REQUEST FOR PROPOSALS
LOUISIANA TRANSPORTATION RESEARCH CENTER
LTRC PROJECT NO. 14-4PF, SIO NO. 30001423
SOUTHEASTERN TRANSPORTATION CONSORTIUM
SYNTHESES OF STATE-OF-PRACTICE

Mitigation Strategies for Reflective Cracking in Pavements

PROBLEM STATEMENT

Problems with reflective cracking in asphalt concrete (AC) overlays on cracked pavements have been observed for many years in Southeastern (SE) states. The SE states get two types of reflection cracking: from asphalt overlays of PCC jointed pavements and from underlying Asphalt pavement that has transverse or block cracking as a result of oxidation drying. Left untreated, such cracks can significantly shorten the service life of the asphalt overlay. The intrusion of water into the subgrade and/or base material hastens the deterioration process, leading to early and costly failure of the whole pavement structure. Therefore, it is in the economic interest of state DOTs to investigate methods that reduce or, at the very least, retard reflective cracking in AC overlays.

Numerous studies have shown the advantages of overlaying flexible pavements with a system that consists of AC and an intermediate layer. Due to the increased need to mitigate reflective cracking, various interlayer products and techniques have been developed in recent years. State DOTs have tried out these products and techniques with different degrees of evaluation and success. As a result, these investigations have not provided reliable comparisons of the different products and techniques. Moreover, the critical question is whether or not the improved performance that is due to the inclusion of an interlayer system warrants the associated cost increase. There is a need to compile state-of-the-practice results from different states so that results can be shared.

The synthesis will include a survey of the practices of the southeastern states with regard to the types of cracking mitigation strategy used, selection criteria for the different strategies, construction methods employed to implement the strategies, experiences with the strategies and constructed systems, benefit/cost analysis performed, and guidelines for selecting appropriate strategies and constructing the chosen treatment system.

BACKGROUND

The Southeast Transportation Consortium (STC) was formed to encourage coordination among member states and provide resources and management of collaborative studies. The states' transportation research programs collectively offer a broad range of talent and expertise. One of the consortium's goals is to reduce duplication of research and provide means for better communication of research activities in the state research programs. The cooperative and collaborative objectives of the STC program are to develop synergy and provide for a more efficient use of resources.

State research programs are driven by policy makers to solve transportation problems that exist in that state. However, there are many transportation issues that are universal to all states. In order to reduce redundancy of state research projects and promote transfer of knowledge on completed research, there exists a need to classify and quantify the focus, status and implementation of all member state research projects and programs.

OBJECTIVE

Syntheses are technical summaries of research performed and state-of-the-practice reports prepared under contract by outside individuals or firms. These reports are oriented toward practical solutions of specific transportation problems. The specific objectives of a Synthesis of State-of-Practice are:

1. To locate and assemble information;
2. To learn what practice has been used;
3. To identify ongoing and recently completed research;
4. To learn what problems remain largely unsolved; and
5. To organize, evaluate, and document the useful information acquired.

Each synthesis is written under the oversight of a technical panel appointed for that specific topic. The topic technical panel and LTRC staff will review and make recommendations regarding the report's technical adequacy and acceptability for publication, with approval of the STC Board. Synthesis reports are attributed to their authors, with recognition given to the topic technical panel. The aim of a synthesis, first and foremost, is to get the facts out about what is going on with respect to a particular practice in highway, transit, or air transportation. In addition to this factual documentation, reviews of the state of the practice inevitably provide a basis for the author or authors to make conclusions or assessments about:

- Performance resulting from current practices, including new and unusual practices;
- Research results and current practice, including implementation of research recommendations;
- Current practices that appear to be working well and those that are not working well;
- Current practices that are at odds with research findings;
- Critical knowledge gaps that could be filled by additional research; and
- Other actions—e.g., training, revised standards, and increased management attention that could improve the state of the practice in a given area.

Such conclusions and assessments are helpful provided that they are well supported and clearly documented in the report. Accordingly, it is desirable that they be incorporated to the maximum extent possible. The reports must, however, stay clear of any recommendations (other than for needed research) that cannot be justified by the technical assessment mission of these reports.

It is important to recognize that the purpose of this synthesis is to document and describe the current state of practice. It is acceptable for the synthesis to highlight practices that are viewed as successful by many of the entities surveyed in developing the synthesis, or that are characterized as such in the literature reviewed by the synthesis author. The only recommendations that are permitted in the synthesis are recommendations for needed research and recommendations from the region studies reviewed.

The synthesis report shall include detailed case study examples demonstrating the value from research projects results in major topic areas previously described. The report shall also identify gaps in current practices and/or capabilities regarding the documentation of research value. At minimum the report shall include the following:

- Data, calculations and information sources (publications, web sites, etc.)
- Background information on the metrics to qualitatively or quantitatively demonstrate benefits of implementable research results
- Methodologies used to determine benefits of implementing research results
- Information required to reasonably determine benefits of implementing research results

- Gaps in knowledge and/or current practice

GENERAL GUIDELINES

One size fits all rules or guidelines clearly are not possible for such a variety of reports, but a few general guidelines are useful. These guidelines, while focused in particular on the final section of a synthesis, are intended to apply in spirit to the whole body of the report. It is also recognized that instances may arise in which there is good reason to deviate from these guidelines; such exceptions are handled on a case-by-case basis.

Synthesis reports should be descriptive, not prescriptive. Potentially sensitive issues that require careful handling are likely when one or more of the following criteria apply:

- Widespread polarization of opinion already exists on the subject;
- There are strong commercial interests in the subject, and the findings or conclusions might favor or injure particular commercial interests; or
- The subject involves health, safety, or environmental issues (issues where public policy involves trade-offs among multiple objectives).

The final chapter of the synthesis report should be titled *Conclusions and Recommendations.* Conclusions summarize facts about, and technical assessment of, the research projects reviewed and current state of the practice; any assessment of research results and current practice must be supported by the contents of the report and stated carefully. Statements about barriers to widespread implementation of promising methods or practices (e.g., lack of consistent standards) should be presented as an observation or conclusion rather than a recommendation. Recommendations for needed research generally should be limited to recommendations about where important knowledge gaps exist that could be corrected by research. Subject matter is important. The authors may have more latitude to draw conclusions for topics that are mostly technical (e.g., bridge welds) as opposed to topics where there are clearly policy implications (e.g., state license fees, warranties for road construction). The research recommendations should appear in the final *Conclusions* chapter.

SPECIAL NOTES

A. Objectives and Guidelines are intended to provide a framework for conducting the research. LTRC is seeking the insight of proposers on how best to achieve the synthesis objectives. Proposers are expected to describe specific tasks and work plans that can be realistically accomplished within the constraints of available funds and contract time. Proposals must present the candidate's current thinking in sufficient detail to demonstrate their understanding of the problem and the soundness of their approach.

B. The proposal shall include travel for a presentation to the STC members at the annual meeting to be held at LTRC in Baton Rouge, LA.

C. To equitably answer any questions regarding this Request for Proposals, the Louisiana Department of Transportation and Development (LADOTD) website, http://notes1/agrestat.nsf/WebAdvertisements?OpenPage will be updated with questions and answers and related documents regarding the project. The LADOTD makes these documents available for informational purposes only to aid in the efficient dissemination of information to interested parties. The LADOTD does not warrant the documents against deficiencies of any kind. The data contained within this web site will be periodically updated. Interested parties are responsible to be aware of any updates. Questions regarding this RFP should be submitted in writing to the LTRC contact person. Questions must be received by close of business seven calendar days prior to deadline date.

D. Consultants and corporations shall be registered with the Secretary of State in order to be able to work in Louisiana prior to award of contract. http://www.sos.la.gov/Home/Commercial/Corporations/SearchDatabase/tabid/819/Default.aspx

CONTRACT TIME

12 Months *(a draft final report will be due in 9 months; the additional three months will be for review and approval of the final report).*

COST

$30,000 (Indirect costs shall not exceed 25% as outlined in the LTRC Manual of Research Procedures)

AUTHORIZATION TO BEGIN WORK

October 2013 (estimated)

PROPOSAL FORMAT

All proposals must be formatted according to LTRC Research Manual, 2003 edition (http://www.ltrc.lsu.edu/pdf/research_man03.pdf). One copy of the proposal shall be submitted. The proposal shall not exceed 10 pages including the standard pages described in the LTRC Manual of Research Procedures Parts I – VII as amended in the attachment (Proposal title page, budget, bio+7 pages of narrative). Proposals exceeding the page limit will be returned without review.

PROPOSAL SELECTION

A Project Review Committee selected for this project will review, evaluate and rank all proposals received employing the criteria listed in the proposal review form shown in figure 2-6 in the LTRC Research Manual. The Project Review Committee will also review progress on the project and will review and comment on the final report.

DEADLINE FOR RECEIPT OF PROPOSAL

Ten copies of the proposal must be received by LTRC by the close of business July 19, 2013. Proposals to be submitted to:

Mr. Harold Paul
Director
Louisiana Transportation Research Center
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LTRC CONTACT PERSON

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