



# KEEP ROADS AND BRIDGES IN GOOD CONDITION

*Dennis Heckman, State Bridge Engineer*

The logo for Tracker, featuring a stylized green circle with a white crosshair inside, positioned to the left of the word "Tracker".

# 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 33,856 miles of highway and 10,403 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:**  
Dennis Heckman  
State Bridge Engineer

## 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 5,517 total miles on  
the major highway system, and  
the condition of these  
roadways is determined using  
a variety of measures.

Missouri measures the  
condition of its roadways using  
smoothness as one factor, but  
also considers physical  
distresses such as cracking.

The target for this measure is  
set by internal policy and will  
not change unless policy  
changes, regardless of  
performance.

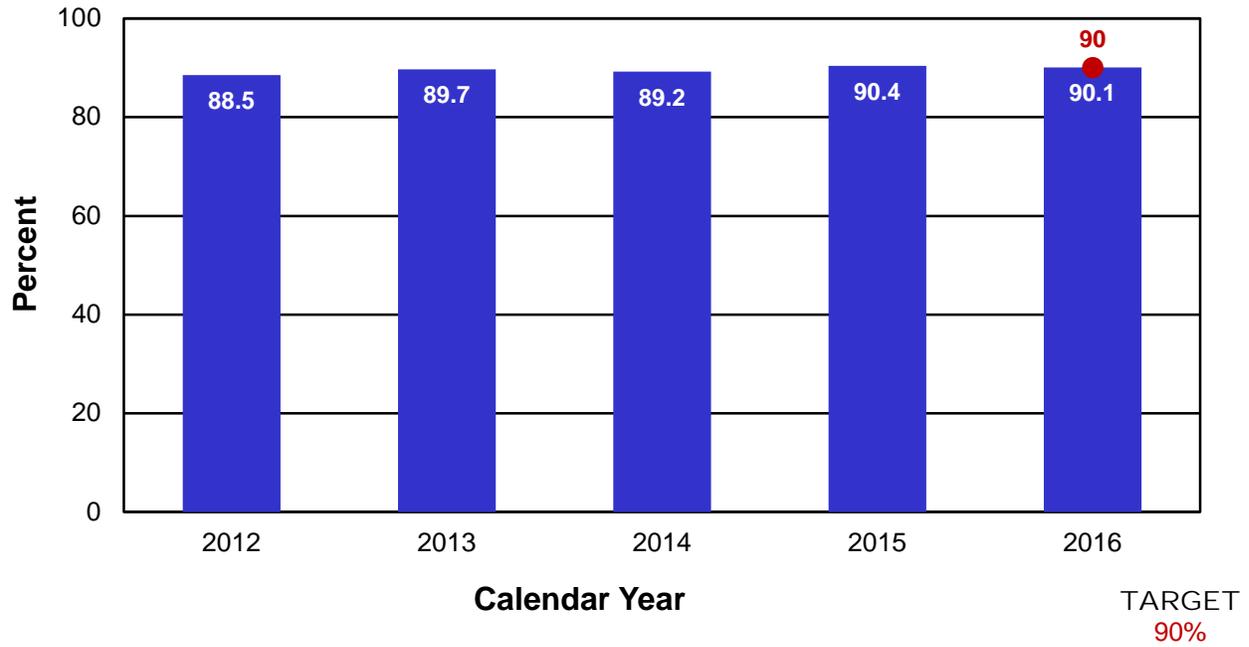
### *Percent of major highways in good condition – 2a*

Missourians have repeatedly told MoDOT keeping roads smooth is a top priority. Over the years, MoDOT has been able to fund pavement improvement programs improving pavement conditions on the thousands of miles of state highways. Currently, more than 90 percent of Missouri major highways are rated in good condition. A statewide target for both major highways and interstate highways has been set. The target for Missouri major highways is 90 percent and the target for interstates is 92 percent. These targets are based on the statewide asset management plan and represent MoDOT's goal of maintaining current conditions.

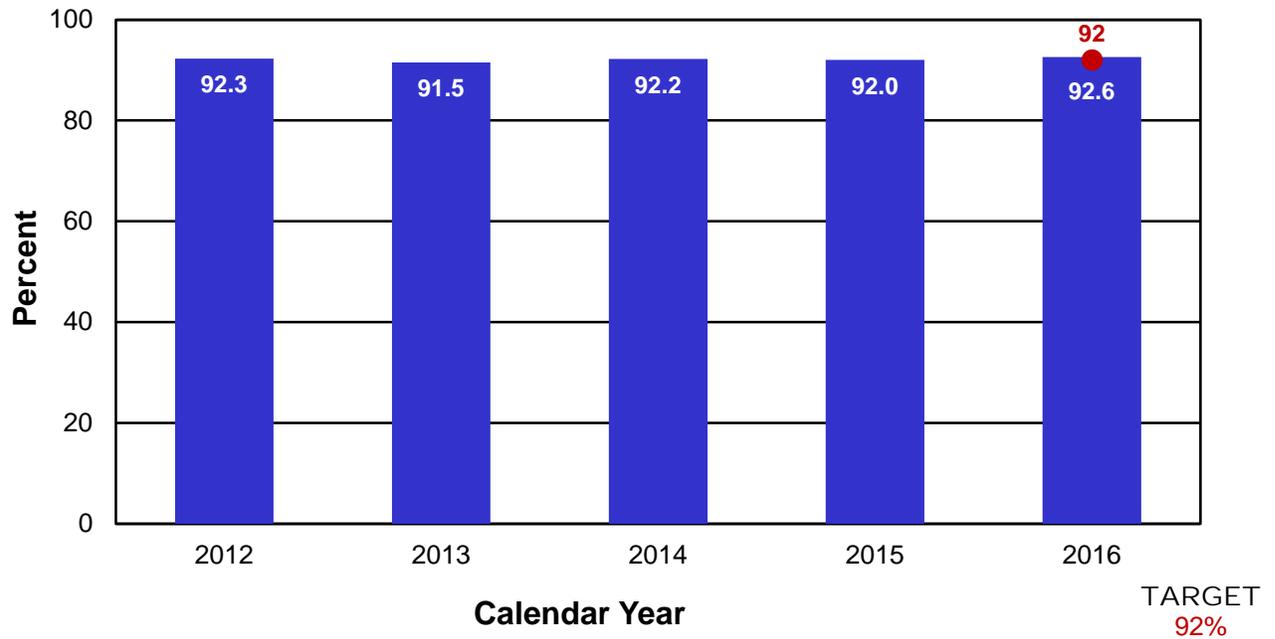


# KEEP ROADS AND BRIDGES IN GOOD CONDITION

## Percent of Major Highways in Good Condition



## Percent of Interstate Highways in Good Condition



**RESULT DRIVER:**  
Dennis Heckman  
State Bridge Engineer

## 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 28,339 miles of minor highways in Missouri. The condition of these routes is determined using a variety of measures.

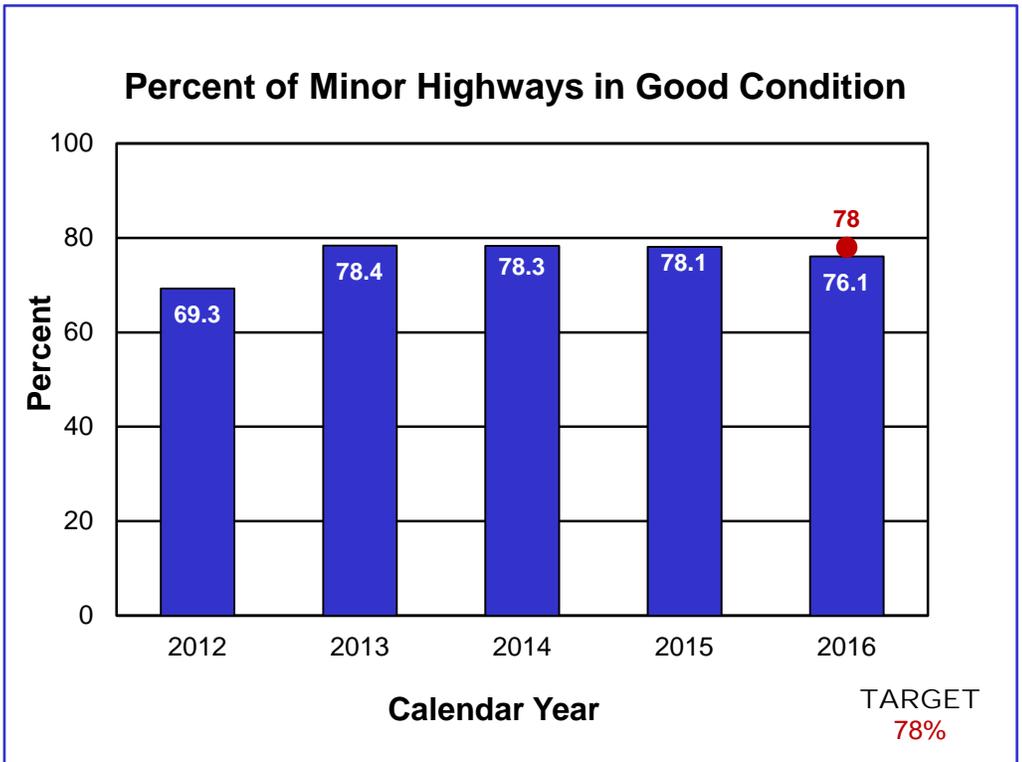
Missouri measures the condition of its roadways using smoothness as one factor, but also considers physical distresses such as cracking.

Data are collected in the previous calendar year and updated in April of the current calendar year. It is subsequently reported on, annually, in July of the current calendar year.

The target for this measure is set by internal policy and will not change unless policy changes.

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, 76 percent of Missouri's minor highways are in good condition, which is slightly below 2015. A target of 78 percent of minor highways has been established. This target is based on the statewide asset management plan and represents MoDOT's goal of maintaining current condition.



## RESULT DRIVER:

Dennis Heckman  
State Bridge Engineer

# KEEP ROADS AND BRIDGES IN GOOD CONDITION

## Condition of state bridges – 2c

## 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 July based on MoDOT inspections conducted the prior year. Data is presented for all state bridges and major bridges. Major bridges are those that are longer than 1,000 feet and typically cross the larger rivers and major lakes within the state. Of the 10,403 bridges on state highways, 207 are considered major bridges. Bridges are categorized as being in good, fair or poor condition in accordance with criteria established by FHWA. Good means no significant condition-related problems exist. Fair indicates that moderate problems exist that may require minor rehabilitation or maintenance to return the structure to good condition. Poor indicates that more significant problems exist which will require either a major rehabilitation or replacement of the structure.

The target for this measure is set internally and reflects the department's goal of "holding its own" in terms of bridge condition.

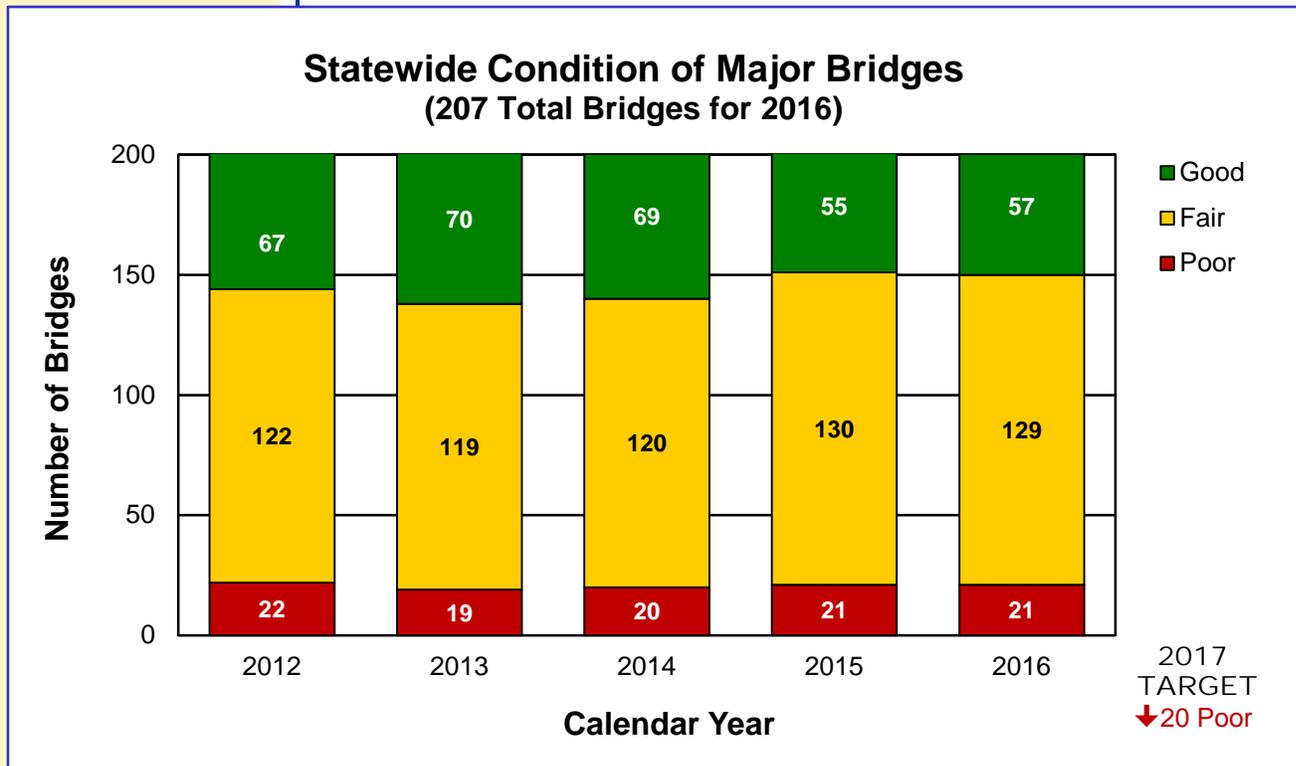
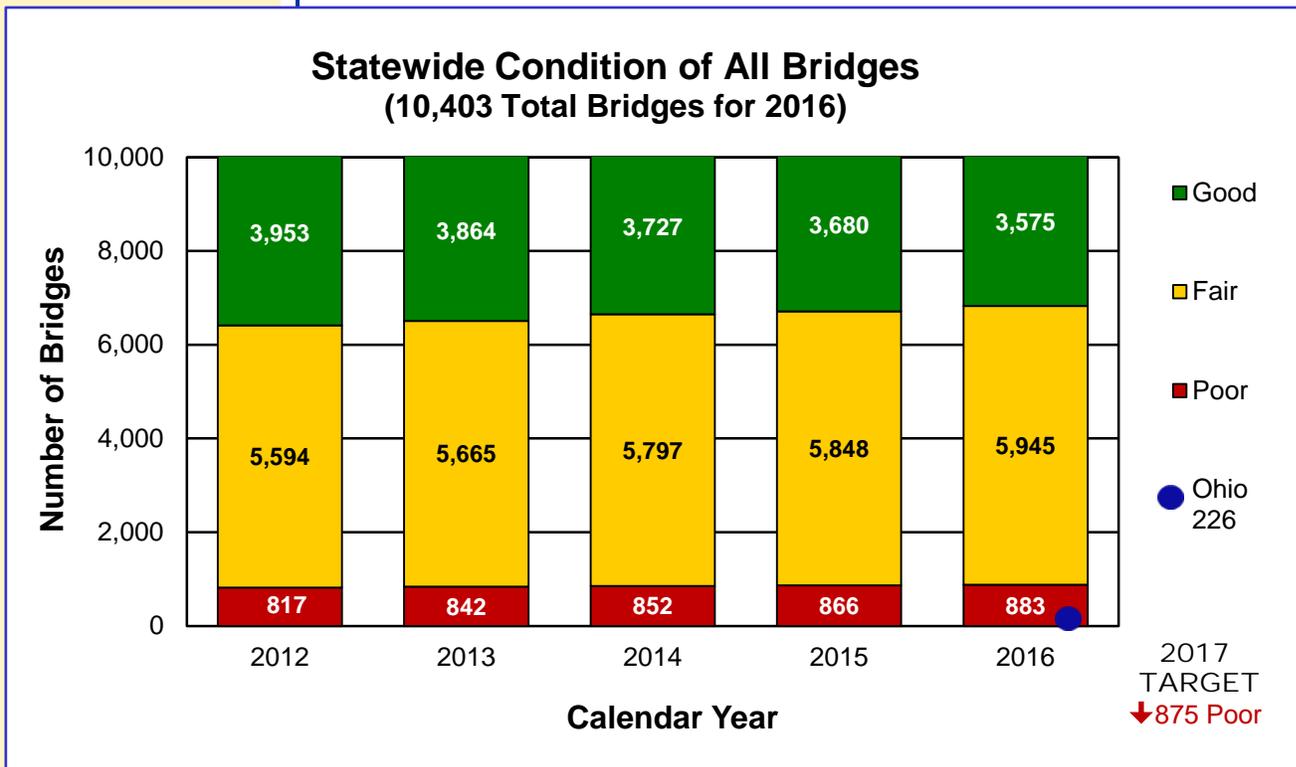
The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. Currently, 883 (21 major) structures are in poor condition, 5,945 (129 major) structures are in fair condition and 3,575 (57 major) structures are in good condition.

Statewide, the number of structures in poor condition has been slowly increasing over the last five years. The number of structures in good condition peaked in 2012 and has been steadily declining since then, while the number of structures in fair condition has significantly increased. The slow increase in the number of poor condition structures reflects that MoDOT is essentially "holding it's own" even with significant Statewide Transportation Improvement Program investments on bridges in recent years. The decline in good structures reflects the fact that the construction program has slowed down in recent years with the focus on taking care of the existing system. The number of structures in fair condition continues to significantly increase which is reflective of MoDOT's aging bridge demographics 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 steady over the last five years. This is reflective of the significant focus on these structures in the STIP. Even with the significant investment in the STIP, the number of structures in good condition has been generally dropping over the five-year period while the number in fair condition has generally been increasing. Work on major bridges is expensive with rehabilitations costing \$10 to \$20 million and replacements ranging from \$20 million to \$200 million. Ohio has been selected for comparison as its number of state bridges (10,394) is only nine fewer than Missouri, as well as having similar demographics, geography and weather conditions.



# KEEP ROADS AND BRIDGES IN GOOD CONDITION



## RESULT DRIVER:

Dennis Heckman  
State Bridge Engineer

## 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. Fixing America's Surface Transportation Act requires states to track the structurally deficient deck area on the NHS. Historically, structurally deficient consisted of bridges that were in bad condition or had insufficient load capacity when compared to modern design standards. With the implementation of FAST Act, this definition has changed and this measure reflects those changes. FAST Act has a penalty threshold that requires a state to take certain actions whenever the percentage of structurally deficient deck area within a state exceeds 10 percent. The chart reflects the below 10 percent target.

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

The public has indicated keeping Missouri's existing roads and bridges in good condition should be one of the state's highest priorities. FAST Act established a 10-percent penalty threshold for states, that when exceeded, has special rules that essentially require a state to focus money on bridges until they are back under 10 percent. The local system has 86 NHS structures (five SD) and the MoDOT system has 3,557 NHS structures (144 SD). Missouri currently falls below the penalty threshold with the statewide structurally deficient deck area at 7.2 percent. This is attributable to the continued efforts at focusing on major bridges when funding is available as well as the increased focus on dealing with the poor condition bridges within the STIP.

Statewide, this measure is also 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 witnessed below 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 measure from 2015 to 2016 result from 24 structures dropping off the list while 34 structures were added to the list, resulting in a slight increase in the area of structurally deficient structures on the NHS. After a few years of changes, the roadways included on the NHS have stabilized with only minor changes from year to year resulting in negligible impacts on this measure. Ohio has been selected for comparison as their number of state bridges (10,394) is only nine fewer than Missouri, as well as having similar demographics, geography and weather conditions.

