

**South Dakota Department of Transportation
Request for Proposals
Project SD2022-08**

Title: Feasibility of a Traffic Operations Center for South Dakota

Problem Description: The South Dakota Department of Transportation (SDDOT) is one of the few state transportation agencies that does not yet operate a full-time traffic operations center (TOC). Staff of the department's central, region, and area offices coordinate activities during extended single-shift working hours, but not on a 24x7 basis. They operate intelligent transportation system (ITS) devices—primarily dynamic message signs, surveillance cameras, environmental sensor stations, and mobile data collectors on snowplows—using separate, vendor-supplied software packages. Field maintenance and engineering personnel supply information about winter road conditions, work zones, incidents, and other events to the South Dakota 511 Traveler Information System. During the Sturgis Motorcycle Rally, SDDOT operates a temporary traffic operations center using mostly manual processes from its Sturgis Maintenance Shop.

This approach has worked in the past because of the rural state's low traffic and modest ITS deployments, but increasing traffic, more extensive ITS deployment (including variable speed limits), and greater expectations from personal and commercial road users elevate the need for a dedicated traffic operations center. A dedicated center could not only integrate communication, monitoring, and control of SDDOT's ITS assets, but also enable more coordinated human communication and response by SDDOT and other state and local agencies during routine and emergency operations.

Research is needed to evaluate needs and opportunities related to establishing a traffic operations center in South Dakota and identify the essential functions a center would provide, and identify feasible design concepts suitable for South Dakota's environment. In consideration of SDDOT's limited size and funding, the research should evaluate the resources needed to support the identified concepts and develop plans to help SDDOT transition from its current capability.

Importance: South Dakota's use of ITS is growing in extent and capability. It is important that South Dakota investigates establishing a TOC to better serve the traveling public. SDDOT must assess this need thoroughly, to avoid establishing an expensive center that is unsuitable for South Dakota's needs.

Urgency: This research has become urgent as deployment of variable speed limit systems and other ITS expands. SDDOT will initiate procurement of Active Traffic Management software in Spring 2023. Being able to conduct the research and to apply the results in conjunction with the start of the variable speed limit systems would help ensure their success. With the creation of a new ITS Program, the SDDOT is poised and ready for this research to commence.

Research Objectives:

- 1) Identify the needs and opportunities that a Traffic Operations Center would satisfy specific to SD.
- 2) Define the functions that a TOC would perform.
- 3) Identify the alternatives for a traffic operations center in South Dakota and describe their advantages, disadvantages, risks, and resource needs.
- 4) Develop a transition plan for implementing each alternative.

Research Tasks:

- 1) Meet with the project's technical panel to review the project scope and work plan.
- 2) Review literature related to designing, deploying, and operating traffic operations centers.
- 3) Identify and interview surrounding state DOTs about: what they have done, staffing requirements, technology requirements, communications requirements, budget, training needed for staff, any problems or difficulties, functions, and benefits of TOCs.

- 4) Identify internal and external stakeholders and conduct workshops in Rapid City and Sioux Falls to present an overview of the project, educate stakeholders, and identify needs and opportunities for a TOC.
- 5) Prepare and present for approval of the project's technical panel a technical memorandum that summarizes Tasks 2 - 4 and describes South Dakota's needs and opportunities for a TOC.
- 6) Identify the operational functions that a TOC would perform for SD to satisfy the needs and opportunities identified in Task 5.
- 7) Prepare and present for approval of the project's technical panel a technical memorandum that summarizes the findings of Task 6.
- 8) Based on information acquired from Tasks 2 – 7, describe: alternative concepts for a TOC; advantages disadvantages, and risks; resources needed, including hardware, software, equipment, facilities, and personnel; and steps necessary for SDDOT to transition from current operations.
- 9) Prepare and present for approval of the project's technical panel a technical memorandum that summarizes the findings of Task 8.
- 10) 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.
- 11) Make an executive presentation to the South Dakota Department of Transportation Research Review Board at the conclusion of the project.

Potential Implementation: If this research is successful, SDDOT will be positioned to decide whether and how to establish formal traffic operations functions in the state. Recommendations from the research may concern capital investments, staffing and training, and definition of institutional roles. These recommendations would be fundamental to improving service and safety for the public.

SDDOT Involvement: Stakeholders outside the SDDOT will be needed to provide information on surrounding state's traffic operations centers, to participate in the workshops, and to identify functional requirements for a TOC in SD. Stakeholders include staff from the cities of Sioux Falls and Rapid City, the South Dakota Highway Patrol, and neighboring state DOTs. SDDOT staff from various offices will be needed to provide information and to review the research submittals.

Available Funding: \$175,000

Anticipated Start Date: June 15, 2023

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% |
| 7 | 20% |
| 9 | 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 provides services without regard to race, color, gender, religion, national origin, age, or disability, according to the provisions contained in South Dakota Codified Law (SDCL) 20-13, Title VI of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, as amended, the Americans with Disabilities Act of 1990 and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 1994. Any person who has questions concerning this policy or who believes he or she has been discriminated against 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.

Certification Relating to Prohibited Entity: For contractors, vendors, suppliers, or subcontractors who enter into a contract with the State of South Dakota by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, is not an entity, regardless of its principal place of business, that is ultimately owned or controlled, directly or indirectly, by a foreign national, a foreign parent entity, or foreign government from China, Iran, North Korea, Russia, Cuba, or Venezuela, as defined by South Dakota Executive Order 2023-02. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

Restriction of Boycott of Israel: For contractors, vendors, suppliers, or subcontractors with five (5) or more employees who enter into a contract with the State of South Dakota that involves the expenditure of one hundred thousand dollars (\$100,000) or more, by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, has not refused to transact business activities, has not terminated business activities, and has not taken other similar actions intended to limit its commercial relations, related to the subject matter of the bid or offer, with a person or entity on the basis of Israeli national origin, or residence or incorporation in Israel or its territories, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

Proposal Deadline: Proposals are due to the SDDOT by 5:00 pm CDT on Friday, March 24, 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 andy.vandel@state.sd.us and jacob.huber@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*.

Proposers will be notified of the results of the selection no later than May 31, 2023.

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