TR202215 - Missouri DOT Data Acquisition and Processing Using Artificial Intelligence and Machine Learning - RFP Questions and Answers

Q1: Will the selected contractor need to have a MoDOT approved overhead rate? If so, should the contractor request overhead rate approval prior to proposal submission, or after selection? Also, are subconsultants required to have a MoDOT approved overhead rate?

A1: All prime consultants (and contractors) must be pre-qualified (which includes a review and approval of the firm's overhead rates). Approval of the overhead rate must be done prior to executing the contract but does not have to be done prior to submitting a proposal.

If the consultant uses a subconsultant with costs exceeding $25,000, the subconsultant shall include a detailed estimate of cost and a detailed overhead rate schedule with the contract. If the subconsultant is prequalified with MoDOT, the overhead rate listed must be the current overhead rate accepted by MoDOT through the annual financial prequalification process.

It is at the discretion of the subconsultant if they want to be prequalified with MoDOT. For further guidance on obtaining this certification, please refer to the step-by-step process here.

Q2: Has any MoDOT group attempted to develop and implement ML models or AI tools to solve business challenges? If so, what was the target of the effort? And what was the result?

A2: It depends on how broadly things are defined, but there are two applications that could be considered to have used machine learning. First, the KC Scout TMC, and then Gateway Guide several years later, used video analytics to detect anomalous conditions on the roadway. They can detect things like wrong way drivers, stopped vehicles, pedestrians, and debris in the roadway. The cameras have to be trained on the expected conditions, the location and number of the lanes, etc. After that they (the cameras) flag anything that does not match the expected conditions or breaks the rules. Second, about two years ago the I-270 project implemented a pilot installation of software called Waycare. Included in the software is a crash prediction system that relies on a combination of historical data and live data streams. As operators confirm and dismiss the alerts and record the incidents, the system can improve its predictions.

Q3: Running ML processes often requires large volumes of computing resources. Would MoDOT be open to leveraging Google Cloud Computing resources for this project and ultimately the final production model infrastructure?

A3: This depends on who would own the long-term solution. If MoDOT IS inherits the solution, Google Cloud is not the platform choice. MoDOT staff would first have to look to see if the solution resides on premise in our data center or the data center with the Missouri Office of Administration. If there is any reason to justify Cloud, then we would most likely associate it with our Microsoft Azure tenant. However, if the Contractor develops a solution and MoDOT consumes it as-a-service, then that is entirely up to the Contractor where it is housed.

Ultimately, it is on the Contractor to provide more details on the proposal and solution(s). From there, MoDOT IS could make architectural decisions. Whatever the outcome, MoDOT IS would then have to review ongoing costs for a Cost-Benefit Analysis.

Q4: With regard to Task 3a:
      a. Has MoDOT pre-identified a set of target data collection activities for the consultant to focus on?
      b. Are the primary data collection activities that are/or could be the target of this evaluation already well-documented?

A4: No, but other state DOTs have used these processes. MoDOT is open to suggestions and does not want to be restricted by preconceived thoughts on what data could be collected.

Q5: With regard to Task 3b, will MoDOT staff provide (source, standardize, integrate) all of the data needed by the team for training and analysis? If not, how much support will be available from MoDOT staff to help with the sourcing and preparation of the data necessary for ML model training?

A5: If the method proposed is something that MoDOT already uses and collects data, then this information will be provided to the Contractor. If the Contractor recommends a new technology / method of collection, then the data is not available. It will be up to the Contractor to collect data and provide a demonstration of proof of concept.

Q6: With regard to Task 4, will MoDOT staff be able to provide the cost breakdowns for their current data collection efforts and provide that information to our team for comparison with the costs of ML approaches?

A6: MoDOT will provide an estimate of costs associated with the work effort involved for the current processes used by MoDOT.

Q7: Given the exploratory nature of the research effort, and the unknowns about the LOE to launch ML training and modeling, how much flexibility is there about the delivery of 1 versus 2 or 3 ML models and their cost-benefit analysis? Are there additional budget resources that can be added to match the potential level of effort?

A7: The Contractor needs to tell MoDOT how many models they can provide and not exceed the budget outlined in the RFP.

Q8: Is there a reason MoDOT has the final report and deliverables due May 2024? Is the agency interested in and able to support a more compact timeline, potentially 6 month or less?

A8: MoDOT does a "best guess" on how long it takes to complete a project. However, if the Contractor believes it can be done sooner, MoDOT encourages submitting a revised project delivery schedule with the proposal.

Q9: If the PI is not licensed in Missouri and the Co-Pi is licensed in Missouri, can we procced with proposal submission? We want to confirm that this is acceptable and the PI roles do not need to be reversed.

A9: Yes, MoDOT policy allows for Principal Investigator responsibilities to be split between two (2) professionals. MoDOT requires at least one of the Co-Principal Investigators to be a licensed Professional Engineer (PE) in the state of Missouri. The licensed Co-Principal Investigator will be considered the engineer of responsibility and therefore required to sign and seal all reports and any recommended specifications in accordance with Section 327.411(1) RSMo. This requirement cannot be waived.

Q10: Is it acceptable to conduct the meetings virtually? If so, is Microsoft Teams an acceptable technology platform to use for the meetings?

A10: Yes, most meetings are currently being conducted virtually due to COVID-19. MoDOT uses Microsoft Teams for virtual meetings but is open to other platforms.

Q11: Page 3 of 9, Task 3b
- Would you clarify this sentence: "The Contractor will then develop processes and report to MoDOT as analysis is completed for each distinct project." Specifically, what is meant by the term "develop processes."

A11: This refers to data collection processes done through AI or ML. The Contractor needs to demonstrate a "proof of concept" to show that the process is valid and better than (or equivalent to) current methodology.

Q12: Page 4 of 9, Final Presentation
- Will the meeting fees be covered by MoDOT?

A12: The cost proposal should include all expenses related to the project (travel costs, overhead rates, salaries, fixed fee, etc.)

Q13: Can MoDOT share whether any external resources were used to prepare this RFP and define the proposed budget?

A13: No external resources were used to prepare this RFP and proposed budget.

Q14: Could MoDOT please clarify whether Contractors hired to provide the review, analysis, and process development services described by this RFP would be precluded from bidding on any future RFPs or subsequent projects to implement any identified recommendations?

A14: The selected Contractor would not be prohibited from submitting future RFPs or projects that come from this project.

Q15: Regarding "Task 3b: Development of AI Processes," could MoDOT please clarify whether the scope is limited to process design, or if "Development of AI Processes" includes training AI models and other AI-related development activities.

A15: This project is more focused on process design. However, MoDOT expects the Contractor to demonstrate a "proof of concept" to show that the process is valid and better than (or equivalent to) current methodology.