



New Jersey Department of Transportation
Bridge Resource Program-1
Request for Proposal
2025 - 2026 SPR Program

Project Title: NJDOT Bridge Resource Program-1 (BRP-1)

Posting No.: 2024-05

Date of RFP Announcement: 12/12/24

Closing Date: 01/20/25

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 Investigator (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

NJDOT invites all qualified Principal Investigators (PIs) to apply for one or more or all Bridge Resource Program RFPs—#1, #2 from NJ State Institutes of Higher Educations. Our goal is to maximize the number of proposals submitted by each institution for these RPFs. Proposal selection will be based on the quality of the PI's proposal over the submitting institution.

1 - PROBLEM STATEMENT AND OBJECTIVES

1.1 Problem Statement

The primary mission of the Bridge Resource Program-1 (BRP-1) is to provide ongoing engineering evaluation and research support to the NJDOT's Bureau of Structural Evaluation and Bridge Management within the Division of Bridge Engineering and Infrastructure Management to preserve the State's bridge and structural assets, optimize and rehabilitate the overall condition of the State's structures within the available funding levels, and assist with the development of policy and standards based on new technologies and guidelines as a component of the State of New Jersey's Asset Management System.

1.2 Objectives

The NJDOT is attempting to develop a scientific method to evaluate the department's annual program for bridge and structural asset maintenance, rehabilitation, and replacement. MAP-21 legislation has essentially mandated the actions outlined, providing increased urgency as well as additional requirements on how to complete the efforts. The NJDOT being a Public Service Agency has core competence in management, planning, design, construction and maintenance activities. The department, therefore, needs assistance with research and investigation of innovative

technologies to accomplish the above objectives through academic expertise and research capabilities unique to Institutes of higher education/PIs.

The foundation for a successful Bridge Resource Program-1 is to ensure that its core functional areas are aligned with NJDOT's needs, and are flexible, responsive and can efficiently enhance the overall performance of State assets. As such the BRP plan will be focused on the following core work areas:

- 1) Enhance NJDOT's Structural Asset Management Activities and the lifecycle management by developing policies that emphasize the entire lifecycle of a bridge, from planning, design and construction to maintenance and eventual decommissioning. This includes regular assessments and updates to maintenance schedules based on real-time data.
 - a. Develop, refine, and validate bridge deterioration modeling. This task includes developing new historical databases using current the National Bridge Inspection Standards (NBIS) and the Specifications for the National Bridge Inventory (SNBI).
 - b. Create deterioration trends based on historical data, validating accuracy of existing deterioration models, and evaluating correlation between the components and element condition ratings.
- 2) Provide technical assistance in data collection and data mining to implement/improve robust data management systems to store, analyze, and retrieve data collected from various monitoring and inspection technologies. This ensures that decision-making is data-driven and informed by the latest information.
 - a. Assist in investigating a model-based bridge data extraction method for both textual and graphical information from Structural Assets inspection reports that can be developed by leveraging text mining methods to automatically extract critical information from inspection reports as well as image recognition methods to align photographs of bridge deck conditions with bridge models generated by LiDAR and/or any other technology.
 - b. Research and assist in investigating drone and robotic systems inspection guidance, and support in developing business requirements for GIS based model to incorporate Structural assets data layer.
- 3) Provide technical assistance in enhancing bridge preservation actions within the framework of asset management, and developing/refining strategies to maintain, repair, and upgrade bridge infrastructure efficiently and effectively. This research should address practical, technical, and strategic aspects of asset management to improve the resilience, safety, and longevity of bridges.
 - a. Develop bridge preservation system which involves data collation and management, monitoring and diagnostics, risk assessment, LCCA and prioritization, and preservation strategies and techniques.

- b. Calibrate preservation actions and programs for bridge infrastructure. This activity includes refining and optimizing current maintenance strategies to ensure they are effective, efficient, and responsive to the current state of the assets. This may include a structured approach that incorporates data analysis, stakeholder input, continuous improvement, data collection and analysis, performance metrics and baseline establishment, feedback loops, technology integration, and documentation and Reporting.

1.3 Special Instructions

1.3.1 Progress Meetings and Annual Reporting

Progress Meetings: Bureau of Research, Innovation and Information Transfer (BRIIT) shall be included in Bridge Resource Program-1 progress and programmatic review meetings.

Annual Reporting: Bridge Resource Program-1 shall submit an annual 10–15-page summary report of complete and ongoing activities to BRIIT. A sample template specific to all NJDOT resource centers/support programs will be provided.

1.3.2 Pilot, Testing, and Demo Projects

BRIIT staff shall serve as an extended branch of Bridge Resource Program-1 staff by providing funding and/or management of any identified pilot/testing projects. BRIIT can assist in applying for and managing special grants that would be beneficial to Bridge Resource Program-1 efforts

1.3.3 Build on BRIIT's Technology Transfer Program

1. Bridge Resource Program-1 & BRIIT shall work together to identify topics and content
2. BRIIT Tech Transfer program, including but not limited
 - A. Articles
 - B. Promotional Videos
 - C. Tech Talks
3. Cross posting between NJDOT Tech Transfer and Bridge Resource Program-1 webpage

1.4 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 **\$700,000 US Dollars (\$350,000 per year) US Dollars**. The overhead rate for this RFP proposal **shall not exceed 15%**.



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The PI must provide the anticipated 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 note that new task orders with valid justification will be permitted only a one-time extension under 2 CFR 200.

A 24-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.

3 - Oral Presentations

Oral presentations may be requested as part of this RFP. If required, you will be notified by the Bureau of Structural Evaluation and Bridge Management under the Division of Bridge Engineering and Infrastructure Management to schedule your oral presentation. They may be conducted online or at the NJDOT headquarters in Trenton, NJ, and will be limited to a maximum of one hour, including time for questions and answers.

4 – Deadline

Proposals (no hard copies required) are due at the Bridge Resource Program-1 no later than **4:00 p.m. on January 20, 2025**. Electronic proposal documents (preferred pdf) shall be emailed to harjit.bal@dot.nj.gov with the subject: **BRP-1-RFP-2025-26 University – PI's name**.

Approximate Start Date: The official start date is the date that the Bridge Resource Program-1 obtains a signature from the Assistant Commissioner.

5 – CONTACTS

Interested parties shall send all questions related to this RFP to the Bridge Resource Program-1 by sending an e-mail to harjit.bal@dot.nj.gov. Questions on this topic **shall not** be directed to any Project Manager, Customer, or any other NJDOT personnel. All questions must be received **on or before December 27, 2025, in order to be answered**.

PROPOSAL DELIVERY INSTRUCTIONS:

Electronic proposal and budget documents (preferred pdf) shall be emailed to harjit.bal@dot.nj.gov with the subject: **BRP-1-RFP-2025-26 University – PI's name**. A confirmation of receipt will be sent via email.