OMB Supporting Statement

Introduction: FHWA - Measuring the State of the Practice in the Mechanistic Empirical Pavement Design.

Part A. Justification.

1. Circumstances that make collection of information necessary:

In June 2004, the National Cooperative Highway Research Program (NCHRP) released the Mechanistic-Empirical Pavement Design Guide (MEPDG) for New and Rehabilitated Pavement Structures. The Federal Highway Administration (FHWA) organized a Design Guide Implementation Team (DGIT) to immediately begin the process of informing, educating, and assisting the FHWA's field offices, State highway agencies, industry, and others about the new design guide.

The MEPDG represents a significant advancement in pavement design and includes the best available engineering theory and mechanistic principles to determine both the structural response and predict performance over the lifetime of a pavement structure.

The MEPDG can be considered a 40-year step forward in pavement design. The MEPDG is a more theoretical and mathematical-based procedure, strongly bolstered by fundamental engineering principles. The MEPDG is readily useful to academia, researchers, and practitioners of pavement analysis and design.

Implementation of the MEPDG will require a significant amount of time, resources and funding. However, the adoption of the guide has the potential for providing a substantial long term savings based on the shear magnitude of annual expenditures for highway pavements. In 2003, over 79 billion dollars was used for highway purposes (*Highway Statistics 2003, FHWA)*. Any improvement in the designs will have a significant implication in reducing costs to maintain these pavements and more than offset the resources required to implement the new pavement design guide.

Moving towards a mechanistic-empirical design process represents a paradigm shift for the majority of states and will require a significant amount of education, training, new equipment, new testing requirements and data collection. Most importantly it will require better communication and coordination between the designers, materials engineers, traffic engineers and consultants to collect and maintain the data needed to optimize the pavement designs and continue to validate and calibrate the models in the guide. The DGIT is focused on being a leader in this effort; providing Education, Enhancement, and Implementation activities to the Transportation Community. The information collected in this survey is a major component of these efforts.

These efforts are being conducted in partnership with the National Cooperative Research Program (NCHRP) and the American Association of State Highway and Transportation Officials (AASHTO) through the formation of a MEPDG Lead States Group. AASHTO has representation by all the STAs, including Puerto Rico and the District of Columbia. AASHTO serves to meet STA needs in terms of evaluation and adoption of laboratory test protocols, experimental procedure and design procedures. The Lead States Group consists of 19 states that are making efforts toward MEPDG implementation and serving in a leadership role for other states who are considering implementation.

The FHWA considers implementation of mechanistic-empirical pavement design a critical element in improving the National Highway System. It ties directly into objectives listed in SAFETEA-LU section 1503, which supports longer life pavements. The MEPDG has the potential to increase the lifespan of pavement networks through better engineering design and will therefore delay future pavement rehabilitation. This increase in pavement life will make the roadways safer to the public through reduced construction, reduced congestion due to construction, and increased mobility.

2. How, by whom, and for what purpose is the information used:

How: The information will serve as a baseline measurement on activities related to Mechanistic-Empirical Pavement Design procedures Nationwide. The information will be used by FHWA to develop a National program to aid STAs in their MEPDG implementation efforts and to guide research efforts. The information has been requested by the AASHTO Lead States group in order to be better able to address areas of need. The information will also aid AASHTO through the process of evaluating the MEPDG to determine its potential as an official National pavement design procedure.

By Whom: The information will be used by the FHWA and the AASHTO Lead States Group, other STAs and industry.

For What Purpose: The information will serve as the baseline measurement of the extent to which states currently use the MEPDG or have made plans toward MEPDG implementation. The information will aid in guiding the direction of research and implementation efforts by both the FHWA and SHAs. The information will also be used to reduce the duplication of implementation efforts by SHA's.

The FHWA and the Lead States Group will disseminate the results of the survey to interested parties throughout the Nation. Stakeholders in the MEPDG will be able to assess to adequacy of the implementation efforts over time.

3. Extent of automated information collection:

The participants will be able to complete the survey through an internet-based interface or by written response (paper and pencil). All responses will be converted to electronic format once received. It is expected that the majority (90%) of the respondents will choose to complete the survey through the internet-based interface.

4. Efforts to identify duplication:

This exercise in considered an extension of the original assessment conducted in 2003. There is no duplication of effort.

5. Efforts to minimize the burden on small businesses:

No small businesses will be impacted by this effort.

6. Impact of less frequent collection of information:

The state of practice throughout the Nation is expected to change rapidly over the next 3 to 5 years. Collecting the data on a less frequent basis (more than 2 year cycle) would diminish the relevancy of the information collected.

7. Special circumstances:

No special circumstances are required for this survey.

8. Compliance with 5 CFR 1320.8:

The 60-day notice was published in Volume 71, Number 173, page 55269 of the Federal Register on Thursday, September 21, 2006. One public comment was received supporting the program.

9. Payments or gifts to respondents:

No payments or gift are included as part of this survey.

10. Assurance of confidentiality:

No confidential data are being collected; only data about standard state practices. Therefore no confidentiality assurances are needed or will be provided.

11. Justification for collection of sensitive information:

No sensitive information is being collected in this survey.

12. Estimate of burden hours for information requested:

Eligible respondents for this survey include the Pavement Design Engineer in each of the 50 STAs, as well as Puerto Rico and the District of Columbia. Assuming 1 respondent per state and 2 hours to respond to the survey to total burden will be approximately 104 hours. This survey will be done once in the first and third year of the 3-year approval period requested, for an annual burden of 69.33 hours. The labor rate estimate for an

engineer at the State Transportation Agency is $75 per hour, for a total cost burden of $15,600 for all respondents collectively across the survey period, leading to an annualized cost of $5,200.

13. Estimate of total annual costs to respondents:

There are no additional costs to the respondents.

14. Estimate of cost to the Federal government:

This task has been contracted through the Transtec Group at a cost to the Federal Government of approximately $20,000, plus approximately 80 hours of federal staff time at $45 per hour, for a total of $23,600.

15. Explanation of program changes or adjustments:

This is a new survey and therefore there are no program changes.

16. Publication of results of data collection:

Results will be published on the FHWA Office of Pavement Technology website and through Technical bulletins through the AASHTO Lead States Group Technical Bulletins. Data collection will commence upon OMB approval and the results will be published approximately 6 months following approval in 2007 and 2009.

17. Approval for not displaying the expiration date of OMB approval:

This exemption is not being requested.

18. Exceptions to certification statement:

There are no exceptions to the certification statement.

Part B. Collections of Information Employing Statistical Methods

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection methods to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.

The universe consists of the Transportation Agencies of 50 United States and the District of Columbia and Puerto Rico; 52 entities. The respondent can be Highway, Pavement or Materials Engineers of these entities depending on who is the most knowledgeable for that state. The expected response rate is 50/52 entities (96%), because the information is of vested interest to both the STAs and FHWA.

2. Describe the procedures for the collection of information including:

* Statistical methodology for stratification and sample selection,
* Estimation procedure,
* Degree of accuracy needed for the purpose described in the justification,
* Unusual problems requiring specialized sampling procedures, and
* Any use of periodic (less frequent than annual) data collection cycles to reduce burden.

The sample size is discrete and well defined as the Transportation Agencies of 50 United States and the District of Columbia and Puerto Rico; 52 entities. The data collection will be done through response to a questionnaire (survey) designed to minimize subjective results or errors through yes/no or multiple-choice selections. The survey will be repeated on a biennial basis to keep the information synchronized with what is expected to be a rapidly changing environment.

3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

A cover letter will be sent to each of the STAs both via e-mail and U.S. Post Office. The letter will explain the intent of the survey and instructions for how each STA may respond. Two options will be available for respondent to provide the data; paper form with self-addressed stamped envelope and online Internet electronic form. For non-respondents, a reminder will be sent 3 weeks following the original mailing with an overnight mail option to return results for paper forms. Another two weeks following, telephone calls will be placed and e-mails sent to all non-respondents in an effort to collect their survey response.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of test may be submitted for approval separately or in combination with the main collection of information.

The survey was prepared and reviewed for technical content and functional efficiency among several federal staff. Then the survey was sent to 6 members of the Lead States Group. Their feedback was incorporated into the survey.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Experimental Design and Questionnaire Consultants:

Linda Pierce	Washington DOT	360-709-5474
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Data Collection and Analysis Contractor:

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