

# Questionnaire for Implementation of Mechanistic Empirical Pavement Design Guide (MEPDG)

## Burden Statement

This collection of information is voluntary and will be used to assess the status of pavement design practice and plans Nationwide. This information will allow State Transportation Agencies (STAs) and the Federal Highway Administration (FHWA) optimize allocation of their resources for the most efficient pursuit of implementation of the Mechanistic-Empirical Pavement Design Guide (MEPDG).

It should take about 2 hours to respond to this survey, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and returning the survey. No sensitive information is being collected in this survey and no names will be included in the reporting of the survey results. Please note that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number for this collection is 2125-XXXX (*state OMB #*), and the approval period will expire XXXXXXXX.

## Instructions

Questions are numbered and divided per topical section. Answer choices for each question are in brackets. Please note that when the acronym MEPDG is used, it pertains to the most recent version of the NCHRP 1-37A documentation and software product specifically.

**PLEASE NOTE THAT THIS VERSION IS IN DRAFT SO THAT IT CAN BE REVIEWED FOR TECHNICAL CONTENT. FURTHER FORMATTING AND CONVERSION TO ONLINE WEB FORMAT WILL OCCUR AFTER OMB APPROVAL.**

## Current Pavement Design Procedures

1. What design procedure is your State Transportation Agency (STA) currently using for Asphalt Pavement Design? [AASHTO 1972, AASHTO 83, AASHTO 1986, AASHTO 1993, Individual State design procedure, Combination of AASHTO & State procedure, Other]
2. What design procedure is your STA currently using for Concrete Pavement Design? [AASHTO 1972, AASHTO 83, AASHTO 1986, AASHTO 1993, Individual State design procedure, Combination of AASHTO & State procedure, Other]
3. For questions 1 and 2, if the “other” option was chosen, briefly describe the design system(s) your STA uses.

4. If your STA does not already use the MEPDG, are there any plans to move in that direction? [yes/no] **If no, please indicate the reason and skip the rest of the questions in this survey.**

Knowledge of the Mechanistic-Empirical Pavement Design Guide (MEPDG)

5. How familiar is your STA with the MEPDG? [Heard the term, but know little; Attended workshop/presentation; Participated in the AASHTO Joint Technical Committee on Pavements (JTCoP) or NCHRP panel]
6. What level of proficiency exists at your STA pavement design team using the MEPDG software? [expert, very, somewhat, downloaded but never used, none]

Implementation Plan for Mechanistic-Empirical Pavement Design Guide (MEPDG)

7. Are MEPDG implementation efforts being conducted within your STA? [yes/no] If no, please skip questions 8-31.
8. If yes, do your implementation efforts include inter-agency cooperation (i.e. traffic, planning, materials, construction, etc.)? [yes/no]
9. What is the planned timeframe for implementation of the MEPDG system in your STA? [Currently Using, 1-11 months, 1-3 yrs, 4-7 yrs., > 7 yrs]
10. Which design level (3, 2, 1) do you anticipate your STA will use initially for implementation? [ 3, 2, 1, combination]
11. Approximately what is the anticipated cost to your STA for MEPDG implementation at this level of design? [< \$500k, \$501k- \$1M, \$1.1M-\$5M, > \$5 million]
12. Does your STA currently have a written implementation plan in place for the MEPDG? [yes/no]
13. If so, are you willing to provide a copy to FHWA and Lead States Group? [yes/no]
14. Does your STA have an MEPDG implementation group, or task force? [yes/no]
15. What is the main objective of the STA implementation plan? **Select all that apply** [Material Characterization (asphalt, concrete, unbound, rehabilitation), Traffic Characterization, Climatic Properties Characterization, Local Calibration, Internal Training/Communication, other]
16. Does the implementation plan include pavement management system (PMS) data collection? [yes/no]
17. Does the implementation plan include traffic data collection? [yes/no]
18. Does the implementation plan include traffic weigh-in-motion (WIM) data collection? [yes/no]
19. Does the implementation plan include route characterization collection? [yes/no]
20. Does the implementation plan include regional characterization collection? [yes/no]
21. Does the implementation plan include Concrete Materials data collection? [yes/no] If no, please skip questions 22-24.
22. If so, does it include Coefficient of Thermal Expansion (CTE) data collection? [yes/no]
23. If so, does it include Modulus of Rupture (MR) data collection? [yes/no]
24. If so, does it include Compressive Strength ( $f_c$ ) data collection? [yes/no]

25. Does the implementation plan include Asphalt Materials data collection? [yes/no] If no, please skip questions 26-28.
26. If so, does it include Dynamic Modulus ( $E^*$ ) data collection? [yes/no]
27. If so, does it include Binder Grading tests ( $\delta$ ,  $G^*$ ) data collection? [yes/no]
28. If so, does it include IDT test ( $\sigma$ ) data collection? [yes/no]
29. Does the implementation plan include Soils Materials or Unbound Materials data collection? [yes/no] If no, please skip questions 30 and 31.
30. If so, does it include Resilient Modulus laboratory test ( $M_R$ ) data collection? [yes/no]
31. If so, does it include Falling Weight Deflectometer (FWD) ( $M_R$ ) determination? [yes/no]
32. What factor is the largest hindrance to your STA with regard to implementation? [materials characterization, traffic data collection, test section monitoring, climate, other]
33. What efforts toward implementation readiness have a National scope and are beyond the reach of any individual transportation agency

#### Calibration Plan for Mechanistic-Empirical Pavement Design

34. Does your STA currently have a local calibration plan in place for the MEPDG? [yes/no]
35. Is your STA currently performing data collection to support local calibration of the new MEPDG? [yes/no]
36. Does your STA have instrumented pavement test sections for calibrating for MEPDG? [Currently have test sections, plan on building test sections in the future, no plans]
37. Does your STA have any field monitoring sites, such as Long Term Pavement Performance (LTPP) that could be used, or are being used for MEPDG calibration? [yes/no]
38. Does your STA currently have a routine schedule for conducting falling weight deflectometer (FWD) testing of field sections? [yes/no]
39. If so, what is the frequency of FWD testing on your network? [< 1yrs., 1-2 yrs., 3-5 yrs., > 5yrs.]
40. Is your STA participating in regional climate data collection for calibration? [yes/no]
41. Has your STA coordinated with the State Department of Agriculture, United States Geological Survey (USGS), or State Water Survey for climate or soils data as part of MEPDG Implementation? [yes/no]
42. Is your STA working with the Federal Highway Administration (FHWA) to enhance the data collection for the Highway Performance Monitoring System (HPMS)? [yes/no]

#### Mechanistic-Empirical Pavement Design: Methodology

43. Does your STA use, or plan to use MEPDG as a design analysis check on designs that you are currently completing using your SHA's preferred methodology? [yes/no]

44. Does your use, or plan to use the MEPDG in coordination with other initiatives such as life cycle cost analysis (LCCA) or performance-related specifications (PRS)? [yes/no]
45. Does your STA use, or plan to use the MEPDG in coordination with other initiatives such as Design/Build or Warranty Construction? [yes/no]
46. Does your STA use, or plan to use the MEPDG for project-level pavement designs? [yes/no]
47. Does your STA use, or plan to use the MEPDG for statewide pavement designs? [yes/no]
48. Does your STA use, or plan to use the MEPDG for intersection pavement designs? [yes/no]
49. Does your STA use, or plan to use the MEPDG for forensic analysis of pavement designs or pavement sections which have experienced early failure? [yes/no]
50. Does your STA use, or plan to use the MEPDG to evaluate the impacts of overloaded vehicles on pavement designs? [yes/no]
51. Does your STA use, or plan to use the MEPDG for long-life (perpetual) pavement designs? [yes/no]

#### Mechanistic-Empirical Pavement Design: Partnering

52. Has your STA partnered with a university for MEPDG implementation support? [yes/no]
53. Has your STA partnered with an independent transportation consultant for MEPDG implementation support? [yes/no]
49. Is your STA involved with NCHRP, TRB, Lead States Group or any other national activities associated with the MEPDG? [yes/no]
50. Is your STA participating in any MEPDG pooled-fund or other collaborative activities with other states? [yes/no]
51. Has your STA partnered with Local Highway Agencies (county, city, etc.) for MEPD Implementation? [yes/no]

#### Mechanistic-Empirical Pavement Design Guide: Training and Communication

53. Does your STA have a communication plan in place for sharing MEPDG input information between pavement design, materials, traffic, planning, construction and local highway agency personnel? [yes/no]
54. Would your STA be willing to host a 2-day “Local Calibration for MEPD” workshop provided free-of-charge by the FHWA Design Guide Implementation Team (DGIT) [yes/no]
55. Would your state be willing to host a 2-day “Weighing the Impacts of Traffic on MEPDG” workshop provided free-of-charge by the FHWA Design Guide Implementation (DGIT) Team? [yes/no]
56. Would your State be interested in hosting a 4-day National Highway Institute (NHI) course focusing on the use and application of the MEPDG software? [yes/no]

Thank you for taking the time to respond to this survey. This survey will provide the Lead States Group and FHWA with valuable information with regard to where resources should be focused to help make maximize implementation of the MEPDG in the U.S.A.