

TR201813 Leader-Follower TMA RFP Questions and Answers

Q1: What edits were made on January 9th to the RFP originally posted on January 5th?

A1: *See changes below (indicated in red) which were made in Section (2): Scope of Work (B) Specific Requirements (page 7)*

*MoDOT will provide at their expense the two trucks and TMAs. MoDOT will work with the successful Offeror on the TMA model to be used. The Offeror shall install the Leader-Follower components including, but not limited to, actuators, software, electronics, and Vehicle to Vehicle (V2V) communication equipment on the MoDOT provided trucks and TMAs. The installation ~~shall~~ **should** not void the truck manufacturer's warranty. **If the Offeror's equipment or technology causes damage to the truck, the Offeror is responsible for repairs.** MoDOT can provide a low mileage, newer, Class 7 truck within four weeks of contract execution from its existing fleet. One can be ordered from a MoDOT vendor and will have a 120-180 day lead time but will delay the schedule. MoDOT will be responsible for one time expenses related to shipping the MoDOT trucks to and from a location within the contiguous United States chosen by the successful Offeror.*

Q2: The requirement as stated: "Redundant navigation systems used to provide seamless and continuous driverless operation in the event one system fails." as written implies all systems and components (computers, actuators, cables, etc.) have to be duplicated for redundancy. Is the intent of having a "Redundant Navigation System" for the purpose of taking over if a GPS-based navigation system is non-functional in a GPS denied Environment such as traveling under a highway overpass? Please clarify because as written this could be a major cost/schedule/system size driver.

A2: *The intent of the 'Redundant Navigation System' is to take over a GPS-based, or other system, when encountering a GPS denied environment or in the event one system fails. It is not expected that computers, actuators, cables, etc. be redundant though failsafe systems need to be in place in case failure does occur on those components.*

Q3: The requirement as stated "Ability to operate in driverless mode, continuously and seamlessly in GPS denied environments without the need for remote or external intervention." implies a GPS solution is not acceptable as "seamless and continuous" means never receiving or having access to GPS? As written this could be a major cost/schedule/size driver. Please clarify and provide examples of what is required for GPS denied and for what duration?

A3: *GPS denied environments will be infrequent and limited mainly to bridge overpasses. GPS reception could degrade in areas such as earthwork cuts, hills, vegetation, buildings, etc. It is not the intent to deny a GPS solution as one of the navigation systems.*

Q4: Based on vehicle performance, specifying a gap of 5 feet and 20 feet appears to be an unsafe operating condition especially considering the size and weight of the vehicles that will be used for testing. We suggest the requirement be changed to 50 feet minimum. Further, in reference to Traffic Application reference TA-35a which shows a minimum gap separation of

150 feet this appears to not be consistent with the requirements of 5, 20 and 100 feet either. Please clarify.

A4: The intent of the shorter gaps is for staging on the shoulder in preparation for deployment into the work zone. As the TMA trucks merge into the open lane of traffic, the gap will be extended. We have reviewed our operational needs and modified the follow distance requirements as noted in the answer to question #4. If a proposer is unable to meet the follow distance requirements, proposers should recommend a minimum gap along with an explanation.

Q5: Based on vehicle performance and dynamics (even between two identical vehicles) and various road characteristics including inclines/declines, head/sheer winds, etc. maintaining a gap accuracy of 2 feet even at constant speed and 10 feet during accelerations may not be achievable as written. Based on vehicle performance and response times it seems there should be a buffer window to allow the vehicles to stabilize while transitioning to/from constant speed and acceleration. Is the intent to have a 10 foot buffer and an accuracy of 2 feet within this buffer during constant speeds? Please clarify

A5: Upon further review of our operational needs, the 2' longitudinal accuracy requirement with a 10' buffer for acceleration/deceleration is being eliminated. The follow distance accuracy now required is plus or minus 15 feet. This accuracy will be verified under typical driving conditions and acceleration/deceleration rates. To account for margin of error and to stay within the requirements of TA-35a, the follow distance of 150 feet is changed to 165 feet to ensure the truck spacing stays over the minimum requirement. The new follow distance requirements are 25', 100', 165', and 200'-1500' in 100' increments. Lateral accuracy requirements remain unchanged.

Q6: Can the digital communication interface to the sign board and the model/manufacture be provided during the proposal effort?

A6: We use TRAFCON Arrow Board, Model MB5-25. This board is capable of digital communication and the vendor has agreed to work with the successful proposer. The vendor was not willing to share any details at this time and said they will need to perform any future work that needs to be done on the arrow board. Since this cost is unknown, MoDOT will assume financial responsibility for any work performed by TRAFCON. We will also consider other arrow board manufacturers that meet our specification.

Q7: Can MoDOT provide the same make and model LT and FT for this project?

A7: Yes.

Q8: Can I list a project under Organization's Project Experience or Team Member Experience if I am unable to reveal the name of the company due to confidentiality?

A8: No, MoDOT must be able to verify past project experience which is not possible without knowing the company information