



**REGION 2**  
**UNIVERSITY TRANSPORTATION RESEARCH CENTER**  
**RFP COVER SHEET**

**Title: Modeling Air Quality and Energy of NYSDOT Highway ROW Practices**

RFP Number: C-07-13

Sponsor: NYSDOT

Date Issued: November 9, 2007 , Revised 12/3/2007

Pre-Proposal Meeting Date: None

Draft Budget Due at UTRC: December 19, 2007 (send to [ckamga@utrc2.org](mailto:ckamga@utrc2.org))

Final Proposal Due at UTRC: December 20, 2007 (send to [peickemeyer@utrc2.org](mailto:peickemeyer@utrc2.org), cc: [ckamga@utrc2.org](mailto:ckamga@utrc2.org))

RFP Closing Date: December 21, 2007

**If you plan to apply:**

Please contact Penny Eickemeyer at [peickemeyer@utrc2.org](mailto:peickemeyer@utrc2.org) (cc: [ckamga@utrc2.org](mailto:ckamga@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. We will confirm that the proposals make comparable budget assumptions and will deliver the proposals to the sponsoring agency by the closing date.

**Funding available:**

Up to \$120,000 is available from NYSDOT.

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

Deborah Mooney ([dmooney@dot.state.ny.us](mailto:dmooney@dot.state.ny.us)) or Paul Hoole ([phoole@dot.state.ny.us](mailto:phoole@dot.state.ny.us))  
Research and Policy Studies Section, 6th Floor  
New York State Department of Transportation  
50 Wolf Road  
Albany, NY 12232

**For questions about budget preparation, please contact:** Camille Kamga,  
[ckamga@utrc2.org](mailto:ckamga@utrc2.org)

**Request for Proposals**  
**SPR # C-07-13; Modeling Air Quality and Energy of NYSDOT Highway ROW Practices**  
**November 9, 2007**

**RESEARCH PROBLEM STATEMENT**

New York State Department of Transportation owns about 1% of the land in New York State, much of which is associated with highway right-of-way (ROW). In order to properly manage the ROW, a variety of oftentimes competing risks must be identified, evaluated and prioritized. Safety of the traveling public requires that highways be properly drained during wet weather. Proper drainage of highways also extends the functional life span of roads and bridges. Trees need to be kept out of the clear zone. The guide rail needs to be kept free from vegetation so that it will function as designed. Worker and public safety requires control of poisonous and toxic plants in the ROW. Although other approaches are being evaluated, mechanical equipment and herbicides are the two primary methods currently used to control vegetation. The energy expenditure required for, and the pollution produced by, each of these practices is not known. The goal of this research is to quantify emissions and energy consumption associated with various vegetation control measures. This information will be used to model various scenarios to assist in selection of maintenance practices that minimize the impacts associated with vegetation management.

**OBJECTIVES**

The research will characterize and quantify the air pollution and quantify the energy consumption associated with various vegetation control measures primarily mechanical removal and herbicide application. The research will suggest ways in which this knowledge about emissions and energy consumption can be used to better manage competing risks, operator training and equipment. An example of competing risks is that employee safety seeks to minimize the amount of time spent working in the ROW, but mowing may require several passes per year to keep guide rail free from interfering vegetation.

The main objectives of the research are to:

1. Quantify the type and amount of emissions associated with vegetation control in the ROW
2. Quantify the amount of energy used by vegetation control measures
3. Suggest methodologies that will reduce the emissions and energy consumption associated with ROW vegetation control

**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:

- Inventory the types and number of vegetation control equipment used in Region 9 (seven counties). The inventory needs to include rental equipment. Various parameters include, but may not be limited to, fuel type, equipment age and state of repair and power output. Other variables that may impact operating efficiency of the equipment include terrain of area treated, type of vegetation, and when the area was last treated.
- Develop a plan to select representative pieces of equipment for further study of their emissions and energy use.
- Work with DOT personnel to develop a system that will allow the fuel used in each piece of equipment to be recorded.
- Identify collection and analytical methodology that will be used to evaluate emissions including, but not limited to, carbon dioxide, nitrogen oxides, ozone, volatile organic compounds and particulates.
- Collect data on emissions and energy use in the field during vegetation control (mechanical equipment and herbicide application).
- Evaluate the effect of operator training and equipment age and state of repair on energy conservation and air quality performance.
- Analyze data and organize results.

**RESEARCH PRODUCTS**

- Inventory of equipment used to control vegetation
- Selection of representative pieces of equipment whose exhaust can be measured in the field under real-time conditions
- Selection of appropriate sampling and analytical methodology to evaluate emissions from equipment used during vegetation control
- Collection of the field data
- Analysis of the data collected
- Integration of the findings into the bigger scientific picture
- Final report to summarize research results

**URGENCY / EXPECTED BENEFITS**

This research will characterize and quantify emissions and energy consumption associated with various methods of vegetation control. Knowledge of emissions and energy consumption will aid in informed decision-making regarding appropriate use of vegetation control methods. Pollution and energy costs, which were not measured in the past, are factors that need to be considered when prioritizing risks associated with vegetation management in the highway ROW.

**FUNDING**

**\$120,000** 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.)

## **RESEARCH PERIOD**

The research period is approximately 12 months, from early 2008 through early 2009. It is important to have the project started by March 2008 so that the inventory of equipment can be completed by the beginning of the vegetation control season, typically mid May. Field work will be conducted primarily between May and the end of September. The researcher or research organization needs to provide its own transportation. Analysis of the data can begin as soon as possible but must be completed by the end of 2008. The final report should be completed by the end of February 2009, in time to use for the 2009 vegetation control season.

## **SPECIAL NOTES**

- **Proposals are due by close of business, Friday, December 14, 2007.** NYSDOT has a contract in place with three research consortia. This Request for Proposals is being offered to the members of these consortia only. Members should submit proposals through the administrators of these consortia. The receipt of a pdf copy of the proposal by NYSDOT on or before the above due date is satisfactory, providing **12 hard copies** follow within a week.
- **The designated contacts for this solicitation are Paul Hoole and Deborah Mooney.** Questions seeking clarification on the RFP will be accepted up to two weeks prior to the due date for proposals and should be e-mailed to: [phoole@dot.state.ny.us](mailto:phoole@dot.state.ny.us) **and** [dmooney@dot.state.ny.us](mailto:dmooney@dot.state.ny.us) [See special note on Lobbying Law.]
- **Lobbying Law:** Principal investigators should be familiar with and follow the requirements of New York State (the Compliance Procurement Lobbying Law of 2005) with regard to consultant contract procurement. Information can be found on the NYSDOT web site ([www.NYSDOT.gov](http://www.NYSDOT.gov)) under “Business Center,” then “Consultants,” then “Non-Architectural Engineering,” then Active Solicitations.”

In particular, please note that communications between Contractors, Consultants/Principal Investigators, and Vendors with the Department are restricted during the period of time when services for more than \$15,000 have been requested (Request for Proposals issued), up until the time when the Consultant is selected. During this time communications, where *a reasonable person would infer that the communication was intended to influence the procurement*, should be limited to Department staff identified in the solicitation as “designated contact.”

Any communication with an employee, who is not a designated contact which is intended to influence the solicitation, could result in the outside party being prohibited from competing for the solicitation. A second violation will ban the

Consultant/Principal Investigator from competing for any Department solicitation for four years.

- 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 details provided.
- 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.
- 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.
- Proposals, where the New York State costs total more than 10% over the budgeted cost, will not be considered for selection. If a potential principal investigator believes the research cannot be reasonably conducted without an increase in the budget, they should write to:

Paul Hoole, Director  
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50 Wolf Road  
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If a sufficient number of potential principal investigators indicated in writing that they believe the research cannot be reasonably conducted within the funding constraints specified 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.

- The final report on the research will be expected to contain as a minimum the information described in Attachment A, *Requirements for the Final Report*.

## CRITERIA FOR SELECTION

### **Expertise / Understanding / Approach** (Weight: 60%)

Expertise: What is the extent of the relevant experience of the Principal Investigator? What is the extent of the relevant experience 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: 20%)**

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 air monitoring, evaluation of pollution on public health and familiarity with sampling and analytical techniques.

**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 Report** – Twenty (20) copies of a bound final report shall be provided at the conclusion of the research study. A pdf copy of the report is required as well.

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

**Title Page** - that contains:

- the research number assigned by Policy and Strategy Division;
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- if the report has a security classification, it shall be noted on the title page.

**Disclaimer** - as follows:

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**Form DOT F 1700.7** – A copy of USDOT form DOT F 1700.7

### **Executive Summary**

**Introduction** – a discussion of the problem, its background, 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** – the statement shall discuss the potential for implementation, along with what resources and actions will be required to have the benefits of the research fully achieved.

**Appendices** – as appropriate

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