

APRIL 2017



# Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE

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## Greetings from MoDOT



Welcome to *Tracker*, MoDOT's performance management tool that documents our commitment to accountability, innovation and efficiency in order to deliver valuable benefits to Missouri taxpayers.

MoDOT has a proud legacy of wisely managing the state's transportation system and meeting challenges in order to delight our customers and promote a safe and prosperous Missouri.

Despite limited resources, MoDOT has been diligent about maintaining our system in the best condition we can for as long as we can. However, citizens have asked for more transportation options, and I believe they deserve more. It is critical to build a 21<sup>st</sup> century transportation system today in order to fuel our economy and retain our workforce.

We must also work to ensure the safety of those who use the transportation system. That means providing systematic safety improvements, a commitment to law enforcement and emergency response and educational efforts to influence driver behavior. The current "Buckle Up, Phone Down" campaign is our effort to get Missourians and businesses to pledge their commitment to safety belt usage and attentive driving – two practices that we know save lives.

While this report highlights the measures used to monitor our dedication to a world-class transportation experience for Missourians, it is really a testament to the bold ingenuity of our employees who design, build, maintain and operate our \$50 billion transportation assets.

We have built *Tracker* around seven tangible results. These results are outcomes that you expect to see and they guide us in making decisions every day. The performance measures documented on the following pages are designed to help us focus on the progress we are making to achieve these results.

Despite funding constraints, MoDOT continues to be good stewards of taxpayer dollars. Through efficiency and innovation, MoDOT has saved \$4.5 billion since 2007, and invested those savings in the transportation network, completing projects below budget and on time.

I ask that you join me in making the transportation system in our great state all that it can and needs to be.

With warm regards,

A handwritten signature in black ink, appearing to read "Patrick K. McKenna". The signature is fluid and cursive, written over a light blue background.

Patrick K. McKenna

### Mission

*Our mission is to provide a world-class transportation experience that delights our customers and promotes a prosperous Missouri.*

# MoDOT VALUES

## TANGIBLE RESULTS

<b>SAFETY</b> Be Safe	Keep Customers and Ourselves Safe
<b>SERVICE</b> Be Accountable Be Respectful Be Inclusive	Provide Outstanding Customer Service Deliver Transportation Solutions of Great Value Use Resources Wisely
<b>STABILITY</b> Be Bold Be Better Be One Team	Keep Roads and Bridges in Good Condition Operate a Reliable and Convenient Transportation System Advance Economic Development

**So we can be a great organization.**



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# KEEP CUSTOMERS AND OURSELVES SAFE

*Mark Shelton, District Engineer*



# Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE





Safety is a daily commitment for all MoDOT employees. From design and construction to operations and maintenance of the state transportation system, the safety of our customers, partners, and employees is our top priority. We work with our safety partners to promote safe behavior for all users and modes of transportation so everyone goes home safe every day.

## RESULT DRIVER:

Mark Shelton  
District Engineer

## MEASUREMENT

### DRIVER:

Bill Whitfield  
Highway Safety Director

## PURPOSE OF THE MEASURE:

The fatal and serious injury number measures track quarterly, annual and five-year average trends resulting from traffic crashes on all Missouri roadways.

## MEASUREMENT AND DATA COLLECTION:

Missouri law enforcement agencies submit a vehicle accident report form to the Missouri State Highway Patrol to be entered into a statewide traffic crash database. The database automatically updates MoDOT's crash database system, which is part of the Transportation Management System. The rate of fatal and serious injury charts display annual and five-year average fatality and injury rates per 100 million vehicle miles traveled for these same crashes. In addition, the fatality rate chart includes the national average.

# KEEP CUSTOMERS AND OURSELVES SAFE

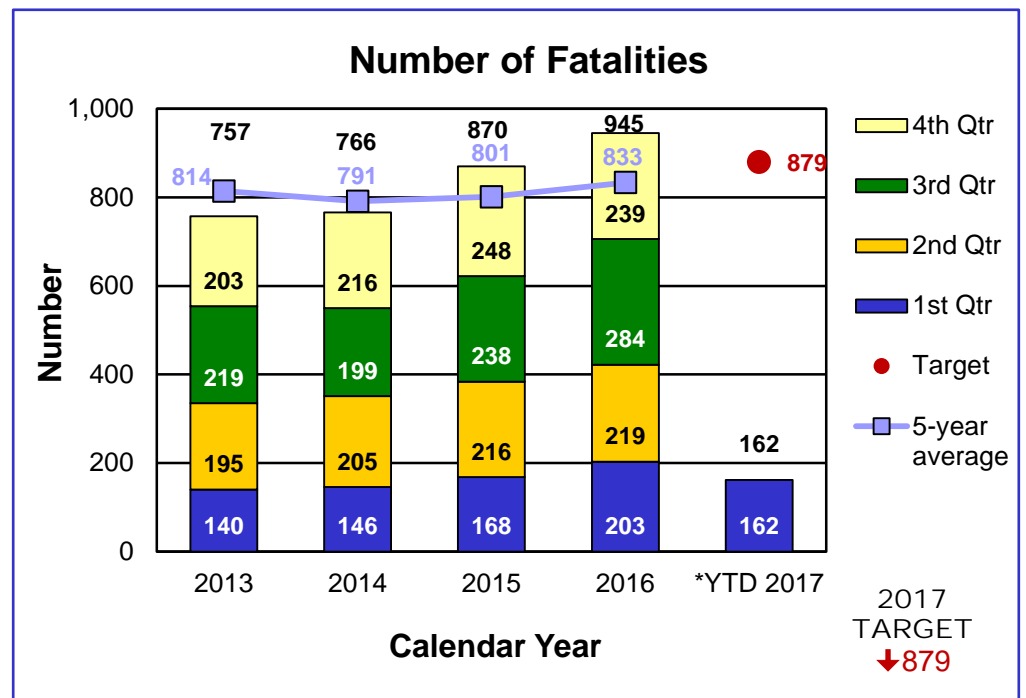
## Number and rate of fatalities and serious injuries – 1a

MoDOT wants everyone to reach their destinations safely, so all can go home to their families each day. *Missouri's Blueprint – A Partnership Toward Zero Deaths* is Missouri's strategic highway safety plan designed to reduce the number and severity of traffic crashes using the four key disciplines of traffic safety: engineering, enforcement, education and emergency response.

Missouri has experienced a 25 percent increase in fatalities since 2013. In 2013, 757 lives were lost on our roadways compared to 945 in 2016. Unofficial reporting for 2016 shows 945 fatalities on Missouri roadways – a 8.6 percent increase over 2015. Of the 2016 vehicle occupant fatalities, 63 percent were unrestrained. Driver error contributes to 94 percent of traffic crashes nationwide. Missouri's top crash types are:

- Run-off-road and curves
- Head-on collisions
- Collision with trees and poles
- Intersection collisions
- Aggressive driving
- Unrestrained occupants
- Substance impaired driving
- Distracted and inattentive driving
- Younger and older drivers
- Motorcyclists
- Pedestrians
- Commercial motor vehicle crashes

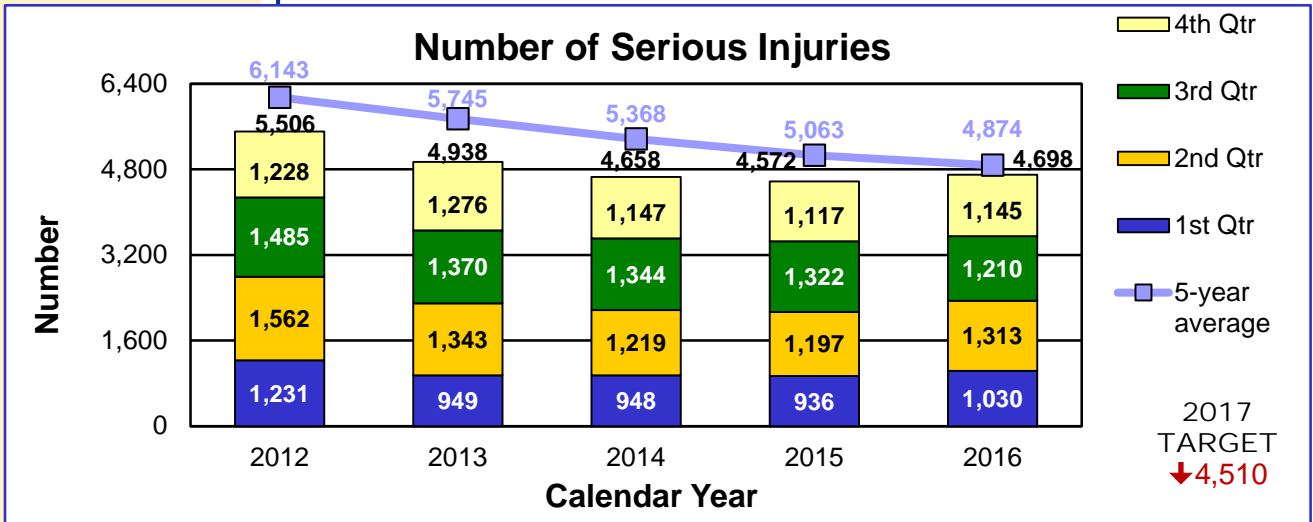
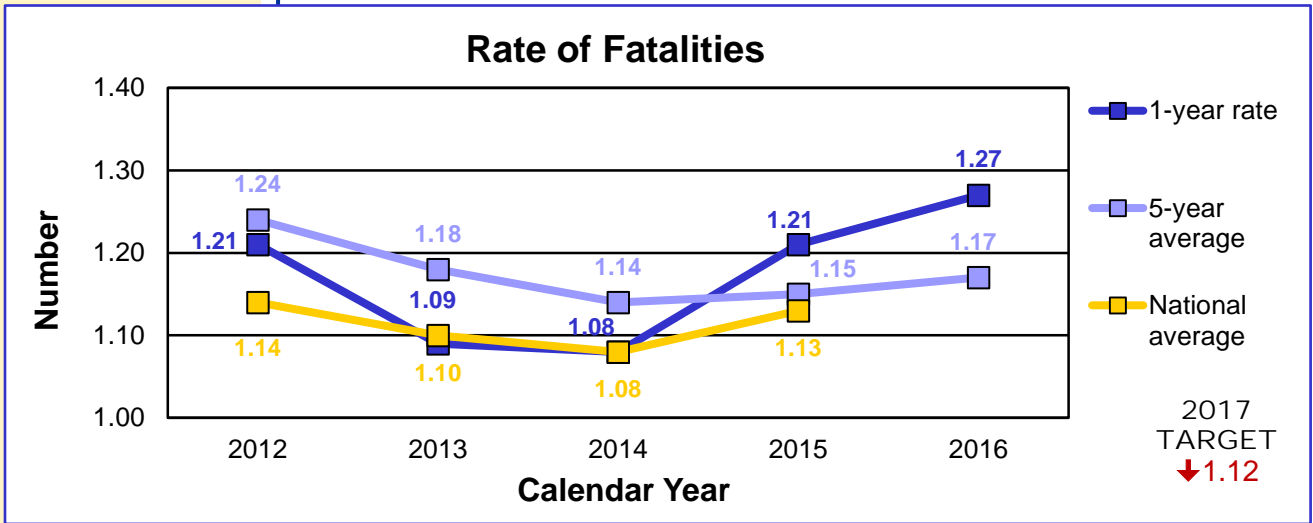
From 2012 to 2015, the number of serious injuries declined by nearly 17 percent. The rate of serious injuries, which factors in the number of miles driven, declined by nearly 29 percent. Reporting in 2016 indicates a 2.75 increase in serious injuries.



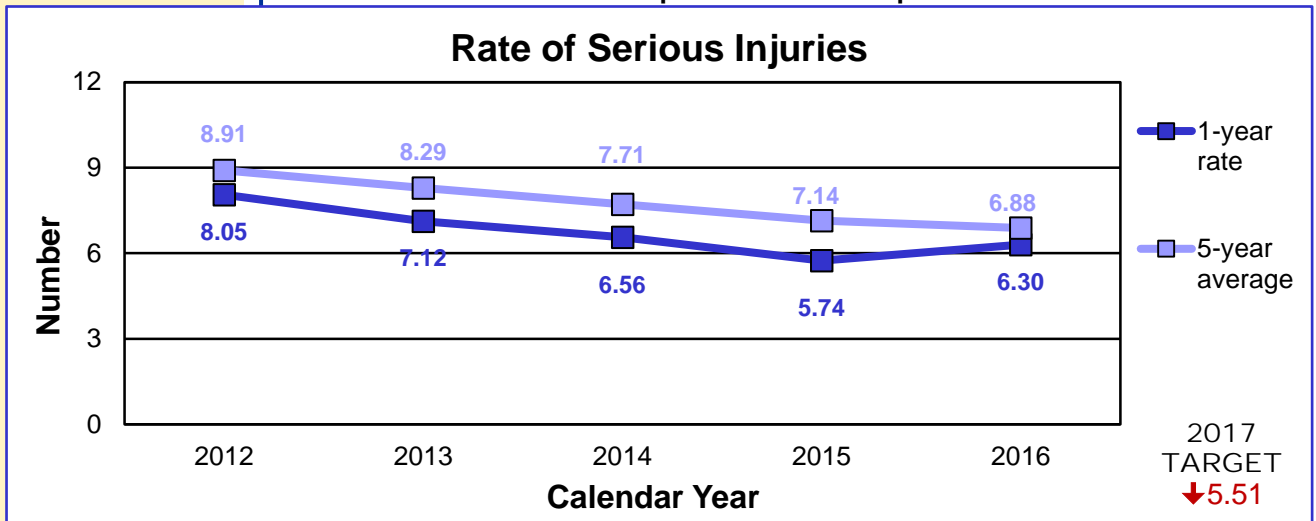
\*YTD 2017 – First quarter fatalities were derived from MSHP radio reports.



# KEEP CUSTOMERS AND OURSELVES SAFE



\*2016 – Due to a backlog of crash reports into STARS, the serious-injury measure only includes data derived from TMS. First quarter 2017 data is not available on the MSHP radio reports and is incomplete in TMS.



## RESULT DRIVER:

Mark Shelton  
District Engineer

# KEEP CUSTOMERS AND OURSELVES SAFE

## MEASUREMENT

### DRIVER:

Bill Whitfield  
Highway Safety Director

## *Number of vulnerable roadway user fatalities and serious injuries – 1b*

## PURPOSE OF THE MEASURE:

The vulnerable roadway user measure tracks annual trends in fatalities and serious injuries of motorcyclists, pedestrians and bicyclists. These roadway users are at risk for death or serious injury when involved in a motor-vehicle-related crash.

In 2015, vulnerable roadway users were 24 percent of the total number of fatalities. Pedestrian fatalities increased in 2015 by 51 percent. Motorcycle fatalities increased by 6 percent and bicycle fatalities increased by 125 percent.

Motorcycle and bicycle serious injuries increased in 2015, meanwhile pedestrians decreased. Serious injury data for 2015 is incomplete.

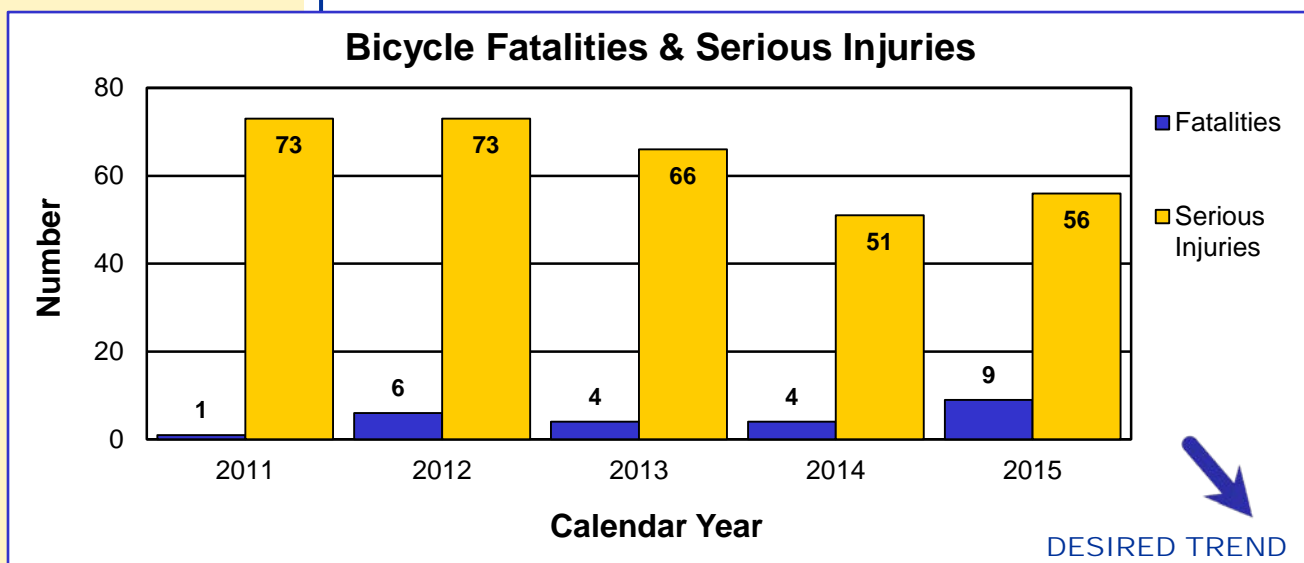
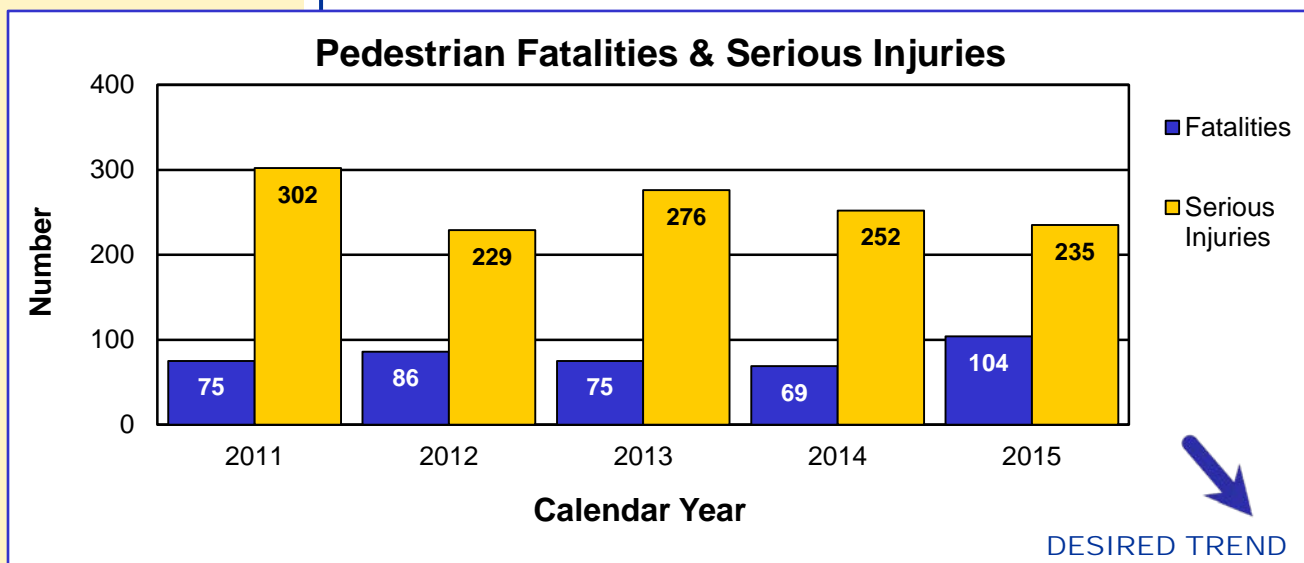
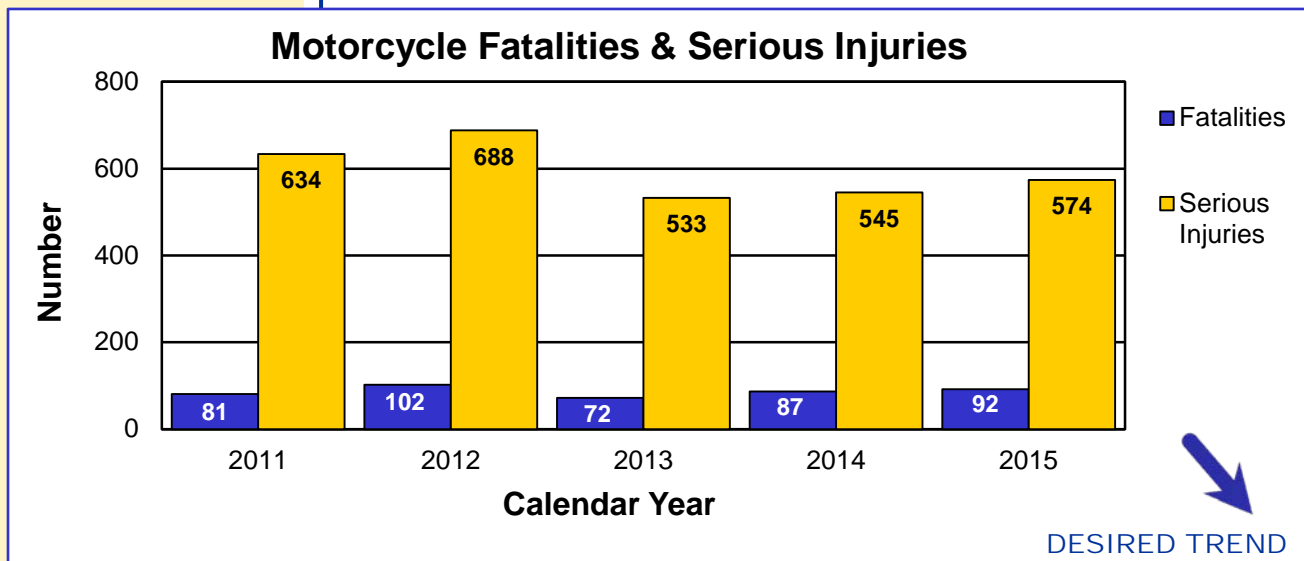
## MEASUREMENT AND DATA COLLECTION:

Missouri law enforcement agencies submit a vehicle accident report form to the Missouri State Highway Patrol to be entered into a statewide traffic crash database. The database automatically updates MoDOT's crash database system, which is part of the Transportation Management System.





# KEEP CUSTOMERS AND OURSELVES SAFE



## RESULT DRIVER:

Mark Shelton  
District Engineer

# KEEP CUSTOMERS AND OURSELVES SAFE

## *Number of fatalities and serious injuries resulting from the most frequent crash causes – 1c*

## MEASUREMENT DRIVER:

John Miller  
Traffic Liaison Engineer

## PURPOSE OF THE MEASURE:

The measure tracks annual trends in motor-vehicle-related fatal and serious injuries resulting from the most common contributing factors or highway features. This data represents six of the top focus areas presented in Missouri's Blueprint to Save More Lives.

## MEASUREMENT AND DATA COLLECTION:

Missouri law enforcement agencies submit a vehicle accident report form to the Missouri State Highway Patrol to be entered into a statewide traffic crash database, which is part of the Transportation Management System. MoDOT staff query and analyze this data to determine the number of unrestrained occupants in crashes, how often aggressive driving, alcohol and other drugs contribute to crashes, and whether or not the vehicles ran off the road, the crash occurred in a curve, or the crash occurred at an intersection.

The Highway Patrol experiences a lag in data entry each year which prohibits MoDOT from using current complete crash data. This lag is being reduced through a combination of efforts involving not only manual data entry, but also an increased emphasis in electronic data entry.

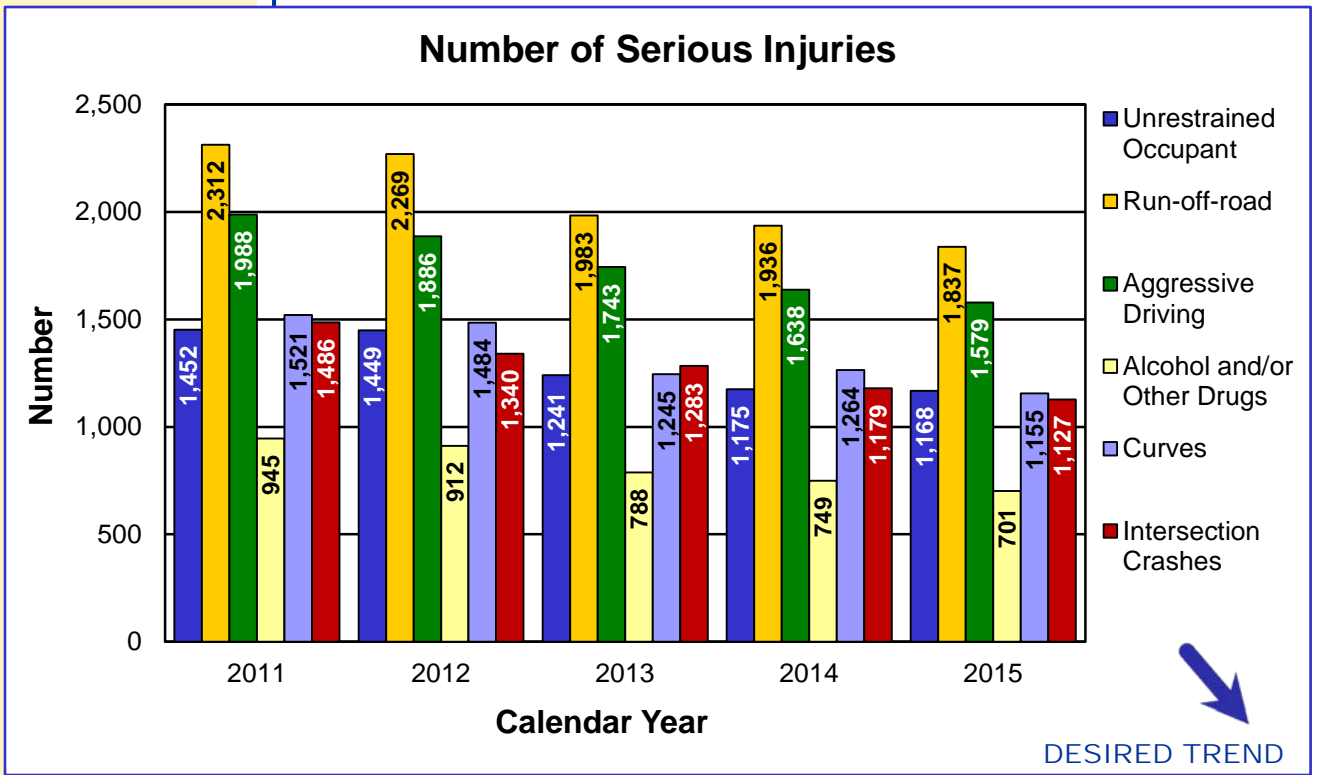
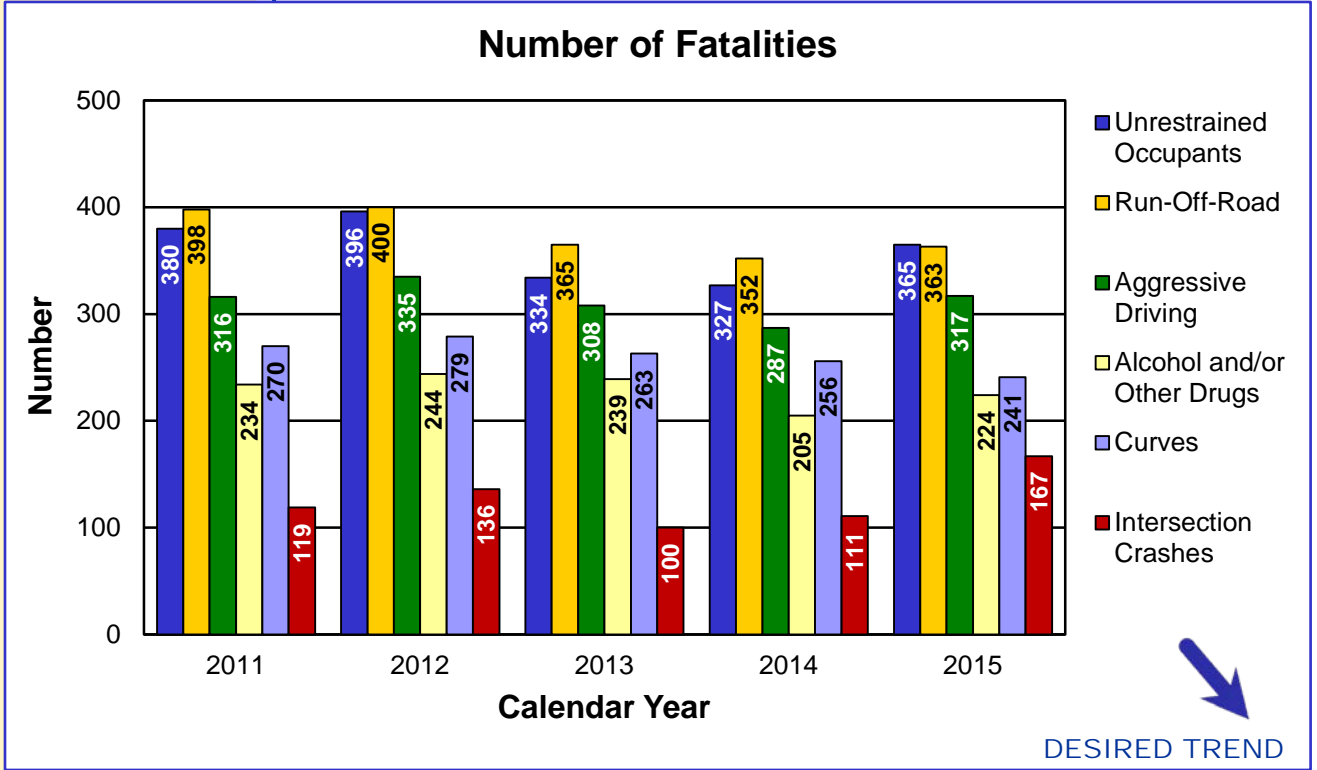
Recording and monitoring crash data is an important part of improving safety for Missouri drivers. But without looking at the causes of these incidents, the data is nothing but numbers. Looking for the reasons why an incident occurs is MoDOT's best approach to address the problem. With that approach, the department finds the most frequent causes continue to be a mix of engineering and behavioral issues.

The general trend for fatalities is no longer declining in Missouri, but instead beginning to increase. The serious injuries trend is beginning to level off. Comparing the number of fatalities in 2014 to 2015 shows large increases in unrestrained occupants (12 percent), aggressive driving (10 percent), alcohol and/or other drugs (10 percent), and intersection related (50 percent), moderate increases in run-off-road (3 percent) and an actual decrease in curve related (6 percent reduction). Comparing the number of serious injuries in 2014 to 2015 shows moderate decreases in unrestrained occupants (1 percent), run-off-road (5 percent), aggressive driving (4 percent), alcohol and/or other drugs (6 percent), curve related (9 percent) and intersection related (4 percent).

With increased traffic on Missouri roadways, it will be difficult to change the current trends for each of these causes. The primary current initiatives include adding shoulders and rumble strips to minor roads, installing high-friction surface treatments and improving intersection safety. While driver behavior is difficult to correct, MoDOT continues to focus on using funds to target locations and behaviors based on crash data analysis.



# KEEP CUSTOMERS AND OURSELVES SAFE



## RESULT DRIVER:

Mark Shelton  
District Engineer

# KEEP CUSTOMERS AND OURSELVES SAFE

## Number of fatalities and serious injuries in work zones – 1d

## MEASUREMENT DRIVER:

Julie Stotlemeyer  
Traffic Liaison Engineer

## PURPOSE OF THE MEASURE:

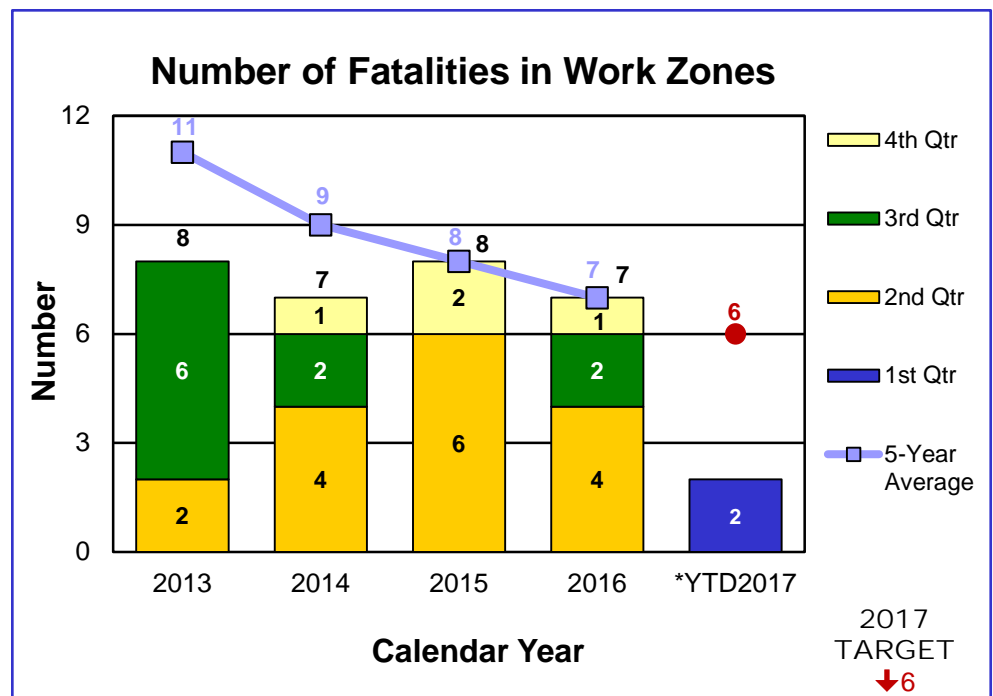
This measure tracks the number of traffic-related and non-traffic-related fatalities, injuries and overall crashes occurring in work zones on state-owned roadways.

## MEASUREMENT AND DATA COLLECTION:

Missouri law enforcement agencies submit a vehicle accident report form to the Missouri State Highway Patrol to be entered into a statewide traffic crash database. The database automatically updates MoDOT's crash database system, which is part of the Transportation Management System. MoDOT staff query and analyze this data to identify work zone related crash statistics. MSHP prioritizes entry of the crash reports by fatality, serious injury and then property damage only.

Work zone safety is at the center of MoDOT's safety culture and the driving force in all maintenance and construction work. Just as MoDOT expects its crews to be safe and visible, it also expects contractors and utility companies to provide safe work zones and visible workers. Staying safe in work zones also is a partnership shared with the driving public. MoDOT wants everyone to get home safely. While MoDOT makes every effort to work safely, motorists need to pay attention, slow down, move over, buckle up and drive without distractions.

Based on information currently available, there have been two work zone crashes that resulted in two fatalities in 2017, a worker and a motorist. Both involved MoDOT vehicles and MoDOT work zones. Work zones are high-risk areas because roadway configurations may be changing, from closing lanes, to shifting traffic, to detouring traffic altogether. Equipment is present and workers are on foot. These conditions can create confined driving and working areas, and traffic may slow or come to sudden stops. Workers and motorists must be paying close attention. Workers must look out for each other, practice safe working practices and use all the devices they can to give drivers warning, be visible and keep everyone safe. Drivers can do their part by being alert, putting the phone down and respecting the workers.

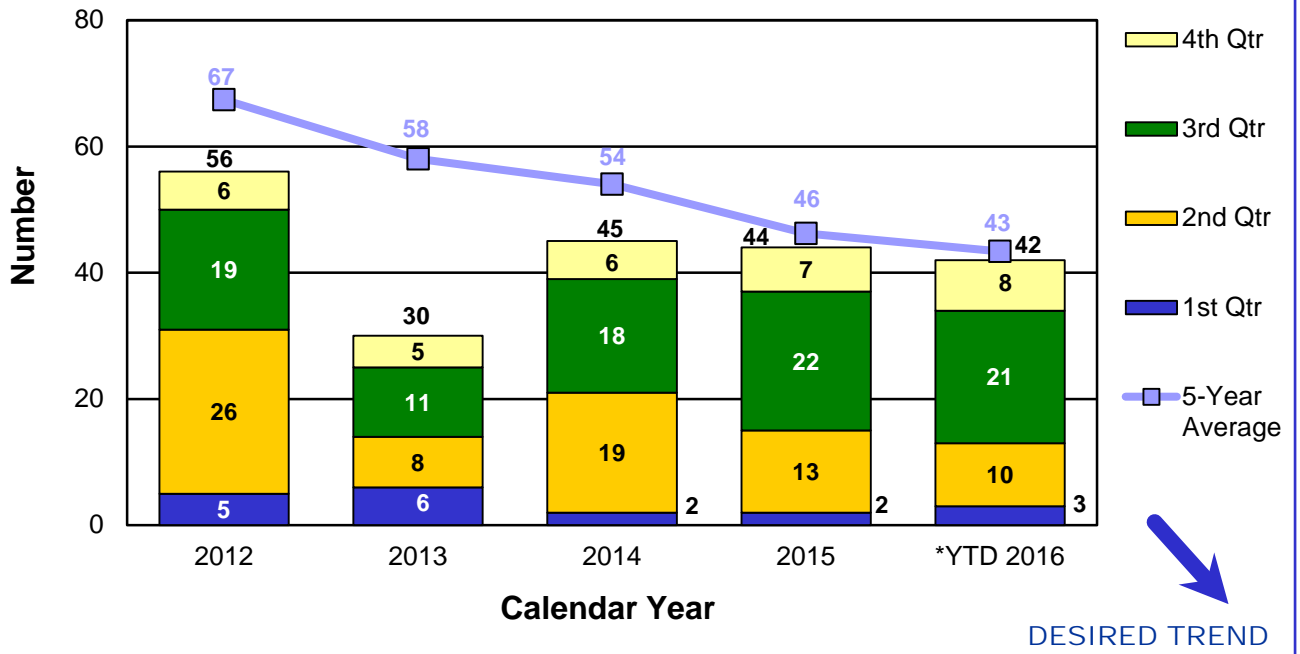


\*YTD 2017 – Fatalities derived from TMS.

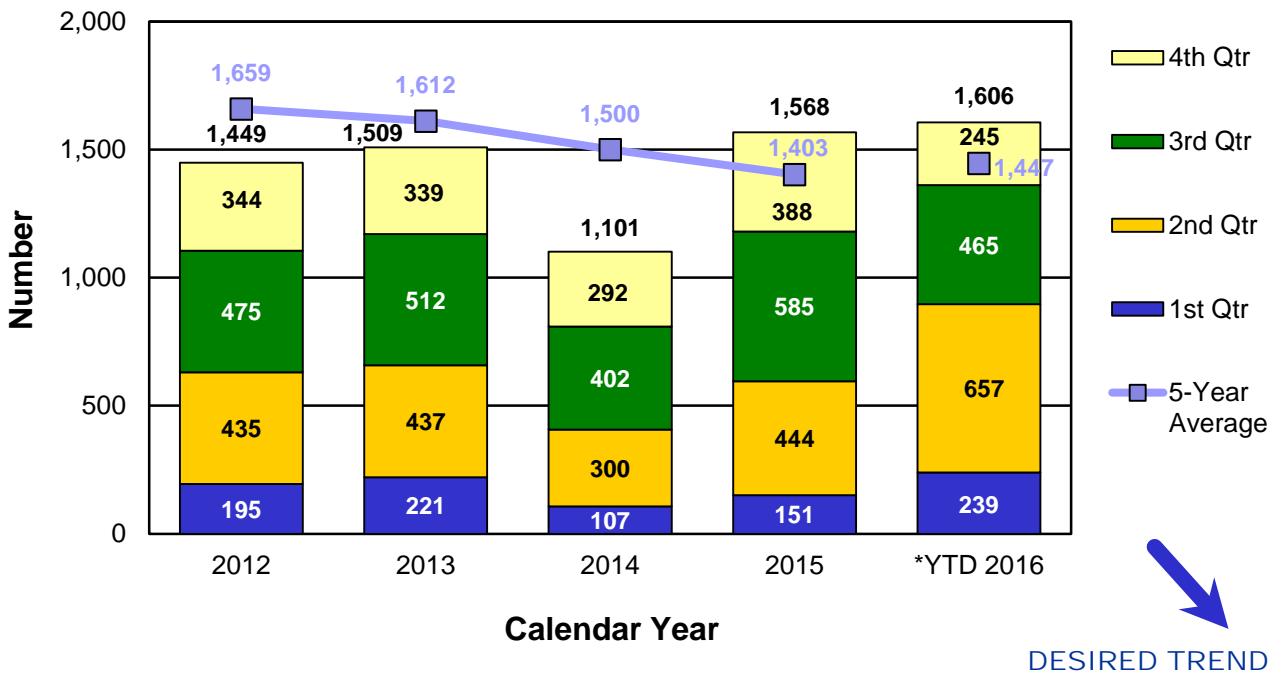


# KEEP CUSTOMERS AND OURSELVES SAFE

## Number of Serious Injuries in Work Zones



## Number of Crashes in Work Zones



\*YTD 2016 – Due to a backlog of crash reports into STARS, serious injury and crash measures are not final and only illustrate data derived from TMS. First quarter 2017 data is unavailable through the MSHP radio reports and is incomplete in TMS.

**RESULT DRIVER:**

Mark Shelton  
District Engineer

# KEEP CUSTOMERS AND OURSELVES SAFE

**MEASUREMENT  
DRIVER:**

Scott Jones  
Highway Safety Program  
Administrator

**PURPOSE OF  
THE MEASURE:**

This measure tracks annual trends in seat belt use in passenger vehicles. This data drives the development and focus of the Missouri Highway Safety Plan and supports Missouri's Blueprint to Save More Lives.

**MEASUREMENT AND  
DATA COLLECTION:**

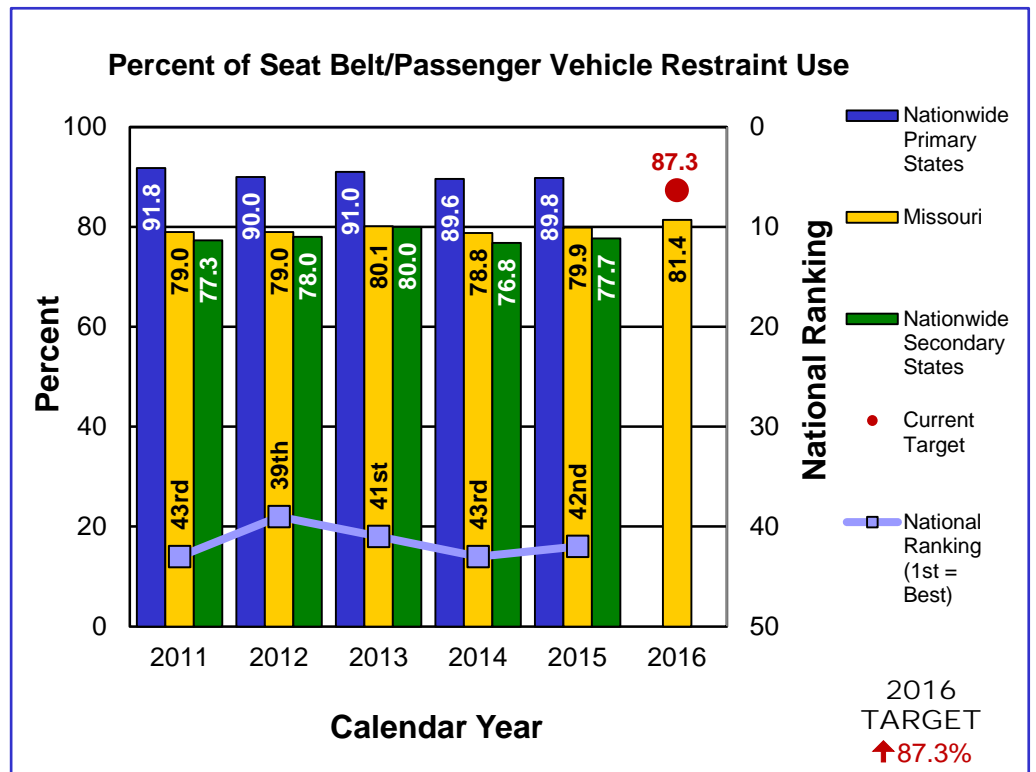
Each June, a statewide survey is conducted at 560 preselected locations in 28 counties. The data collected is calculated into a seat belt usage rate using a formula approved by the National Highway Traffic Safety Administration. Data collection locations represent 85 percent of the state's vehicle occupant fatalities. The data collection plan is the same each year for consistency and compliance with NHTSA guidelines.

## Percent of seat belt/passenger vehicle restraint use – 1e

Seat belts save lives, but getting people to use them – even to protect their own lives – is a challenge. Public education is one way to keep the issue in front of motorists. Legislation is another. MoDOT supports each approach, attacking the problem with focused marketing campaigns and reinforcing it with hard facts to back legislative efforts. Several municipalities across the state are taking matters into their own hands enacting primary ordinances within city limits. Missouri currently has 53 municipalities and two counties that have adopted primary seat belt ordinances, representing 23.6 percent of the state's population.

Based on 123,678 observations, the seat belt use in Missouri for 2016 was 81.4 percent. Jackson County was the lowest at 63 percent, and Montgomery County was the highest at 95.4 percent. The national average for seat belt use in 2015 was 88 percent. The 2016 data is not yet available. Missouri's national ranking in 2015 was 42<sup>nd</sup>, with only eight states ranking lower in seat belt usage.

States with a primary seat belt law rank highest on seat belt use nationwide. States that have a secondary law continue to rate lowest in national rankings.



RESULT DRIVER:  
Mark Shelton  
Southeast District Engineer

## KEEP CUSTOMERS AND OURSELVES SAFE

### *Number and rate of fatality and serious injury crashes involving commercial motor vehicles – 1f*

#### MEASUREMENT DRIVER:

Steff Copeland  
Motor Carrier Services  
Investigations Administrator

#### PURPOSE OF THE MEASURE:

This measure tracks the number of Commercial Motor Vehicles involved in fatal and serious injury crashes and compares those annual totals to the number of vehicle miles traveled annually by commercial motor vehicles. MoDOT uses the information to target education, enforcement and improvement of safety features.

#### MEASUREMENT AND DATA COLLECTION:

Missouri law enforcement agencies submit a vehicle accident report form to the Missouri State Highway Patrol to be entered into a statewide traffic crash database. The database automatically updates MoDOT's crash database system, which is a part of the Transportation Management System. The rate of fatal and serious injury charts display the annual fatality and injury rates per 100 million vehicle miles traveled for commercial motor vehicles for these same crashes. Crash rate data is reported annually.

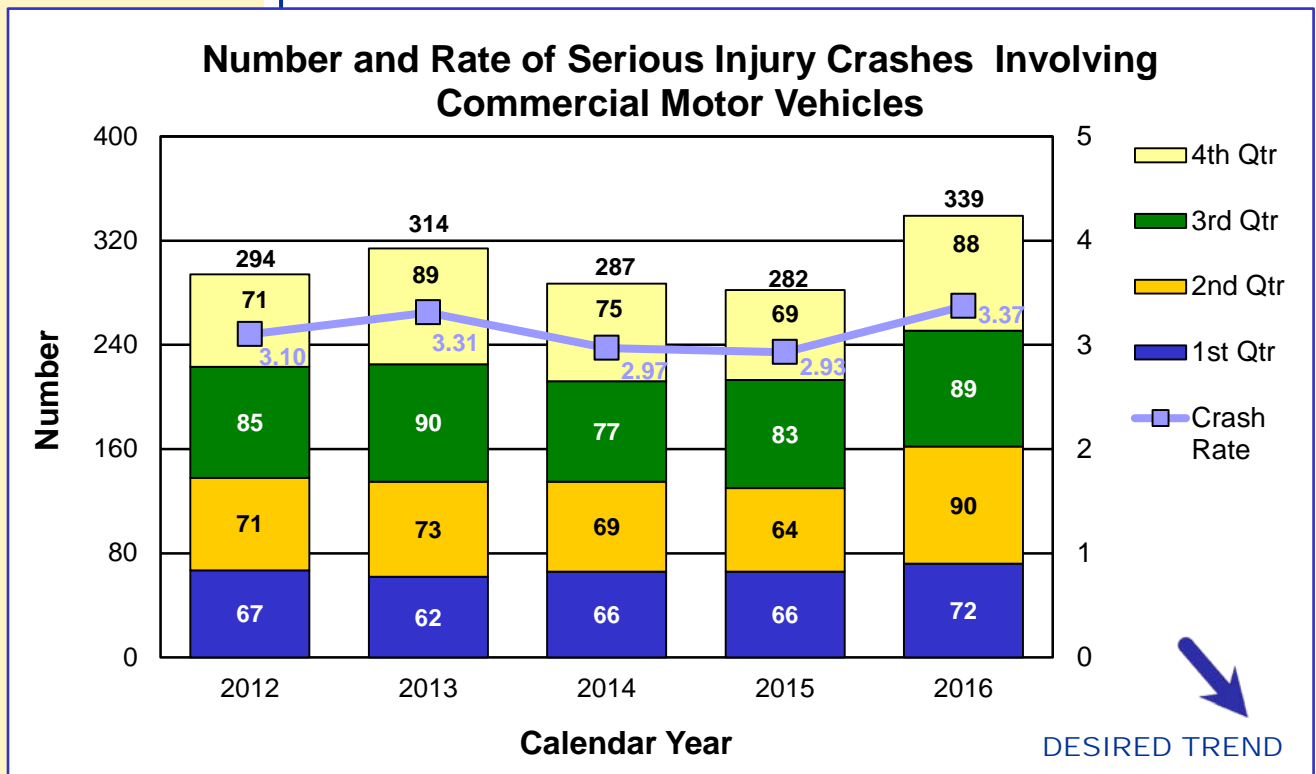
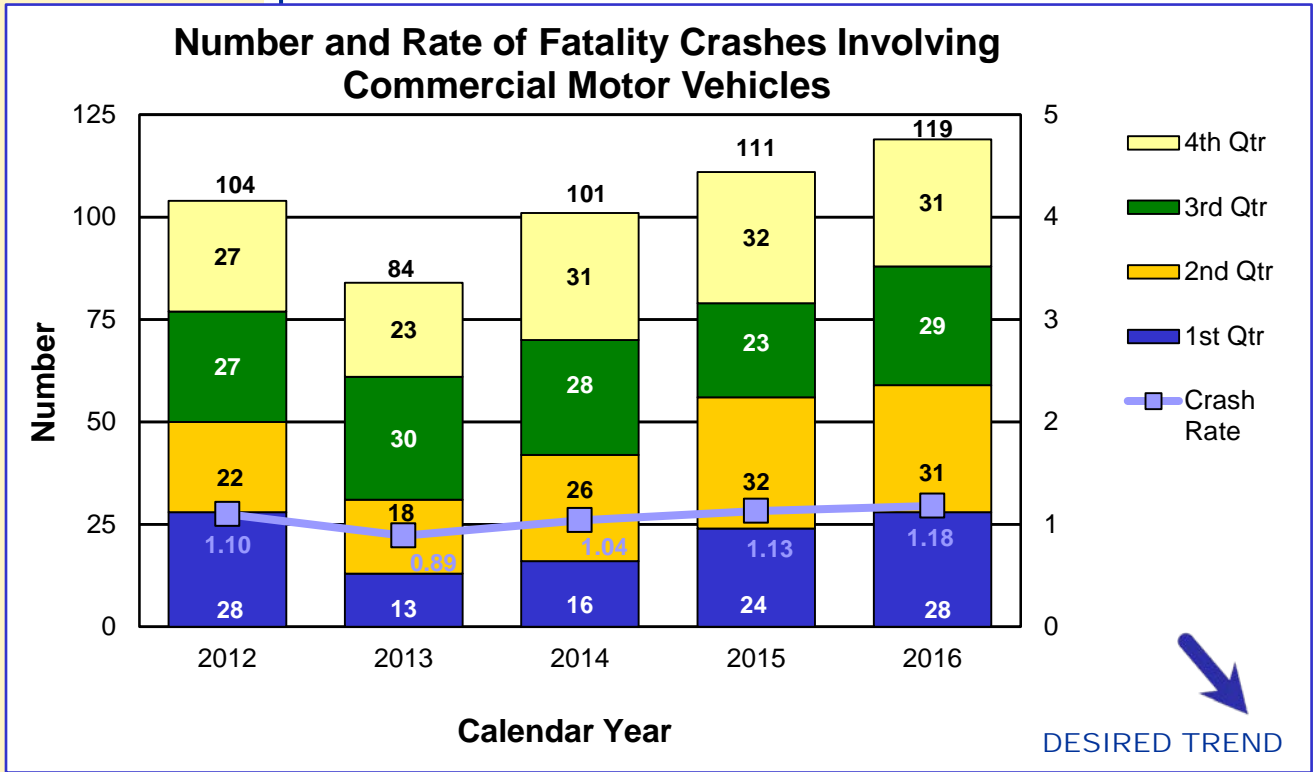
Commercial motor vehicles are the lifeblood of Missouri's economy. They transport the goods and materials that keep the nation moving. Partnering with the Missouri State Highway Patrol and St. Louis and Kansas City police departments, MoDOT does everything in its power to keep CMV drivers safe and their vehicles on the road. By tracking the number of CMV crashes resulting in fatalities and serious injuries, MoDOT can target educational and enforcement efforts, and also improve safety features such as highway signs, reflective pavement markings, guard cables, rumble strips and incident management alert signs.

While efforts from all agencies combined are beneficial and have effectiveness, Missouri is experiencing an increase in the number and rate of fatality and serious injury crashes. Between 2012 and 2016, fatal crashes involving a CMV increased by 14.4 percent and the fatality crash rate increased from 1.10 to 1.18 per 100 million CMV vehicle miles traveled. In 2016, the 119 fatality crashes Missouri experienced is eight more than 2015 or a 7.2 percent increase. This resulted in a 2016 crash rate of 1.18 as compared to the 1.13 rate for 2015.

Between 2012 and 2016, serious injury crashes involving a CMV increased by 15.6 percent and the serious injury crash rate increased from 3.10 to 3.37 per 100 million CMV vehicle miles traveled. The 340 serious injury crashes Missouri experienced in 2016 is 51 more than reported for 2015 or a 17.6 percent increase. This resulted in a 2016 crash rate of 3.37 as compared to the 2.93 rate for 2015.



# KEEP CUSTOMERS AND OURSELVES SAFE



Due to a backlog of crash reports into STARS, these measures will only illustrate data derived from TMS.



## RESULT DRIVER:

Mark Shelton  
District Engineer

# KEEP CUSTOMERS AND OURSELVES SAFE

## *Total and rate of MoDOT recordable incidents – 1g*

## MEASUREMENT

### DRIVER:

Evan Adrian  
Senior Safety Officer

## PURPOSE OF THE MEASURE:

This measure tracks the number of recordable injuries in total and as a rate of injuries per 100 workers.

## MEASUREMENT AND DATA COLLECTION:

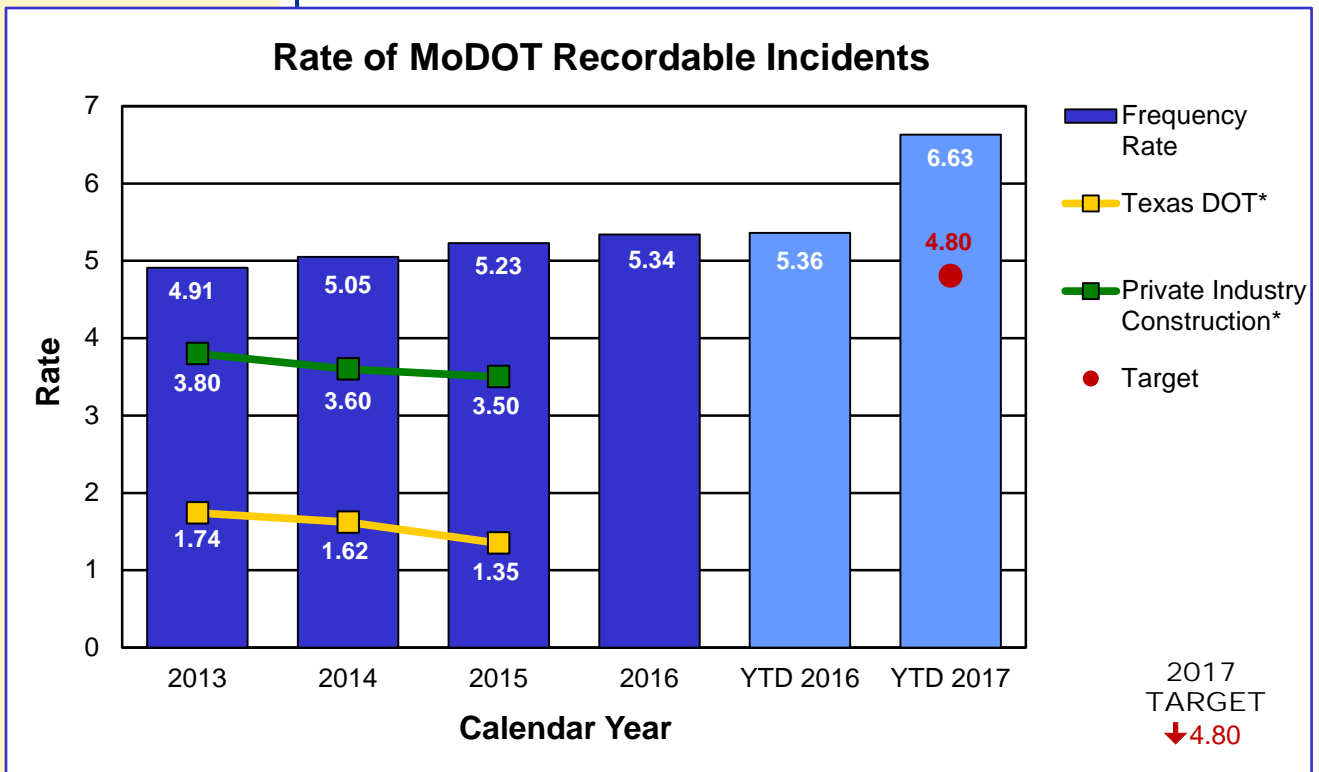
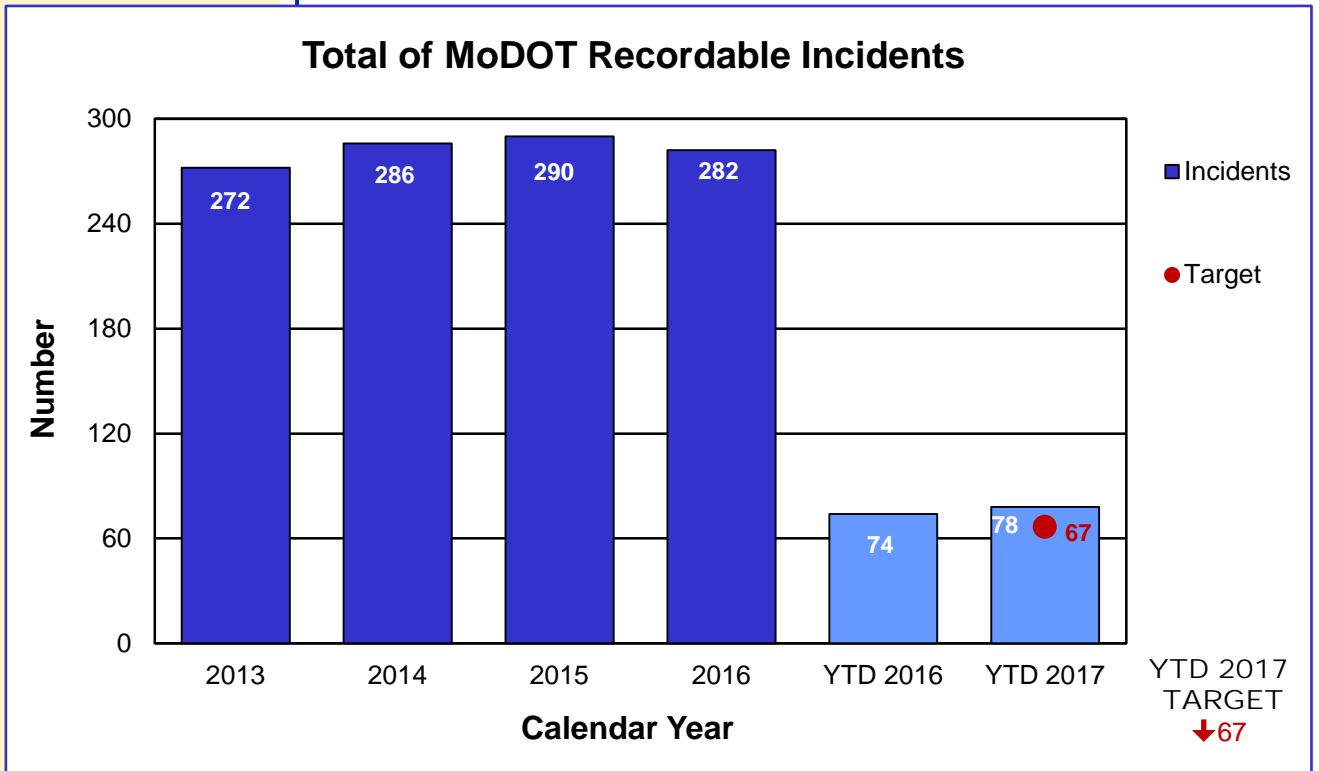
The calculation for incidence rate is the number of recordables times 200,000 divided by the number of hours worked. The 200,000 used in the calculation is the base for 100 full-time workers (working 40 hours per week, 50 weeks per year). MoDOT defines a recordable incident as a work-related injury or illness that results in death, days away from work or medical treatment resulting in cost to the department. The injury data is collected from Riskmaster, the department's risk management claims administration software. The number of hours worked is taken from MoDOT's payroll data.

MoDOT is committed to employee safety. To reinforce this value, the "Safety Begins With Me" program reminds all employees that safety is a personal responsibility. To complement this program, MoDOT has invested in "Behavior Based Safety" training. The program's observation and feedback process will address both behavior and human factors to improve the safety culture. These initiatives are expected to result in fewer recordable incidents. MoDOT has set a feasible target of a 10 percent reduction in incidents per year.

The number of recordable incidents increased in the first quarter of 2017 compared to the first quarter of 2016. The rate of recordable incidents increased 23 percent in this quarter compared to the first quarter of 2016. Leading causes of injuries this quarter were: slips, trips, and falls (22 percent); struck or injured by (15 percent); and caught in, under, or between (14 percent). Based on the work activity being performed at the time of the incident, 28 percent of employee injuries were equipment related, 12 percent were related to material handling and bridge maintenance activities accounted for 11 percent.



# KEEP CUSTOMERS AND OURSELVES SAFE



\*Texas DOT and OSHA private industry data is not yet available for 2016.

## RESULT DRIVER:

Mark Shelton  
District Engineer

# KEEP CUSTOMERS AND OURSELVES SAFE

## *General liability claims and costs – 1h*

## MEASUREMENT

### DRIVER:

Steve Patterson  
Safety and Claims Manager

## PURPOSE OF THE MEASURE:

This measure tracks the number of general liability claims and the amount paid.

## MEASUREMENT AND DATA COLLECTION:

General liability claims arise from allegations of injuries/damages caused by the dangerous condition on MoDOT property and the injury/damage that directly resulted from the dangerous condition. In addition, an employee must be negligent and create the dangerous condition or MoDOT must have actual or constructive notice of the dangerous condition in sufficient time prior to the injury/damage to have taken measures to protect the public against the dangerous condition. Claims data is collected from Riskmaster, the department's risk management claims administration software.

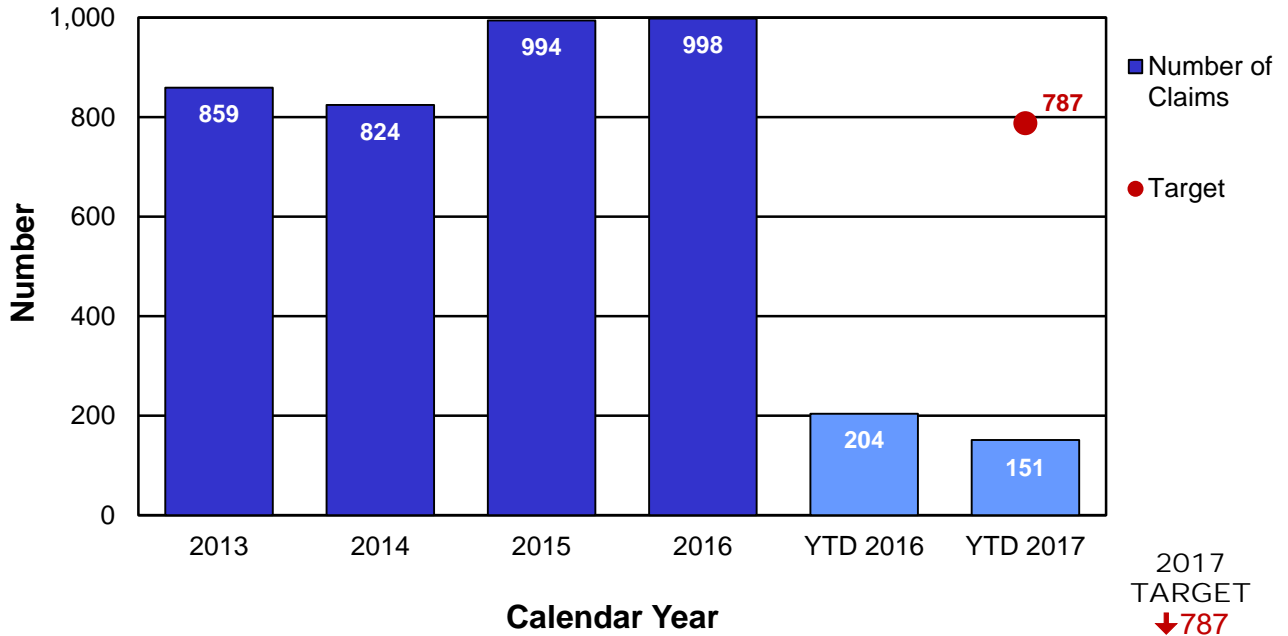
Keeping employees and the public safe is MoDOT's top core value. Controlling damage to vehicles and reducing personal injury in work zones, on right of way and other areas under department control helps MoDOT accomplish this goal. Compared to the first quarter of 2016, there was a 26 percent decrease in the number of claims. The majority of claims were attributed to pavement defects. During the same timeframe, there was a 16 percent increase in the amount paid.

This quarter, payment was made on 87 claims against the department, totaling \$981,621.64. Three claims accounted for 77 percent of this quarter's payments. The department settled a 2013 claim in which the plaintiff lost control on wet and icy pavement. The vehicle struck a snow embankment on an overpass causing it to fall to the lanes below resulting in severe injuries. The embankment was created by MoDOT plowing operations. This case was settled for \$390,000. The department settled a 2014 claim involving a vehicle that lost control on a curve causing several injuries. This case was settled for \$118,000 based on the absence of a curve warning sign. The last claim occurred in 2014 when a semitruck ran off the side of the road and overcorrected causing a head-on collision resulting in a fatality. This claim was settled for \$250,000 based on the allegation of an edge drop off, narrow shoulder and a non-recoverable slope.

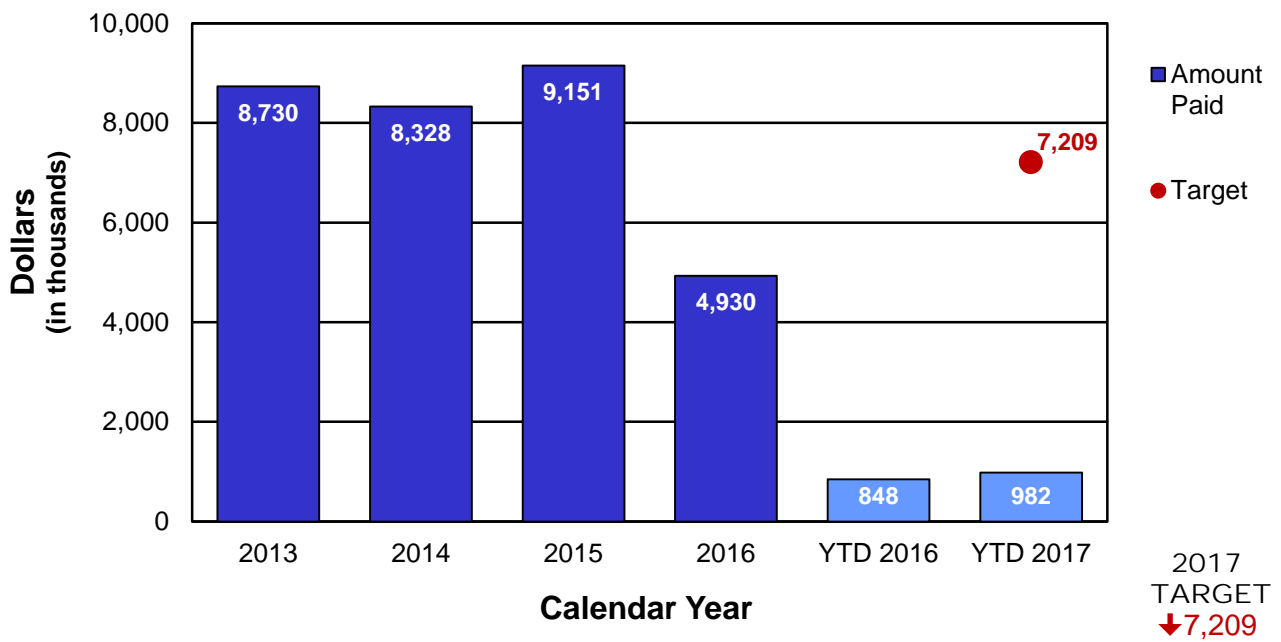


# KEEP CUSTOMERS AND OURSELVES SAFE

## Number of Claims for General Liability



## Amount Paid in Claims for General Liability





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# KEEP ROADS AND BRIDGES IN GOOD CONDITION

*Scott Marion, Motor Carrier Services Director*

The logo for Tracker, featuring a stylized green circle with a crosshair design to its left.

# Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE





Missourians have said they want MoDOT to keep roads and bridges in good condition. Customers are looking for smooth pavements and bridges that can safely handle growing traffic demands. With 33,873 miles of highway and 10,394 bridges on the state system, the challenges are great; however, we are focused on using our limited resources to keep Missouri's roads and bridges in good condition.

**RESULT DRIVER:**  
Scott Marion  
Motor Carrier Services Director

# KEEP ROADS AND BRIDGES IN GOOD CONDITION

**MEASUREMENT  
DRIVER:**  
Steve Engelbrecht  
District Planning Manager

**PURPOSE OF  
THE MEASURE:**  
This measure tracks the  
condition of Missouri's major  
highways.

**MEASUREMENT AND  
DATA COLLECTION:**  
Missouri's major highway  
system contains the state's  
busiest highways, including  
interstates and most U.S.  
routes. It also includes busy  
routes in urban areas,  
particularly where vehicles  
travel between business  
districts and residential areas.  
There are 5,494 total miles on  
the major highway system, and  
the condition of these  
roadways is determined using  
a variety of measures.

While it can be difficult to  
compare one state's roadways  
to another's, MoDOT uses  
Georgia as a comparable  
system because it has a similar  
amount of major highways and  
also bases its evaluation on  
the smoothness of the  
roadways. Missouri measures  
the condition of its roadways  
using smoothness as one  
factor, but also considers  
physical distresses such as  
cracking.

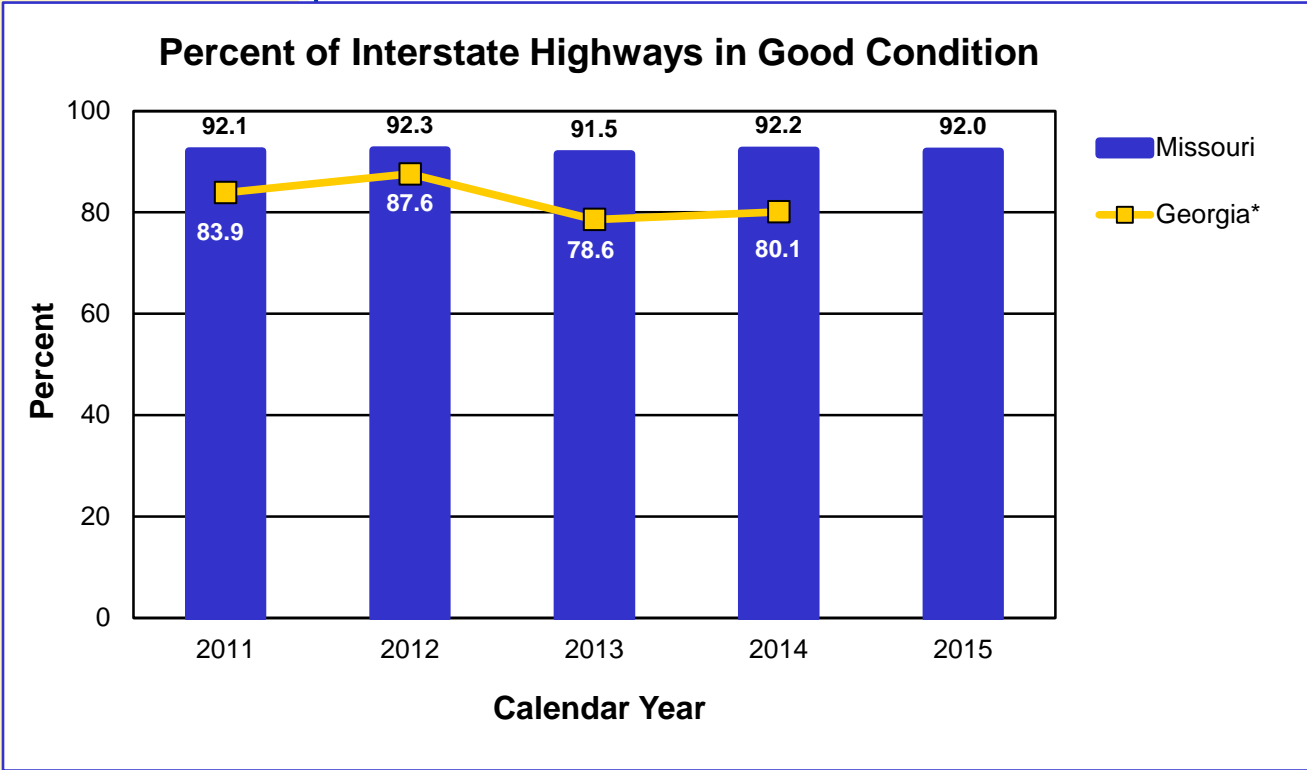
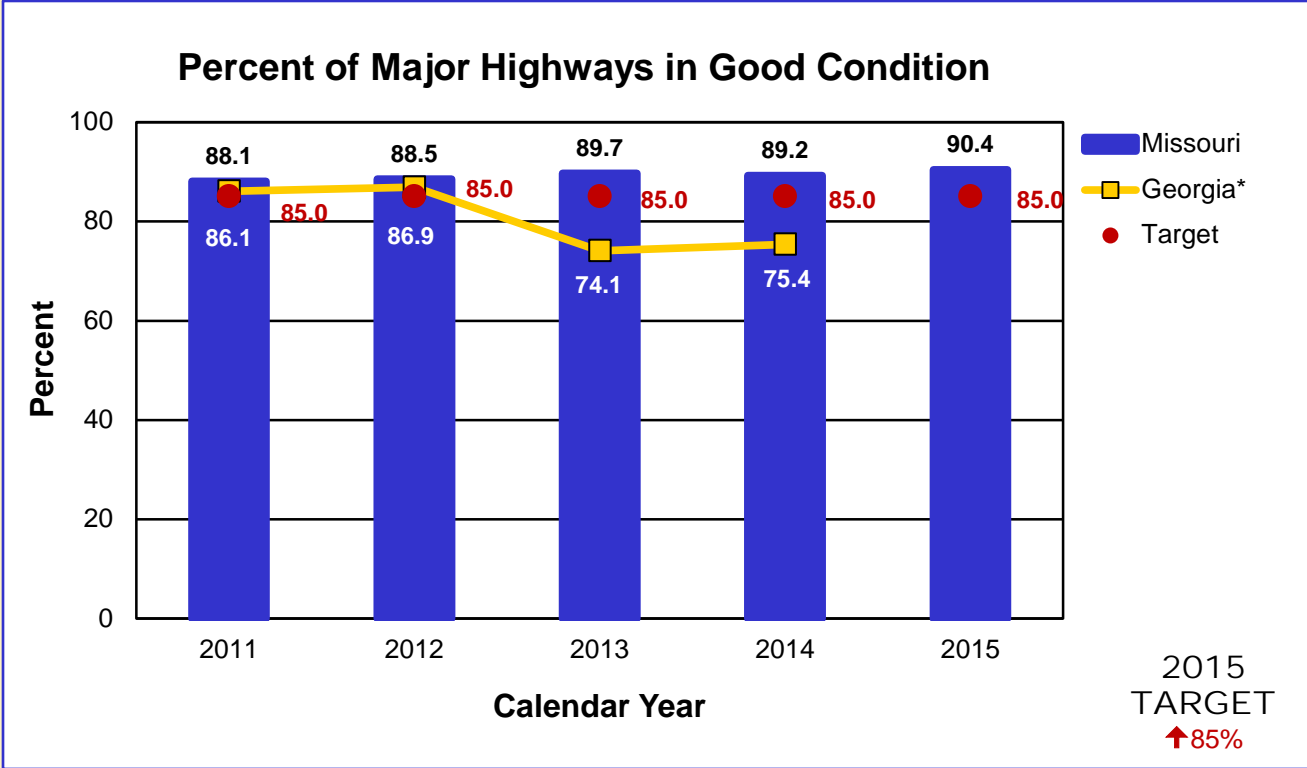
## *Percent of major highways in good condition – 2a*

Missourians have repeatedly told MoDOT keeping roads smooth is a top priority. Over the years, MoDOT has been able to fund pavement improvement programs greatly improving pavement conditions on the thousands of miles of state highways. Currently, more than 90 percent of major highways are rated in good condition.





# KEEP ROADS AND BRIDGES IN GOOD CONDITION



\*Source data for Georgia comes from FHWA highway statistics. Full data sets are collected every two years. The data set for 2014 is not a full data set. Georgia data is based only on pavement smoothness (IRI) submitted as part of the Highway Performance Monitoring System.

**RESULT DRIVER:**  
Scott Marion  
Motor Carrier Services Director

## KEEP ROADS AND BRIDGES IN GOOD CONDITION

### Percent of minor highways in good condition – 2b

**MEASUREMENT DRIVER:**  
Wesley Stephen  
District Planning Manager

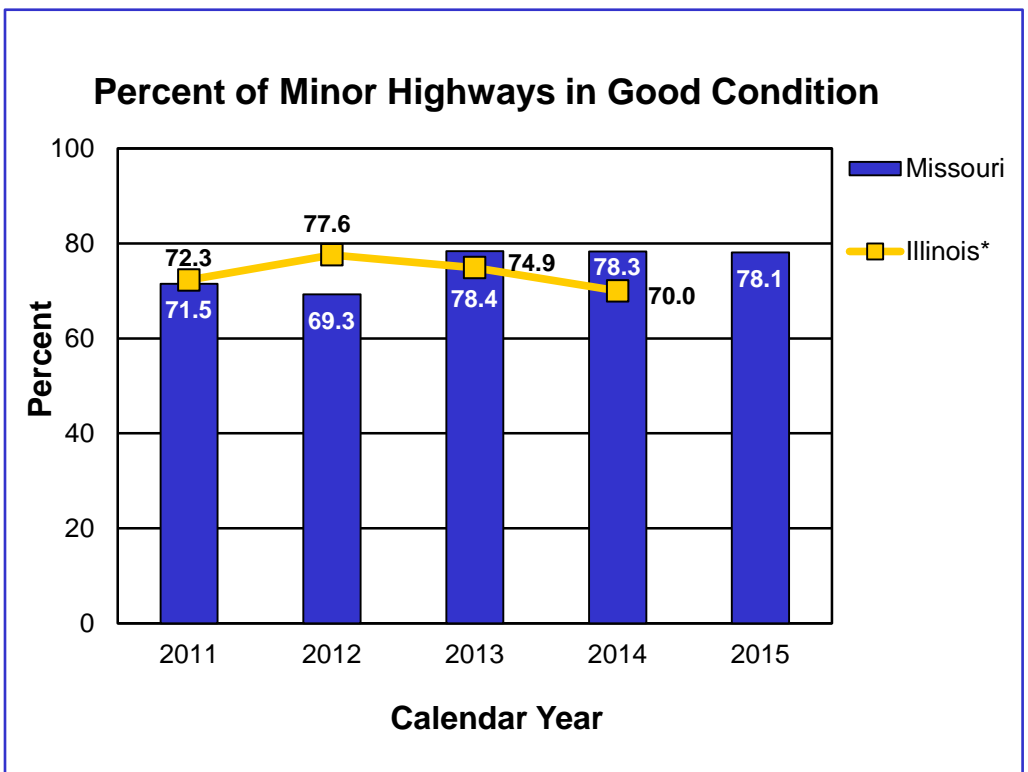
**PURPOSE OF THE MEASURE:**  
This measure tracks the condition of Missouri's minor highways.

**MEASUREMENT AND DATA COLLECTION:**  
Missouri's minor highway system consists of its less-traveled state highways, including those routes that mainly serve local transportation needs. The minor highway system includes most lettered routes. There are 28,379 miles of minor highways in Missouri. The condition of these routes is determined using a variety of measures.

While it can be difficult to compare one state's roadways to another's, MoDOT uses Illinois as a comparable system because it has a similar number of minor highways. Missouri measures the condition of its roadways using smoothness as one factor, but also considers physical distresses such as cracking.

Although minor roads are less traveled, Missourians still say keeping them in good condition is a priority. During the early 2000s, MoDOT's focus was on improving major highways. This resulted in less work being done on minor roads and declining condition ratings. Over the past few years, success on major highways has allowed the department to focus more time and funding on improving minor highways.

Currently, 78 percent of Missouri's minor highways are in good condition, which is slightly below 2014.



**\*Source data for Illinois comes from FHWA highway statistics. Data for 2015 is not available at the time of publication. Data is based on a combination of pavement condition and smoothness as submitted as part of the Highway Performance Monitoring System.**

RESULT DRIVER:  
Scott Marion  
Motor Carrier Services Director

## KEEP ROADS AND BRIDGES IN GOOD CONDITION

### MEASUREMENT DRIVER:

Jerad Noland  
District Design Engineer

### PURPOSE OF THE MEASURE:

This measure tracks progress toward improving the condition of Missouri's bridges.

### MEASUREMENT AND DATA COLLECTION:

This measure is updated in April based on MoDOT inspections conducted the prior year. Data is presented for all state bridges and major bridges. Major bridges are typically those that cross large rivers and lakes and are longer than 1,000 feet. Of the 10,394 bridges on state highways, 206 are major. Bridges are categorized as being in good, fair or poor condition. Good means no significant condition-related problems exist. Fair indicates moderate problems that may require minor rehabilitation or maintenance to return the structure to good condition. Poor indicates a structure that is deficient, requiring either replacement or a major rehabilitation.

### *Condition of state bridges – 2c*

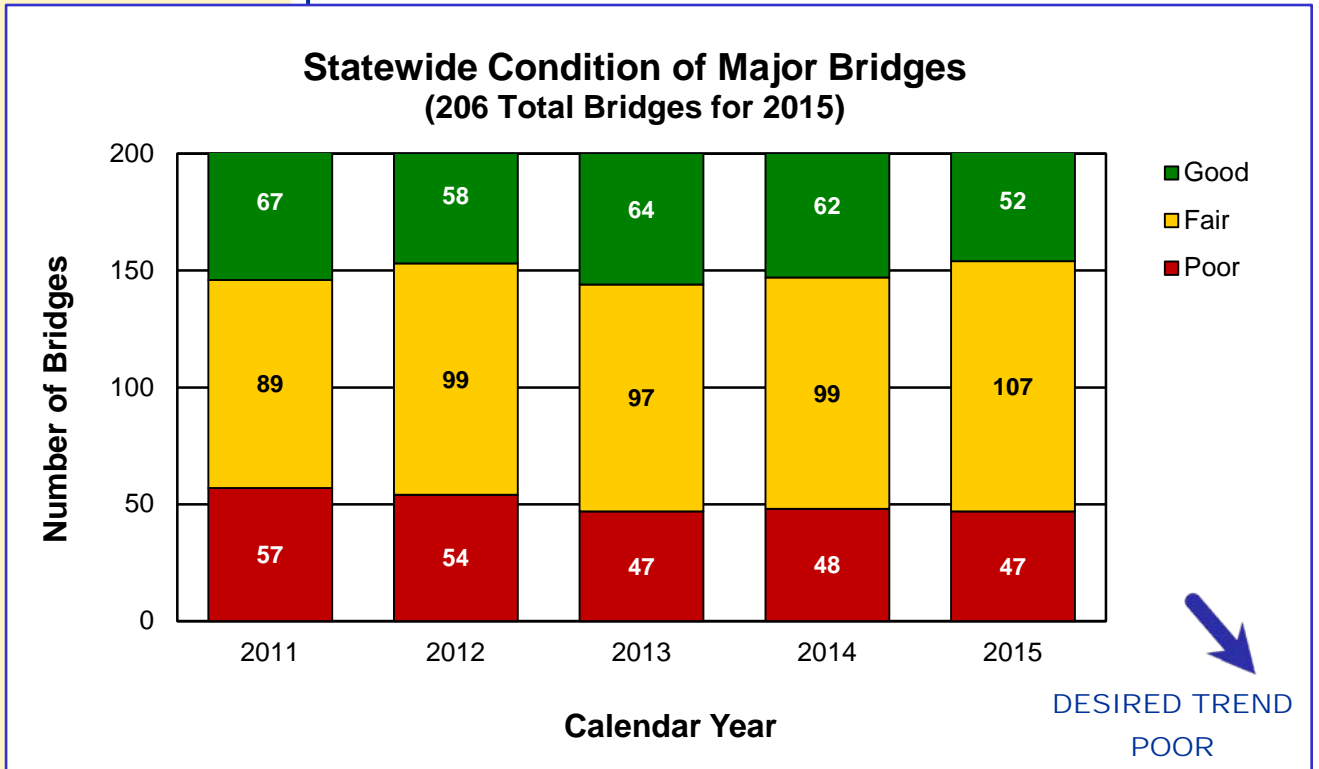
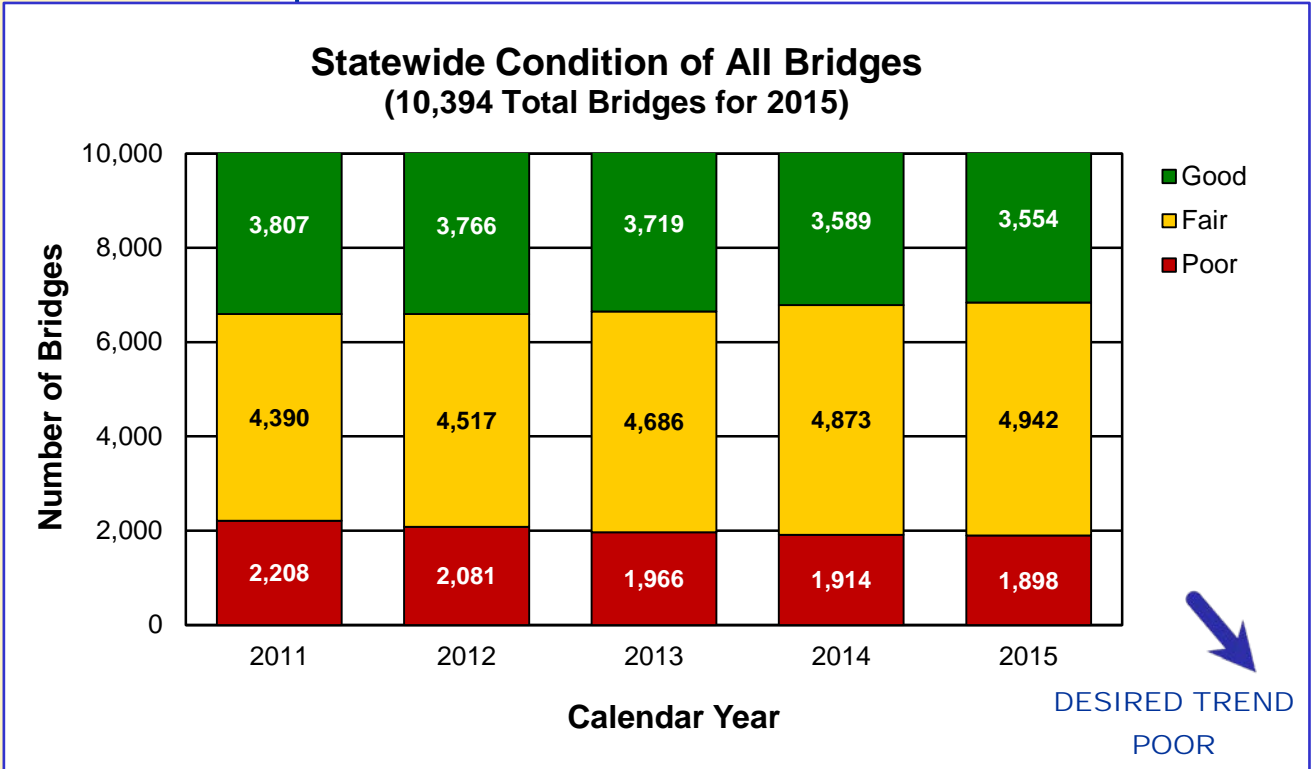
The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. Currently, 1,898 (47 major) structures are in poor condition, 4,942 (107 major) structures are in fair condition and 3,554 (52 major) structures are in good condition.

Statewide, the number of structures in poor condition has steadily decreased over the last five years, but the rate of decline is slowing down. The number of structures in good condition peaked in 2011 and has been declining since. The gradual decrease in the number of poor condition structures is attributable to a significant focus in the STIP on taking care of the worst bridges with the limited funds available. The decline in good bridges demonstrates the fact that the construction program has slowed down with the number of bridges being taken care of within a year being fairly close to the number that are becoming poor condition. This is shown by comparing the drop in poor condition bridges of 310 to the drop in good condition bridges of 253 over the five-year period. The number in fair condition continues to significantly increase which is reflective of MoDOT's aging bridge population with many structures at the point where they need minor maintenance or rehabilitation.

For major bridges, the number of structures in the poor category has generally been dropping over the last five years because of an aggressive focus on these structures in the STIP. However, despite a significant investment in major bridges, the number of structures in good condition generally dropped over the five-year period while the number in fair condition significantly increased. Work on major bridges is expensive with rehabilitations costing \$10 - \$20 million and replacements ranging from \$20 - \$200 million.



# KEEP ROADS AND BRIDGES IN GOOD CONDITION





**RESULT DRIVER:**  
Scott Marion  
Motor Carrier Services Director

# KEEP ROADS AND BRIDGES IN GOOD CONDITION

## Percent of structurally deficient deck area on National Highway System – 2d

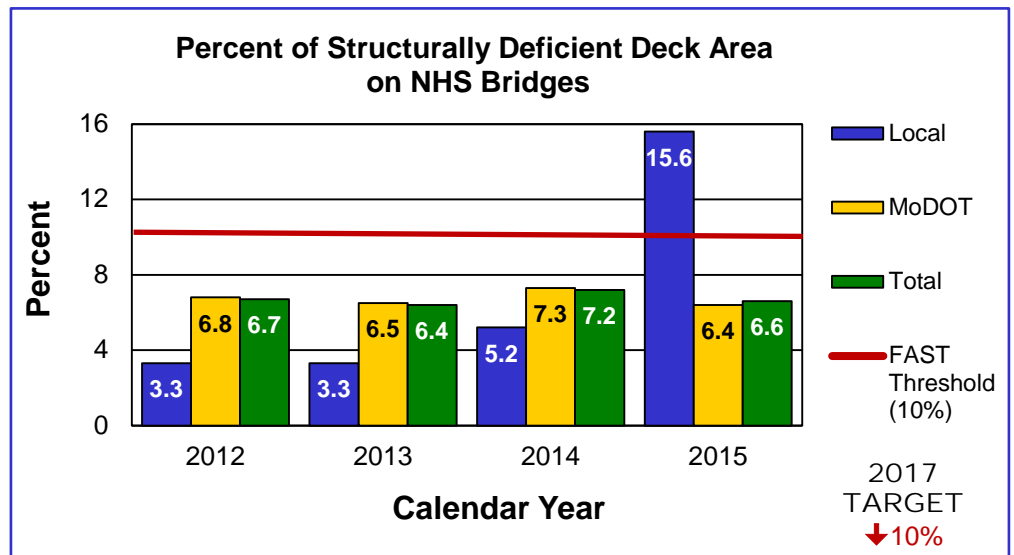
**MEASUREMENT DRIVER:**  
David Wyman  
Area Engineer

**PURPOSE OF THE MEASURE:**  
This measure tracks the percent of structurally deficient deck area for bridges on the National Highway System.

**MEASUREMENT AND DATA COLLECTION:**  
The NHS is defined by federal law and consists of all roadways functionally classified as principal arterials as well as some routes that serve as major connections to multimodal freight-type facilities and some locally owned roadways. Historically, structurally deficient consists of bridges that are in bad condition or have insufficient load capacity when compared to modern design standards. The Fixing America's Surface Transportation Act, requires states to track the structurally deficient deck area. FAST has a penalty clause that kicks in if the percentage of structurally deficient deck area within a state exceeds 10 percent.

The public has indicated keeping Missouri's existing roads and bridges in good condition should be one of the state's highest priorities. The FAST Act established a 10 percent penalty threshold for states. When the threshold is exceeded, the state is required to focus money on bridges until they were back under 10 percent. The local system has 82 NHS structures (three SD) and the MoDOT system has 3,562 NHS structures (138 SD). Missouri currently falls below the penalty threshold with the total at 6.6 percent. This is attributable to the continued efforts at focusing on major bridges when funding is available as well as the increase focus on dealing with the critical condition bridges within the STIP.

Statewide, this measure also is heavily influenced by major bridges because one structure has the ability to impact this measure +/-0.5 percent. When looking at the local system, a large bridge can have a very dramatic impact because of the small number of local structures that are part of the NHS. This is evident in the dramatic change on the local system from 2014 to 2015, which was the result of one newly deficient large structure. The changes on the state system resulted from 48 structures with a large percentage of this change coming from nine structures. The roadways that are included on the NHS are still seeing some minor adjustments, but these changes should have insignificant impacts on the overall numbers.







# PROVIDE OUTSTANDING CUSTOMER SERVICE

*Fay Fleming, Communications Director*

# Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE





Every MoDOT employee is responsible for delivering outstanding customer service. We strive to be respectful, responsive, and clear in all our communication. We want to build strong relationships with our transportation partners, our customers and each other.

**RESULT DRIVER:**  
Fay Fleming  
Communications Director

# PROVIDE OUTSTANDING CUSTOMER SERVICE

## Percent of overall customer satisfaction – 3a

**MEASUREMENT DRIVER:**

Sally Oxenhandler  
District Communications Manager

**PURPOSE OF THE MEASURE:**

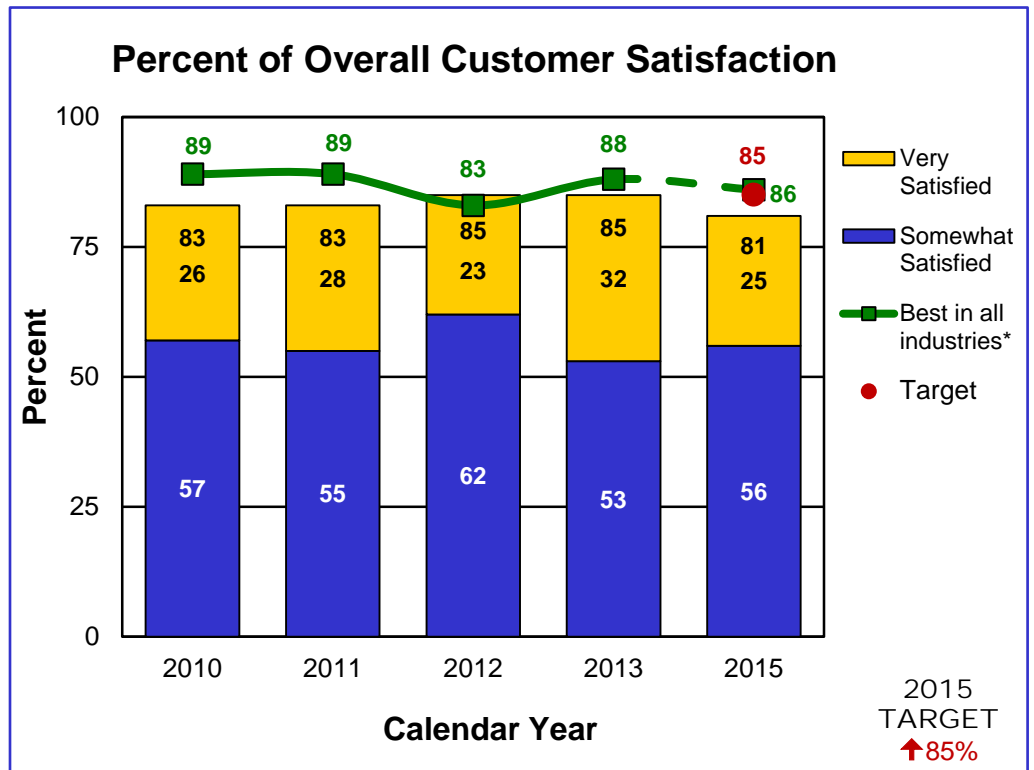
This measure tracks MoDOT's progress toward the mission of delighting its customers.

**MEASUREMENT AND DATA COLLECTION:**

Data is collected through a biennial, in odd-numbered years, telephone survey of approximately 3,500 randomly selected Missourians. Benchmarking data is provided by the American Customer Service Index.

Over the past few years, customer satisfaction has remained high. In 2015, 81 percent of Missourians surveyed said they were satisfied with the job MoDOT is doing, which is a 4 percent decline from 2013. There also was a 7 percent decline in very satisfied customers. Data compiled by the American Customer Satisfaction Index in 2015 shows Chick-fil-A having the highest customer satisfaction rate – 86 percent – out of the hundreds of companies and government agencies the ACSI scores.

The condition of Missouri's roads and bridges and customer satisfaction are closely tied together. In the 2015 Report Card from Missourians, customers told MoDOT the condition of roads and bridges were the most important transportation service to them. However, even with present system conditions remaining good, the department's message of declining system conditions and limited funds to maintain it in the next few years potentially impacted customer perceptions and satisfaction scores.



\*2010-2011 – Lincoln Mercury, 2012 – Apple, Inc., 2013 – Mercedes Benz, 2015 – Chick-fil-A



RESULT DRIVER:  
Fay Fleming  
Communications Director

## PROVIDE OUTSTANDING CUSTOMER SERVICE

### *Percent of customers who view MoDOT as Missouri's transportation expert – 3b*

MEASUREMENT  
DRIVER:  
Gregg Ochoa  
Senior Communications  
Specialist

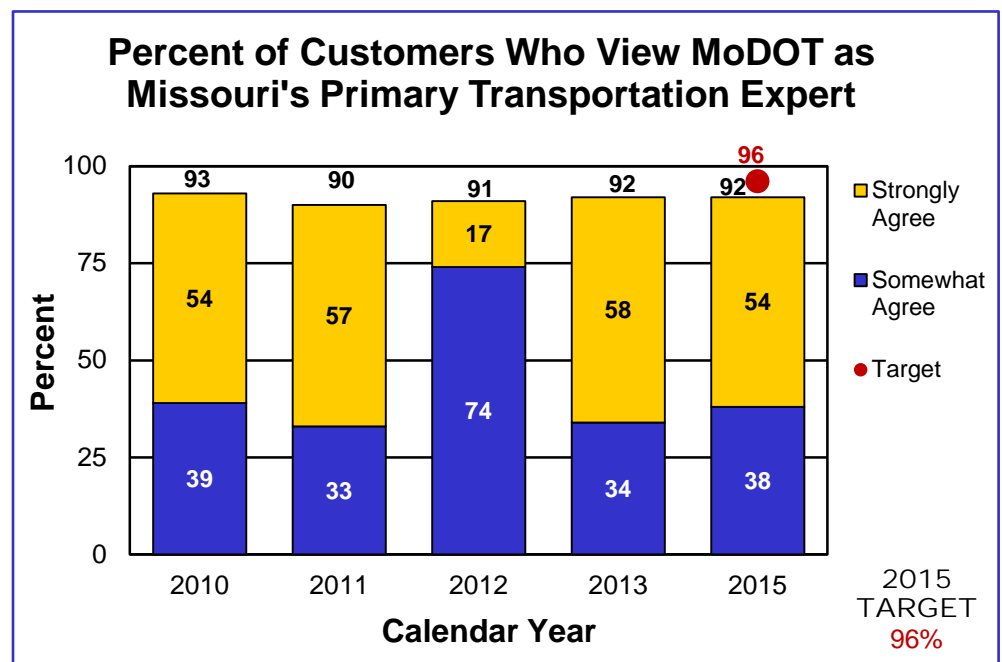
PURPOSE OF  
THE MEASURE:  
This measure tracks the  
percent of customers who view  
MoDOT as a leader and expert  
in transportation issues. The  
measure shows how effectively  
MoDOT conveys its expertise  
to the traveling public.

MEASUREMENT AND  
DATA COLLECTION:  
Data is collected through a  
biennial, in odd-numbered  
years, telephone survey of  
approximately 3,500 randomly  
selected Missourians.

As the agency responsible for transportation in Missouri, MoDOT must hold its lead as an expert in the field. The department should serve as the frontrunner – representing the best transportation options for Missouri and partnering with state and national organizations and others to deliver a strong transportation system.

The 2015 survey shows an overwhelming majority of customers perceive the department as Missouri's transportation expert. Ninety-two percent of those surveyed agreed MoDOT serves this role, a percentage the department has consistently maintained since 2009. Of the 92 percent, 54 percent of respondents "strongly agreed" and 38 percent "somewhat agreed" MoDOT serves as the state's primary transportation expert.

The department continues to work on improving partnerships with all Missourians, including local government, legislators and other elected officials, and transportation-related groups and organizations. The suspension of the cost-share program coupled with Missouri's long-term insufficient transportation funding issues mean these relationships will likely face further challenges.



**RESULT DRIVER:**  
Fay Fleming  
Communications Director

## PROVIDE OUTSTANDING CUSTOMER SERVICE

### *Percent of customers who trust MoDOT to keep its commitments to the public – 3c*

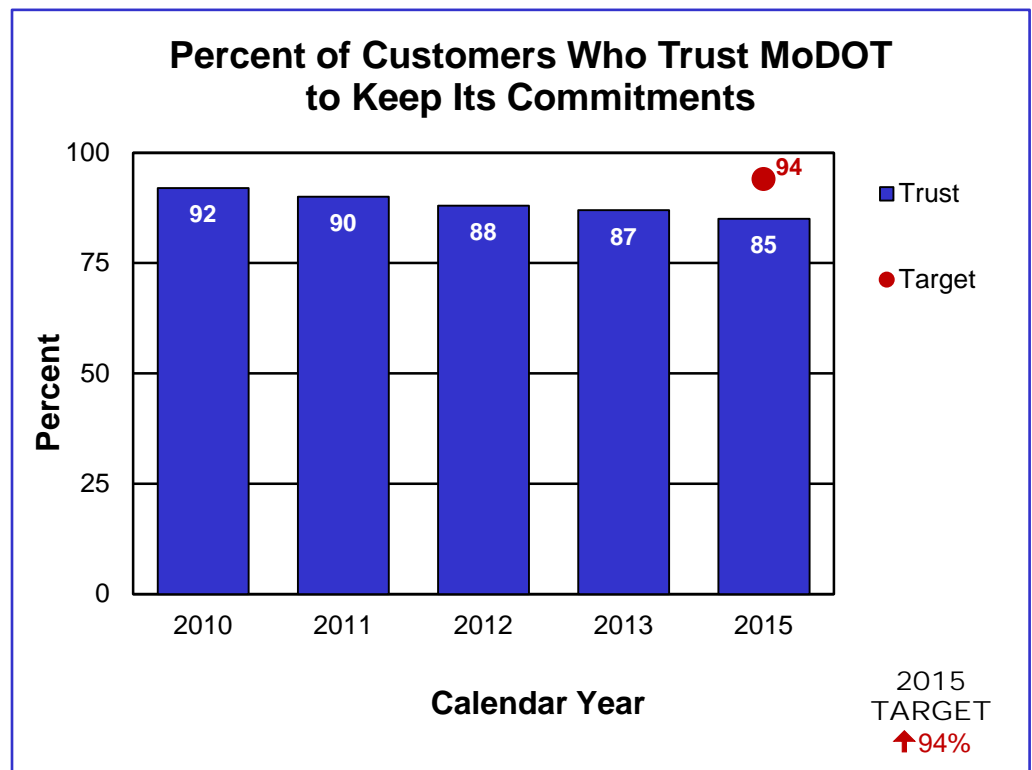
**MEASUREMENT DRIVER:**  
Markl Johnson  
Senior Communications Specialist

**PURPOSE OF THE MEASURE:**  
This measure tracks the percent of customers who trust MoDOT to keep its commitments. Public trust is an important component in building support for transportation issues.

**MEASUREMENT AND DATA COLLECTION:**  
Data is collected through a biennial, in odd-numbered years, telephone survey of approximately 3,500 randomly selected Missourians.

Gaining and keeping the public's trust is key to MoDOT's overall success. The best way MoDOT can accomplish this is to deliver on the commitments it makes. The department's annual construction program has steadily decreased in recent years, making it difficult to maintain and care for its system due to insufficient funding. Missourians tell MoDOT they want more from their transportation system, but the reality is they are going to get less – and what they have will get worse. MoDOT has spent years educating the public, legislators and media on the reality of transportation funding and what long-term insufficient funding means to Missouri's system.

The 2015 survey results indicated 85 percent of the residents trust MoDOT to keep its commitments to the public compared to 87 percent in the previous survey. Although this is only a 2 percent decrease, it is the lowest score ever recorded on this measure. Furthermore, there is a continued five-year downward trend from 92 percent in 2010 that is statistically significant.



RESULT DRIVER:  
Fay Fleming  
Communications Director

## PROVIDE OUTSTANDING CUSTOMER SERVICE

*Percent of customers who feel MoDOT provides timely, accurate and understandable information – 3d*

MEASUREMENT  
DRIVER:  
Jennifer Williams  
Communications Manager

### PURPOSE OF THE MEASURE:

This measure tracks whether customers feel MoDOT provides timely, accurate and understandable information about road projects, highway conditions and work zones.

### MEASUREMENT AND DATA COLLECTION:

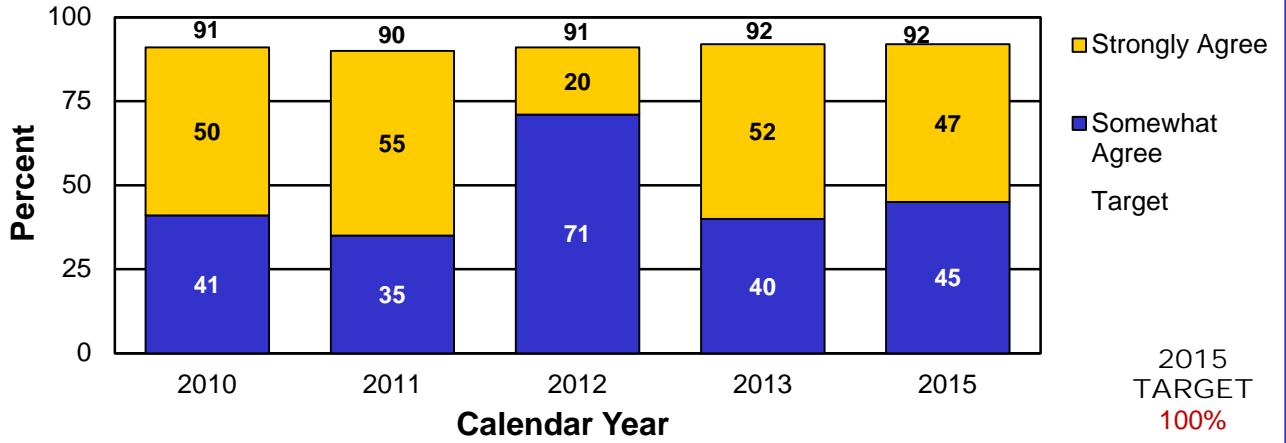
Data is collected through a biennial, in odd-numbered years, telephone survey of approximately 3,500 randomly selected Missourians.

Just like well-maintained roads and bridges, MoDOT delivers information. The citizens of Missouri expect timely, accurate and understandable information from their department of transportation. Whether it's a press release, e-update, text alert or a notice of a public meeting, MoDOT makes every effort to get the word out as quickly and as clearly as possible. The results of this effort are public trust and respect. With numbers consistently above 90 percent agreement for the past five years, this measure shows that the department meets customers' high expectations.

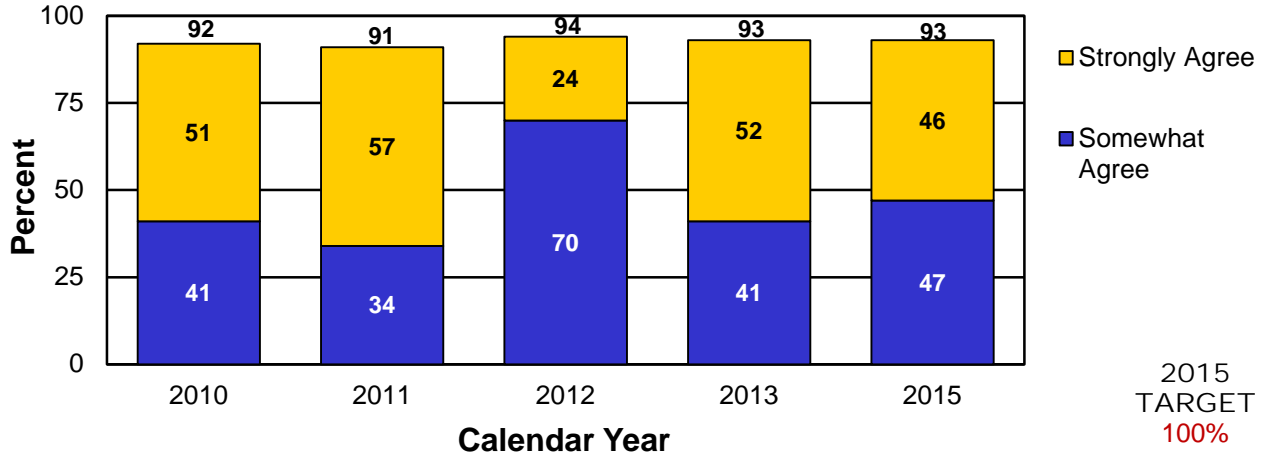


# PROVIDE OUTSTANDING CUSTOMER SERVICE

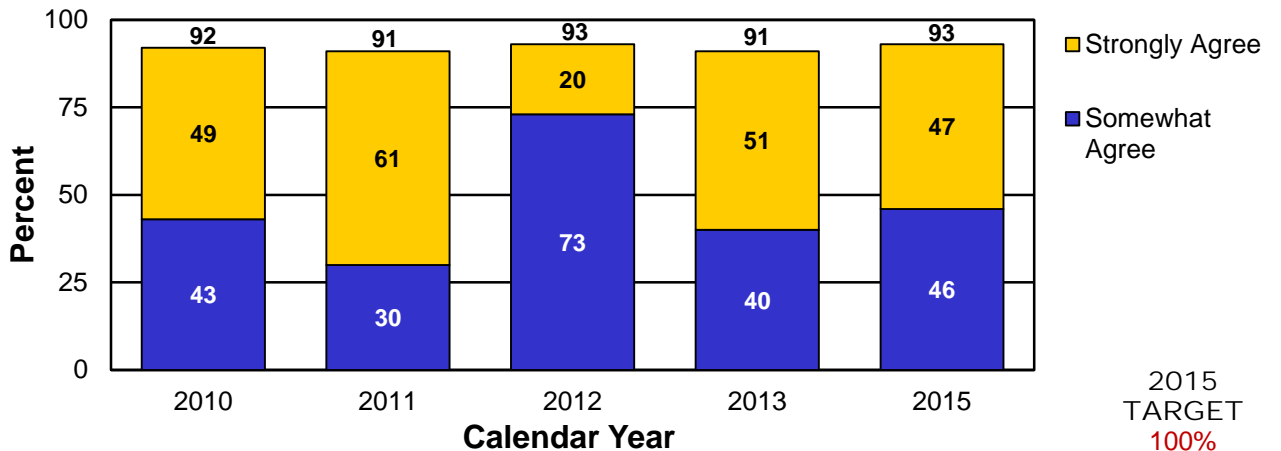
## Percent of Customers Who Feel MoDOT Provides Timely Information



## Percent of Customers Who Feel MoDOT Provides Accurate Information



## Percent of Customers Who Feel MoDOT Provides Understandable Information





**RESULT DRIVER:**  
Fay Fleming  
Communications Director

## PROVIDE OUTSTANDING CUSTOMER SERVICE

### *Percent of customers satisfied with MoDOT's customer service – 3e*

#### MEASUREMENT DRIVER:

Patrick Wood  
Intermediate Communications Specialist

#### PURPOSE OF THE MEASURE:

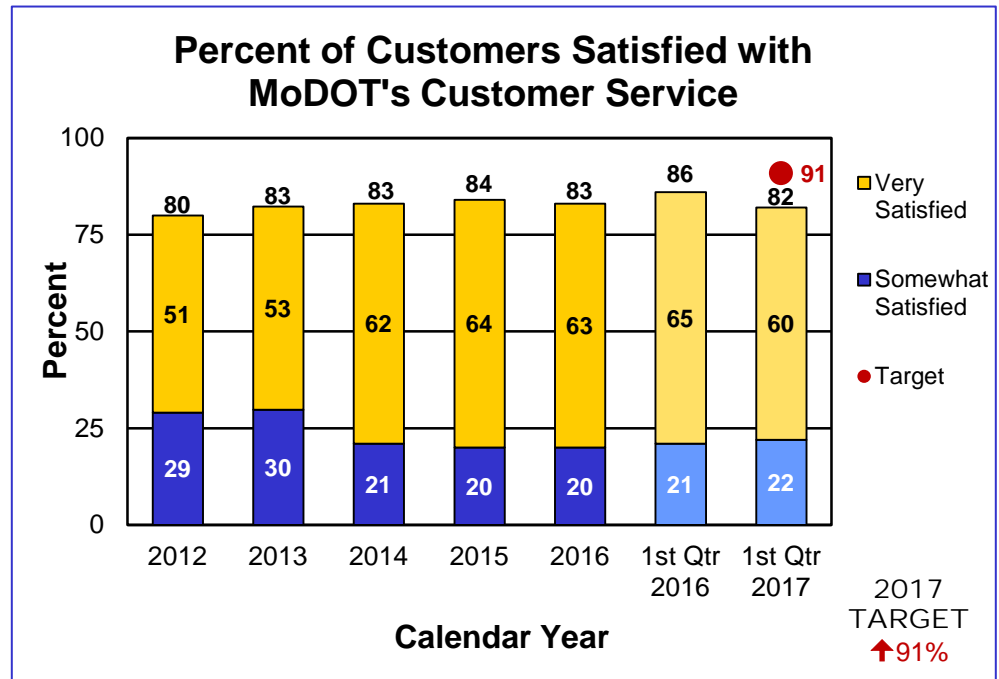
This measure shows how satisfied customers who contact MoDOT are with the politeness, clarity and responsiveness they receive.

#### MEASUREMENT AND DATA COLLECTION:

Data for this measure comes from a monthly telephone and e-mail survey of 200 customers who contacted a MoDOT customer service center in the previous month. The customer contacts come from call reports logged into the customer service database. Survey participants are asked to respond on an agreement scale regarding three qualities of their experiences. A fourth question is asked regarding their overall satisfaction. This measure also includes the time to complete requests logged into the customer service database. Requests requiring more than 30 days to complete are removed to prevent skewing the overall results.

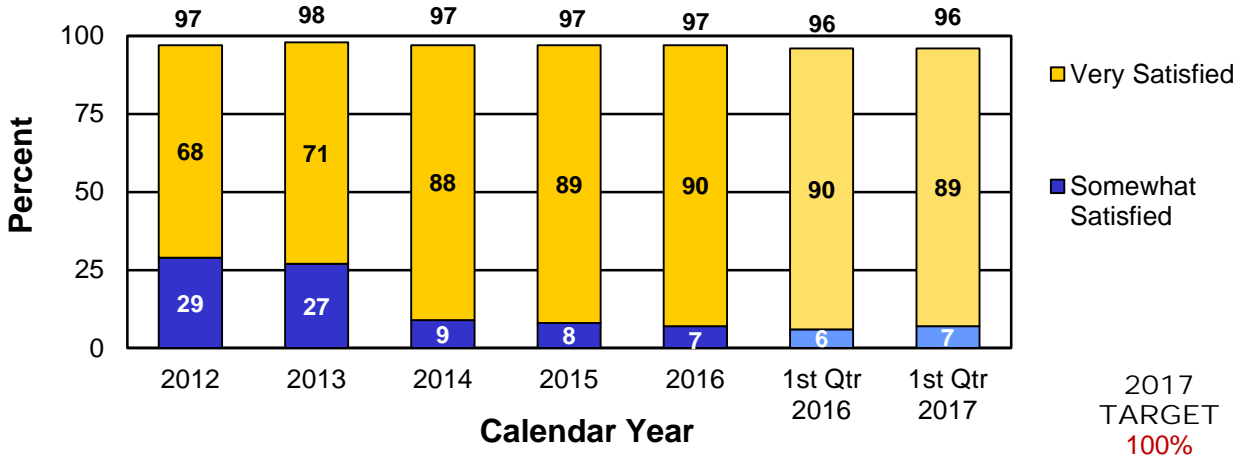
MoDOT actively seeks feedback from the customers it serves. In 2012, MoDOT created a statewide call system and enhanced its online call report system that enables customer service representatives to work across seven district boundaries in a one-team approach. Since implementation, customer perceptions of MoDOT's politeness, responsiveness and clarity increased, resulting in improved customer satisfaction.

Slight decreases occurred in all categories except politeness when comparing first quarter responses of 2017 with first quarter of 2016. Overall customer satisfaction decreased to 82 percent from 86 percent. Customers who were satisfied with politeness of responses remained at 96 percent. Clarity of responses decreased from 88 percent to 87 percent. Satisfaction with responsiveness decreased from 92 percent to 88 percent. The average time to complete customer requests during this quarter was 1.8 days compared to 1.9 days during the same quarter one year ago.

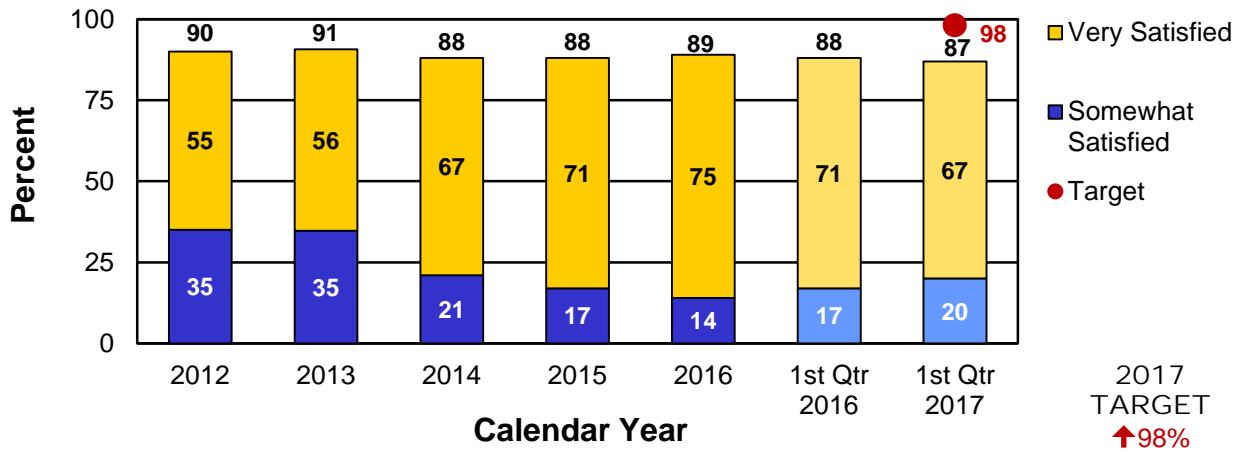


# PROVIDE OUTSTANDING CUSTOMER SERVICE

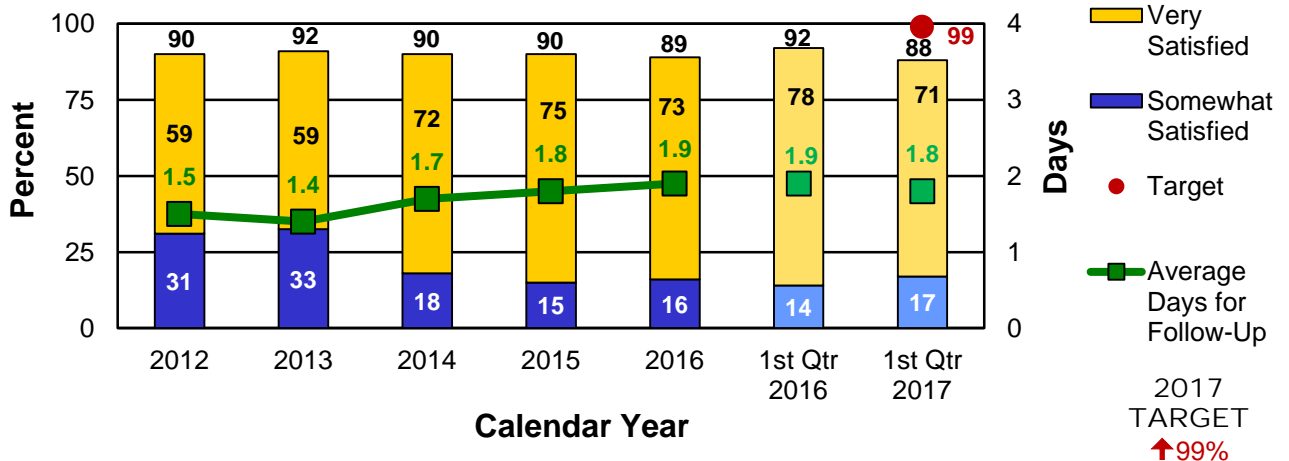
## Customer Satisfaction with Politeness of Staff



## Customer Satisfaction with Clarity of Response



## Customer Satisfaction with Responsiveness



RESULT DRIVER:  
Fay Fleming  
Communications Director

## PROVIDE OUTSTANDING CUSTOMER SERVICE

### *Customer communication engagement – 3f*

#### MEASUREMENT DRIVER:

Patrick Wood  
Intermediate Communications  
Specialist

#### PURPOSE OF THE MEASURE:

This measure tracks the number of MoDOT customers hitting the department's social media and website information.

#### MEASUREMENT AND DATA COLLECTION:

MoDOT gathers information for this measure from a variety of sources including Google Analytics. Website traffic and YouTube information are cumulative totals based on visits. Facebook and Twitter information is based on account followers.

Good organizations share information with the people they serve. The best, most-trusted organizations engage customers in conversation. MoDOT often interacts with its customers through Internet-based social media networking websites and applications.

MoDOT's social media accounts continue to attract followers. When comparing the third quarters of fiscal years 2016 and 2017, there was a growth of 57,176 followers on Facebook statewide and 25,023 additional followers to Twitter statewide. During the third quarter of FY 2017, the most popular post was a winter weather advisory advising for reduced travel. The post reached 778,046 people with 112,400 engagements including post clicks, shares, comments and reactions.

MoDOT websites trended downward when making yearly comparisons as there were 1,833,746 sessions on MoDOT websites during the third quarter of FY 2017 compared to 1,942,903 in the third quarter of FY 2016.

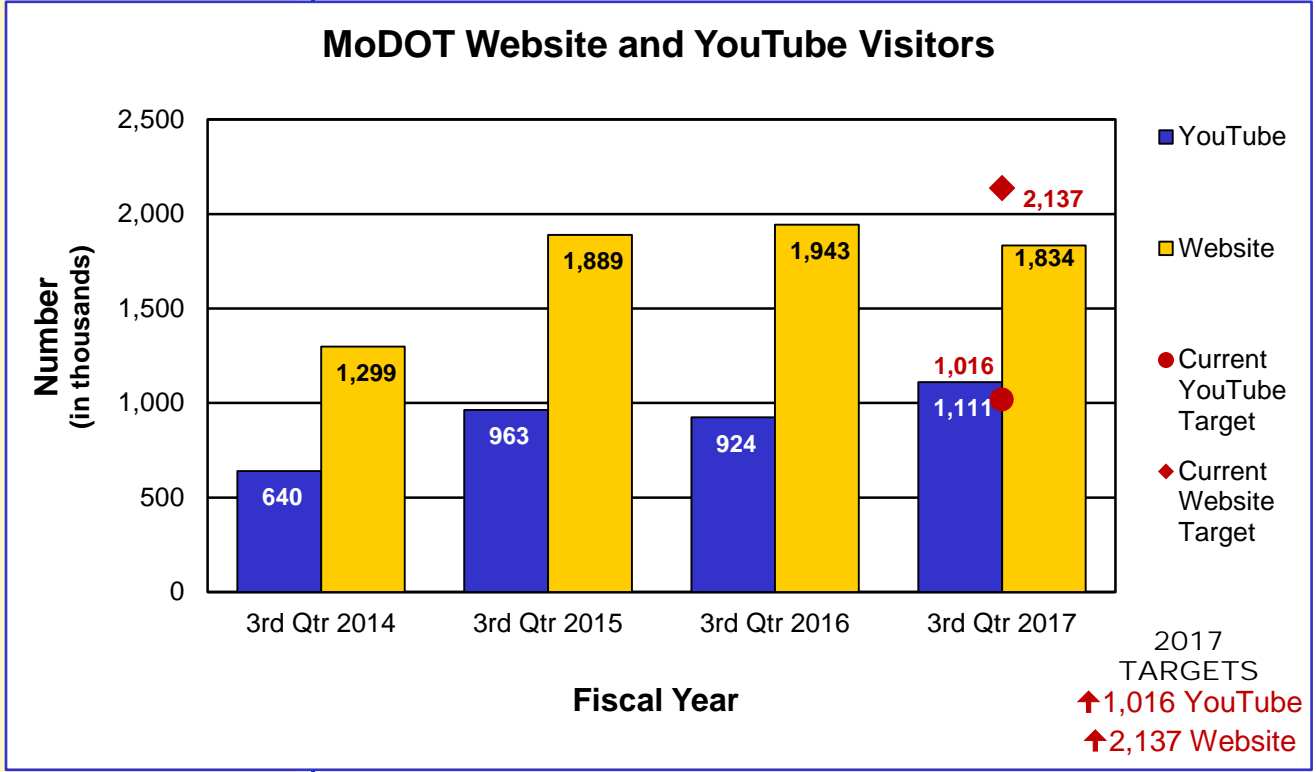
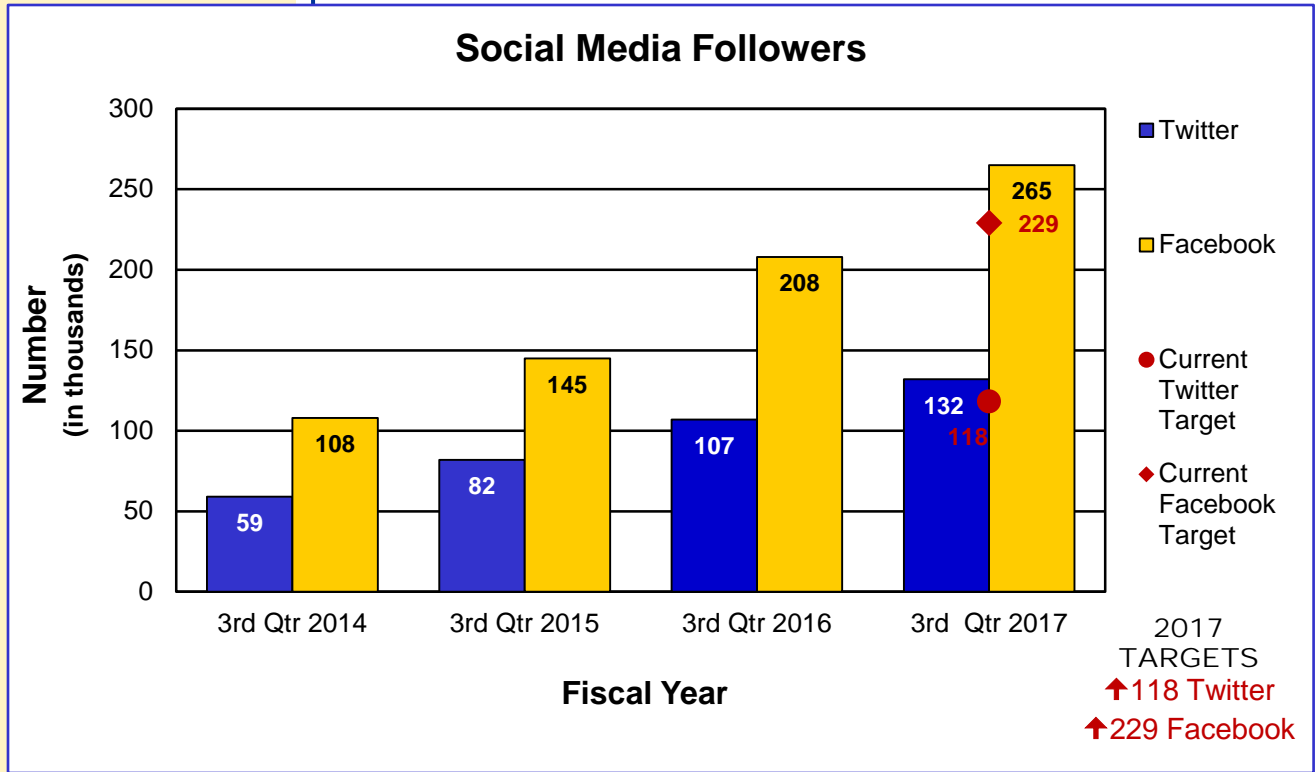
The top five pages on MoDOT's website for this quarter were:

- Traveler Information Map – 871,023
- KC Scout Homepage – 287,158
- MoDOT Homepage – 279,268
- Jan. 11 Winter Weather Advisory – 132,242
- Job Listings – 74,458

MoDOT videos on YouTube were viewed 1,111,208 times in the third quarter of FY 2017. The top five videos viewed in the last quarter were:

- Tow Plow Action Missouri
- MoDOT Teen Safety Belt March 2017
- MoDOT March Madness Impaired 2017
- Liam's Story
- Snow Tow Plows in Action

# PROVIDE OUTSTANDING CUSTOMER SERVICE





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# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

*Eric Schroeter, State Design Engineer*

# Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE





MoDOT customers expect transportation solutions delivered on time and within budget. We manage our projects to get them completed quickly and at the best possible value. We work with our transportation partners to leverage innovation in improving our products and how we work. We pledge to honor our commitments and deliver the best, most cost-effective solutions.

## RESULT DRIVER:

Eric Schroeter  
State Design Engineer

## MEASUREMENT

### DRIVER:

Renate Wilkinson  
Planning and Programming  
Engineer

## PURPOSE OF THE MEASURE:

The measure determines how close total project costs are to the programmed costs. The programmed cost is considered the project budget.

## MEASUREMENT AND DATA COLLECTION:

Completed project costs are reported during the fiscal year in which a project is completed. Road and bridge project costs include design, right-of-way purchases, utilities, construction, inspection and other miscellaneous costs. The programmed cost is based on the amount included in the most recently approved Statewide Transportation Improvement Program. Completed costs include actual expenditures. Multimodal and local public agency project costs typically reflect state and/or federal funds but not local funding contributed toward such projects.

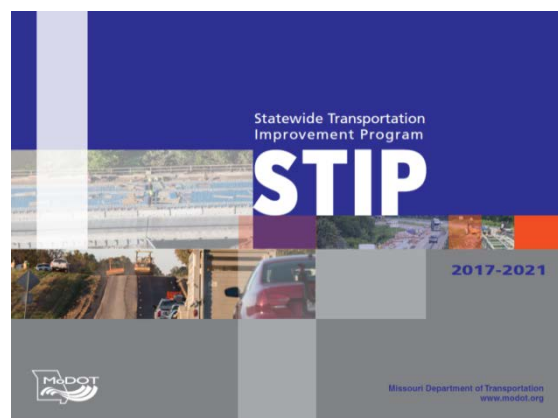
# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

## *Percent of programmed project cost as compared to final project cost – 4a*

Accurate program cost estimates help MoDOT deliver more timely improvements for taxpayers. As of March 31, 2017, 273 road and bridge projects were completed in fiscal year 2017 at a cost of \$537 million. This represents a deviation of 6.4 percent (or \$37 million) less than the programmed cost of \$574 million. Of the 273 road and bridge projects completed, 56 percent were completed within or below budget. In comparison, 52 percent of projects were completed within or below budget as of the same date a year ago. The largest component of project savings came from awards at \$24 million. Miscellaneous savings (right-of-way purchases, utilities and other costs) were \$9 million; engineering savings were \$4 million and construction-phase overruns were \$374,000.

In addition, 41 multimodal projects were completed at a cost of \$8.4 million, 4.2 percent or \$339,000 more than the programmed cost of \$8 million. A total of 141 local public agency projects were completed at a cost of \$90.5 million, 2.2 percent or \$2 million less than the programmed cost of \$92.5 million.

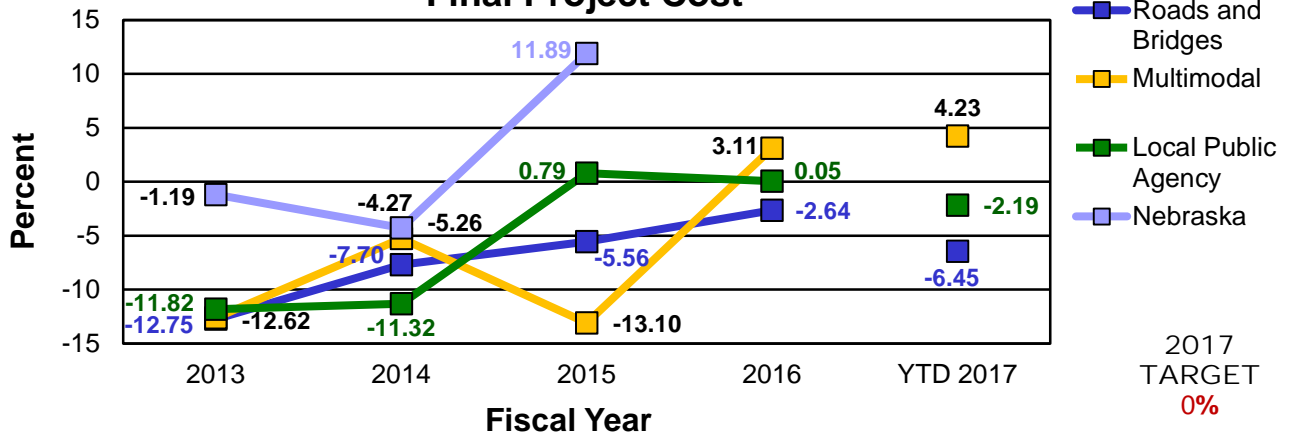
MoDOT uses this historical data as a guide for programming future projects. Projects awarded in FY 2014 and FY 2015 were 1 percent higher and 2 percent lower, respectively, than programmed values. Consequently, the 2015-2019, 2016-2020 and 2017-2021 Statewide Transportation Improvement Programs were developed assuming no significant award savings. Projects awarded through the third quarter of FY 2017 were 10.2 percent less than programmed values.





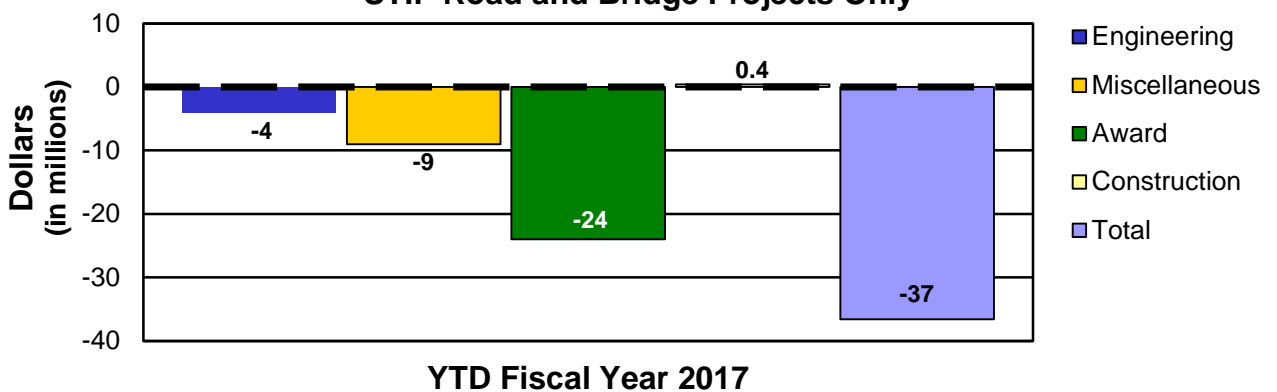
# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

## Percent of Programmed Project Cost as Compared to Final Project Cost



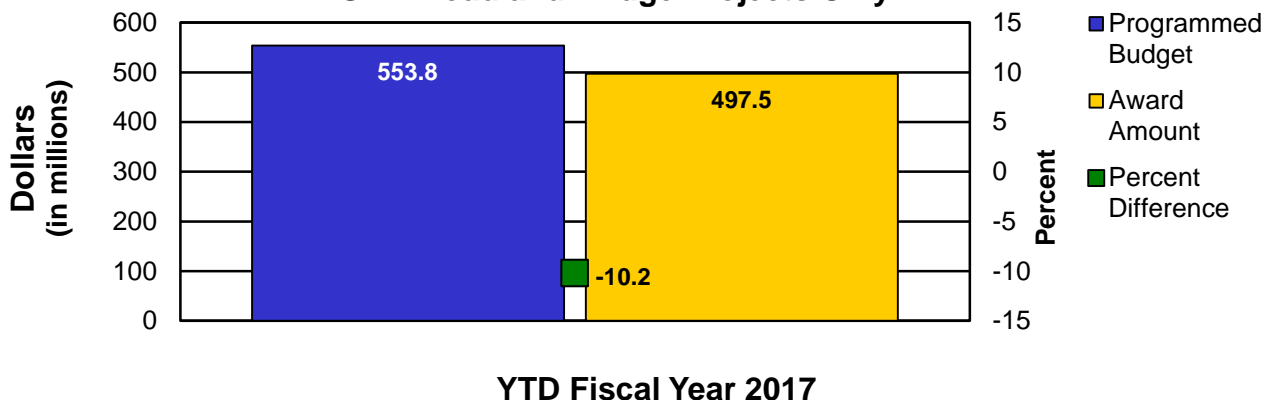
Positive numbers indicate the final (completed) cost was higher than the programmed cost. Comparative data is from Nebraska Department of Roads, one-year schedule of highway improvement projects. 2016 data is not yet available.

## Final Project Cost Differences by Phase STIP Road and Bridge Projects Only



Negative numbers indicate savings. Miscellaneous includes right-of-way purchases, utilities and other costs.

## Difference in Program vs Award STIP Road and Bridge Projects Only



Amounts include STIP road and bridge projects with 2 percent construction contingency applied.

**RESULT DRIVER:**  
Eric Schroeter  
State Design Engineer

**MEASUREMENT DRIVER:**  
Sarah Kleinschmit  
Field Materials Engineer

**PURPOSE OF THE MEASURE:**  
This measure tracks the percentage of road and bridge projects opened by the commitment date established in the contract. This commitment also includes local public agency projects and multimodal projects (rail, aviation, waterway and transit).

**MEASUREMENT AND DATA COLLECTION:**  
For road and bridge projects, the project manager collaborates with the project team to establish the project completion day which is specific to when the road or bridge project will be opened to the public so to eliminate a financial penalty. The resident engineer uses the SiteManager system to track and document the work. Local public agencies and multimodal agencies use staff or consultant resources to set contract completion dates and track performance.

## DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

### *Percent of projects completed on time – 4b*

MoDOT's customers expect transportation improvements to be completed and roadways opened quickly with minimal impact to their lives. Delivering projects by the contract completion date is the target for all projects and is considered a commitment to Missourians and drivers. Completing projects on time helps maintain credibility with Missourians, minimizes drivers' exposure to work zones and provides facilities in good condition that improve safety and reduce vehicle maintenance costs.

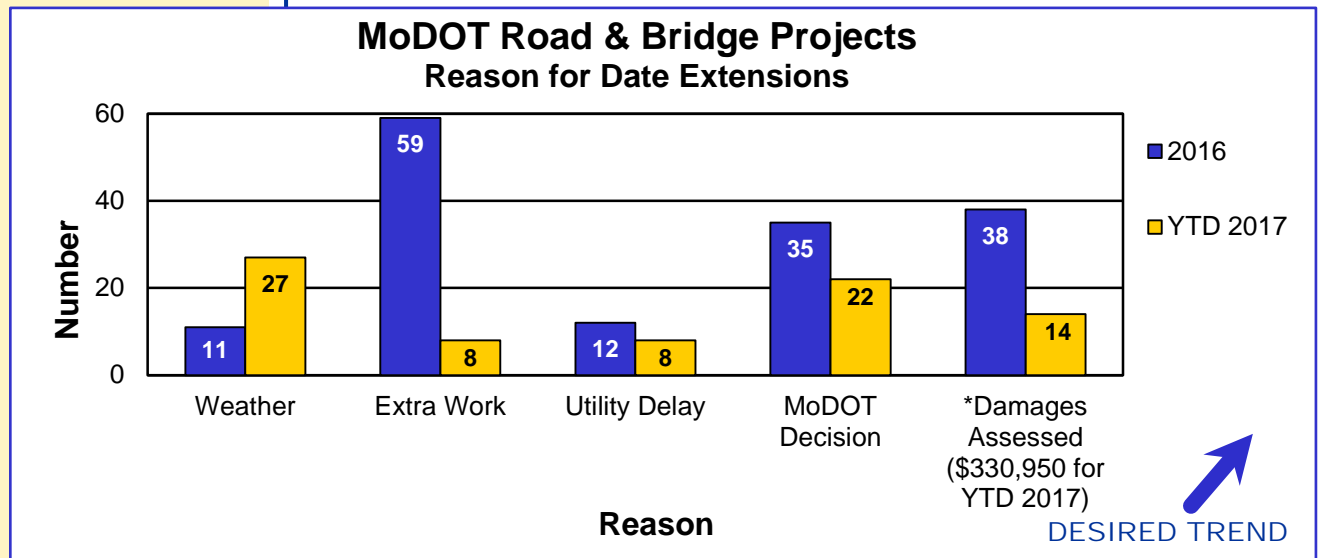
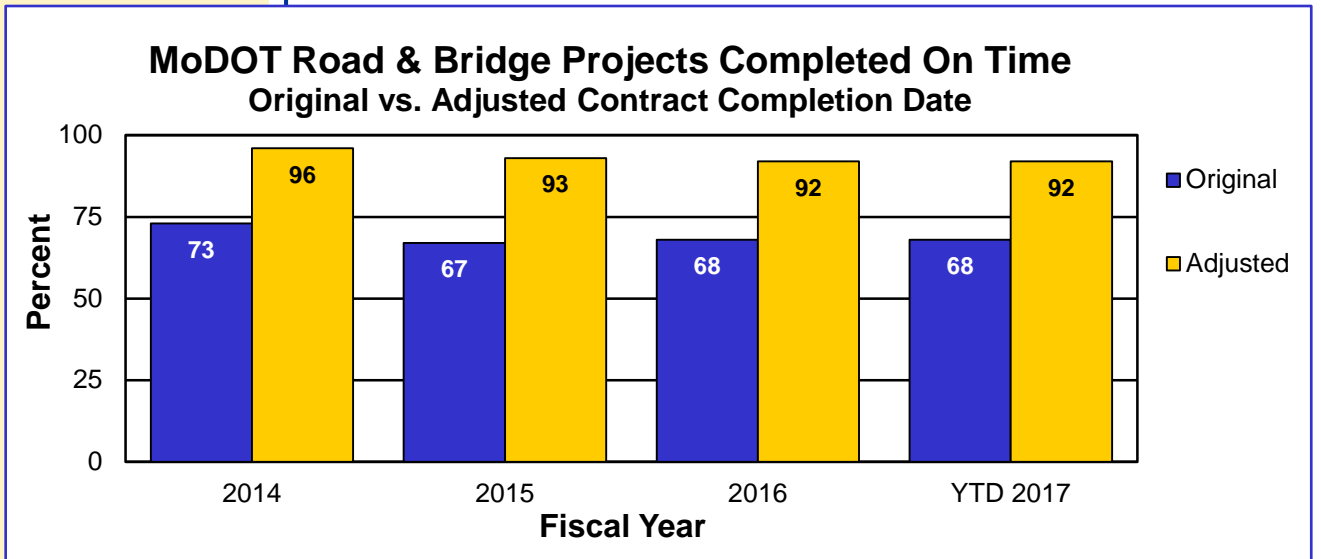
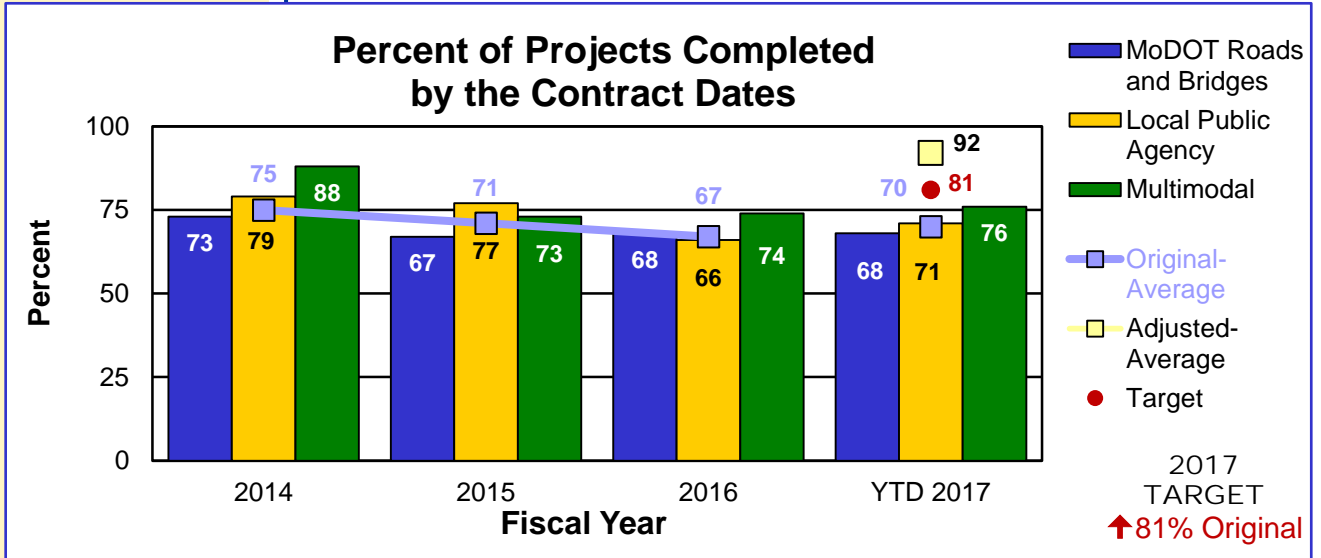
MoDOT works to meet the initial contract completion date by preparing accurate plans and quantities, setting aggressive but reasonable completion dates and setting liquidated damages to reinforce completion dates without undue bid risks. In the first three quarters of fiscal year 2017, 70 percent of all closed-out projects were completed by their planned completion dates.

Sometimes, weather, additional work or a MoDOT directive necessitates an authorized extension of the completion date, without any financial assessment to the contractor. In the first three quarters of FY 2017, 92 percent of the closed-out projects were completed by the adjusted dates.

There are times when a contractor misses the contract completion date and the contractor is assessed damages. Of the road and bridge projects completed in the first three quarters of FY 2017 that did not meet the original contract date, 42 percent were extended due to weather delays, 12 percent were extended due to extra work, 12 percent experienced utility delays, 34 percent were extended by MoDOT and 6 percent missed the completion date with damages assessed totaling \$330,950.

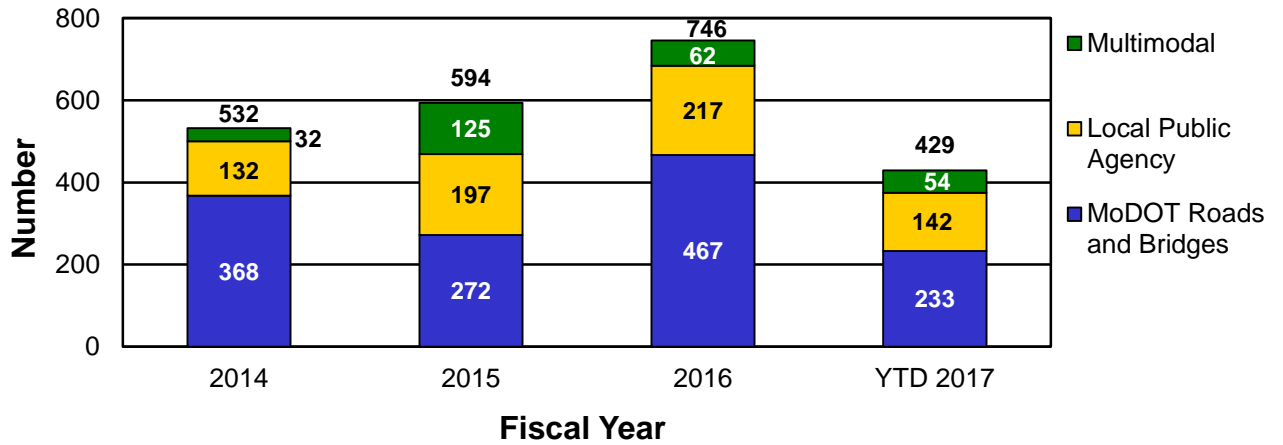


# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

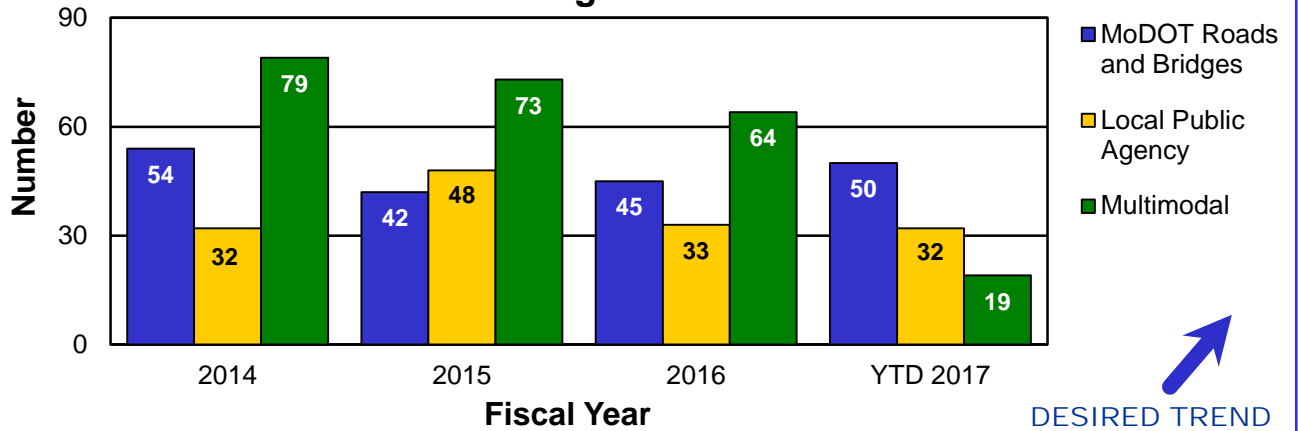


# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

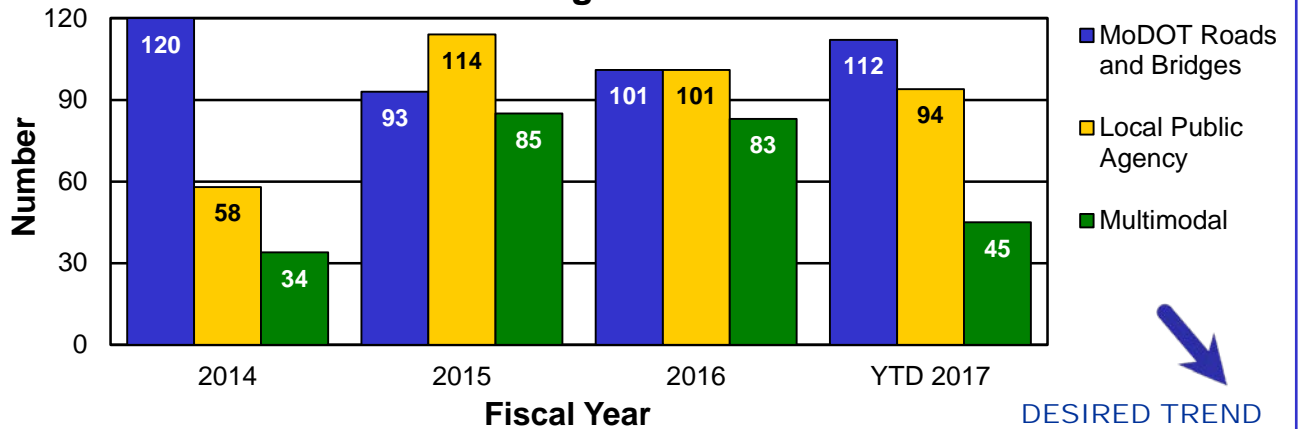
## Total Number of Projects Completed



## Average Number of Days Completed Before Original Date



## Average Number of Days Completed After Original Date





RESULT DRIVER:  
Eric Schroeter  
State Design Engineer

## DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

MEASUREMENT  
DRIVER:  
Lori Greer  
Field Materials Engineer

PURPOSE OF  
THE MEASURE:  
This measure tracks the percentage difference of total construction payouts to the original contract award amounts. This indicates how many changes are made on projects after they are awarded to the contractor for road, bridge, local public agency and multimodal projects – rail, aviation, waterway and transit.

MEASUREMENT AND  
DATA COLLECTION:  
For road and bridge projects, contractor payments are generated through MoDOT's SiteManager database and processed in the financial management system for payment. Change orders document the under-run/overrun of the original contract cost. Local public agencies and multimodal agencies use staff or consultant resources to set contract completion dates and track performance.

### *Percent of change for finalized contracts – 4c*

By limiting overruns on contracts, MoDOT can continue to keep its maintenance and construction commitments. This emphasis combined with the use of practical design and value engineering has contributed to limiting overruns on contracts. MoDOT's performance in the third quarter of fiscal year 2017 is 0.3 percent below the award amount (\$1.4 million under the award amount of \$500 million worth of projects completed) with 53 percent of the projects being completed below the original amount.

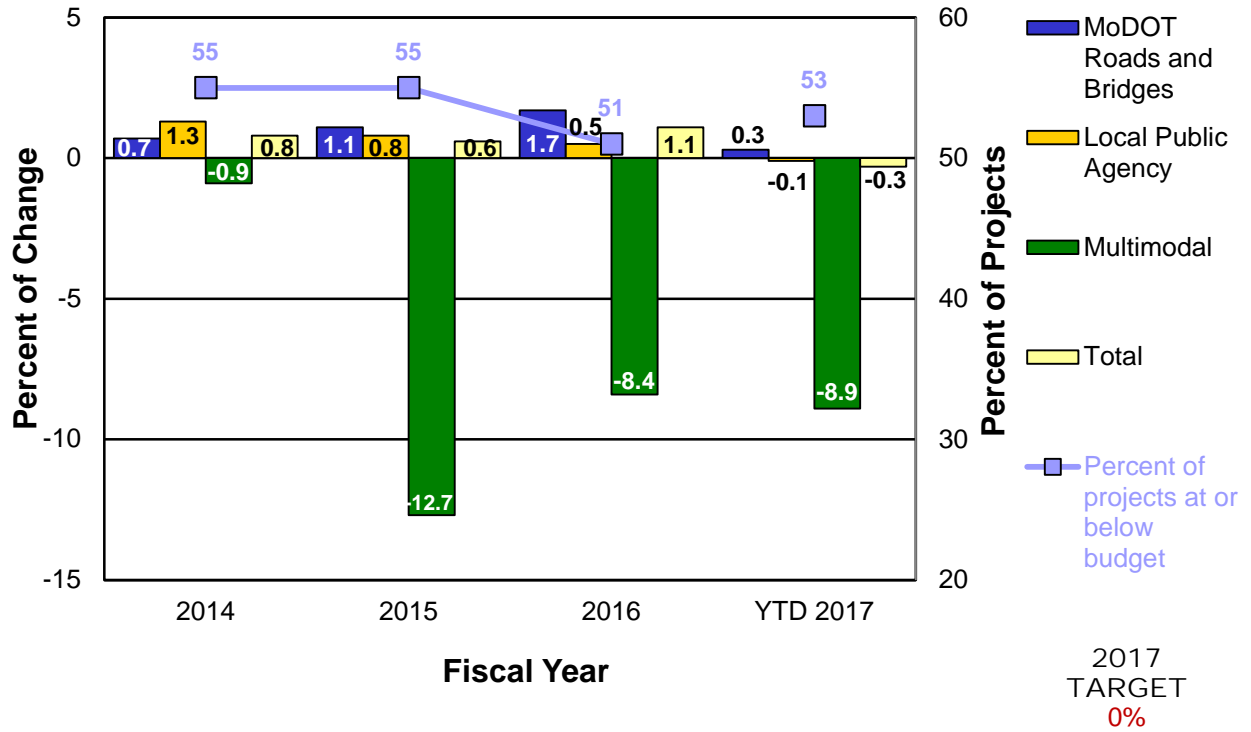
Many factors can affect the ability to complete a project within two percent of the award amount. These factors can include design changes, differing conditions, additional work items and administrative decisions.

Through the third quarter of FY 2017, MoDOT road and bridge projects were completed 0.3 percent over budget, local public agency projects were completed 0.1 percent under budget and multimodal projects were completed 8.9 percent under budget.

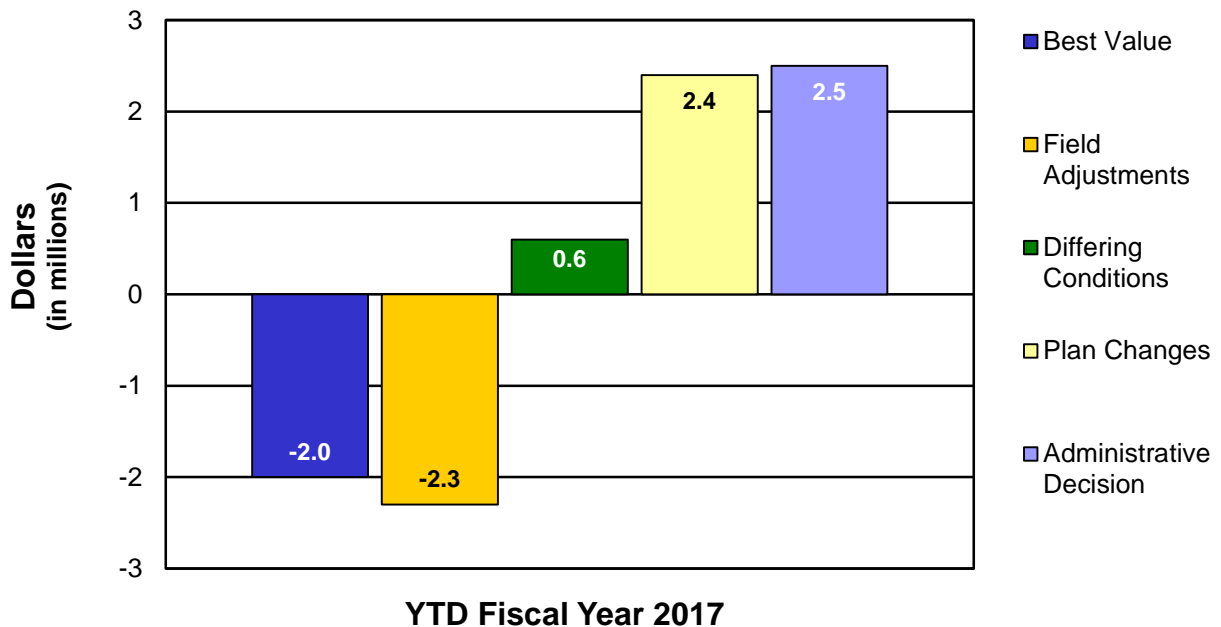


# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

## Percent of Change for Finalized Contracts Total Contractor Payment vs. Award Amount



## Change Order Value by Reason (MoDOT Road and Bridge Projects Only)



## RESULT DRIVER:

Eric Schroeter  
State Design Engineer

# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

## *Innovative contracting methods – 4d*

## MEASUREMENT

### DRIVER:

David Simmons  
Transportation Project  
Manager

## PURPOSE OF THE MEASURE:

This measure tracks the use of innovative contracting methods on MoDOT projects including: A + B contracts, alternate technical concept contracts, and design-build contracts.

## MEASUREMENT AND DATA COLLECTION:

MoDOT projects utilizing innovative contracting methods are reported during the fiscal year in which they are awarded. Contract award values are collected through MoDOT's bid opening summaries and project records.

MoDOT continues to partner with the public and private sectors to deliver projects that maximize available resources into collaborative solutions that achieve goals. This collaborative effort challenges the way projects are delivered with innovation, speed and efficiency as the driving force. MoDOT pushes the boundaries to execute projects of different size and complexity using these methods.

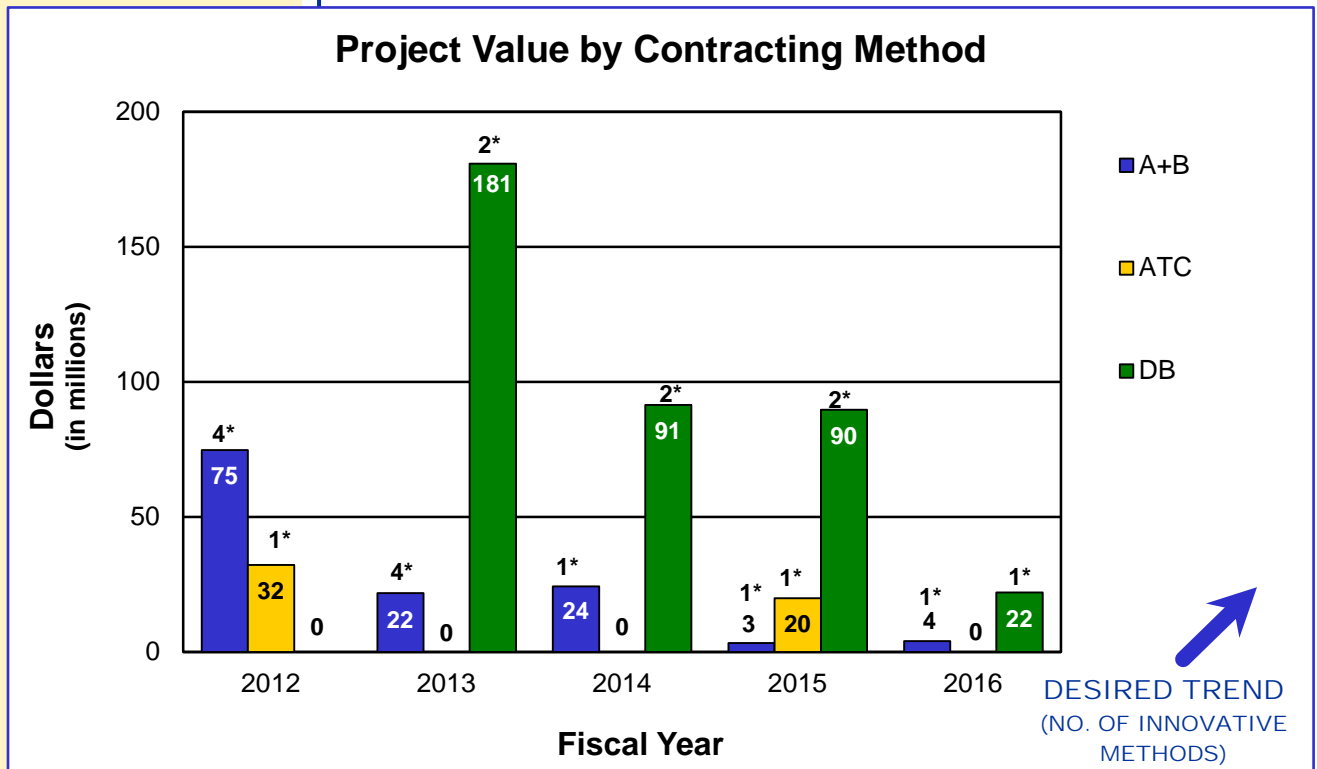
MoDOT evaluates project characteristics (risks) such as project size (cost), type (preservation, rehabilitation or reconstruction), and complexity (opportunity for innovation and speed) when determining project delivery methods. The advantages of MoDOT's innovative contracting methods are as follows:

- Design-Build (DB) contracts include design and construction under one contract, which is procured using a two-phased, contractor-selection process. MoDOT scores proposals using a best-value or "build-to-budget" selection. Nationally, DB projects are completed 33 percent faster and six percent cheaper than conventional Design-Bid-Build projects.
- Cost-plus-time bidding (A + B) aims to expedite project completion through competitive bidding on construction time (days).
- Alternate Technical Concepts (ATCs) give the contractor the opportunity to provide a more cost-effective alternative design prior to the bid. ATC discussions are held in a confidential environment which maximizes competitive bidding. The low bid is awarded the contract.

Utilization of innovative contracting techniques to increase project value is increasing nationwide wide. Since 2002, design-build usage alone has grown 600 percent among state DOT's. The 2017-2021 STIP provides new opportunities to grow this method of project delivery on the right projects.

Based on the STIP in fiscal year 2016, MoDOT delivered only two out of 288 projects statewide using innovative contracting methods. One of them was delivered as design-build and the other delivered using the A+B process. These two projects accounted for \$25.8 million of the \$698.6 million programed budget.

# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE



\*Reflects total number of projects for each innovative contract method.



RESULT DRIVER:  
Eric Schroeter  
State Design Engineer

# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

## Value engineering – 4e

### MEASUREMENT DRIVER:

Llans Taylor  
Bidding and Contract Services Engineer

### PURPOSE OF THE MEASURE:

This measure tracks the use of value engineering during design and construction on traditional MoDOT projects including: value analysis during the design phase, construction value engineering proposals, and implementation of best practice into standards and policies.

### MEASUREMENT AND DATA COLLECTION:

Information on value analysis during design is gathered from MoDOT's Statewide Transportation Improvement Program information management system. Construction value engineering change proposal information is gathered from MoDOT's Value Engineering Proposal database. Implementation of best practice progress is tracked by MoDOT staff.

The goal of value engineering is to build the right project at the right time, meeting the project need with appropriate project scope. MoDOT uses the VE program to ensure the public receives great value for every tax dollar invested in Missouri's transportation system. MoDOT has been increasingly focused on smaller, maintenance-type projects that are not traditionally targeted by the VE program. Still, MoDOT must be innovative in utilizing the VE process to search for solutions to reduce project costs and provide additional value.

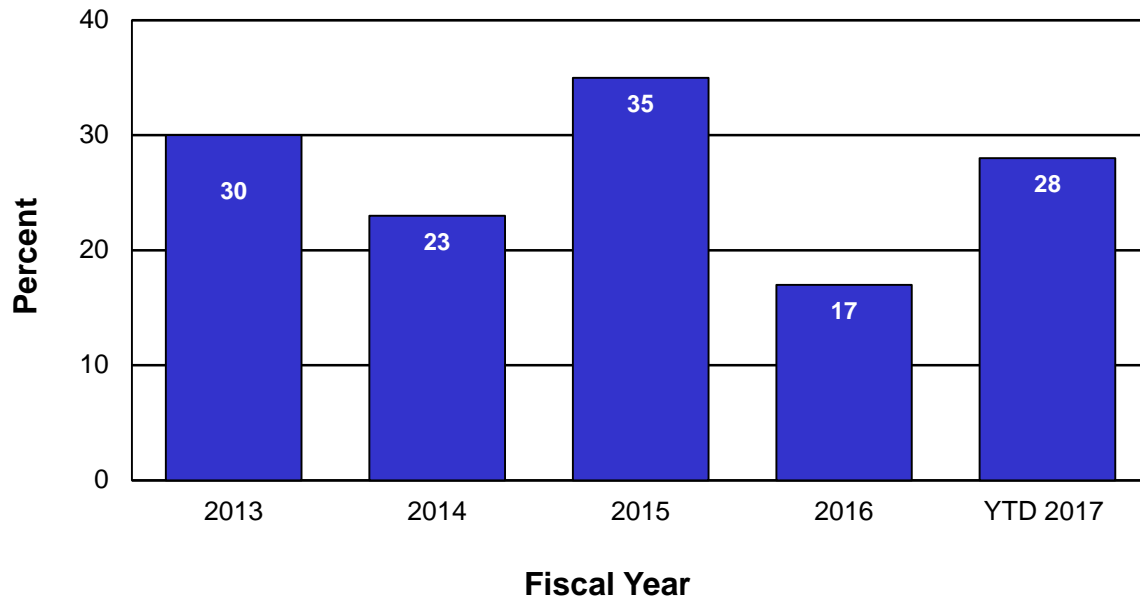
MoDOT uses design-phase value analysis to remove unnecessary scope, reduce project costs and improve project flexibility. To date for fiscal year 2017, 28 percent of applicable projects underwent some form of value analysis during design. Programmatic value analysis studies associated with the level-course and chip-seal programs continue to account for the largest portion of this percentage. However, some improvement has been accomplished in the use of a relatively new practical review tool. The tool allows project teams to consider typical practical considerations, which are sometimes missed, and document any resulting changes. Outreach continues in an effort to improve in this area and to find innovative approaches to grow this program.

MoDOT partners with industry to find more cost-effective solutions during the construction phase. Value Engineering Proposals engage contractor ideas to deliver improved projects. So far in FY 2017, 11 VEPs were approved resulting in a MoDOT savings of \$249,507. This represents a 78 percent approval rate. The Post Award Value Engineering workshop pilot is continuing. So far for FY 2017, 29 percent of the submitted VEPs were associated with PAVE workshop projects. Outreach continues in an effort to improve in this area and to find innovative approaches to grow the VEP program.

A successful VEP program incorporates approved VEPs into future projects in order for MoDOT to realize all of the affiliated savings. To date, 257 approved VEPs have been reviewed resulting in five revisions to policy and 20 potential items still being investigated. Each approved VEP is reviewed for potential implementation and, if necessary, to determine the appropriate champion to oversee the resulting policy or standards development.

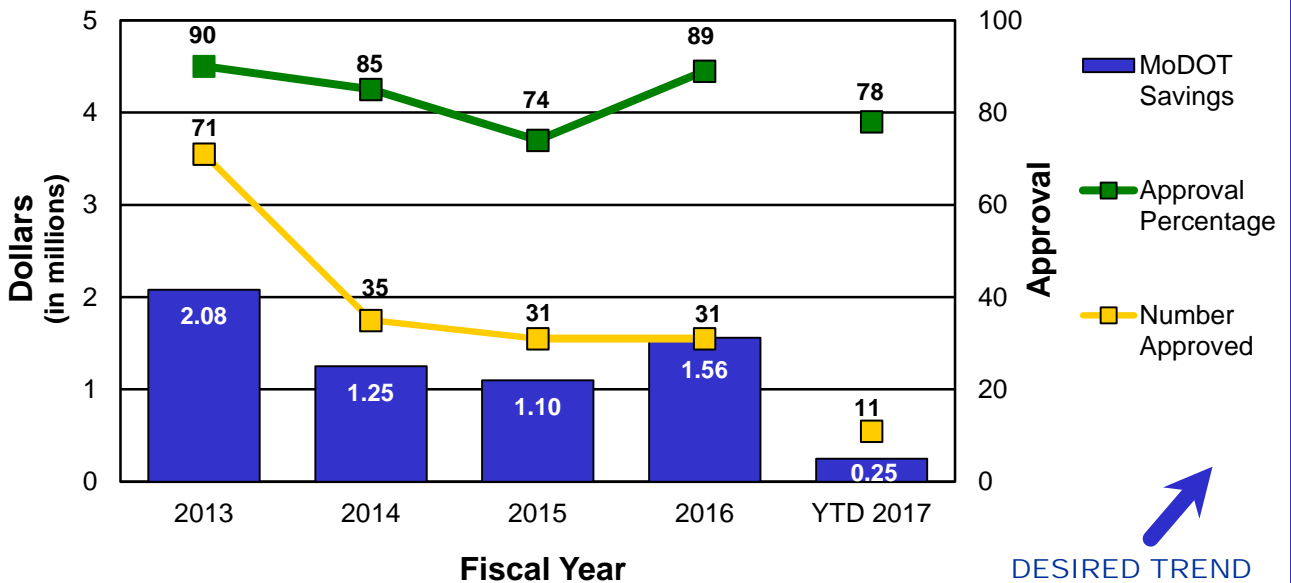
# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

## Percent of Awarded Projects with Value Analysis Design Phase



DESIRED TREND 

## Value Engineering Proposals by Dollar and Number Construction Phase



DESIRED TREND 

## RESULT DRIVER:

Eric Schroeter  
State Design Engineer

## MEASUREMENT

### DRIVER:

Llans Taylor  
Bidding and Contract Services  
Engineer

## PURPOSE OF THE MEASURE:

This measure tracks the costs to construct a variety of common highway and bridge construction projects including the costs for equipment, labor and fringe benefits and materials to construct a project.

## MEASUREMENT AND DATA COLLECTION:

Data is collected from MoDOT bid opening prices. Costs for chip seal and minor road one-inch asphalt resurfacing include the pavement, traffic control and temporary pavement marking. Costs for major highway and interstate asphalt resurfacing include the pavement, traffic control, permanent pavement marking, rumble strips, pavement repair, guardrail and signing. New two- and four-lane construction costs include grading, drainage, pavement, bridge and all incidental costs. The average cost per square-foot of bridge is tabulated and applied to the area of the average bridge on the state system to simplify comparison.

# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

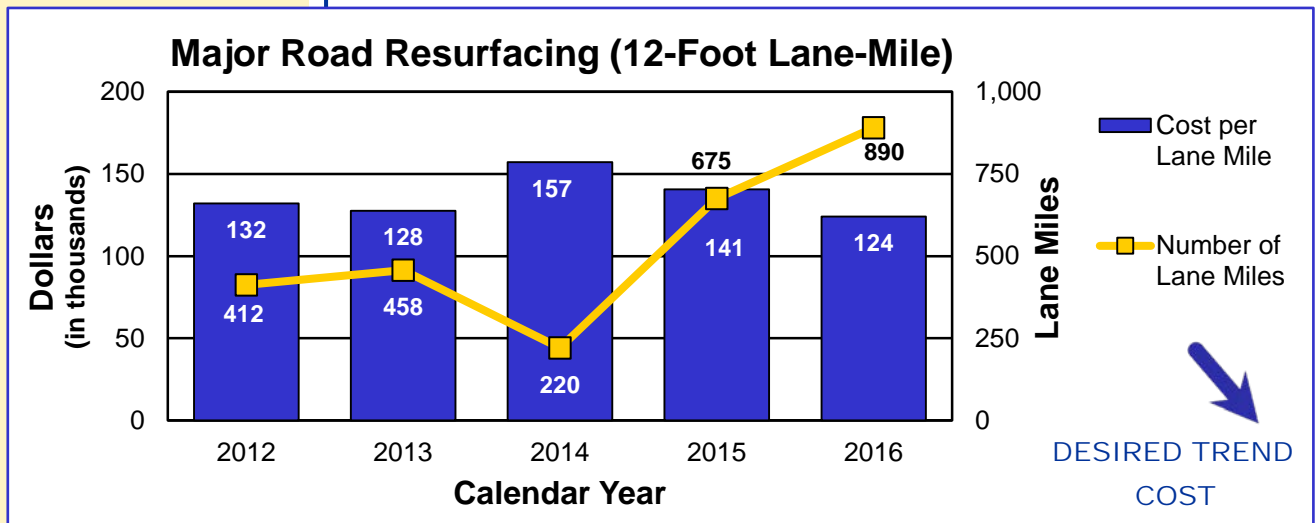
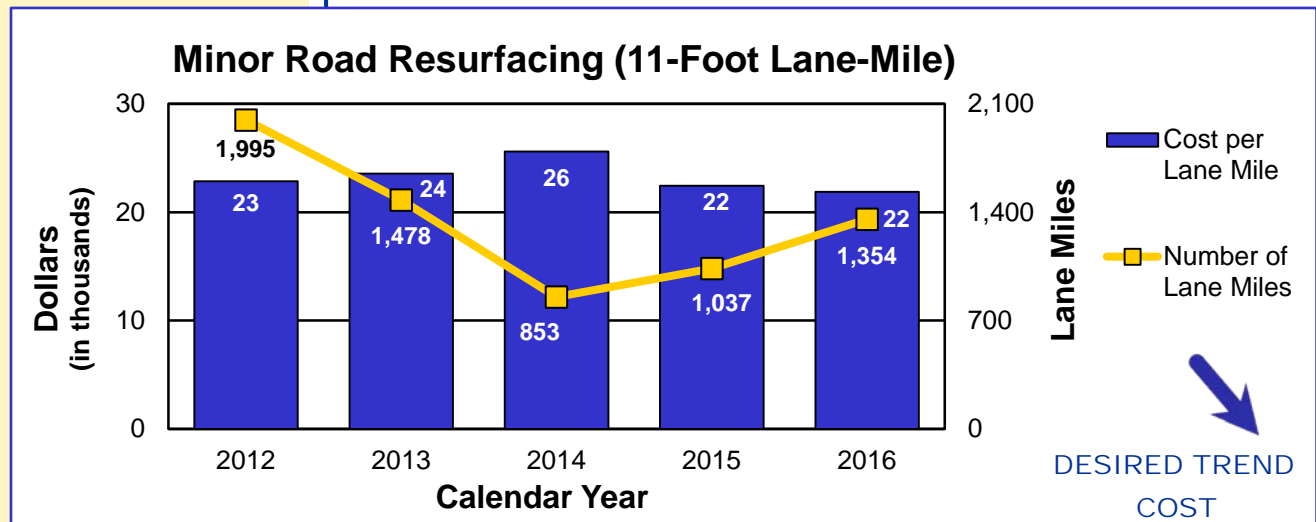
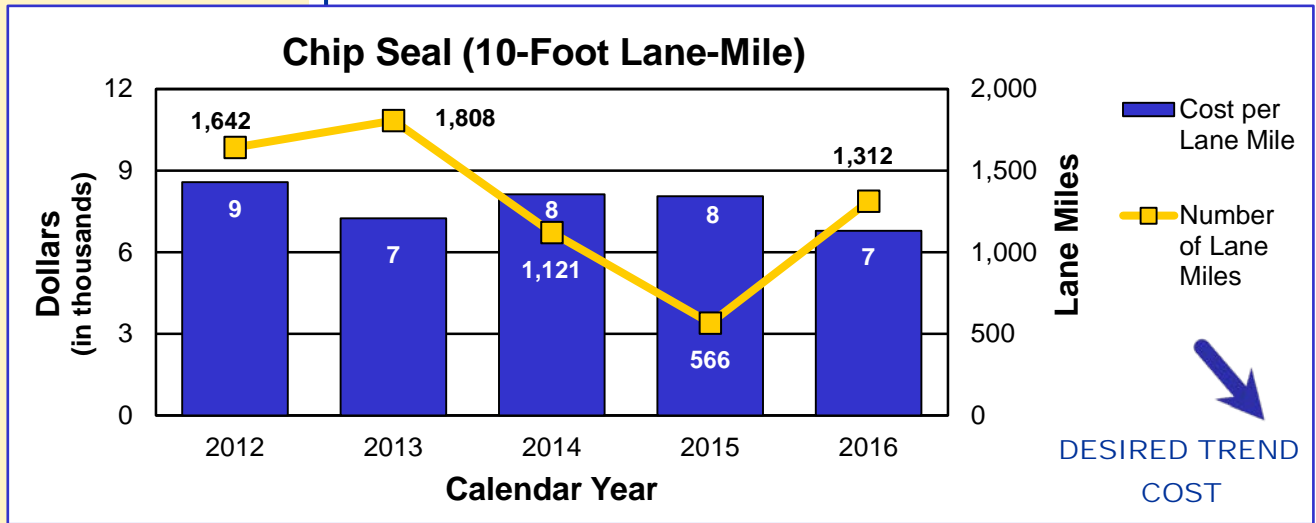
## *Average highway lane-mile and bridge construction costs – 4f*

A great many factors affect the cost of road and bridge projects, some can be managed by MoDOT, and others are affected by the economy. For example, Missouri's highway system has long depended on fuel taxes, but consumers are turning to smaller, more fuel-efficient vehicles, and when fuel prices are high, they look for ways to decrease their personal transportation costs by driving less. Many of these smaller vehicles cost less, meaning that sales taxes are lower and consequently so are transportation revenues. Meanwhile, inflation has increased the cost of projects, resulting in reduced purchasing power for MoDOT. Minor road asphalt resurfacing costs have increased in recent years due to a combination of fluctuating fuel and oil prices and increased material costs. Overall, the prices of asphalt, concrete and steel are double or triple what they were 20 years ago.

With MoDOT's construction program having dropped from \$1.3 billion in 2009 to \$700 million in fiscal year 2017, few complex two- and four-lane projects have been available for contractors to bid. For the larger, more robust projects, MoDOT continues to partner with industry to allow flexibility and encourage innovation while strategically scheduling bid openings to spread out the amount of work and financial obligation for the bidders.

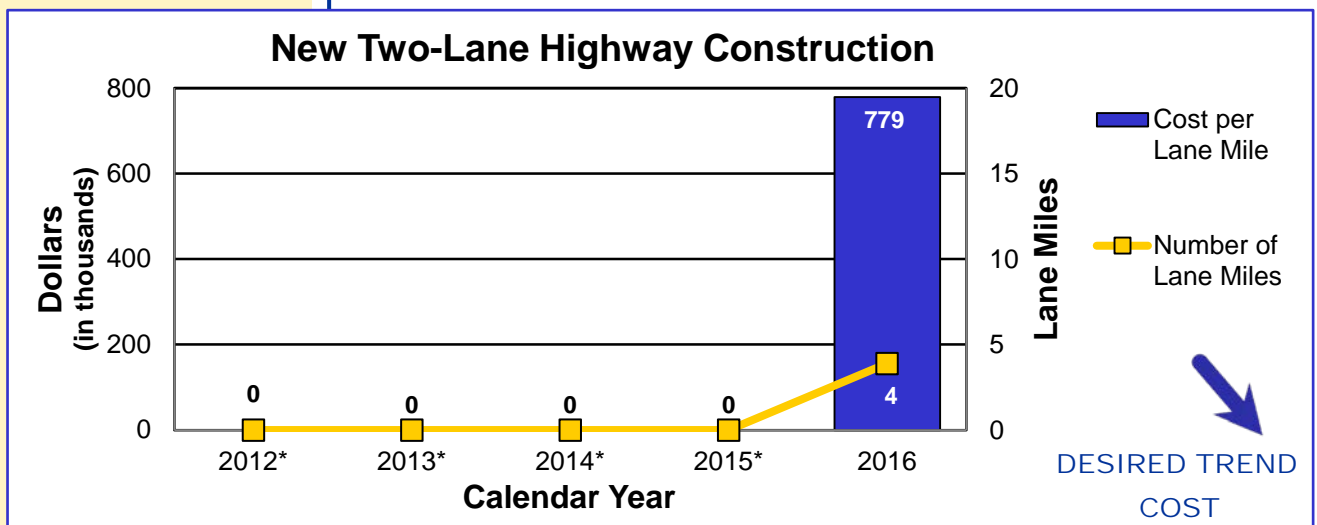
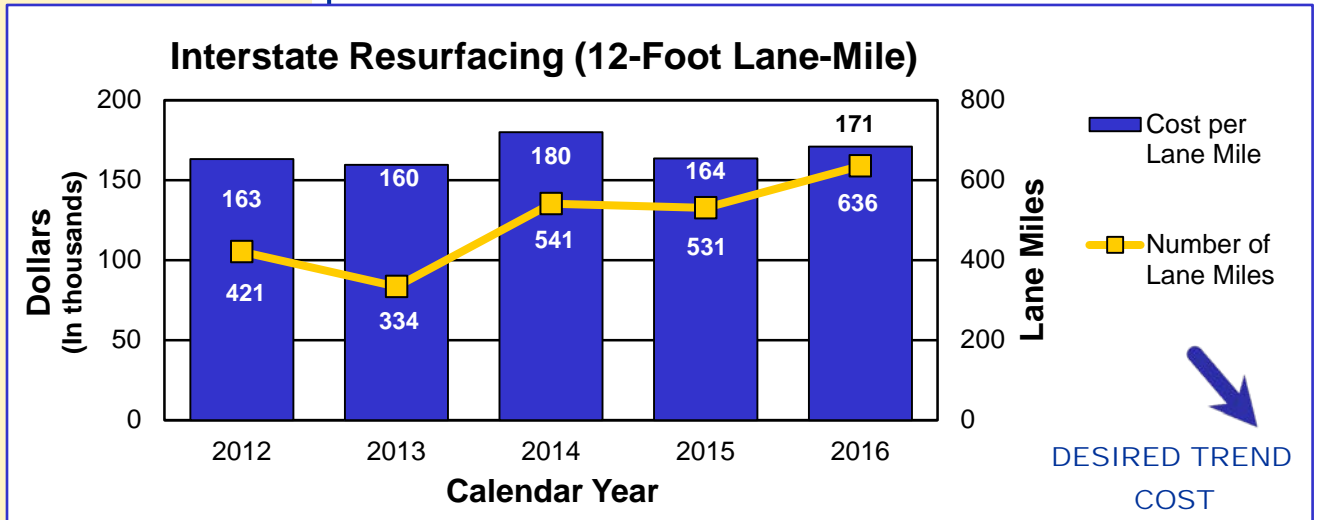


# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

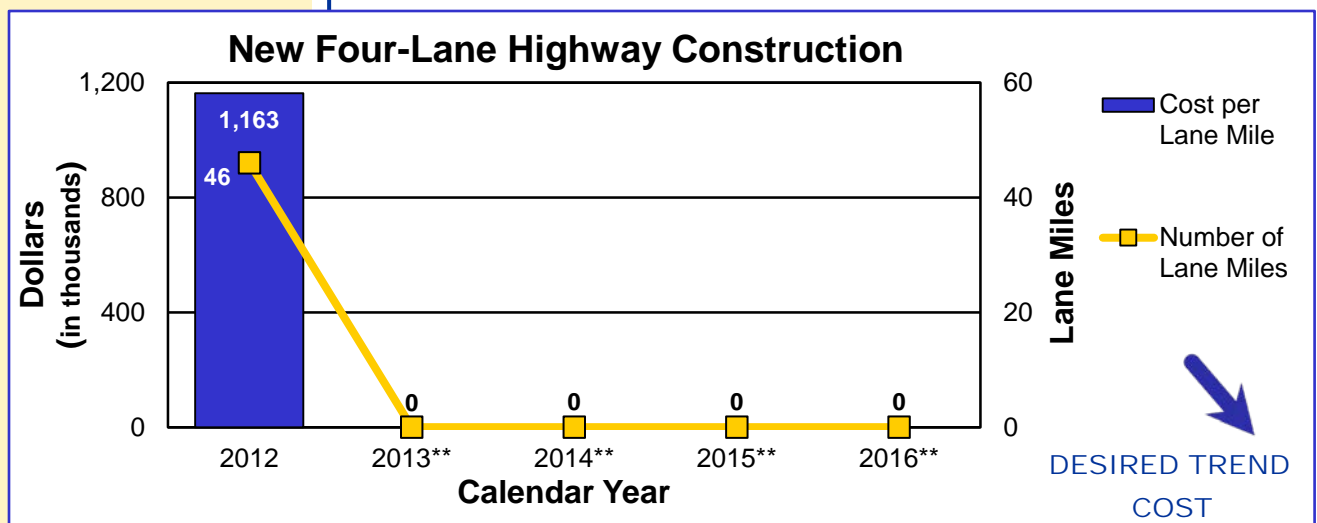




# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

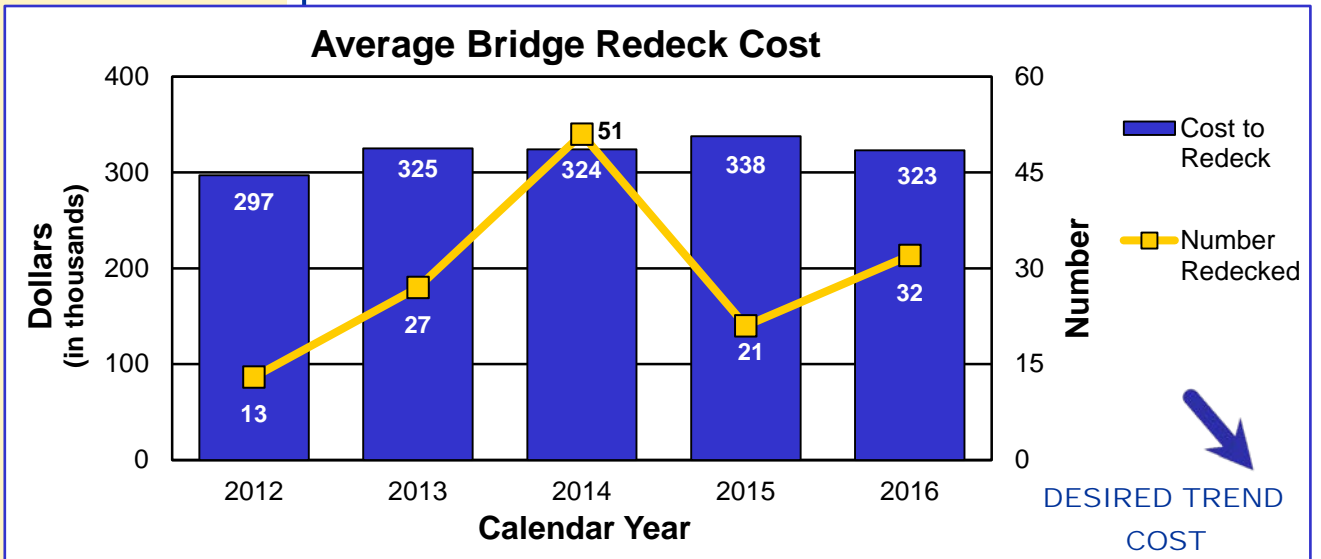
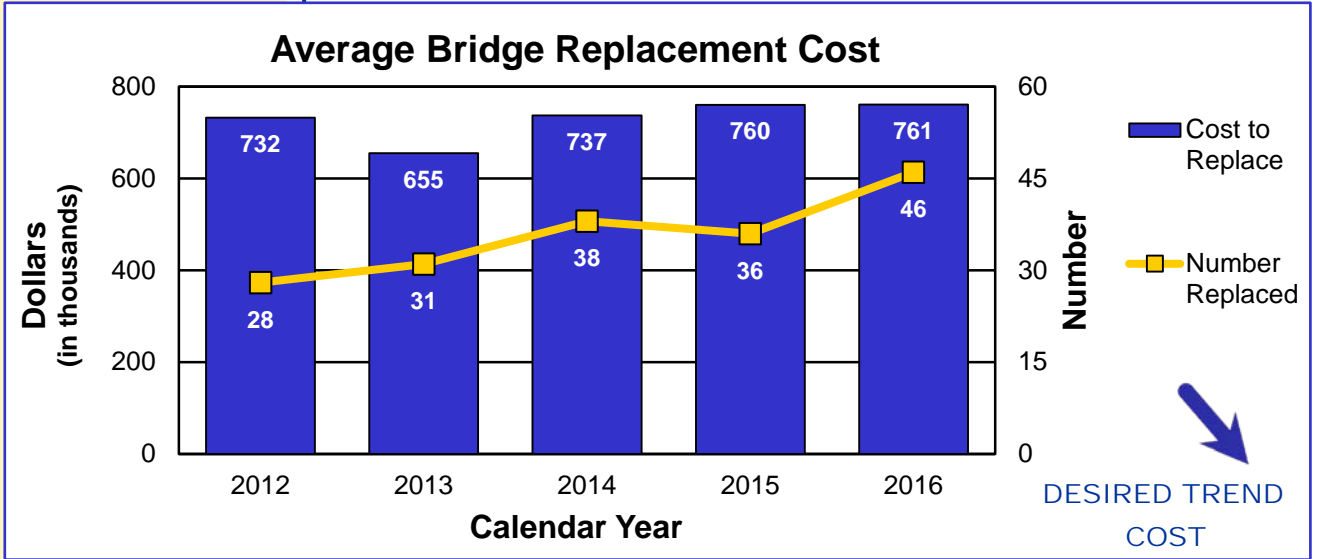


\* There were no two-lane projects bid in 2012, 2013, 2014 and 2015.



\*\*There were no four-lane projects bid in 2013, 2014, 2015 and 2016.

# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE



**RESULT DRIVER:**

Eric Schroeter  
State Design Engineer

# DELIVER TRANSPORTATION SOLUTIONS OF GREAT VALUE

*Percent of customers who believe completed projects are the right transportation solutions – 4g*

**MEASUREMENT DRIVER:**

Nicole Hood  
Assistant State Design Engineer

**PURPOSE OF THE MEASURE:**

This measure provides information regarding the public's perception of MoDOT's performance in providing the right transportation solutions.

One of the most prominent products MoDOT delivers to its customers is a highway construction project. While the department tries to involve local residents in planning and designing local projects, the real impact of the project isn't known until people actually use the results of the project.

**MEASUREMENT AND DATA COLLECTION:**

Data for this measure was previously collected through an annual survey sent to users of projects completed and opened to traffic within the previous year. The districts identified 21 projects – three per district – in three categories: large, medium and small. Large projects were defined as those involving a major route or one that was funded through major project dollars. Medium projects were of district-wide importance. Small projects had only local significance. A sample of residents was drawn from zip code areas adjoining the recently completed project. The samples included 600 addresses per project area.

MoDOT is changing the methodology for collecting data for this measure. Data collection will utilize social media platforms to gain more immediate feedback from customers impacted by projects.

### Percent of Customers Who Believe Completed Projects Are the Right Transportation Solutions







# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

*Becky Allmeroth, State Maintenance 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:**  
Becky Allmeroth  
State Maintenance Engineer

# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

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

**MEASUREMENT DRIVER:**  
Alex Wassman  
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 is collected continuously via wireless technology. 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.

From January to March 2017, travel times in St. Louis and Kansas City improved compared to the same period last year. In the first quarter of 2017, the average 10-mile travel time in St. Louis was 10.58 minutes during the morning and 11.29 minutes during the evening. For Kansas City, the average travel time was 10.54 minutes during the morning and 10.93 minutes during the evening. All average travel times are lower compared to both the previous year and the 2016 average. Overall, average speeds ranged between 48 and 57 mph.

The planning times account for unexpected delays and indicate how long customers needed to plan in order to arrive on time 95 percent of the time. In St. Louis, the average 10-mile planning times were 13.75 minutes during the morning and 15.52 minutes during the evening. This means customers in the St. Louis evening rush needed to plan 5 minutes and 31 seconds more for a 10-mile trip than they would need in free-flow conditions. In Kansas City, the average planning times were 13.14 minutes during the morning and 13.82 minutes during the evening. Customers in the Kansas City evening rush needed to plan 3 minutes and 49 seconds more for a 10-mile trip than they would need in free-flow conditions. The planning times in St. Louis and Kansas City represent average rush-hour speeds between 33 and 46 mph. Planning times in both regions were lower compared to both the previous year and the 2016 average.

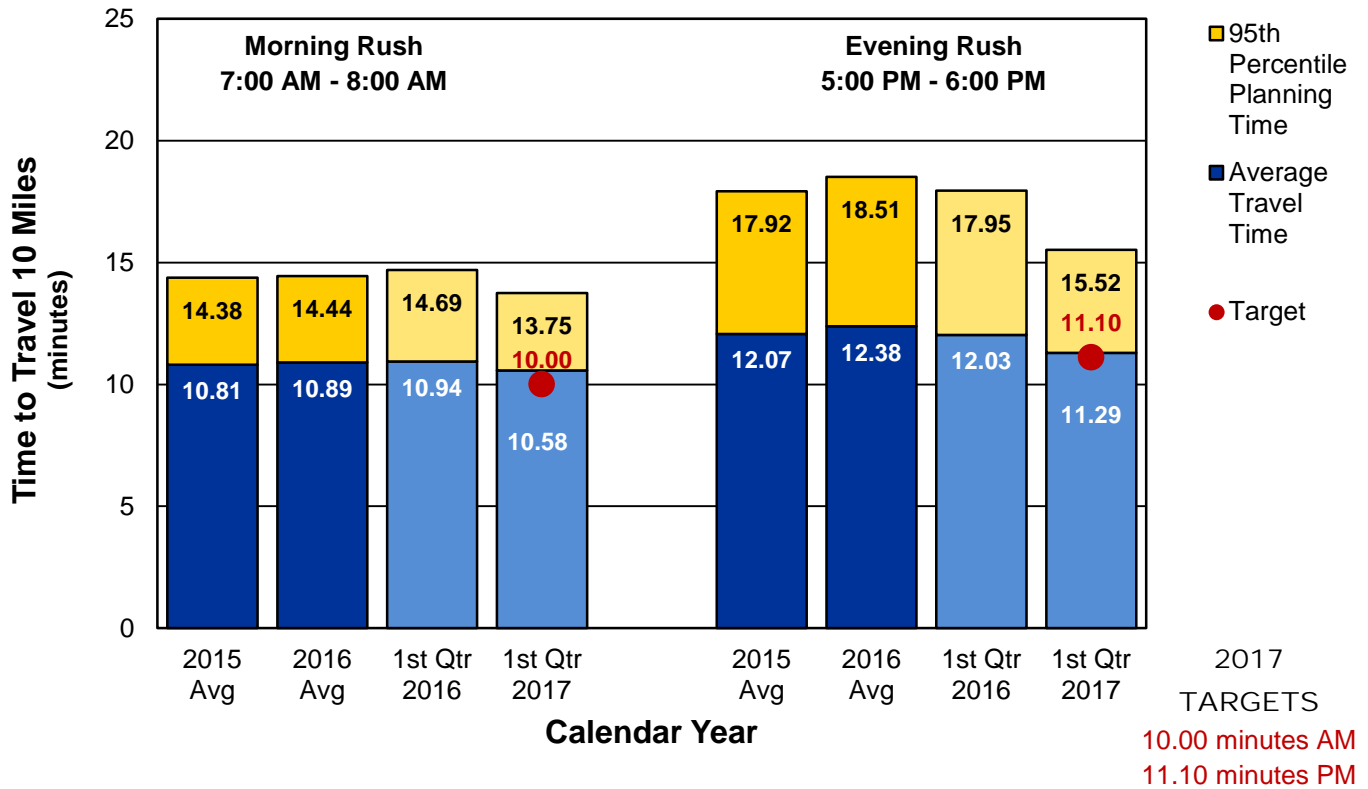
Individual freeway segments within the regions experienced longer travel times than the regional averages as depicted in the maps. The maps also depict rush-hour conditions on selected arterial routes compared to normal traffic flow during non-peak traffic conditions.



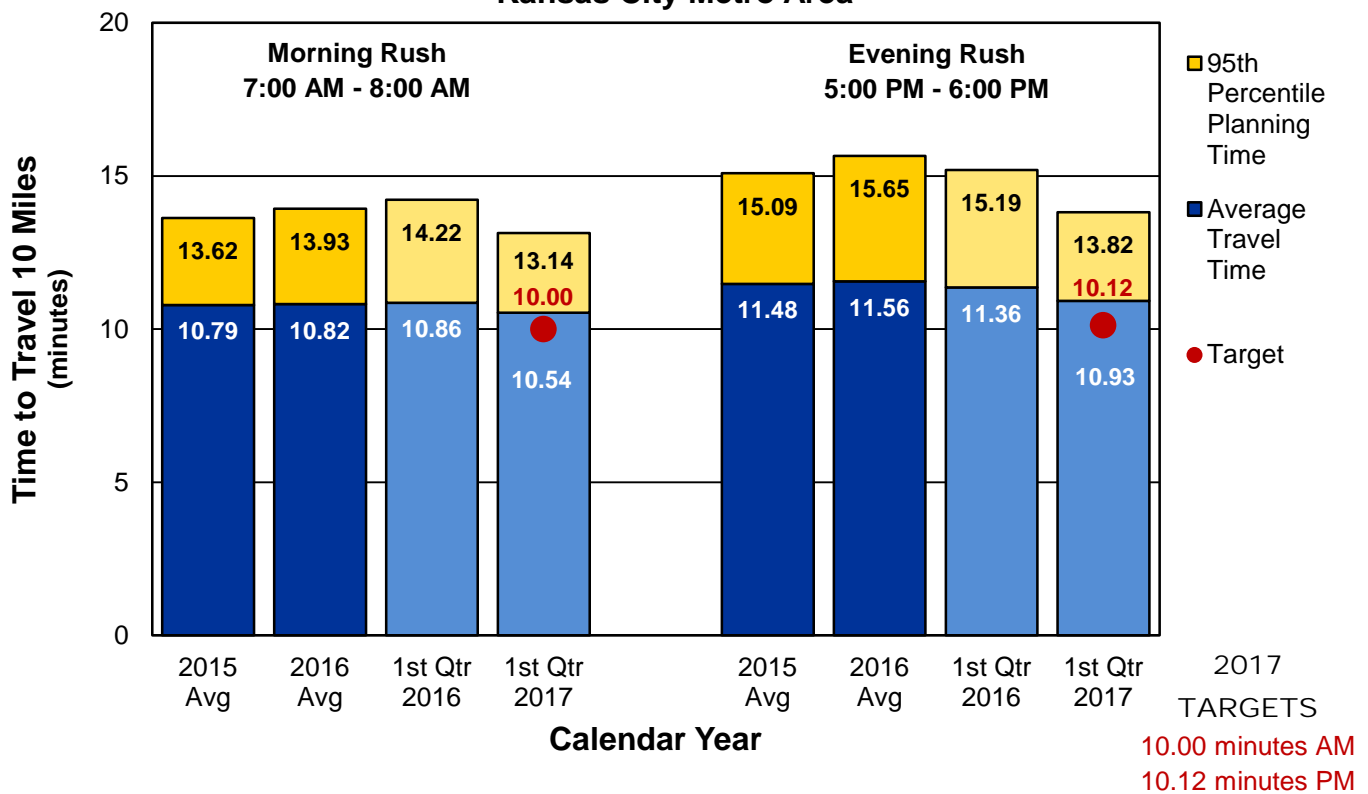


# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

## Reliability of Travel Times for Freeways St. Louis Metro Area

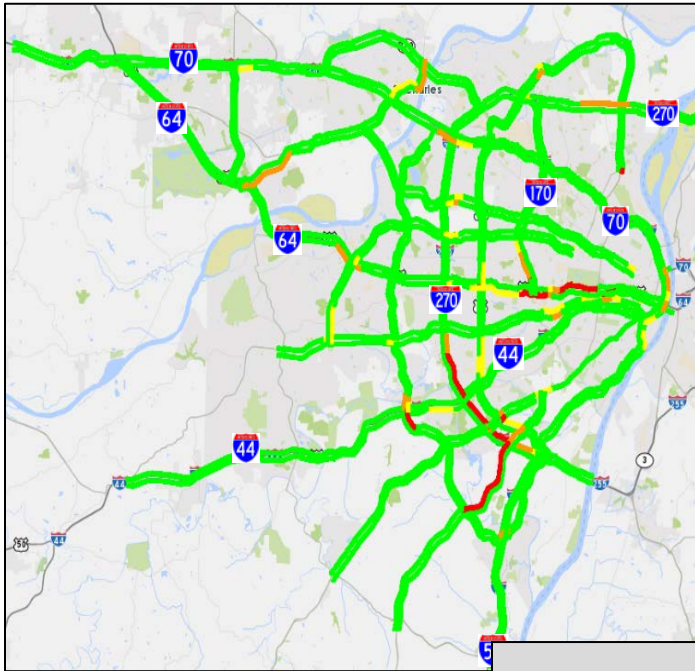


## Reliability of Travel Times for Freeways Kansas City Metro Area

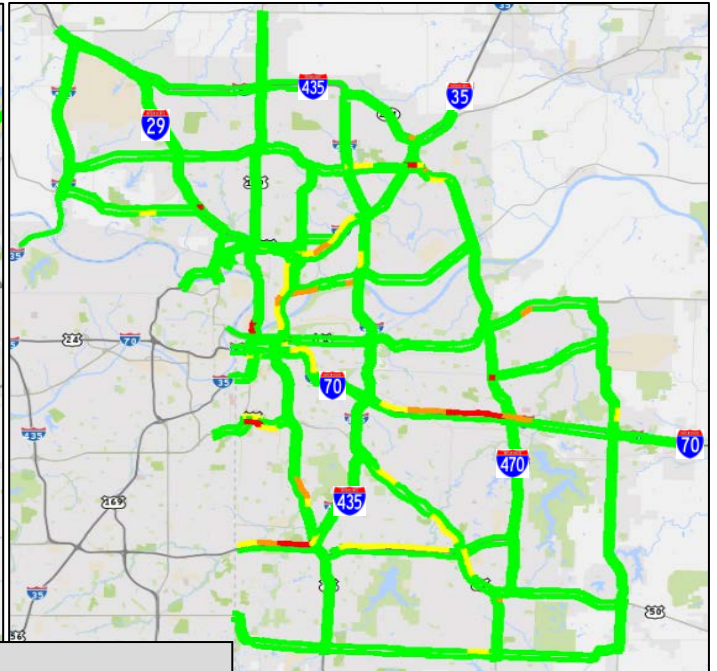


# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

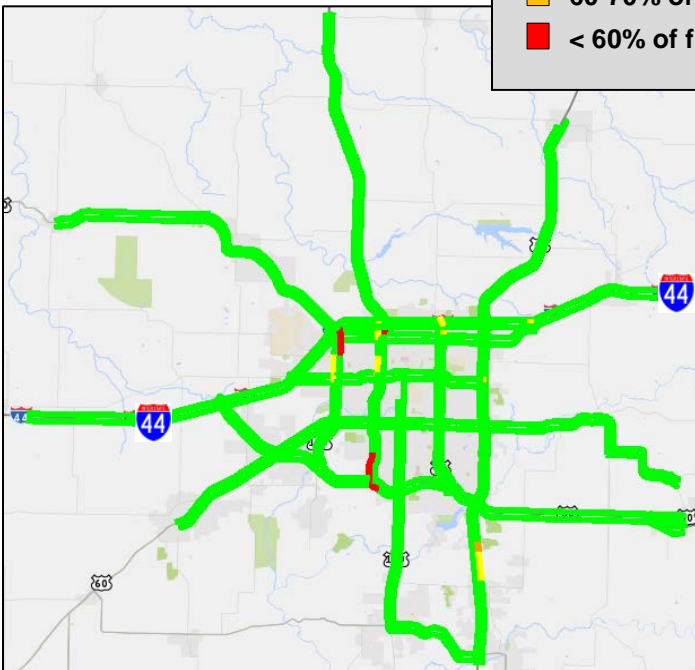
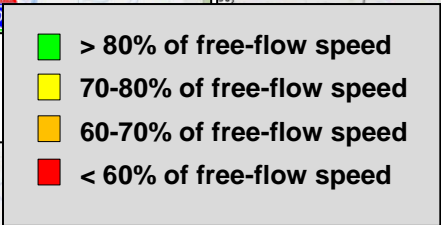
## A.M. Mobility



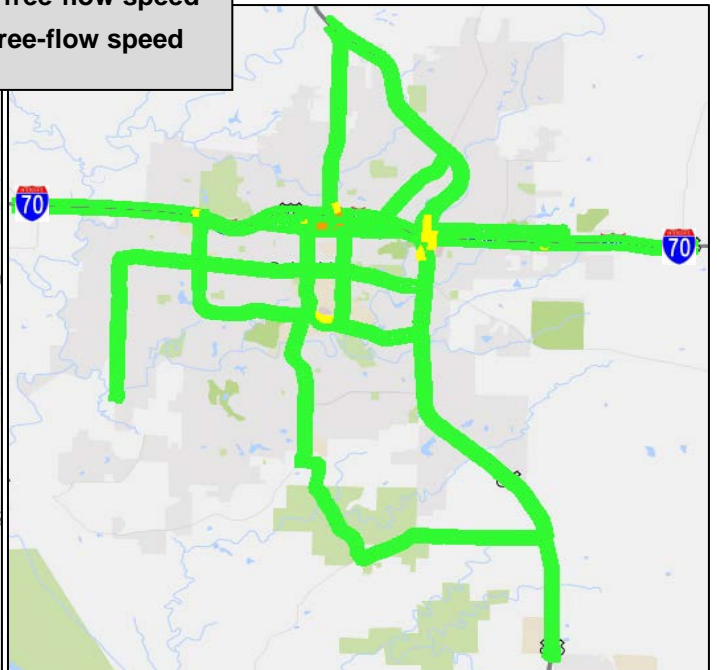
St. Louis Area



Kansas City Area



Springfield Area

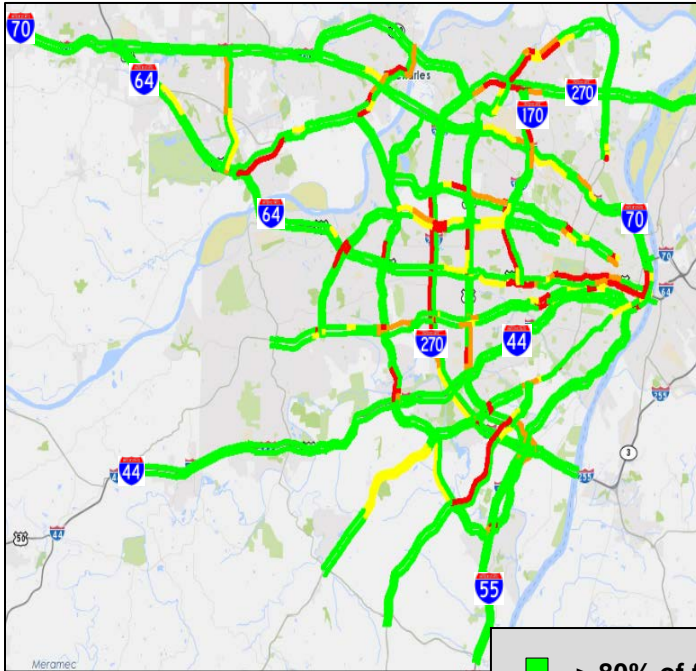


Columbia Area

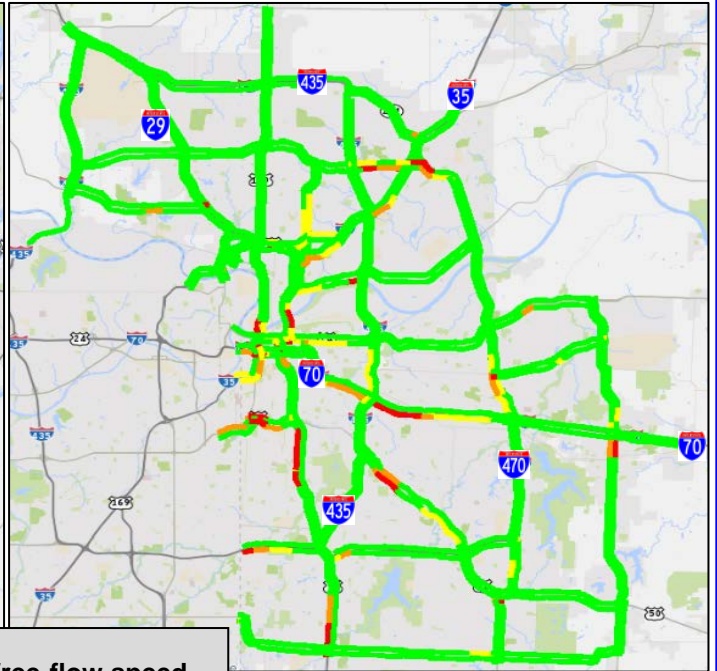


# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

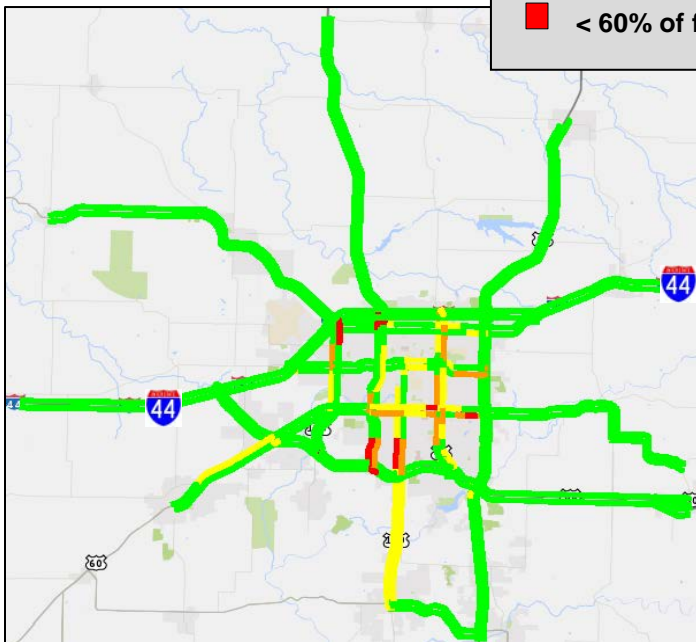
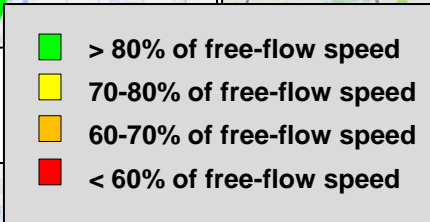
## P.M. Mobility



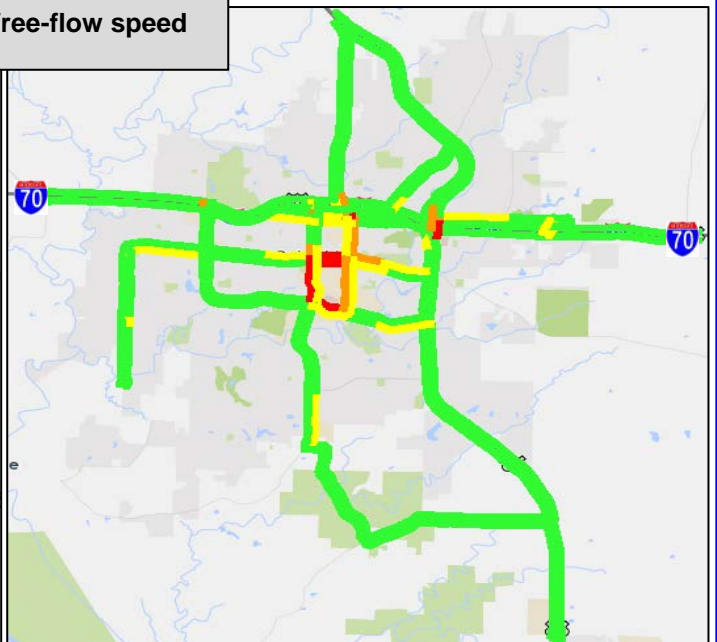
**St. Louis Area**



**Kansas City Area**



**Springfield Area**



**Columbia Area**

**RESULT DRIVER:**  
Becky Allmeroth  
State Maintenance Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

**MEASUREMENT DRIVER:**  
Jeanne Olubogun  
District Traffic Engineer

**PURPOSE OF THE MEASURE:**  
This measure tracks the annual cost and impact of traffic congestion to motorists for motorist delay, travel time, excess fuel consumed per auto commuter and congestion cost per auto commuter.

**MEASUREMENT AND DATA COLLECTION:**  
A reporting tool available in the Regional Integrated Transportation Information System looks at user delay costs. This data, in combination with industry standard costs for passenger cars and trucks, reflects the overall costs of congestion. RITIS also includes historic data so trend lines can be tracked and evaluated. The unit cost per passenger car is \$17.67 per hour and is obtained from the Texas A&M Transportation Institute. The unit cost per truck is \$68.09 obtained from the American Transportation Research Institute, which specializes in tracking freight mobility and provides the best source of data related to freight costs. For previous reporting, the department used data provided by the TTI, which annually produces the Urban Mobility Report.

### *Cost and impact of traffic congestion – 5b*

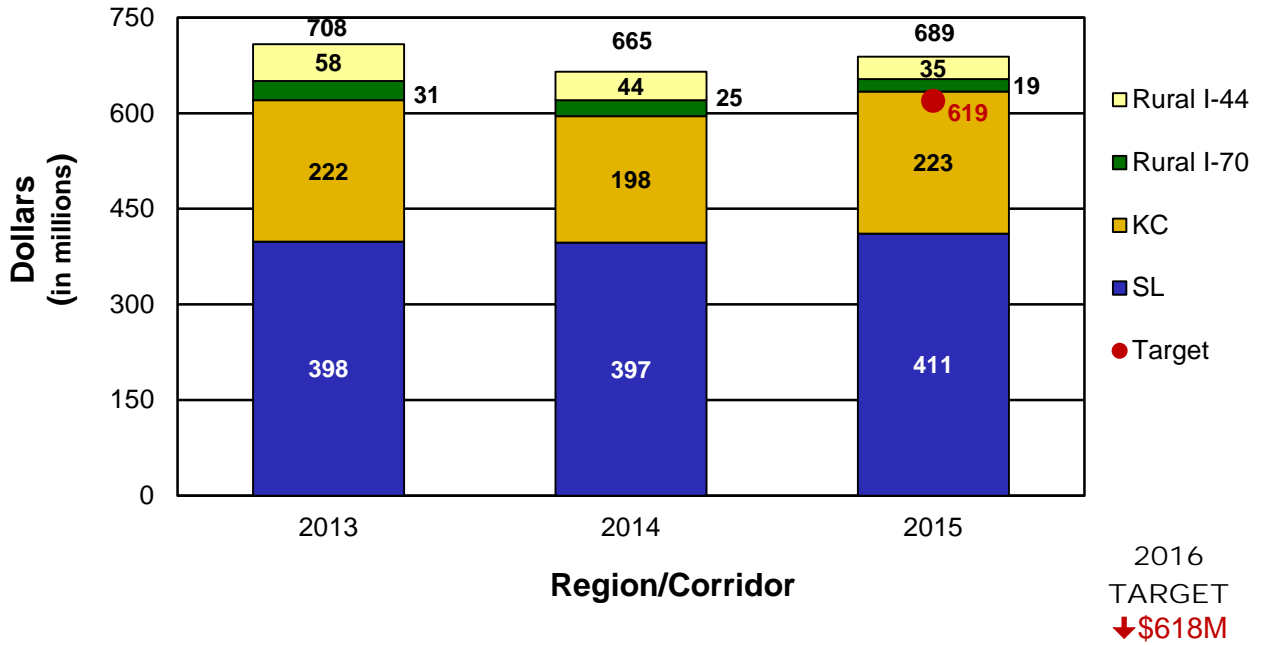
Recurring congestion occurs at regular times, although the traffic jams are not necessarily consistent day-to-day. Nonrecurring congestion is an unexpected traffic crash or natural disaster that affects traffic flow. When either occurs, the time required for a given trip becomes unpredictable. This unreliability 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, looking beyond typical solutions of adding capacity. 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.

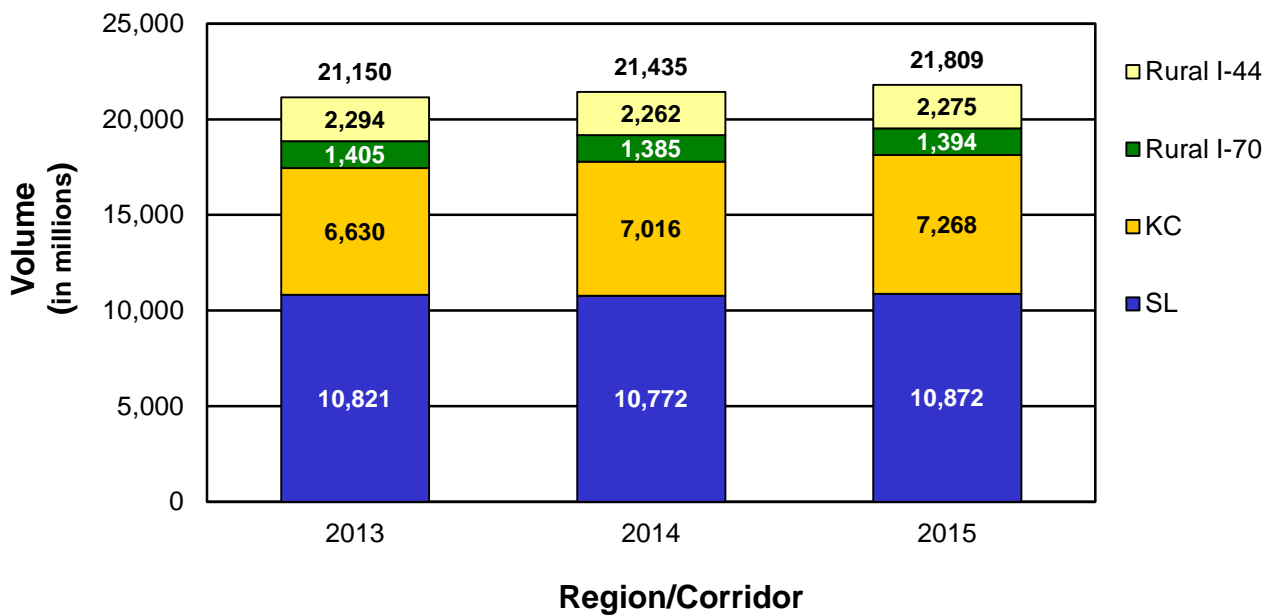


# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

## Cost of Congestion on Selected State Roads



## Traffic Volume on Selected State Roads





**RESULT DRIVER:**  
Becky Allmeroth  
State Maintenance Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

### *Average time to clear traffic incident – 5c*

**MEASUREMENT DRIVER:**  
Randy Johnson  
Traffic Center Manager

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

**MEASUREMENT AND DATA COLLECTION:**  
Advanced transportation management systems are used by the Kansas City and St. Louis traffic management centers to record incident start time and the time when all lanes are declared cleared. Traffic incidents can be divided into three general classes of duration set forth by the Manual on Uniform Traffic Control Devices that include minor, intermediate and major. Each class has unique traffic control characteristics and needs.

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, debris and stalled vehicles) improves system performance.

St. Louis recorded 2,399 incidents in first quarter of 2017. The average time to clear traffic incidents was 26.1 minutes, the same as the first quarter of 2016.

Kansas City recorded 1,709 incidents in the first quarter of 2017. The average time to clear traffic incidents was 24.3 minutes, a decrease of three percent from the first quarter of 2016.

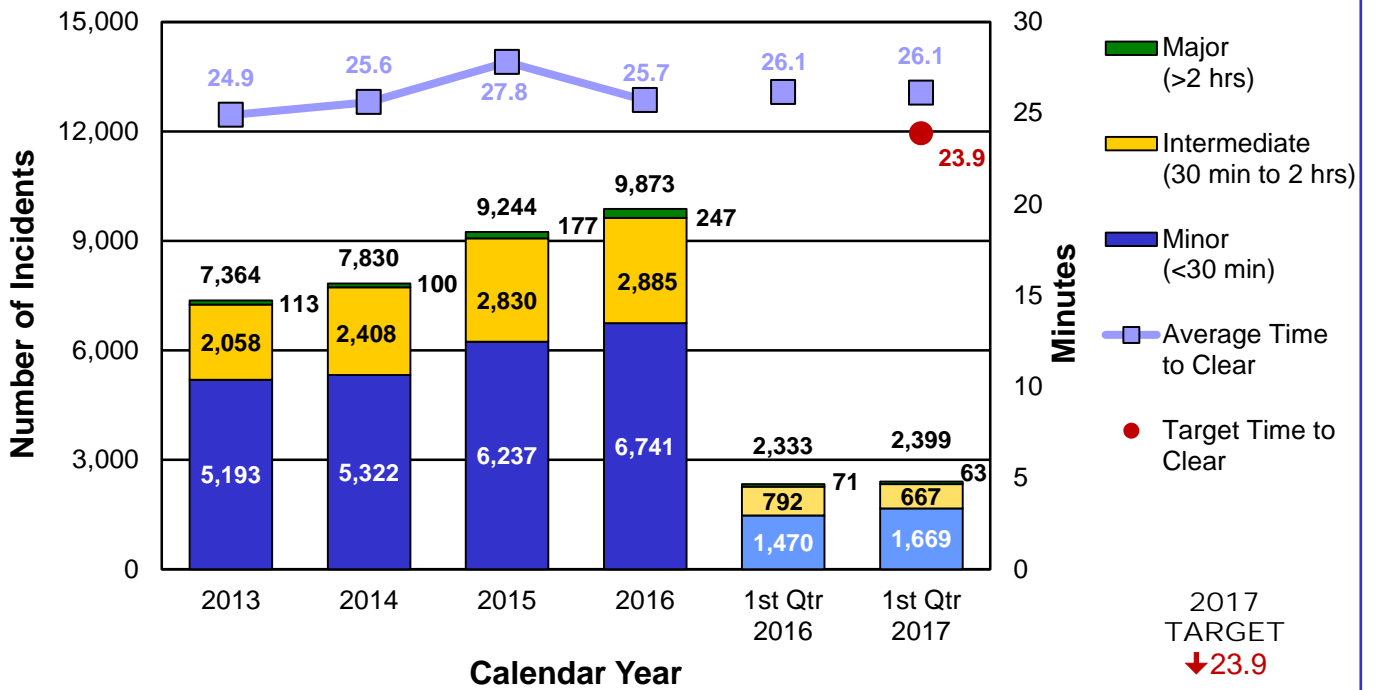
The first quarter for Kansas City and St. Louis revealed an array of incidents that ranged from single vehicle crashes, hazardous material and first responders being struck. Kansas City and St. Louis used communication, coordination and data to reduce the average time to clear. Kansas City and St. Louis continued to increase their push/pull efforts to remove vehicles from the travel lane. Coordination was a focus during the Incident Management Coordinators quarterly meeting in Jefferson City. In preparation for the joint statewide Traffic Management Center and Motor Carriers meeting, the Motor Carriers Tractor Trailer Incident Report was developed. Data was the focus of this report and included the time of day incidents occurred, incident locations, and probable contributing circumstances.



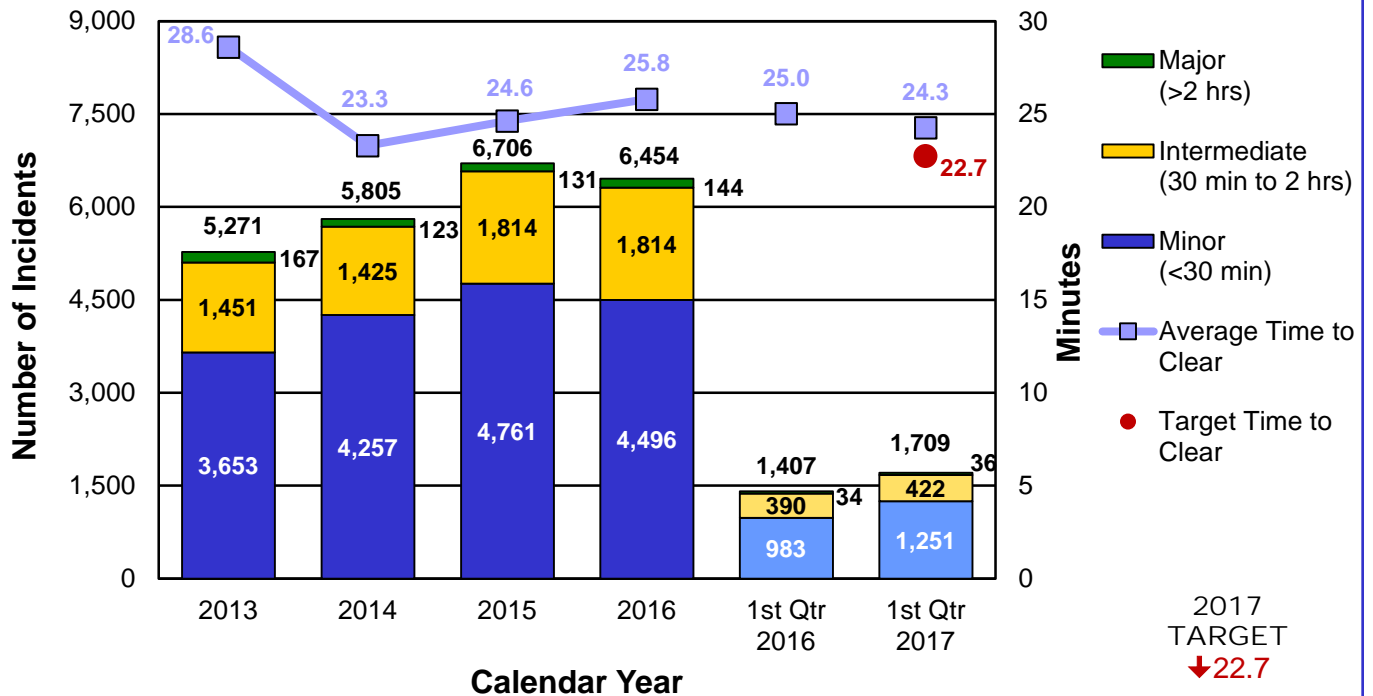


# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

## Average Time to Clear Traffic Incident St. Louis



## Average Time to Clear Traffic Incident Kansas City



RESULT DRIVER:  
Becky Allmeroth  
State Maintenance Engineer

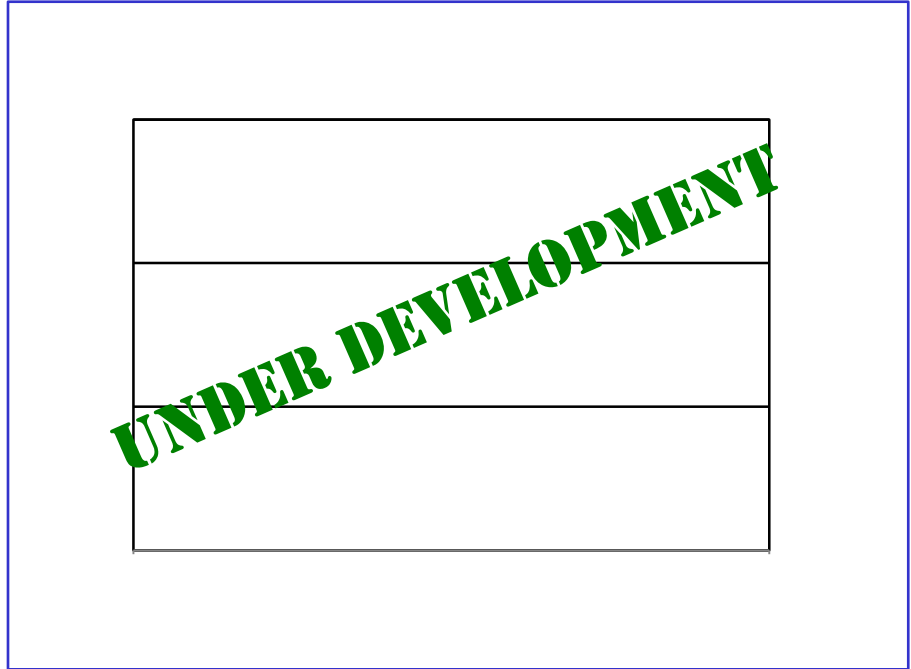
# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

*Traffic incident impacts on major interstate  
routes – 5d*

MEASUREMENT  
DRIVER:  
Laurel McKean  
Assistant District Engineer

PURPOSE OF  
THE MEASURE:  
This measure tracks the traffic  
incident impacts on Interstate  
70 and Interstate 44 due to  
highway incidents.

MEASUREMENT AND  
DATA COLLECTION:  
Interstate route closures  
having 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. By  
using the incident locations  
identified from the Traveler  
Information Map data along  
with the Regional Integrated  
Transportation Information  
System, real-time durations  
and delays for these incidents  
can be identified. The impact  
duration is the total amount of  
time that there was a  
noticeable impact on traffic  
speeds as a result of the  
incident regardless of how long  
the actual incident closure  
lasted. The maximum delay is  
the longest delay that an  
individual traveler would have  
experienced as a result of the  
incident. What is important  
about these measurements is  
that they represent the impacts  
that are "felt" by our customers  
resulting from incident  
closures.



**RESULT DRIVER:**  
Becky Allmeroth  
State Maintenance Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

**MEASUREMENT DRIVER:**  
Jon Nelson  
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 using automated data collection or by visual observations. An impact is defined as the additional time a work zone adds to normal travel. Impacts resulting in a delay of at least 10 minutes are included in this report. The targeted number of impacts represents a ten percent improvement from the previous two years of data based on the number of lane closures during a given quarter.

### *Work zone impacts to the traveling public – 5e*

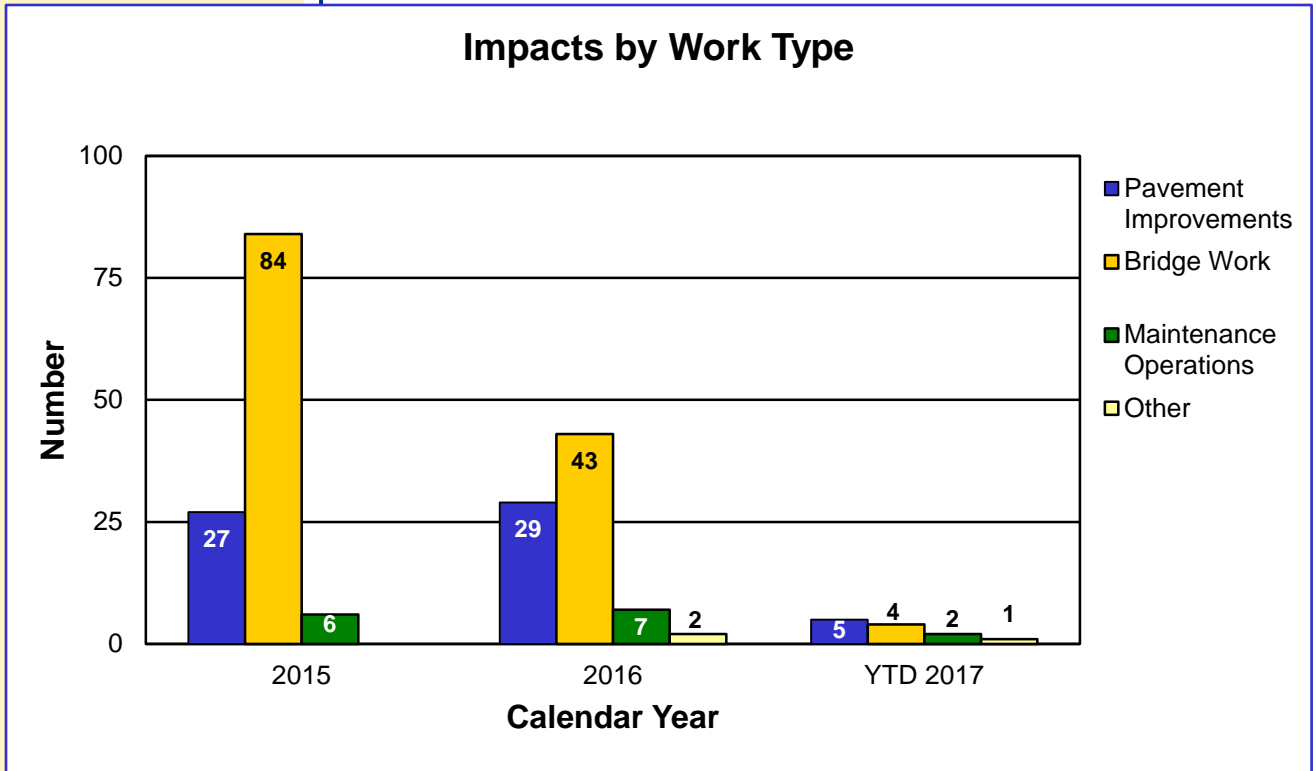
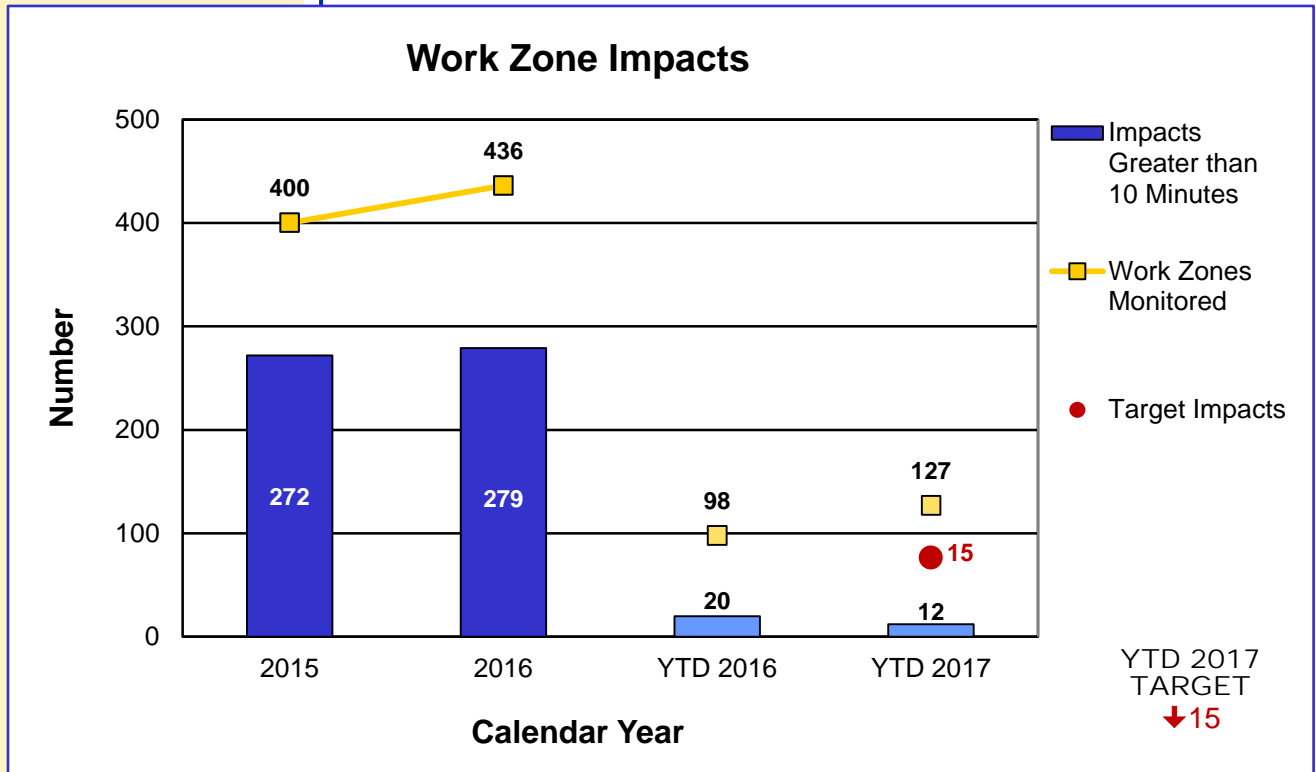
Motorists want to get through work zones with as little inconvenience as possible. MoDOT tries to minimize the travel impacts by shifting work to nighttime hours or during times when there are fewer impacts to the traveling public. Other strategies include using technology in work zones, providing valuable information to customers, and innovative uses of traffic control devices to promote efficient traffic flow. To measure the effectiveness of these strategies, each quarter MoDOT monitors the performance of work zones with the greatest potential to impact traffic.

From January to March 2017, MoDOT monitored 127 significant work zones with 12 instances in which traffic was delayed for at least 10 minutes. Four of the delays occurred during a resurfacing project on I-55 in New Madrid County. Three others occurred during bridge work in St. Louis City. Compared to delays experienced in 2015 and 2016 from January to March, there were three fewer impacts than targeted for this quarter.

Between 2015 and 2016, bridge work accounted for the majority of work zone delays, followed by pavement improvements. This trend has continued so far in 2017 with these types of work accounting for 75 percent of the delays.



# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM





**RESULT DRIVER:**  
Becky Allmeroth  
State Maintenance Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

### *Time to meet winter storm event performance objectives – 5f*

**MEASUREMENT DRIVER:**  
Arisa Prapaisilp  
Assistant District Maintenance 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 operations" 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 classifications.

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.

Winter storm Jupiter impacted Missouri January 13-15, 2017. MoDOT's response to this storm prompted a visit to the Jefferson City maintenance facility by Governor Eric Greitens where he stated "The people of Missouri were counting on you. And today, because of the work you did, people are waking up with their kids and grandkids. Families are whole because of the work you did. You saved lives. And I just want you to know how incredibly impressed I was with the work that you put in."

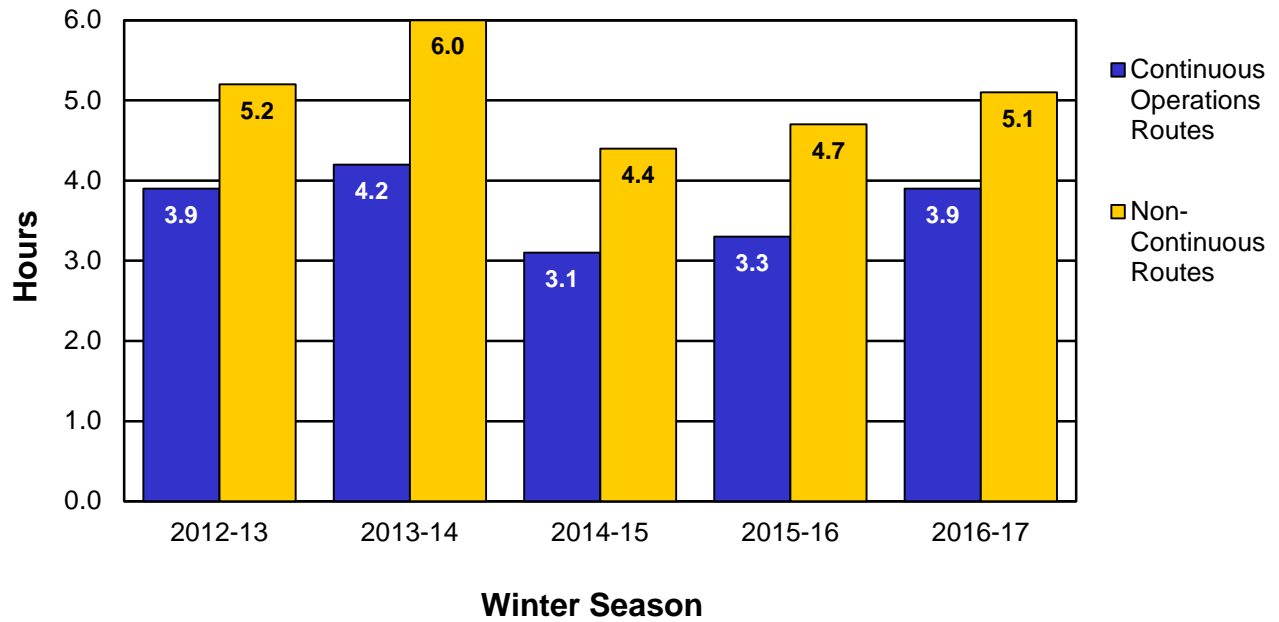
Although this winter was relatively light, one event from Dec. 16-19, 2016, had a tremendous impact. Lower than forecasted temperatures paired with widespread freezing fog and mist resulted in substantial traffic delays, which impeded the efforts to clear the roads. Times needed to clear the roads were higher during this event. Despite this, the average times to meet MoDOT's objectives so far this winter are 3.9 hours for continuous operations routes, and 5.1 hours for non-continuous routes. These numbers still compare favorably with the type of storms received and MoDOT's historical performance.

Winter operations, on average, cost about \$43 million per year. As of March 31, 2017, MoDOT has expended \$27.9 million responding to events this winter. With less money spent on clearing the roads of snow and ice because of a light winter, these savings mean more funds are available to maintain the roadways in the spring to complete surface improvements, sign repair, brush cutting and drainage work.

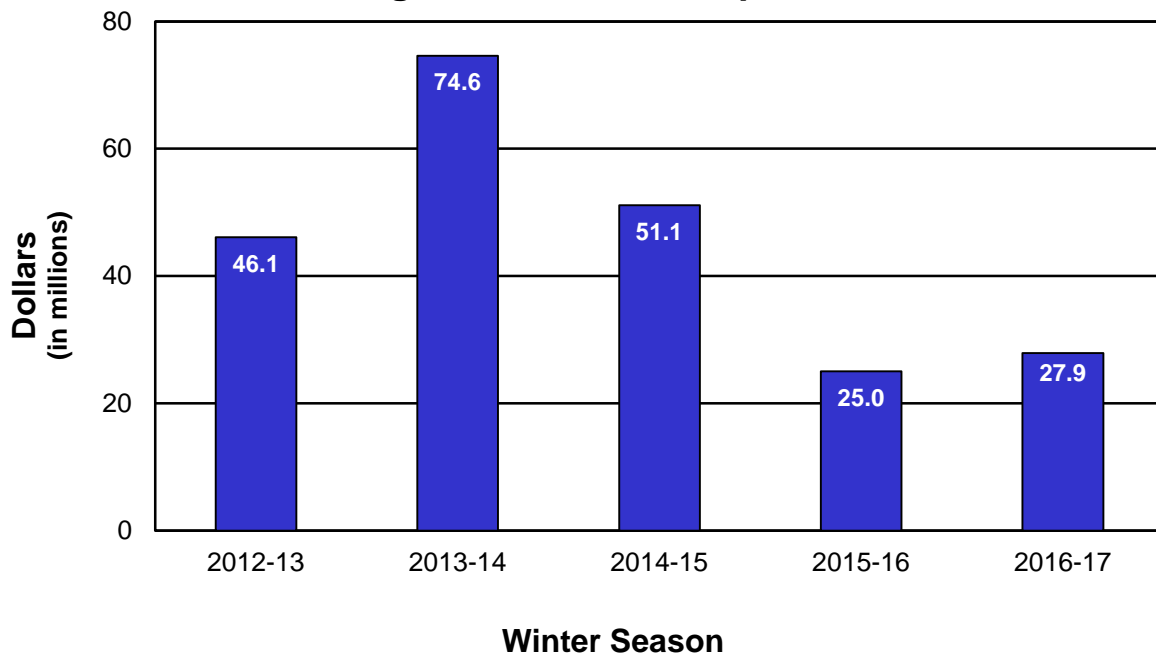


# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

## Average Time to Meet Winter Storm Event Performance Objectives



## Average Cost of Winter Operations



**RESULT DRIVER:**  
Becky Allmeroth  
State Maintenance Engineer

# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

## *Bike/pedestrian and ADA transition plan improvements – 5g*

**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 within the right of way, such as sidewalks and traffic signals. Removal of the barriers listed in MoDOT's 2010 ADA Transition Plan is required as part of the department's compliance with the Americans with Disabilities Act.

**MEASUREMENT AND DATA COLLECTION:**  
Tracking of MoDOT's investment in pedestrian facilities is done by collecting awarded contract amounts for the 20 most common construction elements used on pedestrian projects each year. ADA Transition Plan progress is based upon completed work that has corrected defective items reported in the August 2010 ADA Transition Plan inventory. The dollar amounts are based on unadjusted estimates from 2008 and will not reflect actual expenditures. This avoids impacts from inflation or changing field conditions. A progress target line is included to show where MoDOT progress should be in order to fully complete the ADA Transition Plan by 2027.

MoDOT has improved more than \$19.5 million of deficient Americans with Disabilities Act (ADA) facilities in the right of way since 2008. However, additional work totaling more than \$131.8 million is necessary to complete the 2010 ADA Transition Plan inventory by the August 2027 completion date. To meet the MHTC commitment, MoDOT needs to be completing more than \$13 million of improvements each year until 2027.

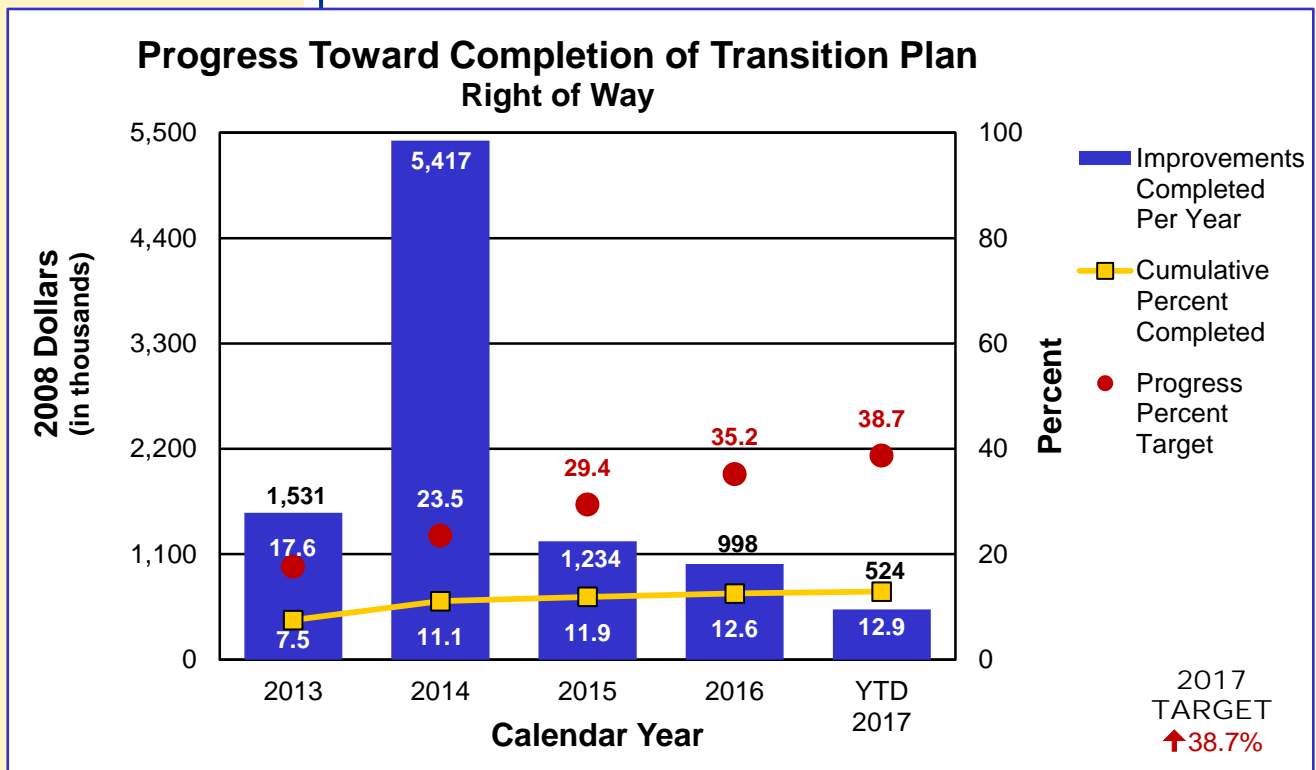
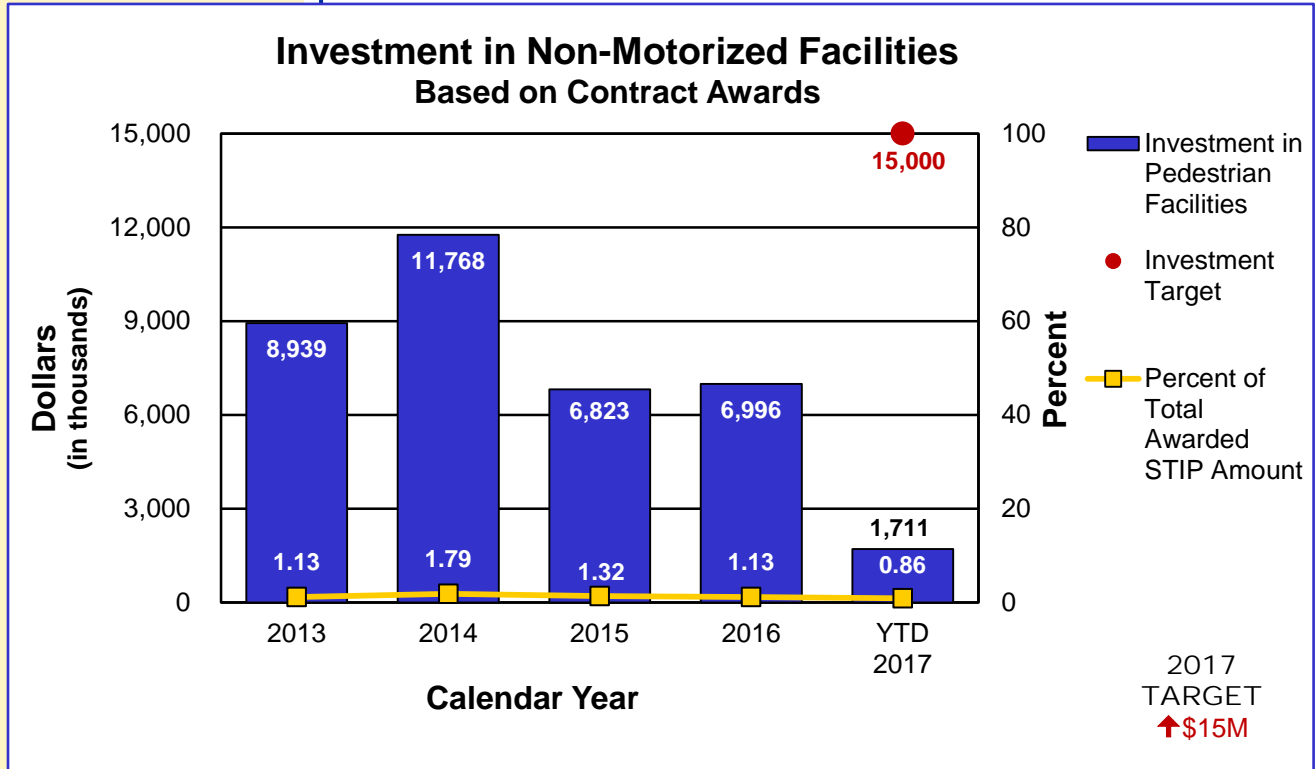
In February 2016, the Missouri Highways and Transportation Commission included money in the 2017-2021 State Transportation Improvement Plan for funding ADA Transition Plan improvements. This \$5 million per year funding is in addition to \$8.5 million per year of Transportation Alternatives Program funding dedicated to the ADA work on the state highway system. Missouri now has a dedicated funding source of \$13.5 million per year toward completion of the ADA Transition Plan.

In the first quarter of 2017, MoDOT completed \$524,000 in ADA improvements. Projecting this amount forward gives an annual improvement of only \$2.09 million. This is well below the needed pace of \$13 million per year needed in order to complete the required ADA improvements by the 2027 completion date. Significant improvement in this measure is necessary so MoDOT can complete the ADA Transition Plan improvement projects by August 2027.

Since 2008, MoDOT has invested more than \$63.5 million in pedestrian facilities statewide. In 2014, the annual investment was an all-time high of \$11.7 million. In the first quarter of 2017, MoDOT invested a total of only \$1.7 million in pedestrian facilities. This is an annual investment rate of \$6.8 million. Improvement in this area is necessary to complete the ADA Transition Plan by August 2027.



# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM





**RESULT DRIVER:**  
Becky Allmeroth  
State Maintenance Engineer

## OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM

**MEASUREMENT DRIVER:**  
Amy Ludwig  
Administrator of Aviation

### *Use of non-highway modes of transportation – 5h*

**PURPOSE OF THE MEASURE:**  
This measure tracks passenger use of non-highway modes of transportation in Missouri.

Planes, trains, ferries and transit are vital means of alternative transportation mode for travelling to work, healthcare and other necessary activities. These modes are also used to grow Missouri's economy and create jobs. Missouri's current transportation funding for these modes is inadequate, unreliable and does not meet the existing needs for these important transportation system components.

**MEASUREMENT AND DATA COLLECTION:**

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. Airline passenger counts are obtained from the Federal Aviation Administration. The state of Washington is the benchmark due to its comparable population.

Ferryboat and rail data is updated quarterly while aviation and transit data is updated annually in October.

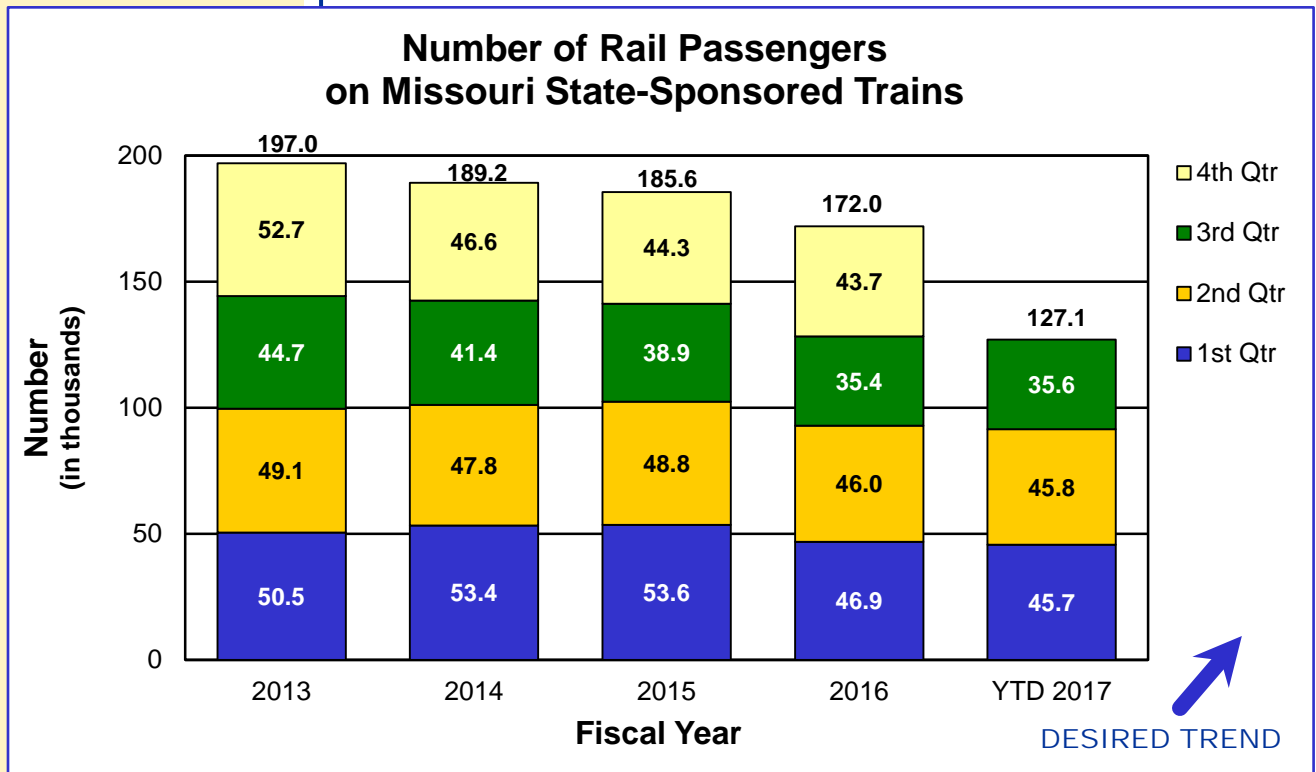
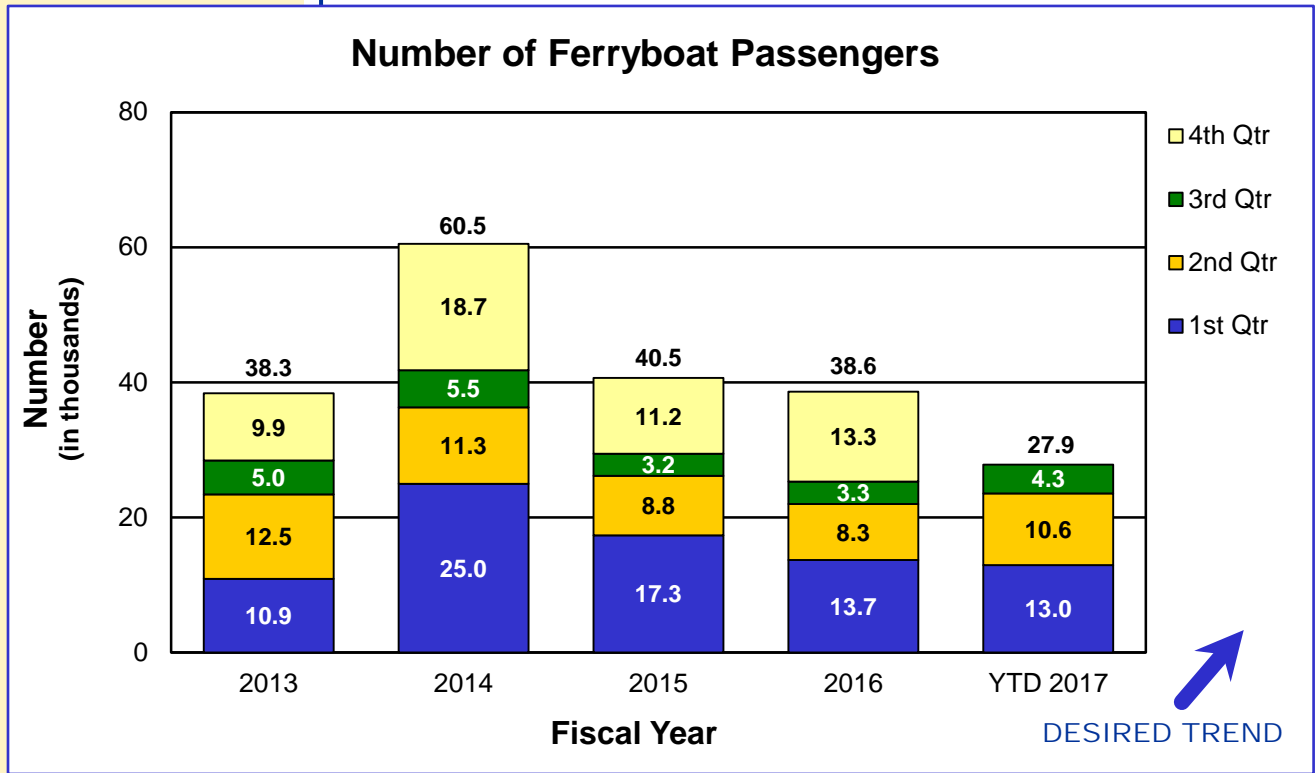
The number of ferryboat passengers for the third quarter of fiscal year 2017 totaled 4,273, an increase from the 3,341 passengers for the same period last year. However, direct comparisons between these two quarters should not be made because of long-term service disruptions. This year, the New Bourbon ferry was closed from December until early March for inspections and repairs. In 2016, the Mississippi County ferry was closed for repairs during the months of February and March.

In the third quarter of FY 2017, Amtrak Missouri River Runner ridership increased slightly to 35,560 passengers, compared to 35,383 passengers for the same period last year. The increase was primarily due to stronger ridership in January. Revenues, which help offset the cost of the service, are up 6.5 percent. Low gas prices and high-speed rail construction between Chicago and St. Louis continue to impact ridership. Amtrak and MoDOT are trying to combat those impacts with several discounted ticket offers.

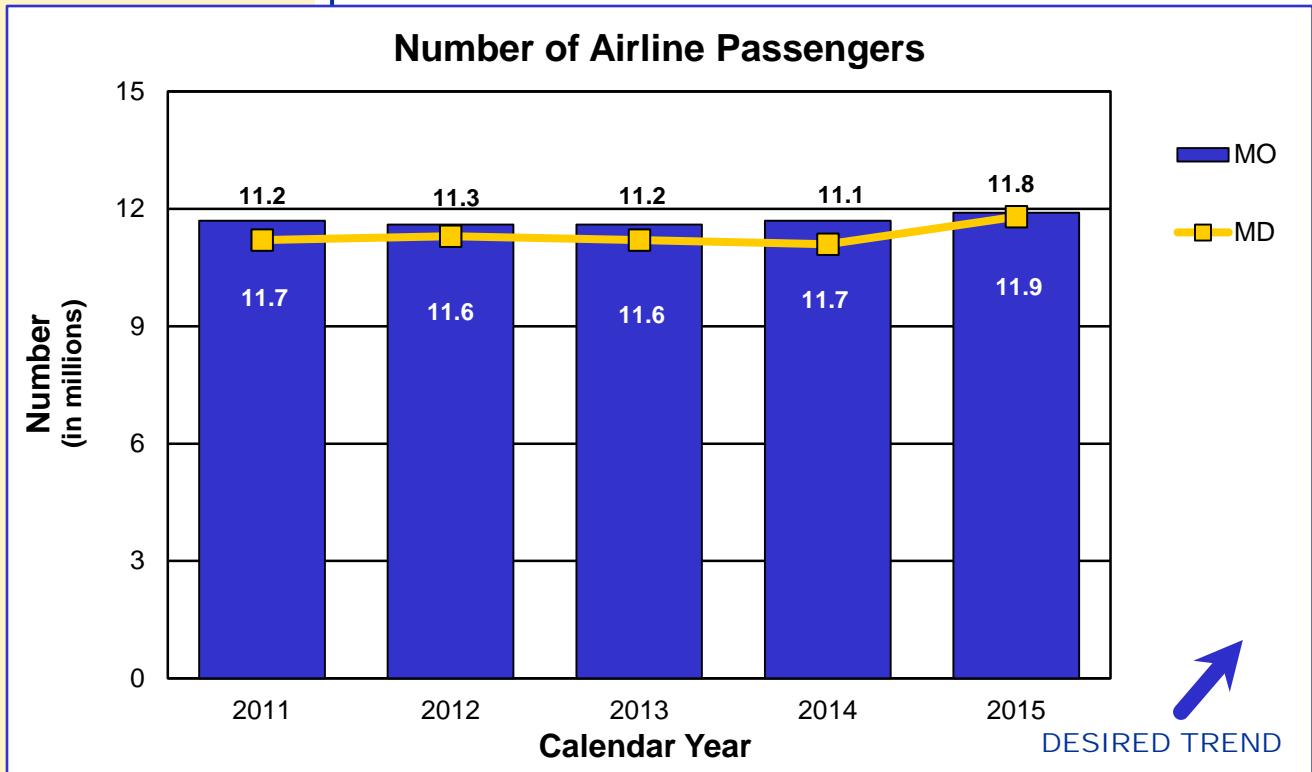
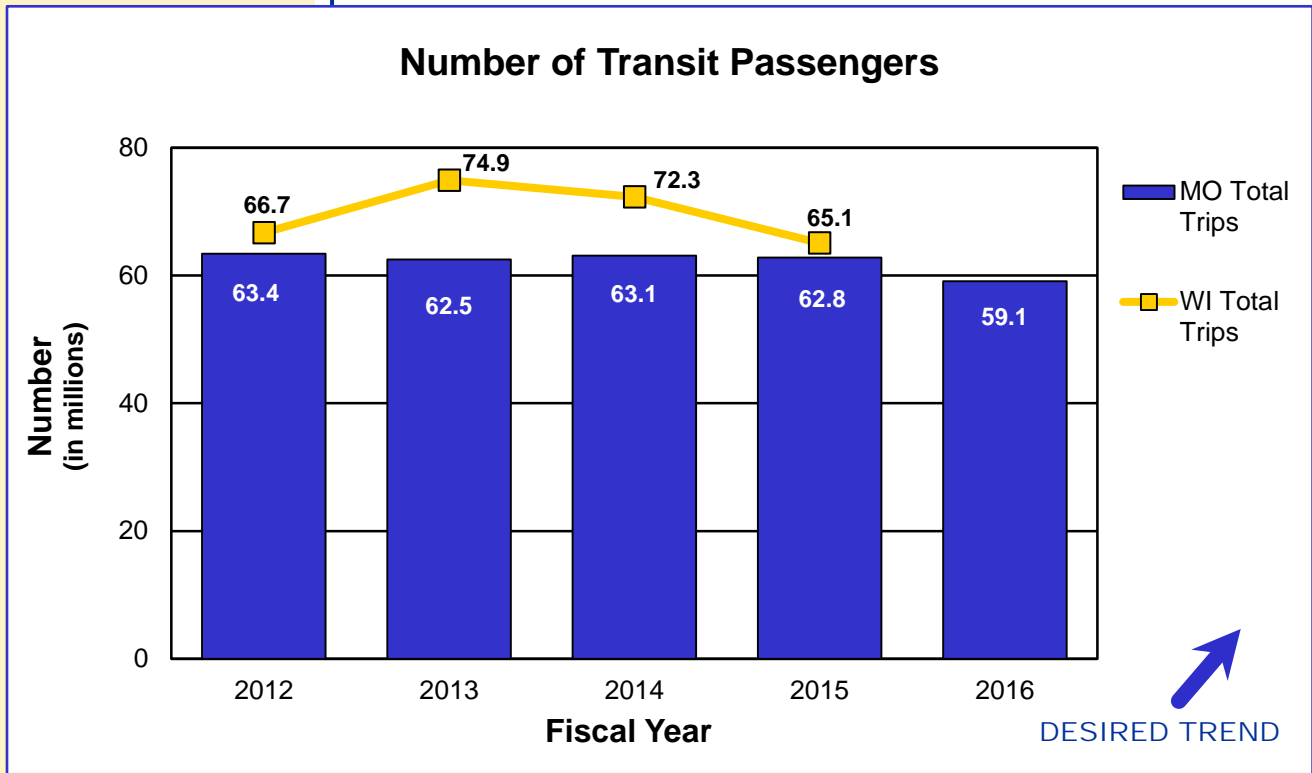
Transit ridership showed a decrease from 62.8 million trips in FY 2015 to 59.1 million trips in FY 2016. Urban ridership, which accounts for more than 95 percent of total state ridership, decreased 6.1 percent in FY 2016, while rural ridership increased 1.1 percent. The overall decrease in ridership in FY 2016 can be attributed to low gas prices.

The number of airline passengers has remained fairly steady from 2011 to 2015, with a slight increase in passenger boardings for 2015. In July 2016, MoDOT issued air service grants to commercial service airports, which can be used for air service promotion and marketing and to study potential new routes. The ability to issue these grants is tied to the amount of revenue deposited in the state Aviation Trust Fund per calendar year. Due to declining revenues, air service grants will not be issued in FY 2018.

# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM



# OPERATE A RELIABLE AND CONVENIENT TRANSPORTATION SYSTEM







## USE RESOURCES WISELY

*Brenda Morris, Financial Services Director*

# Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE





MoDOT has access to many resources including people, funding, supplies and equipment. Taxpayers trust MoDOT is a good steward of these limited resources while limiting the impact on our environment. We are accountable for everything we do.



**RESULT DRIVER:**  
 Brenda Morris  
 Financial Services Director

## USE RESOURCES WISELY

### Number of full-time equivalencies expended – 6a

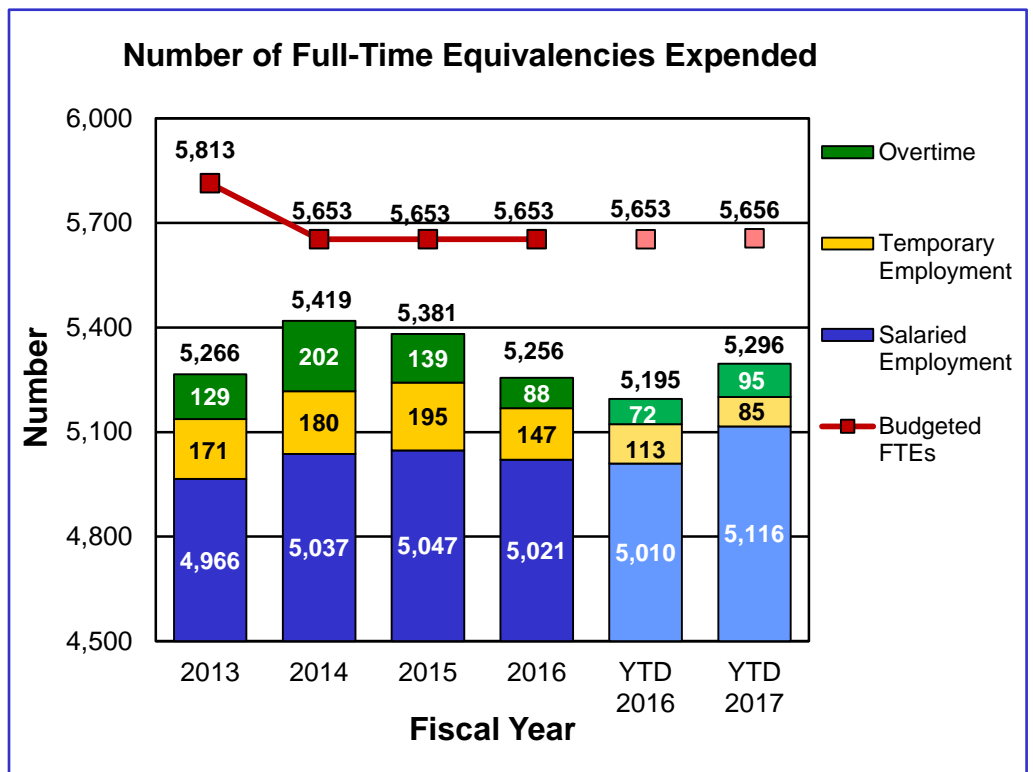
**MEASUREMENT DRIVER:**  
 Paul Imhoff  
 Special Projects Coordinator

**PURPOSE OF THE MEASURE:**  
 This measure tracks the change in the number of full-time equivalencies (a calculation of hours) expended within the department and compares it to the number of FTEs in the legislative budget.

**MEASUREMENT AND DATA COLLECTION:**  
 This measure converts the regular hours worked or on paid leave of temporary and salaried employees, as well as overtime worked (minus any hours that are flexed during the workweek), to FTEs. In order to calculate FTEs, the total number of hours worked or on paid leave is divided by 2,080. For comparison purposes, data for salaried employment is annualized, whereas temporary employment and overtime data represent actual year-to-date calculations. Salaried headcount is different than FTEs and is not included in the chart.

Having the right number of employees to provide outstanding customer service and respond to the state’s transportation needs, especially during emergency situations, is an important part of MoDOT’s effort to use resources wisely.

During the first three quarters of fiscal year 2017, the number of FTEs expended increased by 101, or 2 percent, compared to the same time last year. The increase in salaried employment FTEs is due to continued full-time overstaffing in field maintenance as well as improvements in staffing vacancies in non-maintenance positions statewide. The increase in overtime FTEs is due primarily to overtime hours worked during ice events in December and January, and to a lesser extent during events in February and March. Conversely, FTEs for temporary employment decreased significantly compared to the same time last year as the department moved from a focus on hiring seasonal maintenance workers for winter season to more full-time maintenance overstaffing.



RESULT DRIVER:  
Brenda Morris  
Financial Services Director

## USE RESOURCES WISELY

### *Level of job satisfaction – 6b*

MEASUREMENT  
DRIVER:  
Rudy Nickens  
Equal Opportunity and  
Diversity Director

PURPOSE OF  
THE MEASURE:  
This measure tracks the level  
of employee satisfaction  
throughout the department at  
specific points in time.

MEASUREMENT AND  
DATA COLLECTION:  
Employee satisfaction is  
measured with a bi-annual  
employee survey in even-  
numbered years. Employees  
rate items related to their  
satisfaction with MoDOT using  
a five-point scale, with one  
indicating low satisfaction and  
five indicating high satisfaction.  
Society for Human Resources  
Management best practice  
data was gathered from an  
SHRM report of an annual job  
satisfaction survey of 55  
Fortune 500 companies.

MoDOT wants employees to be satisfied with their work and workplace and feel like they are a good fit for their jobs. Employee satisfaction can be a driver of overall organizational performance. The more satisfied and engaged employees are with the workplace, the more discretionary effort they are willing to put forth on the job.

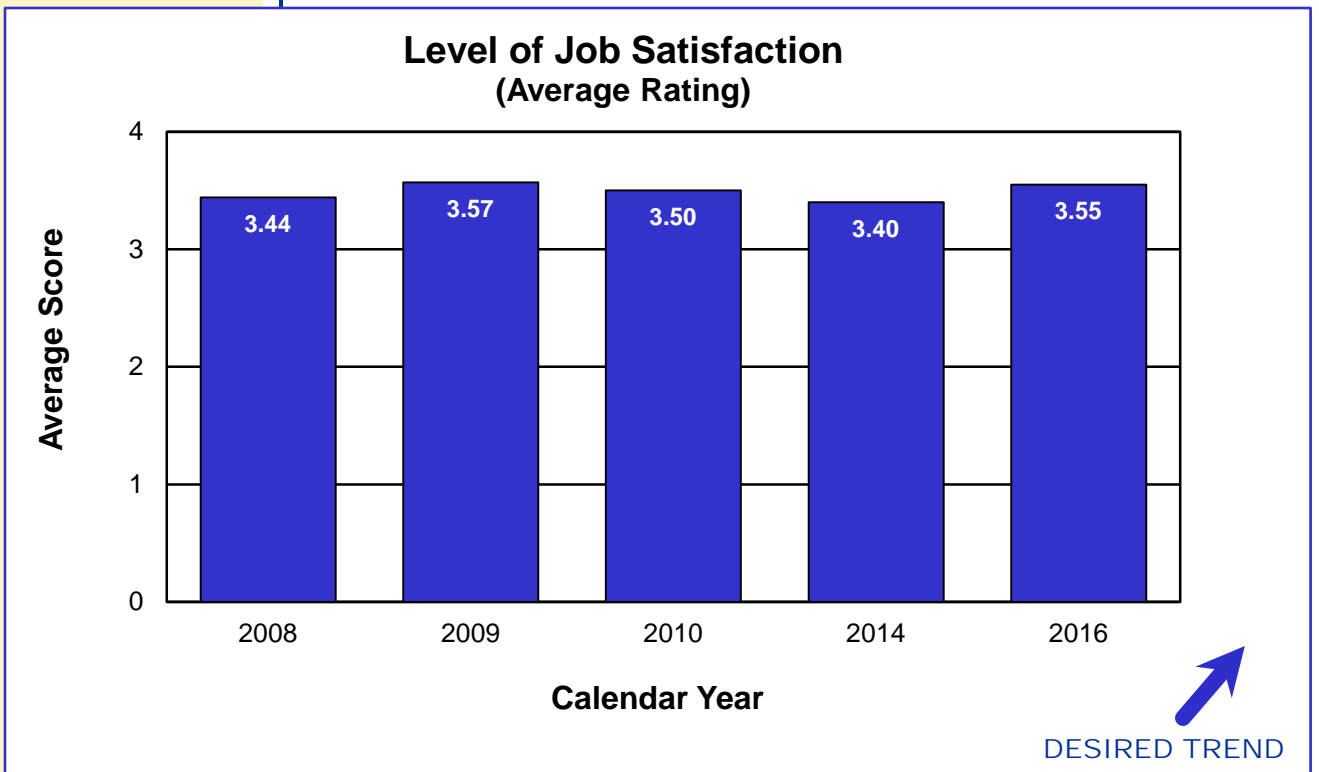
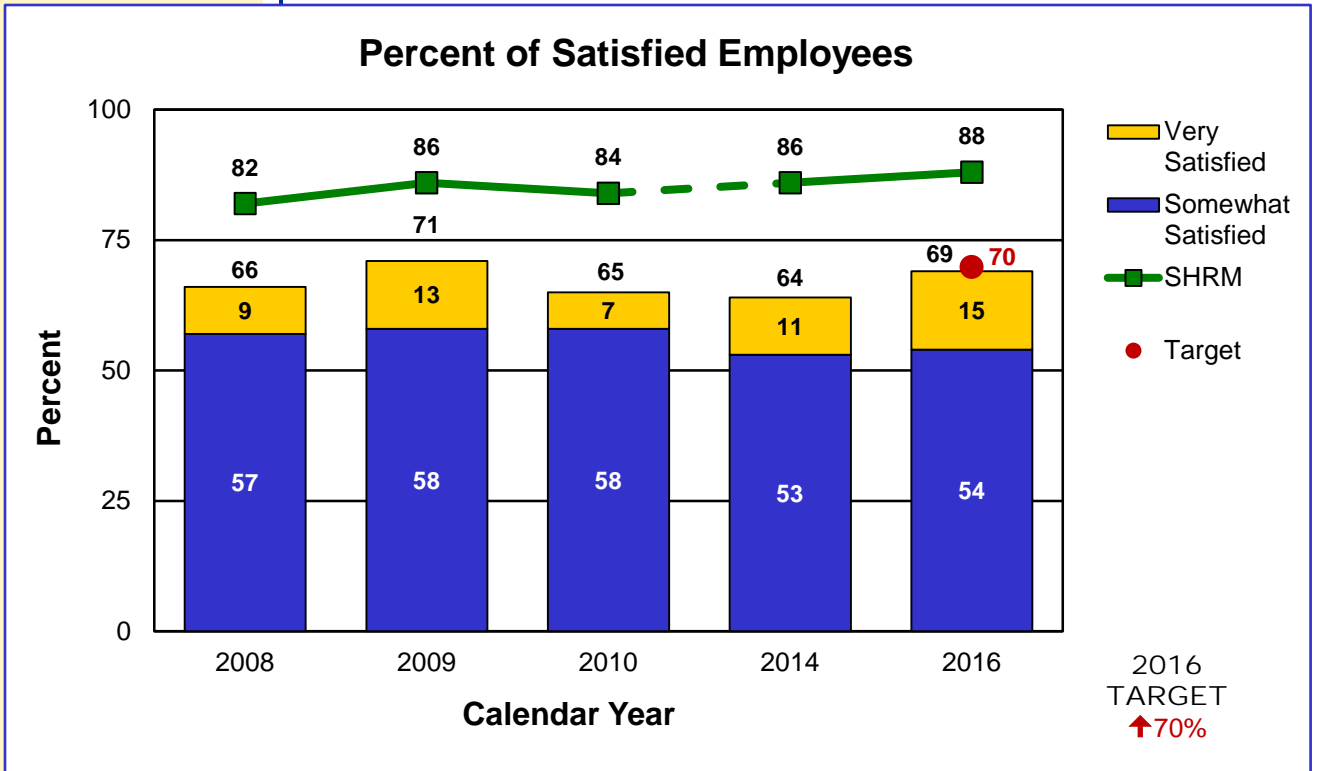
Between 2005 and 2010, the average employee satisfaction ratings and percent of satisfied employees both showed upward trends with peaks in 2009. Following a four-year break, the employee survey was conducted in the spring of 2014 and showed little change from the 2010 survey. Given the major organizational changes the department went through, the slight decline in job satisfaction from 3.5 in 2010 to 3.4 in 2014, and the slight decrease in the percentage of satisfied employees from 65 percent in 2010 to 64 percent in 2014 was seen as good. In fact, the percentage of very satisfied employees during that period increased from 7 percent in 2010 to 11 percent in 2014.

Following the 2014 survey, five employee-led teams worked to develop a series of recommendations to the concerns employees raised in the survey. The recommendations are in various stages of implementation.

The most recent employee survey was conducted in the spring of 2016. Overall job satisfaction increased from 3.40 in 2014 to 3.55 in 2016. The percentage of satisfied employees also increased from 64 percent in 2014 to 69 percent in 2016. The survey results also show the percentage of very satisfied employees increased from 11 percent in 2014 to 15 percent in 2016.

Areas of low satisfaction centered on not having acceptable opportunities for professional growth and not making MoDOT employees feel valued. The lack of salary increases was scored low on most surveys and dominated written comments as well. Areas of high satisfaction revolved around having a cooperative work unit and having supervisors support needs to balance work and family.

# USE RESOURCES WISELY





**RESULT DRIVER:**  
Brenda Morris  
Financial Services Director

# USE RESOURCES WISELY

## Rate of employee turnover – 6c

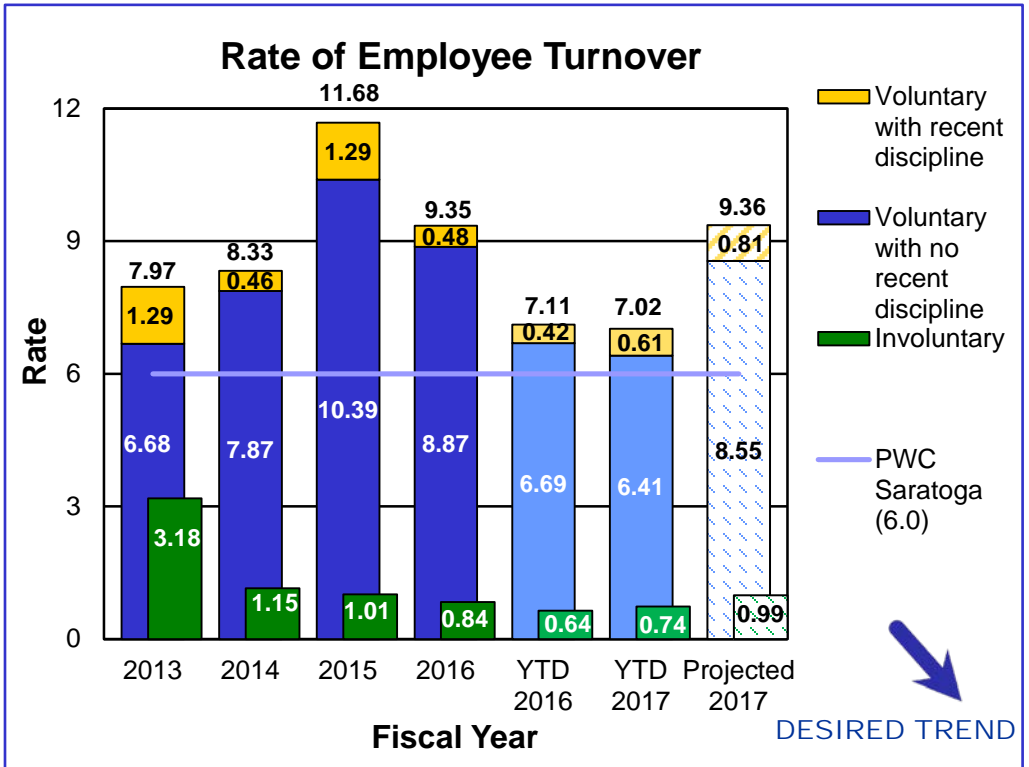
**MEASUREMENT DRIVER:**  
Aaron Kincaid  
Employment Manager

**PURPOSE OF THE MEASURE:**  
This measure tracks the percentage of employees who leave MoDOT. Turnover rates as shown in this measure include voluntary and involuntary separations.

**MEASUREMENT AND DATA COLLECTION:**  
The data is collected statewide from SAM II Advantage HR system and includes only salaried employees. Voluntary turnover includes resignations and retirements. Involuntary turnover reflects dismissals. Data is reported quarterly, with current year-to-date data included. Benchmark data from Pricewaterhouse Cooper's Saratoga Institute is used in this measure.

When employees leave MoDOT, the department loses a large investment in recruiting, hiring and training its workforce. While some turnover is appropriate, MoDOT needs to retain a great workforce that has the knowledge and specialized skills to deliver the department's commitments and provide outstanding customer service.

The overall turnover rate, combining the voluntary and involuntary turnover, has risen slightly from 7.75 percent in the first three quarters of fiscal year 2016 to 7.76 percent in the first three quarters of FY 2017. During the first three quarters of FY 2017, voluntary turnover rates (125 retirements and 234 resignations) showed a slight downward trend. Involuntary turnover has increased from 32 separations (dismissals) in the first three quarters of FY 2016 to 38 involuntary separations in the first three quarters of FY 2017.



**RESULT DRIVER:**  
Brenda Morris  
Financial Services Director

**MEASUREMENT DRIVER:**  
Todd Grosvenor  
Special Projects Coordinator

**PURPOSE OF THE MEASURE:**  
This measure shows the precision of state and federal revenue projections.

**MEASUREMENT AND DATA COLLECTION:**  
State revenue for roads and bridges include motor fuel taxes, motor vehicle and driver licensing fees, and motor vehicle sales taxes paid by highway users, interest earnings and miscellaneous revenues. State revenue for other modes includes motor vehicle sales taxes, aviation fuel taxes, jet fuel sales taxes, motor vehicle licensing fees, railroad assessments, and appropriations from General Revenue and interest earnings. The measure provides the cumulative, year-to-date percent variance of actual state revenue versus projected state revenue by state fiscal year. Federal revenue for roads and bridges is the amount available to commit in a federal fiscal year of federal funds. Federal funds are distributed to states via federal law. Federal revenue for other modes is the amount reimbursed to MoDOT for expenses incurred in a state fiscal year.

## USE RESOURCES WISELY

### *State and federal revenue projections – 6d*

State and federal revenue projections help MoDOT staff do a better job of budgeting limited funds for its operations and capital program. The desired trend is for actual revenue to match projections with no variance.

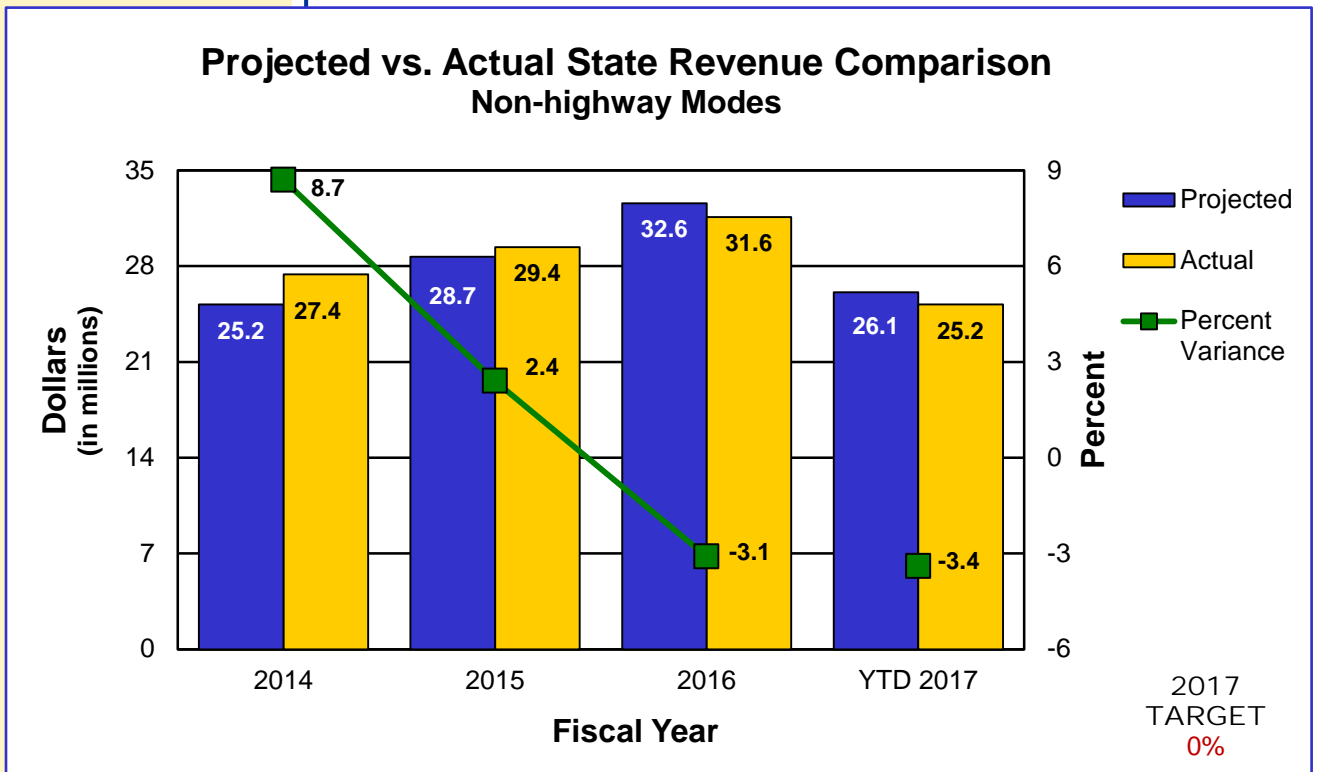
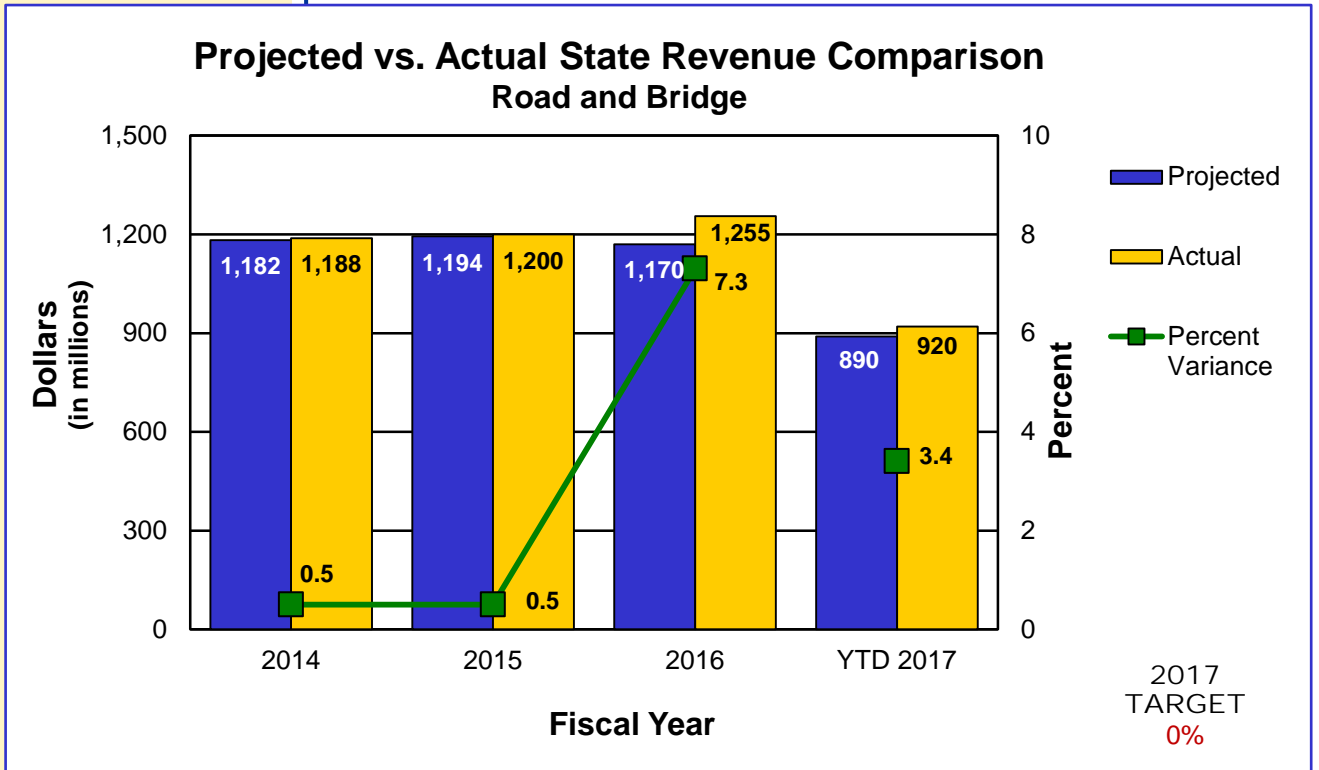
The actual state revenue for road and bridge from motor fuel taxes, motor vehicle sales taxes, motor vehicle and driver licensing fees and miscellaneous was 3.4 percent more than projected through the third quarter of fiscal year 2017. The majority of the increase is related to motor fuel taxes. The negative variance of 3.4 percent for non-highway modes is mostly attributable to the jet fuel sales tax.

The largest source of transportation revenue is from the federal government. Funding is received through various federal transportation agencies including Federal Highway, Transit, Aviation and Railroad Administrations. In December 2015, Congress passed a five-year federal transportation reauthorization act entitled Fixing America's Surface Transportation Act. The FAST Act increases the amount of road and bridge funding for all state transportation departments. Federal revenue for other modes is reliant on the timing of project expenditures.

The primary source of federal and state revenue is motor fuel tax. The motor fuel tax rates have not changed in more than 20 years, while the costs for materials and labor have doubled, even tripled for some materials, in the same timeframe.

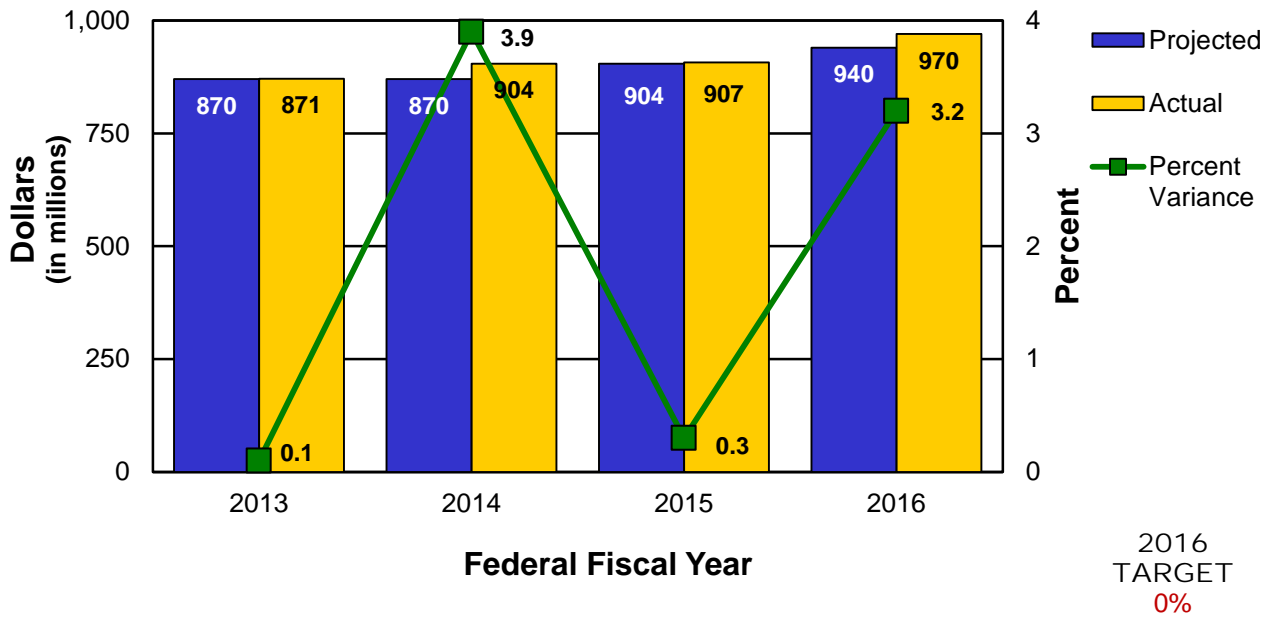


# USE RESOURCES WISELY

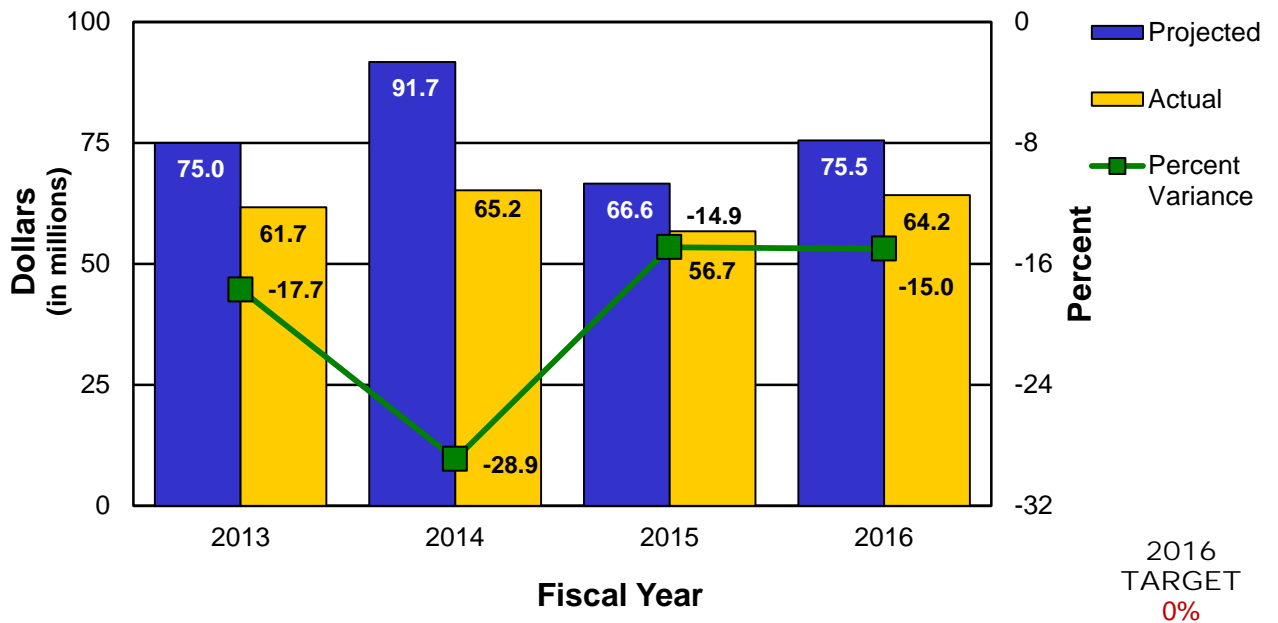


# USE RESOURCES WISELY

## Projected vs. Actual Federal Revenue Comparison Road and Bridge



## Projected vs. Actual Federal Revenue Comparison Non-highway Modes





RESULT DRIVER:  
Brenda Morris  
Financial Services Director

## USE RESOURCES WISELY

### *Number of dollars generated through cost-sharing and partnering agreements for transportation – 6e*

MEASUREMENT DRIVER:  
Frank Miller  
District Planning Manager

PURPOSE OF THE MEASURE:  
This measurement monitors the effectiveness of MoDOT's cost-sharing and partnering programs.

MEASUREMENT AND DATA COLLECTION:  
MoDOT collects this data from the Statewide Transportation Improvement Program and the permits database. The dollars are shown in the fiscal year in which construction contracts are awarded and permit jobs are issued. The percent is the number of cost-sharing projects divided by the total number of projects per year in the STIP.

MoDOT works with public agencies to leverage its limited resources to implement projects that might not otherwise be built. The Missouri Highways and Transportation Commission suspended MoDOT's statewide Cost Share Program in January 2014, not awarding any funding beyond FY 2017. In addition to the Cost Share Program, MoDOT occasionally partners with other agencies to deliver transportation projects with district funds. MoDOT also competes for discretionary federal transportation funding to improve the state transportation system. Finally, MoDOT partners with developers and other private entities to make improvements to the state transportation system through the permitting process.

The amount of funds invested by partnering entities in MoDOT projects has generally been on a gradual decline – with the notable exception of FY 2015. During FY 2015, there were several large partnership projects including the Fairfax Bridge in Kansas City, cost shared with Kansas, as well as several significant local agency projects on the state system. By FY 2016, external partnering returned to an amount more in line with that occurring from FY 2012 to FY 2014. External partner investment in FY 2016 was \$69 million, which is down significantly from \$142 million in FY 2015, but much closer to the \$76 million annual investment previously received in FY 2013 and FY 2014.

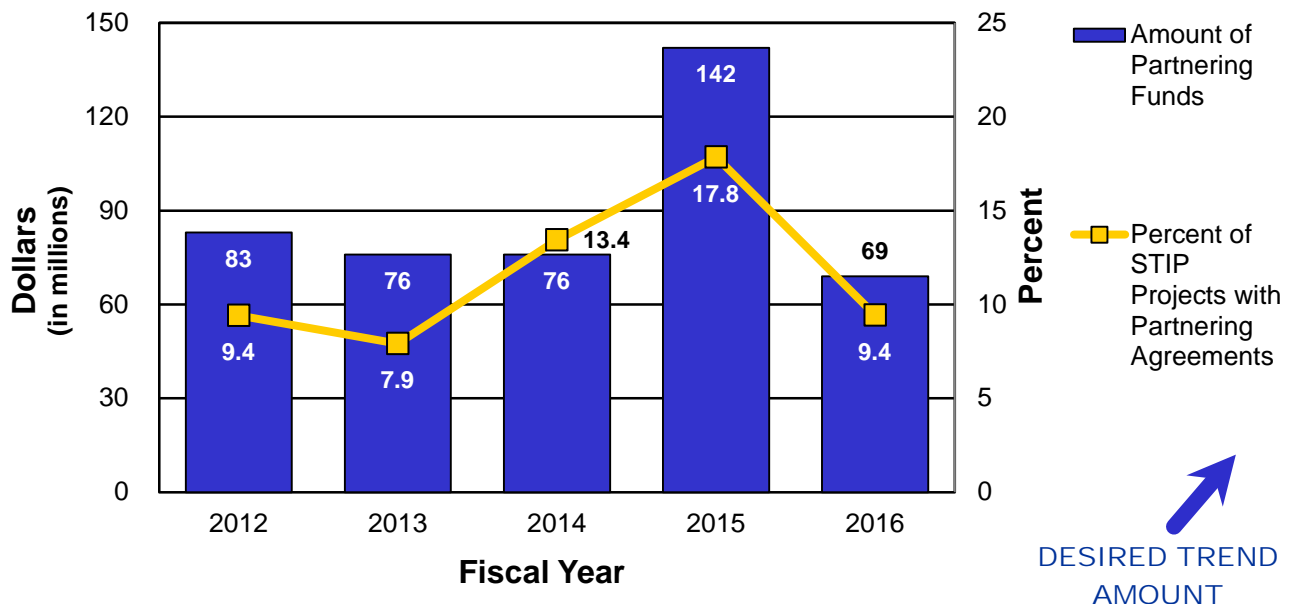
The percent of projects with funding participation from partnering agencies has also declined from 17.8 percent in FY 2015 to 9.4 percent in FY 2016. The percent of projects involving partnering funds is the same as FY 2012, but is below the average annual percentage of projects with partnering funds over the five-year period, which is 11.6 percent.

As a greater share of MoDOT funds are focused on taking care of the system, partner contributions to MoDOT projects are expected to continue to decline. The value of permit projects may increase if the economy continues to improve and public and private entities fund expansion projects to address emerging needs that MoDOT cannot address with its funding.

# USE RESOURCES WISELY



### Number of Dollars Generated Through Cost-sharing and Partnering Agreements for Highway and Bridge Projects



RESULT DRIVER:  
Brenda Morris  
Financial Services Director

## USE RESOURCES WISELY

### *Percent of state funds invested in non-highway modes of transportation – 6f*

MEASUREMENT DRIVER:  
Dion Knipp  
Administrator of Transit

PURPOSE OF THE MEASURE:  
This measurement provides the percent of state funds invested in non-highway modes of transportation. Modes include aviation, rail, transit, waterways and freight.

MEASUREMENT AND DATA COLLECTION:  
Investments in non-highway modes of transportation represent the state and federal dollars spent on aviation, rail, transit, waterways and freight. Federal investments represent the amount spent on MoDOT-administered programs only. Investments are limited to the amounts appropriated by the state legislature each year.

During the long-range planning process, “On the Move,” Missourians chose more transportation choices as a top priority. MoDOT works closely with its multimodal partners to provide more choices within the available funding amounts. In fiscal year 2016, state and federal expenditures for multimodal programs increased \$3.7 million and \$7.5 million, respectively.

Aviation – Fiscal year 2016 state expenditures of \$8.4 million represent 23.2 percent of funds invested. Federal Aviation Administration and State Aviation Trust funds require a minimum local match of 10 percent.

Rail – Fiscal year 2016 state expenditures of \$12.9 million represent 67.2 percent of funds invested.

Transit – Fiscal year 2016 state expenditures of \$5.5 million represent 15.4 percent of funds invested. FTA funds require a local match of varying percentages depending on the program.

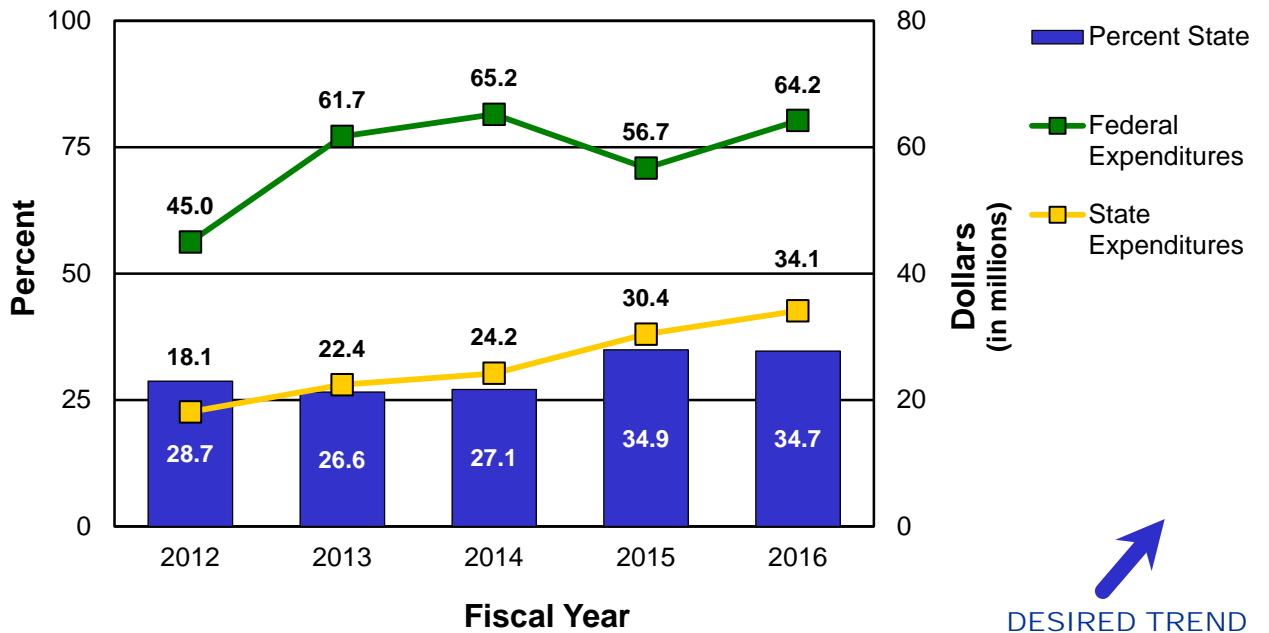
Waterways – Fiscal year 2016 state expenditures of \$6.4 million represent 100 percent of funds invested.

Freight – Fiscal year 2016 state expenditures of \$850,000 represent 100 percent of funds invested.

# USE RESOURCES WISELY



### Percent of State Funds Invested in Non-Highway Modes of Transportation





**RESULT DRIVER:**  
 Brenda Morris  
 Financial Services Director

## USE RESOURCES WISELY

### *Percent of local program funds committed to projects – 6g*

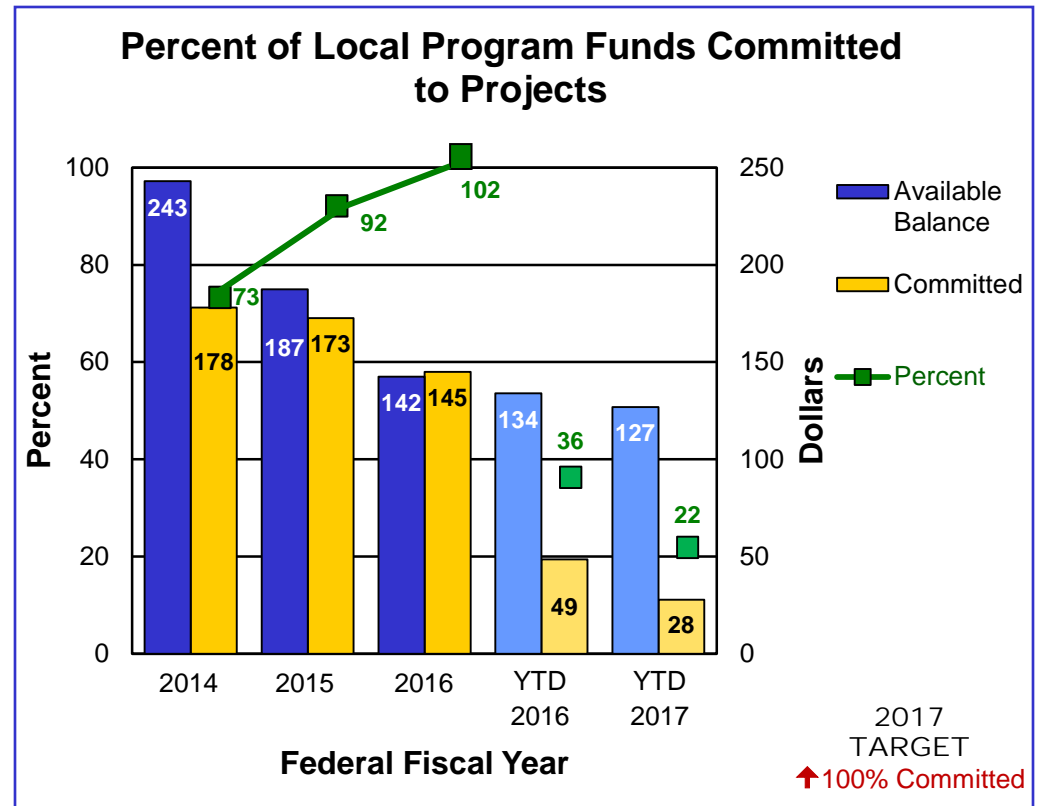
**MEASUREMENT DRIVER:**  
 Kenny Voss  
 Local Program Administrator

**PURPOSE OF THE MEASURE:**  
 This measure tracks the percent of available local program funds committed to projects.

Some of the federal funds MoDOT receives are required to be passed through to local entities, such as cities and counties. Available funds for local entities include those that are allocated this year and those that have not been committed in prior years. When local entities use federal funds, they provide the matching funds. Matching funds provided by local entities help MoDOT use all the transportation federal funding available to Missouri.

For federal fiscal year 2017, 22 percent (\$28 million) of the \$127 million in available funds has been committed to local projects. This represents a \$21 million decrease in commitments compared to the same period in FFY 2016. Since FFY 2014, the percent of local program funds committed to projects has increased from 73 percent to 102 percent. The local program was able to commit more than what was available in FFY 2016 by using a small portion of anticipated FFY 2017 funds. MoDOT has set a target of committing 100 percent of local program funds to projects each year.

**MEASUREMENT AND DATA COLLECTION:**  
 The data is obtained from the Federal Highway Administration's Fiscal Management Information System and based on the federal fiscal year from Oct. 1 through Sept. 30. The committed amounts represent what FHWA will reimburse for the project. The available amounts represent the federal program funds distributed to local sponsors. The goal of this measure is to commit all federal funds available to local public projects.



**RESULT DRIVER:**  
Brenda Morris  
Financial Services Director

## USE RESOURCES WISELY

### *Fleet usage and fuel efficiency – 6h*

**MEASUREMENT DRIVER:**  
Kevin James  
Assistant District Engineer

**PURPOSE OF THE MEASURE:**  
This measure tracks progress of fleet usage compared to department thresholds based on annual mileage over the life of the equipment. The measure also tracks fuel efficiency for five vehicle classes: cars, pickups, light-duty trucks, heavy duty trucks and extra-heavy duty trucks. These classes represent the majority of fleet expenditures and miles driven.

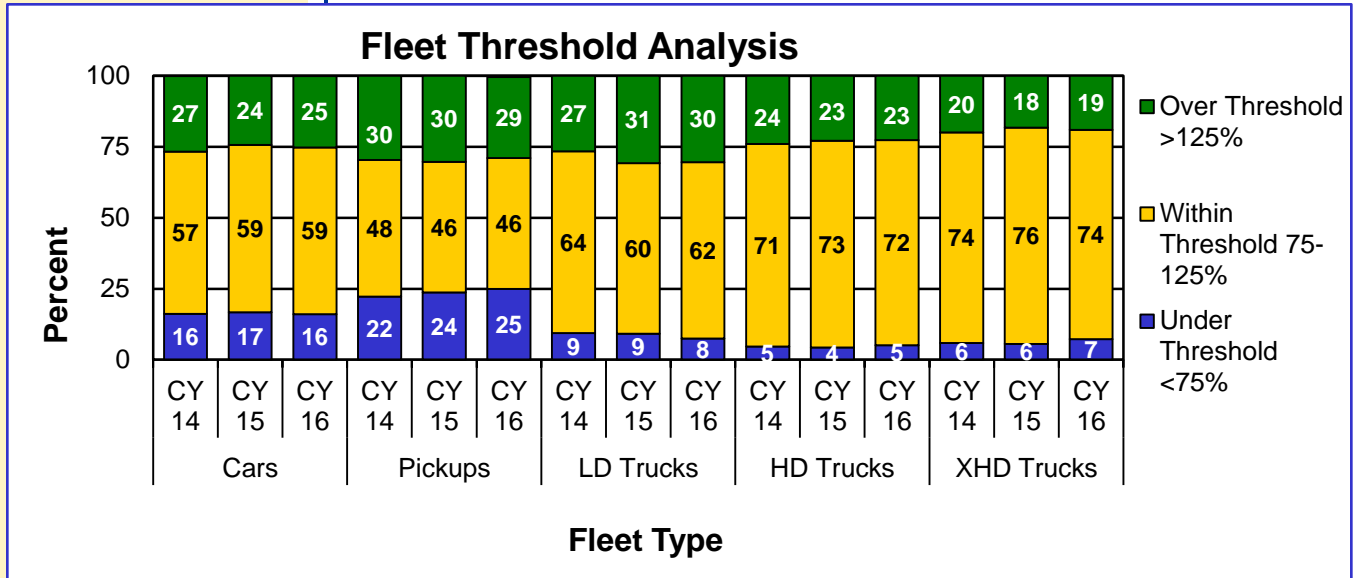
**MEASUREMENT AND DATA COLLECTION:**  
Data reflects performance for the vehicle based on its age. Ideal fleet usage falls within 75 to 125 percent of the vehicle's threshold. For example, a passenger car has a threshold of 15,000 miles per year. If a car is three years old, the mileage should be between 33,750 to 56,250 miles. The fleet threshold analysis graphs are updated in January and July. This measure also reports MoDOT's total fuel consumed and shows how fleet choices can affect fuel economy. The fuel data is collected in the statewide financial system. Mileage data is obtained from MoDOT's fleet management system, FASTER.

The fuel consumption and fuel efficiency measures show fairly consistent results when comparing the first three quarters of fiscal year 2017. Fuel consumption in FY 2017 has increased by 3.5 percent (184,576 gallons) compared to FY 2016.

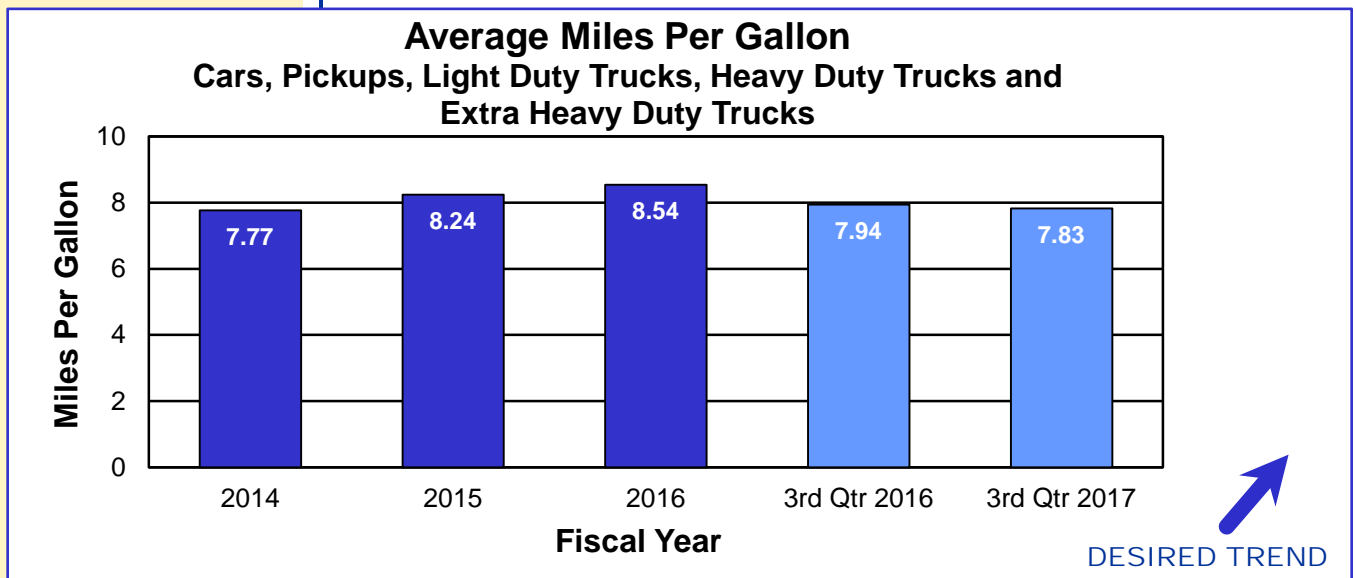
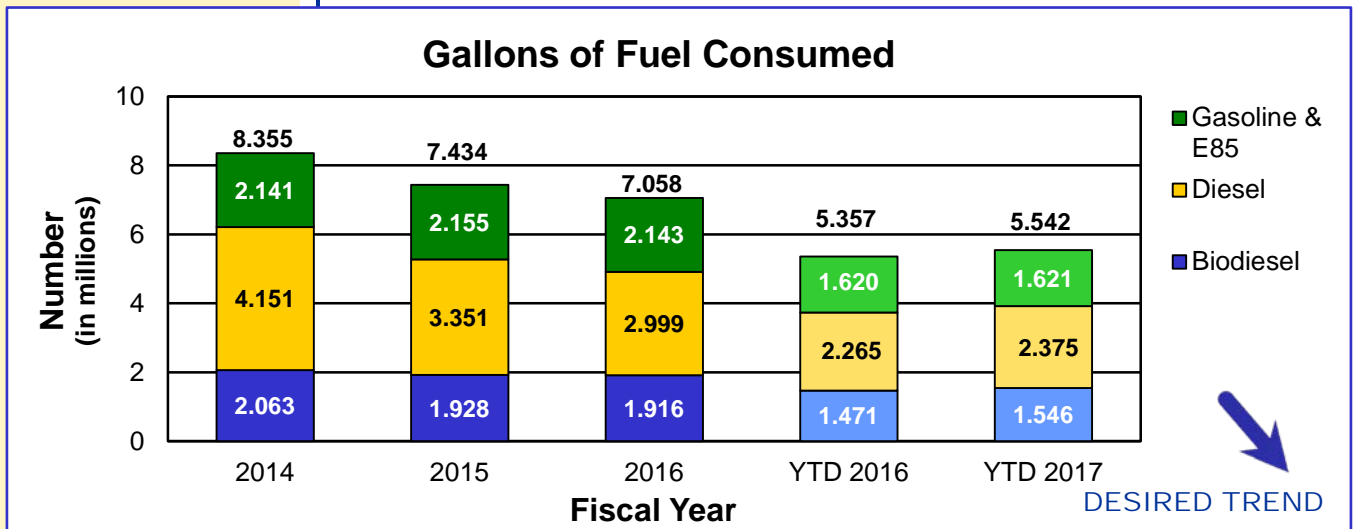
Mileage recorded for the five vehicle classes in FY 2017 has decreased by 40,744 miles compared to FY 2016. During the third quarter of FY 2017, fewer gallons were used to perform snow and ice removal compared to the third quarter of FY 2016. For the same period, increases in gallons used for hauling and mixing material for roadway repairs were recorded. Changes in fuel use by activity resulted in a decrease in fuel efficiency of 0.11 miles per gallon compared to the same period last year.



# USE RESOURCES WISELY



Annual miles and/or hours threshold. Fleet threshold analysis based on life of vehicle.



RESULT DRIVER:  
Brenda Morris  
Financial Services Director

MEASUREMENT  
DRIVER:  
Sarah Kleinschmit  
Field Materials Engineer

PURPOSE OF  
THE MEASURE:  
This measure tracks MoDOT's  
recycling efforts in construction  
projects and internal  
operations.

MEASUREMENT AND  
DATA COLLECTION:  
The recycled material used in  
construction projects is  
measured through MoDOT's  
SiteManager database, which  
tracks material incorporated  
into projects. Data is collected  
on an annual basis due to the  
seasonal nature of  
construction. Recycled material  
from internal MoDOT  
operations, are captured from  
the annual Missouri State  
Recycling Program report and  
from other internal records.

## USE RESOURCES WISELY

### *Number of tons of recycled material – 6i*

For more than a decade, MoDOT has incorporated recycled asphalt pavements and roof shingles into new asphalt pavements to help offset increasing costs. While the cost of rock, sand, liquid asphalt, labor, fuel and equipment have increased, recycling efforts have helped offset the cost increases. In 2016, 32 percent of the 3.89 million tons of new asphalt pavement constructed came from recycled components. Based on tonnages bid in 2016, this saved taxpayers about \$5.50 per ton, or \$21.3 million overall. The \$21.3 million savings would be equivalent to improving more than 476 miles of a two-lane roadway with a thin overlay.

MoDOT also engages in internal recycling efforts. In 2016, the amount of recycled material decreased by 518 tons. The majority of the recycled tonnage comes from scrap metal and scrap rubber/tires. More than 1,650 tons of scrap metal and 324 tons of scrap rubber/tires (equivalent to about 28,800 passenger car tires) were recycled. The cost to recycle some items, such as scrap rubber/tires and oil, was just under \$261,000. Other recycling efforts returned more than \$448,000. The net revenue was slightly more than \$187,000.

Recycling is good for the environment and helps continue to stretch available funds.

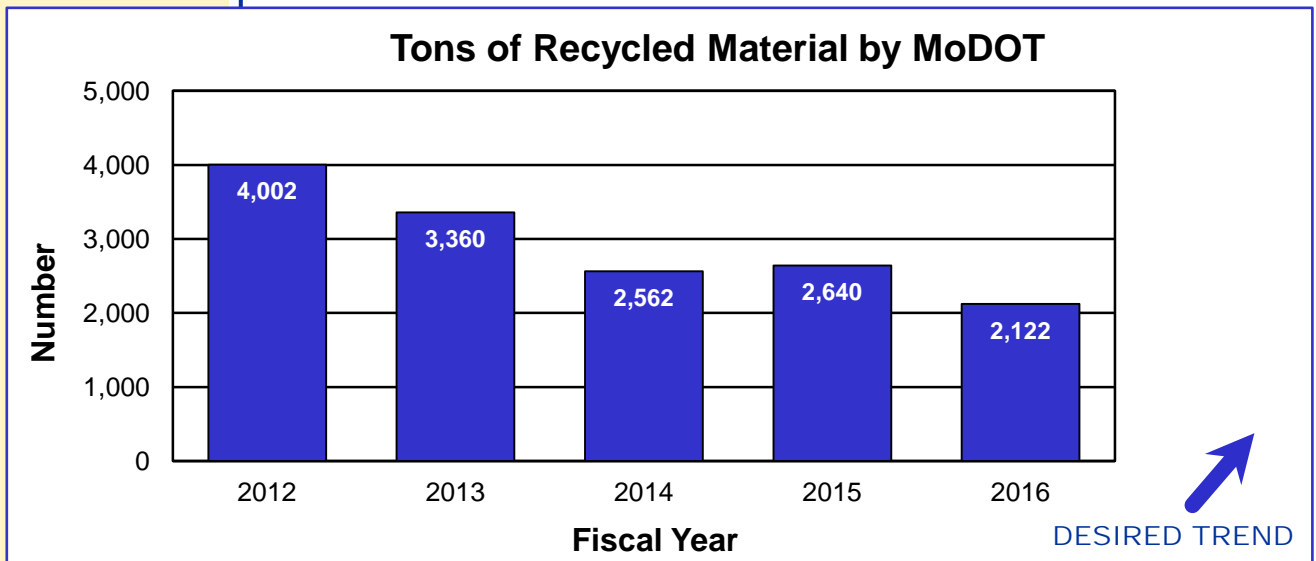
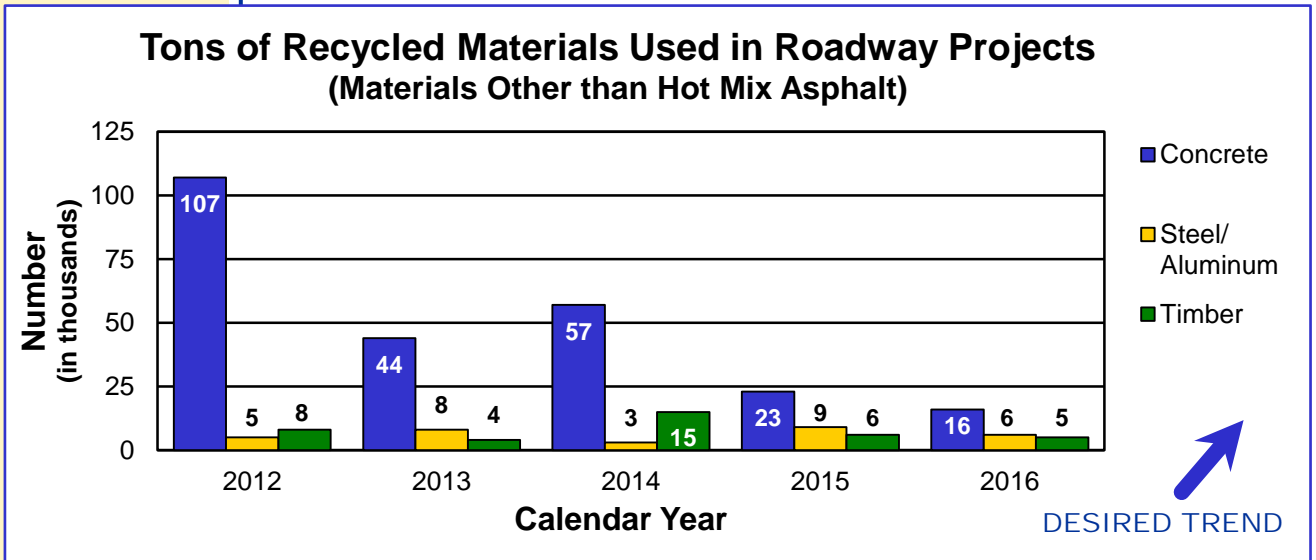
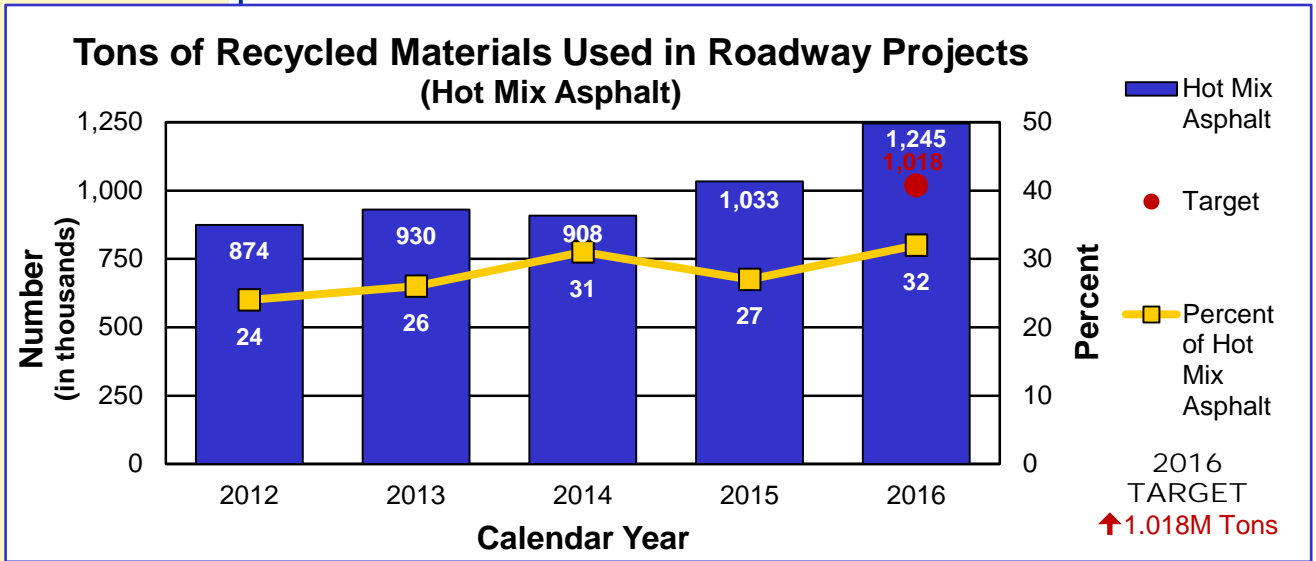


### **Roofs to Roads**

**MoDOT is among the first state agencies in the nation to recycle shingles to resurface or rebuild highways.**



# USE RESOURCES WISELY



RESULT DRIVER:  
Brenda Morris  
Financial Services Director

## USE RESOURCES WISELY

### *Number of environmental warnings and violations – 6j*

#### MEASUREMENT

##### DRIVER:

Mary Miller  
District Construction and  
Materials Engineer

#### PURPOSE OF THE MEASURE:

This measure tracks the annual trend of compliance with environmental laws and regulations, which includes obtaining and abiding by specific requirements contained in various permits.

#### MEASUREMENT AND DATA COLLECTION:

Notices of Violation are similar to a traffic ticket as they are written to indicate you are operating outside of legal limits. A Letter of Warning indicates that there are problems and, if not corrected, could lead to an NOV. Issued by environmental regulatory agencies, NOVs, LOWs and letters of satisfactory inspections are collected and tracked by location and/or project. The measure reports by calendar year the number of NOVs, LOWs and satisfactory inspections received by the department for any activity.

MoDOT seeks to reduce its impact on Missouri's natural resources by complying with environmental laws and regulations. The department is serious about protecting human health, air, water, wildlife and ecosystems. Compliance with environmental laws and regulations helps to prevent and counteract possible damage from MoDOT activities.

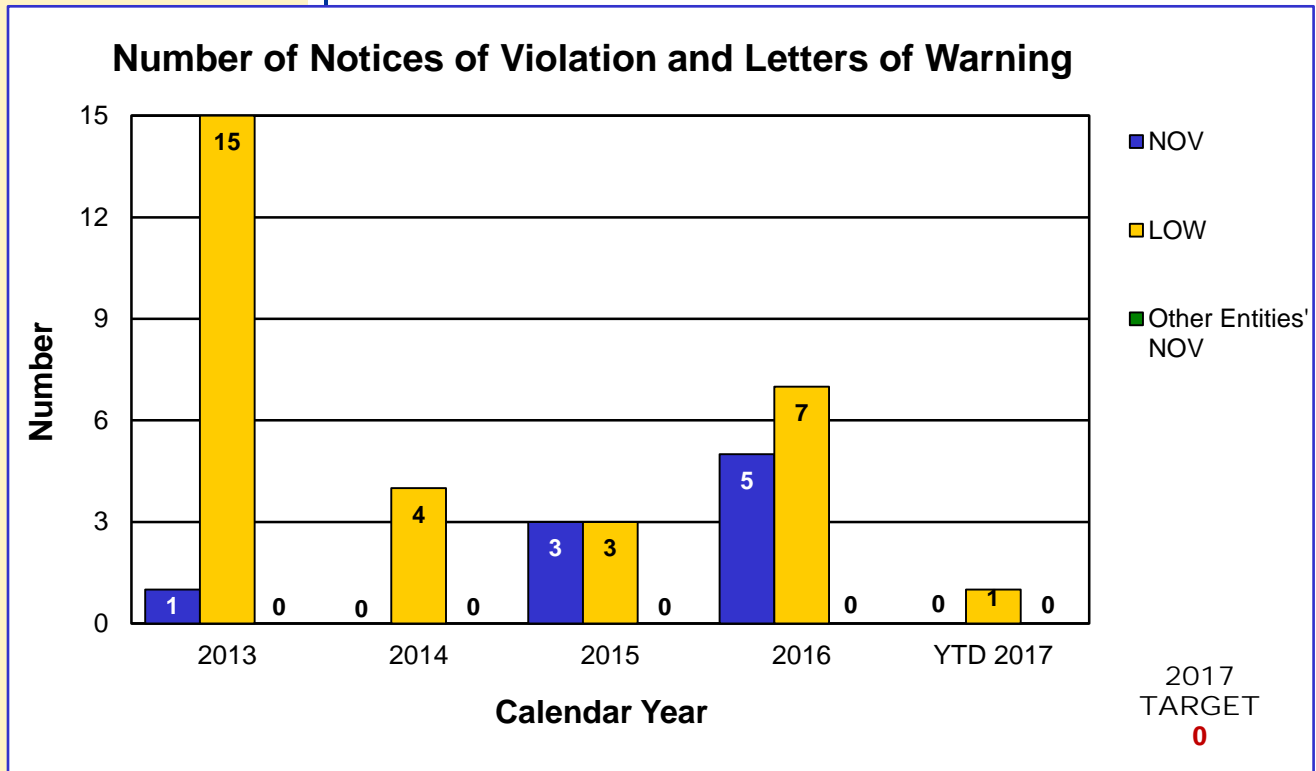
MoDOT has a zero-tolerance policy toward any NOV from regulating agencies, such as the Missouri Department of Natural Resources or the Environmental Protection Agency. Department employees study the situations that lead to NOVs and LOWs then take action to prevent future occurrences.

In the first quarter of calendar year 2017, MoDOT received zero NOVs and one LOW.

The LOW was associated with a right of way acquisition for a project on Route YY (Division Street) for interchange improvements in Greene County. The right of way included a shed as a part of the property. During environmental clearance, household hazardous wastes (insecticides and oil based paints) were found that required removal. Due to the amount of waste on the site, MoDOT registered it as a small quantity generator with DNR with the intent of making one waste shipment to a hazardous waste facility for disposal. DNR subsequently inspected the site and issued a letter of warning. The LOW cited 15 violations at the site, including failure to have fire suppression equipment (sprinklers, foam or water spray system), internal communication, alarm system and arrangements with local emergency response in case of a spill. MoDOT responded to the letter and disputed the findings. The findings are pertinent to a commercial facility and not a backyard shed. The site does not have electrical power and it is not manned, so adherence to the violations was not possible or appropriate.

Two days after the inspection the waste was hauled by a waste disposal contractor to their facility and the site was deactivated. DNR issued a return to compliance letter for this site.

# USE RESOURCES WISELY



RESULT DRIVER:  
Brenda Morris  
Financial Services Director

## USE RESOURCES WISELY

*Number of stormwater violations – 6k*

MEASUREMENT  
DRIVER:  
Brian Williams  
Stormwater Compliance  
Coordinator

PURPOSE OF  
THE MEASURE:  
This measure helps MoDOT track compliance with its stormwater permit and court ordered consent decree, which resulted from stormwater violations in 2010 and 2011. The consent decree established requirements for MoDOT projects where greater than one acre of land is disturbed.

### MEASUREMENT AND DATA COLLECTION:

A stormwater compliance database will be used to record the compliance of MoDOT and construction contractors with the following requirements:

- maintain personnel in stormwater oversight positions;
- obtain the required stormwater training;
- ensure timely stormwater inspections and;
- ensure the resulting stormwater control repairs are completed within the required time.

The database also tracks the fines that result from not meeting the requirements of the decree. The data reported in this measure will be both the number of failures to meet the requirements and the dollar amount of the stipulated penalties that result during each quarter of the calendar year for the next three years. Data collection began in the last quarter of 2015.

MoDOT is committed to ensuring all land disturbance projects are in compliance with environmental laws through the use of adequate erosion and sediment control practices.

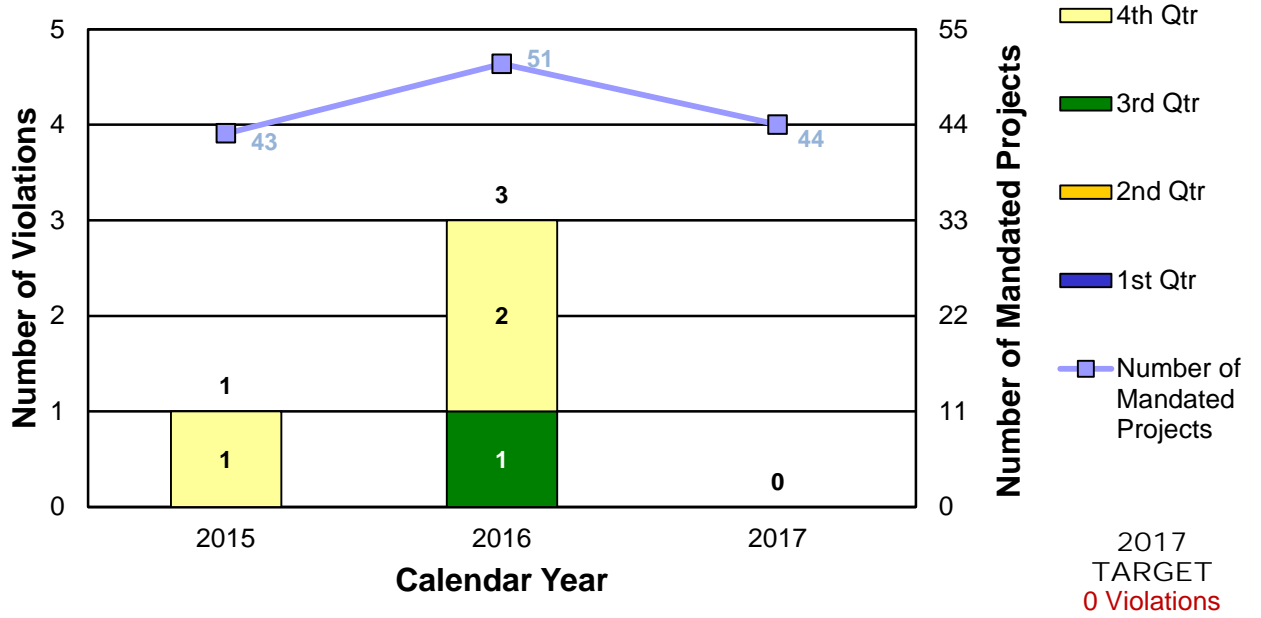
Zero Consent Decree violations occurred in the first quarter of 2017.

The accumulated total Consent Decree violations stand at four while total accumulated penalties paid equal zero dollars. The 2016 Annual Report to the Environmental Protection Agency was submitted on March 21, 2017. The three stipulated penalty violations that occurred in 2016 were reported as well as the letter of warning from the Department of Natural Resources for the St. Louis Route 70 and 5<sup>th</sup> Street project. The anticipated cost of the reported violations was \$2,900. There is a potential cost to the letter of warning, but this will have to be determined by the EPA. Once the EPA evaluates the annual report, MoDOT will be notified of the pending violation amounts.

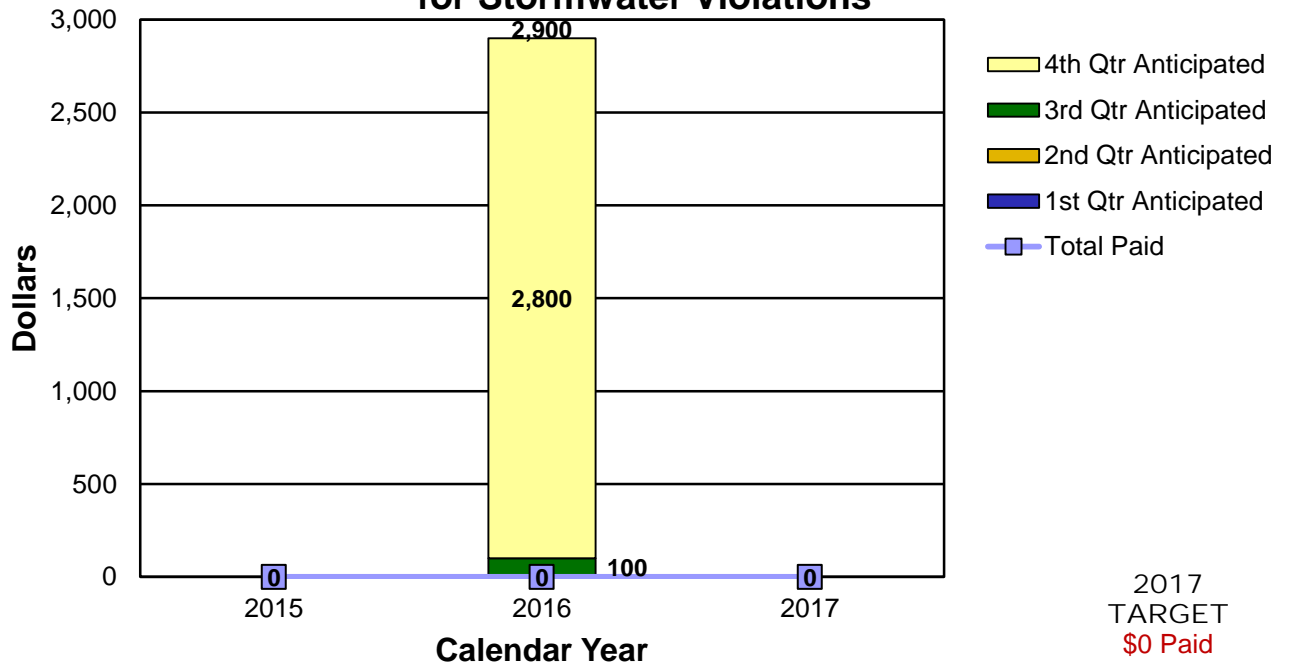




### Number of Stormwater Violations on Mandated Projects



### Anticipated and Total Paid Amounts for Stormwater Violations







# ADVANCE ECONOMIC DEVELOPMENT

*Lester Woods, External Civil Rights Director*

# Tracker

MEASURES OF DEPARTMENTAL PERFORMANCE





Missouri's transportation system has a direct impact on the state's economy. Missouri businesses depend on our roadways, rail, waterways and airports to move their products and services both nationally and globally. An efficient, well-connected transportation system helps attract new businesses to our communities and helps existing businesses maintain a competitive edge with easy customer access, minimal shipping costs and strong links to a diverse workforce. We believe investments in transportation should create jobs and provide opportunities for advancement to all Missouri citizens. An investment in transportation should provide a positive economic impact on both the citizens we serve and the communities in which they live.



**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

# ADVANCE ECONOMIC DEVELOPMENT

**MEASUREMENT DRIVER:**  
Eva Voss  
Senior Transportation Planner

**PURPOSE OF THE MEASURE:**  
This measure tracks the economic impact resulting from the state's transportation investments.

**MEASUREMENT AND DATA COLLECTION:**  
MoDOT works with the Economic Development Research Group to perform economic impact analyses for the state's transportation investments. The analyses are performed using a model called the Transportation Economic Development Impact System. The TREDIS model results demonstrate a strong link between transportation investment and economic development.

## *Economic return from transportation investment – 7a*

Investment in transportation improvements has long been held as a major economic engine that drives growth in job creation, personal income and new value added to Missouri's economy.

Based on MoDOT's 2017-2021 Statewide Transportation Improvement Program investment of \$5.5 billion, the program is estimated to create 4,343 jobs – a 53 percent increase when compared to MoDOT's 2016-2020 STIP. Transportation investments are expected to contribute \$13 billion of economic output during the next 20 years, resulting in a \$2.50 return on every \$1 invested in transportation. This year's return on investment, \$2.50, is a 2 percent increase in comparison to last year's STIP return of \$2.44.

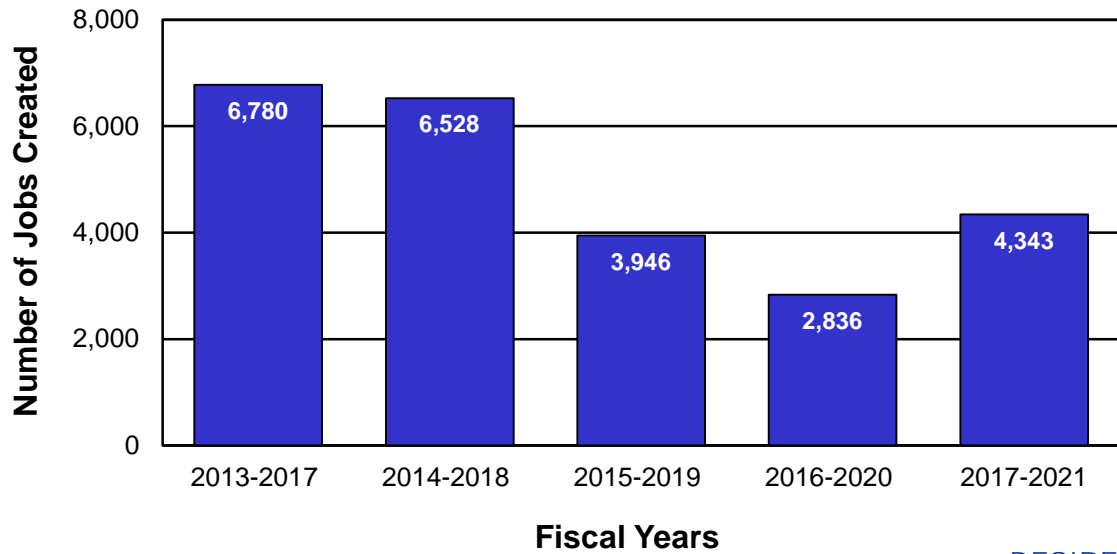
The increase in economic return is due to the increasing construction investment of highway and bridge improvements. Though these figures tell a powerful economic story, they also are a sign of missed opportunity. Current investments must focus on maintaining our current transportation system, rather than new major projects that offer a larger economic return.





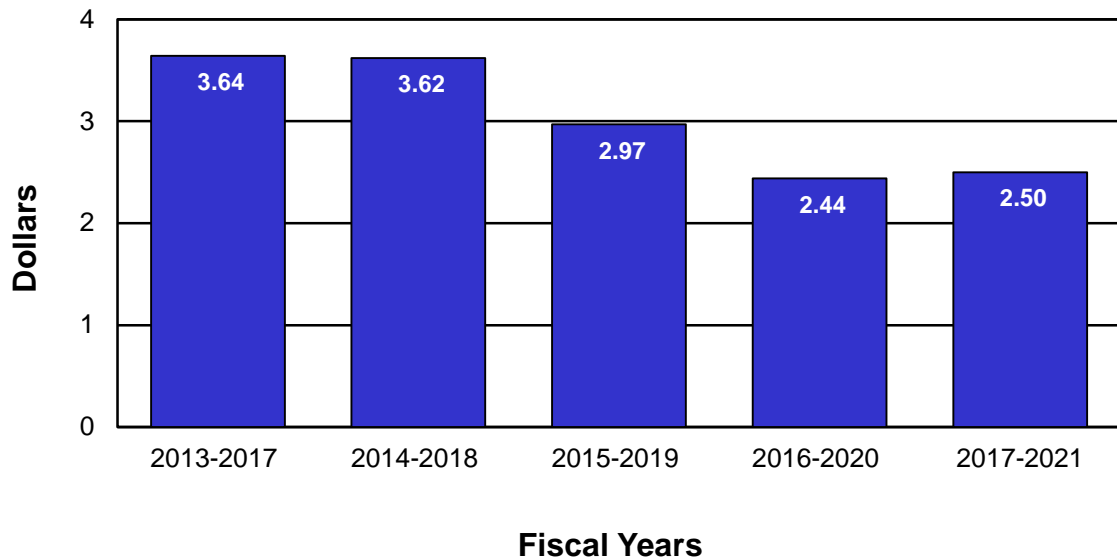
# ADVANCE ECONOMIC DEVELOPMENT

## Economic Return from Transportation Investments Annual Employment Benefit



 DESIRED TREND

## Economic Return from Transportation Investments 20-Year Benefit Ratio for Every Dollar Invested



 DESIRED TREND

RESULT DRIVER:  
Lester Woods  
External Civil Rights Director

# ADVANCE ECONOMIC DEVELOPMENT

## *Goods movement competitiveness – 7b*

### MEASUREMENT

DRIVER:  
Cheryl Ball  
Administrator of Freight and  
Waterways

### PURPOSE OF THE MEASURE:

This measure tracks the estimated cost of transporting representative Missouri products from key economic industries (chemical manufacturing, transportation equipment and agriculture) to top destinations as compared to shipping the same products from competitor states. The relative costs for these illustrative products serve as a proxy for Missouri's competitiveness on transport costs as a whole.

### MEASUREMENT AND DATA COLLECTION:

Transearch 2011 freight data was used to identify products representative of Missouri's economic drivers as well as the top origins, destinations and modes of transport. Estimates of the transport costs are calculated using different external sources for the modes: (1) The 2014 American Transportation Research Institute report, An Analysis of the Operational Costs of Trucking, (2) AAA's diesel on-highway price data, (3) the Bureau of Labor Statistics wage data, (4) the Surface Transportation Board's Uniform Railroad Costing System and (5) the USDA's Average Weekly River Barge Rates.

Product transportation costs vary depending on the efficiency, reliability, safety and modal options in a state's transportation system. Accumulation of the costs to transport in each step in the supply chain starting at product origination, to travel to the production facility and finally to market directly impacts the final cost and how competitive the product is in the global market. Transportation costs account for 9 - 14 percent of a product's market price. Therefore, maintaining low transportation costs is critical to retain and expand current businesses in Missouri and attracting new businesses to create new employment.

The three key Missouri products (soybeans, finished motor vehicles and chemical manufacturing) analyzed on the accompanying graphs combined account for more than \$8 billion in revenue annually while employing more than 300,000 Missouri workers. Missouri producers of these products compete with other states and other countries for customers. The graphs compare Missouri transportation costs to those of the closest domestic competitors. At this time, Missouri's transportation cost is among the lowest of these competitors. Maintaining low transportation costs is critical for Missouri's continued success in all markets.

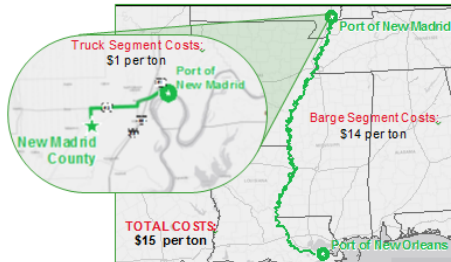
Deterioration of any of the factors influencing transportation cost not only impacts the competitiveness of Missouri products in external markets, it also influences the cost to bring products into Missouri, which controls the prices at local stores.

MoDOT plays an active role in keeping costs low by working with existing businesses to identify transportation barriers that reduce their competitiveness regardless of transportation mode. These barriers can include bridges with load postings, closed bridges, rough pavement, at-grade rail crossings, congestion and inability to access a port or airport. MoDOT continually aims to find solutions for these barriers, but Missouri's transportation funding does not allow the agency's ability to fully respond to those needs.

# ADVANCE ECONOMIC DEVELOPMENT

## SOYBEANS

The Route from New Madrid County to New Orleans



The Route from Competitor States to New Orleans

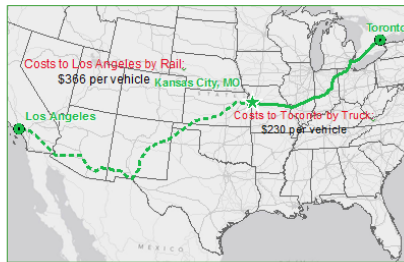


The Cost of Shipping One Ton of Soybeans to New Orleans (largely by barge)



## FINISHED MOTOR VEHICLES

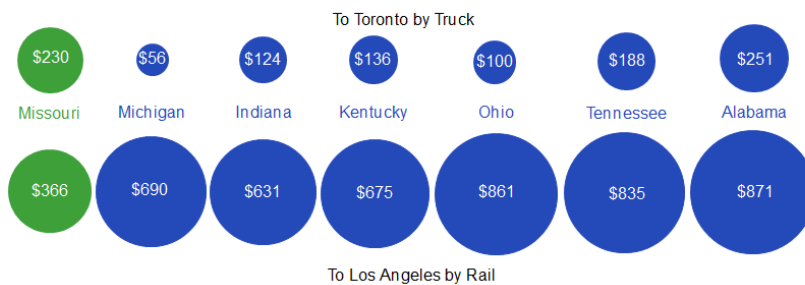
The Route from Kansas City to Toronto by Truck and Los Angeles by Rail



The Route from Competitor States to Toronto by Truck and Los Angeles by Rail



The Cost of Shipping One Motor Vehicle



# ADVANCE ECONOMIC DEVELOPMENT

## CROP PROTECTION PRODUCTS (CHEMICALS)

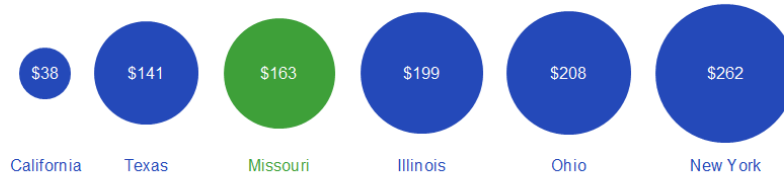
The Route from Hannibal to Los Angeles by Truck



The Route from Competitor States to Los Angeles by Truck



The Cost of Shipping One Ton of Crop Protection Products to Los Angeles by Truck





**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

# ADVANCE ECONOMIC DEVELOPMENT

**MEASUREMENT DRIVER:**  
Bryan Ross  
Senior Multimodal Operations Specialist

**PURPOSE OF THE MEASURE:**  
This measure tracks the amount of freight moved by Missouri's largest transportation modes.

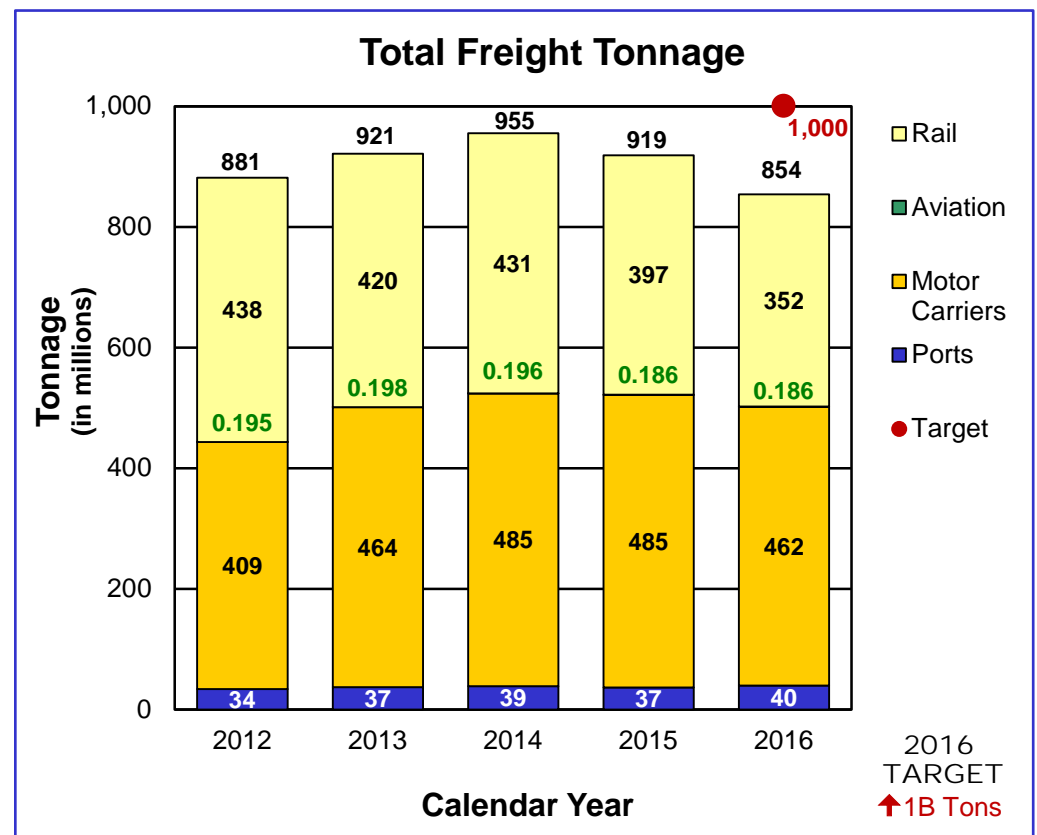
**MEASUREMENT AND DATA COLLECTION:**  
Twice a year, a freight tonnage estimator is used to calculate the amount of freight moved by railroads and highways. The estimator provides timely information for Missouri's primary freight movers. Freight data for aviation and waterways is a combination of direct surveys and trend analysis. This measure's data is estimated yet provides an indication of current trends and movements.

## Freight tonnage by mode – 7c

Everything comes from somewhere. How it gets from place to place depends on a number of factors. The different transportation modes experience volume shifts from year to year, often based on the health of the national economy and shifts in consumer preferences. A key element to a healthy economy is a robust transportation system.

State funding cannot address transportation needs other than highways and bridges. Moving hundreds of million tons of freight a year requires thoughtful improvements of transportation facilities such as ports, railroads and airports. Yet many of these needs remain underfunded.

During 2016, Missouri experienced a 7 percent decrease in freight movements as compared to the previous year. One million fewer car loads of coal were shipped by rail nationwide in 2016, accounting for most of the 11 percent decrease in railroad tonnage in Missouri. Motor carriers continued to haul the most tonnage but also experienced a 5 percent decrease in shipping, slumping significantly in January-April. Ports, however, experienced an 8 percent increase in tonnage. Missouri's public ports' increased tonnage is attributed to continued strong agricultural exports in Northeast and Southeast Missouri and steel imports in St. Louis.



**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

**MEASUREMENT DRIVER:**  
Brian Reagan  
Transportation System Analysis Engineer

**PURPOSE OF THE MEASURE:**  
This measure is proposed to be used as a Fixing America's Surface Transportation Act national freight performance measure.

**MEASUREMENT AND DATA COLLECTION:**  
Annual hours of truck delay quantifies the extra time spent by commercial motor vehicles on an interstate corridor based upon a state-determined threshold. Missouri's threshold is set at 55 mph in St. Louis and Kansas City. All other rural areas have a threshold of 65 mph. Speeds below that rate indicate congestion and/or other delay factors for trucks. Missouri chose this threshold because many commercial trucks are governed at 65 mph even though the posted speed limit for most interstate highways is 70 mph. Commercial vehicle delays on the interstate system may be caused by congestion due to factors such as traffic, severe weather, safety inspections or roadway geometrics. AHTD is composed of vehicle miles traveled by trucks, speed of travel and the desired speed of travel.

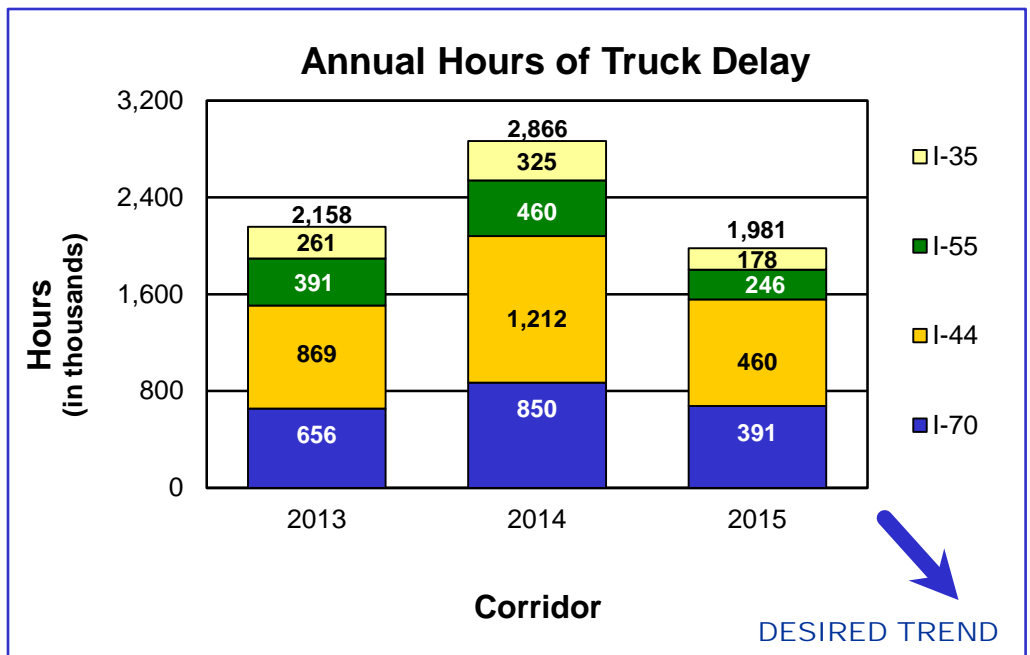
# ADVANCE ECONOMIC DEVELOPMENT

## Annual hours of truck delay – 7d

Time is money. Delay impacts the cost of goods and reduces an organization's ability to compete on a global basis. American businesses require more operators and equipment to deliver goods when delays lengthen shipping time. Businesses must hold more inventories in more distribution centers to deliver products quickly when lengthier trips are unreliable and slow. Slow traffic also affects the local economy by reducing the number of workers and job sites within easy reach of a location.

Growth in freight volumes is a major contributor to congestion in urban areas and on intercity routes. Long-distance freight movements are often a significant contributor to local congestion, and local congestion typically impedes freight to the detriment of local and distant economic activity. Unfortunately, Missouri's long-term transportation funding is insufficient to address congestion factors.

On average, those shipping by truck can expect a delay of 13.3 minutes per trip on I-70, 29.2 minutes on I-44, 12.7 minutes on I-55 and 8.6 minutes on I-35. The annual cost of delay for the trucking industry on I-70 is \$45.7 million, \$58.1 million on I-44, \$16.9 million on I-55, and \$12.3 million on I-35.



\*2013 data contains only July through December.

**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

# ADVANCE ECONOMIC DEVELOPMENT

## *Truck reliability index – 7e*

**MEASUREMENT  
DRIVER:**  
Brian Reagan  
Transportation System  
Analysis Engineer

### **PURPOSE OF THE MEASURE:**

This reliability measure is proposed to be used as a Fixing America's Surface Transportation Act national freight performance measure. By annually comparing the reliability index number for each corridor, MoDOT can determine if the corridor has become less or more reliable. A lower index for a succeeding year means reliability has improved.

### **MEASUREMENT AND DATA COLLECTION:**

This measure uses the Truck Reliability Index, a ratio of the total truck travel time needed to ensure on-time arrival four out of five times to the agency-determined threshold speed of 55 mph in St. Louis and Kansas City, and 65 mph in all other rural areas. The ratio is used to gauge consistency in truck freight travel times. Further guidance about data requirements and measure methodology will be forthcoming from the Federal Highway Administration.

The reliable movement of goods by truck is critical to Missouri's economy. Travel time reliability is the variation of travel time for the same trip from day to day. When the variability is large, the travel time is unreliable; and, vice versa, when there is little to no variability, the travel time is reliable. Variable or unpredictable travel times make it more difficult for motor carriers and shippers to plan their travel, often forcing them to add extra time to protect themselves against the uncertainty of arrival times. This uncertainty can lead to unproductive travel decisions that waste time and money. The map includes four freight-significant corridors: I-70, I-44, I-55 and I-35. The color green indicates the most reliable travel times; yellow slightly less reliable; and red the least reliable of travel times.

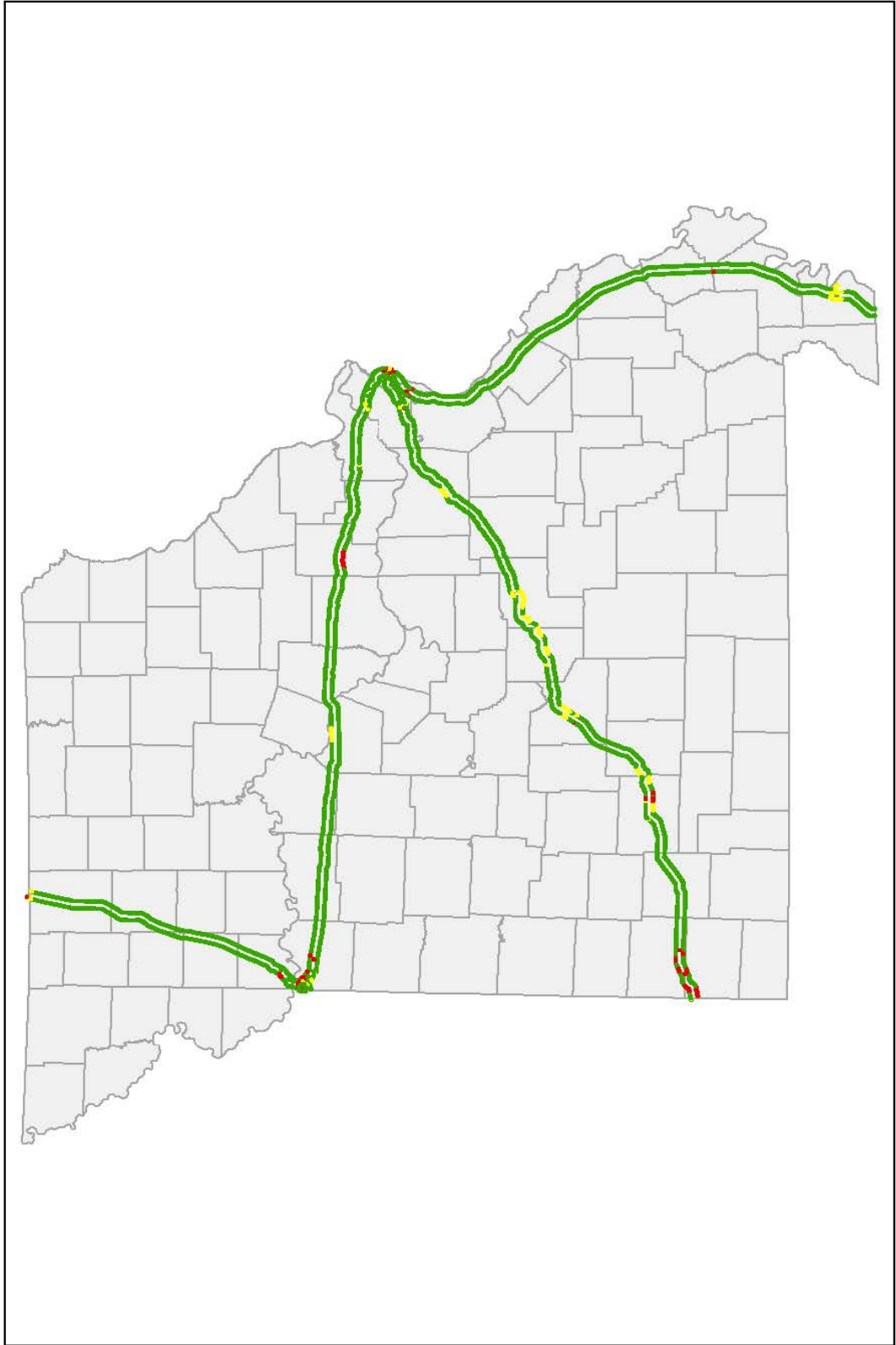
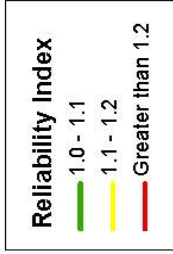
In 2015 Kansas City and St. Louis metropolitan areas both improved truck travel time reliability reducing previously identified red areas. Springfield and Joplin were unchanged. I-35 South improved in Clay County near Liberty from yellow to green. I-70 East improved in Lafayette County at both Odessa and Concordia from yellow to green. I-44 East improved in Pulaski County near Waynesville from red to yellow and Franklin County near St. Clair from yellow to green. I-55 South improved in New Madrid County near Marston from yellow to green and Pemiscot County near Caruthersville from red to yellow.

MoDOT continually seeks ways to deliver the infrastructure to support reliable trips for drivers and to help keep costs down and improve travel-time reliability.



# ADVANCE ECONOMIC DEVELOPMENT

Truck Reliability Index  
CY 2015





**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

## ADVANCE ECONOMIC DEVELOPMENT

### *Jobs created by projects funded through the economic development program – 7f*

**MEASUREMENT DRIVER:**  
Doug Hood  
Financial Services Administrator

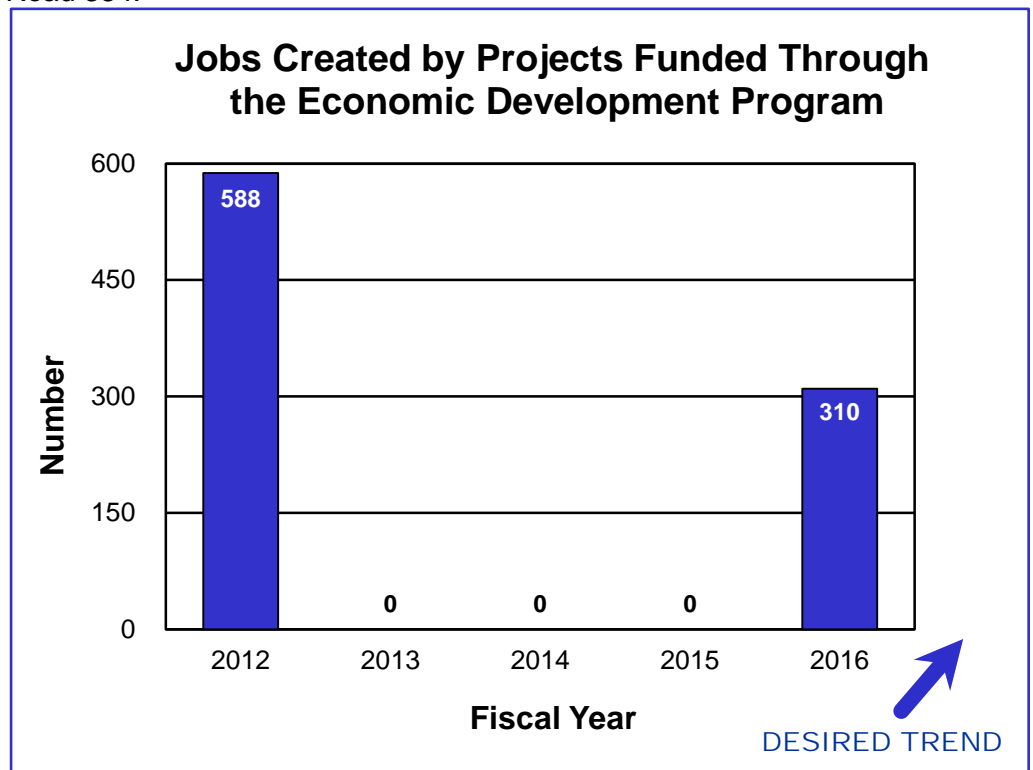
**PURPOSE OF THE MEASURE:**  
This measure tracks the number of jobs created through MoDOT's economic development program.

**MEASUREMENT AND DATA COLLECTION:**  
Data for this measure is collected from a partnership development database. This measure is based on the state fiscal year.

The Cost Share and Economic Development Program builds partnerships with local entities to pool efforts and limited resources in order to deliver state highway and bridge projects. In the past, MoDOT allocated \$45 million of Cost Share and Economic Development funds annually based on the funding distribution formula set by the Missouri Highways and Transportation Commission. Each year, a minimum of \$5 million was set aside for projects that demonstrated economic development through job creation. MoDOT contributed up to 100 percent of the total cost for projects on the state highway system if the Missouri Department of Economic Development verified that the project created jobs. Retail development projects were not eligible.

The MHTC suspended the Cost Share and Economic Development Program in January 2014. Projects already reviewed and approved by the cost share committee are eligible to move forward. However, no additional projects will be considered for funding.

In fiscal year 2016, Ford Motor Company created 256 verified new jobs in conjunction with interchange improvements at Interstate 35 and U.S. Route 69 in Clay County. Doyle Enterprises created 54 verified new jobs in conjunction with interchange improvements at U.S. Route 61 and County Road 334.



**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

**MEASUREMENT DRIVER:**  
Rebecca Brietzke  
Intermediate Diversity and Inclusion Specialist

**PURPOSE OF THE MEASURE:**  
This measure tracks minority and women employment in MoDOT's workforce and compares it with availability data from the Missouri 2010 Census report.

**MEASUREMENT AND DATA COLLECTION:**  
The SAM II database is used to collect data. The Missouri 2010 Census data is used as the benchmark for this measurement. This measure is based on the state fiscal year.

## ADVANCE ECONOMIC DEVELOPMENT

### *Percent of minorities and women employed – 7g*

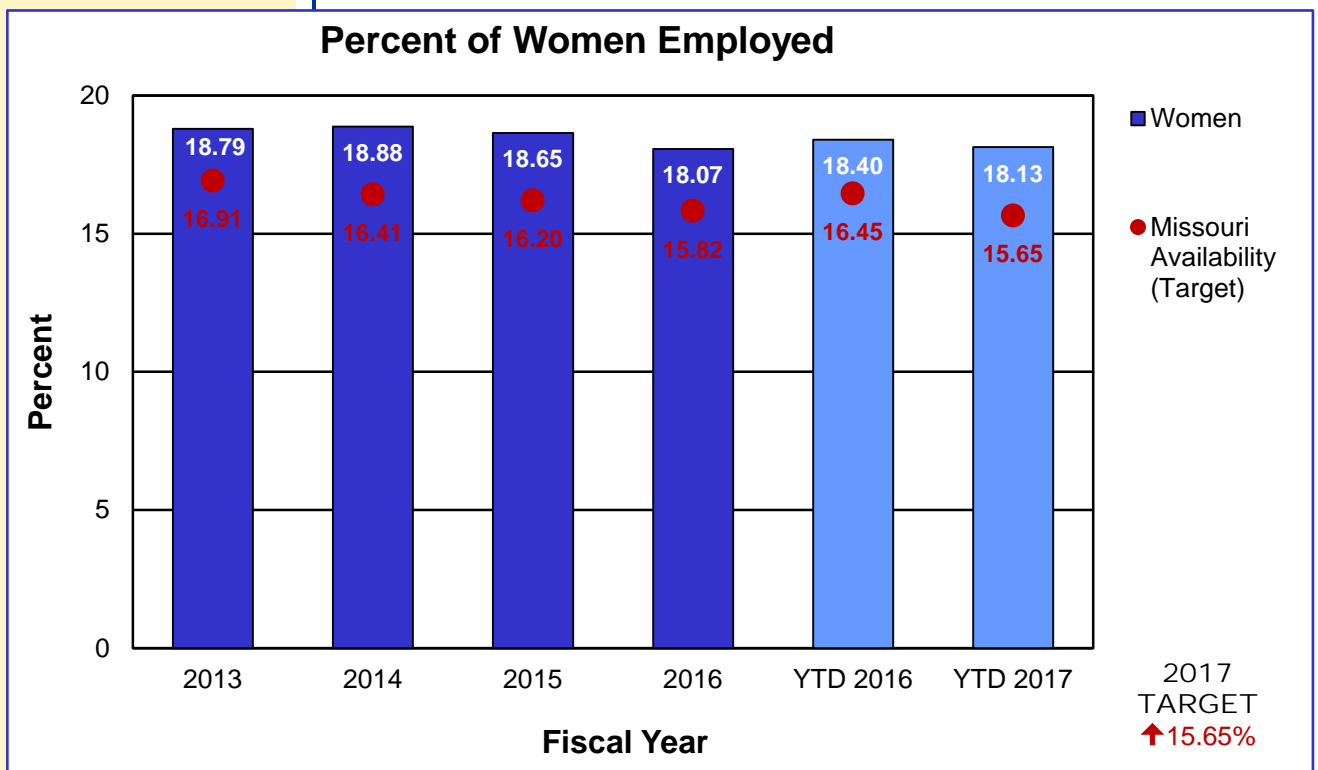
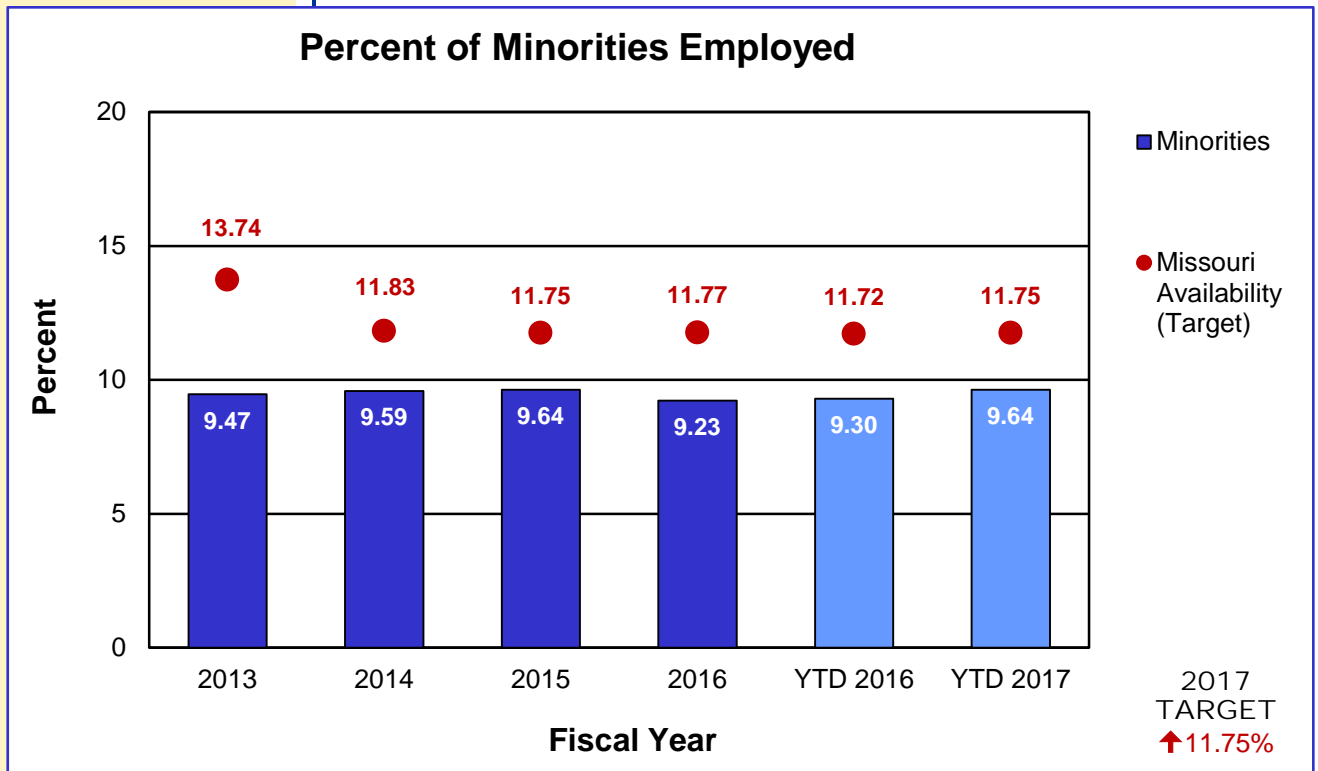
By placing the right people in the right position, MoDOT can better serve its customers and help fulfill its responsibilities to taxpayers.

The number of minority employees increased by 0.05 percent (468 to 493) from the third quarter of fiscal year 2016 to the third quarter of FY 2017. The number of women employees increased by 0.01 percent from third quarter of FY 2016 to the third quarter of FY 2017 (926 to 927). When compared to overall employment, the percent of women decreased (18.40 to 18.13) but is still above Missouri availability of 15.65 percent. The percent of minorities increased (9.30 to 9.64) and remains below Missouri availability of 11.75 percent. Total full-time employment between these two periods increased from 5,033 to 5,114.

Recently, MoDOT has developed new relationships with organizations and universities that are geared toward minorities and women. MoDOT has expanded its partnership with Lincoln University to include employment preparedness training opportunities and increased presence in discipline-specific classrooms. These good-faith efforts aid in increasing an applicant pool of qualified minorities and women.



# ADVANCE ECONOMIC DEVELOPMENT



**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

# ADVANCE ECONOMIC DEVELOPMENT

**MEASUREMENT DRIVER:**  
Missy Stuedle  
External Civil Rights Manager

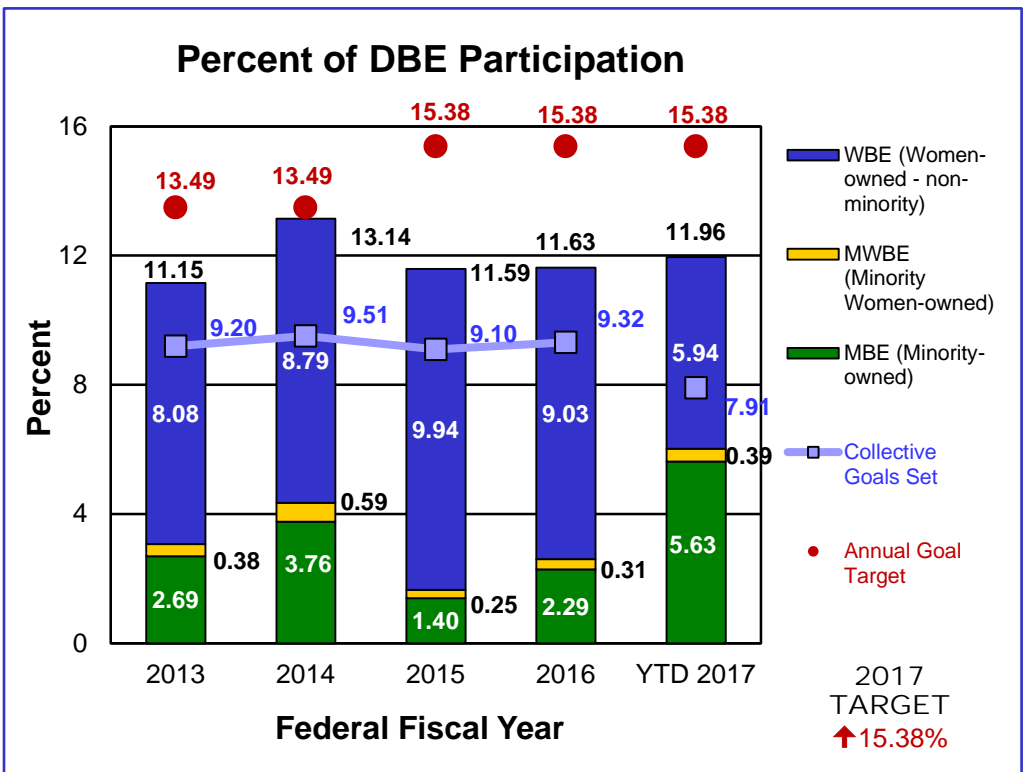
**PURPOSE OF THE MEASURE:**  
This measure tracks the percent of Disadvantaged Business Enterprise use on construction and engineering projects.

**MEASUREMENT AND DATA COLLECTION:**  
Data is collected through Site Manager for each construction project. The overall DBE goal is a yearly target established by MoDOT and the Federal Highway Administration regarding the expected total DBE participation on all federally-funded construction projects. Individual DBE project goals are determined by subcontract opportunity, project location and available DBE firms that can perform the scope of work. DBE utilization is tracked for each construction project identifying the prime contractor, contract amount, the established goal and how the prime contractor fulfilled the goal. This measure is based on the federal fiscal year. Collection of data began in FFY 2012.

## Percent of disadvantaged business enterprise participation on construction and engineering projects – 7h

MoDOT believes it is good business to support diversity among its contractors, subcontractors and suppliers. Contractors, subcontractors and suppliers working on construction projects that receive federal aid or federal financial participation are required to take reasonable steps to ensure DBEs have an opportunity to compete for and participate in project contracts and subcontracts.

The overall DBE goal for federal fiscal year 2017 is 15.38 percent. The DBE participation for the first quarter of FFY 16 is 11.96 percent. This is a 0.33 percent increase from FFY 2016. Of the 11.96 percent utilization, 5.63 percent was participation from minority-owned DBE firms, 0.39 percent was participation from minority women-owned DBE firms and 5.94 percent was participation from women-owned DBE firms. The collective goals set for projects closed during this period amounted to 7.91 percent.





**RESULT DRIVER:**  
Lester Woods  
External Civil Rights Director

# ADVANCE ECONOMIC DEVELOPMENT

**MEASUREMENT DRIVER:**  
Kevin Kiesling  
General Services Manager

## *Expenditures made to certified minority, women and disadvantaged business enterprises – 7i*

**PURPOSE OF THE MEASURE:**  
This measure tracks the department's non-program spending with certified minority, women and disadvantaged business enterprises (MWDBE).

Ensuring MoDOT spending is reflected in all Missouri communities advances economic development for all business enterprises. Historical data helps identify opportunities for improvement. Improvement efforts include training staff who have procurement authority, outreach to MWDBE vendors in order to encourage them to become certified and focused inclusion efforts.

The third quarter of fiscal year 2017 results show an increase of \$2.7 million in MWDBE disbursements compared to the third quarter of FY 2016. Compared to third quarter of FY 2016, the FY 2017 percentage of MWDBE expenditures spend increased by 1.4%.

This measure will continue to track the department's efforts to ensure the vendor pool is representative of the business community as a whole, including MWDBE firms.

**MEASUREMENT AND DATA COLLECTION:**  
Data is obtained from the statewide financial accounting system expenditure reports and United Missouri Bank purchasing card reports. Certified vendors are maintained in a statewide procurement vendor database. Vendors may be certified through the Office of Administration as well as the Missouri Regional Certification Committee. Included in these expenditures are items such as materials, equipment, tools and supplies. Program spending, including construction, design consultants, local agencies, highway safety and multimodal programs and exempted activities such as utilities, postage, organizational memberships, conferences and travel, is excluded from total dollars spent.

### Statewide Expenditures to Certified MWDBE

