



# 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:

Data for many state routes in the St. Louis and Kansas City regions is continuously collected via roadside sensors. For other routes, travel times are collected by driving routes at least twice in each direction during morning and evening rush hours. To assess mobility, MoDOT compares travel times during rush hour versus free-flow conditions where vehicles can travel at the posted speed limit. The department also assesses reliability, measuring how consistent those travel times are on a daily basis. The charts in this measure show average travel time compared to the 80th percentile travel time, which is the time motorists plan to allow to reach their destinations on time 80 percent of the time.

### *Travel times and reliability on major routes-5a*

Minimizing travel times and delays on the state's most traveled routes are essential to operating a reliable and convenient transportation system. The desired outcome for traffic conditions on any route is to safely travel at the posted speed limit. The average travel times on freeways in St. Louis and Kansas City are reasonably close to free-flow speeds. Last quarter, it took customers on average anywhere from 10.74 to 12.17 minutes to travel 10 miles on the freeway during the morning and evening rush hours (60 mph speed limit).

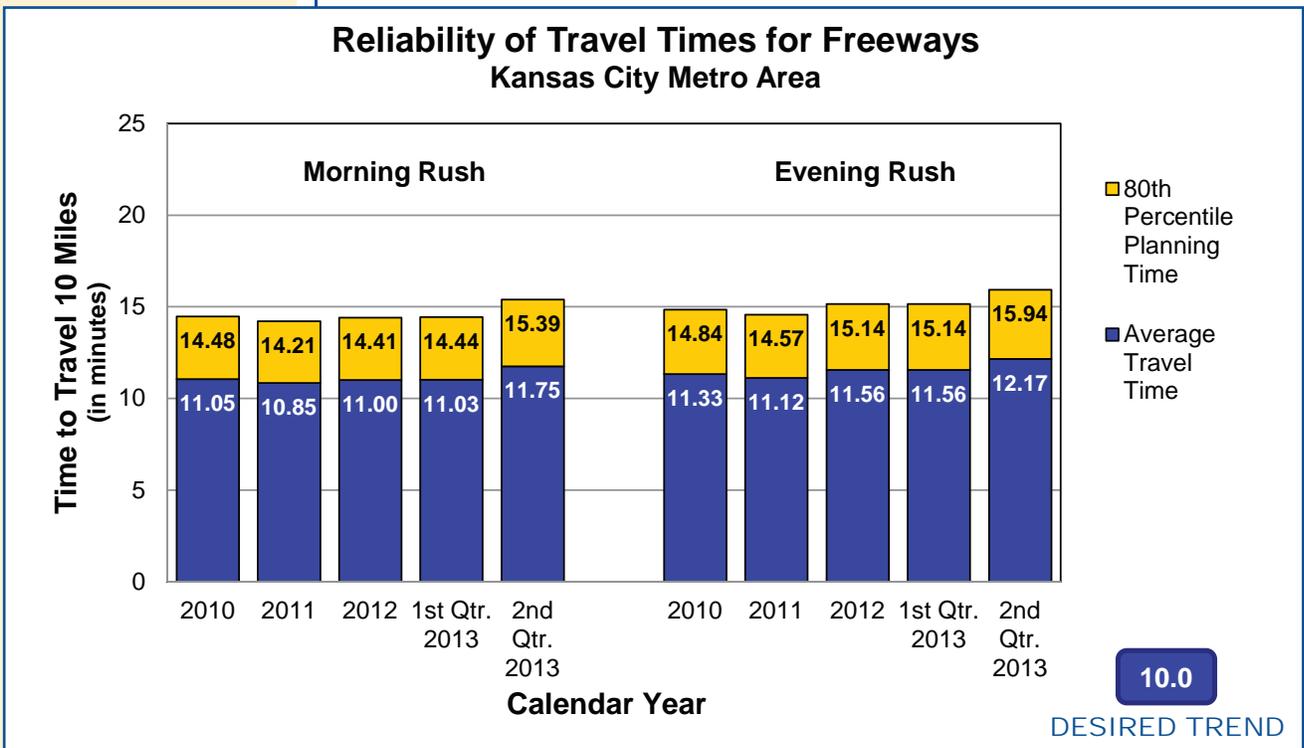
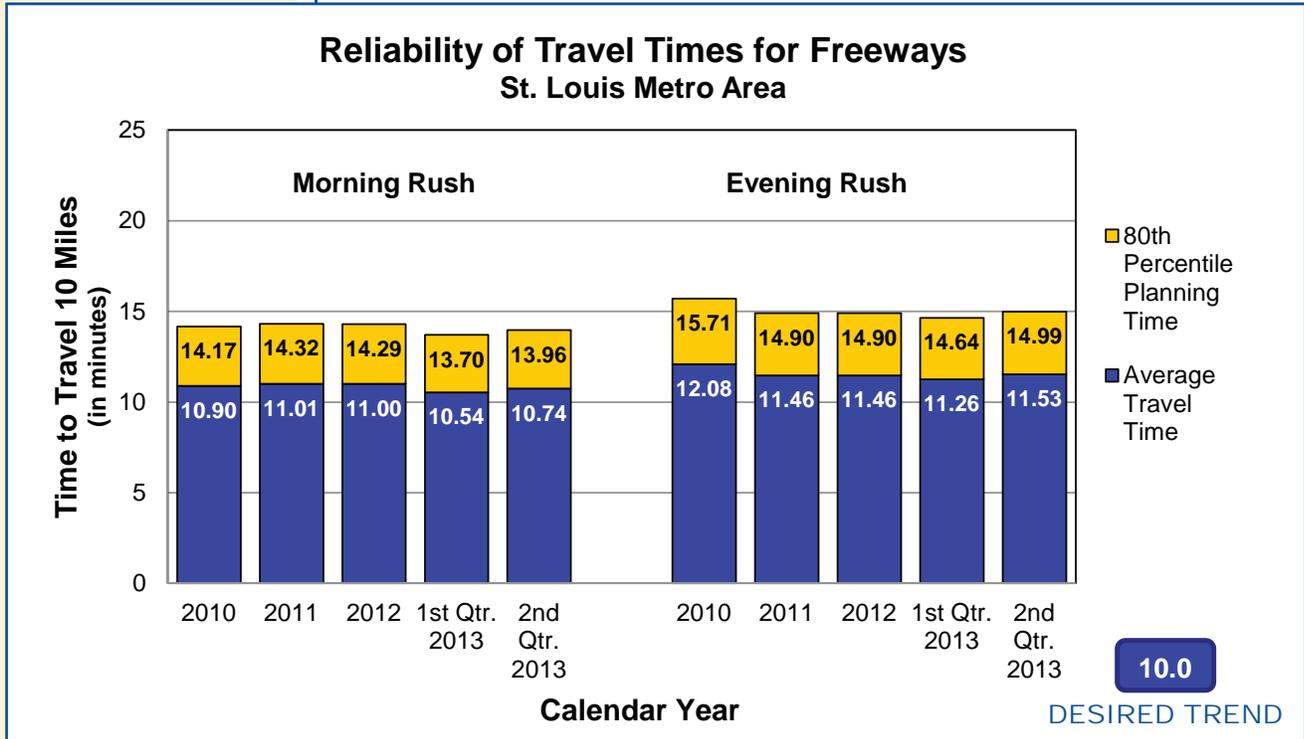
Average travel times, however, do not tell the whole story. On any given day, travel times may be higher due to things such as crashes, work zones, or adverse weather. In fact, for customers to make sure they arrived on time 80 percent of the time, they needed to plan an additional 3-4 minutes for every 10 miles traveled on freeways in St. Louis and Kansas City.

The maps in this measure identify locations along specific corridors where traffic is not usually flowing smoothly during the morning and evening rush hours. One major impact highlighted by the maps included the work zone on I-70 at the Blanchette Bridge near St. Charles. Lane closures in both directions have had an obvious effect on mobility in the area. In Kansas City, another work zone resulted in significant impacts to traffic flow along I-435 from the state line to Three Trails Crossing. This work zone required multiple lane closures over a two-week period in April.

In addition to work zones, recurring congestion occurs in certain locations across the state. Eastbound I-70 between I-435 and I-470 in Kansas City consistently experiences recurring congestion during the evening rush. Likewise, I-270 and I-64 in St. Louis experience congestion bottlenecks during the morning and evening rush hours. Construction continues to add additional capacity to southbound I-270 between I-44 and Manchester Road. In addition to freeways in the metro areas, mobility is also tracked along significant routes across the state. Major impacts highlighted on the maps below include Stadium Boulevard near I-70 in Columbia, where a new diverging diamond interchange and other improvements will be under construction through 2014. Other routes with low mobility included Page Avenue between I-270 and I-170 in St. Louis, and Business 65 (Glenstone) in Springfield. Mobility on these routes is addressed primarily by improvements to signal timing plans and access management practices.

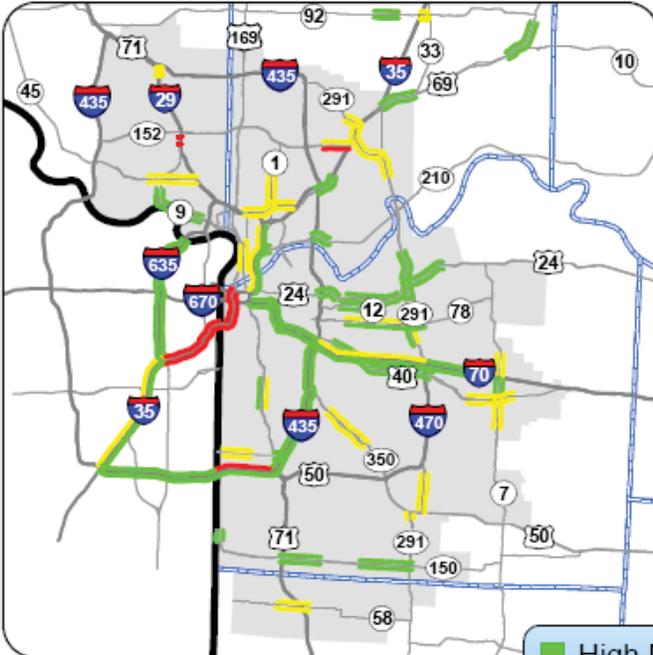
Overall, mobility along measured routes across the state increased by 5 percent in the morning and 2 percent in the evening over the past 12 months. Over the past 24 months, mobility on measured routes has increased by 9 percent in the morning and 11 percent in the evening.

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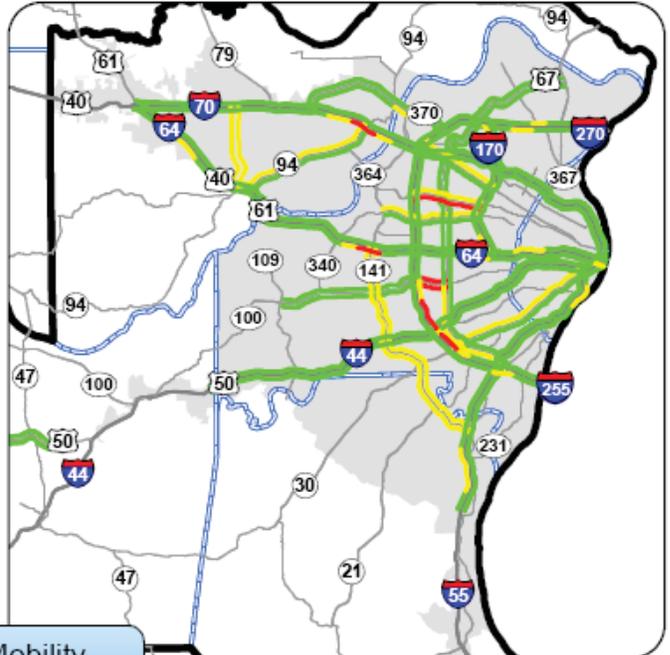


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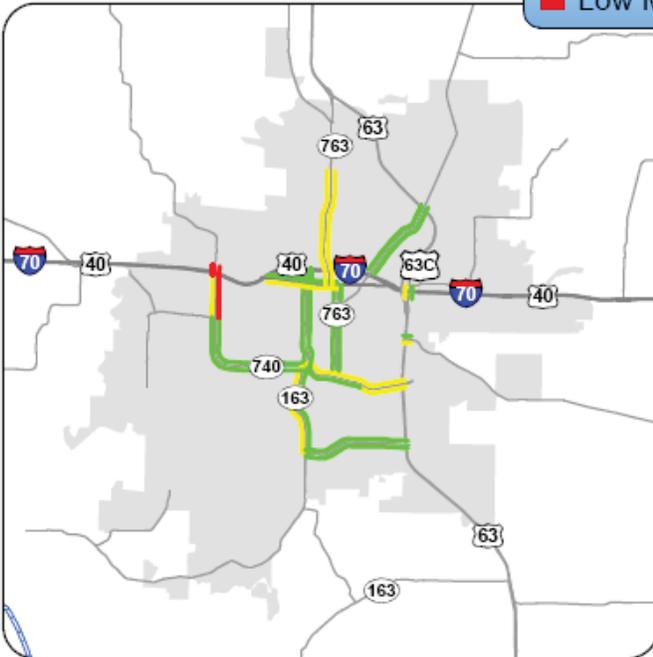
## AM Mobility



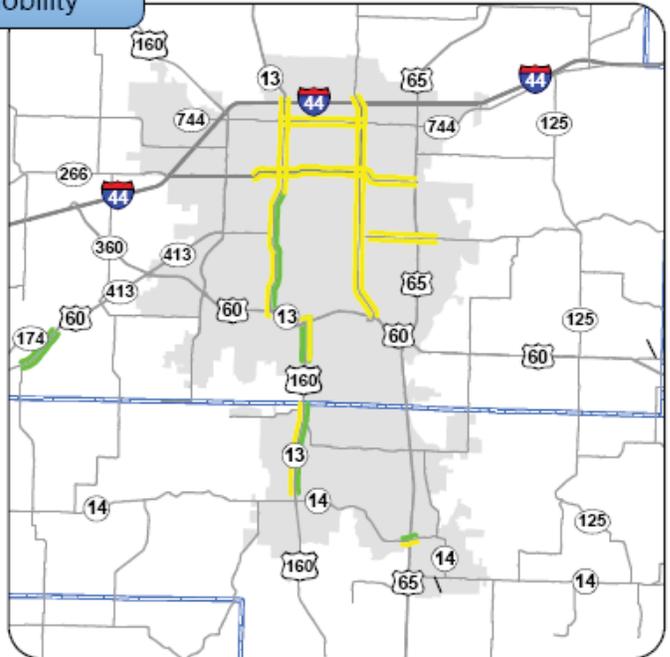
**Kansas City Area**



**Saint Louis Area**



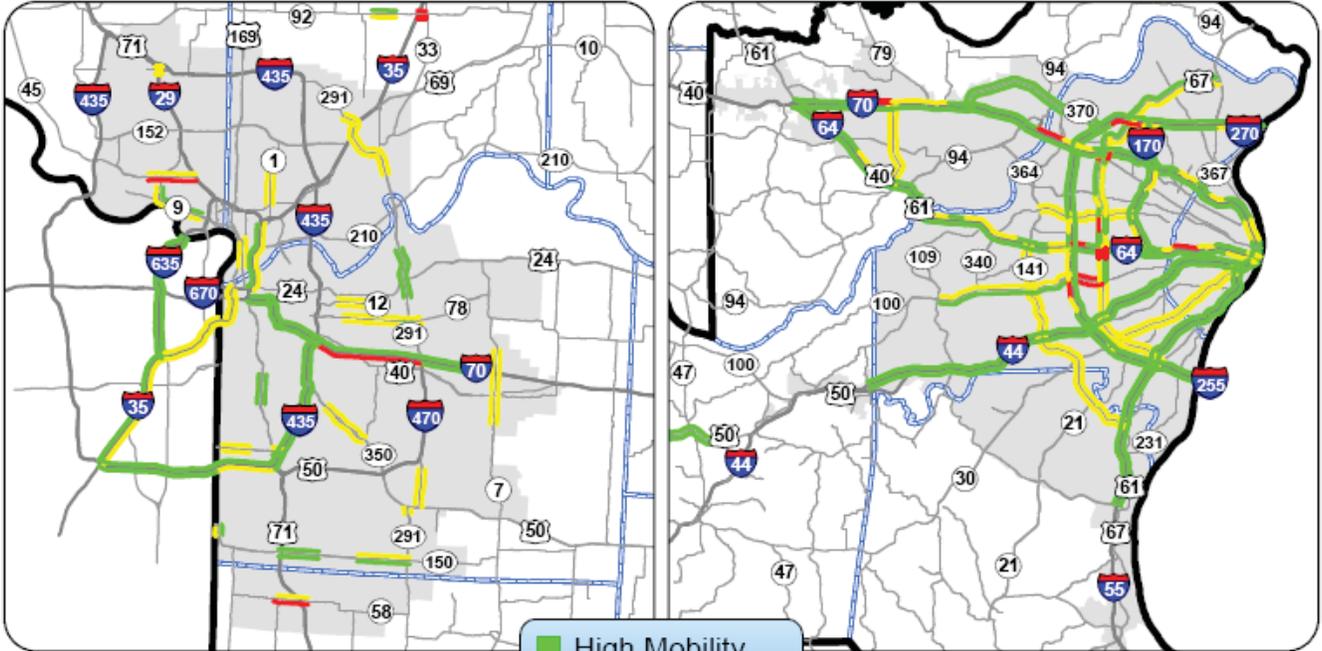
**Columbia Area**



**Springfield Area**

# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

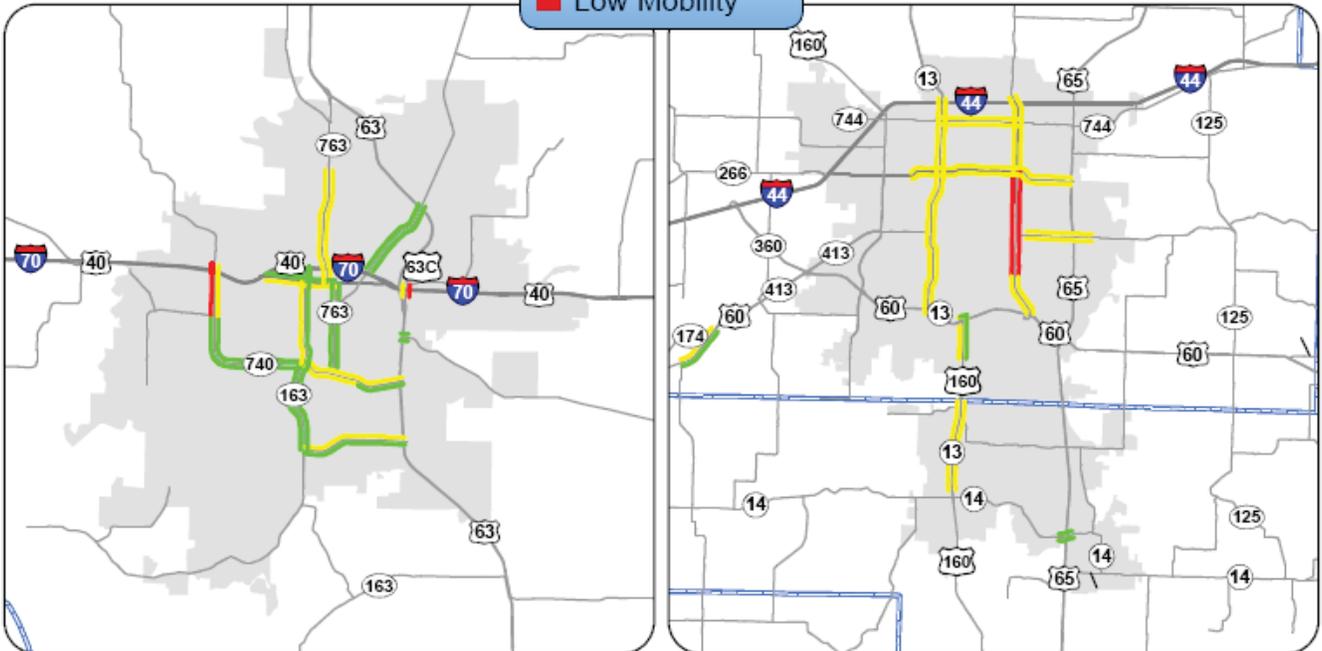
## PM Mobility



**Kansas City Area**

**Saint Louis Area**

- High Mobility
- Medium Mobility
- Low Mobility



**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:  
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*

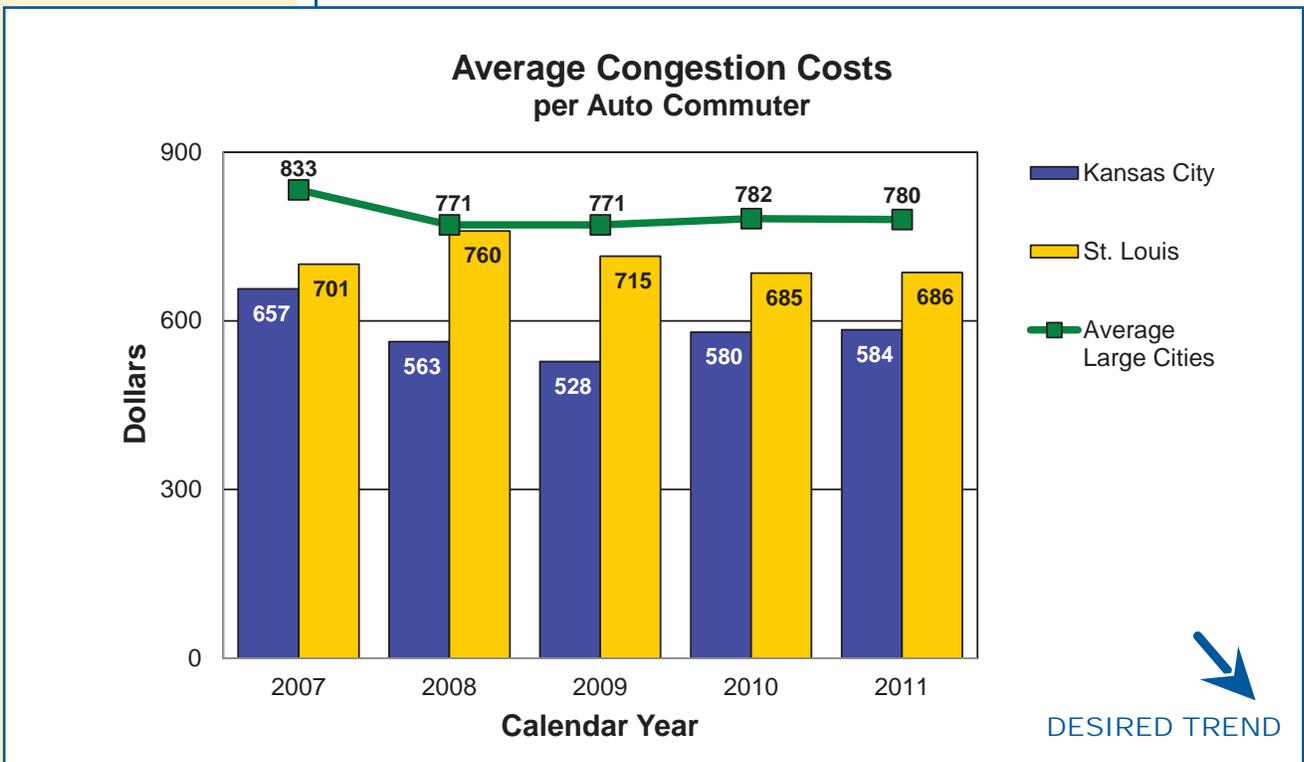
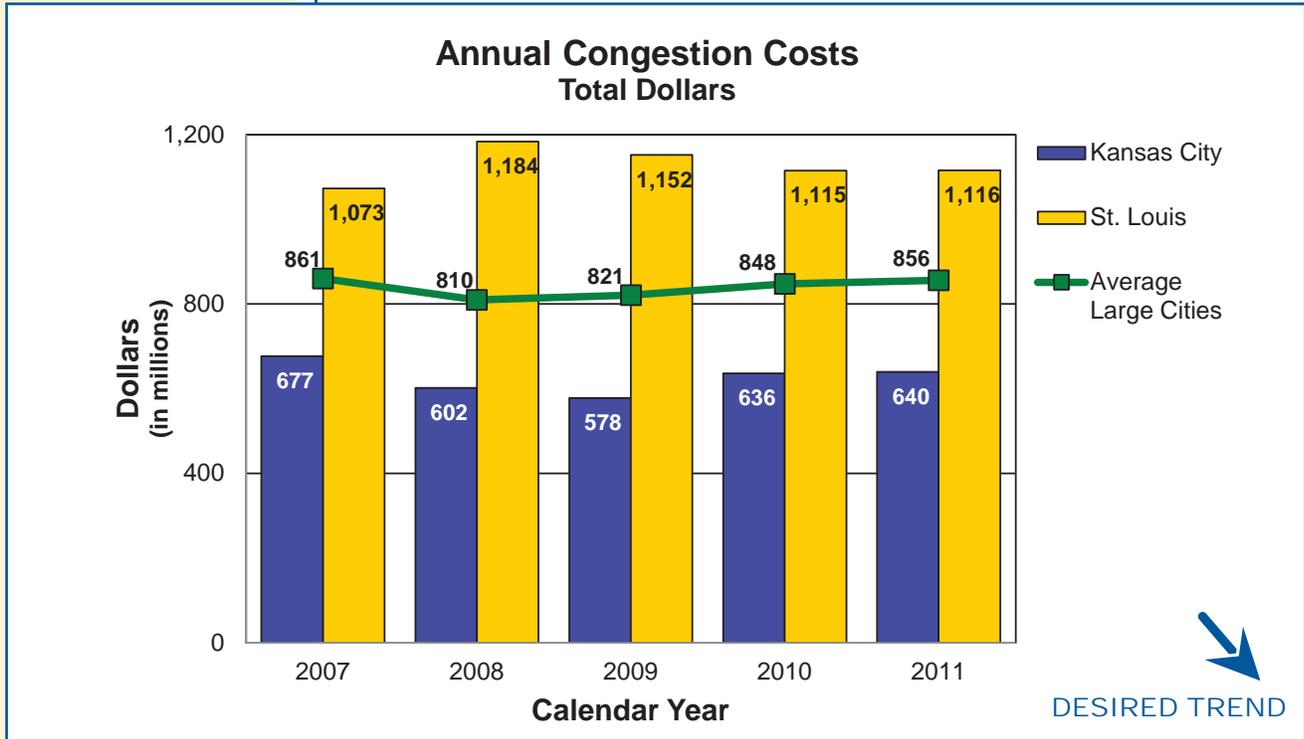
Recurring congestion occurs at regular times, although the traffic jams are not necessarily consistent day-to-day. Nonrecurring congestion is an unexpected traffic crash or natural disaster that affects traffic flow. When either occurs, the time required for a given trip becomes unpredictable. This unreliability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

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.

The desired trend for both costs is downward, as lower congestion costs would indicate traffic moving more efficiently.

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RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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*

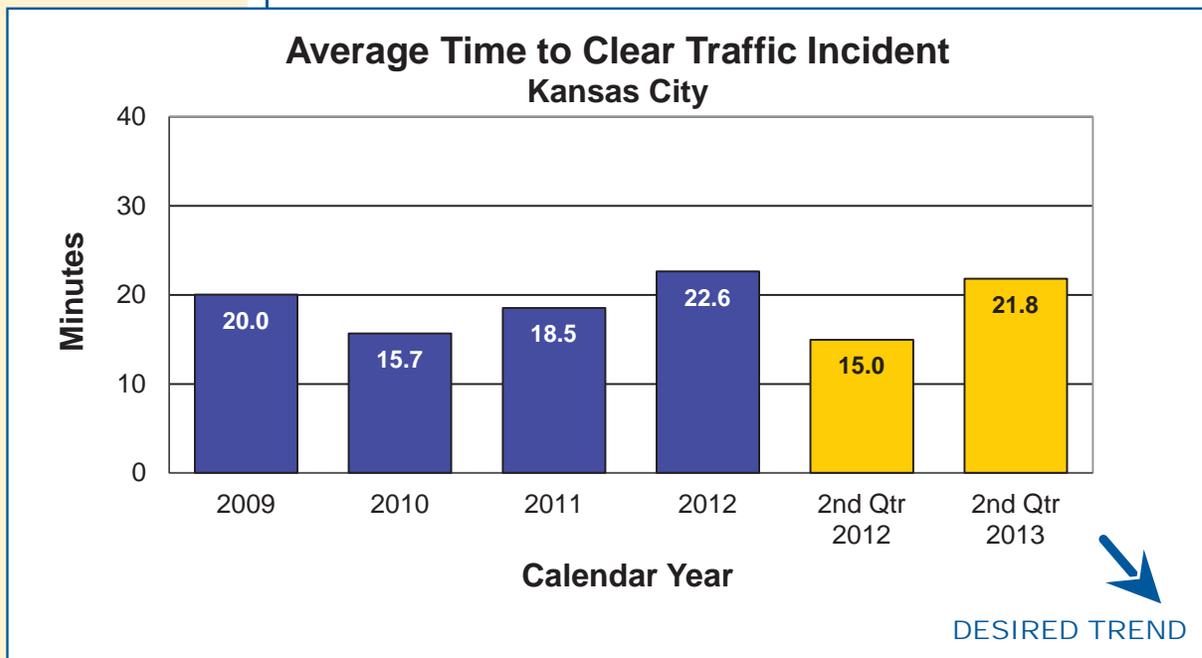
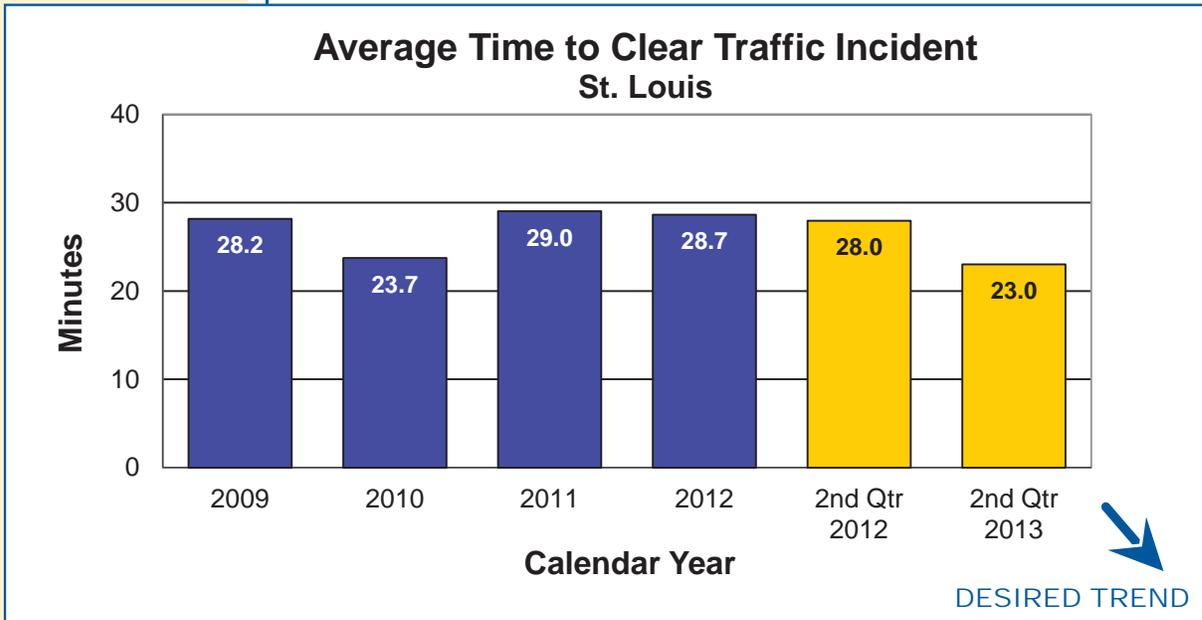
A traffic incident is an unplanned event that temporarily reduces the number of vehicles that can travel on the road. The faster an incident is cleared, the faster the highway system returns to normal. Therefore, responding to and quickly addressing the incident (crashes, flat tires and stalled vehicles) improves system performance.

St. Louis recorded 544 incidents in April, 644 in May, and 624 in June. The average time to clear traffic accidents was 27.3 minutes, a decrease of 18 percent compared to the second quarter of 2012.

Kansas City collected data on 567 incidents in April, 705 in May, and 708 in June. The average time to clear traffic incidents was 32.5 minutes, an increase of 31percent from the second quarter of 2012. On June 7, 2013, an incident involving a tractor trailer resulted in a fire and hazardous material spill. This incident closed westbound I-70 near I-435 for approximately 19 hours.

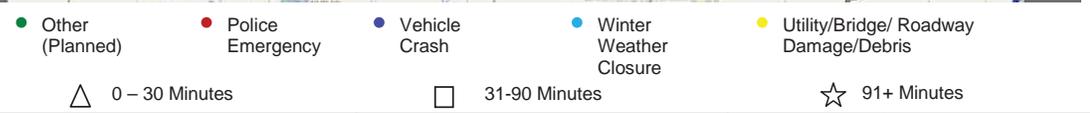
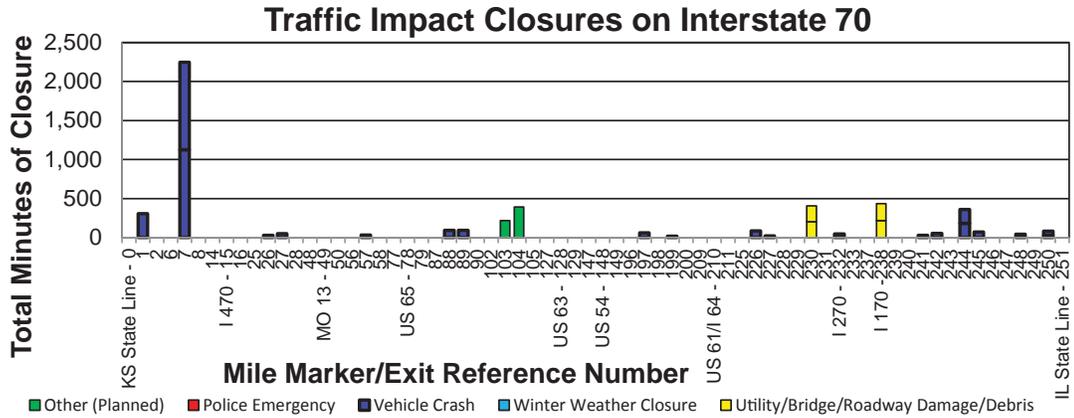


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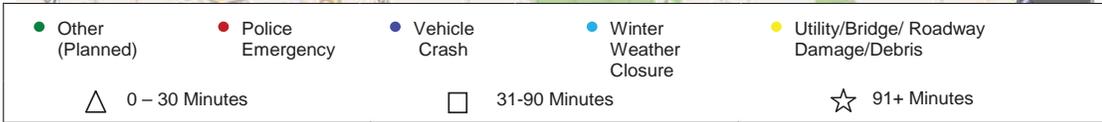
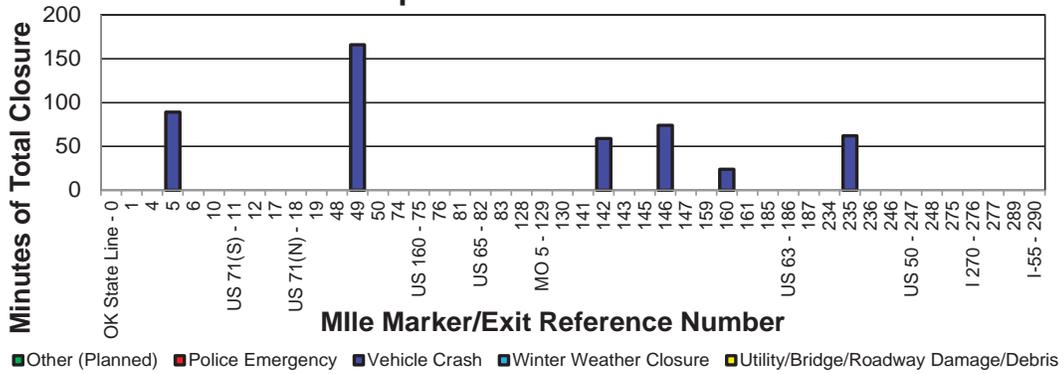
# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM



SYMBOL	COUNTY	DIR	MILE MARKER	START DATE	TYPE	DURATION (H:MM)
☆	JACKSON	E	1.02	30-Apr-13	VEHICLE CRASH	5:09
☆	JACKSON	W	7.39	07-Jun-13	VEHICLE CRASH	18:44
☆	JACKSON	E	8.33	07-Jun-13	VEHICLE CRASH	18:44
▲	JACKSON	W	26.47	24-May-13	VEHICLE CRASH	0:28
■	JACKSON	W	27.37	29-Jun-13	VEHICLE CRASH	0:52
■	LAFAYETTE	E	57.38	13-May-13	VEHICLE CRASH	0:32
☆	COOPER	W	88.84	20-May-13	VEHICLE CRASH	1:34
☆	COOPER	E	89.78	20-May-13	VEHICLE CRASH	1:34
★	COOPER	W	103.80	08-Apr-13	PLANNED	3:39
★	COOPER	E	104.76	08-Apr-13	PLANNED	6:31
■	WARREN	E	197.80	19-Jun-13	VEHICLE CRASH	1:02
▲	WARREN	W	199.18	22-May-13	VEHICLE CRASH	0:20
■	ST. CHARLES	E	226.98	30-May-13	VEHICLE CRASH	1:27
▲	ST. CHARLES	E	227.10	24-Jun-13	VEHICLE CRASH	0:22
★	ST. CHARLES	E	230.03	31-May-13	UTILITY DAMAGE	3:27
★	ST. LOUIS	W	230.65	31-May-13	UTILITY DAMAGE	3:24
■	ST. LOUIS	E	232.66	20-Apr-13	VEHICLE CRASH	0:48
★	ST. LOUIS	W	238.07	03-Jun-13	UTILITY DAMAGE	3:38
★	ST. LOUIS	E	238.44	03-Jun-13	UTILITY DAMAGE	3:30
▲	ST. LOUIS	W	241.09	08-Apr-13	VEHICLE CRASH	0:28
■	ST. LOUIS	E	242.10	26-Apr-13	VEHICLE CRASH	0:53
☆	ST. LOUIS CITY	W	244.30	09-Apr-13	VEHICLE CRASH	2:58
☆	ST. LOUIS CITY	W	244.64	09-Apr-13	VEHICLE CRASH	3:02
■	ST. LOUIS CITY	E	245.60	09-Apr-13	VEHICLE CRASH	1:13
■	ST. LOUIS CITY	E	248.74	13-Apr-13	VEHICLE CRASH	0:43
■	ST. LOUIS CITY	E	250.33	03-May-13	VEHICLE CRASH	0:54
▲	ST. LOUIS CITY	E	250.73	02-Jun-13	VEHICLE CRASH	0:30

# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

## Traffic Impact Closures on Interstate 44



SYMBOL	COUNTY	DIR	MILE MARKER	START DATE	TYPE	DURATION (H:MM)
■	NEWTON	W	5.75	26-Jun-13	VEHICLE CRASH	1:29
★	LAWRENCE	W	49.51	03-May-13	VEHICLE CRASH	2:46
■	LACLEDE	E	142.61	03-Jun-13	VEHICLE CRASH	0:59
■	PULASKI	E	146.19	02-Apr-13	VEHICLE CRASH	1:14
▲	PULASKI	E	160.61	19-May-13	VEHICLE CRASH	0:24
■	FRANKLIN	W	235.06	19-May-13	VEHICLE CRASH	1:02

RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

MEASUREMENT  
DRIVER:  
Jason Vanderfeltz,  
Design Liaison Engineer

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

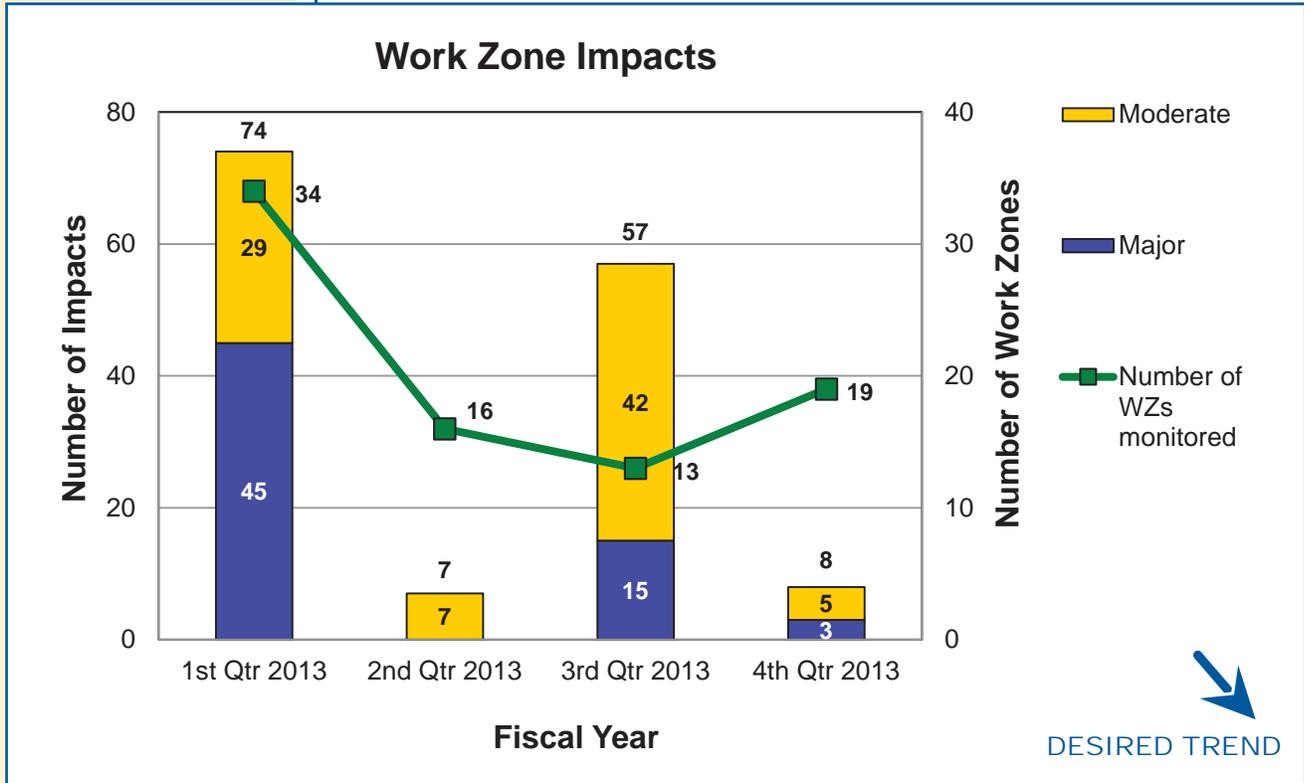
MEASUREMENT  
AND DATA  
COLLECTION:  
Work zone impacts are  
collected by MoDOT staff  
driving through work zones,  
conducting visual observa-  
tions or using automated  
data collection. An impact  
is defined as the additional  
time a work zone adds to  
normal travel. They are cat-  
egorized 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 traveling public-5e*

Motorists want to get through work zones with as little inconvenience as possible. Based on work zone surveys received this quarter, 62 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 19 significant work zones this quarter, with major impacts showing an 80 percent decrease and moderate impacts showing an 88 percent decrease.



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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 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 is collecting samples of nitrogen dioxide, carbon monoxide, particulate matter and black carbon through air quality monitors located near I-64 in St. Louis and I-70 in Kansas City. 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 CONSTRUCTION**

RESULT DRIVER:  
Paula Gough,  
District Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

MEASUREMENT  
DRIVER:  
Tim Chojnacki,  
Maintenance Liaison  
Engineer

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

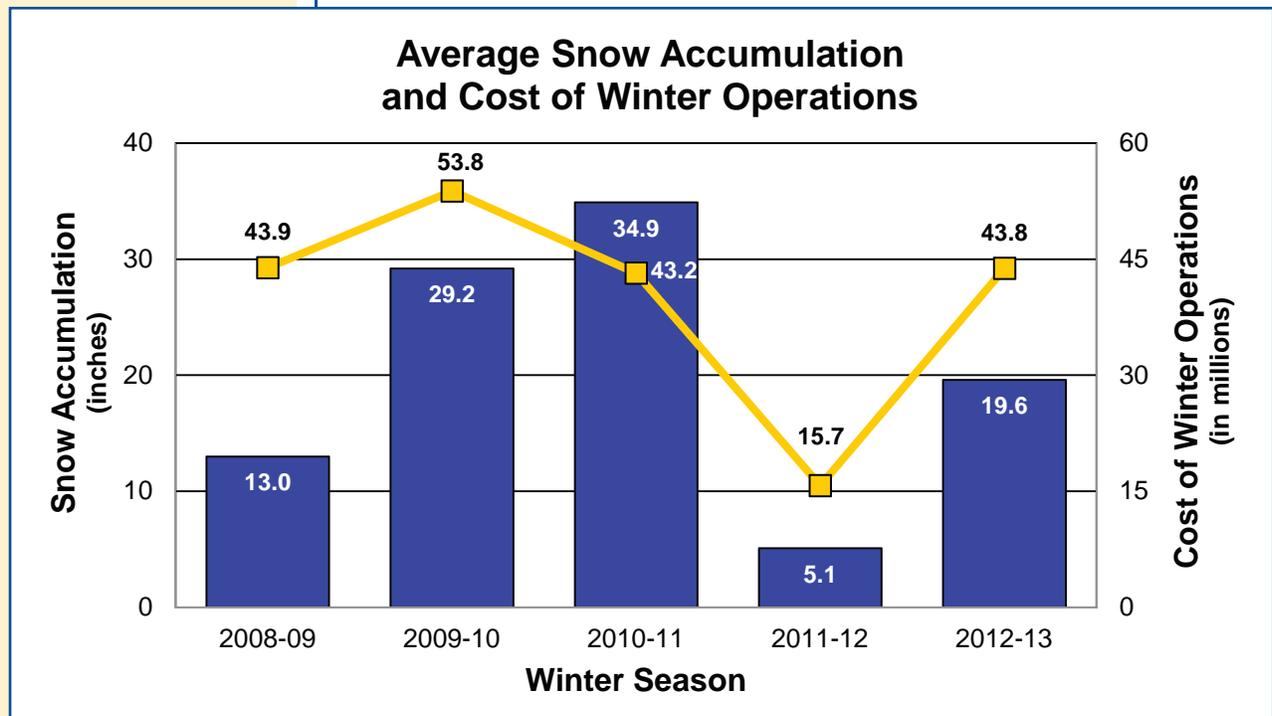
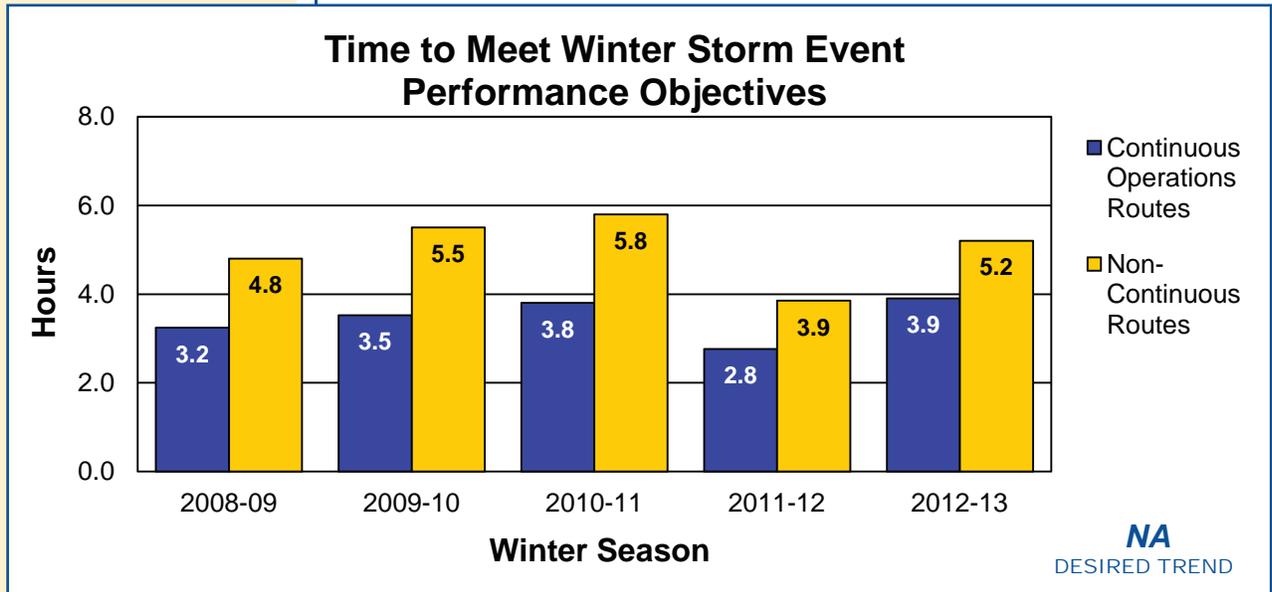
PURPOSE OF  
THE MEASURE:  
This measure tracks the  
amount of time needed to  
perform MoDOT's snow and  
ice removal efforts.

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 winter of 2012 -2013 was an average winter for Missouri, with an average of 19.6 inches of snow statewide. It took an average of 3.9 hours to meet MoDOT's objective for continuous operations routes, and an average of 5.2 hours for non-continuous routes. These numbers compare favorably with past years.

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.



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RESULT DRIVER:  
Paula Gough,  
District Engineer

MEASUREMENT  
DRIVER:  
Ron Effland, Non-motorized  
Transportation Engineer

PURPOSE OF  
THE MEASURE:  
This measure tracks Mo-  
DOT's investment in pedes-  
trian facilities and progress  
toward removing barriers  
to accessibility for all users.  
Accessibility applies both to  
right of way (sidewalks and  
traffic signals, for example)  
and to buildings, parking  
lots and restrooms.

MEASUREMENT  
AND DATA  
COLLECTION:  
Investment in pedestrian  
facilities data is gathered  
by querying total award  
amounts for the 20 most  
common construction  
elements of a pedestrian  
project. Transition Plan  
progress is based upon  
completed work that has  
corrected defective items  
reported in the 2010 Transi-  
tion Plan inventory. The dol-  
lar amounts are based on  
unadjusted estimates from  
2008 and may not reflect  
the actual expenditures.  
As each deficient segment  
is upgraded, reviewed and  
removed from MoDOT's  
Transition Plan, its 2008  
estimated total is accounted  
for and shown as progress.  
Inflation and changing field  
conditions therefore have  
no impact on the represen-  
tation of progress.

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

### *Bike/pedestrian and ADA Transition Plan improvements-5h*

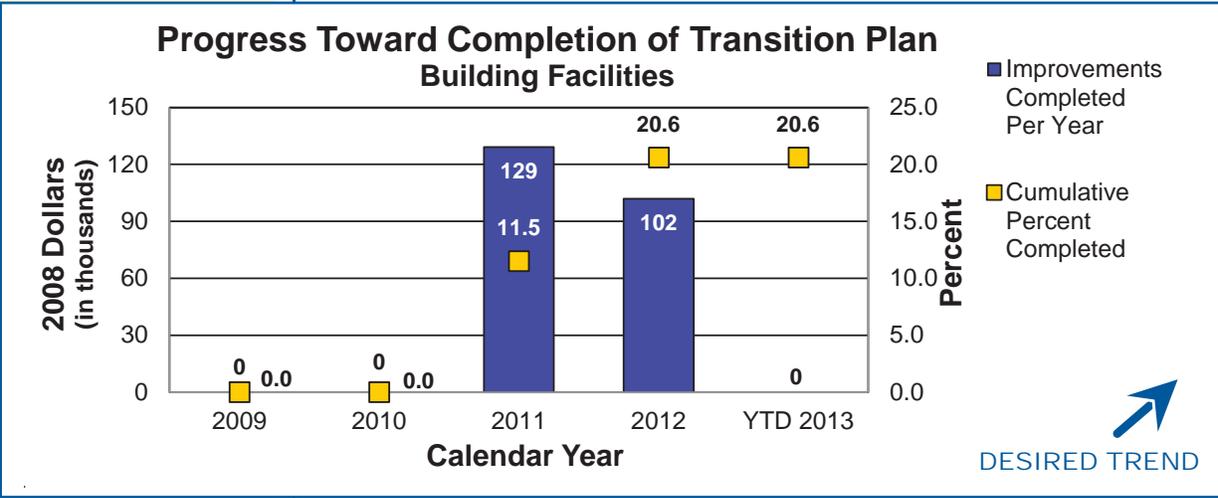
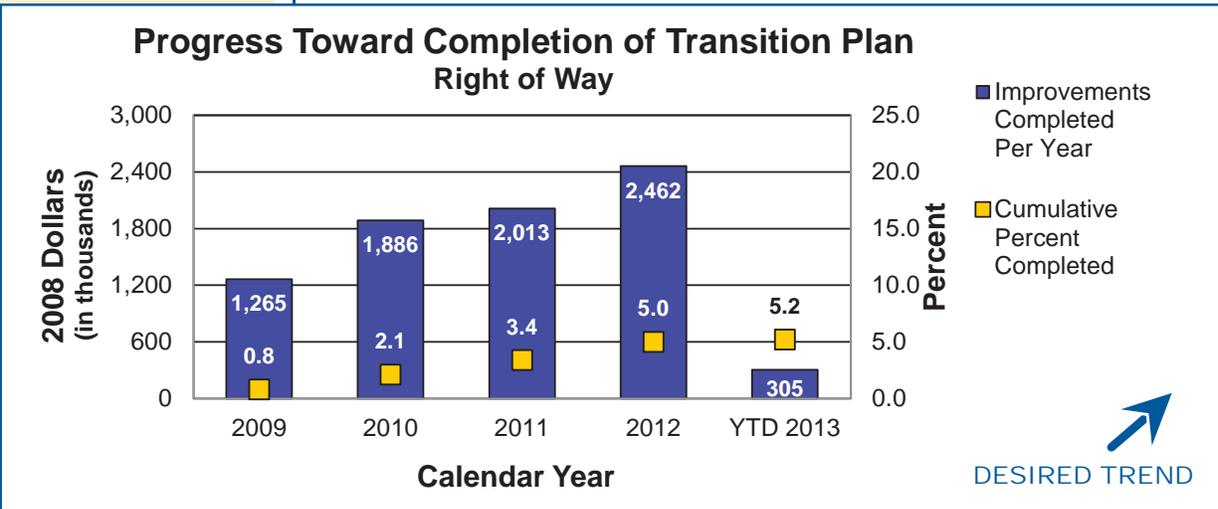
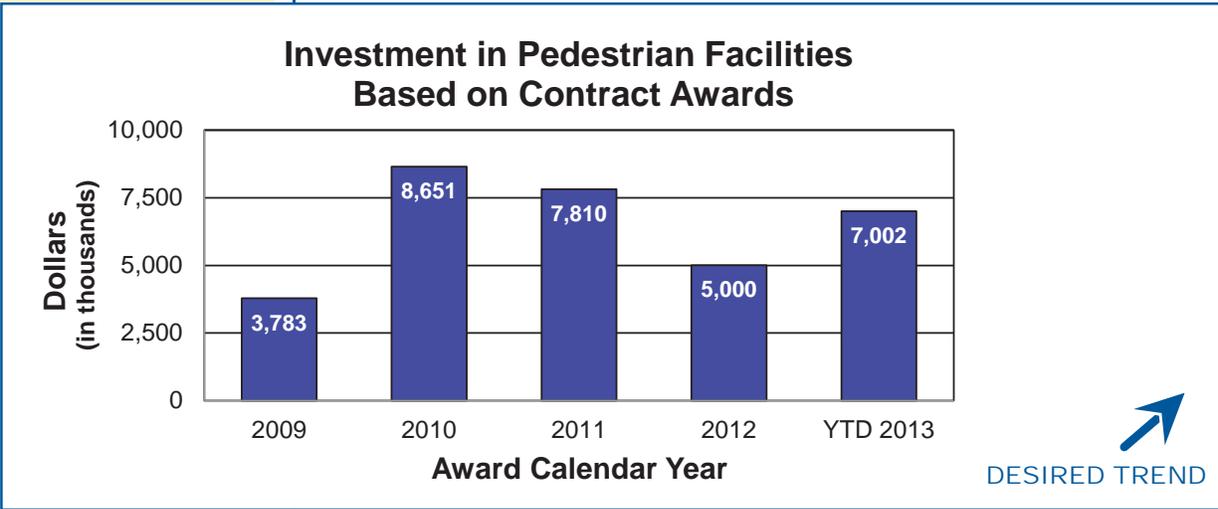
Completion of MoDOT's 2010 Transition Plan Update is necessary to bring the department into compliance with the Americans with Disabilities Act. MoDOT's current Transition Plan Update was published in August 2010 and reported an inventory of needed ADA improvements developed in 2008. Since then, MoDOT has made a determined effort to improve pedestrian travel by considering accessibility issues on all projects. MoDOT has been responsive to public requests and has been proactive in many areas to make system wide improvements when opportunities arise.

MoDOT's investment in pedestrian facilities is key to providing a comprehensive transportation system that meets the needs of all users. Sidewalks around the state are being improved to meet accessibility requirements. MoDOT is adding sidewalks, traffic signals and marked crosswalks where needed to provide safer and more convenient transportation options.

Investment in pedestrian facilities fell in 2012, but has recovered in the first half of 2013 where it is 40 percent higher than the total invested in the system in 2012. This increase clearly demonstrates the department's renewed commitment to improving pedestrian facilities in the state.



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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*

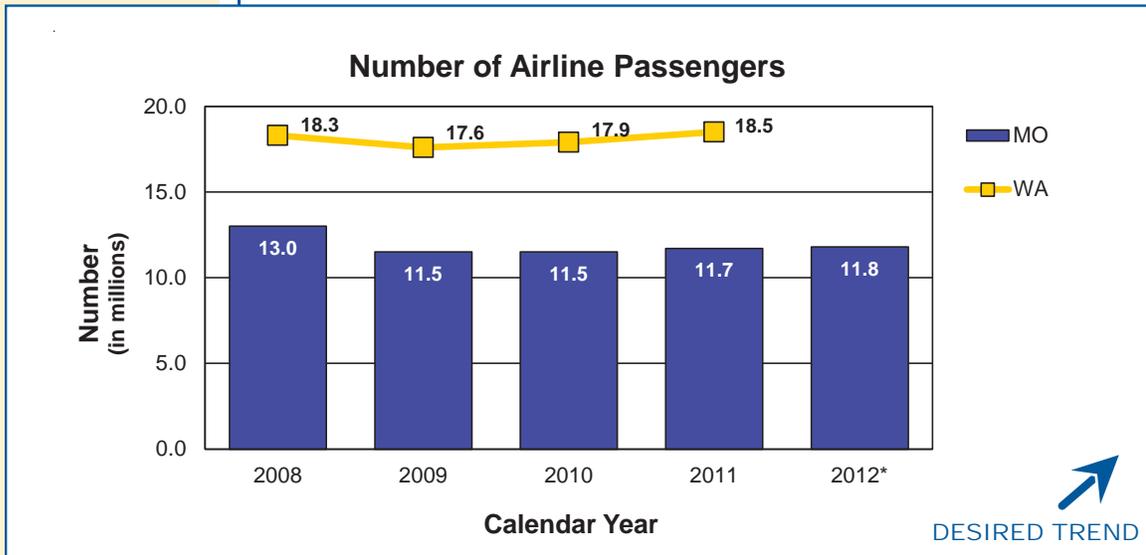
Planes, trains, ferries and transit options are vital means of transport for Mis-  
sourians. Passengers are returning to commercial airline travel and transit  
services following recession-related downturns. Bad economic times drive  
customers away from air travel and can cause cutbacks in transit services.  
Metro and non-metro transit ridership and air travel counts are up statewide.  
However, St. Louis accounts for most of the gains. Air travel counts are up  
and transit customers are returning to routes that had been reduced by the  
city due to budget shortfalls in 2009.

Weather extremes, such as those experienced in the last several years,  
affect ferry and train travelers. During this fiscal year, ferry operations tem-  
porarily closed when both too much and too little water flowed. Closures  
disappoint and add to the expense of travelers who avoid long drives to use  
Mississippi River bridge crossings when the ferries operate.

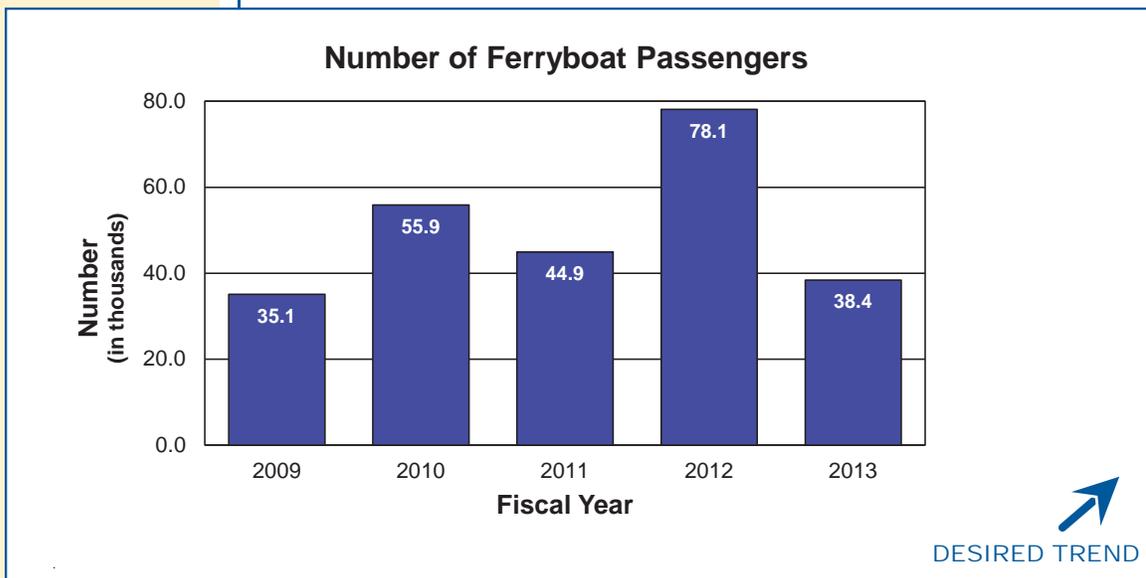
Missouri River Runner trains were on time 91 percent for the fourth quar-  
ter of fiscal year 2013, yet ridership decreased 4 percent compared to the  
final quarter of fiscal year 2012. Terrorist acts in Boston and Canada, falling  
fuel prices and an early Easter holiday likely affected ridership this quarter.  
However for the fiscal year, ridership reached 196,661 passengers – the ser-  
vice's sixth highest number of passengers ever – and on-time performance  
was 90 percent, up 3 percent compared to the previous year.

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

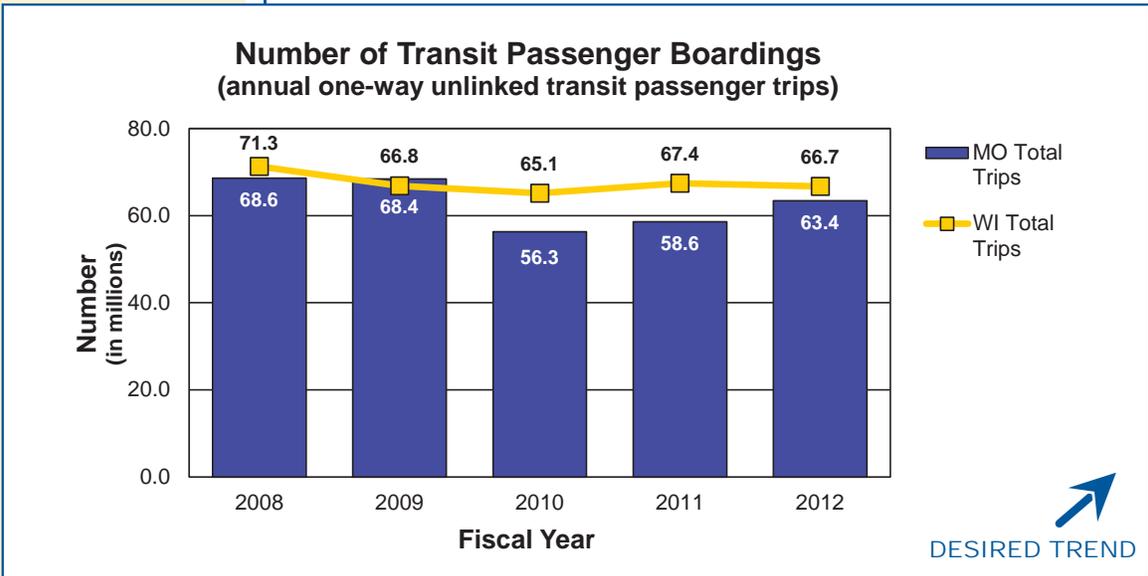
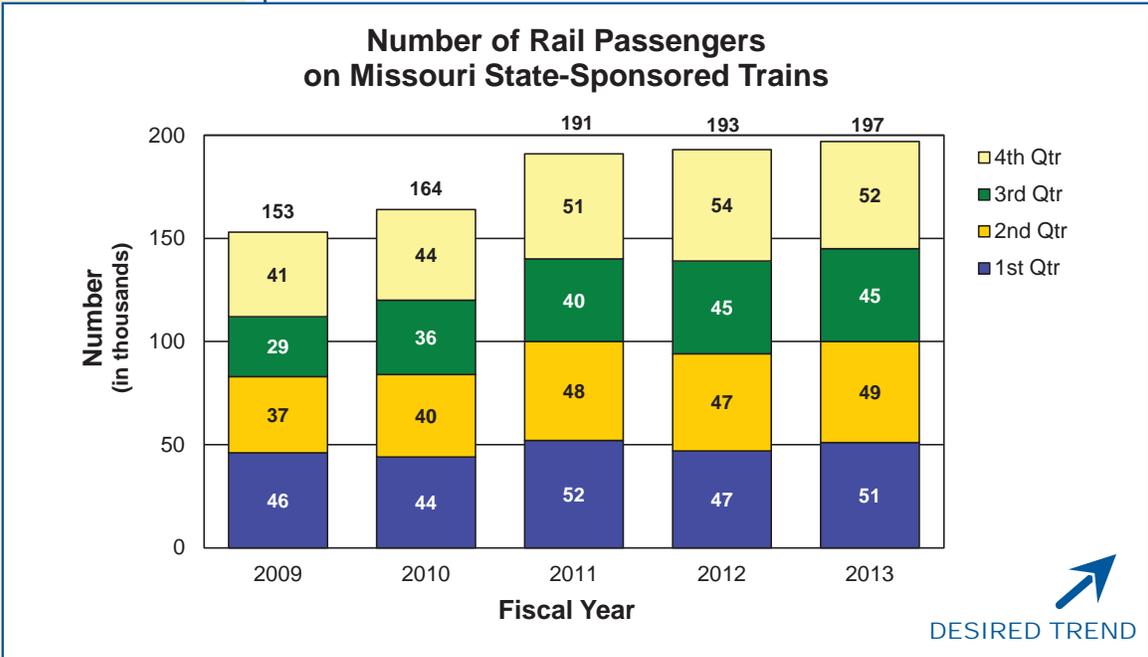
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\*2012 data is based on preliminary individual airport statistics. FAA publishes data in October for the preceding year.



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