



**University Transportation Research Center  
RFP Cover Sheet**

**Title: Adaptive Traffic Signal Control System (ACS Lite) for Wolf Road, Albany, NY.**

**Proposal Number: C-10-13**

**Sponsor: NYSDOT**

**Date Issued: May 6, 2011**

**RFP Closing Date: June 8, 2011 @ 5:00 PM**

*(Submit through the UTRC Online Submission System at [www.utrc2.org](http://www.utrc2.org))*

*All clarifications of the RFP can be accessed on the URL below:*

*[http://www.utrc2.org/research/rfps/C-10-13-RFP\\_Q\\_A.pdf](http://www.utrc2.org/research/rfps/C-10-13-RFP_Q_A.pdf)*

**If you plan to apply:**

Please contact Penny Eickemeyer at [peickemeyer@utrc2.org](mailto:peickemeyer@utrc2.org) to let us know you are assembling a proposal. We will make sure you receive any additional information that becomes available about this RFP.

**Proposal submission guidelines:**

Please submit your proposal electronically to UTRC at [www.utrc2.org](http://www.utrc2.org). All proposals must include the UTRC cover page (<http://www.utrc2.org/research/assets/Technical-CoverSheet.doc>)

**Funding available:**

Up to \$250,000 is available from NYSDOT. Facilities and Administrative Costs (or Indirect Costs) charged by academic institutions are included in the above amount. In addition, USDOT (UTRC) will provide up to \$35,000 in matching funds for requested funding above the NYSDOT budgeted amount. To the extent possible, we request that PIs identify sources of in-kind funding from their home institution (e.g., tuition waiver/reductions, overhead cost-sharing, faculty release time, etc.)

Budget forms can be downloaded at

<http://www.utrc2.org/research/assets/budget-Template.xls>

**For questions about this proposal, please contact:**

Deborah L. Mooney, Director  
Research & Policy Studies Section, 6th Floor  
New York State Department of Transportation  
50 Wolf Road  
Albany, NY 12232

**For questions about budget preparation, contact:** Penny Eickemeyer, [peickemeyer@utrc2.org](mailto:peickemeyer@utrc2.org)

**New York State Department of Transportation  
Request for Proposals  
May 6, 2011**

**SPR Project # C-10-13: Adaptive Traffic Signal Control System (ACS Lite)  
for Wolf Road, Albany, N.Y.**

**RESEARCH PROBLEM STATEMENT**

Adaptive Control Software Lite (ACS-Lite) is a low cost signal timing optimization system that dynamically adjusts signal timing to meet current traffic demands. ACS-Lite was developed through a public-private partnership between FHWA, Siemens, The University of Arizona, Purdue University, Siemens/Eagle, Econolite, Quixote/Peek and McCain Traffic. Field tests of ACS-Lite have resulted in estimated annual user cost savings ranging between \$88,000 and \$757,000.

This system, if successfully demonstrated, could be implemented in some of the New York State (NYS) corridors where variability and unpredictability in traffic demand results in excessive delay and stops that cannot be reasonably accommodated by updating coordinated signal timing parameters.

**OBJECTIVES**

The goal of this project is to conduct a demonstration and evaluation of the ACS Lite capabilities to minimize travel times, minimize the number of stops, minimize congestion and improve the flow of traffic. This research study will examine the ACS Lite technology and system which allows interconnected signals to rapidly (real time) respond based on fluctuations of traffic (vehicle and pedestrian) demands. The objectives are as follows:

1. Demonstrate and evaluate the Siemens ACS Lite technology and signal timing optimization system on the Wolf Road, Albany, N.Y., corridor to include nine (9) to ten (10) signalized intersections.
2. Deploy a travel time system to allow the collection of arterial and volume data along this corridor.
3. Conduct a Before-and After traffic study on Wolf Road in Albany, N.Y., to assess the operation and cost benefits of the ACS Lite software and hardware applications.
4. Document in a final report the results of the study, including findings, conclusions and recommended improvements to future deployments.

**PROPOSED RESEARCH TASKS**

*Task descriptions are intended to provide a framework for conducting the research. NYSDOT is seeking the insights of proposers on how best to achieve the research objectives. Proposers are expected to describe research plans that can realistically be accomplished within the constraints of available funds and research period. Proposals must present the proposer's current thinking in sufficient detail to demonstrate their understanding of the issues and the soundness of their approach to meeting the research objectives.*

Possible Tasks:

- **Task 1:** Conduct a field review and detailed needs assessment (i.e., detection systems,

communications equipment, etc.) on the Wolf Road, Albany, NY corridor. Prepare a report summarizing findings and a recommended implementation plan.

- **Task 2:** Based on the knowledge gained from Task 1, working with the NYSDOT Project Manager, develop a methodology to conduct the before-and-after-study and determine most appropriate time for collecting the data. The proposal should give specific details on how the team plans to objectively approach this problem, i.e., key evaluation criteria.
- **Task 3:** System equipment (communications and detectors) shall be supplied by the consultant and shall be delivered to the NYSDOT Signal Lab for QA/QC testing. In-pavement wireless detectors are required for this implementation.
- **Task 4:** Intersection upgrades and System integration. This will be based on findings from Task 1. NYSDOT will provide, at no cost to the consultant, assistance to access the signal control equipment; some of the upgrades; work zone protection; and other field work related equipment.
- **Task 5:** Training and documentation. Two training sessions for approximately fifteen (15) NYSDOT staff are required. The proposal should give specific details on how (and for how long) the consultant plans on providing technical support and warranty for the deployed system. How will future upgrades of the ACS-Lite software will be handled? Provide user training and system manuals. Summarize the task activity in an interim task report.
- **Task 6:** After the approval of the NYSDOT Project Manager, conduct the before-and-after study. Summarize in an interim task report the study details, data analysis, findings and conclusions.
- **Task 7:** A final report summarizing all tasks, including findings, conclusions and suggested recommendations/improvements for potential future ACS Lite system deployments.

## **RESEARCH PRODUCTS**

Final report summarizing the entire study, findings, conclusions and further recommendations

## **URGENCY / EXPECTED BENEFITS**

It is expected that the total travel time, stopped delay, number of stops, fuel consumption and emissions will considerably decrease during the “after” study period when the ACS-Lite software is in effect. The DOT Signal System affects public safety, mobility, reliability, and the economy of the state. Improvements will affect NYSDOT priority result areas positively.

## **RESEARCH PERIOD**

18 months

## **FUNDING**

\$250,000 has been budgeted for this project, exclusive of administrative fees. New York State believes this is a reasonable estimate for the total cost of the work being requested. The net cost to New York State is one of the selection criteria. When compared to competing

proposals, a proposal that requires fewer New York State dollars will receive a higher score on the cost component of the selection criteria. The value of New York State funds required could be reduced through efficiencies (fewer hours per task and / or lower cost per hour) or through cost-sharing where other funds substitute for New York State funds.

Proposals with a New York State cost over the budgeted amount will also be considered, provided the New York State cost, exclusive of administrative fees, does not exceed the budget estimate by more than 10%. (Note: Cost-sharing funds may increase the total project cost further.). Proposals that include sharing of some of the project cost will be preferred.

If a sufficient number of potential Principal Investigators indicate in writing that they believe the research cannot be reasonably conducted within these funding constraints and there are only a limited number of proposals submitted within the funding constraints, New York State reserves the option of not proceeding with the work or revising the budget estimate and issuing a new Request for Proposals. Potential Principal Investigators who believe the budget estimate is unreasonable should write to:

Deborah L. Mooney, Director  
State Planning and Research (SPR) Program  
Research & Policy Studies Section, 6<sup>th</sup> Floor  
New York State Department of Transportation  
50 Wolf Road, Albany, NY 12232

#### **SPECIAL NOTES**

- **Proposals are due by close of business, Wednesday, June 8, 2011.** This Request for Proposals is being offered to the University Transportation Research Center (UTRC) members only. Members should submit proposals through the Administrator of this research consortium. The receipt of an electronic PDF copy of the proposal by NYSDOT on or before the above due date is satisfactory, providing hard copies follow within a week.
- **Ten (10) hard copies** of the proposal should be provided.
- Proposals should indicate direct and indirect costs, hourly rates and hours by task, travel costs, and material costs to assist NYSDOT in understanding how the total cost for the work was estimated. The winning proposal will result in a fixed cost contract based on the details provided in a supporting detailed budget.
- Please provide a Budget Chart which shows for each task the deliverable and cost. Task headings in the Budget Chart are to match the scope task headings.
- Please include a Gantt Chart, showing the duration (start to finish) for each task in terms of months (i.e. Month 1, Month 2, etc) since the actual start date is an estimate. This can be combined on one page with the Budget Chart.
- If the proposal involves a joint venture or sub-consultants, it must be clear as to how tasks will be distributed or shared in the scope of work.
- The Principal Investigator is required to submit quarterly project status reports to the NYSDOT Project Manager, as specified in the Task Assignment.

- The Principal Investigator is required to submit all project task deliverables, first, in draft formats for review and comment by the NYSDOT Project Manager and Technical Working Group (TWG). The Principal Investigator is required to revise draft task deliverables, based upon comments, as needed, and re-submit to the NYSDOT Project Manager for review. Upon acceptance by the NYSDOT Project Manager, the Principal Investigator is required to submit draft task deliverables to the NYSDOT Project Manager in final formats, as specified in the Task Assignment.
- The final report on the results of the research is to contain, at a minimum, the information described in Attachment A, *Requirements for the Final Report*.
- Principal Investigators should be familiar with and follow the requirements of New York State with regard to the *Compliance Procurement Lobbying Law* and consultant contract procurement. Information can be found on the NYSDOT website under Business Center / Doing Business with NYSDOT / Consultants / Non-Architectural Engineering Information / Active Solicitations: <https://www.nysdot.gov/main/business-center/consultants>
- **The designated contact for this solicitation is Deborah L. Mooney.** Questions seeking clarification on the RFP will be accepted up to three (3) weeks prior to the due date for proposals and should be e-mailed to: [dmooney@dot.state.ny.us](mailto:dmooney@dot.state.ny.us)

## CRITERIA FOR SELECTION

- **Expertise / Understanding / Approach (Weight: 55%)**

Expertise: What is the extent of the relevant expertise of the Principal Investigator? What is the extent of the relevant expertise of others who will be involved in the research?

Understanding of the Problem: Does the proposal reflect an understanding of the problem and its relevance to New York State? Does the proposal reflect an understanding of existing data and the current state of knowledge in New York State?

Approach: Is the proposed approach clear, especially in how it will build upon and enhance the state of knowledge in New York State? Will it yield the deliverables called for in the RFP? Does the approach show insight that will lead to results that will sufficiently assist New York State in addressing the problem? Is the proposed approach practical given the schedule and total budget? Will the proposed research draw upon all critical sources of pertinent information?
- **Investigators Previous Experience with Similar Projects (Weight: 25%)**

Successful completion of previous projects by the Investigator(s) will be considered. These projects should be in the area of expertise required for successful completion of this project, such as signal optimization, state-of-the-art signal controllers, signal controller software, implementation of Siemens ACS Lite systems, etc.
- **Cost to New York State (Weight 20%)**

The lower the New York State cost, the greater consideration a proposal will receive.

## **Requirements for the Final Report**

**Copies of Final Report** – **Fifteen (15) hard copies** of a bound, final report is required at the conclusion of the research study. An electronic PDF copy of the final report is required, as well. In addition to the final report, a one page document, summarizing the project and project findings, shall be provided for technical transfer purposes. This is required in PDF format only.

### **Required Organization for the Final Report**

Title Page (front cover) - that contains:

- The research number (C#) assigned by the Research & Policy Studies Section of the Policy & Planning Division;
- The name of the research study as stated in the Task Assignment (contract);
- The words “Final Report;”
- The date (month & year) the final report is completed;
- The name(s) of the Consultant(s) / Principal Investigator(s), along with the name(s) of the organization(s) they represent and their address(es); and,
- If the final report has a security classification, it shall be noted on the title page.

Disclaimer (inside cover) - as follows:

#### **DISCLAIMER**

This report was funded in part through grant(s) from the Federal Highway Administration, United States Department of Transportation, under the State Planning and Research Program, Section 505 of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the United States Department of Transportation, the Federal Highway Administration or the New York State Department of Transportation. This report does not constitute a standard, specification, regulation, product endorsement, or an endorsement of manufacturers.

Form DOT F 1700.7 – complete the standard form used throughout the country to summarize federally funded transportation research

### Table of Contents

Executive Summary - a non-technical summary of the research and its findings

Introduction – a discussion of the problem, its background, and a concise history of research previously completed on the topic, and a discussion of what NYSDOT policies, procedures, and practices are currently in place related to the research topic.

Research Method – a description of the methods used in conducting the research

Findings and Conclusions – a discussion on the analysis of the data (findings) and the conclusions reached based on the findings. Suggestions for additional research, if appropriate, would appear in this section.

Statement on Implementation – a brief discussion on what would need to occur to introduce the results into practice, and a discussion on possible technology transfer activities

Appendices – as appropriate