HPMS and TPM – Part 1b: Data Requirements for Pavement Conditions

FHWA Highway Information Seminar
Arlington, VA
November 16, 2017
Office Organizational Chart

FHWA Office of Highway Policy Information
David Winter, PE

Motor Fuel and Highway Finance
- Ralph Davis
- Mike Dougherty
- Clarissa Smith
- Bryant Gross
- Brian Lomax
- Helen Davidson

Highway System Performance
- Chris Allen
- Rob Rozycki
- Tom Roff
- Ron Erickson
- Ronald Vaughn, PMP
- Justin Clarke, AICP
- Jeromy Barnes, GISP
- Seemeen Hashem

Travel Monitoring and Surveys
- Dr. Tianjia Tang, PE
- Steven Jessberger
- Danny Jenkins, PE
- Dr. Patrick Zhang, PE
- Dr. Wenjing Pu, PE
- Mike Slattery
- Dawn Edwards
- Vacant
- Apara Banerjee

1 Additional notes or roles for the individuals.
HPMS Field Manual 2016

• Addresses updated data requirements needed to support the Pavement & Bridge Performance Measures (PM2) Final Rule
• Provides additional clarification on existing data collection and reporting guidance
HPMS Submission Timeline (Revised)

Data Collection, Aggregation, and Quality Review

District Office #1  
District Office #2  
District Office #N  
MPOs  
Local Governments

HPMS Data Dist #1  
HPMS Data Dist #2  
HPMS Data Dist #N  
HPMS Data MPOs  
HPMS Data Local Govts

State Central Office

Traffic Database  
Pavement Database  
Spatial Component  
Road Inventory

Interstate Pavement and Related Data

Certified Public Road Mileage

Non-Interstate Pavement, Non-Pavement, Sample and Summary Data

Travel Time Metric Data

Performance Assessment

FHWA Review and Certification

Data Distribution and Reporting

Highway Statistics  
Conditions and Performance Report  
National Highway Datasets

1Beginning April 15, 2019  
2Beginning June 15, 2021 (Non-IS NHS Pavement)  
3Beginning June 15, 2018
## Pavement & Bridge Condition Rule (PM2)-related Modifications

<table>
<thead>
<tr>
<th>Data Item</th>
<th>Roadway System</th>
<th>Extent</th>
<th>Collection Cycle</th>
<th>Direction</th>
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<th>Collection Cycle</th>
<th>Direction</th>
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<tbody>
<tr>
<td>IRI</td>
<td>Interstate (IS)</td>
<td>Full Extent</td>
<td>Annual</td>
<td>Inventory</td>
<td>Full Extent</td>
<td>Annual</td>
<td>Inventory*</td>
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<td>Inventory</td>
<td>Full Extent</td>
<td>Biennial</td>
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<td>Surface Type</td>
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<td>Annual</td>
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<td>Cracking Percent</td>
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</table>

*States can opt to report distress data independently for divided Interstate highway sections*
Directional Pavement Metrics Reporting Options

- If pavement distress data is being reported independently for both directions of travel on divided Interstate roadways, then the following data items shall be reported in the same manner:
  - Urban Code
  - Structure Type
  - Route Number
  - Directional Through Lanes
Pavement Data & Distress

Items

IRI (International Roughness Index):
• Road roughness measurement
• Required for all surface types
• Reported in inches/mile

PSR (Pavement Serviceability Rating):
• Visual inspection-based pavement condition rating
• Can be reported in lieu of IRI
• Reported/coded on scale of 0 (poor) to 5 (very good, in units of tenths (e.g., 4.2))

https://www.researchgate.net/figure/258391356_fig1_International-roughness-index-IRI-determination-through-measurement-of-pavement
Pavement Data & Distress Items (cont’d)

Rutting:
- Longitudinal surface depressions in asphalt pavement
- Required for asphalt pavements
- Reported as the average depth of ruts on a section to the nearest 0.01 inch

Faulting:
- Vertical misalignment of joints in Jointed Concrete Pavement
- Req. for jointed-concrete pavements
- Reported as average/mean absolute faulting to the nearest 0.01 inch
Pavement Data & Distress Items (cont’d)

**Cracking Percent:**
- Percentage of pavement surface exhibiting cracking
- Required for **all surface types**
- Reported as percent of section area or slabs to the nearest 1%

**Surface Type:**
- One of 11 FHWA surface type codes determined from visual inspection or construction records
- Preservation treatments of < 0.5 in. compacted material shall be excluded surface type determination

Source:
http://www.publicdomainpictures.net/pictures/100000/nahled/background-1411379004Euy.jpg
Pavement Data Collection/Reporting Guidance

- Collect in the rightmost through lane or one consistent lane
- Collect and report in **uniform** section lengths of 0.1 mi. (528 ft.); sections shall not exceed 0.11 mi.
- PSR, Rutting, Faulting, Cracking shall be collected for milepoint limits (i.e., sections) that are consistent with those reported for IRI
Pavement Data Collection/Reporting Guidance (cont’d)

• The following codes must be used to specify why data could not be collected on an NHS section
  • **A:** Construction - Roadway under construction
  • **B:** Closure - Roadway closed to traffic
  • **C:** Disaster - Roadway is in area declared as a disaster zone
  • **D:** Deterioration - Roadway too deteriorated to measure and already rated “poor”
  • **E:** Other – E.g. section added to NHS post data collection
Pavement Data Collection/Reporting Guidance (cont’d)

- Report existing values until they can be replaced by newly measured values
- Use Value Text field (Field 9) to indicate why measured value has not been reported for NHS sections
- An estimated date can be provided when exact collection date is unavailable
HPMS Field Manual Errata

• Contains revisions to various HPMS Field Manual contents
• Awaiting FHWA Office of Chief Counsel approval
  • Release Date: TBD
Questions / Comments?
Contacts

- Ronald Vaughn, PMP
  FHWA / Office of Highway Policy Information
  Office: (202) 366-9248
  Email: ronald.vaughn@dot.gov