



University Transportation Research Center
RFP Cover Sheet

Title: Work Zone Safety Analysis
Proposal Number: 2010-06
Sponsor: NJDOT
Date Issued: August 04, 2009
Pre-Proposal Meeting: Contact NJDOT by August 17, 2009
RFP Due at NJDOT: by September 14, 2009
RFP Closing Date: September 14, 2009

If you plan to apply:

1. Please contact Camille Crichton-Sumners (camille.crichton-sumners@dot.state.nj.us) or Stephanie Nock (609-530-5637 or STEPHANIE.NOCK@dot.state.nj.us) 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 peickemeyer@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, please use the UTRC cover sheet available at <http://www.utrc2.org/research/resourcesforpis.php> for submission of printed proposals 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 \$35,000 are available from UTRC for this RFP.

New Jersey Department of Transportation

Bureau of Research

RESEARCH PROJECT

Request for Proposals

2010 Program

Date of RFP

08-04-09

Closing Date

09-14-09

Work Zone Safety Analysis

Project 2010-06

(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

New Jersey averages approximately 6700 work zone crashes every year. 4800 crashes are in construction work zones and of the 6700 total crashes 3100 are within State jurisdiction. 25% of the crashes involve injuries and approximately 15 deaths every year

The research study will identify methods for reducing vehicular crashes, injuries and fatalities in the work zone analyzing the advance warning area, transition area, activity area and termination area.

Construction and Maintenance and operations activities present some of the biggest work zone safety and mobility challenges. Most activities are implemented through short- long term and/or mobile work zones. Worker and motorist safety is the number one priority; however, it may not be efficient to setup an elaborate work zone for an activity that may take a very short time to perform, both from a resource utilization perspective as well as a traffic mobility perspective. Work zones present a significant challenge in terms of:

- Delineating and protecting the work zone adequately enough to provide visibility and safety for the workers and any advance warning crew.
- Providing sufficient space and time for the crew to efficiently and effectively perform their work.
- Providing sufficient advance warning to motorists so that they may take appropriate action to slow down or change lanes well in advance of the work area.
- Setting up the work zone, implementing the work, and clearing the work zone setup such that the mobility impacts are minimal.

Transportation agencies use many processes, procedures, and guidelines that help address the above challenges. The MUTCD provides general TTC (Temp Traffic Control) guidelines for intermediate-term stationary, short-term, and mobile operations. Many agencies use typical TTC templates and other guidelines to help setup appropriate traffic control and management plans for different types of M&O activities. A majority of such guidelines are based on the MUTCD and are customized according to the individual needs of different agencies.

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.

Task I

The Scope of Work should include, but not limited to, the following:

The breakdown of accidents (percentage) in and around work zones specifically in the following areas:

- As motorists approach the work zone, in advance warning area of the Work Zone.
- In the Transition area of the work zone where normally the taper is located and motorists have to change lanes to conform.
- Within the work zone itself also known as the Activity Area (which also includes the buffer zone).
- And lastly the Termination area, where the motorists begin to depart from the work zone area.

Please note that the problem statement is traffic-related accidents or crashes only, as it affects the motoring public. It is not intended to focus on the safety of employees within the Work Zone.

Task II

NJDOT work zone accidents may include the following trends in NHTSA FARS, Work Zone Information Clearinghouse,

NJDOT work zone accidents include the following trends in NHTSA FARS, Work Zone Information Clearinghouse.

From the data, work zone accidents had the following characteristics:

- The number of work zone fatalities from one year to the next
- The severity of work zone accidents
- The predominant accident types were pedestrian, fixed object, angle, rear end, and opposite direction, which accounted for % of the fatal work accidents.
- Work zone accidents occurred relatively more on Interstate vs. rural etc.
- Work zone accidents were relatively more frequent between 8 AM and 4 PM, compared to all types of accidents. On contrast, fatal work zone accidents were relatively more frequent between 8 PM and 3 AM, compared to all types of accidents.

Compare National FARS and Work Zone Information Clearinghouse data, to NJDOT work zone data

- Yearly numbers of work zone fatalities
- The percentages of NJDOT work zone fatalities to national workzone fatalities
- VMT ratios of NJDOT to the United States, assuming that state population and VMT are exposure measures for work zone accidents.

Work operations duration: Mobile, short term, long term by: type of work: paving, sweeping etc.

Location of work: shoulder, traveled way, ramp, off the roadway.

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. Final Acceptance will be granted upon receipt of ten copies of the approved final report.

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 minimizing the need for time extensions.

6. Contacts:

A meeting may be scheduled with interested parties upon request 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 17, 2009 to confirm your interest in participating in such a meeting.

7. DEADLINE

<p>Proposals (10 single-bound copies) are due at the NJDOT Bureau of Research no later than 4:00 p.m. September 14, 2009</p>

Authorization to Begin Work: January 1, 2010--estimated or as negotiated

8. Delivery Instructions:

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

2010 PROPOSAL-NJDOT
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Bureau of Research
1035 Parkway Avenue
Trenton, New Jersey 08625-0600

For U.S. Postal Service mail:

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