

## Improve America's Transportation-Related Infrastructure

June 27, 2018

Goal Leaders:

FAA: Winsome Lenfert, Acting Associate Administrator for Airports

John Dermondy, Acting Deputy Associate Administrator for Airports

FHWA: Brandye Hendrickson, Acting Administrator

FTA: Robert J. Tuccillo, Associate Administrator for Budget and Policy

# Overview

---

## Goal Statement

- DOT will maintain good conditions of airport runway surfaces, National Highway System bridges, and ride quality per Vehicle Mile Traveled on the National Highway System, as well as reverse the trend of the growing Transit State of Good Repair backlog through FY 2019. DOT will develop improved ways of tracking transportation infrastructure condition and, in the near term, focus on data available for roadway, runway, and transit infrastructure.

## Challenge

- DOT has not traditionally published a comprehensive, multi-modal assessment priority goal regarding transportation infrastructure. This APG reflects an aspirational goal to look holistically at America's transportation infrastructure and measure transportation infrastructure condition over time. We acknowledge that information is more readily available to DOT for parts of the transportation systems that are constructed and/or maintained in part with Federal funding; and for publicly owned assets such as roadways and airports rather than privately-owned assets such as railroads and seaports. Because of the Department's inability to monitor and assess the condition and performance of all infrastructure assets, we decided instead to assess progress and show improvement over time based on the infrastructure-related measures that DOT does collect and report.

# Overview

---

## Opportunities

- The Conditions and Performance Report is adapting to focus on the same national performance measures reflected in this Action Plan. Both draw from common data sources (HPMS, NBI, TERM). The draft 23rd C&P (2014 data) and 24th C&P (2016 data) present the same bridge, pavement, and transit measures presented in the Action Plan, and future editions will adopt the new pavement measure described in the plan once data become available.

# Goal Structure & Strategies (FAA)

Maintain Good Runway Condition (FAA)				
	2017 Baseline	2018 Target	2019 Target	2020 Target
Percent of Runways in Good Condition	93%	93%	93%	93%

**FAA Strategy to Accomplish the APG:**

Assessing pavement condition via scheduled and surveillance safety inspections of certificated airports.

- Collect safety and pavement condition data under a contract program to inspect non-certificated public use airports every 3 years.
- Maintain a 5-year, forward-looking analysis of airport capital requirements that includes runway rehabilitation requirements, published in the biennial NPIAS report.
- Enforce requirements to have pavement preventive maintenance programs at Federally obligated airports.

# Goal Structure & Strategies (FHWA)

Improve Bridge Condition in the National Highway System (FHWA)				
	2017 Actual	2018 Target	2019 Target	2020 Target
<b>Percentage of National Highway System (NHS) bridges classified as in Poor Condition</b>	5.0%	5.0% or less	5.0% or less	5.0% or less

## **FHWA Strategy to Accomplish the APG:**

DOT issued a Final Rule effective May 2017 that establishes a new framework of national performance measures for pavement and bridge conditions. States are required to make significant progress towards achieving targets for their individual performance measures for pavements and bridges, with the state-by-state results being aggregated and reported nationally. The bridge condition measure is based on a classification system of Good, Fair, and Poor. The bridge measure is the percentage of NHS bridges classified as in Poor condition. These condition measures will reflect the lowest National Bridge Inspection component (i.e., Deck, Superstructure, Substructure, and Culvert) condition rating for a bridge, weighted by the deck area.

## **In the first half of FY 2018, FHWA:**

- Set aside funds in 6 states that exceeded the 10% threshold for area of NHS bridges classified as structurally deficient.
- Held bridge management peer exchanges with State DOTs throughout U.S. to share practices. Held two conferences on bridge load rating and posting practices. Provided on site assistance with load issues in 2 states.
- Published final certification guidelines in the Federal Register. Developed Q&As for frequently asked asset management questions and also focused on requirements for initial asset management plans. Delivered 9 workshops for State DOTs focused on Asset Management Life-cycle planning, risk analysis, and financial planning.

# Goal Structure & Strategies (FHWA)

## Improve Pavement Condition on the National Highway System

(FHWA)

	2016 Actual	2017 Actual	2018 Target	2019 Target	2020 Target
Percent VMT on NHS with good to very good ride quality.	59.6%	Available January 2019	61.0%	61.6%	62.3%

### FHWA Strategy to Accomplish the APG:

The rulemaking to establish 23 CFR 490 includes specific data, measure, and reporting requirements for State DOTs to track and manage system performance. Pavement condition requirements are included in Subpart B of Part 490. The regulation identifies the condition attributes and thresholds that State DOTs are to use to determine if sections of pavement are in Good, Fair, or Poor condition as well as data reporting requirements to submit this information to FHWA. FHWA plans to use this same method to report on pavement condition based on the data reported by State DOTs to FHWA's Highway Performance Monitoring System (HPMS). The regulation also includes a timeline to comply with the new requirements which is outlined below.

- October, 2018: first time targets established by State DOTs will be reported to FHWA for Interstate pavements using the new measure. These targets will represent the anticipated network level conditions of the Interstate system within the state at the end of 2021. Targets will be updated every 2 years thereafter.
- April, 2019: first annual requirement for State DOTs to report Interstate pavement conditions to the HPMS using the new measure.
- June, 2022: first biennial requirement for State DOTs to report non-Interstate NHS pavement conditions to the HPMS using the new measure.
- October, 2022: first time targets established by the State DOTs will be reported to FHWA for non-Interstate pavements using the new measure. These targets will represent the anticipated network level conditions of the non-Interstate NHS within the State at the end of 2023. Targets will be updated every 2 years thereafter.

### In the interim, FHWA:

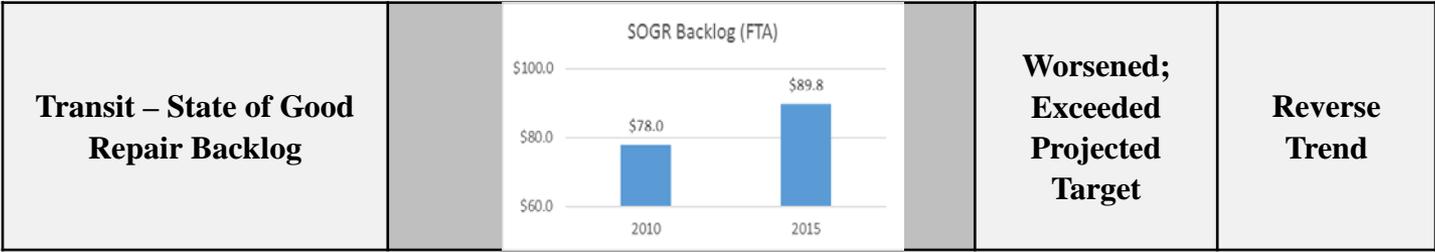
- Continued to develop tools to assess the completeness and quality of data reported to the HPMS.
- Delivered a training course through the National Highway Institute on the new pavement condition requirements.
- Developed a standard operating procedure that identifies the specific computational steps that FHWA will carry out to process the data reported to the HPMS to calculate state and national performance measures.
- Delivered webinars and workshops with State DOTs to showcase best practices and to discuss the new requirements.

# Goal Structure & Strategies (FTA)

Monitor Condition and Performance of Transit Systems (FTA)					
	2016 Baseline	2017 Baseline	2018 Target	2019 Target	2020 Target
<i>State of Good Repair Backlog (current-year dollars)</i>	\$89.8B*	\$98B	\$105B	\$107B	\$109B

*\*From the FY 2015 Condition and Performance Report*

### Comparison of Condition by Asset, 2010 to 2015



### FTA Strategy to Accomplish the APG:

- Require all FTA grantees to establish Transit Asset Management Plans by October 1, 2018.
- All FTA grantees must integrate state of good repair performance targets into the Metropolitan Planning Process and the Statewide Planning Process
- Require annual reporting of asset inventories, condition assessments, and state of good repair performance targets and results to the National Transit Database.
- FTA will continue to obligate and oversee its portfolio of grants in the State of Good Repair Formula, Urbanized Area Formula, Rural Formula, Bus and Bus Facilities Formula, Bus and Bus Facilities Discretionary, Ferry Discretionary, Tribal Transit, and Enhanced Mobility Formula Programs.

# Summary of Progress – FY 18 Q1 and Q2

---

## **FAA**

The FY18 Q1 & Q2 status condition of all runway pavement in the National Plan of Integrated Airport Systems (NPIAS) being in either “excellent”, “good” or “fair” condition is 97.9%. As such, the performance goal has been met. Meeting this performance goal results in maintaining a very safe and efficient runway system for the nation.

## **FHWA**

The FHWA continues to provide targeted assistance to States experiencing National Bridge Inspection Standards compliance issues in specific program areas. The goal of the assistance is to provide technical and programmatic strategies that will expedite planned improvement activities. FHWA continues to deliver training on element-level bridge inspection to bridge owners upon request. Six states - Alaska, Idaho, Michigan, New Mexico, North Carolina, and Utah - completed plans of corrective action in 2017 and moved to a satisfactory compliance determination. In addition, Mississippi and Washington identified issues that required them to develop a plan of corrective action; and FHWA is supporting California and South Carolina to improve their bridge load rating programs.

Additionally, FHWA will continue with its rulemaking efforts to update the National Bridge Inspection Standards regulations as required by MAP-21. The update will address risk-based bridge inspection intervals, national certification of bridge inspectors, the reporting of bridge inspection critical findings, and other improvements. The FHWA has updated its guidance and established a consolidated location for storing its guidance on documenting the National Bridge Inspection Standards oversight reviews, which allows its Division Offices to easily identify or locate relevant information. In addition, all FHWA Division offices were trained on the recent updates to the process used to provide oversight to the NBIS. DOT issued a Final Rule effective May 2017 that establishes a new framework of national performance measures for pavement and bridge conditions. States are required to make significant progress towards achieving targets for their individual performance measures for pavements and bridges, with the state-by-state results being aggregated and reported nationally.

# Summary of Progress – FY 18 Q1 and Q2 (cont.)

---

## **FTA**

FTA continues to manage its portfolio of grants and to obligate remaining available funds from the State of Good Repair Formula Program, Urbanized Area Formula Program, Rural Area Formula Program, Bus and Bus Facilities Formula Program, Bus and Bus Facilities Discretionary Program, the Tribal Transit Program, the Ferry Discretionary Program, and the Enhanced Mobility for the Elderly and Disabled Formula Program to support state of good repair investments.

FTA published its Transit Asset Management Rule on July 1, 2016. In September 2017, FTA opened the expanded asset inventory module for the National Transit Database online reporting system, and FTA has begun collecting those performance targets and expanded data on asset inventories and condition assessments. FTA continues to provide technical assistance to grantees that are establishing their performance targets and are finalizing their transit asset management plans ahead of the October 1, 2018 deadline. FTA also launched a revised Transit Asset Management course that will be offered through the National Transit Institute. A successful first session of the course was held in Chicago, Illinois.

# Key Milestones (FAA)

- Maintaining suitable runway pavement condition requires careful coordination, often years in advance, of a runway rehabilitation project. Projects are carefully timed by the airport and the FAA with some of the nation’s largest airports resurfacing their runways on an established revolving basis. The FAA works with airports to ensure that the system never has too many runways out of service at any given time, as this can cause significant flight delays throughout the country. This goal has been a long established standard (since 1986) that sponsors understand and support.
- In FY 2018, FAA is exploring redefining the pavement condition goal beyond visual inspections currently used. Recommendations will be identified by the end of FY18

## Milestone Summary

Key Milestone	Milestone Due Date <i>[e.g., Q1 and Q2, FY 2018]</i>	Milestone Status <i>[e.g., Complete, On-Track, Missed]</i>	Change from last quarter <i>[optional column]</i>	Owner <i>[optional column]</i>	Comments <i>[Provide discussion of Progress, changes from last update, Anticipated Barriers or other Issues Related to Milestone Completion]</i>
Maintain above 93% target of runway pavement in excellent, good, or fair condition for the paved runways in the National Plan of Integrated Airport Systems.	<b>Sep 30, FY 2018</b>  1 <sup>st</sup> Qt 2 <sup>nd</sup> Qt 3 <sup>rd</sup> Qt 4 <sup>th</sup> Qt	xx.x  97.9 97.9	0.1 0.0		Evaluation of the network level of inspection of over 4300 runways is being reviewed and reported monthly; and we are on track to achieve this goal. The March Status Condition of runways in excellent, good or fair condition is 97.9%, which remains unchanged from previous month.

# Key Milestones (FHWA)

- Continued to develop tools to assess the completeness and quality of data reported to the HPMS.
- Delivered a training course through the National Highway Institute on the new pavement condition requirements.
- Developed a standard operating procedure that identifies the specific computational steps that FHWA will carry out to process the data reported to the HPMS to calculate state and national performance measures.
- Delivered webinars and workshops with State DOTs to showcase best practices and to discuss the new requirements.

Milestone Summary					
Key Milestone	Milestone Due Date <i>[e.g., Q1 and Q2, FY 2018]</i>	Milestone Status <i>[e.g., Complete, On-Track, Missed]</i>	Change from last quarter <i>[optional column]</i>	Owner <i>[optional column]</i>	Comments <i>[Provide discussion of Progress, changes from last update, Anticipated Barriers or other Issues Related to Milestone Completion]</i>
First time targets established by State DOTs will be reported to FHWA for <u>Interstate</u> pavements using the new measure. These targets will represent the anticipated network level conditions of the Interstate system within the state at the end of 2021.	October 2019	On track	None	Tom Everett, AA for Infrastructure	Targets will be updated every 2 years after 2019.
First annual requirement for State DOTs to report <u>Interstate</u> pavement conditions to the HPMS using the new measure.	April 2019	On track	None	Tom Everett, AA for Infrastructure	
First biennial requirement for State DOTs to report <u>non-Interstate NHS</u> pavement conditions to the HPMS using the new measure.	June 2022	On track	None	Tom Everett, AA for Infrastructure	
First time targets established by the State DOTs will be reported to FHWA for non-Interstate pavements using the new measure. These targets will represent the anticipated network level conditions of the <u>non-Interstate NHS</u> within the State at the end of 2023.	October 2022	On track	None	Tom Everett, AA for Infrastructure	Targets will be updated every 2 years after 2019

# Key Indicators

Since the unit of analyses for these measures differ, it is not possible to draw comparisons between the measures. However, as shown in the figure below, it is possible to compare the results within each measure by observing the change over time and determining whether condition or performance is better, the same, or worse. Comparisons over a 5-year period from 2010 to 2015 is a useful starting point. Each trend chart must be interpreted in its operational context because an increase in the trend for a measure (e.g., pavement condition) can reflect a better condition or performance; while for other measures (e.g. bridge condition), an increase can reflect a worse condition or performance.

Asset by Travel Mode	Comparison between 2010 and 2015	Change in Performance	Desired Direction						
Air – National Plan of Integrated Airport System Runways in Good Condition	<p>Runway pavement condition (FAA)</p> <table border="1"> <tr><th>Year</th><th>Percentage</th></tr> <tr><td>2010</td><td>97.2%</td></tr> <tr><td>2015</td><td>97.7%</td></tr> </table>	Year	Percentage	2010	97.2%	2015	97.7%	Maintained; Exceeded Same Target	Maintain
Year	Percentage								
2010	97.2%								
2015	97.7%								
Surface – National Highway System Pavements in Good Condition	<p>NHS Pavement condition (FHWA)</p> <table border="1"> <tr><th>Year</th><th>Percentage</th></tr> <tr><td>2010</td><td>55.0%</td></tr> <tr><td>2015</td><td>60.3%</td></tr> </table>	Year	Percentage	2010	55.0%	2015	60.3%	Improved; Exceeded Higher Target	Continue
Year	Percentage								
2010	55.0%								
2015	60.3%								
Surface – National Highway System Bridges in Poor Condition	<p>NHS Bridge condition (FHWA)</p> <table border="1"> <tr><th>Year</th><th>Percentage</th></tr> <tr><td>2010</td><td>8.3%</td></tr> <tr><td>2015</td><td>5.6%</td></tr> </table>	Year	Percentage	2010	8.3%	2015	5.6%	Improved; Met Lower Target	Continue
Year	Percentage								
2010	8.3%								
2015	5.6%								
Transit – State of Good Repair Backlog	<p>SOGR Backlog (FTA)</p> <table border="1"> <tr><th>Year</th><th>Amount</th></tr> <tr><td>2010</td><td>\$78.0</td></tr> <tr><td>2015</td><td>\$89.8</td></tr> </table>	Year	Amount	2010	\$78.0	2015	\$89.8	Worsened; Exceeded Projected Target	Reverse Trend
Year	Amount								
2010	\$78.0								
2015	\$89.8								

# Key Indicators (FHWA)

---

The percent of States with NBIS bridge load rating compliance metric assessed as satisfactory is a supporting measure that indicates progress in maintaining an appropriate level of safety for the traveling public. At the end of FY 2017, 52% of the States were in satisfactory compliance, which is the highest percentage during the past 3 years. The percent of NHS bridges classified as in Poor Condition declined from 8.3% in 2010 to 5.0% in 2017. However, 5,013 bridges on the NHS are still classified as in Poor Condition.

# Data Sources and Methodologies

---

## Methodologies

### FHWA

Bridge Condition- Bridges are considered to be in Poor condition when any bridge component (deck, superstructure, substructure, or culvert) condition rating items are coded 4, or less, on the National Bridge Inventory (NBI) rating scale. Data to determine if a bridge is deficient is contained in the NBI, currently assembled from annual data submittals from the States, Federal agencies, and tribal governments.

The deck area is calculated from length and width data also reported to the NBI. The surface area (length multiplied by width) of bridge decks is viewed as a more meaningful measure than simply a count of bridges. The area measure recognizes the size difference among bridges and avoids the pitfall associated with counting bridges where every bridge is treated the same regardless of size.

Pavement Condition - The performance of highway pavements is reported nationally as the percent of vehicle-miles traveled (VMT) with good to very good ride quality. States report VMT and pavement ride quality data using the International Roughness Index (IRI) for NHS sections in the Highway Performance Monitoring System (HPMS). IRI is a quantitative measure of the accumulated response of a quarter-car vehicle suspension experienced while traveling over pavement. An IRI of less than 95 inches per mile is generally considered indicative of a good rated ride. VMT represents the total number of vehicle-miles traveled by motor vehicles on public roadways within the 50 States and the District of Columbia. Measurement and reporting procedures are included in the FHWA HPMS Field Manual.

# Data Sources and Methodologies (cont.)

---

## Methodologies

### FAA

Monthly review of runway condition data for the approximately 4300 runways in the National Plan of Integrated Airport System (NPIAS). Ensure that airports with runway pavement in poor or failed condition have identified a rehabilitation project in their capital improvement plan.

### FTA:

Estimates of the transit state of good repair (SGR) backlog are produced by the Transit Economic Requirements Model (TERM). TERM combines the most-recent data from the National Transit Database and ad-hoc data collections with pre-defined life-cycle models for various transit capital assets to produce SGR backlog estimates. Those estimates are then published approximately every two years in the Conditions & Performance Report. The most recent edition of that Report is currently the 2015 edition, which relies upon 2012 data. TERM model results are reported publicly through the Conditions & Performance report. Background information on the TERM companion model, TERM-Lite can be found at:

<https://www.transit.dot.gov/TAM/TERMLite>.

# Data Sources and Methodologies (cont.)

---

## Data Sources

### **FHWA**

National Bridge Inventory (NBI)

### **FAA**

FAA Airport Safety Data Program and FAA System of Airports Reporting (SOAR)

<https://aep.airports.faa.gov/Home.aspx>

### **FTA**

Transit Economic Requirements Model (TERM)

# Additional Information (FAA)

---

## Contributing Programs

Construction and preservation of airfield pavement infrastructure relies on multiple funding sources that are complementary to each other:

- Airport Improvement Program (AIP)
  - Organization: FAA Office of Airports, Federal assistance program
  - Program Activities: Construction, Re-construction, rehabilitation and limited maintenance
  - Regulations: 14 CFR 139 (Airports with commercial service)
  - Policy: 49 USC chapter 471
- Passenger Facility Charge (PFC) programs
  - Organization: Local Airport Authority, FAA
  - Program Activities: Same as AIP
  - Regulations: 14 CFR 139 (Airports with commercial service)
  - Policy: 49 USC chapter 475
- State Airport funding programs
  - Organization: State Authority
  - Program Activities: Construction, Rehabilitation and maintenance
  - Policy: State code
- Local Funding programs
  - Organization: Local governing body
  - Program Activities: Construction, Rehabilitation and maintenance

# Additional Information (FHWA)

## Contributing Programs

American Association of State Highway and Transportation Officials (AASHTO), Committee on Bridges and Structures – see <https://bridges.transportation.org/>.

- Statutory requirements in Title 23 USC 106, 109, 144, 502, and elsewhere requires FHWA to cooperate and/or coordinate with AASHTO in developing bridge, tunnel, and structures related standards and other materials.
- FHWA's Director of Bridges and Structures provides FHWA priorities to the Committee through regular discussions with AASHTO to ensure that they are incorporated into AASHTO's priorities as it advances its strategic plan and to align with FHWA regulations and policies.
- FHWA staff serve as liaisons to the 20 technical committees with the Committee on Bridges and Structures and use that role to assist AASHTO by identifying necessary changes to the various AASHTO specifications and by providing input on needed research areas to advance the bridges and structures program. In addition, State DOT engineers are members of the Committee on Bridges and Structures and this leverages coordination with these partners as well.

## Program Activities

FHWA Effective February 1, 2011, FHWA developed and implemented a new National Bridge Inspection Program (NBIP) oversight process by putting into practice a comprehensive plan to routinely conduct systematic, data-driven analysis to identify nationwide bridge safety risks for remediation in coordination with the States. As part of this process, FHWA Divisions work with State DOTs to establish plans of corrective actions or improvement plans for 23 specific metrics to comply with the National Bridge Inspection Standards (NBIS).

## Regulations

FHWA National Performance Management Measures - see [23 CFR 490.409](#)

## Policies

FHWA: FAST Act § 1106; 23 U.S.C. 119 – see [National Highway Performance Program](#)

# Additional Information (FTA)

---

## Contributing Programs

The majority of FTA's contributing programs are grant programs. During the second quarter of FY18, FTA continued to make obligations of prior year funds that were available under these programs, and continued to engage in its oversight activities for its portfolio of grants under these programs.

- State of Good Repair Program - \$118,842,676
- Urbanized Area Formula Program - \$538,672,681
- Rural Area Formula Program - \$70,345,654
- Bus and Bus Facilities Formula Program - \$33,817,057
- Bus and Bus Facilities Discretionary Program - \$4,223,285
- Enhanced Mobility for the Elderly and Disabled Formula Program - \$812,574
- Ferry Discretionary Program - \$713,280
- Tribal Transit Program (Formula and Discretionary) - \$2,875,555
- Transit Asset Management Program (not a funding program)

# Additional Information (cont.)

---

## **Stakeholder / Congressional Consultations**

### **FHWA**

DOT continues to take actions to address management challenges related to the performance management requirements of MAP-21. In 2016-2017, DOT finalized and published all MAP-21 performance management rulemakings, and every rulemaking is now effective except one. DOT is now implementing these rules, offering technical assistance to States and MPOs as they set performance targets and developing public-facing reporting of performance metrics.

### **FAA**

The Federal Aviation Administration incorporates views and suggestions for airport system-wide development from all of its stakeholders, including: individual airport owners; FAA's Airports Regional and District Offices; the Air Traffic Organization; the Flight Standards Office; Congress; state aeronautical agencies; and other aeronautical user groups.

### **FTA**

Stakeholders include the American Public Transportation Association, the Community Transportation Association of America, American Association of State Highway and Transportation Officials, the Association of Metropolitan Planning Organizations, Transportation Research Board, and their members.