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Missouri Department of Transportation
Patrick K. McKenna, Director

1.888.ASK MODOT (275.6636)

May 20, 2019

Dear Research Partner:

The Missouri Highways and Transportation Commission requests proposals from qualified organizations—namely private consultants, universities, and research organizations—to furnish professional services as described in the following request for proposal to be coordinated by the Research Unit of the Construction and Materials Division.

Please submit a proposal for project **TR202002** entitled, “**Snow and Ice Treatment Products Evaluation.**” Your submittal must include a work plan, the proposed project team and its background, and any related projects now active or recently completed by your firm. The project team must be led by a licensed professional engineer in the state of Missouri and the final report must be sealed, in accordance with the provisions of Chapter 327 RSMo.

The selection committee will use Qualification Based Selection. A “not to exceed” budget amount is included in the RFP to assist with the required scope, but budgets are not to be included with the proposal submissions, and will not be presented to the selection committee.

Please submit all proposals to the [Research Administrative Engineer](#) by **June 28, 2019 10:00 AM (CST)**. More information about project contracting in general can be found at <https://www.modot.org/research-requests-proposal>.

Sincerely,

Jennifer Harper
Research Administrative Engineer



Our mission is to provide a world-class transportation system that is safe, innovative, reliable and dedicated to a prosperous Missouri.

www.modot.org

Background

The Missouri Department of Transportation (MoDOT) Maintenance Division employs various tools to reduce the impact of snow and ice on State travelways. Rock salt (sodium chloride) has been used for decades as the primary snow and ice treatment solution, as both a spread solid and sprayed brine solution, to treat the pavement before and during inclement weather. In addition, abrasives such as sand or cinders are sometimes utilized in an attempt to provide a level of skid resistance in situations when temperatures render chloride treatment less effective. Both treatments have been deployed on state routes for many a winter, and are considered the standard.

In recent years, various chemical deicers have emerged as contenders to tried-and-true materials and practices. While these deicers generally have increased effectiveness over sodium chloride at lower temperatures, they also come at a higher initial expense, potentially create undesired side-effects, or pose greater long term risks to the pavement structure as a whole.

Some of the more urbanized MoDOT Districts have begun efforts to test and assess the viability of specific products for their own winter operations. But the upfront cost differences of chemical deicing products and unclear level of risk to pavements, compared to known and understood standard materials, have stalled any movement to their wider adoption.

For that reason, MoDOT requires an evaluation of chemical treatments, including those being chloride-based and agriculture-based, in addition to viable alternatives on the market. The evaluation must address the cost effectiveness of the treatments, the impacts to varied pavement structures and the overall performance of the treatments.

Some of the products currently used by MoDOT that require evaluation are:

- Sodium Chloride
- Corrosion Inhibited Magnesium Chloride
- Beet juice
- Salt brine (23.3% NaCl to 76.7% H₂O by weight)

Objectives

The objectives of this project are as follows:

- Evaluate the following:
 - The effective operational temperature ranges of designated products.
 - Any infrastructure impacts of products on bridges and pavement structures.
 - The performance characteristics of the products.
 - The cost effectiveness of untreated sodium chloride or road salt (baseline), magnesium chloride-treated sodium chloride, beet juice-treated sodium chloride, brine-treated sodium chloride and any proposed products selected by MoDOT, as solid de-icing agents.
 - The cost effectiveness of salt brine and beet juice and any proposed products selected by MoDOT, as liquid anti-icing and de-icing agents.
- Provide a final report detailing the findings of the evaluation and best practices; include the results of testing and analysis.

Project Requirements

Task 1: Project Management

The contractor will facilitate a kick-off meeting with MoDOT to review the work plan, scope, and schedule; and establish a protocol for regular ongoing communication and coordination with the team. This proposal will serve as the Draft Work Plan, to be discussed in the kick-off meeting. Upon comments received during the meeting and/or in writing, the contractor will incorporate those comments into a Final Work Plan.

The contractor will conduct a quarterly status meeting to review progress for the previous period and anticipated work for the next period. Contractor will also develop minutes for the kick-off meeting and each of the quarterly status meetings.

Task 2: Obtain and Define Products List

Upon Notice to Proceed, MoDOT and the Contractor will collaborate to finalize a complete products list of recently employed de-icing/anti-icing products to review and evaluate for the project.

Task 3: Research/Literature Review

Perform a literature search of past research and product documentation for those chemical deicers included in the project. Additionally, provide information/literature for any additional products that are not currently being utilized by MoDOT that should be considered for the product trials.

Task 4: Product Trials

Conduct laboratory trials of currently utilized products and product combinations, in addition to any proposed products (see Task 2) selected by MoDOT, to evaluate suitability, performance and impacts on infrastructure.

Task 5: Evaluation

Evaluate the cost effectiveness of tested products (and designated combinations), taking into account any potential impacts to the infrastructure.

Task 6: Develop Report

Contractor will develop a final report detailing the results product trials and presenting the evaluations of those products and combinations tested.

Project Deliverables

For report and plan templates and forms, visit <https://www.modot.org/information-researchers>

Email Communications

E-mail and phone communications between the Principal Investigator(s) and MoDOT contacts as necessary are required to provide on-going updates of progress throughout the project

Data Management Plan

The plan is a formal document that describes the data that is acquired, created or produced during the project, specifies who owns it and who can access it as well as information on how it will be described, managed, analyzed, stored, shared and preserved during and after the project is over. Please refer to templates on the website.

Quarterly Reports

Quarterly reports should be submitted throughout the project on the last day of March, June, September and December. The quarterly reports are not intended to replace any additional correspondence between the research team and MoDOT needed to keep the project moving. Please refer to template on the website.

Draft Final Report and Draft Research Summary

These drafts should be final products except for revisions based on MoDOT's review. A final report must include a completed Technical Report Documentation page. Please refer to template and **Publication Guidelines** on the website.

Final Report and Final Research Summary

After MoDOT's review is complete and documents have been edited to MoDOT's satisfaction, final documents should be submitted as Word documents (unless otherwise instructed). Please refer to **Publication Guidelines** and summary template on the website.

Final Presentation

May be required. The contractor will present the results, recommendations, and implementation ideas to MoDOT and other stakeholders. The contractor will coordinate location, date, and meeting fees with MoDOT. For stakeholder and agency participants, any travel and lodging fees are to be covered by individual attendees or their firms. MoDOT and stakeholders will provide feedback to the contractor, especially related to implementation.

Task-Specific Deliverables

Task	Deliverables
1	Schedule and conduct kickoff meeting. Kickoff meeting minutes. Draft and final work plans. Quarterly project status meetings.
2	Complete list of utilized products (with assistance from MoDOT personnel).
3	Conduct literature review for products being utilized by MoDOT. Provide list of any suitable/potentially beneficial products not currently utilized along with related literature for each presented product. Provide literature review documentation ahead of laboratory testing/analysis.
4	Laboratory analysis of currently utilized products or product combinations, in addition to any proposed products (see Task 3) selected by MoDOT, evaluating suitability, performance and infrastructure impact.
5	Cost effectiveness evaluation of each product or combination of products.
6	Draft Final Report. Final Project Meeting.

Project Schedule

The following is an estimate of the project timeline or information on key dates within the project, presuming the project starts **August 15, 2019**. Proposals need to include a work plan with a proposed timeline. For a sample of a work plan template, see link below. Changes to our

estimated project timeline below will be considered, however, timeline extensions cannot be guaranteed. The project timeline will be discussed and finalized during the kickoff meeting.

The Offeror will provide a proposed schedule to complete the work including the following items: quarterly progress meetings, draft final report, and final report.

The draft final report shall be completed and provided to MoDOT within twelve months of the Notice to Proceed. All work shall be completed and the final report provided to MoDOT within fourteen months of the Notice to Proceed.

For report templates and forms, visit <https://www.modot.org/information-researchers>.

Date	Milestone
8/30/2019	A kick off meeting with MoDOT will be scheduled to discuss project requirements and deliverables. The dates of key milestones and deliverables will be determined from this meeting.
9/30/2019	Quarterly report due.
12/31/2019	Quarterly report due.
3/31/2020	Quarterly report due.
6/30/2020	Quarterly report due.
8/31/2020	Draft final report is due. The draft final report shall be due approximately two months prior to the final report.
10/30/2020	Final draft report is due. The final documents shall be due approximately one month before the end of the contract. This is to allow all billing to be completed prior to the end of the project.
11/30/2020	Final invoice due.
11/30/2020	Contract ends.

Special Notes

Project budget is not to exceed **\$100,000**. A budget is not to be included in the proposal, but will be required for the contract and must be within this limit. For a sample Budget template, report templates and forms, see <https://www.modot.org/information-researchers>.

RFP Requirements

- “Contracting Documents” provide further details and links to the required forms. They are available at <https://www.modot.org/information-researchers>.

- **Organization’s Project Experience:** The proposal must clearly identify the Organization’s experience in offering the services requested in this RFP during the past three (3) years. The description should include a list of the agencies which your organization has served during this time period or currently serves. Please highlight any work you have done with other state agencies or local governments.
- **Team Member Experience:** Please list all team members (including subcontractors) proposed to work on the project. Attach licenses, certifications and resumes for key personnel.
- **Organization’s Client References:** Proposals should indicate the name, title, and telephone number of at least three clients within the past three years.
- Proposals must be no more than 8 pages in length with a font size no less than 11 points. This length limit **does not include** the Proposal Submission Form, Organization’s Project Experience, Team Member Experience, Organization’s Client References and optional cover letter (if included, one page maximum).
- Proposals must be submitted as one combined PDF document. The submission should **only include the required documents** organized in the following order: 1) Proposal Submission Form; 2) Cover Letter (Optional; 1 page maximum); 3) Body of Proposal (including work plan); 4) Organization’s Project Experience; 5) Team Member Experience; and 6) Organization’s Client References.
- The Offeror must respond to this RFP by submitting all the information required herein for its proposal to be evaluated and considered for award. Failure to submit all the required information shall be deemed sufficient cause for disqualification of a proposal from consideration.
- Proposals will be evaluated by an agency and stakeholder team with knowledge and backgrounds in relevant areas for this project. Selection of the successful Offeror will be based on the Offeror’s demonstrated knowledge in the required areas, the merit of the proposed methods and approach in achieving the desired goals, the experience and qualifications of the team, the plan for ensuring implementation of results, and the adequacy and availability of team members to complete the work in a timely manner.
 - Correct proposal submission is one of the evaluation criteria. If submission instructions in this section are not followed, the **Offeror risks an automatic 10 point deduction (out of 100 total points)** when points are awarded during the Proposal Evaluation Process.

RFP Schedule

This document constitutes an RFP from qualified organizations to conduct the TR202002 Snow and Ice Treatment Products Evaluation study for the MHTC and Missouri Department of Transportation (MoDOT). MHTC reserves the right to reject any and all proposals for any reason whatsoever.

The following RFP Schedule of Events represents MoDOT’s best estimate of the schedule that shall be followed. The time of day for the following events shall be between 7:30 am and 4:00 pm, Central Standard Time unless otherwise noted. MoDOT reserves the right at its sole discretion to expand this schedule, as it deems necessary, without any notification except for the deadline date for submitting a proposal. Time is of the essence for responding to the RFP within the submission deadlines.

The following timeline must be met for a proposal to be accepted.

Date	Action
5/20/2019	MoDOT posts RFP to the website at https://www.modot.org/research-requests-proposal .
6/10/2019 4:00 PM (CST)	Written comments or questions must be submitted to Research Administrative Engineer .
6/19/2019	MoDOT will post written responses publicly on the website at https://www.modot.org/research-requests-proposal .
6/28/2019 10:00 AM (CST)	Written proposals must be submitted to Research Administrative Engineer .
7/19/2019	MoDOT will notify submitters about project selection, or if needed about interviews to finalize selection.

Contracting Requirements

The successful team will be required to complete additional documentation and enter into a contract such as a "Standard Research Agreement" or "Task Order." Applicants should be aware of these additional needs so contracting can proceed in a timely manner.

As part of the eAgreements process, MoDOT uses an electronic signature tool, DocuSign, for signing agreements electronically. All parties of the agreement must agree to sign electronically in order to utilize the electronic signature option. If your proposal is selected, you will be informed about how to obtain your credentials for electronic signatures (including how to become a MoDOT vendor if you are not already).

Standard contracts, forms, attachment templates and additional information are available from the [Research Administrative Engineer](#) or the website at <https://www.modot.org/information-researchers>.

Proposal Submission

Submission Deadline

Proposals must be emailed by **10:00 AM (Central Standard Time)** according to email time stamp by the submission date in the RFP Schedule to the Research Administrative Engineer's attention at: MoDOTResearchRFP@modot.mo.gov. Please reference the project title since more than one RFP may be due at one time. Electronic proposals are required.

Submission Confirmation

You will receive an email confirmation after your proposal has been received. If you do not receive such a confirmation by **12:00 PM (Central Standard Time)** on the day of the deadline, please contact us at MoDOTResearchRFP@modot.mo.gov as soon as possible. Your submission should not be considered received until you have received your email confirmation.