



**New Jersey Department of Transportation  
Bureau of Research, Innovation, and Information Transfer  
RESEARCH PROJECT  
Request for Proposal  
2023 – 2024 SPR Program**

**Project Title: Evaluation of Alternative (Non-Crude Oil Based) Diesel Fuel for NJ Transit Locomotives and Over-the-Road Buses**

**Posting No.: 2024-01**

**Date of RFP Announcement: 6/17/2024**

**Closing Date: 7/26/2024**

**NOTE: Due to P.L. 2019, c. 196, the New Jersey Department of Transportation cannot award research grants to PRIVATE and/or OUT OF STATE institutes of higher education.**

Proposals must be prepared in accordance with NJDOT's *Supplemental and Proposals guidelines*. Please visit <https://www.state.nj.us/transportation/business/research/guidelines.shtm> for the most current version.

All proposals must also have a corresponding online PreAward Risk Assessment form completed and submitted by the Principal Investigators (PIs) prior to the RFP closing date and time. This online form can be found at:

[https://www.state.nj.us/transportation/business/research/risk\\_assessment\\_forms.shtm](https://www.state.nj.us/transportation/business/research/risk_assessment_forms.shtm)

## **1 - RESEARCH PROBLEM STATEMENT AND OBJECTIVES**

### **1.1 Problem Statement**

The transportation sector represents a significant source of greenhouse gas emissions, and reducing the reliance on fossil fuels is critical for achieving environmental sustainability goals. In recognition of this, NJ TRANSIT is actively seeking innovative solutions to decarbonize our fleet of locomotives and over-the-road buses.

We are interested in exploring the potential of an Alternative (non-crude oil based) Diesel Fuel (ADF), such as renewable diesel, Biodiesel and E-Diesel, as a strategy in our decarbonization efforts. Alternative Diesel Fuel offers several potential advantages including lower carbon footprint, similar performance and reliability to fuels from "virgin crude" oil, and may be readily available. Alternative Diesel Fuel may also be a cost-effective carbon reduction strategy compared to the higher capital costs, longer development timelines, and other challenges to developing and purchasing new rolling stock, particularly compared to current rolling stock that may have long remaining lifespans. However, potential use of Alternative Diesel Fuel in existing rolling stock would not preclude development of new rolling stock designed to be zero-emission.

### **1.2 Research Objectives**

We are seeking research assistance to comprehensively evaluate the feasibility and benefits of integrating Alternative Diesel Fuel into our locomotive and over-the-road bus operations. This includes:

1. Research how Alternative Diesel Fuels are viewed as a method for complying with the zero-emission goals being legislated by various states, including New Jersey.



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2. Clearly define the production process and differences between the following:
  - a. Renewable Diesel (Hydrogenation of vegetable oils)
  - b. Biodiesel (Esterification of vegetable oils)
  - c. E-Diesel (Synthetic)
3. Define the “drop-in” capability of the fuels defined above into NJ Transit’s current diesel locomotive engines (Caterpillar (CAT) and Electro-Motive Diesel (EMD) engines) and over the road buses Motor Coach Industries (MCI).
4. Are any private or public sector railroads and bus operators currently utilizing Alternative Diesel Fuel’s diesels or planning to in the near future.
5. Define the current domestic US production/supply of each of the fuels defined above.
6. Define the current US demand of fossil fuel based diesel and project the demand to 2040.

We anticipate this research will provide a clear roadmap for integrating Alternative Diesel Fuels into NJ Transit operations, potentially enabling us to reduce our carbon footprint while ensuring operational efficiency and financial sustainability.

### **1.3 Type of Contract**

It is proposed that if the Issuing Office enters into a contract because of this Request for Proposal (RFP), it will be a **Cost Reimbursement, Deliverable-Based** contract containing the Standard Contract Terms and Conditions.

## **2 - BUDGET and CONTRACT TIME**

The **TOTAL** project budget shall not exceed **\$175,000 US Dollars**. Budgets will be evaluated separately, and only after a selection has been made as to which proposal is the most qualified based on technical merit.

The PI must provide the anticipated research study duration based on the proposed tasks. Consideration should be given to potential impediments so that adjustments are incorporated into the schedule minimizing the need for time extensions. Contract time shall include sufficient time for the procurement of subcontractors, as well as no less than three months for Final Report review and acceptance. Please be advised that going forward, new task orders having permissible justification will be allowed no more than a one-time extension with the advent of 2 CFR 200.

### **A 9-month total project duration is preferred.**

Please provide a Gantt Chart schedule, by month number (e.g., 1-24), showing tasks start/end, and deliverables. List corresponding deliverables below the chart.



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### **3 - Oral Presentations**

Oral online presentations may be requested as part of this RFP. If required, you will be notified by the Bureau of Research to schedule your oral presentation. The oral online presentation will be attended by the Technical Advisory Panel (TAP), and be limited to no more than an hour, including time for questions and answers.

### **4 – Deadline**

Proposals (no hard copies required) are due at the NJDOT Bureau of Research, Innovation, and Information Transfer (BRIIT) no later than **4:00 p.m. on July 26, 2024**

**Approximate Start Date: 11/22/2024.** The official start date is the date that the Bureau of Research obtains a signature from the Assistant Commissioner.

### **5 – CONTACTS**

Interested parties shall send all questions related to this RFP to the Bureau of Research, Innovation, and Information Transfer Manager by sending an e-mail to [Amanda.Gendek@dot.nj.gov](mailto:Amanda.Gendek@dot.nj.gov) or by phone (609-963-2242). Questions on this topic **shall not** be directed to any Research Project Manager, Research Customer, or any other NJDOT person. All questions must be received **on or before 06/28/2024 in order to be answered.**

### **PROPOSAL DELIVERY INSTRUCTIONS:**

**Electronic proposal documents (preferred pdf) shall be emailed to:**  
[DOT-Research.Proposals@dot.nj.gov](mailto:DOT-Research.Proposals@dot.nj.gov) with the subject: **RFP-2024-01 University – PI's Name.**  
A confirmation of receipt will be sent via email.