REQUEST FOR EXPRESSION OF INTEREST

Trenton MOVES

STATE OF NEW JERSEY
Honorable Philip D. Murphy, Governor
Honorable Sheila Y. Oliver, Lt. Governor

DEPARTMENT OF TRANSPORTATION
Diane Gutierrez-Scaccetti, Commissioner

December 6, 2021

Important Dates

Question Cut-Off:	Not Applicable
Answers to Questions:	Not Applicable
Response Due Date:	February 11, 2022 @ 10:00 AM Eastern Time Email: dot-ems_bid.procurement@dot.nj.gov Responses shall not be sent to any other e-mail address. The response must be submitted in PDF format. No other format will be accepted.
Procurement Contact:	Buyer Name: Nikki Ghorbani Email: dot-ems_bid.procurement@dot.nj.gov

The New Jersey Department of Transportation ("NJDOT"), an instrumentality of the State of New Jersey, has issued a Request for Expression of Interest ("RFEI") to identify experienced firms capable of introducing a safe, equitable, affordable, sustainable, and efficient on-demand automated vehicle mobility systems in and beyond Trenton, NJ.

NJDOT is soliciting written Expression of interest from qualified and experienced vendors to gain valuable insight from the private industry regarding the goals set forth in the ***Trenton MOVES*** (Mobility & Opportunity: Vehicles Equity System) potential project and assess its viability.

If and when NJDOT elects to proceed with a potential project, NJDOT may issue formal Request(s) for Qualifications or Proposals.

The RFEI is available to be downloaded at
https://www.nj.gov/transportation/business/procurement/ems/current.shtm

This potential project is subject to the provisions of the Division of Revenue and Enterprise Services Business Registration Certification Act (N.J.S.A. 52:32-44). Registration with the Division of Revenue and Enterprise Services within the Department of Treasury is required. This potential project is also subject to Executive Order 134 (N.J.S.A. 19:44A-20.14), Executive Order No. 117 (2008) and N.J.S.A. 19:44A 20.14 concerning political contributions.

In addition, the successful firm or firms will be required to comply with the requirements of N.J.A.C.17:27-3.1, N.J.S.A. 10:5-31 and N.J.A.C. 17:27 regarding Equal Employment Opportunity Laws and Regulations. NJDOT further requires that firms take all necessary and responsible steps in accordance with N.J.A.C. 17:14-1.1 to ensure Small Business Enterprises ("SBEs") have an equal opportunity to participate in the implementation of a potential project. Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE) and/or Small, Disabled Veteran Owned Business (SDVOB) goals may be assigned to this potential project.

The New Jersey Department of Transportation ("NJDOT") is issuing this Request for Expression of Interest (RFEI) from automated vehicle ("AV") industry leaders (hereafter referred to as "Respondents") to assess interest in introducing safe, equitable, affordable, sustainable, and efficient solutions to transport residents in and beyond Trenton, NJ. The RFEI is issued for planning purposes and does not constitute a commitment, implied or otherwise, that a Request for Proposal(s) or other solicitation will be issued.

1. Potential Project Summary

The State of New Jersey is exploring a transportation equity and sustainable energy opportunity within the capital city of Trenton. ***Trenton MOVES*** (Mobility & Opportunity: Vehicles Equity System) will be led by the Governor's Office, NJ Department of Transportation, the City of Trenton, and one or more institutions of higher education.

Trenton MOVES is exploring the feasibility of deploying ~100 AVs to serve as low-capacity (4-8 passenger), high-quality (on-demand, kiosk-to-kiosk) shuttles to serve the 90,000 residents who live in the City of Trenton's 8 square miles. The effort will be phased in over two (2) years and will serve the population of New Jersey's capital city, a population where 70% of households have one or fewer cars. A proof-of-concept Operational Design Domain ("ODD") is described in Section 3.1.

Operation of the initial 100 vehicle fleet is envisioned with customer hosts on-board for a demonstration period lasting approximately two (2) years to be followed by sustained host-less ("driverless") operation within the initial ODD and expansion of the ODD throughout Mercer County and beyond, following a similar deployment process as ***Trenton MOVES***.

2. Potential Project Goals

Trenton MOVES is committed to deploying safe, equitable, affordable, sustainable, and efficient transportation to best serve all residents, especially the currently mobility-marginalized groups. Safety is foundational for the operations and the sustained deployment of the service. Equity is a foremost goal for this potential project, as ***Trenton MOVES*** aims to promote economical, racial, and environmental justice through the inclusive provision of this form of universal mobility. This potential project also envisions the innovative deployment of shared, autonomous, and electric mobility with operational excellence to reduce the overall cost and prices of the service, to increase Average Vehicle Occupancy (AVO), and to reduce total Vehicle Miles Travelled (VMT) and Greenhouse Gas (GHG) emissions. The section below lists the top goals of the ***Trenton MOVES*** potential project and a list of desirable features of the proposed mobility system.

2.1 Safety

Safety is a top priority of this potential project and will always be NJDOT's foremost commitment. AVs and AV vendors are required to go through a rigorous technical and operational vetting process, and customer hosts will be present in AVs while on public roads during the first two years. The operation of this potential project will be strictly limited to the ODD. ***Trenton MOVES*** aims to achieve a near-zero crash rate, low disengagement rate during the demonstration period, and ensure that safety readiness is achieved at simulation, vehicular, sensor, driving behavior, fleet operations, and user experience levels.

2.2 Equity

Many neighborhoods of Trenton fall in Areas of Persistent Poverty, and according to the 2019 American Community Survey, about 70% of households in Trenton have one or zero vehicles. Trentonians spend a large portion of their disposable income on daily transportation and many residents rely on their family and friends for mobility. ***Trenton MOVES*** recognizes the opportunity presented by AV technology and envisions an

equitable, on-demand mobility system that serves the transportation needs of all Trenton residents, especially those who have limited mobility options due to either economic or physical hardship. ***Trenton MOVES*** aims for an **inclusive service scope**, both in terms of areas and communities served (reflected in ODD) and user experiences.

2.3 Affordability

To deliver equitable and financially viable mobility in the long run, both the operational cost and service price per passenger mile should be affordable.

- On the **price** side, residents should expect to pay much lower fares for this new on-demand mobility system than traditional taxis or ride-hailing services; Fares should be comparable to bus and rail transit.
- On the **cost** side, ***Trenton MOVES*** anticipates cost reduction promises and scalability of automated technologies, and aims to alleviate the upfront infrastructural cost through innovative financing (such as public-private partnership, ride subsidy for special groups and communities, etc.)

2.4 Sustainability

Transportation is the end-use sector responsible for the most energy consumption (34.2%) in New Jersey, according to the most recent estimate from U.S. Energy Information Administration (EIA). This potential project is designed with the future in mind and aims to minimize its carbon-footprint and environmental impact. All 100 AVs in the ***Trenton MOVES*** potential project are battery powered EVs with zero tail-pipe emission. Innovative ways to cleanly and sustainably recharge vehicles are encouraged. In addition, ***Trenton MOVES*** promotes ridesharing with the aim to increase Average Vehicle Occupancy (AVO) and reduce total Vehicle Miles Travelled (VMT).

2.5 Efficiency

The ride-hailing service must be convenient for both Trentonians and service provider(s). ***Trenton MOVES*** promotes innovative ways that the service can minimize wait times, ride times, lower circuity during shared rides, and total Vehicle Miles Travelled (VMT) especially empty vehicle miles through logistical protocols such as active fleet management, dynamic repositioning, optimal routing, data analytics, etc. to best ensure an efficient on-demand service.

2.6 Desired Features

- **Autonomy**
  - SAE J3016 Level 4 (Driverless) Capability
  - All weather capable, except for conditions when driving is deemed unsafe

- **Safety and Communication**
  - Emergency stop button

  - Emergency evacuation capability
  - GPS feed into police and fire department and 911 dispatch center
  - Internal live camera with recording capability
  - Camera monitoring from a centralized operations center
  - Two-way, low-latency communication with centralized operations center
  - Smoke/Fire detectors
  - Dedicated vehicles with child safety seats

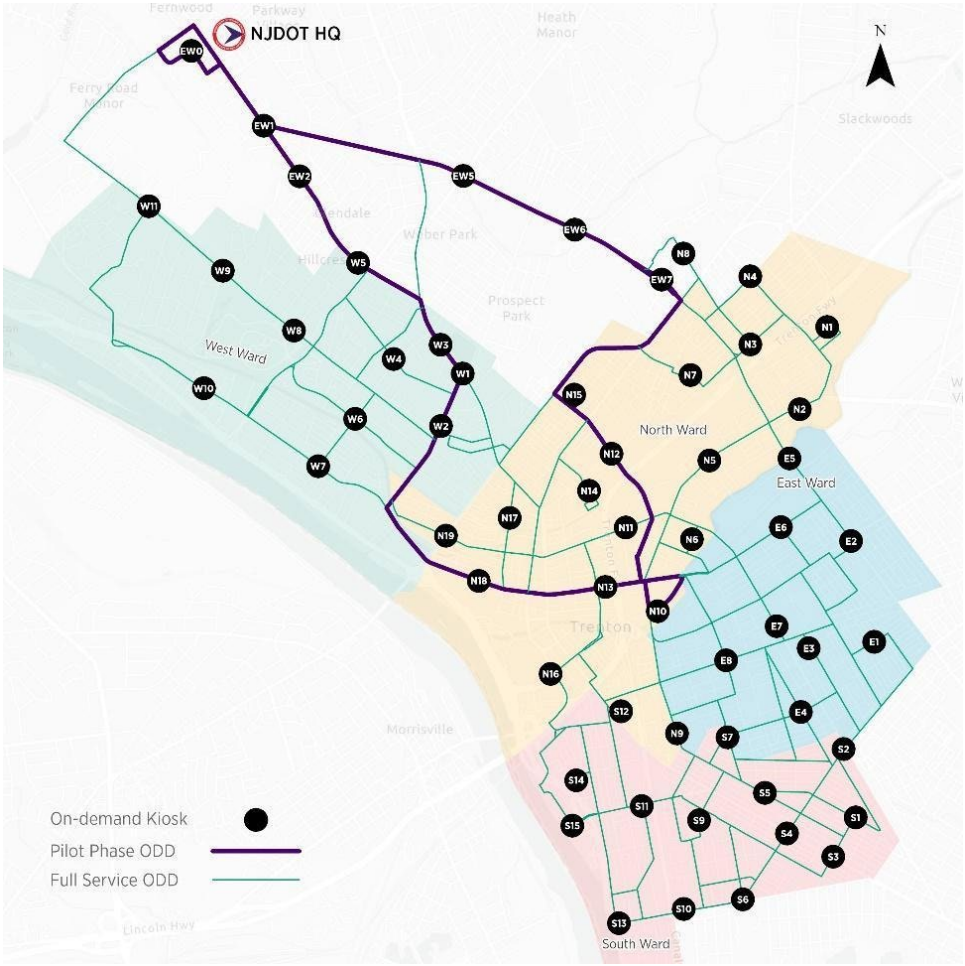
- **Rider Experience**
  - 4-8 passenger capacity with seat belts
  - Heat/Air conditioned
  - Fully handicapped accessible
  - Wheelchair accommodation
  - Audio announcements in English and Spanish
  - External passenger display in English and Spanish
  - Multiple payment options (credit card, transit pass, ride vouchers, etc.)
  - Smart phone app for ride hailing
  - Option to schedule rides without smartphones

3. Potential Project Parameters

3.1 Operational Design Domain and Service Concept

The Operational Design Domain ("ODD") is a set of conditions that define the exact subset of roads, time-of-day, speeds, etc. in which an AV is permitted to operate. The ODD is designed to ensure the highest levels of safety. Its service network will cover necessary and popular destinations such as grocery stores, healthcare facilities, parks, public housing, religious sites, schools, and top employment sites.

Below is a picture of a possible network-fenced ODD for Trenton:



The service concept for this ODD is as follows:

1. A customer hails a ride via app or at a kiosk site and is picked up at one of the 60 kiosk locations (denoted by labelled black dots).
2. The customer is dropped off safely at any other kiosk location or along segments on the certified roadways interconnecting the kiosk locations within the ODD.
3. AVs, when idle, are repositioned to the nearest/high-demand kiosk locations.

Note that the proposed mobility service must operate dynamically (on-demand) and is not based on a fixed route or schedule. This ODD provides an initial framework for the service

scope and is expected to be updated during the planning and operational phases of the Trenton MOVES potential project.

3.2 On-demand Transit Kiosks

The ***Trenton MOVES*** Team proposed designing, building, and maintaining about 50 on-demand transit kiosks to facilitate passengers' safe and efficient pick-up and drop-off. The kiosks vary in size based on community context, are located at popular points-of-interest and high-density residential/commercial areas and are reachable within a five-minute walk by over 90% of Trenton residents. They are designed to be friendly and inviting public spaces for the community. Although riders will have the choice of hailing rides directly through mobile devices or other means, each kiosk hub has a ride-hailing interface for those without access to a mobile device. Furthermore, AVs can be repositioned among kiosk locations, enabling the efficient pick-up of next riders.

3.3 Safety Hosts

To ensure maximum safety and provide a public interface, safety hosts will be present in AVs while on public roads during the **first two years** of ***Trenton MOVES***. The two-year pilot period allows riders, other road-users, road maintenance crew, and first responders to get accustomed to AV technology and mixed autonomy conditions on road. These safety hosts will undergo professional AV training and must pass manual and AV driving qualification tests as well as behavioral evaluations. The purpose of these onboard hosts is to welcome and assist the riders, and they serve as backup drivers only in the event of a rare emergency and are trained to drive defensively.

3.4 Community Outreach and Engagement

The ***Trenton MOVES*** Team has created a comprehensive community outreach program to learn about Trentonians' mobility patterns and challenges and to address concerns that Trentonian may have about autonomous technologies. The results of community outreach and engagement will directly contribute to the evolution of the Operational Design Domain, on-demand kiosk locations, and community-specific requests for ridesharing experiences.

This direct engagement effort also ensures that the communities are well-informed and receptive about the technologies delivering the mobility, and that a welcoming environment exists for the sustainable long-term development of ***Trenton MOVES*** and its evolution throughout New Jersey.

4. NJDOT General Requirements

Respondents are further advised that, if and when a formal Request for Qualifications/Proposals process is initiated, in order to safeguard the integrity of State funded procurements, all proposers will be required to comply with Executive Order 151 and with the State of New Jersey, Division of Revenue Business Registration Certificate requirements. (P.L. 2004, c. 57). Firms will also be required to comply with the requirements of N.J.S.A. 10:5-31 *et seq.* and N.J.A.C. 17:27, regarding Equal Employment Opportunity Laws and Regulations. NJDOT further requires firms to agree to take all necessary and responsible steps in accordance with N.J.A.C. 17:14-1.1 *et seq.* to ensure that Small Business Enterprises ("SBE"s) have the opportunity to participate in the implementation of a potential project.

5. RFEI Process Overview

The purpose of this RFEI is to solicit leading AV company representatives to provide the NJDOT with general information regarding the feasibility of the concept outlined in *Section 1: Potential Project Summary*. NJDOT also requests that potential timelines be provided with the general information. Please note that the timelines are not actual and are provided for general knowledge purposes.

This RFEI is not part of the formal solicitation/procurement process and no awards of any third-party rights to NJDOT property will arise out of this RFEI and any responses received. Responses to this RFEI will become the property of NJDOT upon submission. NJDOT agrees not to use the submissions for commercial purposes or to disclose information provided therein publicly or to any other Respondent without permission. The information provided by the Respondents will not be used to select, short-list, or otherwise pre-qualify participants in a potential Request for Proposals (RFP) process.

Based on information received and other information available to NJDOT, NJDOT may elect to initiate a formal solicitation process which could include a Request for Qualifications (RFQ) or (RFP) seeking response to defined requirements.

a. RFEI Process Schedule

RFEI Issuance	Dec. 6, 2021
RFEI Responses Due	Feb. 11, 2022

b. RFEI Response Submission Requirements

Interested firms should submit electronic copies of their RFEI Responses as one PDF file no later than 10:00 am Eastern Time on {Feb. 11, 2022} to dot-ems_bid.procurement@dot.nj.gov

c. General RFEI

1. Changes to RFEI

NJDOT reserves the right, in its sole discretion, to amend or cancel this RFEI at any time. NJDOT reserves the right to waive any irregularities in the completion of the forms and papers enclosed in the responses, to accept or reject any responses, and to re-advertise for responses.

2. Confidentiality

As part of its response, a Respondent may designate any data or material it asserts are exempt from public disclosure under Open Public Records Act (OPRA) and/or the common law, explaining the basis for such assertion. When the Respondent contains a negotiation component, the response will not be subject to public disclosure until a notice of intent to award is announced. The Respondent must provide a detailed statement clearly identifying those sections of the response that it claims are exempt from production, and the legal and factual basis that supports said exemption(s) as a matter of law. NJDOT will not honor any attempts by a Respondent to designate its entire response as proprietary, confidential and/or to claim copyright protection for its entire response. In the event that a public request is made for materials that the Respondent has identified as confidential or proprietary, NJDOT shall have the sole discretion and final authority to determine whether the materials are exempt from public disclosure and shall take action as required by applicable law. In the event of any challenge to Respondent's assertion of confidentiality with which NJDOT does not concur, the Respondent shall be solely responsible for defending its designation, but in doing so, all costs and expenses associated therewith shall be the responsibility of the Respondent.

3. Response Preparation Costs

NJDOT shall not be liable for any costs or expenses incurred by the Respondent the preparation, submittal, presentation, or revision of its submitted information, or in any other aspect of the Respondent's pre-information submittal activity. No Respondent is entitled to any compensation pursuant to this RFEI.

6. RFEI: Questions and Responses

Respondents should provide the following information in the format below:

- **Cover letter** with organization's name and address and point of contact information; and
- **Executive summary** of your organization's relevant experience with similar potential projects, statement of financial capability; List of relevant/similar potential projects; and
- Responses to the NJDOT questions below. Respondents are encouraged, but not required, to answer as many questions as possible.

1. Potential project Description

1.1. In no more than 1500 words, describe your solution: How does it work?
1.2. Is your potential project scalable in and beyond Trenton, NJ? If so, how?
1.3. How soon will a minimally viable version of your solution be operational? How long does it take to scale to full operations (for proposed service scope, see *3.1 Operational Design Domain and Service Concept*)?
1.4. Describe geographically and narratively the anticipated Operational Design Domain and additional right of way impacts of your proposed potential project.
1.5. Describe challenges regarding proposed *Potential Project Summary* and *Parameters*.

2. Product Capabilities & Limitations

2.1. Describe the testing and safety research conducted for your AV(s).
2.2. Describe your safety technology, such as but not limited to, system technology, sensor technology, navigation, obstacle detection, and traffic signal interface, etc.
2.3. Does your AV(s) use Vehicle-to-Infrastructure (V2I). If yes, please describe its impact on safety and the extent to which V2I systems are required.
2.4. Describe any physical infrastructural requirements for the successful operations of your service.
2.5. Describe the process by which improvements to the vehicle/sensors/automated driver would be made.
2.6. Describe how your solution achieves the following potential project goals:
2.6.1. Safety
2.6.2. Equity
2.6.3. Affordability
2.6.4. Sustainability
2.6.5. Efficiency
2.6.6. Desired Features

3. Driverless Operations

3.1. Can your AV drive fully autonomously without any human input or on-board customer hosts? Please describe the extent of autonomy and its ODD.
3.2. If driverless operation has been achieved, describe its extent and limitations.

3.3. Describe the process by which decision to remove the on-board customer host would be made.

4. Prior Experience

4.1. Please provide no more than three (3) examples of existing customers using your proposed solution or a similar solution.
4.2. If applicable, please provide details of any other transportation agencies or governmental entities who are customers.
4.3. Please provide details of any previous, ongoing, or scheduled sales discussions that you are having with NJDOT (if any)
4.4. Please provide details of any previous, ongoing, or scheduled sales discussions that you are having with NJDOT contractors (if any).

5. Company Information

5.1. Is your company Disadvantaged Business Enterprise (DBE) or Small Business Enterprise (SBE) certified?
5.2. Is your company registered to do business in the state of New Jersey?
5.3. What is your business incorporation number, Tax Identification Number or Employer Identification Number?

6. Partnership Information

6.1. Please list requirements your firm would have of State of New Jersey and City of Trenton as a partner on this potential project.
6.2. What is your proposed commercial model and/or proposed approach to financing?
6.3. Please list your proposed core team members and their roles, as well as any sub-contractors.

7. Competition Information

7.1. Please list any existing non-compete arrangements or intellectual property agreements that overlap with the potential project.
7.2. How did you hear about the program?
7.3. Please share any additional links or comments related to this application.