



KEEP ROADS AND BRIDGES IN GOOD CONDITION

Dennis Heckman, State Bridge Engineer

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 more than 33,000 miles of highway and more than 10,000 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

MAP-21

Percent of major highways in good condition-2a

MEASUREMENT
DRIVER:
Brian Reagan,
Transportation System
Analysis Engineer

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, includ-
ing interstates and most
U.S. routes. It also includes
busy routes in urban areas,
particularly where vehicles
travel between business
districts and residential ar-
eas. There are about 5,500
miles total on the major
highway system, and the
condition of these road-
ways is determined using a
variety of measures. While
it can be difficult to com-
pare one state's roadways
to another state's, MoDOT
uses Georgia as a compa-
rable system, since it has
a similar amount of major
highways and bases its
evaluation on the smooth-
ness of the roadways. Mis-
souri measures the condi-
tion of its roadways using
smoothness as one factor,
but also considers physical
distresses such as cracking.

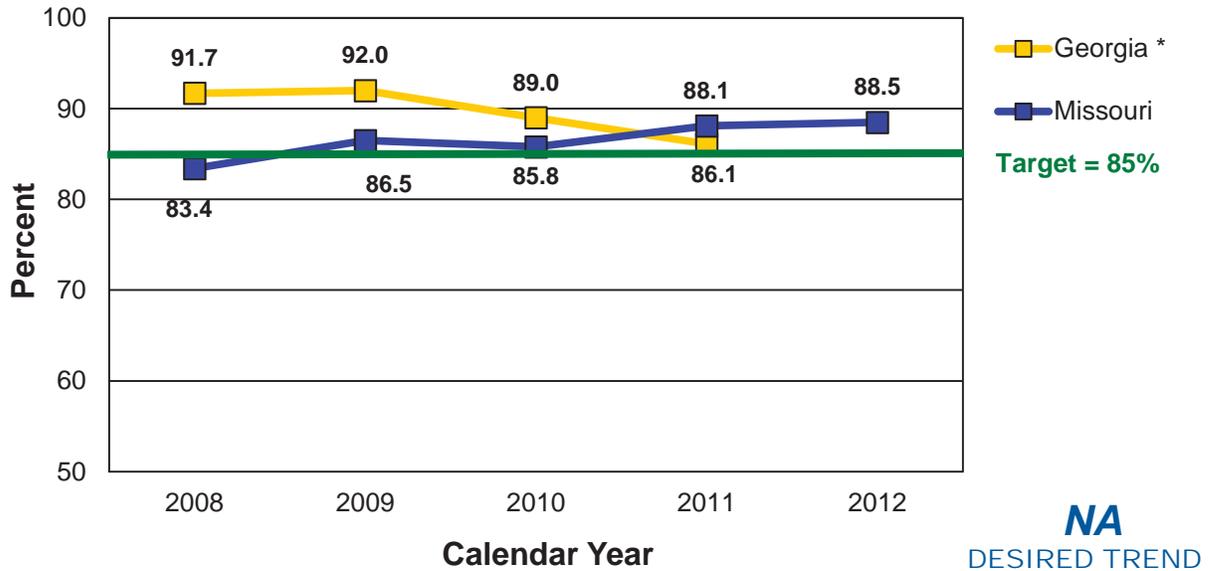
In 2004, MoDOT started a major road improvement program called the Smooth Roads Initiative. The program improved 2,200 miles of Missouri's major routes, bringing them from 47 percent to 74 percent in good condition. Another program in 2007 brought 85 percent of Missouri's major routes to good condition.

Currently more than 88 percent of major highways are rated in good condi-
tion. However, with construction program funds dropping from over \$700
million per year to just over \$300 million per year beginning in 2017, there
will be a significant impact on our ability to maintain this condition level.

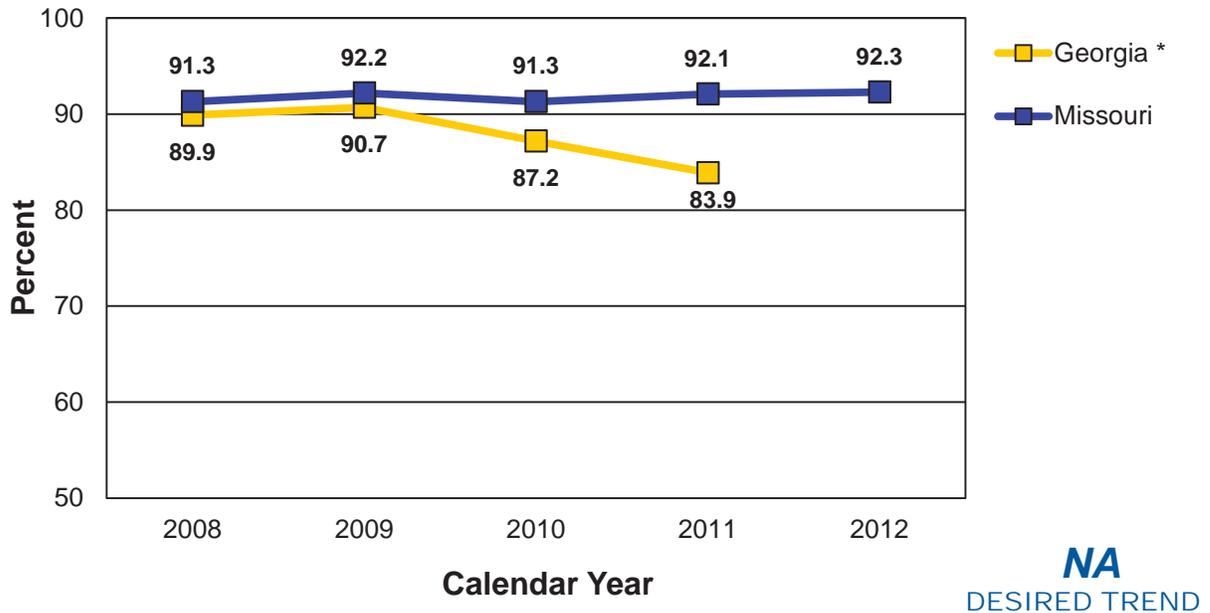


KEEP ROADS AND BRIDGES IN GOOD CONDITION

Percent of Major Highways in Good Condition



Percent of Interstate Highways in Good Condition



*Source data for Georgia comes from FHWA highway statistics. Data for 2012 is not available at the time of publication. Georgia data is based only on pavement smoothness (IRI) submitted as part of the Highway Performance Monitoring System.

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State Bridge Engineer

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

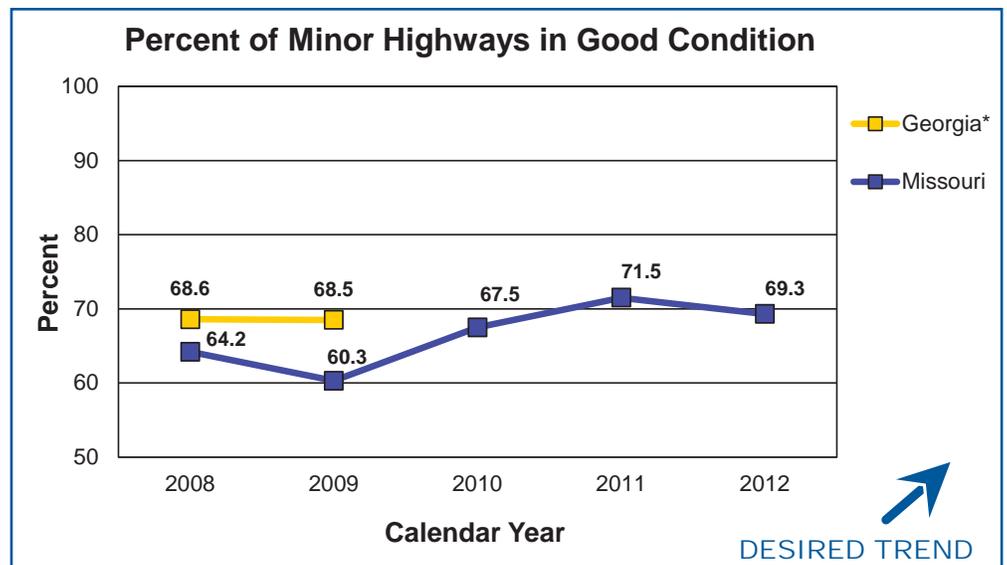
**PURPOSE OF
THE MEASURE:**
This measure tracks the
condition of Missouri's
minor highways.

**MEASUREMENT
AND DATA
COLLECTION:**
Missouri's minor highway
system consists of its less-
traveled state highways,
including those routes that
mainly serve local transpor-
tation needs. They include
most lettered routes. There
are approximately 28,200
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 state's,
MoDOT uses Georgia as a
comparable system since
it has a similar number of
minor highways and has
the highest percentage of
routes in good condition.
Missouri measures the con-
dition of its roadways using
smoothness as one factor,
but also considers physical
distresses such as cracking.

Percent of minor highways in good condition-2b

In 2004, MoDOT began an initiative that focused on improving major high-ways. As a result, less time and funding were spent on minor roads and the percentage of minor roads in good condition fell from 71 percent in 2005 to 60 percent in 2009. After MoDOT made headway improving major highways, it targeted its focus on minor routes and brought 71 percent back to good condition.

Currently, 69 percent of Missouri's minor roads are in good condition, which is a slight decrease from 2011. With construction program funds dropping from over \$700 million per year to slightly above \$300 million per year beginning in 2017, the expectation is that the condition of the minor roads will continue to decline.



*Source data for Georgia comes from FHWA highway statistics. Data for 2010 is not available at the time of publication. Data is based on a combination of pavement smoothness as submitted as part of the Highway Performance Monitoring System.

RESULT DRIVER:
Dennis Heckman,
State Bridge Engineer

KEEP ROADS AND BRIDGES IN GOOD CONDITION

MAP-21

Condition of State Bridges-2c

MEASUREMENT DRIVER:

David Koenig, Structural
Services 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 pre-
sented 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 10,364
bridges on state highways,
211 are major.

Bridges are categorized as
being in good, fair or poor
condition. Good means no
significant condition-related
problems exist. Fair indi-
cates moderate problems
that may require minor re-
habilitation or maintenance
to return the structure to
good condition.

The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. Currently, 2,081 (54 major) structures are in poor condition, 4,517 (99 major) structures are in fair condition and 3,766 (58 major) structures are in good condition.

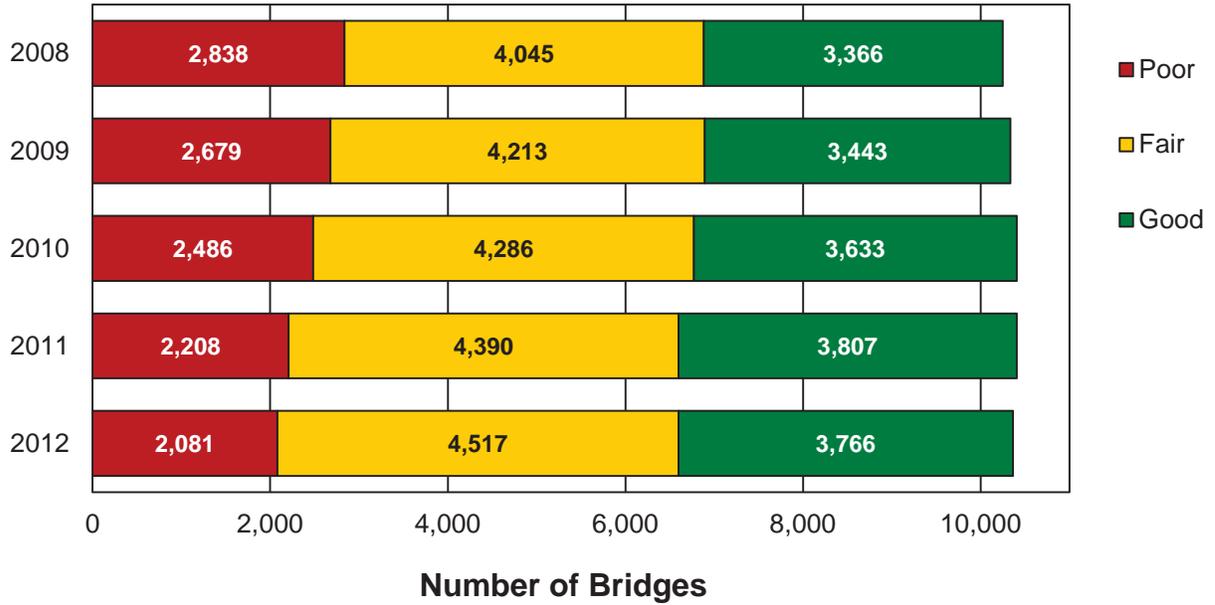
Statewide, the number of structures in poor condition has dramatically decreased over the last five years and the number of structures in good condition has moderately improved. These improvements were heavily impacted by the Safe & Sound Bridge Improvement Program that was completed in 2012, but were also impacted by the increased construction program that resulted from the passage of Amendment 3. It should be noted that while our poor-condition bridges dropped by about 800 over this five-year period, the number in good condition only increased by 400. The number in fair condition increased by about 500 over this period, which is reflective of our aging bridge population with many structures at the point where they need minor maintenance or rehabilitation. With the decrease in funds available for our construction program in the future, continued improvements in the number of structures in poor condition is unlikely.

For major bridges, the number of structures in the poor category has been dropping over the last five years because of an aggressive focus on these structures in the STIP, which required a significant investment of money. It should be noted that even with this significant investment of money, the number of structures in good condition still dropped while the number in fair condition significantly increased. Work on major bridges is very expensive with simple rehabilitations costing \$10 to \$20 million and replacements ranging from \$20 million to \$200 million. With a greatly reduced construction program and potential problems with matching federal funds in 2020, significant future improvements in the condition of major bridges are unlikely.

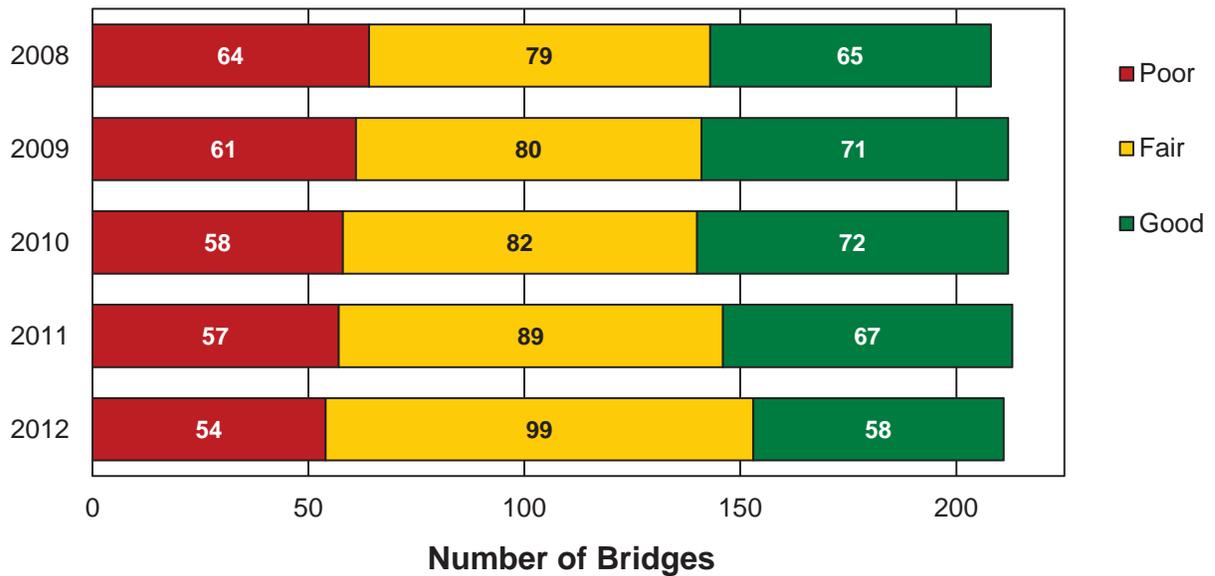


KEEP ROADS AND BRIDGES IN GOOD CONDITION

Statewide Condition of All Bridges (10,364 Total Bridges)



Statewide Condition of Major Bridges (211 Total Bridges)



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MAP-21

MEASUREMENT DRIVER:
David Koenig, Structural Services Engineer

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

PURPOSE OF THE MEASURE:
This measure tracks the percent of structurally deficient deck area for bridges that are part of the National Highway System (NHS). Moving Ahead for Progress in the 21st Century, the federal surface transportation act requires states to track the Structurally Deficient (SD) deck area with a national performance goal of this being less than 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. MAP-21 set a national performance goal to have the SD deck area of NHS bridges be less than 10 percent. The local system has 144 NHS structures (five SD) and the MoDOT system has 3,591 NHS structures (153 SD). MoDOT currently meets the national performance goal with the total at 6.7 percent, which is attributable to aggressive efforts undertaken with construction on major bridges over the last 10 years as well as other accelerated construction from MoDOT's bonding program. That ability to continue to meet this goal will become more difficult with a reduced construction program. Additionally, the potential inability for MoDOT to fully match available federal funds in 2020 could have a severe impact on this measure. This measure is also heavily influenced by major bridges because one structure has the ability to impact this measure +/-0.5 percent. Since many major bridges are part of the NHS, any reduction in funding available for the construction program will limit MoDOT's ability to keep up with the replacement/rehabilitation needs on major bridges.

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, SD consists of bridges that are in bad condition or have insufficient load capacity when compared to modern design standards. With MAP-21, there are some proposed adjustments in how SD is determined and this measure has been created based on these proposed adjustments.

