Pavement Performance Measurement

Asset Type: Pavement

Scope of Data Included in Performance Measure

Pavements are required to satisfy both Moving Ahead for Progress in 21st Century (MAP-21) and the California Government Code requirements. Accordingly, there are two distinct reporting scopes.

For MAP-21 reporting, the scope of this measure will be all HPMS Pavement Inventory that carry the National Highway System (NHS) regardless of ownership. The summary reporting will be broken down by State or Local Agency ownership with total for the inventory and each condition category.

For the California Government Code reporting, this measure will include all State Highway System (SHS) pavement that carry vehicular traffic.

Data Update Frequency

The pavement condition data on the state highway system is updated on an annual basis. In 2015, an automated pavement condition survey (APCS) will collect data on approximately 15,000 centerline miles of pavement on the state highway system owned by the state.   The local NHS is collected every two years. About 6,000 centerline non Interstate NHS miles owned by local agencies will be collected in 2015 and 2016.

Summary of Performance Measure

The 2015 pavement condition survey is classified into categories of Good, Fair and Poor as the Federal Highway Administration (FHWA) for MAP-21 reporting. This will be APCS collected. The proposed rule may change prior the final rule being published in the Code of Federal Regulations.

Performance Measure Calculation Detail

The following detailed calculation of the pavement performance measure is taken directly from the Federal Highway Administration Notice of Proposed Rule Making for Pavement and Bridge Performance Measures. The calculation method defined below is subject to change in the final rule.

Code of Federal Regulation Sections 490.307 and 490.407 propose that State DOTs and MPOs use a total of three measures to assess the condition of pavements on the NHS. The proposed pavement measures would be applicable to both Interstate and non-Interstate NHS mainline. The pavement measures would reflect the percentage of the system in good and poor condition. The fair category will be assumed to be the remained after good and poor quantities are deducted from the total. The measure calculations would utilize data documented in the Highway Performance Monitoring System (HPMS).

Section 490.315 proposes the minimum level for condition of pavements on the Interstate System as required by 23 U.S.C. 150(c)(3)(A)(iii).

Section 490.307 National performance management measures for assessing pavement condition:

A. To carry out the NHPP, the performance measures for States to assess pavement condition are:

1. Percentage of pavements of the Interstate System in Good condition;

2. Percentage of pavements of the Interstate System in Poor condition;

3. Percentage of pavements of the non-Interstate NHS in Good condition; and

4. Percentage of pavements of the non-Interstate NHS in Poor condition.

B. State DOTs will collect data using the methods described in Section 490.309 and will process this data to calculate individual pavement metrics for each section of pavement that will be reported to FHWA as described in Section 490.311. State DOTs and FHWA will use the reported pavement metrics to compute an overall performance of Good, Fair, or Poor, for each section of pavement as described in Section 490.313.

The four condition metrics include:
- IRI
- Rutting
- Faulting
- Cracking Percent.

The data elements include:
- Through Lanes
- Surface Type

These measures require the States to collect the Interstate:
- Full Extent of the mainline highway
- In the rightmost travel lane
- Continuously collected and reported in 0.1 mile sections
- In both directions of travel
- Annually

For Non-Interstate NHS:
- For IRI
- Full extent
- Rightmost travel lane
- Continuously collected and reported in 0.1 mile sections
- In one direction of travel
- Biennially
- For Cracking Percent, Rutting, and Faulting metrics collected prior to December 31, 2019
- Using sampling methods outlined in the HPMS field manual
- Biennially
- For Cracking Percent, Rutting, and Faulting metrics collected after December 31, 2019
- Full extent
- Rightmost travel lane
- Continuously collected and reported in 0.1 mile sections
- In one direction of travel
- Biennially

Pavement Condition Thresholds:

Measurement	Good	Fair	Poor
IRI (inches/mile)	<95	95-170 95-220*	>170 >220*
Cracking (%)	<5	5-10	>10
Rutting (inches)	<0.20	0.20-0.40	>0.40
Faulting (inches)	<0.05	0.05-0.15	>0.15

*Population >1M

Calculation of Pavement Measures (490.313):

	Asphalt and Jointed Concrete	Continuous Concrete	
Overall Section Condition Rating	3 metric ratings (IRI, cracking and rutting/faulting)	2 metric ratings (IRI and cracking)	Measures
Good	All 3 metrics rated "good"	Both metrics rated "good"	Percentage of lane-miles in "good" condition
Poor	≥ 2 metrics rated "poor"	Both metrics rated "poor"	Percentage of lane-miles in "poor" condition