

New Jersey Transportation Asset Management Plan

2019 TAMP Overview



What is Transportation Asset Management?

New Jersey's roadways are made up of assets such as bridges and pavements, many of which last for 50 or more years. Asset management is the process through which assets are managed across their lifecycle. It applies engineering science to ensure that the right work is done at the right time to minimize the costs of ownership, providing safe and reliable roads.

Why an Asset Management Plan?

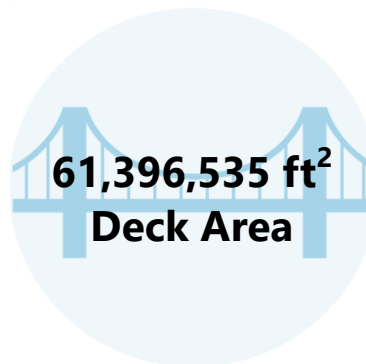
The TAMP provides accountability for the performance of the National Highway System (NHS) and addresses federal reporting requirements regarding NHS pavement and bridge conditions.

NJDOT's TAMP Policy Objectives

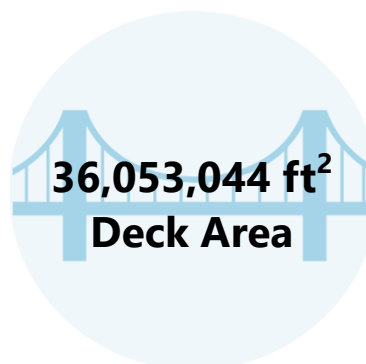
- Provide a safe, reliable roadway system.
- Achieve and maintain a State of Good Repair for transportation infrastructure assets.
- Manage the roadway system to reduce lifecycle costs.
- Increase resilience of the system to the impacts of extreme weather events.
- Establish a data-driven TAM program linking performance targets to outcomes through the New Jersey Transportation Capital Program and the 10-year Statewide Transportation Improvement Plan development processes.

Scope of the TAMP

National Highway System (NHS) Assets



State Highway System (SHS) Assets



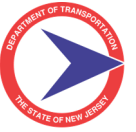
**National Bridge
Inspection Standard
(NBIS) Bridges**

Pavements

*Note: Data Collected in 2017
ft² = Square Feet*

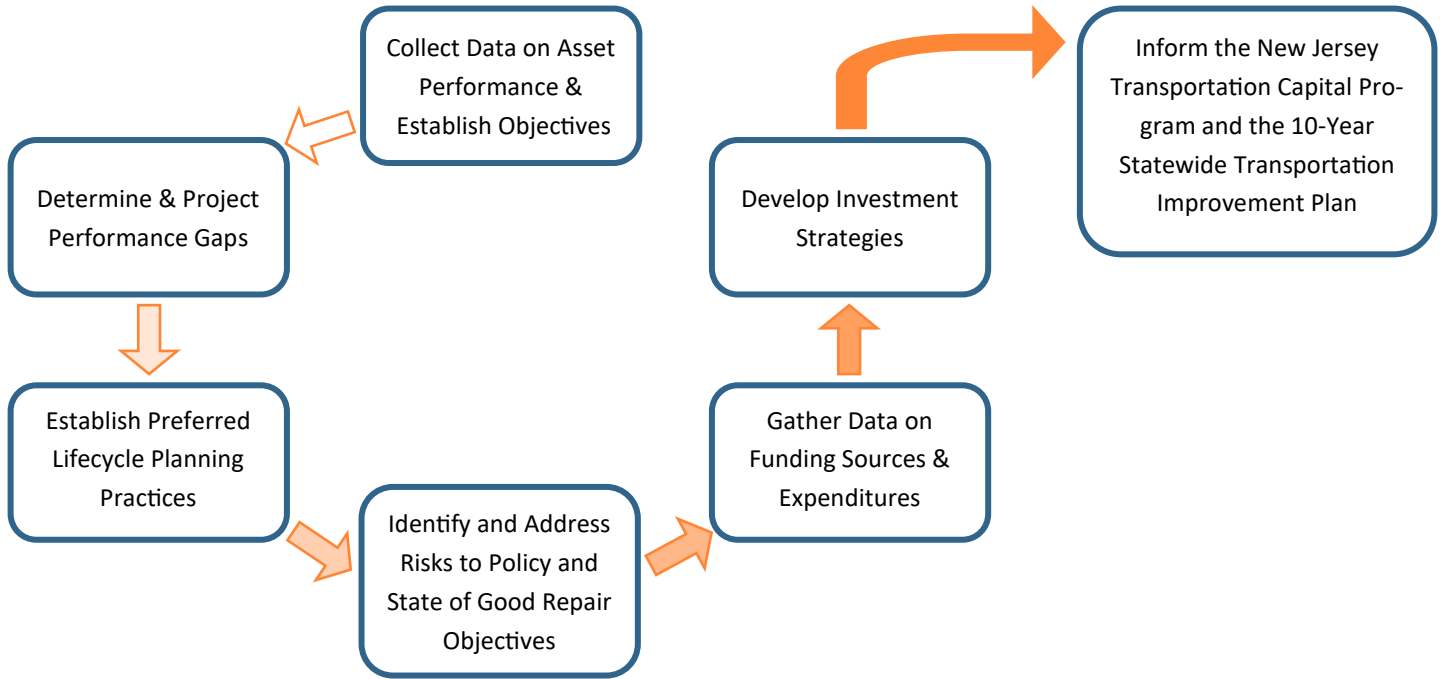
NEW JERSEY 2019 TAMP OVERVIEW

FACT SHEET



How Does TAM Work?

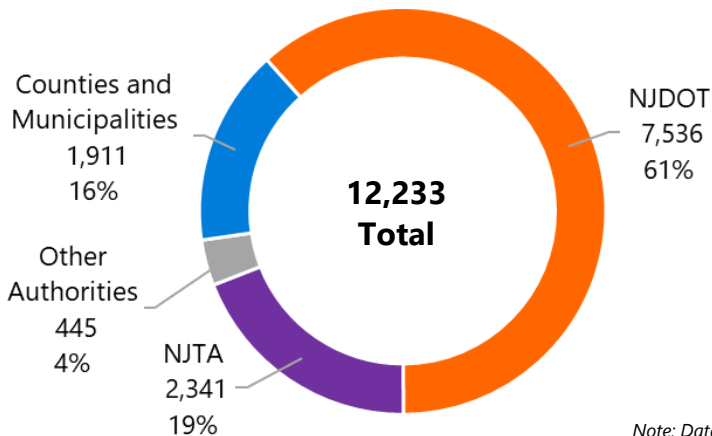
The TAMP documents a data-driven, risk-based framework that guides the ongoing management of highway assets in New Jersey. Using data on the current conditions of assets, TAM uses sophisticated planning tools and processes to estimate investment needs and project types to preserve the operability of New Jersey's roadways and bridges.



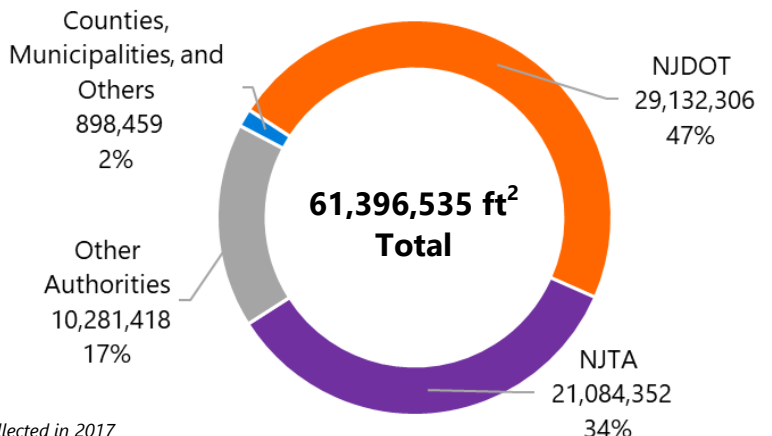
National Highway System (NHS) and State Highway System (SHS)

The TAMP includes transportation assets that are on the National and/or State Highway Systems (NHS and SHS). The New Jersey Department of Transportation (NJDOT) manages portions of the NHS and all SHS assets; however, authorities and commissions, counties, and municipalities also manage NHS assets in addition to their other non-NHS assets. Additionally, NJDOT has exceeded the minimum federal requirements that a TAMP include all NHS pavement and NBIS bridge assets and has included SHS pavement and NBIS bridge assets that are not on the NHS.

NHS Pavements by Lane Miles

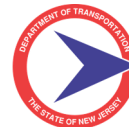


NHS NBIS Bridges by Deck Area



Note: Data Collected in 2017
NJTA = New Jersey Turnpike Authority

2019 NJDOT PAVEMENT SHS FACT SHEET



NJDOT-Maintained Inventory

8,530 State Highway System (SHS) Lane Miles

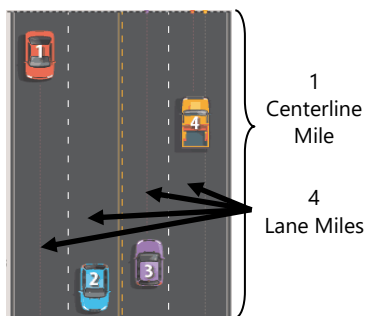
Performance

State of Good Repair Objective

- 80.0% of SHS Lane Miles in a State of Good Repair or "Acceptable" condition (*Good* or *Fair*) by NJDOT Measures

Definitions

While highways are commonly described in terms of their length and the distance travelled by drivers (e.g., a 1-mile drive can be thought of as 1 centerline mile), highway pavements are typically managed in terms of lane miles. Below, a 1-mile highway segment with 2 lanes in each direction equates to 4 lane miles.

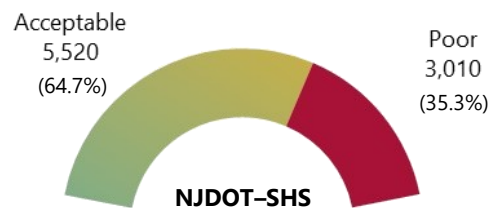


NJDOT (SHS) Pavements



Note: Data Collected in 2017 NHS = National Highway System Units = Lane Miles Measures = NJDOT Measures

Baseline Condition



Performance Measures

NJDOT has been collecting data to manage its State Highway System (SHS) network since the early 2000's and has developed and refined its performance metrics to best support a cost effective pavement management strategy considering pavement type, [traffic loading](#), [distress types](#), failure modes and treatment options.

NJDOT uses two metrics to assess pavement condition which are ride smoothness and a Surface Distress Index which includes cracking in the travel lane, rutting, faulting, patching, shoulder drop-off, and other indications of pavement deterioration. These metrics differ from the metrics that Federal Highway Administration (FHWA) established in 2017 to measure and report condition on the National Highway System (NHS) which are described on the NHS Pavement Fact Sheet.

Pavement condition is measured for each 1/10th mile segment and assigned into *Good*, *Fair*, and *Poor* categories as described below. Sometimes the term "Acceptable" is used to describe pavements in *Good* or *Fair* condition.

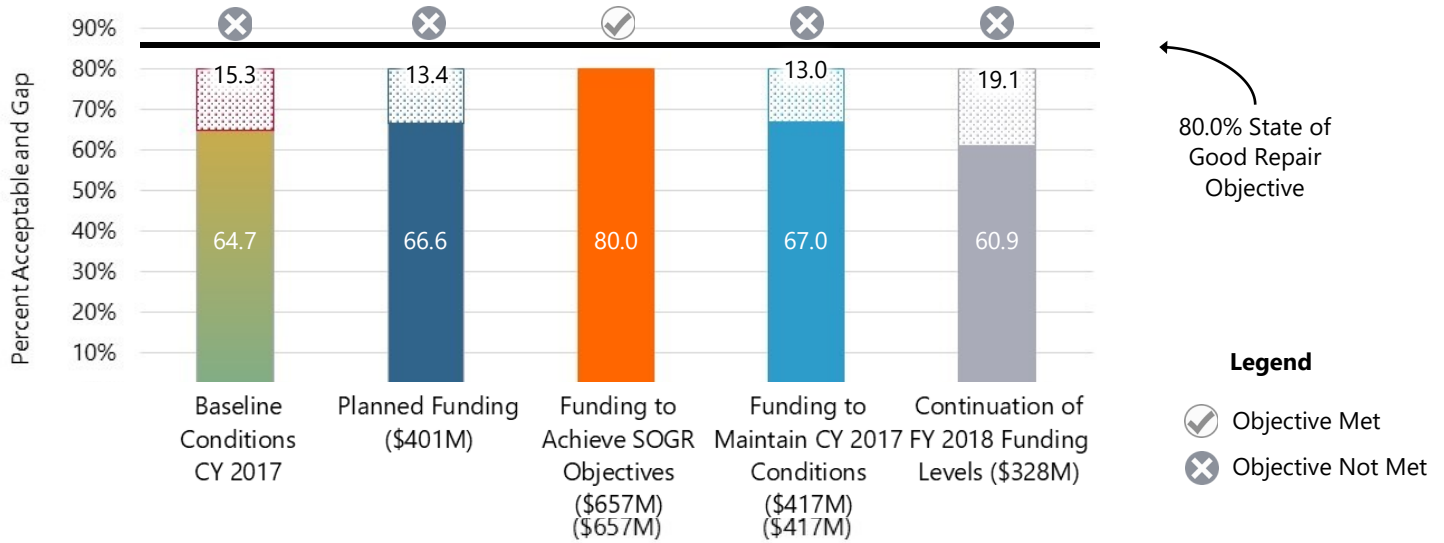
- Good** Pavement in good condition has minimal deterioration. Road users experience a smooth ride without cracks/ruts/faults. Preserving the road optimizes performance.
- Fair** Some deterioration, such as minor cracking, rutting, or faulting. Road users experience an acceptable ride. Preserving or repairing the road minimizes costs.
- Poor** Advanced deterioration and poor ride that can damage vehicles. Requires significant reactive repairs until more costly road treatments can be programmed.

2019 NJDOT PAVEMENT SHS FACT SHEET



Projected SHS Pavement Conditions by Investment Scenario – NJDOT Measures

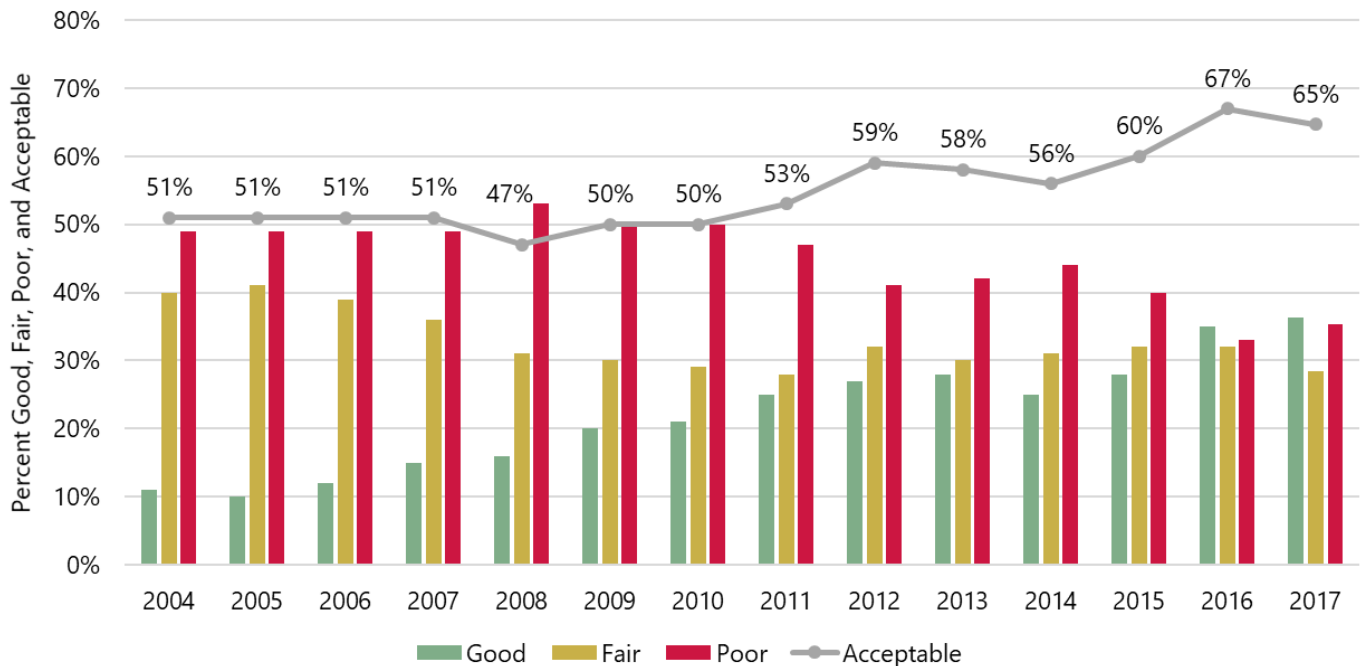
Baseline CY 2017 and Projected CY 2029 Conditions and Gaps by Investment Scenario (Annual Average \$)



This bar chart illustrates various investment scenarios in the 2019 New Jersey TAMP. At planned funding levels (\$401M/year average), the TAMP projects that SHS pavement conditions will not meet NJDOT’s State of Good Repair Objective by 2029. However, there are a number of other investment level scenarios that may result in different performance gaps. Increasing funding for pavement needs to be balance among funding needs and other investment categorizes such as bridge, safety, and mobility.

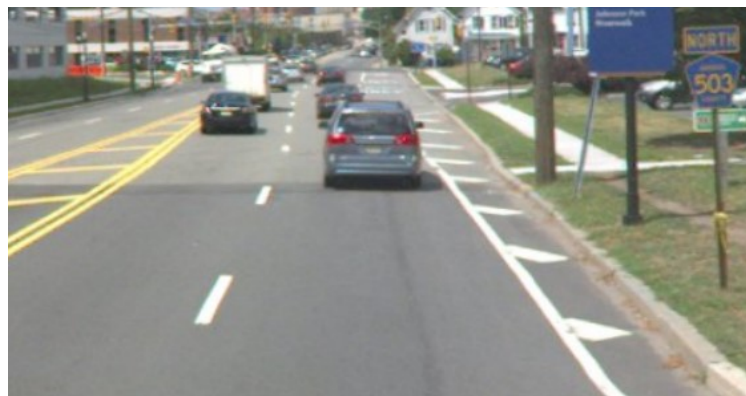
Historical SHS Pavement Conditions – NJDOT Measures

CY 2004 to CY 2017 Pavement Conditions



During the past decade and a half, NJDOT’s pavement management practices have resulted in substantial improvements to the portion of SHS pavements in Good, as well as Acceptable condition while also reducing SHS pavements in Poor condition.

2019 NEW JERSEY PAVEMENT NHS FACT SHEET



Inventory

12,233 National Highway System (NHS) Lane Miles

Performance

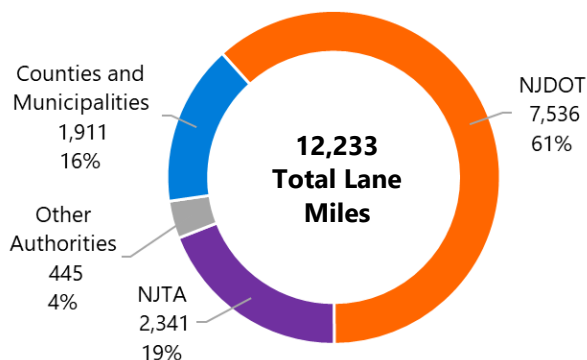
National Highway Performance Program (NHPP) Two- and Four-Year NHS Targets

- Two-Year Target for Interstates by NHPP Measures
Not Applicable
- Four-Year Target for Interstates by NHPP Measures
50.0% rated as *Good*
2.5% rated as *Poor*
- Two-Year Target for Non-Interstates by NHPP Measures
25.0% rated as *Good*
2.5% rated as *Poor*
- Four-Year Target for Non-Interstates by NHPP Measures
25.0% rated as *Good*
2.5% rated as *Poor*

Federal Thresholds for NHS

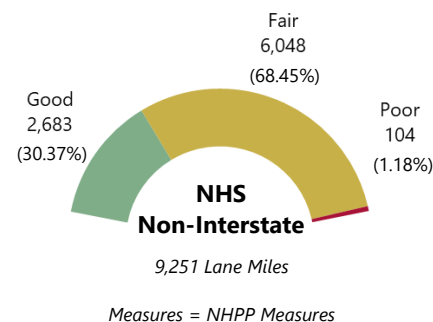
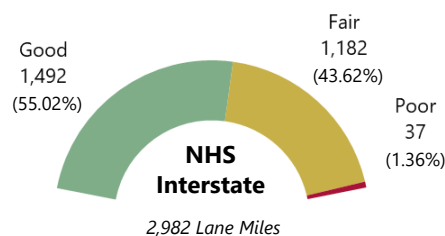
- 5.0% or less rated as *Poor* for NHS Interstates by NHPP Measures

NHS Ownership



Note: Data Collected in 2017 NJTA = New Jersey Turnpike Authority

Baseline Condition



Performance Measures

In 2017 the Federal Highway Administration (FHWA) established performance measures and metrics through the National Highway Performance Program (NHPP) to measure and report the condition on the National Highway System (NHS). The three categories of pavement condition metrics for NHS pavements are ride smoothness, cracking in the wheel paths, and rutting for asphalt pavements or faulting for concrete pavements. All three metrics must be good for a pavement to be rated *Good*. Two or more must be poor to be rated *Poor*. This methodology is very forgiving and results in all but the very worst pavements being rated as *Good* or *Fair* with very little ability to distinguish variations of condition within each category. This methodology was developed as a reporting tool but is insufficient for states to use as an effective pavement management tool.

Pavement condition is measured for each 1/10th mile segment and assigned into *Good*, *Fair*, and *Poor* categories as described below:



Good

Pavement displays minor or no deterioration in any of the three federal metric categories. These pavements may be good candidates for cost effective preservation treatments.



Fair

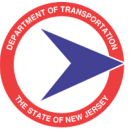
Pavement displays significant deterioration in one of the three federal metric categories. These pavements are no longer candidates for cost effective preservation treatments and require more costly repairs such as resurfacing, major rehabilitation or replacement.



Poor

Pavement displays significant deterioration in two or more of the three federal metric categories. These pavements are not candidates for cost effective preservation treatments and require more costly repairs such as resurfacing, major rehabilitation or replacement.

2019 NEW JERSEY PAVEMENT NHS FACT SHEET



Pavement Condition Examples



Roughness



Rutting



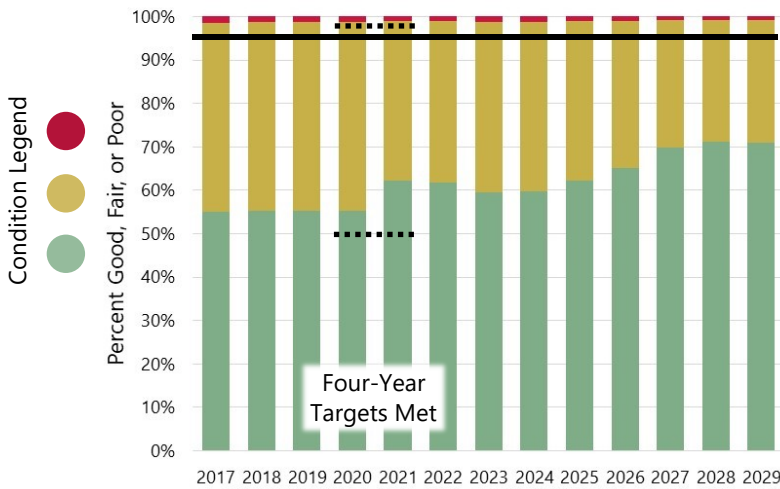
Cracking



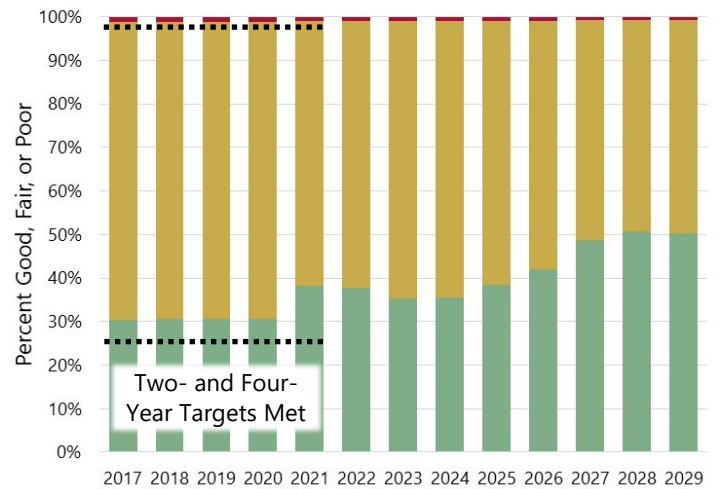
Faulting

Projected NHS Pavement Conditions – NHPP Measures

CY 2017 to CY 2029 Interstate Projections



CY 2017 to CY 2029 Non-Interstate Projections



	Interstate		
	Target	Projected	Gap
Two-Year (CY 2019)	<i>Not Required</i>	55.3% Good 1.3% Poor	<i>Not Applicable</i>
Four-Year (CY 2021)	50.0% Good 2.5% Poor	62.1% Good 1.1% Poor	+12.1% +1.4%

	Non-Interstate		
	Target	Projected	Gap
Two-Year (CY 2019)	25.0% Good 2.5% Poor	30.7% Good 1.2% Poor	+5.7% +1.3%
Four-Year (CY 2021)	25.0% Good 2.5% Poor	38.3% Good 1.0% Poor	+13.3% +1.5%

Legend

..... NHPP Targets set by NJDOT

———— Maximum of 5.0% Poor Federal Threshold

Projections Based on Planned Funding Levels

2019 NEW JERSEY BRIDGES FACT SHEET



Inventory

61,396,535 ft² National Highway System (NHS) NBIS Bridges
36,053,044 ft² State Highway System (SHS) NBIS Bridges

Performance

State of Good Repair Objectives

- 95.0% of NHS NBIS Bridges in a State of Good Repair (*Good* or *Fair*) by deck area
- 94.0% of SHS NBIS Bridges in a State of Good Repair (*Good* or *Fair*) by deck area

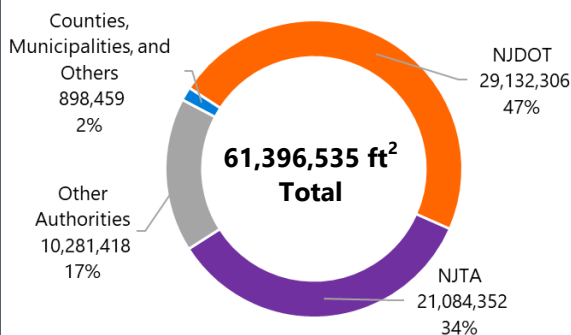
National Highway Performance Program (NHPP) Two- and Four-Year NHS Targets

- Two-Year Target
19.4% *Good*
6.5% *Poor*
- Four-Year Target
18.6% *Good*
6.5% *Poor*

Federal Thresholds for NHS

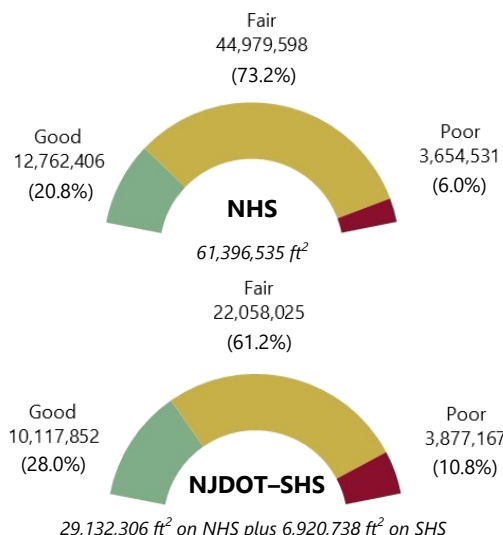
- 10.0% or less rated as *Poor* for NHS NBIS bridges

NHS Ownership



Units: Deck Area (ft² = Square Feet)
Note: Data Collected in 2017
NJTA = New Jersey Turnpike Authority

Baseline Condition



Performance Measures

Both the Federal Highway Administration (FHWA) and NJDOT use bridge condition measures developed by the National Bridge Inventory to monitor the performance of NBIS bridges on the NHS and SHS.

Bridges are inspected at least once every two years, and the final score that the entire bridge receives is the lowest score received by any of the bridge elements. Conditions are recorded and assigned into *Good*, *Fair*, and *Poor* categories, as described below. In the TAMP, the term State of Good Repair (SOGR) is used to describe bridges in *Good* or *Fair* condition.



Good

Bridges in good condition range from those with no problems to those having some minor deterioration of deck or structural elements.



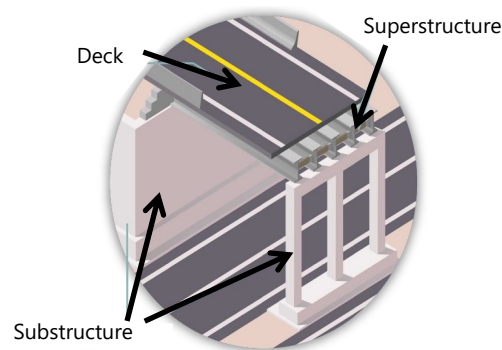
Fair

Primary structural elements are sound; may have minor deterioration. This is the most cost-effective time to rehabilitate.



Poor

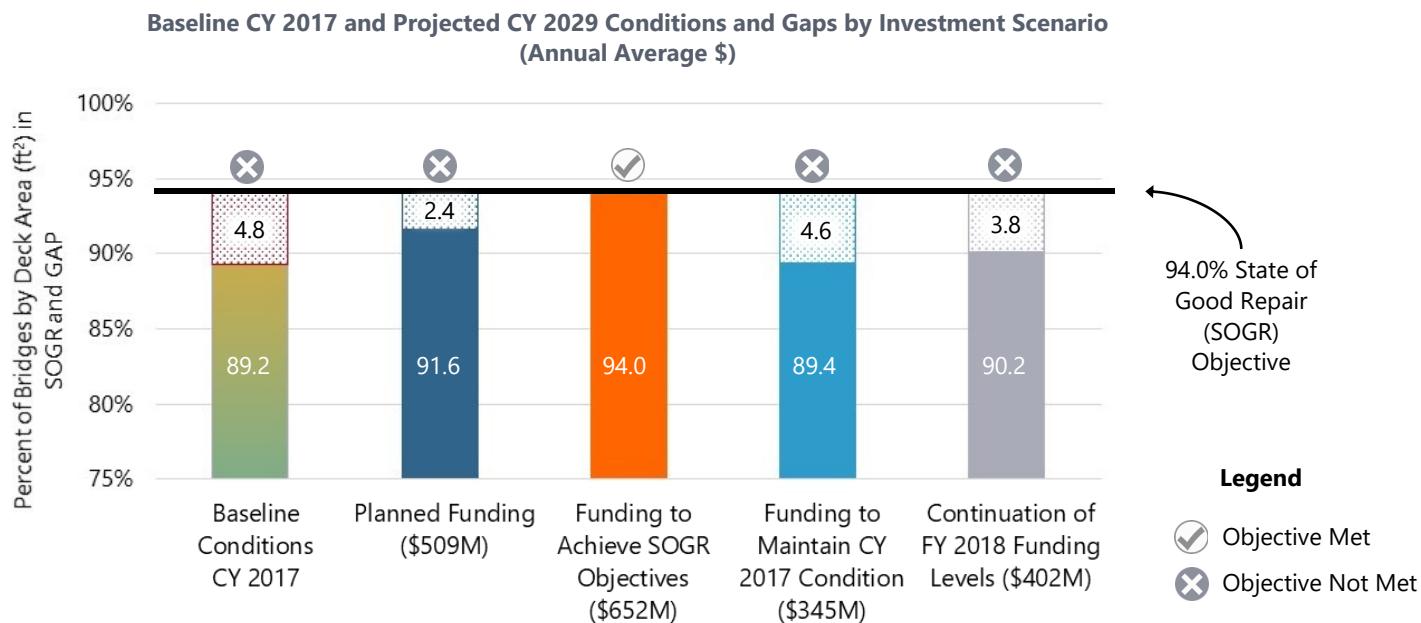
Advanced deterioration or seriously affected structural components. Bridges are still safe to travel but require greater rehabilitation.



2019 NEW JERSEY BRIDGES FACT SHEET



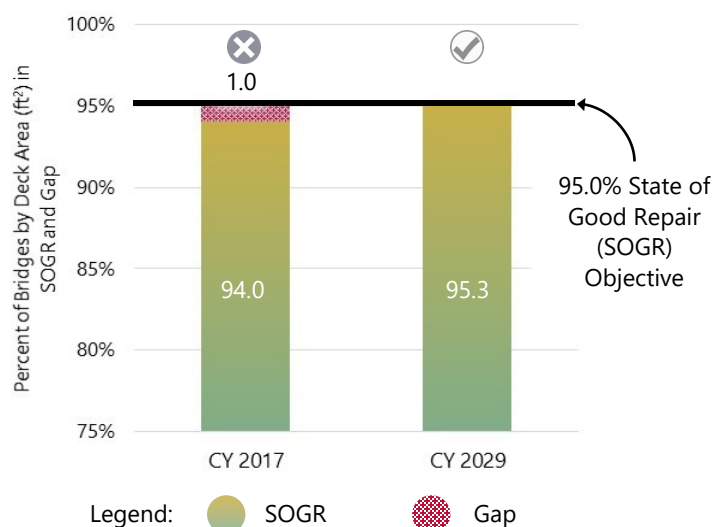
Projected SHS NBIS Bridge Conditions by Investment Scenario



This bar chart illustrates various investment scenarios in the 2019 New Jersey TAMP. At planned funding levels (\$509M/year average), the TAMP projects that SHS bridge conditions will not meet NJDOT's State of Good Repair Objective by 2029. However, there are a number of other investment level scenarios that may result in different performance gaps. Increasing funding for bridges needs to be balance among funding needs and other investment categorizes such as pavement, safety, and mobility.

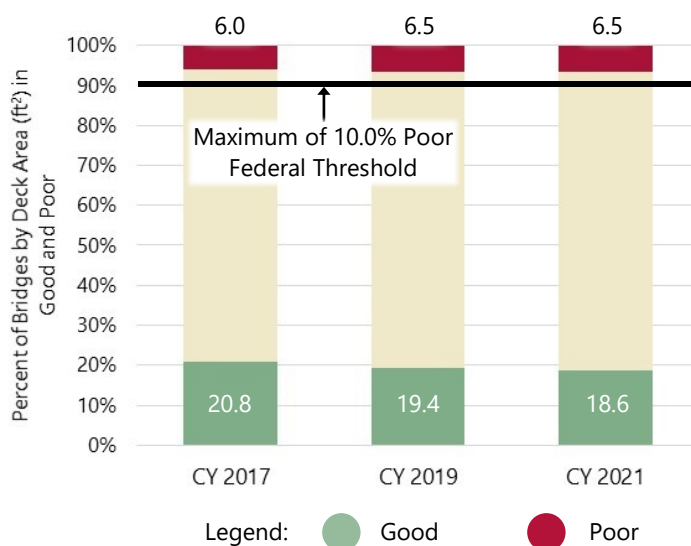
Projected NHS NBIS Bridge Conditions

Baseline CY 2017 and Projected CY 2029 Conditions and Gaps



The TAMP estimates that NHS NBIS bridge conditions will meet NJDOT's State of Good Repair Objective by 2029. Despite NJDOT not managing the entire NHS, condition and expenditure data collected on behalf of other owners supports this projection.

Baseline CY 2017 Conditions and Two- and Four-Year NHPP Targets/Projected Conditions



The TAMP estimates that NHS NBIS bridge conditions will meet the two- and four-year NHPP targets for deck areas in *Good* or *Poor* condition in FY 2019 and FY 2021. Additionally, the maximum threshold for deck areas in *Poor* condition will not be exceeded.