

HMA COMPARISONS OF THE MIDWEST

RICHARD WILLIS, PhD

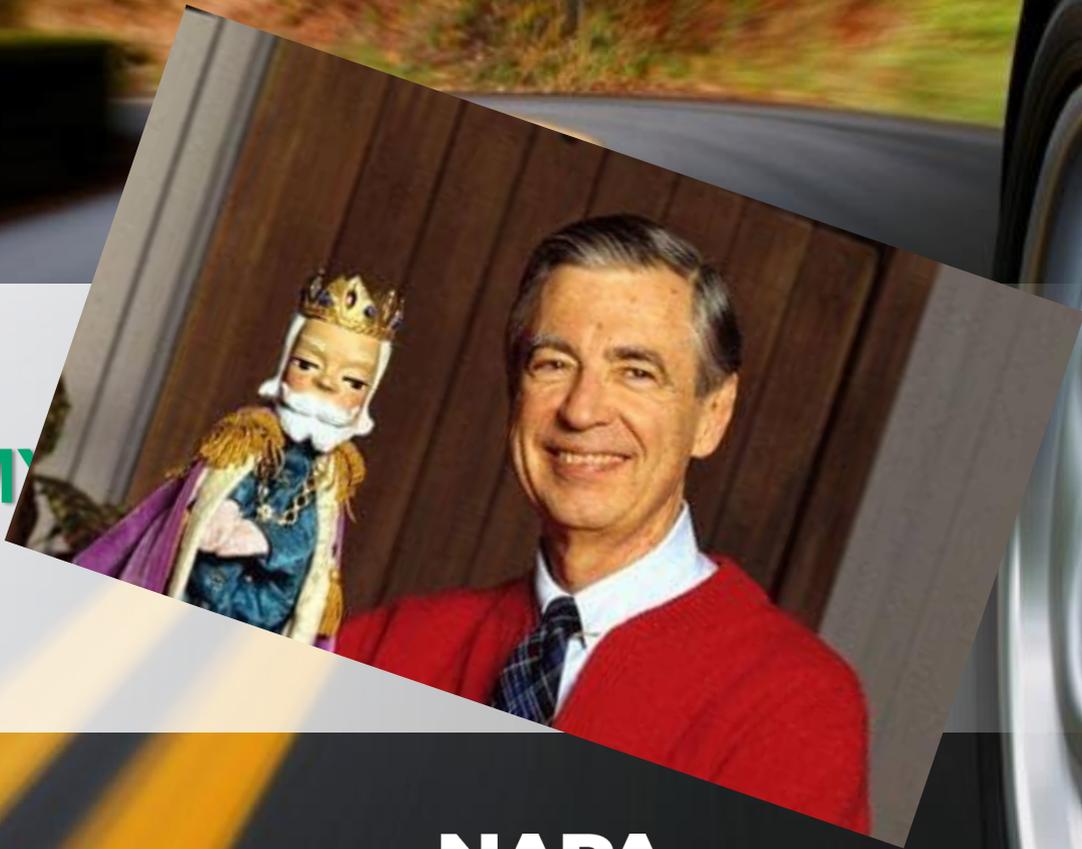


HELLO, NEIGHBOR



NATIONAL ASPHALT
PAVEMENT ASSOCIATION

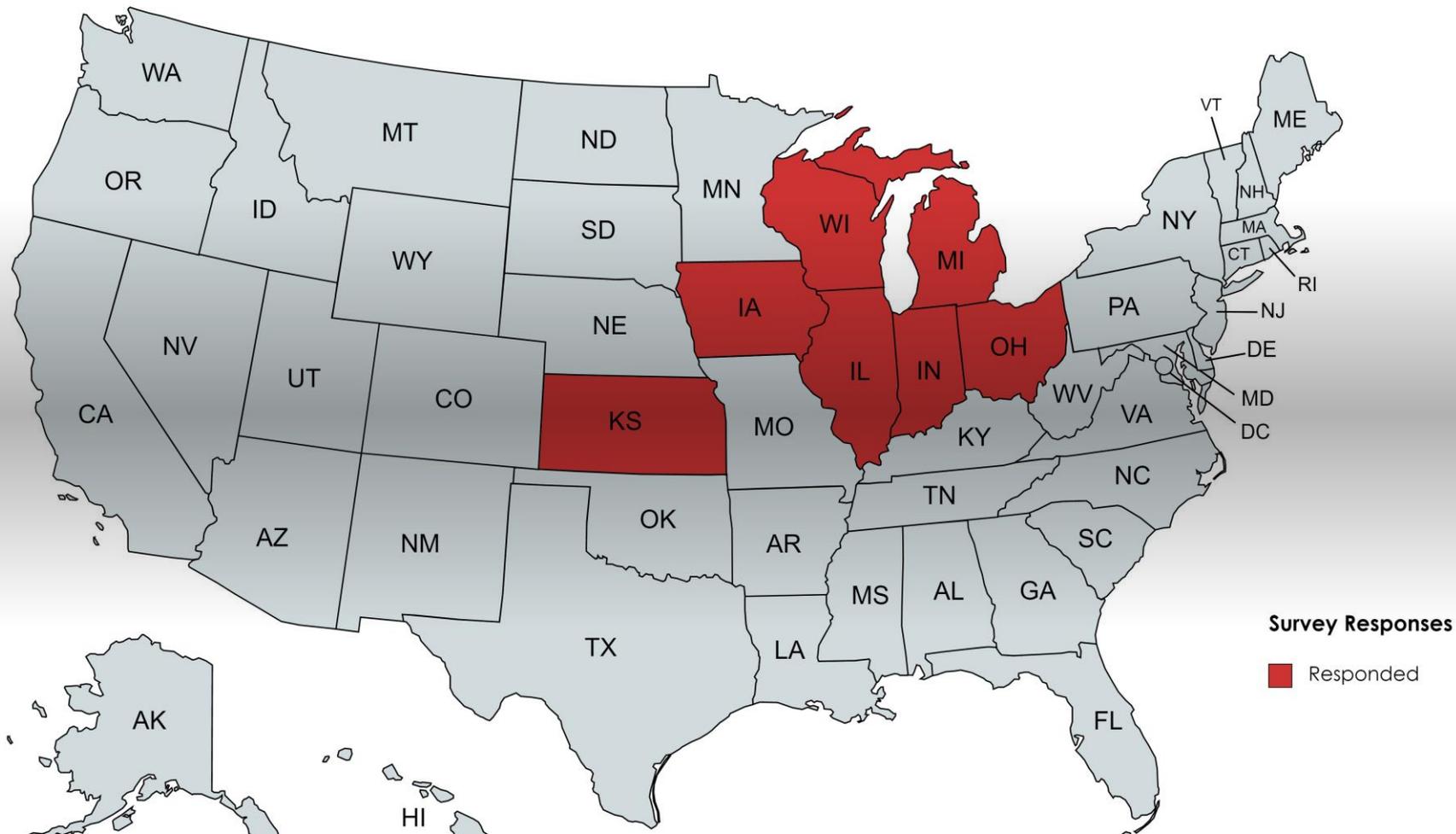
WON'T MY





A PEAK OVER THE FENCE





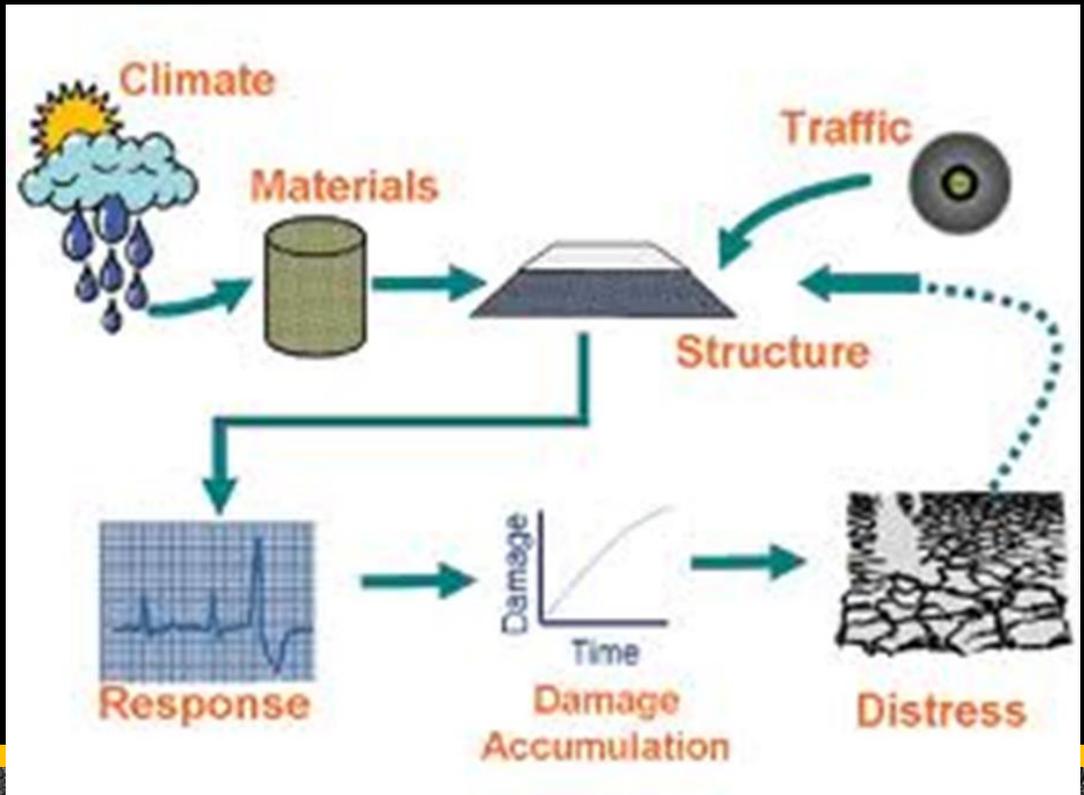
- Does your state use M-E design?
 - Yes – Indiana, Michigan, and Illinois
 - No – Wisconsin, Iowa, Kansas, and Ohio

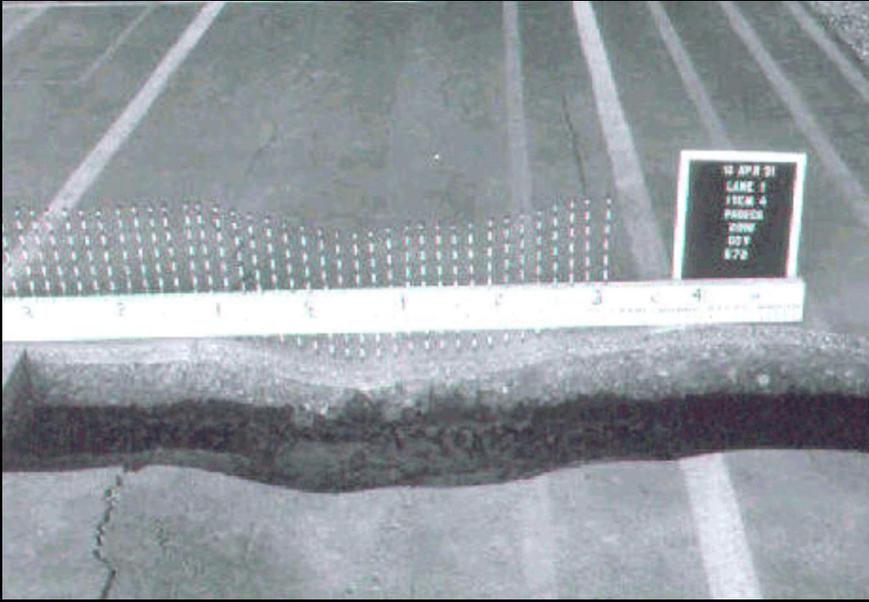
- Does your state have a Perpetual Pavement framework?
 - Yes – Ohio, Indiana, Iowa, Michigan, and Illinois
 - No – Wisconsin and Kansas

- More = better
- Just keep adding thickness
- Truth vs. Practicality
- 1993 AASHTO Design Guide

**MORE
MORE
MORE**

M-E Design

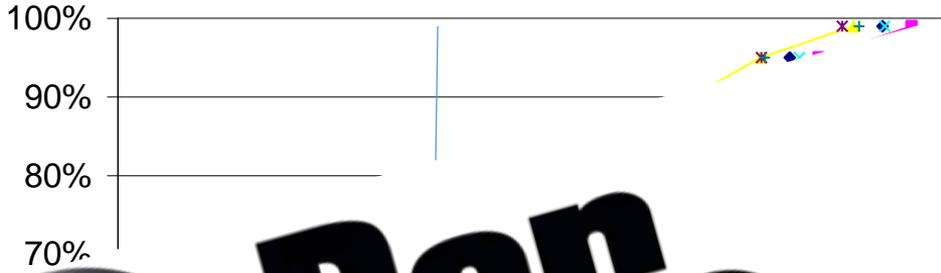




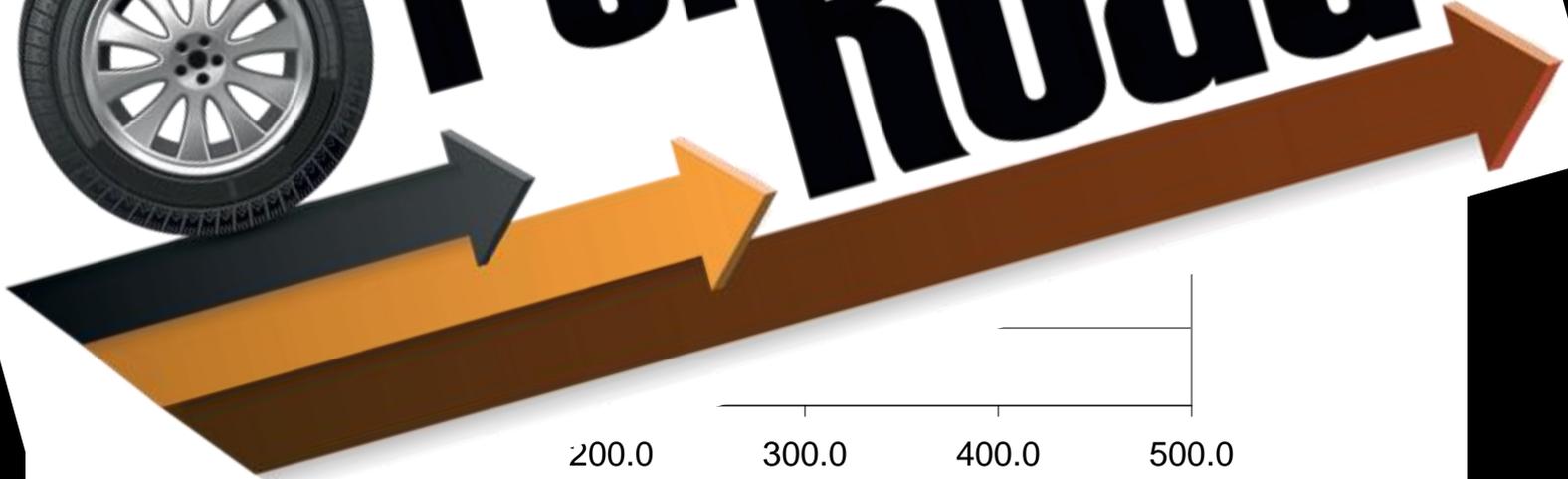
- Critical Location: Top of Subgrade
- Distress: Subgrade or structural rutting
- Thicker or stiffer pavements disperse stress



- Critical Location: Bottom of Asphalt Pavement
- Distress: Fatigue Cracking
- Pulling pavement apart



Per Road



200.0 300.0 400.0 500.0

Microstrain

WASHTO

Created on: November 13, 2023 12:49:45 pm**Last Modified:** November 13, 2023 12:49:45 pm[Edit Project](#)[Design](#)[LCCA](#)[Agency Cost](#)[PerRoad](#)[Structure](#)

AASHTO '93/'98 Design

0 scenarios

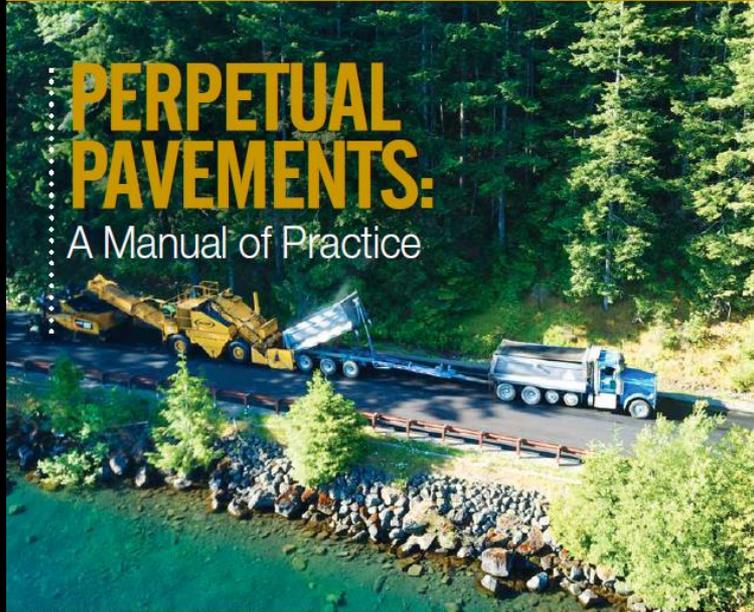
The Design tool uses the empirical AASHTO93 and AASHTO98 equations to design flexible and rigid pavements respectively, including new structures and rehabilitation

[New](#)

No scenarios available.

PERPETUAL PAVEMENTS:

A Manual of Practice



- David E. Newcomb, Ph.D., P.E. Texas A&M Transportation Institute
- David H. Timm, Ph.D., P.E. Auburn University
- J. Richard Willis, Ph.D. National Asphalt Pavement Association



- Does your state use percent within limits?



- Does your state sample behind the paver for quality assurance?
 - Yes – Ohio, Indiana, Iowa, Michigan and Illinois
 - No – Wisconsin, Kansas

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- What is your state longitudinal joint method?
 - Notched Wedge – Wisconsin (except SMA)
 - No specified method – Ohio
 - Joint Adhesive - Indiana
 - VRAM – Illinois and Indiana
 - Butt Joints - Iowa

- What method does your state use for density acceptance?
 - Cores – Indiana, Iowa, Michigan, and Illinois
 - Nuclear Guage – Kansas
 - Both – Wisconsin, Ohio

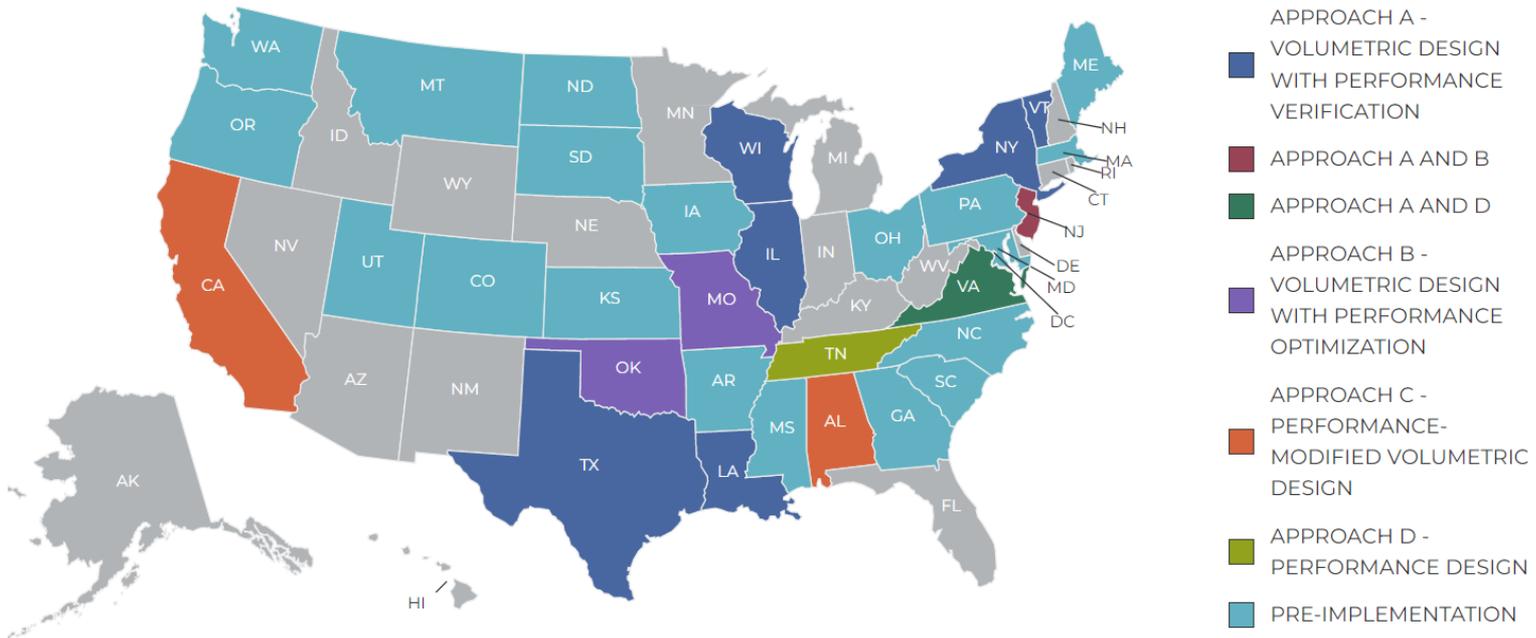
- Does your state use Corelok?
 - Yes – Wisconsin, Indiana, Michigan, and Illinois
 - No – Ohio, Iowa, and Kansas



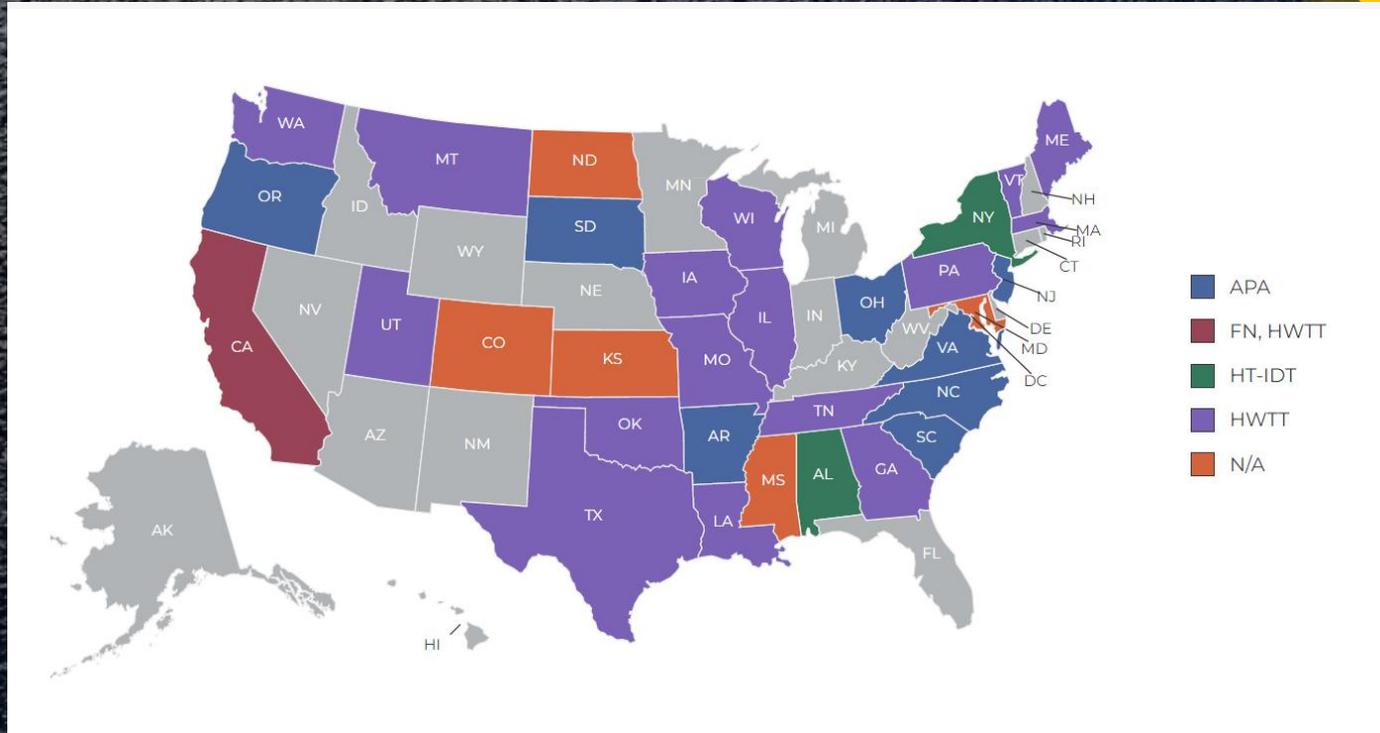
Quality Assurance Questions

- Does your state use ground in rumble/mumble strips?
 - Yes – Everyone!
 - Safety is primary reason

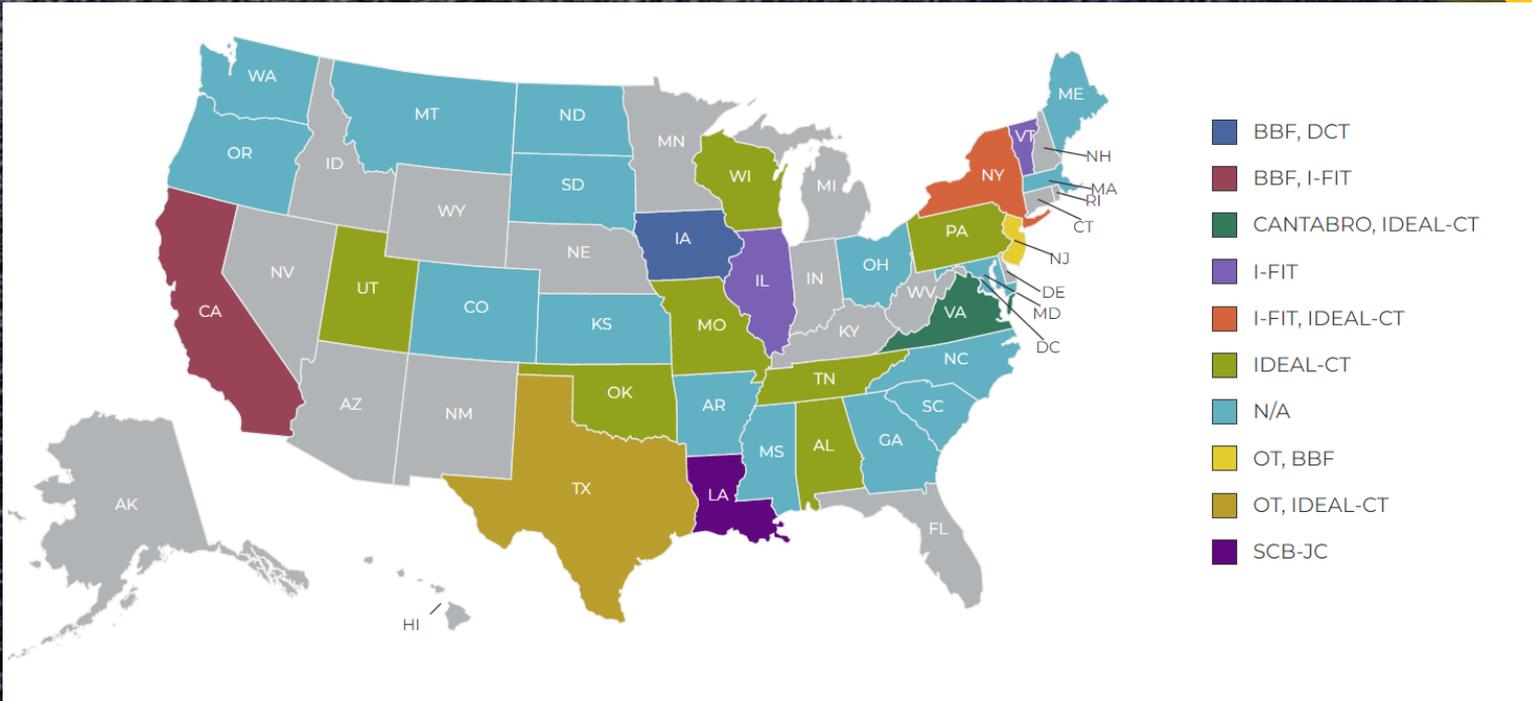
BMD Approaches



Rutting Tests



Cracking Tests



- Does your state allow the use of WMA at lower temperatures?
 - Yes – Wisconsin, Indiana, Iowa, Kansas, Michigan, and Illinois
 - No – Ohio

- Does your state use SMA?
 - Yes – Wisconsin, Ohio, Indiana, Michigan, and Illinois
 - No – Iowa and Kansas

- Does your state allow the use of cold in place recycling?
 - Yes – Wisconsin, Indiana, Iowa, Michigan, and Illinois
 - No – Ohio and Kansas

- Does your state allow the use of cold central plant recycling?
 - Yes – Indiana, Iowa, and Illinois
 - No – Wisconsin, Ohio Michigan, and Kansas

- Does your state allow the use of hot in place recycling?
 - Yes – Wisconsin, Indiana, Iowa, Kansas, and Illinois
 - No – Ohio and Michigan

THANK YOU!

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