

TARGET SETTING

BRIDGE PERFORMANCE MEASURES



In accordance with 23 CFR 490, the Federal Highway Administration (FHWA) established performance measures for State Departments of Transportation (DOTs) to use in managing bridge performance on the National Highway System (NHS). The following is a list of the required performance measures for bridges.

Performance Measures
Percent of NHS bridges by deck area classified as Good condition
Percent of NHS bridges by deck area classified as Poor condition

CONDITION BASED PERFORMANCE MEASURES

- Measures are based on deck area.
- The classification is based on National Bridge Inventory (NBI) condition ratings for deck, superstructure, substructure, and bridge length culverts.
- Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert.
 - If the lowest rating is greater than or equal to 7, the structure is classified as good.
 - If it is less than or equal to 4, the classification is poor.
 - Structures rated below 7 but above 4 will be classified as fair.
- Deck area is computed using structure length, and deck width or approach roadway width (for bridge length culverts).

TARGET SETTING REQUIREMENTS

State DOTs:

- Must establish targets for all bridges carrying the NHS, which includes on-ramps and off-ramps connected to the NHS, and bridges carrying the NHS that cross a State border, regardless of ownership.
- Must establish statewide 2- and 4-year targets by May 20, 2018 and report targets by October 1, 2018 in the Baseline Performance Period Report.
- May adjust 4-year targets at the Mid Performance Period Progress Report (October 1, 2020).
- State DOTs shall coordinate with relevant MPOs on the selection of targets to ensure consistency, to the maximum extent practicable.

Metropolitan Planning Organizations (MPOs):

- Shall support the relevant State DOT 4-year target or establish their own within 180 days after the State DOT target is established.
- Shall report their established targets to their respective State DOT in a manner that is documented and mutually agreed upon by both parties.
- Shall report baseline condition/performance and progress toward the achievement of their targets in the system performance report in the metropolitan transportation plan.

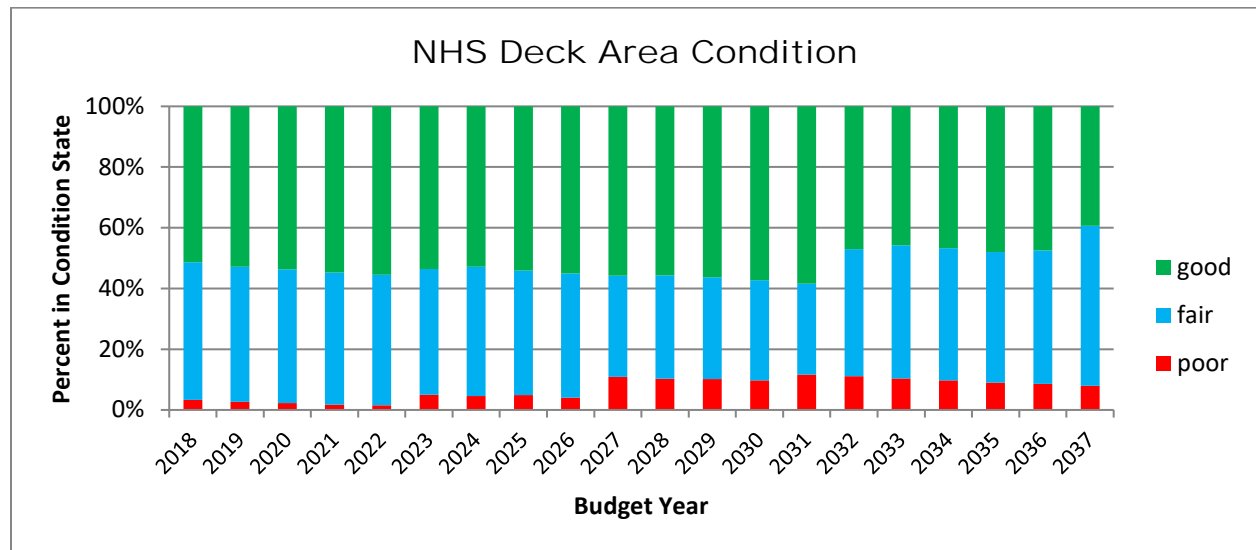
Other Information:

- State DOT targets should be determined from asset management analyses and procedures. The targets reflect investment strategies that aim to achieve a state of good repair over the life cycle of assets at minimum practicable cost.
- If for three consecutive years more than 10% of a State DOT’s NHS bridges total deck area is classified as Poor, the State DOT must obligate and set aside National Highway Performance Program (NHPP) funds to eligible bridge projects on the NHS.

METHODOLOGY

In order to develop the performance targets, a bridge model is required to forecast future conditions based on anticipated funding. In October of 2015, Heavy Bridge Maintenance (HBM) entered into an agreement to use Deighton’s dTIMS software as ARDOT’s bridge modeling platform¹.

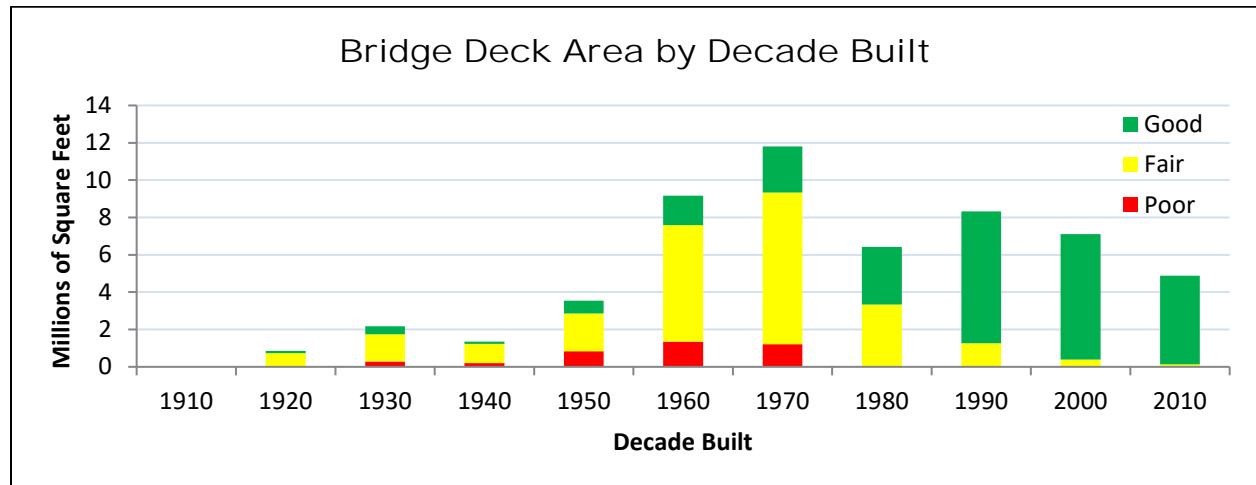
Based on a \$90-million budget for all state-owned bridges, the model provides a 20-year condition forecast² for NHS bridges as shown below:



¹ While the model is still being refined, the projections seem reasonable and the proposed performance targets are based on those projections.

² The bridge model does not consider the additional funding made available for the 30 Crossing project. The 30 Crossing project will address over one percent of the poor deck area currently in the NHS bridges.

As shown in the 20-year condition forecast chart, the poor deck area is currently at 3.3 percent while the good deck area is at 51.3 percent. There is a jump in percent poor deck area in 10 years. This jump can be explained by the large inventory of bridges that were built in the 1960s and 1970s (as shown in the following figure) and will reach the end of their 50-year design life within the next 10 years. With additional planned model calibration, the jump may be less severe. However, additional deck area could be rated poor earlier than year 2027.



TARGETS

The proposed targets are not intended to be “aspirational”, but rather reflect a “realistic” approach to minimizing deterioration of the existing bridge infrastructure in an environment where available resources are less than optimal. The targets represent what is attainable if the strategies and funding estimates in the Transportation Asset Management Plan (TAMP) are implemented.

Performance Targets		
	2-year	4-year
Percent of NHS bridges by deck area classified as Good condition	50%	50%
Percent of NHS bridges by deck area classified as Poor condition	4%	6%

It should be noted that the shift toward bridge preservation in the last couple of years should enabled the Department to stay below 10 percent of NHS bridges classified as poor for the state-wide bridge inventory at the anticipated 90-million funding level according to the model. Future model calibrations will allow better performance forecasting, which would enable ARDOT to make adjustments in funding and/or strategies to stay below the penalty threshold for NHS bridges.

Final Rulemaking

The Federal Highway Administration (FHWA) published in the *Federal Register* (82 FR5886) a [final rule](#) establishing performance measures for State Departments of Transportation (DOTs) to use in managing pavement and bridge performance on the National Highway System (NHS). The National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program Final Rule addresses requirements established by the Moving Ahead for Progress in the 21st Century Act (MAP-21) and reflects passage of the Fixing America's Surface Transportation (FAST) Act. The rule is effective **May 20, 2017**.

Performance Measures

✓ % of NHS bridges by deck area classified as in Good condition

✓ % of NHS bridges by deck area classified as in Poor condition

Condition-Based Performance Measures

- Measures are based on deck area.
- The classification is based on National Bridge Inventory (NBI) condition ratings for item 58 - Deck, 59 - Superstructure, 60 - Substructure, and 62 - Culvert.
- Condition is determined by the lowest rating of deck, superstructure, substructure, or culvert. If the lowest rating is greater than or equal to 7, the bridge is classified as good; if is less than or equal to 4, the classification is poor. (Bridges rated below 7 but above 4 will be classified as fair; there is no related performance measure.)
- Deck area is computed using NBI item 49 - Structure Length, and 52 - Deck Width or 32 - Approach Roadway Width (for some culverts).

Target Setting

State DOTs:

- Must establish targets for all bridges carrying the NHS, which includes on- and off-ramps connected to the NHS within a State, and bridges carrying the NHS that cross a State border, regardless of ownership.
- Must establish statewide 2- and 4-year targets by May 20, 2018, and report targets by October 1, 2018, in the Baseline Performance Period Report.
- May adjust 4-year targets at the Mid Performance Period Progress Report (October 1, 2020).

Metropolitan Planning Organizations (MPOs):

- Support the relevant State DOT(s) 4-year target or establish their own by 180 days after the State DOT(s) target is established.



BRIDGE

PERFORMANCE MEASURES



Key Dates

May 20, 2017	Final rule effective date.
January 1, 2018	1st 4- year performance period begins.
May 20, 2018	Initial 2- and 4-year targets established.
October 1, 2018	Baseline Performance Period Report for the 1 st Performance Period due. State DOTs report 2-year and 4-year targets; etc.
Within 180 days of relevant State DOT(s) target establishment	MPOs must commit to support State target or establish separate quantifiable target.
October 1, 2020	Mid Performance Period Progress Report for the 1 st Performance Period due. State DOTs report 2-year condition/performance; progress toward achieving 2-year targets; etc.
December 31, 2021	1st 4-year performance period ends.
October 1, 2022	Full Performance Period Progress Report for 1 st performance period due. State DOTs report 4-year condition/performance; progress toward achieving 4-year targets; etc. Baseline report due for 2 nd performance period due. State DOTs report 2- and 4-year targets; baseline condition, etc.

Other Specifics

- State DOT targets should be determined from asset management analyses and procedures and reflect investment strategies that work toward achieving a state of good repair over the life cycle of assets at minimum practicable cost. State DOTs may establish additional measures and targets that reflect asset management objectives.
- The rule applies to bridges carrying the NHS, including bridges on on- and off-ramps connected to the NHS.
- If for 3 consecutive years more than 10.0% of a State DOT’s NHS bridges’ total deck area is classified as Structurally Deficient, the State DOT must obligate and set aside National Highway Performance Program (NHPP) funds for eligible projects on bridges on the NHS.
- Deck area of all border bridges counts toward both States DOTs’ totals.

Visit www.fhwa.dot.gov/tpm/ to learn about training, guidance, and other implementation-related information.

