

SOUTHEASTERN TRANSPORTATION CONSORTIUM – PHASE II SYNTHESES OF RESEARCH RESULTS

REQUEST FOR PROPOSALS LTRC PROJECT NO. 25-1PF, SIO NO. TBD

Artificial Intelligence and Its Role and Use Within State Departments of Transportation

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.

PROBLEM STATEMENT

The use of Artificial Intelligence (AI) is becoming more prevalent in everyday actions such as Google searches, etc. As a transformational technology, AI has the ability to greatly assist in research efforts specifically in literature reviews. Some AI drawbacks include incorrect or incomplete information that leads to confusion, etc.

State Departments of Transportations (DOTs) are interested in AI and the benefits and drawbacks as it relates to research and daily operations. This synthesis will detail both positive and negative uses of AI within DOTs. Deliverables should include positive and negative uses of AI as well as potential strategies for DOT use of AI and/or additional research if needed.

INFORMATION SOURCES

- NCHRP, TRID, State DOTs
- Other AI literature

OBJECTIVES

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 this synthesis are:

1. To focus on research projects conducted in the southeast region (i.e. SASHTO states) on a specific synthesis topic and issues;
2. To perform a literature search on the synthesis topic to identify other on-going or completed research;
3. To review the commonality of project scopes and methodology of studies performed in the STC region;
4. To review the commonality of project results, conclusions and recommendations;
5. To identify differences in results, conclusions and/or recommendations that would affect regional implementation and practice;
6. To review implementation status of individual state project results and recommendations;
7. To recommend applicability of applying research results to other states within the southeast region;
8. To recommend additional research (if needed) to enhance implementation within the region.
9. To organize, evaluate, and document the useful information acquired.

Each synthesis is written under the oversight of a technical project review committee (PRC) appointed for that specific topic. The PRC and LTRC staff will review and make recommendations regarding the report's technical adequacy and acceptability for publication. Synthesis reports are attributed to their authors, with recognition given to the PRC. The aim of a synthesis, first and foremost, is to get the facts out about what is going on with respect to a specific synthesis topic. 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:

- 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 research performed and how it has affected current practice in a given area and /or state. 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.

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.

DELIVERABLES

The proposal shall include project deliverables for appropriate tasks. Deliverables shall be due as defined in the proposal. The proposal shall include at a minimum the following deliverables:

- Kick-off meeting with STC Members (virtual)
- Interim Report Meeting (Virtual)
 - Interim Report (3 months)
 - Slide Deck
- Final Report
- Technical Summary
- Slide Deck

SPECIAL NOTES

- A. LTRC research projects will be conducted in accordance with the LTRC Manual of Research Procedures, 2019 edition. (http://www.ltrc.lsu.edu/pdf/2016/LTRC_RESEARCH_MANUAL_FINAL.pdf)
- B. Any work that is anticipated to be required from LTRC or DOTD shall be specifically detailed in the proposal.
- C. Any surveys or questionnaires developed by the research team shall be reviewed and approved by the PRC prior to distribution.
- D. LTRC projects are intended to produce results that will be applied in practice. It is expected that the implementation of the results of this research into practice will evolve as a concerted effort during this project. The final report must contain an implementation plan to include, as a minimum, the following:
 - a. The “product” expected from the research;
 - b. A realistic assessment of impediments to successful implementation;
 - c. The activities necessary for successful implementation; and
 - d. The criteria for judging the progress and consequences of implementation.
- E. To assist in the implementation process, the investigators of this research shall present the final results to STC Members in an oral presentation to be held at the STC Annual Meeting.
- F. The proposal should include travel to meet with the Project Review Committee for presentation of the final report at a minimum. Funds budgeted for travel shall be limited to what is necessary for the conduct of the research. Funds shall not be budgeted for conference travel. Funding for technology transfer of research results are available upon request subject to LTRC approval and available funds.
- G. Graduate assistance stipends are allowed. Tuition reimbursement or tuition remission rates applied to stipends are not allowed.
- H. To equitably answer any questions regarding this Request for Proposals, the Louisiana Department of Transportation and Development (LA DOTD) website will be updated with questions and answers and related documents regarding the project. <http://webmail.dotd.louisiana.gov/AgreStat.nsf/BWebAdvertisements?OpenPage>
 LA DOTD makes these documents available for informational purposes only to aid in the efficient dissemination of information to interested parties. LA DOTD 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.
- I. Consultants and business entities 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/Pages/default.aspx>
- J. If Sub-Consultants/Entities are used, the Prime Consultant/Entity must perform a minimum of 51% of the work for the overall project.
- K. LTRC reserves the right to withhold invoice payments for delinquent deliverables as defined in the proposal.

ESTIMATED COST OF RESEARCH

\$100,000

ESTIMATED COMPLETION 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*).

LTRC PRIMARY CONTACT

Tyson Rupnow, Ph.D., P.E.
Associate Director, Research
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tyson.rupnow@la.gov

AUTHORIZATION TO BEGIN WORK

November 1, 2024 (estimated)

PROPOSAL FORMAT

All proposals are required to be formatted according to LTRC Manual of Research Procedures. Section 3.3 provides guidance on proposal development. A copy of the Manual may be downloaded from our website (http://www.ltrc.lsu.edu/pdf/2016/LTRC_RESEARCH_MANUAL_FINAL.pdf).

PROPOSAL SELECTION

The Project Review Committee selected for this project will review, evaluate and rank all proposals received using the criteria established on the attached proposal review form.

DEADLINE FOR RECEIPT OF PROPOSALS

The proposal must be received by LTRC by the noon Baton Rouge time October 18, 2024. An electronic copy shall be submitted to Sheri Hughes via Sheri.Hughes@la.gov copying Samuel.Cooper@la.gov before the due date.

Proposals shall be submitted to:

Samuel B. Cooper, Jr., Ph.D., P.E.
Director Louisiana Transportation Research Center
4101 Gourrier Ave.
Baton Rouge, LA 70808