

## 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

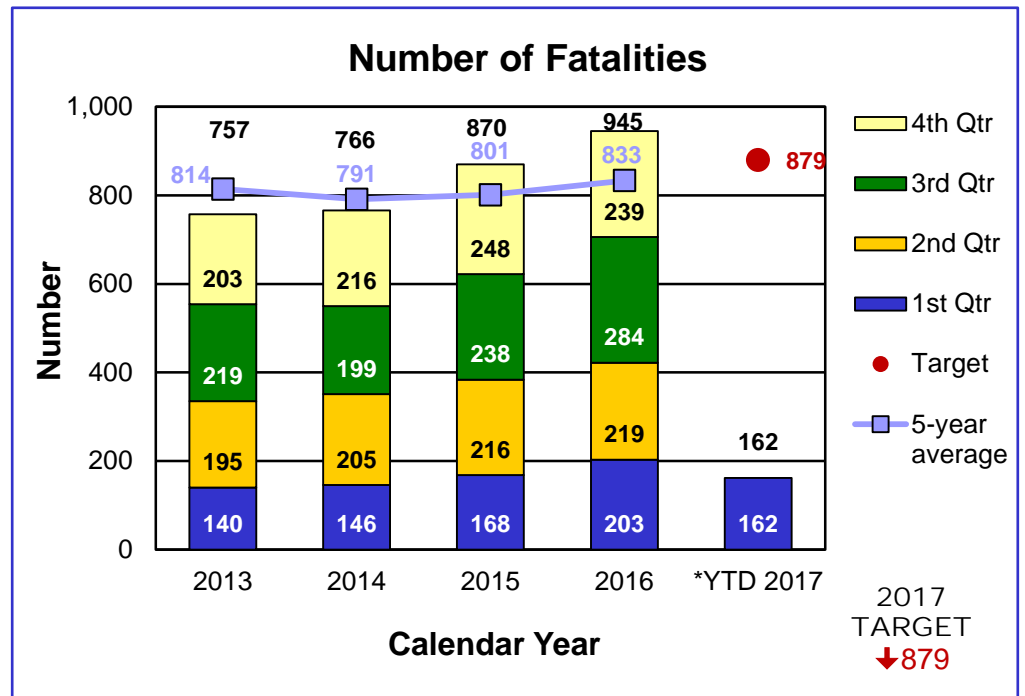
## Number and rate of fatalities and serious injuries – 1a

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:

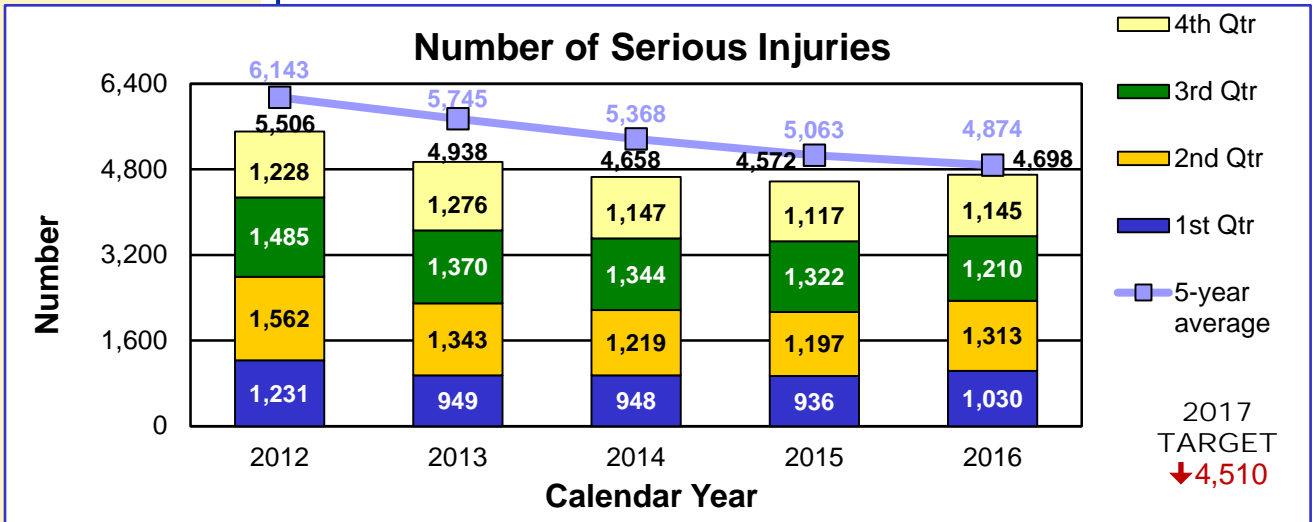
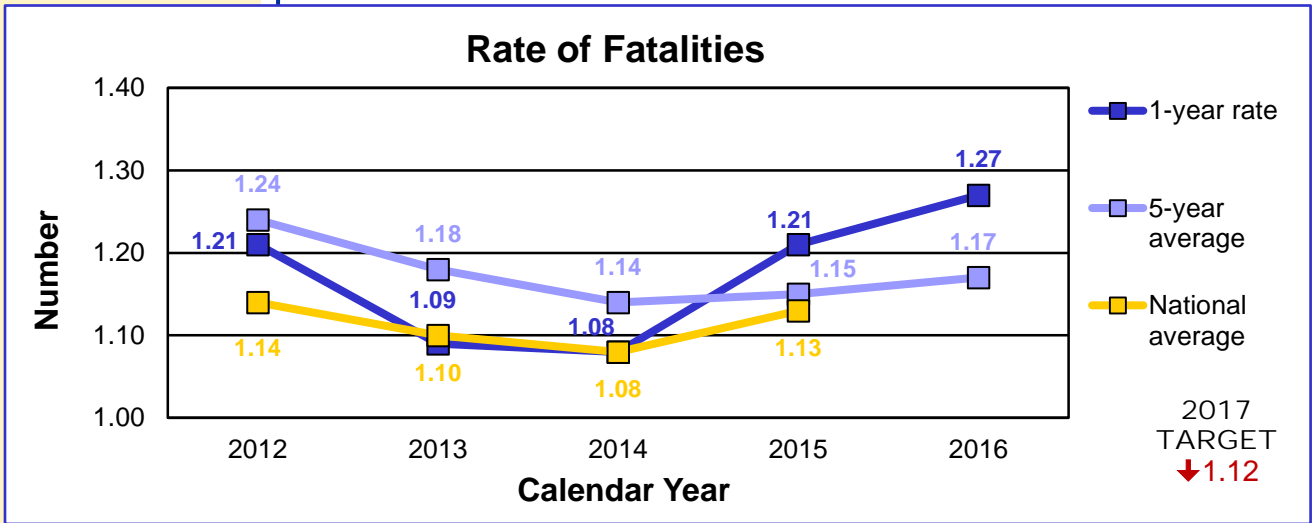
- Run-off-road and curves
- Head-on collisions
- Collision with trees and poles
- Intersection collisions
- Aggressive driving
- Unrestrained occupants
- Substance impaired driving
- Distracted and inattentive driving
- Younger and older drivers
- Motorcyclists
- Pedestrians
- Commercial motor vehicle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

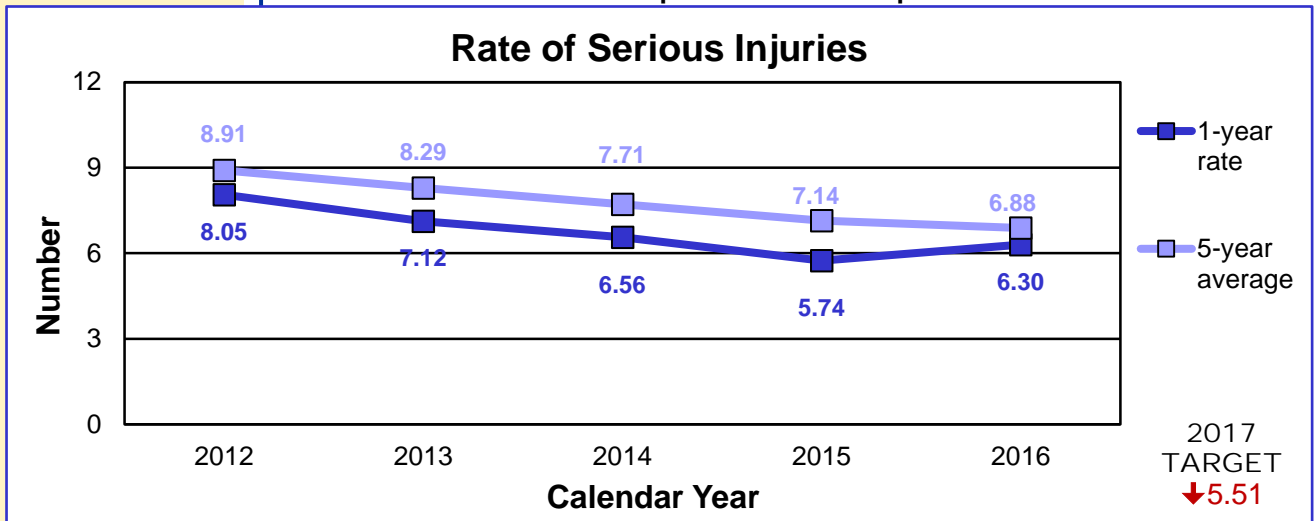


\*YTD 2017 – First quarter fatalities were derived from MSHP radio reports.

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\*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.

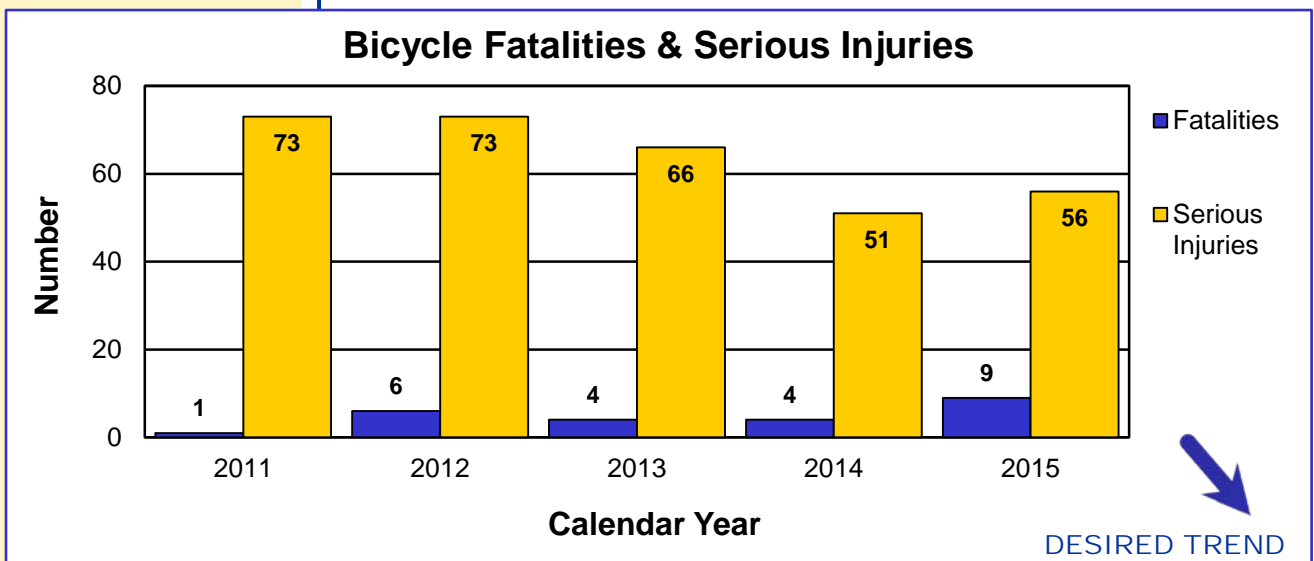
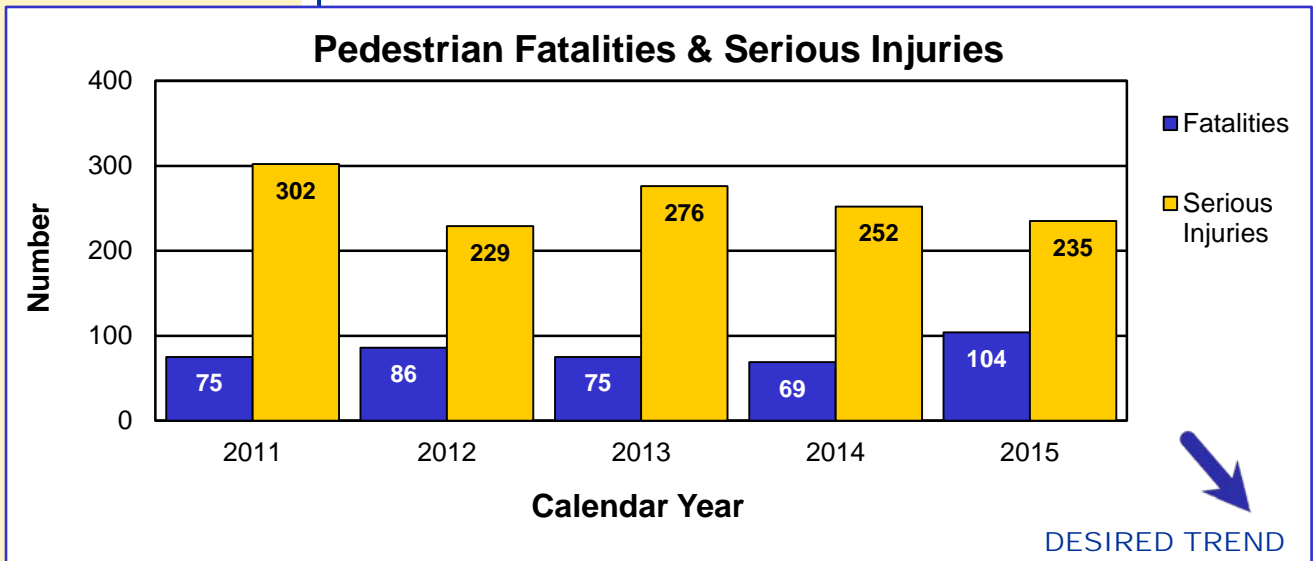
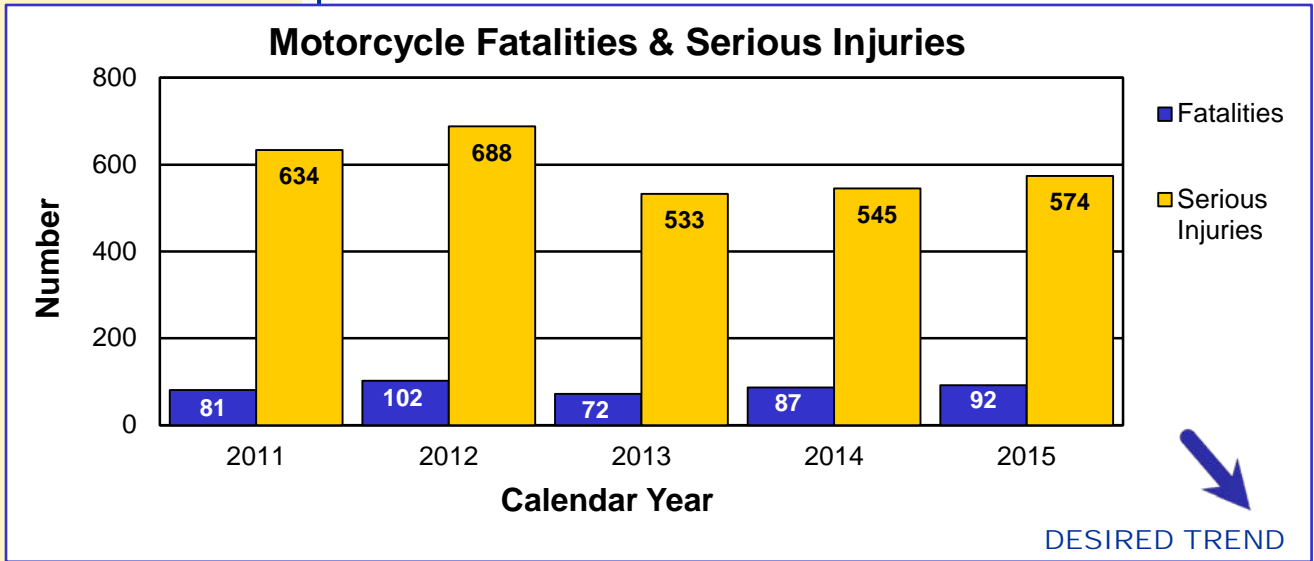
Motorcycle and bicycle serious injuries increased in 2015, meanwhile pedestrians decreased. Serious injury data for 2015 is incomplete.

## 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.



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## 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.

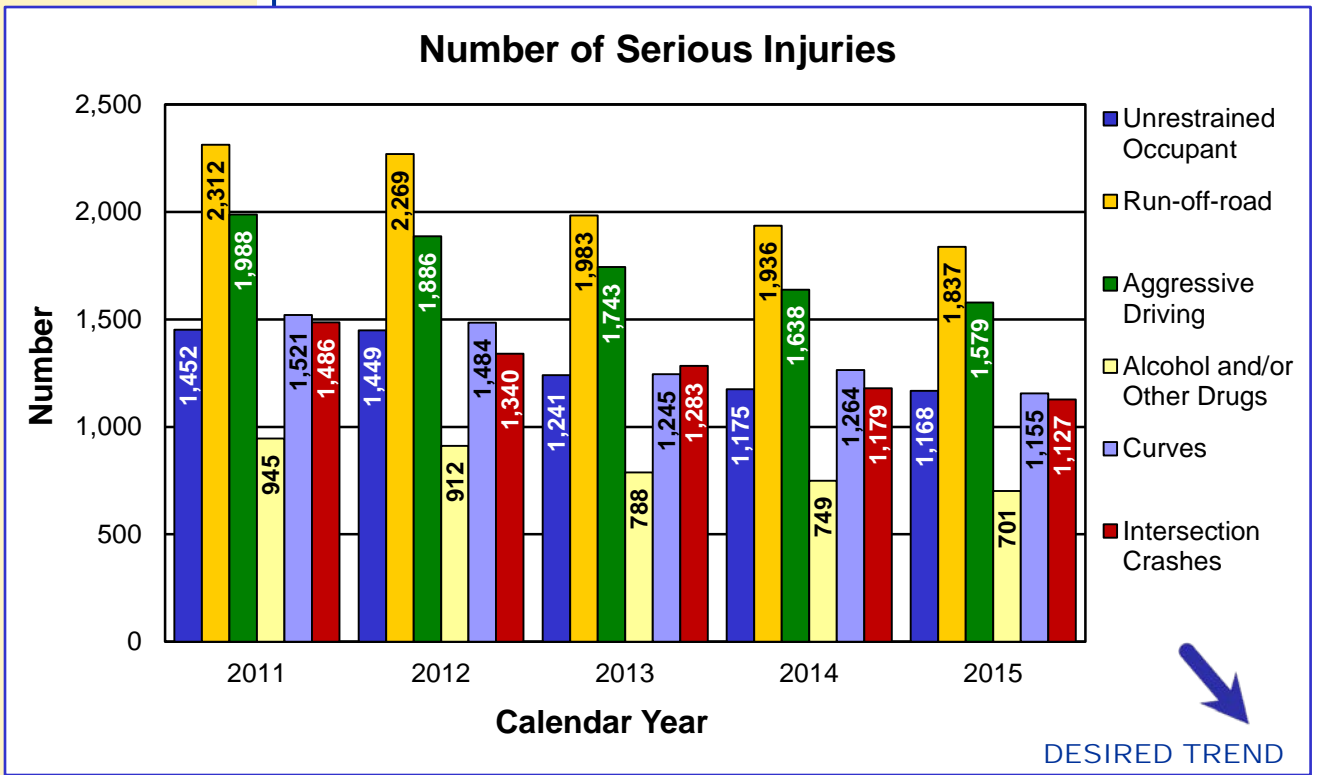
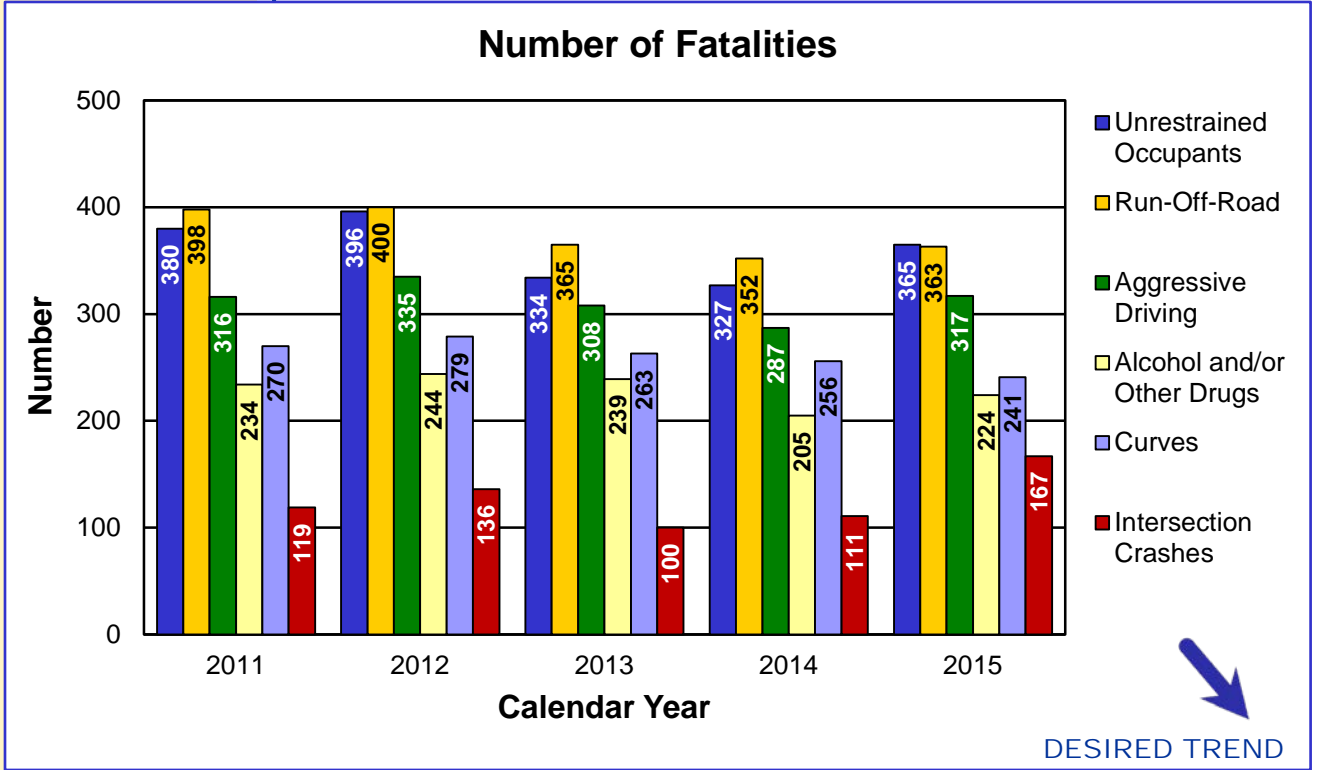
Recording and monitoring crash data is an important part of improving safety for Missouri drivers. But without looking at the causes of these incidents, the data is nothing but numbers. Looking for the reasons why an incident occurs is MoDOT's best approach to address the problem. With that approach, 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:**

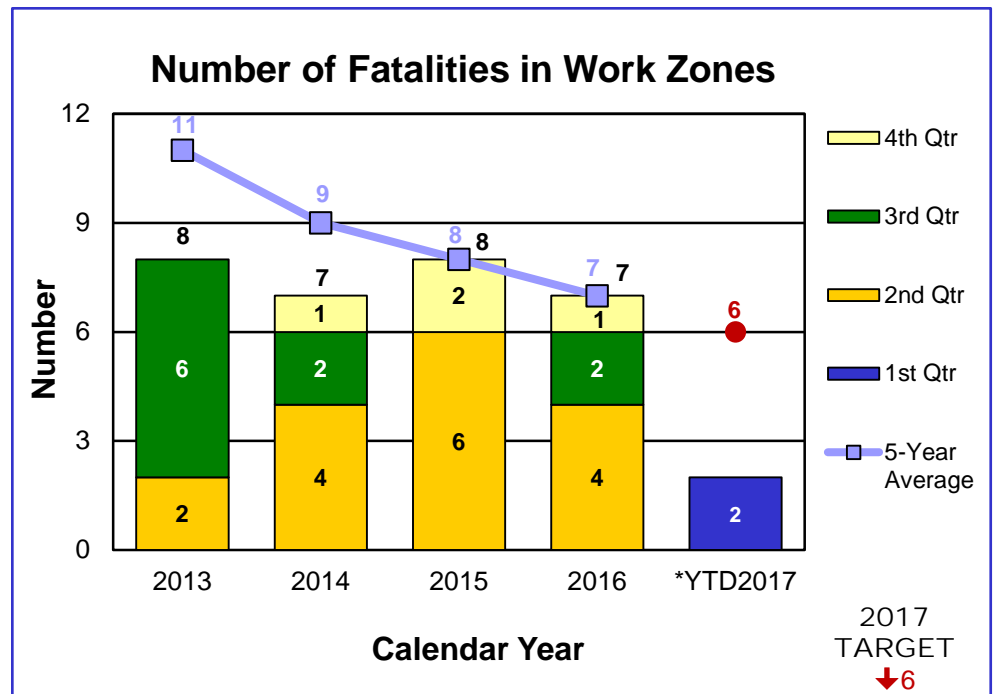
This measure tracks the number of traffic-related and non-traffic-related fatalities, injuries and overall crashes occurring in work zones on state-owned roadways.

**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.

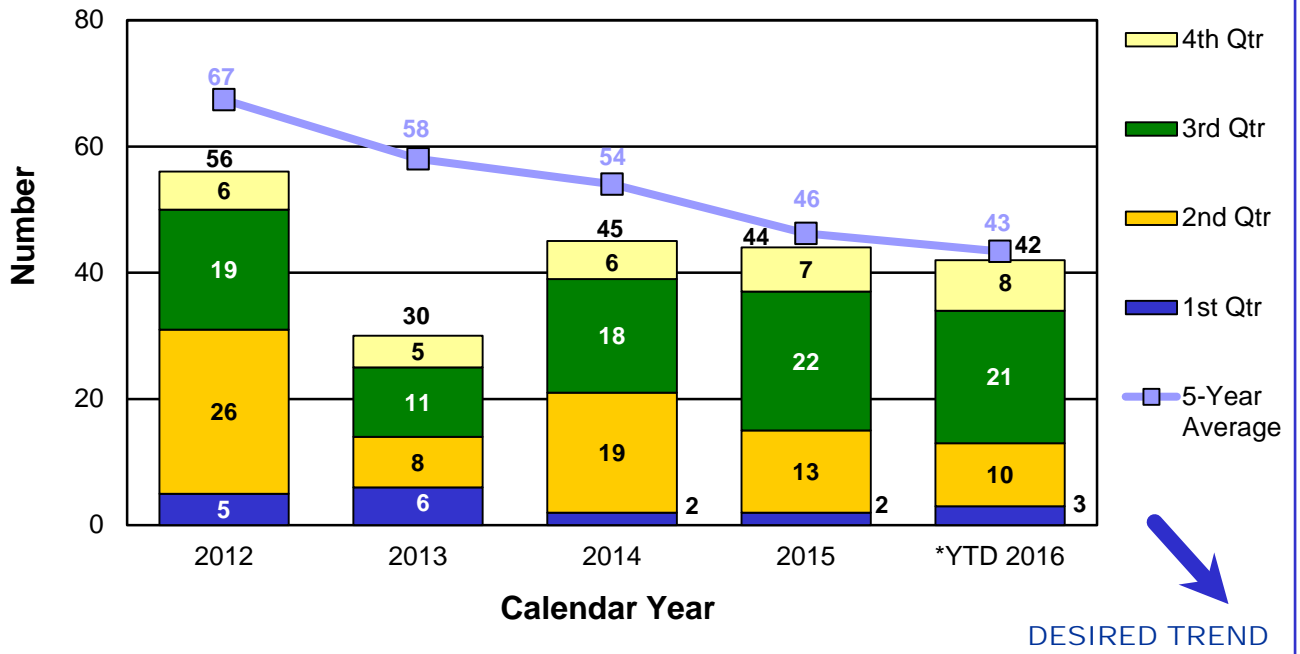
Based on information currently available, there have been two work zone crashes that resulted in two fatalities in 2017, a worker and a motorist. Both involved MoDOT vehicles and MoDOT work zones. Work zones are high-risk areas because roadway configurations may be changing, from closing lanes, to shifting 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.



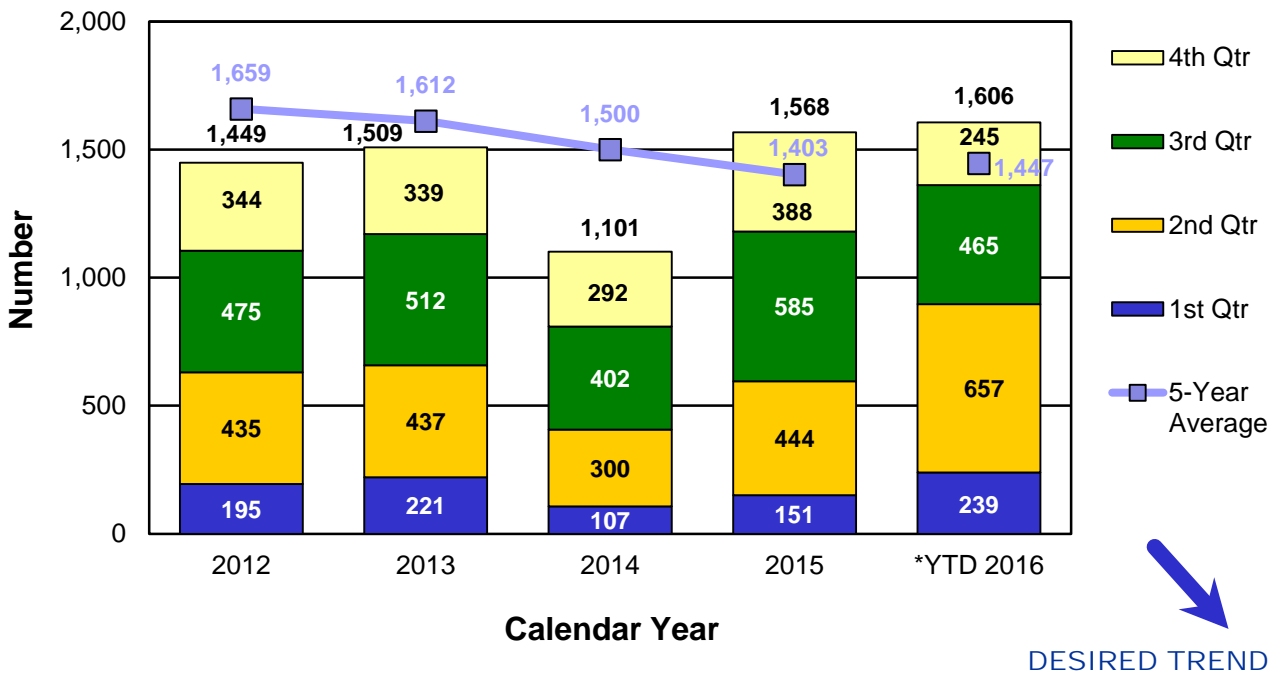
\*YTD 2017 – Fatalities derived from TMS.

# 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

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

**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.

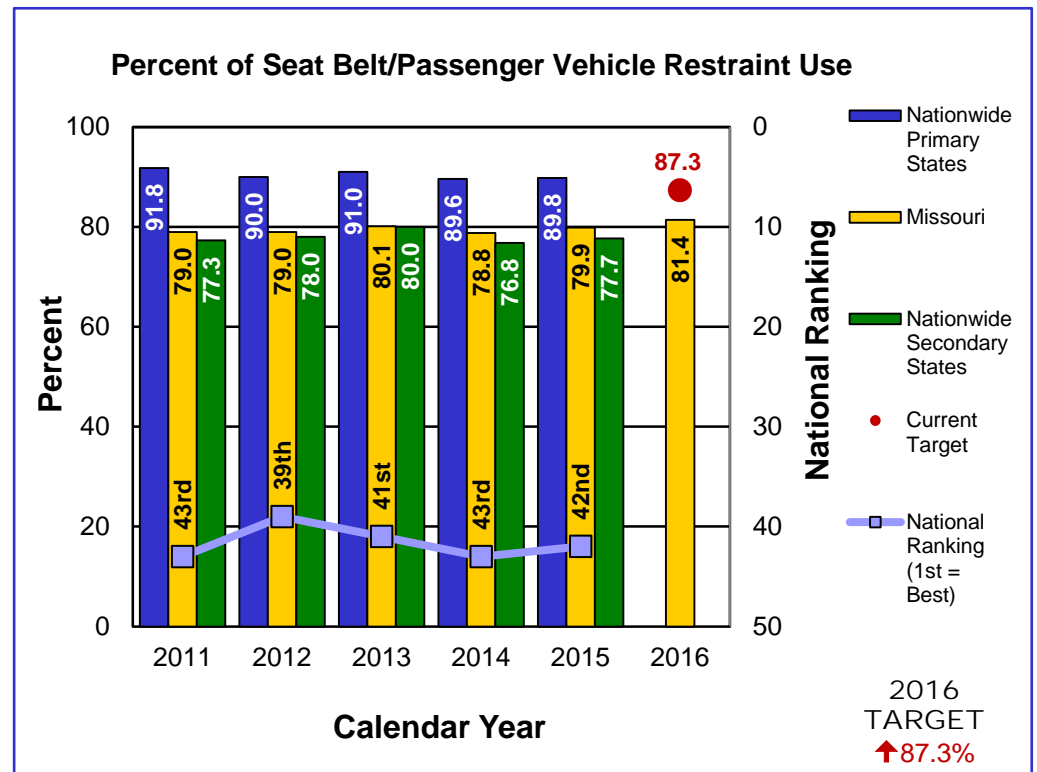
**MEASUREMENT AND DATA COLLECTION:**

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.

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.

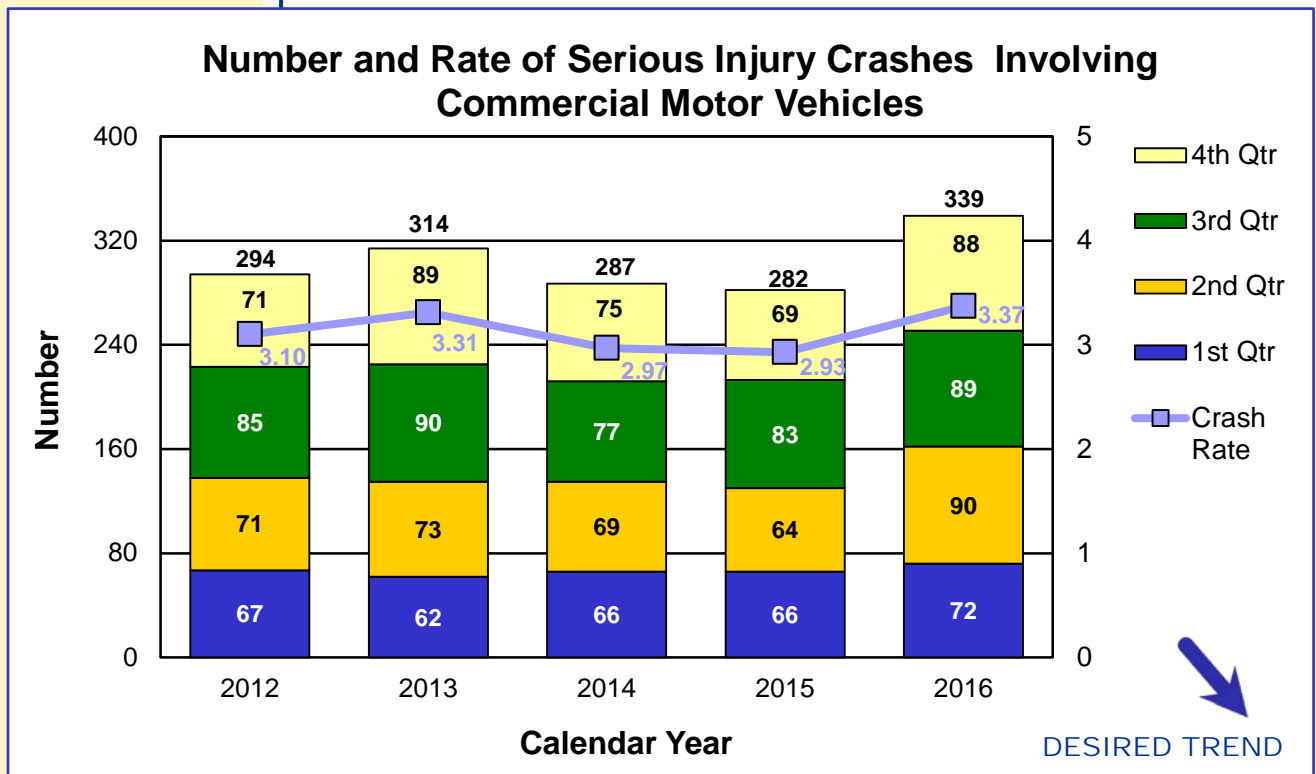
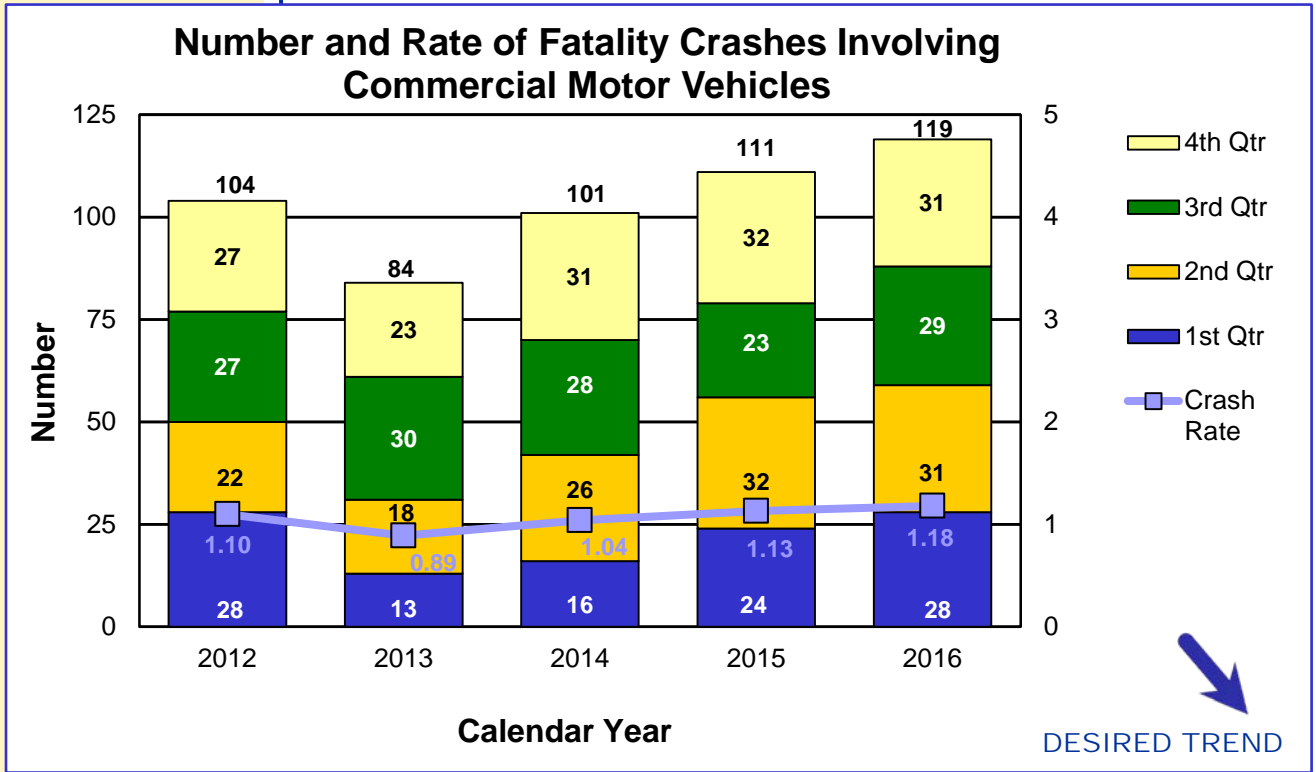
Commercial motor vehicles are the lifeblood of Missouri's economy. They transport the goods and materials that keep the nation moving. Partnering with the Missouri State Highway Patrol and St. Louis and Kansas City police departments, MoDOT does everything in its power to keep CMV drivers safe and their 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

## 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.

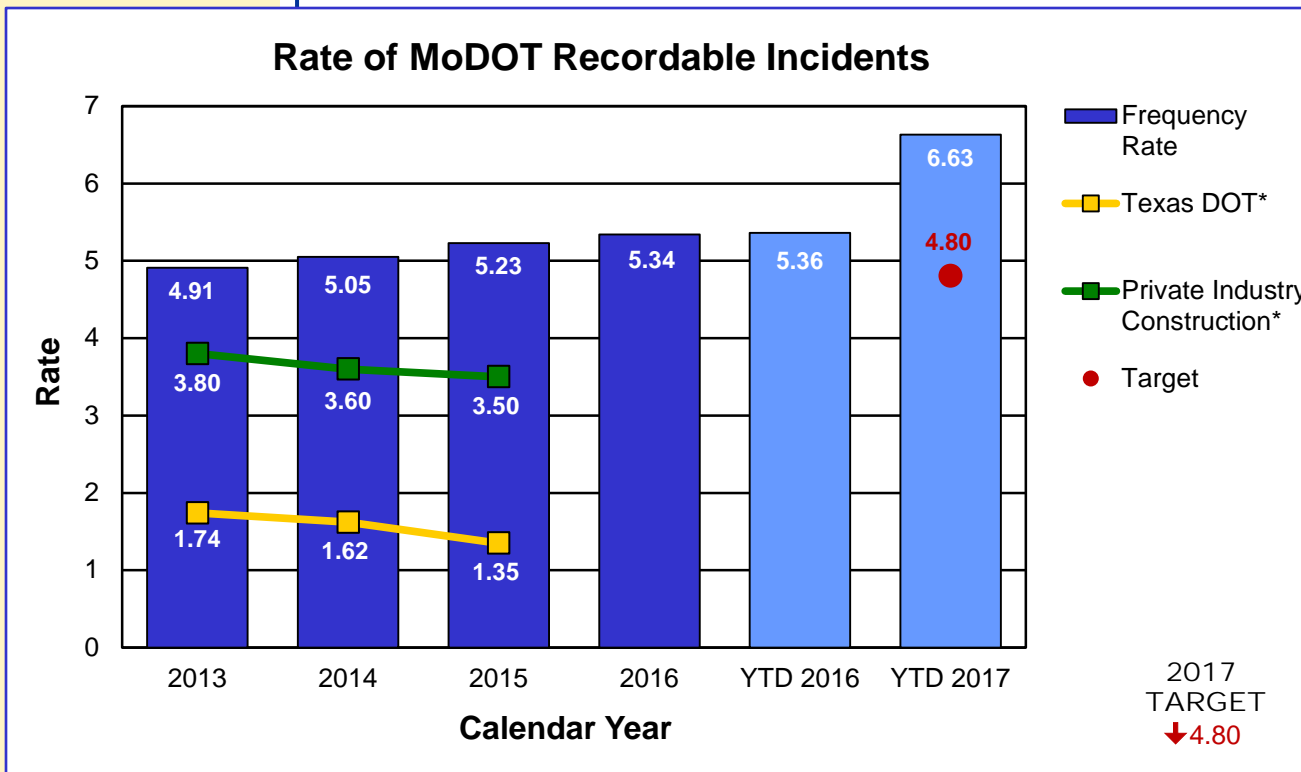
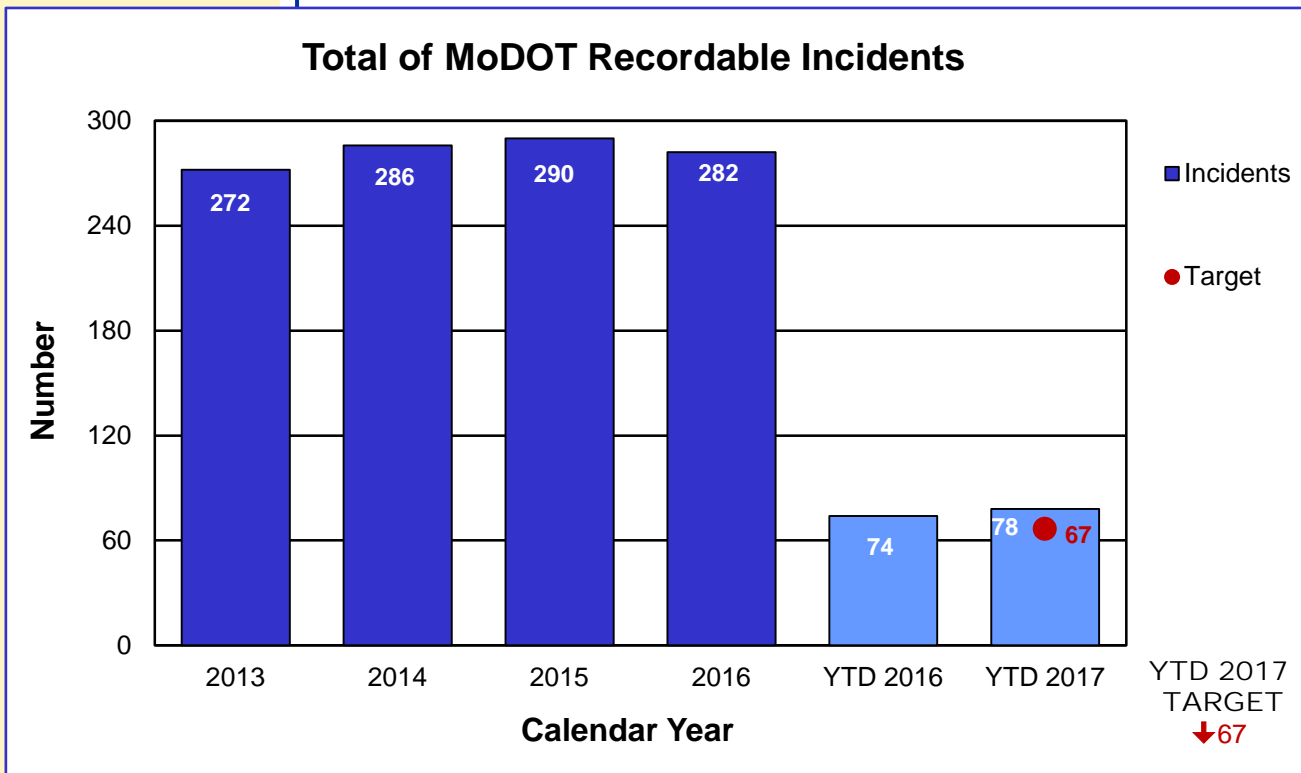
## *Total and rate of MoDOT recordable incidents – 1q*

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.

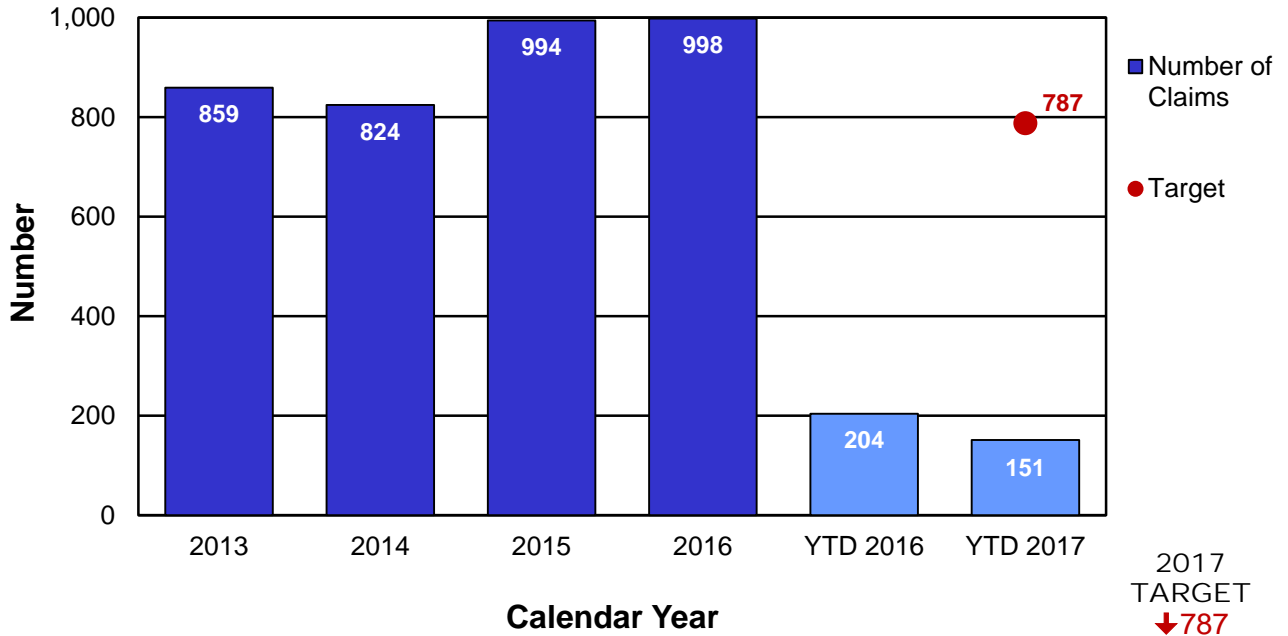
Keeping employees and the public safe is MoDOT's top core value. Controlling damage to vehicles and reducing personal injury in work zones, on right of way and other areas under department control helps MoDOT accomplish this goal. Compared to the first quarter of 2016, there was a 26 percent decrease 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

