



University Transportation Research Center
RFP Cover Sheet

Title: Design for Deflection Control vs. Use of Specified Span to Depth Ratio Limitations
Proposal Number: 2009-04
Sponsor: NJDOT
Date Issued: August 08, 2008
Pre-Proposal Meeting: Contact NJDOT by August 22, 2008
RFP Due at UTRC: Send to Camille Kamga by September 24, 2008
RFP Closing Date: September 26, 2008

If you plan to apply:

1. Please contact Camille Crichton-Sumners (camille.crichton-sumners@dot.state.nj.us) or Stephanie Nock (609-530-5637) to request a pre-proposal meeting, and so that you will receive information about this meeting if it is held. *This meeting will be your only opportunity to ask questions about this proposal.*

2. If you plan to submit a proposal through UTRC, please notify us by email at nadia@utrc2.org and ckamga@utrc2.org. Please indicate whether you are open to teaming up with faculty at other universities on this project.

Proposal submission guidelines:

Please contact Camille Kamga (ckamga@utrc2.org, 212-650-8087) to discuss submission logistics. After UTRC confirms that the proposals' budgets meet UTRC and NJDOT guidelines, we can either provide you with a UTRC cover sheet, or you can send us the printed proposals for hand-delivery to NJDOT.

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>

For questions about budget preparation, contact: Camille Kamga, ckamga@utrc2.org
NJDOT has not specified a budget or timeline for this project. Please note that matching funds up to \$50k are available from UTRC for projects that are relevant to UTRC's theme of "Planning and Managing Regional Transportation Systems in a Changing World." Decisions about the availability of these funds will be made pursuant to the relevance of the topic and the volume of requests.

New Jersey Department of Transportation
Bureau of Research
RESEARCH PROJECT
Scope and Request for Proposals
2009 Program

Date of RFP
08-08-08

Closing Date
09-26-08

Design for Deflection Control vs. Use of Specified Span to Depth Ratio Limitations
Project 2009-04

(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.

1. RESEARCH PROBLEM STATEMENT, BACKGROUND AND OBJECTIVES

As specified in Subsection 2.5.2.6 of the AASHTO LRFD Bridge Design Specifications, bridges are to be designed to avoid “undesirable structural or psychological effects due to their deformations”. To meet these criteria and to control other deterioration that may occur due to excessive deformations, NJDOT requires that a bridge be designed for deflection control. Adhering to this, criteria has become problematic when use of Grade 70 higher strength high performance structural steel is desired. Designing for deflection results in provision of a minimum girder depth. Attempted use of Grade 70 material results in the need for deeper steel sections. This causes the use of Grade 70 material to be non-economical. Use of high performance Grade 70 steel is desired because its use provides greater quality assurance of a bridge attaining its 75 year design service life.

The AASHTO Specifications also include in Subsection 2.5.2.6.3 span to depth ratio limitations that were introduced years ago to provide an optional method to control deformations. Use of span to depth ratios will address deformation control and be more simplistic than designing for deflection control in that prescribed limits for all steel grades can be followed and design time can be shortened. However, the listed ratio values were established years ago when the primary structural steel was Grade 36 material. Therefore, the listed limitations should not be followed because today's primary structural steel grades are Grades 50 and 70.

There is a need to verify the applicability of the listed span to depth ratios and establish ratio limitations that address the use of structural steel Grades 50 and 70.

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 will 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.

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.

4. Deliverables: [List of minimum deliverables necessary to complete the project]

- Presentation of Summary of Literature Search Results
- Discussion to Support and Refine the Project Tasks
- Project work plan.
- 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
- Quarterly Reports, and
- Final report with appropriate tables, graphs and charts in hard copy version, PDF file format, Word, and on CD ROM. Two copies plus one per RSIP member of each presentation, technical memorandum, draft final report and Final Report (plus 10 copies). The Final Report and Tech Brief are due three (3) months before the end date of the project to allow time for review by the Research Project Selection and Implementation Panel.

5. 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.

6. Contacts:

A meeting may be scheduled with interested parties after the RFP's are distributed to refine the objectives and deliverables and to promote a better understanding of the research needs. Questions on this topic **shall not** be directed to any Research Project Manager, Research Customer, or any other NJDOT person. All questions and answers would be addressed **during this meeting**. Contact Camille Crichton-Summers (Camille.CrichtonSummers@dot.state.nj.us) on or before August 22, 2008 to confirm your interest in participating in such a meeting.

7. DEADLINE

Proposals (10 single-bound copies) are due at the NJDOT Bureau of Research no later than 4:00 p.m. September 26, 2008

Authorization to Begin Work: January 1, 2009--estimated or as negotiated

8. Delivery Instructions:

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

2009 PROPOSAL-NJDOT
New Jersey Department of Transportation

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For U.S. Postal Service mail:

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