ALABAMA DEPARTMENT OF TRANSPORTATION

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Robert Bentley
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May 5, 2015

Gregory G. Nadeau
Deputy Administrator, Federal Highway Administration
U.S. Department of Transportation
1200 New Jersey Avenue S.E.
Washington, DC 20590

Re: Docket No: **FHWA-2013-0053**

Dear Deputy Administrator Nadeau:

The Alabama Department of Transportation (ALDOT) is pleased to provide comments on the Federal Highway Administration's (FHWA) "National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program"; Proposed Rule (Docket Number **FHWA-2013-0053**) published in the Federal Register on January 5, 2015.

ALDOT's comments are organized as follows in the three (3) attachments to this letter:

- A seven page document from the Alabama Department of Transportation, Materials and Test Bureau, Pavement Management Section entitled, "23 CFR 490 Review Notes" dated January 26, 2015.

- A four page document from the Alabama Department of Transportation, Materials and Test Bureau, Pavement Management Section entitled, "Issues with Using the HPMS Field Manual for MAP-21 Reporting" dated May 4, 2015.

- A one page document from the Alabama Department of Transportation, Maintenance Bureau entitled "Proposed Performance Measures for Bridge Conditions" dated May 5, 2015.

These comments represent a substantial work effort among ALDOT employees to thoroughly review and comment on the Pavement and Bridge Condition and Performance Management

NPRM. ALDOT has serious concerns over a portion of the new measures and they are outlined in the above attachments.

We appreciate the opportunity to provide these comments and look forward to working with FHWA in the implementation of the final rules. If you would like to discuss the issues raised in this letter, please contact Mr. Don Arkle, Assistant Chief Engineer of Policy and Planning at (334) 242-6164.

Sincerely,

John R. Cooper
Transportation Director

JRC/BCD: ch
C: Mr. Don Arkle w/attachment
Mr. Brian Davis w/attachment
File-D-2145

23 CFR 490 Review Notes

FHWA Requests

IMPLEMENTATION OF MAP-21 PERFORMANCE REQUIREMENTS (Page 361)

What is an appropriate effective date?

Pavement management is prepared to assist in setting targets by the October 1, 2016 deadline. We are in the process of transitioning to fully-automated, 3D crack detection, which could have negative impacts on cracking extents (the technology should detect more cracking). However, the entire NHS will have been collected in 2015 using the newer technology, which will give us the opportunity to set targets with the new data.

The FHWA considered nine principles in this NPRM and encourages comments on the extent to which this approach to performance measures, set forth in this NPRM, supports the principles discussed above.

We have no objections to the approach put forward in this NPRM.

FEDERAL TECHNICAL ASSISTANCE (Page 37)

The FHWA technical assistance will include activities such as conducting national research studies, developing analytical modeling tools, identifying and promoting best practices, preparing guidance materials, and developing data quality assurance tools. The FHWA encourages comments on how it can help maximize opportunities for successful implementation.

Despite extensive efforts in the area of training on data quality management, more emphasis needs to be placed on data quality and the active involvement of agency personnel in this task. Training materials have been somewhat lacking in statistical methodology, and attempt to rely on other AASHTO guidance, which is more appropriate when the target value to be managed is already known (e.g., percent of theoretical maximum density for asphalt). It is simple to determine if a dataset is reasonable; it is quite a different matter to determine if the dataset is correct.

ESTABLISHING ADDITONAL, OPTIONAL TARGETS (Page 67)

Are there alternative approaches for State and MPO target coordination?

The FHWA is seeking comments on this approach for establishing optional additional targets for urbanized areas and the non-urbanized area.

The FHWA would also like comments on any other flexibilities it could provide to or identify for State DOTs related to the voluntary establishment of additional targets. Some examples include:

> ***Providing options for establishing different additional targets throughout the State, particularly for the States' non-urbanized area; and***
>
> ***Expanding the boundaries that can be used in establishing additional targets (e.g., metropolitan planning area boundaries, city limit boundaries, etc.).***

[1] Page Number refers to the single column version of the NPRM.

No comment on these topics. ALDOT will be required to collect distress data on the off-system NHS by automated means (MRI is currently collected in-house and cracking is collected by sample, which will be phased out according to the NRPM). This mileage does not represent a significant increase over the mileage collected by our vendor. It will be important, however, to coordinate this activity with the HPMS section to ensure that the proper mileage is collected at the time when our vendor is in the state collecting network data.

PAVEMENT DATA REPORTING (Page 142)

FHWA requests comments on whether a 0.1 mile uniform section length is appropriate for both the Interstate System and non-Interstate NHS reporting of pavement condition.

0.1-mi uniform segments are indeed possible with current technology, since data is collected continuously. We would assume that most states who are already using this technology are reporting at least this level of granularity since it is required for HPMS reporting. However, states do not manage their systems in 0.1-mi increments, and if the idea behind setting targets is to encourage states to manage their assets in such a way as to improve with time, a length more in line with a pavement overlay seems more appropriate. We do not believe that the length needs to be excessive (1-mi sections might be too long), but the 0.5-mi presented in the NPRM as an alternative could be an appropriate compromise between the way systems are managed and the need for accurate reporting.

PROPOSED PAVEMENT CONDITION RATING THRESHOLDS (Page 145)

Are the proposed criteria to determine Good, Fair, and Poor ratings appropriate? (TABLE 5)

The FHWA encourages comments on the appropriateness of these proposed criteria and any alternative levels that would be appropriate for network level condition assessment. (TABLE 5)

Asphalt pavements

A search of the documents posted to the docket for the NPRM did not yield a source for the 5% (fair) and 10% (poor) thresholds used for percent cracked. The white paper cited by Mr. Van in the webinar[2] simply evaluated the negative effects of poor pavements in terms of repair costs, user costs, and work zone effects, etc. Since the Mechanistic-Empirical Pavement Design Guide (MEPDG) served as a sort of template for the 2010 HPMS reassessment, it seemed appropriate to continue the search there.

Table 8.1 of the MEPDG Guide Manual of Practice is one possible source for the determination of the 10% cracked threshold used in determining "poor" pavement performance. However, two points should be noted. First, the performance criteria for cracking is alligator (or wheelpath) cracking, not entire lane width cracking as proposed in the NPRM and the draft HPMS field manual. Second, these values are design criteria, specifically the levels of cracking for which a trial pavement design should be evaluated at the end of its intended life. In theory, these values should also match conditions in the field at the end of a pavement's life; the difficulty in calibrating the MEPDG to represent a state's actual field conditions and performance suggests that these values may indeed be conservative.

[2] "Rationale for FHWA's selected minimum level for condition of pavements on the Interstate system"

Table 8-1. Design Criteria or Threshold Values Recommended for Use in Judging the Acceptability of a Trial Design. [3]

Pavement Type	Performance Criteria	Maximum Value at End of Design Life
HMA pavement and overlays	Alligator cracking (HMA bottom up cracking)	Interstate: 10% lane area Primary: 20% lane area Secondary: 35% lane area
	Rut depth (permanent deformation in wheel paths)	Interstate: 0.40 in. Primary: 0.50 in. Others (<45 mph): 0.65 in.
	Transverse cracking length (thermal cracks)	Interstate: 500 ft./mi Primary: 700 ft./mi Secondary: 700 ft./mi
	IRI (smoothness)	Interstate: 160 in./mi Primary: 200 in./mi Secondary: 200 in./mi
JPCP new, CPR, and overlays	Mean joint faulting	Interstate: 0.15 in. Primary: 0.20 in. Secondary: 0.25 in.
	Percent transverse slab cracking	Interstate: 10% Primary: 15% Secondary: 20%
	IRI (smoothness)	Interstate: 160 in./mi Primary: 200 in./mi Secondary: 200 in./mi

Fortunately, the MEPDG Manual of Practice suggests a second method of determining threshold values that can be used to determine "fair" and "poor" performing pavements with respect to cracking. In fact, this method seems more in line with the white paper and its focus on rehabilitation and user costs. Table 10-8 suggests that the distress levels that should be used for determining structural adequacy are similar on the definition of "good" condition, while leaving more room for "fair" pavements.

In addition, it should be noted that the focus is again on the wheelpath area, not on the entire lane width. In all cases with the MEPDG, structural adequacy and performance is based on the 50% of the lane area associated with the wheelpaths, not the entire lane width (though the measurement of cracking is usually based on percent of the entire lane area). This is consistent with what is currently being reported for HPMS, but is not consistent with the NPRM and the draft field manual. Also, how are transverse cracks intended to be reported under the revised Item 52 (Cracking_Percent)? The description now states that "cracking percent is the percentage of the total area containing exhibiting (sic) visible cracking in each section."

With both Table 8-1 and 10-8, a distinction is made between Interstate and primary and secondary routes. While we understand that the ratings for each metric are designed to be simple to implement, it may in fact be that one size does not fit all and that different values may be appropriate for Interstate and non-Interstate NHS condition ratings.

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[3] American Association of State Highway and Transportation Officials (2008). *Mechanistic-Empirical Pavement Design Guide: A Manual Of Practice*, p 74

Table 10-8. Distress Types and Levels Recommended for Assessing Current Flexible Pavement Structural Adequacy [4]

Distress Type	Highway Classification	Current Distress Level Regarded as: Inadequate (Poor)	Marginal (Fair)	Adequate (Good)
Fatigue Cracking, percent of total lane area	Interstate, Freeway	>20	5 to 20	<5
	Primary	>45	10 to 45	<10
	Secondary	>45	10 to 45	<10
Longitudinal Cracking in Wheel Path, ft/mi	Interstate, Freeway	>1060	265 to 1060	<265
	Primary	>2650	530 to 2650	<530
	Secondary	>2650	530 to 2650	<530
Reflection Cracking, percent of total lane area.	Interstate, Freeway	>20	5 to 20	<5
	Primary	>45	10 to 45	>10
	Secondary	>45	10 to 45	<10
Transverse Cracking Length, ft/mi	Interstate, Freeway	>800	500 to 800	<500
	Primary	>1000	800 to 1000	<800
	Secondary	>1000	800 to 1000	<800
Rutting, mean depth, maximum between both wheel paths, in.	Interstate, Freeway	>0.45	0.25 to 0.45	<0.25
	Primary	>0.6	0.35 to 0.60	<0.35
	Secondary	>0.8	0.40 to 0.80	<0.4
Shoving, percent of wheel path area	Interstate, Freeway	>10	1 to 10	None
	Primary	>20	10 to 20	<10
	Secondary	>50	20 to 45	<20

Note: The above distresses can be used to access the condition of the existing flexible pavement, all of which are not predicted by the MEPDG.

Finally, we would like to draw attention to an important note concerning the use of existing data from the HPMS reassessment in determining thresholds: the values for Item 52 (Cracking_Percent) are rounded to the nearest 5% under the current HPMS field manual. This means that values of up to 7.5% cracked are rounded to 5% and values of up to 12.5% would be rounded to 10% cracked.

Concrete Pavements

The MEPDG Manual of Practice also makes recommendations on how to use the number of cracked slabs on jointed concrete to estimate the structural capacity of the pavement. These numbers, at least for jointed-plain concrete, are very much in line with what is presented in the NPRM. A higher threshold is allowed, however for jointed-reinforced concrete, though no distinction is currently made (or is proposed to be made) in the HPMS field manual. The same comments regarding the possibility of using different scales on different systems still applies here. However, ALDOT does not maintain a significant lane-mileage of non-Interstate concrete pavement.

[4] American Association of State Highway and Transportation Officials (2008). *Mechanistic-Empirical Pavement Design Guide: A Manual Of Practice*, p 106

Table 10-7. Distress Types and Severity Levels Recommended for Assessing Rigid Pavement Structural Adequacy[5]

Load-Related Distress	Highway Classification	Current Distress Level Regarded as: Inadequate (Poor)	Marginal (Fair)	Adequate (Good)
JPCP Deteriorated Cracked Slabs (medium and high-severity transverse and longitudinal cracks and corner breaks), % slabs	Interstate, Freeway	>10	5 to 10	<5
	Primary	>15	8 to 15	<8
	Secondary	>20	10 to 20	<10
JRCP Deteriorated Cracked Slabs (medium and high-severity transverse cracks and corner breaks), #/lane-mi	Interstate, Freeway	>40	15 to 40	<15
	Primary	>50	20 to 50	<20
	Secondary	>60	25 to 60	<25
JPCP Mean Transverse Joint/Crack Faulting, in.	Interstate, Freeway	>0.15	0.1 to 0.15	<0.1
	Primary	>0.20	0.12 to 0.20	<0.125
	Secondary	>0.30	0.15 to 0.30	<0.15
CRCP Punchouts (medium and high severity), #/lane-mi.	Interstate, Freeway	>10	5 to 10	<5
	Primary	>15	8 to 15	<8
	Secondary	>20	10 to 20	<10

Note: The above distresses can be used to access the condition of the existing rigid pavement, all of which are not predicted by the MEPDG.

Are the IRI threshold values appropriate?

These values are consistent with the values that were presented in the U.S. Department of Transportation's 1999 Report to Congress, and are used in Alabama to help interpret GASB 34 reported values. Alabama has established the goal of maintaining the Interstate system at a "Good" or better ride quality and the non-Interstate routes at "Fair" or better. Alabama's average 0.1-mi MRI value is approximately 72 in./mi. We therefore have no issue with the "fair" threshold being set at 95 in/mi.

MISSING DATA FOR PAVEMENT CONDITION (Page 148)

The FHWA encourages comments on alternative methods for addressing missing or invalid data that would provide for an accurate assessment of network level conditions.

The fact that missing data is afforded a "poor" rating does not provide for an accurate assessment of network-level conditions. It seems to be intended to provide a penalty for errors that occur in reporting so that greater measures will be taken to prevent them. We don't necessarily have a problem with this (though it will require extensive coordination with Maintenance to establish the precise location of our bridges). In other words, "no data" or "invalid data" does not necessarily indicate poor condition. For example, what should be reported for a pavement section that is under construction at the time of rating?

GEOGRAPHIC VARIATIONS IN PAVEMENT CONDITION (Page 157)

The FHWA evaluated lane-mile distribution of the Interstate System pavement conditions among different traffic volumes, climatic conditions, and terrain types. Consequently, the data suggested that

[5] American Association of State Highway and Transportation Officials (2008). *Mechanistic-Empirical Pavement Design Guide: A Manual Of Practice*, p 105

there is no evidence to conclude that there are significant differences in percent lane-miles of the Interstate System in Poor pavement condition among the Interstate System pavement sections in these various areas. FHWA seeks comments on the need to establish different thresholds for geographic regions.

This evaluation was necessarily based on samples, which FHWA does not believe provides an accurate picture of network health. How, then, is it possible to conclude that there are no geographic variations in pavement condition? Alabama is in one of the most favorable climatic zones, and thus should have no real need for a concession based on geographic region. Traffic volumes have already been considered when assessing ride quality in large metropolitan areas.

MINIMUM CONDITION REQUIREMENTS FOR PAVEMENT AND BRIDGES

Any suggestions for alternative approaches to implementing the minimum condition requirements?

Is the proposed schedule to implement the minimum condition requirements workable

Alabama is not likely to exceed the percent poor requirement on Interstate pavements, so the proposed implementation schedule should be workable for ALDOT.

Comments concerning changes to the HPMS field manual

We have examined the proposed changes to the HPMS field manual that has been posted along with the NPRM and have three major issues.

1. A perhaps unintended consequence of the increased precision for cracking required for 23 CFR 490 is that manual rating is no longer possible on off-system samples, which would require ALDOT to use its vendor to collect all off-system samples. Despite this, Present Serviceability Rating (which is discouraged) is still allowed on these sections; it would seem that if a manual rating was acceptable for pavement smoothness, then manual ratings would be acceptable for cracking as well. ALDOT currently collects this information in-house using its own inertial profiler and field raters rather than using its network-level vendor. This is more cost effective, and gives us the benefit of being able to rate later in the year after the off-system samples have been finalized. It is unlikely that the samples would be ready in time for our vendor to collect them, and regardless of the timing would require the vendor to remobilize to collect what is a relatively small mileage compared to the entire on-state system collected much earlier in the year.

2. We feel that the proposed manual should be revised to reflect only alligator (or wheelpath) cracking since that was what was intended in the MEPDG (and thus the models based on it that are used with HPMS data). We also feel the proposed manual should be revised so that non-NHS samples can still use the old precision values, which are appropriate for off-system samples, while still allowing for the increased precision necessary for the metrics in 23 CFR 490.

3. Beginning with the HPMS reassessment in 2010, IRI was required for 100% of the lane mileage reported, including structures, aggregated every 0.1 mile. Under the proposed rule, rutting and cracking information will now be required for the entire network; however, rutting and cracking

are not present on bridges. Further guidance needs to be issued regarding the reporting of these items to help minimize the number of apparent errors in the data. In Alabama, structure location (for the NBI) is determined separately from Pavement Management, thus a significant effort will be required to harmonize the two. Should rutting and cracking be reported for a 0.1-mi segment that is greater than 50% bridge? What about segments that are 50% bridge?

General comments

PSR is defined on page 14 and numerous other locations throughout the document as "Pavement Surface Rating." For HPMS reporting purposes (and from its history of use in pavement design), this should be "Present Serviceability Rating."

To avoid confusion, use of the term IRI or International Roughness Index should be discouraged in favor of the term Mean Roughness Index. While MRI is the IRI statistic calculated in AASHTO R 43-13 (as referenced in the HPMS field manual), IRI has several meanings in terms of calculated statistics. It has been used variously to refer to right wheelpath IRI, half-car IRI (calculated from the average of two profiles), and MRI, and has led to inconsistent reporting between states in previous HPMS incarnations. MRI specifically refers to the average of two quarter-car IRI values, which is specifically what is required for HPMS and what is desired in the NPRM. We also recommend adding AASHTO R56-10 "Standard Practice for Certification of Inertial Profiling Systems" to the list in 490.111.

Issues with Using the HPMS Field Manual for MAP-21 Reporting

This document is intended to present the ALDOT Pavement Management Section's issues with using the HPMS Field Manual to define the metrics used in the notice of proposed rulemaking (NPRM) concerning 23 CFR Part 490 "National Performance Management Measures." Four manuals will be referred to: the 2013 Field Manual, the 2014 Field Manual, the 2015 Summary of Field Manual Edits (not issued as a new manual), and the 2014 NPRM version of the Field Manual, referenced in *Discussion of §490.111 Incorporation by Reference*. Pavement Management has five general concerns with respect to how the Field Manual will be used to define metrics:

1. Reporting section lengths should be at least 0.1 mile in length.
2. A different standard of reporting should be established for pavements that are not on the NHS and not on state systems.
3. There are differences in the definitions of cracking between the 2014 Field Manual, the 2015 Field Manual, and the proposed Field Manual from the NPRM.
4. There are differences in the precision of reporting units between the three HPMS Field Manuals.
5. Surface type creates issues with data validity.

Sample and reporting section lengths

It is our opinion that reporting section lengths should be no shorter than 0.1 mile. Historically, we have had samples as short as 0.001 mile, but in general, approximately 1/5 of our samples have been shorter than 0.1 mile. Due to the resolution of reporting of our test equipment (0.01-mi) and inaccuracies involving linear referencing off the state system, we have not reported distress values on these shorter segments off-system, though we reluctantly include them on-system where possible. We feel that a constraint should be put on the HPMS software such that these short sections do not appear in the sample panel.

The position of the Field Manual on continuously reported distresses (e.g., IRI) is that shorter segments should occur at route gaps and termini. We agree that non-tenth segments will occur at route gaps and termini. However, rather than having these short segments stand alone, we feel that they should be included to lengthen the previous tenth. This increases the reliability of the data, particularly since the sections at gaps and termini will generally have been collected at slower than optimum speed for the collection equipment. Combining with the previous segment will help mitigate these effects, yet will provide HPMS and MAP-21 with the needed resolution for their efforts since a segment will be at most 0.199 miles long.

On-system vs. off-system

Alabama's practice in collecting off-system cracking has been to select sites within each sample at a frequency of one per mile + 1 (in other words, samples less than 0.5 miles in length will be sampled once, those less than 1.5 miles in length twice, etc.). The values obtained at these sites were then averaged to give a representative value for the sample. This was a valid method of deriving cracking estimates for samples in the 2013 Field Manual.

However, beginning with the 2014 Field Manual, all distresses, including rutting, faulting, and cracking were required at 0.1-mi intervals. While we agree that this provides an improvement in resolution on-

system, we do not feel that this was necessary for routes off the state system, where there is no intent to transition eventually to 100% coverage. For future years, ALDOT will contract with its data provider to obtain this extra data, but it is our opinion that better data was reported with site visits and manual surveys. It is considerably more difficult to specify the samples off-system than it is to specify the on-system network. We would prefer that the use of sampling be permitted on off-system routes, even if the end goal is to eliminate sampling on-system.

Cracking definitions

In the 2013 and 2014 Field Manuals, the metric to be reported for cracking percent was fatigue percent area (for asphalt-surfaced pavements), punchout area/longitudinal cracks/patching area (continuously-reinforced concrete pavements) and percent cracked slabs (jointed concrete pavements). All of these measures are generally regarded as measurements of fatigue/load-associated distress. The 2015 Summary of Field Manual Edits continues this practice (although cracking length is deleted as a metric).

However, the NPRM's edit of the Field Manual approaches things somewhat differently. Although Table 4.5 "Data Item Requirements by Surface Type" does not change in this revision, the description for Item 52, Cracking Percent, does change. The requirement for asphalt is for total area exhibiting cracking, not just the wheelpaths. While non-wheelpath cracking is easily added to the cracking totals, quantifying transverse cracking as an area measurement becomes a different issue. How does one determine the area of a single crack?

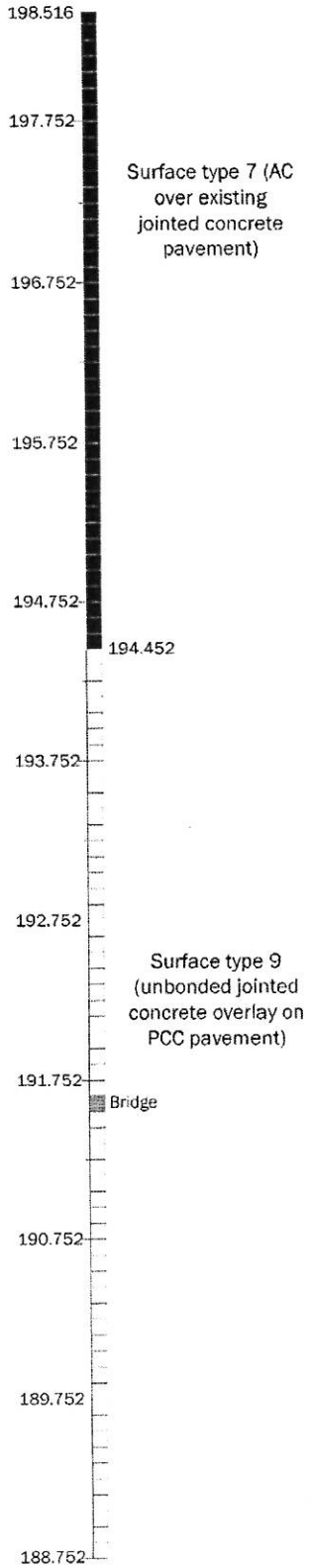
The issue is much the same on jointed concrete pavements. ALDOT's network consists of over 98% asphalt-surfaced roadways, so ALDOT has collected IRI, faulting (jointed pavements) and transverse cracking on its concrete pavements, but has not collected information about corner breaks since they are not fatigue-related. Are corner breaks to be included in the new measure of percent slabs cracked?

The transition from fatigue cracking to total cracking represents a significant shift in what is reported. Regardless, these edits are not in the 2015 Summary of Field Manual Edits, only in the edit of the Field Manual included with the NPRM. If these are, in fact, the metrics that are to be reported as part of MAP-21, then they need to be propagated to the 2015 HPMS Field Manual.

Reporting precision inconsistencies

If the 2015 HPMS Field Manual was intending to capture the needs of the NPRM (as evidenced by the removal of cracking length as a metric), then there are some additional changes that need to be made. MAP-21 requires rutting and faulting to be reported to the nearest 0.05 in. The 2015 Field Manual does not capture this requirement.

Data Item	2014 Field Manual	2015 Summary of Field Manual Edits	2014 NPRM Field Manual
Rutting	0.1 in.	0.1 in.	0.05 in.
Faulting	0.1 in.	0.1 in.	0.05 in.
Cracking percent	5% (min)	5% (min)	1%
Cracking length	1 ft/mi	N/A	N/A



Surface type and data validity

A final but extremely important issue concerns the use of item 49, Surface Type. It is currently reported as the predominant surface over the entire sample section, but problems may occur if the surface type is used to determine the validity of collected data. An obvious application of this technique would be to ensure that rutting is reported only on asphalt-surfaced roadways (codes 2, 6, 7, and 8) or that faulting was reported on concrete pavements. However, surface type can also be used to help validate other reported data items, such as flexible thickness, rigid thickness, and base type and thickness.

The figure at left shows a sample submitted as part of Alabama's 2014 HPMS report. The sample is nearly 10 miles long and consists of two pavement types. From the beginning of the sample at MP 188.752 to MP 194.452, the pavement is an unbonded jointed concrete overlay over concrete pavement (surface code 9 by the HPMS Field Manual). The remainder of the sample is a composite pavement consisting of a thin asphalt overlay over jointed concrete pavement (surface code 7).

According to the HPMS Field Manual (all years referenced previously), surface type is reported for the entire sample as a single value, and the calculation method according to Table 4.3 is "predominance." For this sample, then, the surface type would be coded 9—*Unbonded Jointed Concrete Overlay on PCC Pavement*. Table 4.5 lists the data item requirements by surface type. For the portion of the sample that is an unbonded PCC overlay, IRI is required, as is faulting, and cracking percent (percent cracked slabs). However, for the remainder of the sample, which is asphalt, IRI is required, along with rutting, cracking percent (now fatigue percent area) and cracking length (transverse/reflective length). IRI and cracking percent are thus required for the entire sample, though the meaning of cracking percent has changed with the change in surface. The agency would be expected to provide faulting data throughout the sample when it is only required for the unbonded PCC overlay. Also, the agency cannot report rutting or cracking length, because the predominant surface type is concrete.

With the NPRM, a pavement is to be rated poor when all two or three required metrics are not present. What, then, is the outcome for this sample, where just over four miles of pavement would be rated as poor simply because of how the sample is laid out? This is, admittedly, an extreme example, but it is one that was encountered in practice.

A possible solution would be to have the surface type reported for each tenth-mile section. However, there are other required items, including flexible thickness, rigid thickness, base type, and base thickness, that are tied directly to surface type. These items are also to be calculated, like

surface type, by predominance. Perhaps surface type could be reported by tenth-mile section and aggregated by the software to determine predominance for the other pavement data items.

Summary

This document has presented issues related to the application of the HPMS Field Manual for use in the calculation of metrics required by the NPRM concerning 23 CFR Part 490. The Pavement Management Section has no real concerns with the general direction as developed in the NPRM; however, we believe that much work needs to be done to harmonize the NPRM with the 2015 HPMS Field Manual. In addition, we feel that additional focus should be given to clarifying the intent of the revised metrics so that there will be less ambiguity and thus more consistency in the data reported by states.

Proposed Performance Measures for Bridge Conditions

Maintenance Bureau
Alabama Department of Transportation 05/05/2015

We agree with using NBI condition data to establish performance measures for bridges. We feel that using element level ratings to establish performance measures would be premature at this time. There is not enough data to establish these measures as many states have just started to perform inspections with the new AASHTO Bridge Elements.

NBI items 67 and 71 (structural evaluation and waterway adequacy) should be removed from the factors that are used to determine if a bridge is structurally deficient. This would bring the term structurally deficient more in line with the classification of "poor" for the proposed performance measures for assessing bridge conditions. In this case it would be easy to communicate to the public that bridges classified as structurally deficient or poor would include bridges with a condition rating of 4 or less for any NBI Items: 58—Deck, 59—Superstructure, 60—Substructure, and 62—Culverts. This change could be made with minimal impacts to the number of bridges classified as structurally deficient while simplifying the definition for communicating with the public. Any other drastic changes to the definition of structurally deficient such as lowering the NBI condition thresholds could send the wrong message that our bridges have suddenly become better.