quarter of FY 2014, but the Mississippi County ferry carried fewer passengers because the service was closed most of the quarter.

Missouri River Runner trains carried 48,818 passengers in the second quarter of FY 2015. Strong holiday travel helped create a 2 percent increase over the same period last year. On-time performance continued to be a challenge, primarily due to increasing freight train traffic on the corridor and at the terminals. In the second quarter, the Missouri Service was on time 79 percent of the time, compared to 92 percent a year earlier.

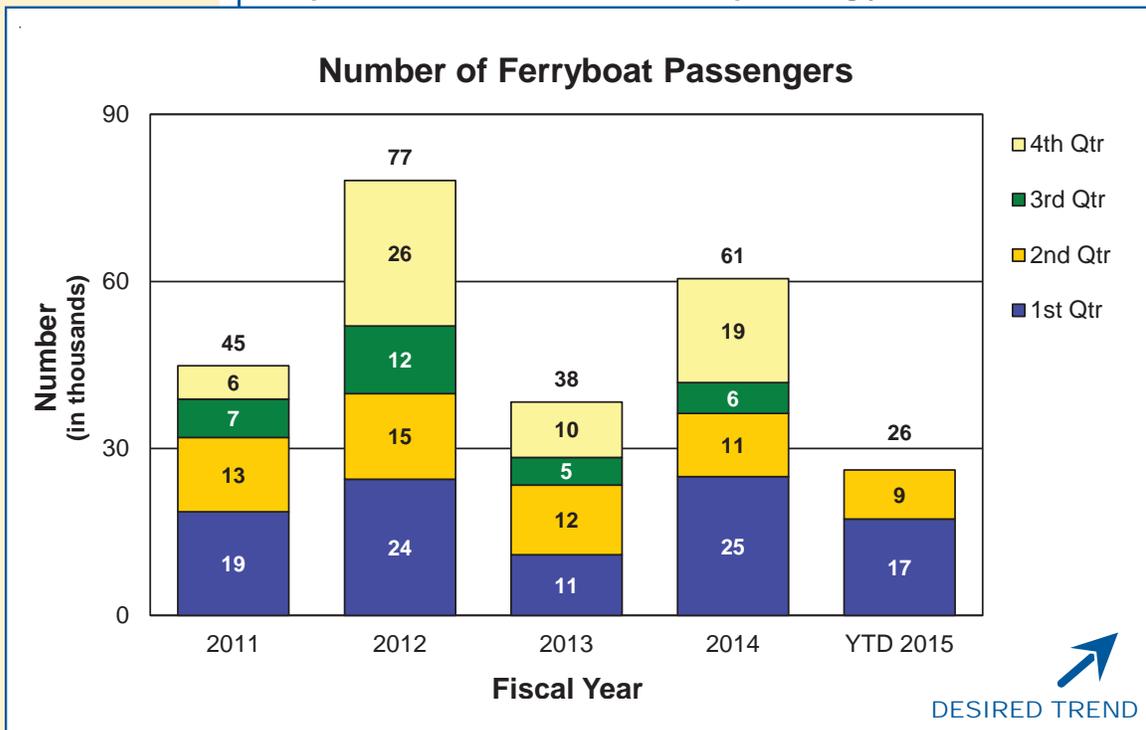
In FY 2014, transit ridership remained steady. Transit ridership increased from 62.5 million trips in FY 2013 to 63.1 million trips in FY 2014. Metro transit ridership saw an increase of 2 percent ridership while non-metro transit ridership saw a decrease of almost 30 percent ridership. Both of these shifts can be largely attributed to Cape Girardeau's ridership now being counted as metro transit ridership instead of rural. Even so, almost all 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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\*2014 data is based on preliminary individual airport statistics. FAA publishes data in October for the preceding year.



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