



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 33,859 miles of highway and 10,385 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

MEASUREMENT DRIVER:

Steve Engelbrecht
District Planning Manager

PURPOSE OF THE MEASURE:

This measure tracks the condition of Missouri's highways.

MEASUREMENT AND DATA COLLECTION:

Missouri's major highway system contains the state's busiest highways, including interstates and most U.S. routes. There are 5,546 total miles on the major highway system.

Missouri's minor highway system consists of its less-traveled state highways, including most lettered routes and routes that mainly serve local transportation needs. There are 17,166 miles of minor highways in Missouri.

Missouri's low volume highways are those state owned roads with less than 400 cars traveling on them per day. There are 11,147 miles of low volume roads in Missouri.

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

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

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Percent of highways in good condition – 2a

Missourians have repeatedly told MoDOT that keeping roads smooth is a top priority. Over the years, MoDOT has been able to fund pavement improvement projects on thousands of miles of state highways.

MoDOT maintains 33,859 miles of highway. The percent of highways in good condition are: major roads at 92%, minor roads at 80% and low volume roads at 74%. Major, minor and low volume highways have met the statewide target in the past five years. As defined by FHWA, the target is based on the statewide asset management plan and represents MoDOT's goal of maintaining current condition.

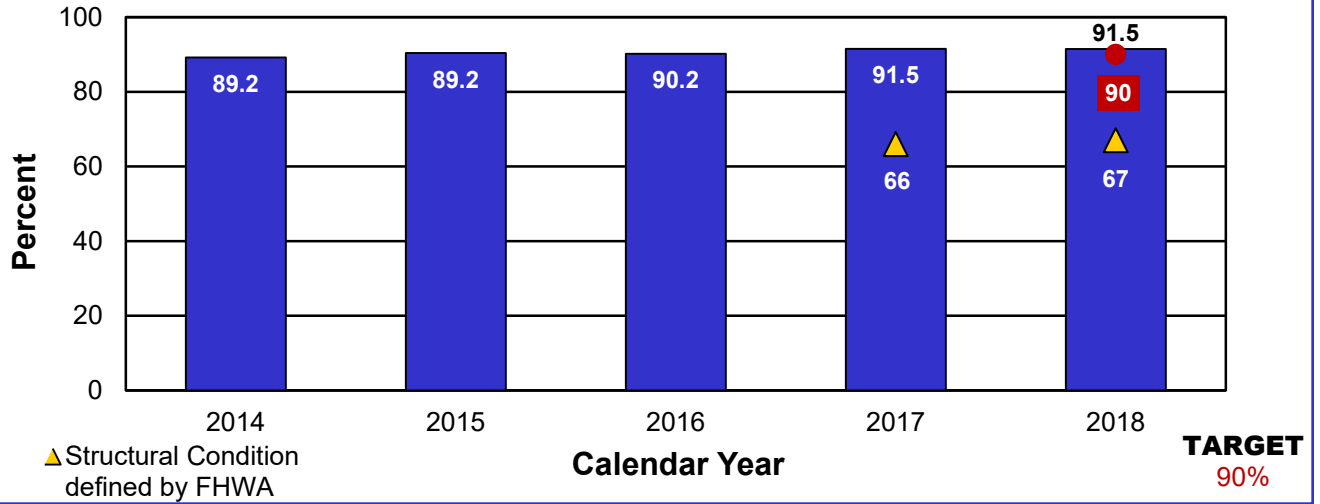
Beginning in 2018, the Federal Highway Administration required all Departments of Transportation to report pavement data related to the structural integrity of the pavement, which may not impact current pavement smoothness but may cause future pavement issues. The current percent of major highway pavements in good structural condition is 67%.

MoDOT has implemented asset management practices statewide to invest in transportation projects that will keep good roads in good condition.

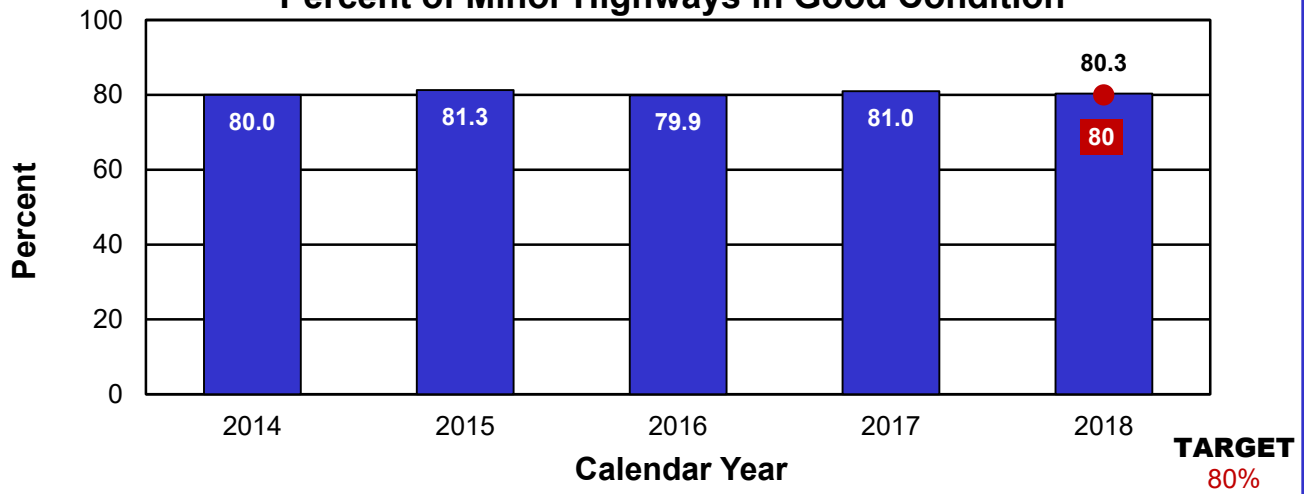


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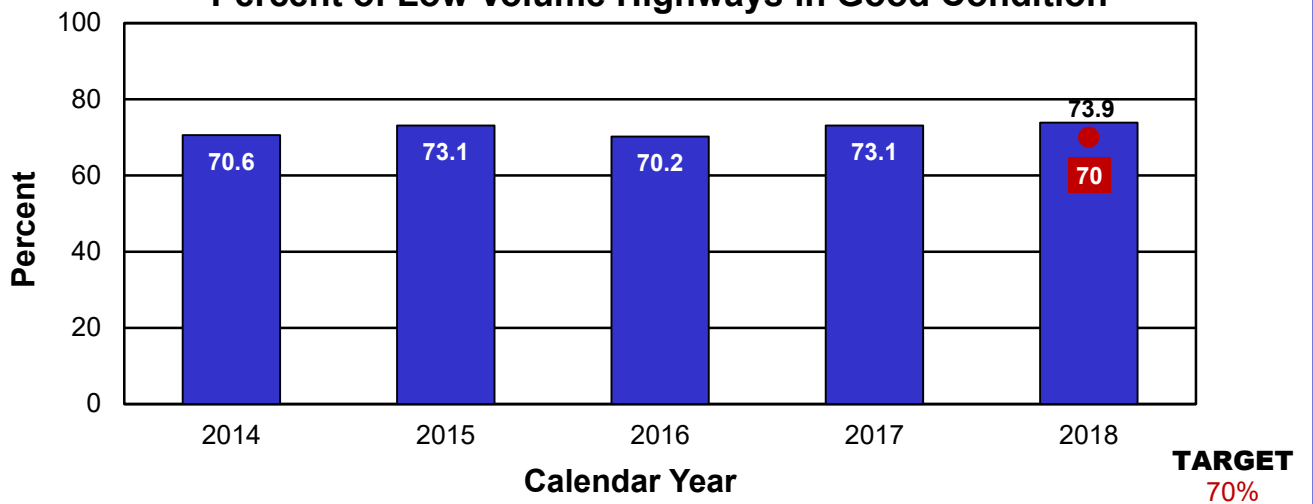
Percent of Major Highways in Good Condition



Percent of Minor Highways in Good Condition



Percent of Low Volume Highways in Good Condition



RESULT DRIVER:

Dennis Heckman
State Bridge Engineer

KEEP ROADS AND BRIDGES IN GOOD CONDITION

Condition of state bridges – 2b

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 10,384 bridges on state highways, 208 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.

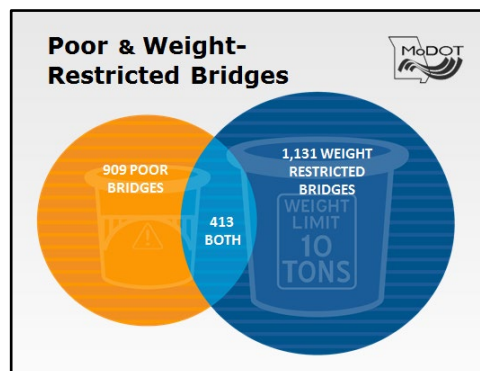
The target for this measure is set internally and reflects the department's goal of "holding its own" in terms of bridge condition.

The public has indicated the condition of Missouri's existing roadway system should be one of the state's highest priorities. Currently, 909 (27 major) structures are in poor condition, 6,232 (134 major) structures are in fair condition and 3,243 (47 major) structures are in good condition.

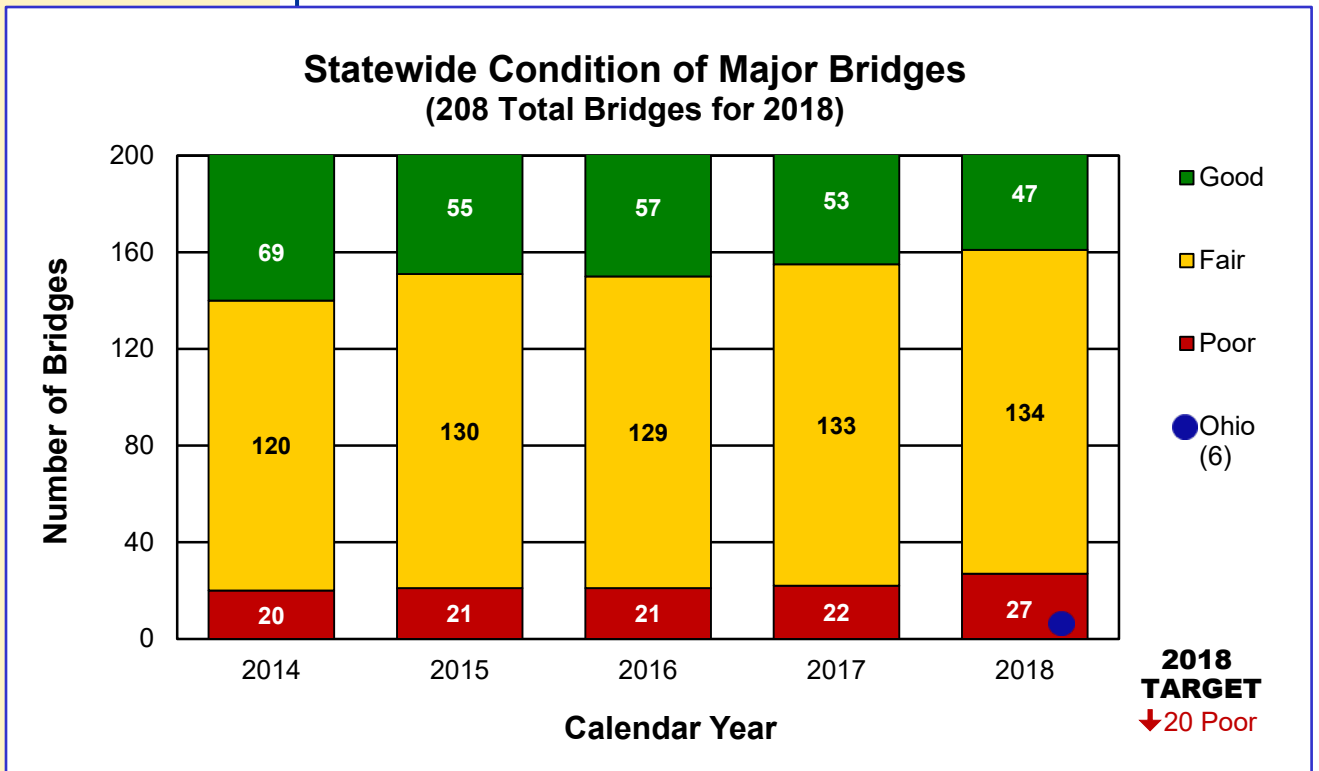
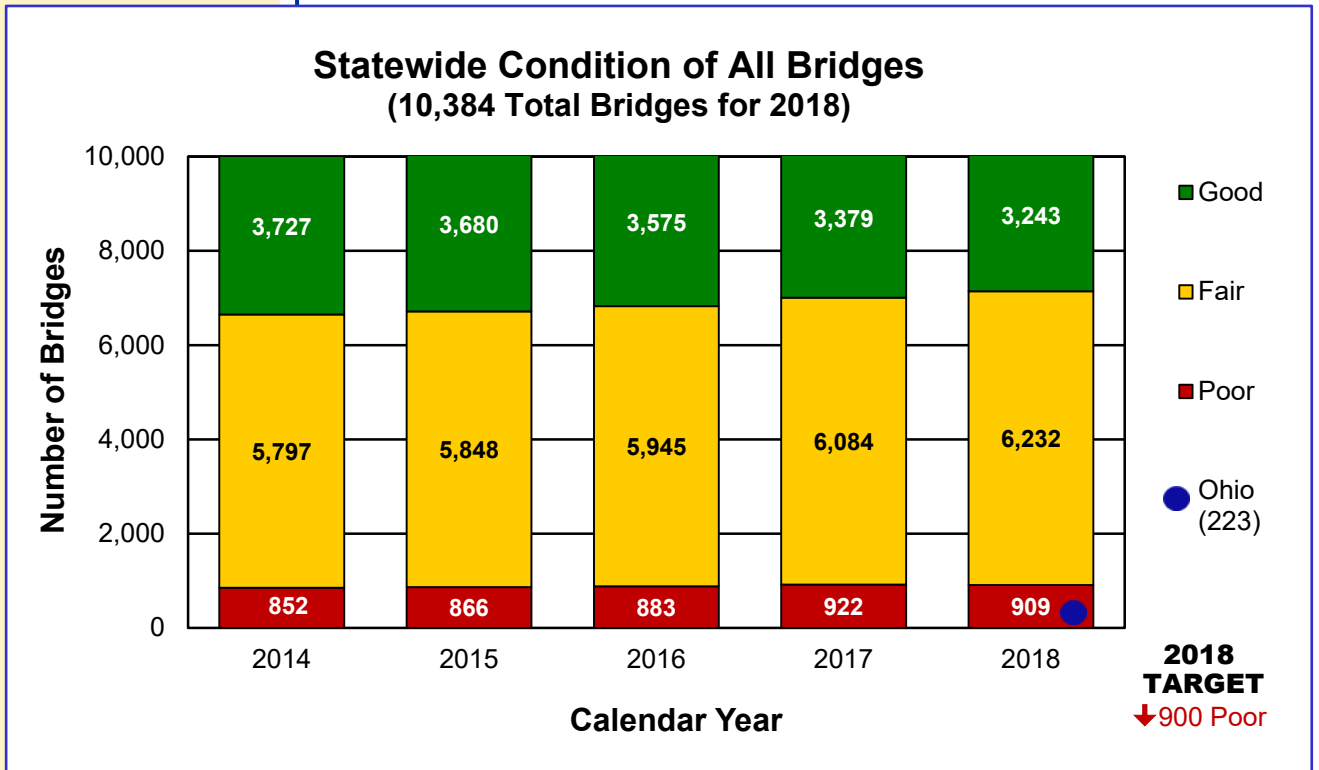
Although the number of structures in poor condition has been generally increasing over the last five years, there was a drop in the number from 2017 to 2018. The number of structures in good condition peaked in 2012 and has been steadily declining since, while the number of structures in fair condition has significantly increased. Even with the significant Statewide Transportation Improvement Program investments on bridges in recent years, the number of poor condition structures is slowly increasing. The decline in good structures, as well as the increase in fair condition structures, is reflective of MoDOT's aging bridge inventory with many structures at the point where they need minor maintenance or rehabilitation.

For major bridges, the number of structures in poor condition significantly increased from 2017 to 2018 with a net increase of five structures. Even with the significant investment in the STIP, the number of structures in good condition has been dropping over a three-year period while the number in fair condition has been increasing. Work on major bridges is expensive with rehabilitations costing \$10 million to \$20 million and replacements ranging from \$20 million to \$200 million. Ohio has been selected for comparison as its total of 10,427 (158 major) state highway bridges is only 43 more than Missouri, as well as having similar demographics, geography and weather conditions.

MoDOT's asset management goal for bridges is to keep the statewide total number of poor bridges at 900 or less and the number of poor major bridges at 20 or less.



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RESULT DRIVER:

Dennis Heckman
State Bridge Engineer

MEASUREMENT DRIVER:

Dave 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 Americas Surface Transportation Act requires states to track the structurally deficient deck area on the NHS. Historically, the term structurally deficient defined a group of bridges that were in bad condition or had insufficient load capacity when compared to modern design standards. With the implementation of the FAST Act, this definition has changed and this measure reflects those changes. The 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%. The chart reflects keeping the percentage below 10% as the target.

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

The public has indicated that 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% penalty threshold for states that, when exceeded, requires a state to focus money on bridges until they are back under 10%. The local system has 83 National Highway System structures (three structurally deficient) and the MoDOT system has 3,569 NHS structures (163 structurally deficient). Missouri currently falls below the penalty threshold with the statewide structurally deficient deck area at 8.2%. This is attributable to the continued effort to focus on major bridges when funding is available as well as increasing focus on condition bridges in the STIP.

Statewide, this measure is also heavily influenced by major bridges with one structure having the ability to impact this measure +/-0.5%. From 2017 to 2018, there was an increase in the statewide percentage of structurally deficient deck area on the NHS due to the addition of five major bridges representing 1.4% of the total NHS deck area. The number of bridges on the NHS has stabilized with very small changes from year to year. Ohio has been selected for comparison because it has similar demographics, geography and weather conditions. There are 10,427 total state highway bridges in Ohio with 4,855 structures on the NHS.

