



**New Jersey Department of Transportation  
Bureau of Research  
RESEARCH PROJECT  
Request for Proposal  
2017-20 Program**

**Date of RFP  
10/03/2016**

**Closing Date  
11/02/2016**

**Bridge Resource Program (BRP)  
Project No. 2017-02**

(Proposals must be prepared in accordance with NJDOT's *Information and Instructions for Preparing Proposals*. Please visit: <http://www.state.nj.us/transportation/refdata/research/pdf/techpropresproj.pdf> Revised Proposal Evaluation Forms are available for your information on the website.)

Proposals will be based on the merit of the information contained in the proposal. Budgets will be evaluated separately. Please place three (3) copies of the budget for this project in a separate sealed envelope.

A completed Pre-award Risk Assessment Form A shall be submitted with the proposal.

**1 - RESEARCH PROBLEM STATEMENT, BACKGROUND, AND OBJECTIVES**

**1-1. Purpose.** This Request for Proposal (RFP) provides to those interested ("Universities") in submitting proposals for the subject procurement sufficient information to enable them to prepare and submit proposals for the New Jersey Department of Transportation's (NJDOT's) consideration on behalf of the State of New Jersey to satisfy a need for the Project.

**1-2. Issuing Office.** The Bureau of Research ("Issuing Office") has issued this RFP on behalf of the NJDOT. The sole point of contact in the NJDOT for this RFP shall be the Research Bureau Manager ("Issuing Officer"), Camille Crichton-Sumners, Bureau of Research, NJDOT 1035 Parkway Avenue Trenton NJ 08625, [Research.Bureau@dot.nj.gov](mailto:Research.Bureau@dot.nj.gov). Please refer all inquiries to the Issuing Officer.

**1-3. Scope.** This RFP contains instructions governing the requested proposals, including the requirements for the information and material to be included; a description of the service to be provided; requirements which Universities must meet to be eligible for consideration; general evaluation criteria; and other requirements specific to this RFP.

**1-4. Problem Statement.** The objective of the Bridge Resource Program is to guide and strengthen the State's direction and decision making in the activities of NJDOT's Division of Bridge Engineering and Infrastructure Management needs.

**1-5. Type of Contract.** It is proposed that if the Issuing Office enters into a contract because of this RFP, it will be a **Cost Reimbursement, Deliverable based** contract containing the Standard Contract Terms and Conditions. The Issuing Office, in its sole discretion, may undertake negotiations with **one or more Universities** whose proposals, in the judgment of the Issuing Office, show them to be qualified, responsible, and capable of performing the Project.

**1-6. Disadvantaged Business Information.** The New Jersey Department of Transportation is committed to providing opportunities for Disadvantaged Business Enterprises to compete for work. To support this commitment, there is a goal of twelve point seven nine percent (12.79%) of the total contract dollar amount set for this RFP.

It is suggested that you utilize organizations certified by NJDOT's DBE Unified Certification Program (NJ UCP) as listed on the NJDOT webpage.

**1-7. Best and Final Offers.**

- A. While not required, the Issuing Office reserves the right to conduct discussions with Universities for obtaining "best and final offers." To obtain best and final offers from Universities, the Issuing Office may do one (1) or more of the following, in any combination and order:
  - 1. Schedule oral presentations;
  - 2. Request revised proposals;
  - 3. Enter into pre-selection negotiations.
- B. The Evaluation Criteria found in Part 2, Section 2-4, shall also be used to evaluate the Best and Final offers.

**1-8. News Releases.** Universities shall not issue news releases, Internet postings, advertisements, or any other public communications pertaining to this Project without prior written approval of the Issuing Office and then only in coordination with the Issuing Office.

**1-9. University Representations and Authorizations.** By submitting its proposal, each University understands, represents, and acknowledges that:

- A. All of the University's information and representations in the proposal are material and important, and the Issuing Office may rely upon the contents of the proposal in awarding the contract(s). The Department shall treat any misstatement, omission, or misrepresentation as fraudulent concealment of the facts relating to the Proposal submission.
- B. The University has arrived at the price(s) and amounts in its proposal independently and without consultation, communication, or agreement with any other University or potential University unless it's a joint proposal.
- C. The University has not disclosed the price(s), the amount of the proposal, nor the approximate price(s) or amount(s) of its proposal to any other firm or person who is a University or potential University for this RFP. The University shall not disclose any of these items on or before the proposal submission deadline specified in the Calendar of Events of this RFP.
- D. The University has not attempted, nor will it attempt, to induce any firm or person to refrain from submitting a proposal on this contract, or to submit a proposal higher than this proposal, or to submit any intentionally high or noncompetitive proposal or other form of complementary proposal.
- E. The University makes its proposal in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive proposal.

- F. To the best knowledge of the person signing the proposal for the University, the University, its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency. The aforementioned representative(s) have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding or proposing on any public contract, except as the University has disclosed in its proposal.
- G. To the best of the knowledge of the person signing the proposal for the University and except as the University has otherwise disclosed in its proposal, the University has no outstanding, delinquent obligations to the NJDOT including, but not limited to, any state tax liability not being contested on appeal or other obligation of the University that is owed to the Department.
- H. The University is not currently under suspension or debarment by the NJDOT, any other state or the federal government, and if the University cannot so certify, then it shall submit along with its proposal a written explanation of why it cannot make such certification.
- I. The University has not made, under separate contract with the Issuing Office, any recommendations to the Issuing Office concerning the need for the services described in its proposal or the specifications for the services described in the proposal.

## 2 - PROPOSAL REQUIREMENTS

2.1. Please visit: <http://www.state.nj.us/transportation/refdata/research/pdf/techpropresproj.pdf> for the proposal submission requirements. Proposals **shall not** be accepted without fulfilling the requirements in the document.

**2-2. Objections and Additions to Contract Terms and Conditions.** The University will identify which, if any, of the terms and conditions it would like to negotiate and what additional terms and conditions the University would like to add to the standard contract terms and conditions. The University's failure to make a submission under this paragraph will result in waiving its right to do so later, but the Issuing Office may consider late objections and requests for additions if to do so, in the Issuing Office's sole discretion, would be in the best interest of the Department. The Issuing Office may, in its sole discretion, accept or reject any requested changes to the standard contract terms and conditions.

The University shall not request to completely substitute its own terms and conditions nor request changes to the other provisions of the RFP. All terms and conditions must appear in one (1) integrated contract. The Department reserves the right to select more than one Institution of Higher Education. The Issuing Office will not accept references to the University, or any other, online guides or online terms and conditions contained in any proposal.

Regardless of any objections set out in its proposal, the University must submit its proposal, including the separate sealed cost proposal, based on the terms and conditions of the contract. The Issuing Office will reject any proposal that is conditioned on the negotiation of the terms and conditions set out in the contract or to other provisions of the RFP as specifically identified above.

**2-3. Disadvantaged Business Enterprise (DBE) Involvement.** Provide detailed information describing the NJDOT DBE Unified Certification Program (NJDOT UCP) certified DBE. Include the business name of the DBE with the address, contact person, phone number, the NJDOT DBE Unified Certification Program (NJDOT UCP) certification number, a detailed narrative of the services to be provided, and the percent of the

proposal's total cost to be contractually allocated to the DBE. No cost information can be displayed in the technical proposal.

Physical certification letters and/or expiration dates should not be requested from DBE certified firms. DBE certification does not expire. If no DBE is qualified, available, or willing to participate, the contractor must provide detailed, verifiable information describing the good faith effort made to locate a DBE. If the good faith effort is determined to be unacceptable, the proposal may be disqualified or other action taken.

**2-4. Criteria for Selection.** Please see the NJDOT Research Process for Review and Evaluation of Proposals at <http://www.state.nj.us/transportation/refdata/research/pdf/researchprocess.pdf>.

### 3 - WORK STATEMENT

#### 3-1. Research Objectives

The primary mission of the Bridge Resource Program (BRP) is to provide ongoing engineering evaluation and research support to the New Jersey Department of Transportation (NJDOT)'s Division of Bridge Engineering and Infrastructure Management to: (1) Preserve the State's Bridge and Structural Assets, and (2) Optimize the overall condition of the State's assets within available funding levels (3) Develop and support sustainable policies based on research products, guidelines and new technologies to preserve and renew NJDOT's structures as a component of the State of New Jersey's Asset Management efforts.

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. Although originally initiated by the NJDOT, the MAP-21 legislation and FAST Act (Fixing America's Surface Transportation Act) have essentially mandated the actions outlined, providing increased urgency as well as additional requirements on how to complete the efforts. The department is also attempting to develop a bridge preservation strategy to maintain its assets and structures in the most cost effective manner. The NJDOT being a Public Service Agency has core competence in 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 Universities.

The foundation for a successful Bridge Resource Program is to ensure that its core functional areas are flexible and responsive and can efficiently enhance the overall performance of State assets. The Bridge Resource Program will focus on the following core goals.

1. Evaluate the existing activities and practices, find improvement needs in the existing activities, and develop methods to mitigate deficiencies in the NJDOT's Bridge Management System.
  - a. Develop methods of performing Risk Based Prioritization work on assets in order to maximize safety and structural life at the optimal cost. Develop procedures and methods for complying with FAST Act requirements.
  - b. Develop management strategies for other structural assets such as noise walls on bridges, sign structures, high mast light poles, dams etc., new methods and best practices for preservation of bridges.
  - c. Research and recommend various types of technical tools, develop guidelines, manuals, and other supporting documentation for the Bureau of Structural Evaluation and Bridge Management.

- d. Develop and evaluate bridge deterioration modeling methodology and validate the bridge component deterioration models specific to NJDOT.
  - e. Develop and research methods of efficiently analyzing bridge component data with the intention to utilize the data in such a manner that the desired performance and results are achieved.
2. Evaluate the effectiveness of various methods used for the SUPERLOAD System. Evaluate and recommend best practices for performing Load rating.
  3. Investigate and evaluate structural emergencies due to unforeseen and/or special events and provide recommendations. This may be due to disasters or movement of extremely over-weight vehicles.
  4. Investigate the applicability of new AASHTO, TRB and other guidelines to the industry in general and to NJDOT Standards and Specifications specifically; recommend changes to NJDOT standards, specifications, and existing policies; develop guidelines as required.
  5. Review, test or pilot the use of new products and technologies in the areas of Structural engineering, bridge design and preservation.
  6. Develop technical training modules for various new technologies and methods for technology transfer, and provide training to NJDOT's Division of Bridge Engineering and Infrastructure Management.

### **3-2. Tasks**

[Provide a listing of appropriate general tasks divided into phases based on types of work (e.g., laboratory, field) or by year (e.g., year 1, year 2) or other appropriate milestones]

*The NJDOT is seeking the insight of proposal responders on how best to achieve the research objectives. Proposers are expected to describe a research effort that can realistically be accomplished as expeditiously as possible. Proposals must present the proposers' current thinking in sufficient detail to demonstrate their understanding of the problem and the soundness of their approach for conducting the required research.*

### **PHASE I – Literature Search**

Conduct a literature search of the current state of the practice.

After the award of the project, a more comprehensive literature search should be conducted. At the completion of this literature search, the PI may be asked to make a presentation to the Research Project Selection and Implementation Panel to discuss their findings and to discuss the appropriate research approach.

### **PHASE II – Research Approach and Anticipated Results**

Clear description of how you will solve the problem and implement anticipated findings. Work may be divided into phases (e.g., Laboratory, Field or Year 1, Year 2) as necessary to clarify tasks. *Exit Criteria* must be developed during this phase.

The following tasks are for a period of 48 months and will be divided into phases (Year 1, Year 2) as necessary. At the beginning of the year, the department will review and discuss the Bridge Resource Program objectives and assign tasks with specific time frame for each year. Each task performed during the year is expected to stand alone with clear deliverables.

The BRP objectives mentioned above will focus on the following tasks:

1. Develop, evaluate and support NJDOT's Bureau of Structural Evaluation and Bridge Management for the following:
  - a. Develop, refine and validate Bridge Deterioration Modeling
  - b. Provide data mining and technical assistance as needed with respect to the Bridge and Structural Asset Management Systems
  - c. Develop and Evaluate Life Cycle Cost Analysis capabilities within the Bridge Management System (BMS) to optimize the overall structural condition within the available funding resources
  - d. Develop and evaluate methods of performing Risk Based Prioritization (RBP) work and investigate where the RBP methods do not align with the Department's current practices, and provide recommendations.
  - e. In accordance with FAST Act and MAP 21 requirements,
    - Conduct research on best practices to support and validate the department's comprehensive and methodical Bridge Preservation effort, such as development of a draft Preservation "Manual" and Strategies Playbook.
    - Conduct research to develop Bridge Asset Performance Measure Matrix to validate the existing condition and forecast future condition
    - Conduct research and investigate existing data collection processes for compliance with FAST Act and MAP-21 requirements, identify and report potential gaps and recommend changes.
  - f. Develop documentation or guidance for creating management strategies such as, Preservation, Deterioration, Life Cycle Cost and Prediction Models for other structural assets such as noise walls on bridges, sign structures, high mast light poles, dams etc.
  - g. Research and innovate Bridge Predictive Modeling methods to reflect the effects of Bridge Preservation best practices using AASHTOWARE products
2. Innovative Research and Technology Transfer: Provide BRP related presentations and demonstrations to highlight relevant information to keep NJDOT staff abreast of the current state of practices and new developments in the fields of Design, Materials Engineering, Maintenance and Preservation, Construction and Bridge Management
  - a. Research, review and pilot nondestructive testing/evaluation (NDT/NDE) methods and techniques in accordance with the NJDOT requirements. Provide technology transfer and training to NJDOT's Division Bridge Engineering & Infrastructure Management staff on topics pertaining to but not limited to new products, policy guidelines and research products for Bridge design, construction, maintenance and preservation.
  - b. Develop methods to evaluate and validate currently implemented Overweight Truck route analysis for load carrying capacity and performance measures.
  - c. Research, educate and advise on best methods of performing bridge load ratings:
    - Evaluate and validate the existing NJDOT methods for determining the validity of Load Rating Models and develop methods of potential improvements to NJDOT efforts to validate these models, including their inclusion in Overweight Truck Route Analysis and permitting efforts.
    - Evaluate and recommend best practices to perform load rating, and provide appropriate load rating training to NJDOT Bridge Engineering staff.
  - d. Conduct Research in support of Bridge Engineering and Infrastructure Management policy decisions. Assist in gathering and presenting information to help guide and justify NJDOT's bridge policy through data collection, surveys and literature searches.
  - e. Research methods for performance modeling and rating analysis on complex structures.

3. On-Call Services:

- a- Rapidly respond to NJDOT's needs for advanced bridge engineering tools and services to address forensic and construction, or maintenance issues. Perform In-depth structural inspection and evaluation using innovative testing technology to investigate structural emergencies due to unforeseen and/or special events for individual structures as well as a corridor and provide recommendations.  
*(The Principal Investigator (PI) will respond to the request within one day and develop an appropriate work plan to supply the needed support and respond to NDE field evaluation upon NJDOT's request within 3 days).*
- b- Review AASHTO, TRB and other literature as directed, and evaluate the requirements of these documents specific to the State of New Jersey.
- c- Assist with research for development of updates to Standard Specifications, Plans and Details, as directed.
- d- Assist with research and academic input for updates to the NJDOT Design Manual for Bridges and Structures, as directed

### 3-3. Implementation and Training Plan

The PI must meet with the Research Project Selection and Implementation Panel (RPSIP) and other NJDOT units to present the findings and as appropriate train these personnel in the use the project results.

**The PI will develop an implementation plan as per the guidelines provided by NJDOT Research Bureau. All training shall be provided by licensed personnel on the subject matter. The training hours should count toward PDHs where feasible.**

**3-4. Emergency Preparedness:** To support continuity of operations during an emergency, including a pandemic, the Department needs a strategy for maintaining operations for an extended period. One part of this strategy is to ensure that essential contracts that provide critical business services to the Department have planned for such an emergency and put contingencies in place to provide needed goods and services.

- 1. Describe how you anticipate such a crisis will affect your operations.
- 2. Describe your emergency response continuity of operations plan. Please attach a copy of your plan, or at a minimum, summarize how your plan addresses the following aspects of pandemic preparedness:
  - a) Employee training (describe your organization's training plan, and how frequently your plan will be shared with employees).
  - b) Identify key employees (within your organization) and their essential business functions.
  - c) Identify contingency plans for:
    - i. How your organization will handle staffing issues when a portion of key employees are incapacitated due to illness.
    - ii. How employees in your organization will carry out the essential functions if contagion control measures prevent them from coming to the primary workplace.
  - d) Explain how your organization will communicate with staff and suppliers when primary communications systems are overloaded or otherwise fail, including key contacts, chain of communications (including suppliers), etc.
  - e) Explain how and when your emergency plan will be tested, and if the plan will be tested by a third party.

### 3-5. Deliverables

- Discussion to Support and Refine the Project Tasks
- Project work plan. A work plan for each task that identifies the work elements of each task, the resources assigned to the task, and the time allotted to each element and the deliverable items to be produced. Where appropriate, a PERT or Gantt chart display should be used to show monthly/quarterly project, task, and time relationship. Please follow the Figure 1 at a minimum for each year.
- Include a fee proposal breakdown (Figure 2, below) for each proposed year of the project and total life of the project, in addition to the NJDOT Bureau of Research budget preparation guidelines.
- Monthly Time Line Chart With Corresponding Activities and Deliverables
- Meeting Minutes of All Meetings Conducted With Customers, RPM and Other Project Stakeholders Submitted Electronically Within 48 Hours of Meeting
- Quarterly Reports in the Latest Format Version Provided to RPM and Customers Via Email Three (3) Weeks Prior to Annually Scheduled Research Bureau Quarterly Meeting Schedule
- Technical Memorandum on the survey results
- Technical memorandum on the measures that are working or not working
- Technical memorandum on actions taken
- Interim Status reports suitable for Senior Leadership if required
- Draft Final Report and Draft Tech Brief is Due in Hard Copy and Electronic Format to the Customers and Research Project Manager (RPM) three (3) months before the end date of the Project Contract for Review, Comments and Incorporation of Comments
- **Final Report Package:** Final Report and Tech Brief, with Appropriate Tables, Graphs and Charts in Hard Copy Version, PDF File Format, Word, and on CD ROM in Accordance With the Latest Version of the "Guidelines for Preparing NJDOT Research Final Reports and Tech Briefs", are due prior to final invoice submittal of the project to allow time for review by the Research Project Selection and Implementation Panel. The Final Acceptance will be granted upon receipt of two copies plus one per Research Project Selection and Implementation Panel (RPSIP) member of each presentation, technical memorandum, draft final report, and Final Report (plus 10 copies).

### 4 - CONTRACT TIME

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. Please be advised that going forward, new task orders having permissible justification will be allowed no more than one time extension with the advent of 2 CFR 200.

**A 48 month time frame would be preferred.** However, only first year's funds will be authorized. Subsequent years may be funded by contract modification on an annual basis, based on appropriation of funds and performance.

### 5 - CONTACTS

Interested parties shall send all questions related to this RFP to the Research Manager prior to **October 13, 2016**. Questions on this topic **shall not** be directed to any Research Project Manager, Research Customer, or any other NJDOT person. All questions are to be directed to Camille Crichton-Summers by sending an e-mail to [Research.Bureau@dot.nj.gov](mailto:Research.Bureau@dot.nj.gov) or by phone (609-530-5966).



A pre-proposal meeting may be scheduled with interested parties upon the request of more than one Institution of Higher Education. **This must be requested on or before 10/13/2016.**

## **6 - BUDGET LIMITATION**

The yearly total budget shall not exceed **1.6 million US Dollar.**

## **7 - DEADLINE**

**Proposals (10 single-bound copies) are due at the NJDOT Bureau of Research  
no later than 5:00 p.m. on November 02, 2016**

**Authorization to Begin Work: TBD**

### **PROPOSAL DELIVERY INSTRUCTIONS:**

**For private, paid messenger services such as Federal Express, DHL, UPS, etc., or for hand-carried deliveries:**

2016 PROPOSAL-NJDOT  
New Jersey Department of Transportation  
Bureau of Research  
1035 Parkway Avenue  
Trenton, New Jersey 08625-0600

### **For U.S. Postal Service mail:**

New Jersey Department of Transportation  
ATTN: Camille Crichton-Summers  
Manager, Bureau of Research  
P.O. Box 600  
Trenton, New Jersey 08625-0600





<b>Fee Proposal Breakdown</b>		NJDOT Bureau of Research University Task Order for:														
		Name of Research Study														
		Name of Institution														
Name	Title	Hrly Rate	Task 1		Task 2		Task 3		Task 4		Task 5		Task 6		Total Hrs	Total \$
			Hours	\$												
Faculty 1	Professor			\$0.00		\$0.00		\$0.00		\$0.00	0	\$0.00	0	\$0.00	0	\$ -
Faculty 2	Associate Professor			\$0.00		\$0.00		\$0.00		\$0.00	0	\$0.00	0	\$0.00	0	\$ -
Graduate Assistant	Supporting Role			\$0.00		\$0.00		\$0.00		\$0.00	0	\$0.00	0	\$0.00	0	\$ -
<b>Total Hours and Direct Labor Cost</b>				0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Fringe Benefits:</b>																
B: Fringe Benefit rates 1		0.00%														\$ -
B: Fringe Benefit rates 2		0.00%														\$ -
B: Fringe Benefit rates 3		0.00%														\$ -
<b>Direct Expenses (Itemize and explain in detail)</b>																
Supplies	Name all the supplies with unit cost, Quantity, and total cost on a separate sheet															
Travel	Breakdown the travel according to mileage															
Tuition	Breakdown needed for tuition															
Subcontract Expenses															\$0	
<b>Subcontract 1</b>	Subcontractors need to breakdown their budget similar to the prime															
<b>Subcontract 2</b>																
<b>Total Direct Expenses</b>															\$0	
<b>Indirect Costs/Overhead</b>															\$0.00	
<b>Grand Total</b>															<b>\$0</b>	

Figure 2: Sample Fee Proposal Breakdown