FY 22 MDOT SHA Research Needs

Response to Administrative & Technical Questions

Updated 9/13/21

Administrative Questions:

Question A1: Is there a budget limit for proposals?
Answer: No. However, cost will be factor in the proposal selection process. Most projects selected for funding are $75K - $150K. If a research need requires a long study period and/or a large scope-of-work, it may be justifiable to include a budget above this range.

Question A2: Will MDOT SHA select only one proposal for each research topic or multiple?
Answer: In general only one proposal will be selected for each research topic. However, in cases where it is deemed to be advantageous to MDOT SHA to pursue more than one proposed research plan, multiple selections may occur. That will not be determined until the proposal review phase and will also depend on funding availability.

Question A3: Can a researcher submit multiple proposals for one research topic?
Answer: No. Researchers may submit a proposal for more than one research topic but should not submit multiple proposals for the same topic.

Question A4: Can proposals include a Co-PI?
Answer: Yes. While MDOT SHA only accepts proposal with one principal investigator, a Co-PI is acceptable if 1.) their percentage of time is significantly less than the PI; 2.) their contribution to the project is meaningful and clear in the proposal; and 3.) the PI agrees to maintain project oversight and accepts responsibility for all work being delivered.

Question A5: Is a team composed of two universities and a consultant admissible? Does the PI need to carry out at least 50% of the work?
Answer: Yes, this is allowable. Should the proposal be selected, MDOT SHA would issue the notice-to-proceed to the PI. The 2nd university and consultant would both be subs to the PI and therefore, limited to no more than 50% of the direct costs on the proposed budget.

Question A6: How long is the study period for MDOT SHA research projects?
Answer: Unless otherwise specified in the RFP, the study period for the research is flexible and should be based on the scope-of-work proposed. However, a 12-18 month time frame is generally desirable.
**Question A7:**  Are there restrictions for font size and page margins?

**Answer:** No, there is no restriction on font size or page margins. MDOT SHA accepts proposals that communicate a straightforward and professional image.

**Question A8:** Does the proposal need to be routed through the university’s research administration office?

**Answer:** When responding to an RFP, a proposal is not required to be routed through the research administration office. After being selected, the final proposal would have to be routed through the research administration office. PIs should always check with their individual universities for their specific policy.

**Question A9:** Is an appendix allowed and will it count towards the page count?

**Answer:** Yes to both. An appendix can be included and it will count towards the ten page limit.

**Question A10:** Would a full-time faculty who is not on a tenure-track qualify as a PI?

**Answer:** Yes, a research professor not on tenure-track qualifies, assuming he/she has the right expertise.

**Question A11:** What is the appropriate indirect cost rate?

**Answer:** The indirect cost rate is determined by the agreement between MDOT SHA and state universities. For example, the indirect cost rate is 26% for the University of Maryland, College Park, and Morgan State University. Please check with your university’s office of sponsored research if additional information is needed.

**Question A12:** Is there a limit for labor expenses in the budget?

**Answer:** Please see Question A1 for answer on the total budget. MDOT SHA does not have a limit on labor expenses.

**Question A13:** When budgeting for a subcontractor, can we include salary in it? Is there a limit on percentage?

**Answer:** Yes, you can include a subcontractor and salary. Their role should be clearly identified in the proposal. Should a subcontractor be included, the PI must complete at least 50% of the work (i.e. direct costs) You can find more information on Page 7 of the Guidelines for Proposals.
Technical Questions:

General Question#1  
*For research that requires field work, if a research team has candidate sites in mind, is there a viable mechanism to confirm suitability and/or access to these sites for our research plan with an MDOT representative?*

Answer  
MDOT SHA recommends including the suggested candidate sites in the proposal and adding a statement that the locations are subject to change pending input and approval from MDOT SHA. Once proposals are selected there will be an opportunity to discuss and finalize the scope-of-work (including details like field sites) with technical staff.

RFP #01: Equity-Based Metrics for Connected and Automated Vehicle Deployments  
No questions received.

RFP #02: Integrating Road Weather Technology Data in Highway Operations  

**Question 1**  
*On Page 4 of the RFP, the document states that “OTMO identified three current use cases from Colorado, Montana, and Waterloo, Canada, and would like a research team to expand upon these examples and explore a more effective use of road weather data throughout the agency, particularly in real-time through data visualization and notifications.” Can these three case studies be made available for review?*

Answer  
This information was collected through a basic internet search. Please see pages 4-5 of this document for a summary of what was noted.

**Question 2**  
*Please confirm that the deliverable for this project is a written report, as described on Page 4 under “desired deliverables” and that software development / software deliverables are not required.*

Answer  
The deliverable is a written report. No software development/deliverables are required.

RFP #03: Performance of Ultra-Thin Bonded Wearing Course During Winter Events  
No questions received.
RFP #04: Pedestrian Safety Analysis Tool

No questions received.

RFP #05: Strategies to Improve Communication with Frontline Employees

No questions received.

RFP #02: Best Practices in Weather Data Utilization/Integration:

Colorado: Using a Speed Management System for winter maintenance resulted in zero (100 percent reduction) winter weather related accidents in one section of highway in Snowmass Canyon.

A RWIS/NIRS was installed to read the pavement conditions, where pavement conditions became icy regularly, the Weather sensor wirelessly communicates to a single DMS and a single variable speed sign (VSS) that are located about a mile in advance of this section of highway. (May be applicable in Western MD, I-68x)


Michigan: Use of a Weather Responsive Traveler Information System in Michigan results in statewide decrease of user delay costs (UDC) of between 25 and 67 percent during National Weather Service Advisories and Warnings.

Weather Responsive Traffic Management (WRTM) project in Michigan integrates multiple weather data sources to provide more accurate, timely, and effective messaging, thereby improving operating conditions during severe weather conditions.

Travelers responding to the web-based survey indicated the following:

- They are familiar with weather-related DMS messages (76 percent)
- They responded to weather-related DMS messages by slowing down (65-87 percent) and/or changing trip plans (20-58 percent)
They feel DMS improve safety (88 percent) and reduce delay (75 percent)

https://www.itskrs.its.dot.gov/its/benecost.nsf/id/24fb493fac05556b8525813000523af7

**Montana:** Link the closest RWIS to Crash report to obtain historical data for accurate weather/pavement conditions during crashes.

There was a study on how to utilize weather data to improve response to adverse weather conditions. First the study focused on the role of adverse weather and its interactions with driver and roadway characteristics and severity of crashes.

The advent and expanded use of Road Weather Information Systems (RWIS) - capable of providing detailed numeric data related to roadway surface, air and dew temperature and wind speed in addition to categorical information such as the presence of precipitation, road surface condition, and wind direction - shows potential for improving the identification of weather-related factors contributing to low levels of safety and for improving guidance provided to response personnel during or preceding times of adverse weather.

Data to support the development of the crash severity model and subsequent adverse weather response guidance related to: (1) crashes, (2) roadway characteristics, (3) traffic characteristics, and (4) weather. Detailed weather-related information obtained from the vicinity Road Weather Information System (RWIS) was used to complete the database. Historical weather records were linked to the crash data using milepost (to ensure the nearest of the two RWIS stations in the corridor), date and time of day.

**Challenges:** Some issue were found using this method. The RWIS data is limited in historical timeline and ease of accessibility. Another issue they found was that since RWIS data is localized spatially, it will only read the pavement surface conditions at the sensor’s location which could be substantially different from what the officer reported, or where the crash happened.


**Waterloo, Canada:** Research shows weather-specific Signal plans can reduce total intersection delay up to 20 percent.

https://www.itskrs.its.dot.gov/its/benecost.nsf/id/784e4481a6a9a9ad8525859600694133