Entity Name:	South Dakota State Government
Event Number:	8823
Event ID:	23RFPSD2022-10
Event Name:	Granular Materials and Blended Salvaged Granular Materials
Requested By:	Scott Nelson
Created By:	Scott Nelson
Due By Date:	06/30/2023 05:00 PM Central Time
Q&A Cutoff Date:	05/19/2023 10:10 AM Central Time
Invitation Type:	Invitation Only
Assigned Commodities:	913-95 Paving/Resurfacing, Highway and Road; 925-49 Highways; Streets; Airport Pay-Parking Lots - Engineering
Allow Supplier Terms and Conditions:	No
Public Responses:	No
Display Awardee:	Display
Posting Board Status:	Published
Event Status:	Event Under Review

Section #: Name:

1 Section 1 - RFP Event

Do not submit response through ESM Sourcing as this section is for informational purposes only. Please download RFP document and follow submittal instructions to respond.

Problem Description: The Department does not currently have a clear understanding of how drainable a granular base material needs to be in a roadway section to optimize long-term pavement performance. Furthermore, the Department does not fully understand how permeable the virgin granular materials used on projects are with our dense-graded material granular base sections. There is also a lack of understanding of how permeability is affected by adding salvaged granular material once it has been blended into the virgin base course, gravel cushion, or salvaged granular material. Based on the previous research project SD97-03 completed by the Department, our current practice is to blend Recycled Asphalt Pavement (RAP) into virgin granular material with a blend ratio of no more than 50% RAP. Recycled Concrete Aggregate (RCA) can be used instead of virgin aggregates if it meets the specified gradation for the aggregate it replaces. The expectation with this practice is that both materials (virgin and blended) will have similar drainage characteristics. With a better understanding of the drainage characteristics of RAP produced by various methods (process-in-place, cold-milling, micro-milling, and crushing) and RCA, the Department could better optimize the use of reclaimed materials in roadway sections and be assured that proper drainage has been achieved in the design in the most cost-effective manner possible. Currently, that clear understanding is missing from our granular base material designs and this research opportunity could provide that clarity and assure that the best use of tax-payer funds is being utilized.

Importance: This topic is of high importance to the Department. Salvaged granular materials are commonly used on construction projects and the drainage characteristics of the virgin and blended aggregates is currently not well understood. Having a better understanding of the drainage characteristics of virgin, salvaged, and blended granular materials will allow the Department to provide better information to the designers so that more effective designs can be used on future projects.

Urgency: The Department is interested in this research. The sooner the research is conducted, the faster we can provide the most cost-effective roadway sections for the taxpayers and the traveling public.

Research Objectives:
1) Determine ranges of acceptable permeability in an aggregate base for SDDOT.
2) Complete gradation and permeability testing on various virgin aggregate and salvaged granular material bases that are currently in use by SDDOT.
3) Establish a maximum blend ratio for various combinations of granular material bases that meet an acceptable range of permeability.

Research Tasks:
1) Meet with the project's technical panel to review the project scope and work plan.
2) Perform a comprehensive literature review to describe how permeability affects the performance of a granular base.
3) Based on the results of Task 2, determine ranges of acceptable permeability in an aggregate base beneath concrete and beneath asphalt surfacing.
4) Develop a testing plan matrix for various granular base materials provided by SDDOT to include:
    - gradation and permeability testing on various virgin granular bases
    - gradation testing on RAP produced by various methods
    - gradation and permeability testing on RCA
    - gradation and permeability testing on recycled/salvaged granular bases
    - gradation and permeability testing on various blended ratios, up to 50%, of RAP vs. virgin or salvaged granular bases
5) Prepare and present for approval of the project's technical panel a technical memorandum that summarizes the findings of Tasks 2 - 4.
6) Perform the testing proposed in Task 4 as approved by the technical panel.

7) Establish a maximum blend ratio, based on the results of Task 3, for various combinations of granular material bases included in the testing plan.
8) Prepare and present for approval of the project's technical panel a technical memorandum that summarizes the findings of Tasks 6 & 7.
9) 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.
10) Make an executive presentation to the SDDOT Research Review Board at the conclusion of the project.
Potential Implementation: The results from this research can be immediately used by the Office of Materials & Surfacing to provide the most cost-effective and efficient roadway section designs while making the best use of recycled materials.

SDDOT Involvement: The Department will provide all granular materials to be tested by the researcher. The method of removal and source location for RAP and recycled granular materials will also be provided and should be noted in the testing results. The Department will also provide the source location for all virgin aggregates supplied for testing.

Proposal Deadline: Proposals are due to the SDDOT by 5:00 pm CDT on Friday, June 30, 2023. 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 michael.border@state.sd.us and andy.vandel@state.sd.us. Proposers should send the e-mail using "Delivery Receipt" and "Read Receipt" options to verify successful delivery.

Project Management: Mike Border is responsible for the management of this project and can be reached at michael.border@state.sd.us to answer inquiries. Andy Vandel may also be reached at andy.vandel@state.sd.us to answer inquiries.

Terms and Conditions

ESM Sourcing Terms
None

General Terms and Conditions
None

Event Specific Terms and Conditions
Please see attached RFP documents.