

Entity Name: South Dakota State Government

Event Number: 10086

Event ID: 24RFP10086

Event Name: Performance/Use of Non-Vinsol Resin Air Entraining Concrete Admixtures

Requested By: Missy Schuetzle

Created By: Missy Schuetzle

Due By Date: 03/20/2024 05:00 PM Central Time

Q&A Cutoff Date: 02/06/2024 3:47 PM Central Time

Invitation Type: Invitation Only

Assigned Commodities: 914-30 Concrete; 925-19 Concrete Engineering; 929-30 Concrete Mixers, Maintenance and Repair

Allow Supplier Terms and Conditions: No

Public Responses: No

Display Awardee: Display

Posting Board Status: Published

Event Status: Event Under Review

Section #: Name:

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Do not submit responses through ESM Sourcing; please submit your response as specified in the RFP document.

The Invitation Type for this RFP, designated as "Invitation Only," indicates that vendors who have chosen the applicable NIGP codes for the requested services will receive an autogenerated system email notification. The Invitation Only designation does not impose exclusivity or restrictions on access; it does not limit who can respond. Also, the RFP document is accessible to all interested parties for download via the Central Bid Exchange on OPM's website: <https://sourcing.esmsolutions.com/postingboard/entities/3444a404-3818-494f-84c5-2a850acd7779>.

All vendors are encouraged to download the RFP and submit their proposals following the instructions outlined in the RFP document.

South Dakota Department of Transportation
Request for Proposal
Project SD2023-05

Title: Performance and Use of Non-Vinsol Resin Air Entraining Concrete Admixtures in South Dakota

Problem Description: Current specifications only allow Vinsol Resin-based Air Entraining Admixtures (AEA) in concrete mixes used on SDDOT projects, and the use of synthetic AEAs is not allowed. This restriction reduces the number of AEA products available for use on SDDOT projects, which could potentially delay projects if supply issues develop related to the production of Vinsol Resin-based AEAs.

The South Dakota Department of Transportation (SDDOT) previously completed research project SD98-03 which determined that synthetic AEA products were the source of the concrete strength issues experienced by the Department at that time. As a result of this research, SDDOT discontinued the use of synthetic AEAs and removed all synthetic AEAs from the Department's approved products list, thus effectively prohibiting them from use on SDDOT projects.

In the last 20+ years, the technology of synthetic AEAs has improved and AASHTO has developed a recommendation for evaluating AEAs (NCHRP Report 578). Research demonstrating the acceptable performance of synthetic AEAs would expand the supply of products allowable for use on SDDOT projects. This research would give SDDOT guidance on which synthetic AEAs produce acceptable results and could be added to the department's approved products list and provide changes to the current specifications to include non-Vinsol resin AEAs.

On April 15, 2023, the sole manufacturing facility for Vinsol Resin experienced an industrial fire which put the facility out of production. In June 2023, the owner of the facility, Pinova Inc., announced plans to decommission the facility and permanently end operations. As a result of this fire and subsequent closure, it is expected that Vinsol Resin-based AEAs will become increasingly difficult to acquire until all existing Vinsol Resin-based AEAs currently in the market have been exhausted. Ultimately, having additional AEA products available for use by SDDOT will be necessary to ensure that the AEA products used on SDDOT projects are compatible with the other materials used in SDDOT concretes.

Importance: This research is very important to the Department. High-quality and durable concrete is vital to South Dakota's infrastructure. Modifying the current specifications to allow non-Vinsol resin AEAs is paramount to providing a consistent and stable entrained air network within SDDOT concretes.

Research Objectives:

1. Identify the various types of AEA admixtures that are available and expected to produce a stable and uniform air matrix in SDDOT concretes.
2. Develop a comprehensive testing matrix to identify which AEA admixtures produce a stable and uniform air matrix in fresh and hardened concrete and determine the compatibility of the various admixtures tested with SDDOT mix designs while maintaining current strength and durability requirements.
3. Develop and recommend changes to section 751 of the current SDDOT Standard Specifications for Roads and Bridges.

Research Tasks:

1. Meet with the project's technical panel to review the project scope and work plan.
2. Perform a literature review on AEAs and summarize how the various categories of admixtures are expected to produce a stable and uniform air matrix with the materials commonly used in South Dakota. Request for Proposal Page 2 Performance and Use of Non-Vinsol Resin Air Entraining Concrete Admixtures in South Dakota
3. Develop an interview or survey instrument for distribution to surrounding state DOTs, federal agencies, and admixture companies currently supplying admixtures to SDDOT projects to determine (a) which specifications and AEA products are currently in use and (b) which products are producing acceptable results.
4. Upon approval of the technical panel, conduct the survey or interviews developed in Task 3.
5. Prepare and present for approval of the project's technical panel a technical memorandum that summarizes the findings of Tasks 2 - 4.
6. Develop and present for approval by the project's technical panel a comprehensive testing matrix, including fresh and hardened air analysis, concrete strength, and durability testing to determine which categories of AEAs will produce a stable and uniform air matrix in SDDOT concrete mixes.
7. Obtain the admixtures needed and perform testing, as approved in Task 6, to determine the quality of the air voids created by the various categories of AEAs used.
8. Prepare and present for approval of the project's technical panel a technical memorandum summarizing the results from Tasks 6 and 7.
9. Develop and recommend changes to section 751 of the current SDDOT Standard Specifications for Roads and Bridges and a list of AEA admixtures for addition to the SDDOT approved products list.
10. Prepare and present for approval of the project's technical panel a technical memorandum summarizing the results from Task 9.
11. In conformance with Guidelines for Performing Research for the South Dakota Department of Transportation, prepare a final report summarizing the research methodology, findings, conclusions, and recommendations.
12. Make an executive presentation to the SDDOT Research Review Board at the conclusion of the project.

Potential Implementation: Successful research will be implemented through modifications to the current SDDOT Standard Specifications for Roads and Bridges and to the approved products list for air entrainment admixtures.

SDDOT Involvement: SDDOT staff will provide the mix designs, aggregates, and cementitious materials necessary to produce batches of concrete for testing by the researcher.

Available Funding: \$200,000 **Anticipated Start Date:** July 1, 2024 **Duration:** 18 months **Terms of Payment:** Payment for study services will be made upon SDDOT's acceptance of key project deliverables. For this study, percentages of total project cost will be paid upon satisfactory completion of the following tasks:

Task	% of Total Cost
5	30%
8	20%
10	20%
All Tasks	30%
Total	100%

General Information: The South Dakota Department of Transportation solicits proposals from colleges, universities, research institutes, foundations, consultants, federal, state, and local agencies, and others with demonstrated capability and experience in the subject area.

The South Dakota Department of Transportation gives public notice of its policy to uphold and assure full compliance with the non-discrimination requirements of Title VI of the Civil Rights Act of 1964 and related Nondiscrimination authorities. Title VI and related Nondiscrimination authorities stipulate that no person in the United States of America shall on the grounds of race, color, national origin, religion, sex, age, disability, income level or Limited English Proficiency be excluded from the participation in, be denied the Request for Proposal Page 3 Performance and Use of Non-Vinsol Resin Air Entraining Concrete Admixtures in South Dakota benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance. Any person who has questions concerning this policy or wishes to file a discrimination complaint should contact the Department's Civil Rights Office at 605-773-3540.

Proposals must remain valid for at least 120 days after the submission deadline. All submitted proposals become the property of the South Dakota Department of Transportation. SDDOT has the right to use all information presented in any proposal unless it is specifically annotated as being proprietary. SDDOT considers all information contained in proposals to be privileged and reserves the right to maintain its confidentiality.

South Dakota state statute requires the winning proposal, with proprietary information redacted, to be posted online along with the corresponding contractual agreement.

SDDOT reserves the right to reject any proposals submitted. SDDOT may negotiate with a selected proposer to address specific weaknesses in the selected proposal prior to contract award.

SDDOT is not responsible for any costs, including proposal preparation, incurred by researchers prior to the execution of a contract.

Proposal Deadline: Proposals are due to the SDDOT by 5:00 pm CDT on Wednesday, March 20, 2024. This deadline is firm. Extensions will not be granted.

Proposals must be submitted as an e-mail attachment in Portable Document Format (PDF) not exceeding 14MB. The email must be addressed to andy.vandel@state.sd.us and michael.border@state.sd.us. Proposers should send the e-mail using "Delivery Receipt" and "Read Receipt" options to verify successful delivery.

Proposal Guidelines: Proposals must fulfill the requirements listed in the document entitled RESEARCH PROPOSAL PREPARATION, SUBMISSION, AND EVALUATION and dated October 28, 2022.

Proposal Evaluation: Proposals will be evaluated by a technical panel knowledgeable in the problem area. Selection will be made in consideration of criteria listed in RESEARCH PROPOSAL PREPARATION, SUBMISSION, AND EVALUATION.

Project Management: Michael Border is responsible for the management of this project and can be reached at michael.border@state.sd.us to answer inquiries.

Terms and Conditions

ESM Sourcing Terms

None

General Terms and Conditions

None

Event Specific Terms and Conditions

See attached documents.