

MAP-21 and Pavement Performance Measures

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You are a Pavement Engineer who must report the condition of your pavement network and select project treatments.



You have heard that new legislation requires pavement performance measures and wonder what that means to your state.



You want measures that will be accepted and applied consistently by all states.



Consider the work so far on MAP 21 and performance measures.



The goal is to focus on national transportation goals, and increase transparency and accountability in use of Federal funds.

Moving Ahead for Progress in the 21st Century= **MAP21**

This legislation requires Asset Management Plans and National Level Performance Measures, among many other things. Two years of funding.

Performance Measures in 7 Areas

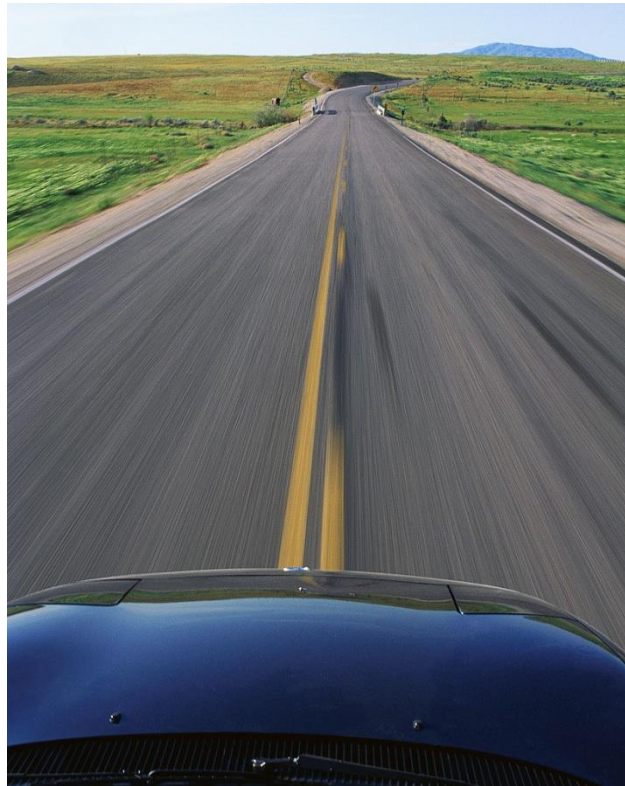
- Safety
- *Infrastructure Condition*
- Congestion Reduction
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability
- Reduced Project Delivery Delays

A good performance measure for pavement should be economical to measure, address both functional and structural performance and is relevant to both concrete and asphalt.

A task group selected by AASHTO recommended IRI as the initial measure, with research to include faulting and rutting within 2 years.

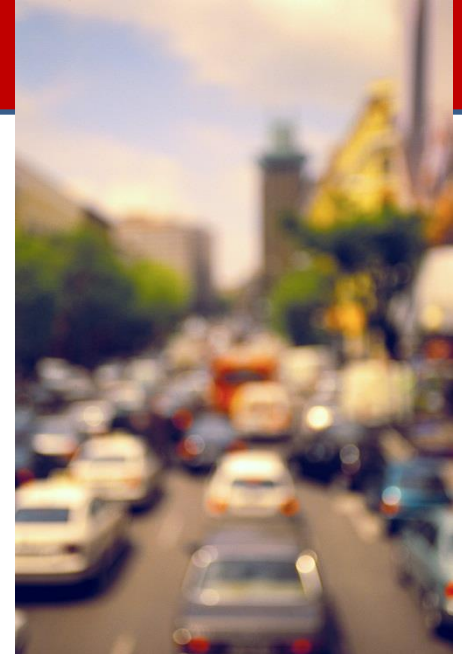
Members from 5 states, including Washington, Louisiana, Missouri, Kentucky and North Carolina.

IRI is the measure that is collected and interpreted most consistently between states.

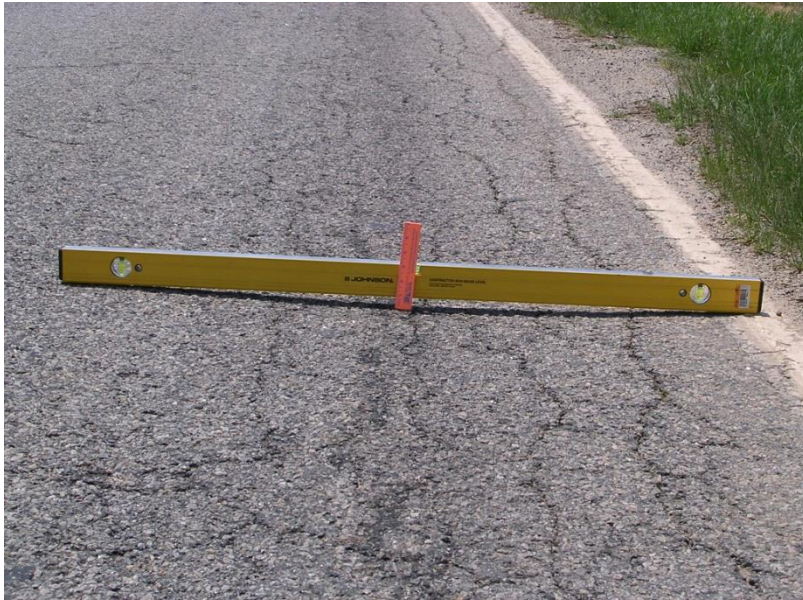


There are still issues with IRI measurement:

- Software used to interpret results
- Use in stop and go traffic; urban issues
- Few states use in developing their programs.
- Poor documentation of thresholds for good, fair, and poor.
- Test vehicle calibration.

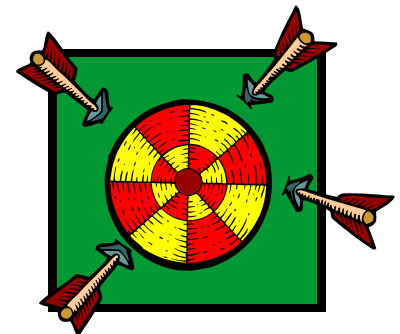


Rutting and Faulting are roughly analogous distresses for flexible and rigid pavements.



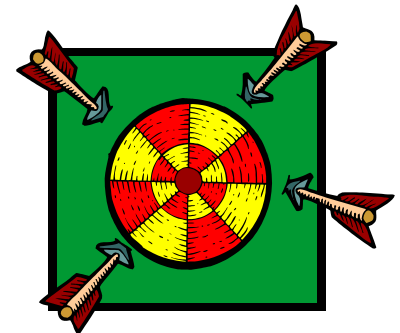
Issues with Rutting as a Performance Measure

- How many sensors, and what type?
- Impact of sectioning.
- Which definition of Rutting to use: method of calculation.
- How to define good, fair and poor.



Issues with Faulting as a Performance Measure

- How to measure at network level; is scanning laser required?
- How frequently must test be made to capture faulting? Test vehicle speed?
- Lack of consistency with different equipment and agencies.
- How to define good, fair and poor.



Recent FHWA report by AMEC on 3-state comparison found poor correlation in faulting measurements.



There is not a national consensus on how to define the amounts and severities of cracking. Each state is interpreting their own way.



There is good understanding of the definitions of broken slabs and spalling, but states count these with very different approaches. Some sample, others count 100%.

Also need to combine structural performance measures with functional ones to yield overall performance.

How to combine results when multiple measures are used? Consider 3 measures for each road segment: IRI, rutting, and cracking.

Most pavements will be between clearly good and clearly poor.

Clearly good!

Good, good, good	Good, good, fair	Good, Fair, Fair
Good, good, fair	Fair, fair, fair	Poor, poor, fair
Fair, Fair, Poor	Poor, poor, fair	Poor, poor, poor

Clearly poor!

Provides FHWA 18 months for “rulemaking.”
Provides states with 12 months following rulemaking to set their targets.
Provides MPOs with 6 months following state target setting to set their targets.



Issues in Target Setting

- What target is reasonable if a state is already meeting the measure? Could reduction be OK?
- How to deal with impacts of shrinking budgets?
- Should segments be taken off or added to the Interstates?
- Will targets lead to poor long-term strategies?

Conclusion: A composite performance measure that includes both functional and structural performance will need to be developed and receive broad buy-in from agencies to be successful. Measures and targets will continue to evolve.



Thank you for your interest.

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