

Region 2  
University Transportation Research Center



RFP Cover Sheet

**Title:** Best Practices for the Reduction, Reuse, and Recycling of Vehicle Wash Water

**RFP Number:** C-17-11

**Sponsor:** New York State Department of Transportation

**Date Issued:** April 3, 2018

**Final Proposal Due at UTRC:** May 22, 2018 (COB)

*Please submit electronically through the UTRC online submission system at*

<http://www.utrc2.org/welcome-utrc-ii-submission-system>. Do not send electronic copies directly to NYSDOT.

Seven hard copies are also required within one week of electronic submission. You may send the hard copies to:

Ms. Deborah Mooney  
Head, Research & Policy Studies Section  
Statewide Planning Bureau | Policy & Planning Division  
New York State Department of Transportation  
50 Wolf Rd, 6th Floor, Albany, NY 12232

**RFP Closing Date: May 22, 2018**

**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 technical and budget proposals electronically to UTRC. All proposals must include the UTRC cover page, <http://www.utrc2.org/resources>.

Budget forms can be downloaded at <http://www.utrc2.org/sites/default/files/budget-Template.xls>

**Funding available:**

Up to \$610,000 (Exclusive of RFCUNY and UTRC administrative fees) is available from NYSDOT.

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

Deborah Mooney, [Deborah.Mooney@dot.ny.gov](mailto:Deborah.Mooney@dot.ny.gov)

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

**New York State Department of Transportation**  
**Request for Proposals**  
**SPR # C-17-11: Best Practices for the Reduction, Reuse, and Recycling**  
**of Vehicle Wash Water**  
**April 3, 2018**

**RESEARCH PROBLEM STATEMENT**

The New York State Department of Transportation (NYSDOT) has approximately 1,500 plow trucks (Heavy Dump Trucks) which, combined, travel approximately 15 million miles annually. Most of that travel happens during the course of Snow and Ice (S&I) Maintenance. Each plow truck costs approximately \$200,000. Plow trucks receive extensive exposure to road salt and highway dirt during S&I and must be washed regularly to reduce corrosion-related maintenance costs and extend service life. These concerns also extend to the rest of the medium- and heavy-duty fleet, as well as equipment such as loaders, etc.

Ideally, all plow trucks and other Department vehicles and equipment would be washed thoroughly using a cleaning agent in addition to water. However, due in part to environmental regulations, this is not possible at all NYSDOT maintenance facilities.

In urban areas, NYSDOT maintenance facilities are generally connected to the municipal sewer system. The plow trucks and other maintenance vehicles and equipment in these areas can generally be cleaned using a non-emulsifying cleaner which enables the oil and grease washed from the vehicle to remain separate from the wash water. When the wash water passes through an oil/water separator (OWS), oil and grease is collected for disposal, while the water passes through to the sanitary sewer on its way to the treatment plant.

In suburban and more rural areas, NYSDOT maintenance facilities often have no access to a municipal sewer system. Wash water in these areas also passes through an OWS, but is then discharged (generally to a ditch) in accordance with a New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) Permit. One condition of SPDES permitted discharges is that vehicle washing can only be done using clean, cold water alone, which is not as effective as using water and a cleaning agent.

Some NYSDOT maintenance facilities have had difficulty meeting SPDES permit requirements and have elected to collect the wastewater and have it hauled away to treatment facilities for disposal. One NYSDOT facility has been able to incorporate the wastewater into salt brine for S&I operations, but the wastewater from other facilities has generally not been found to be acceptable for this use.

The greatest cleaning challenge for NYSDOT's maintenance vehicles and equipment is during S&I season. However, the vehicles and equipment require year-round cleaning. Outside of S&I season, cleaning is required to avoid dust obscuring the vision of vehicle operators, to ensure that NYSDOT vehicles are clean and, therefore, as visible as possible to the travelling public, and to remove undesirable dirt or vegetation which might contaminate other loads or spread invasive plant species. This study will investigate techniques to allow more sustainable cleaning practices during all seasons. The goal is to develop best practices for NYSDOT maintenance vehicle and equipment washing while minimizing water consumption and reducing the discharge of pollutants to the environment.

## **OBJECTIVE(S)**

- Extend vehicle life and reduce corrosion-related maintenance costs
- Reduce the amount of water consumed by vehicle washing operations
- Reduce pollutants discharged to the environment from vehicle washing
- Enable more widespread beneficial reuse of vehicle wash water as water source for the making of salt brine; and
- Improve environmental compliance efforts.

## **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 proposers' 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:**

- Literature Search
- Brief examination of vehicle washing practices of organizations with large fleets of medium- and heavy-duty vehicles (*i.e.*, UPS, FedEx, etc.)
- Evaluate wastewater quality from various vehicle washing methods
- Determine which of multiple vehicle washing practices result in wastewater that meets State Pollutant Discharge Elimination System (SPDES) permit requirements
- Evaluate differences in vehicle corrosion between washing methods
- Evaluate the effectiveness of wash water recycling systems, rates of chloride loading in the recycled wash water, and disposal/discharge/re-use options for the recycled wash water
- Determine differences in vehicle washing methods, other practices, and equipment that affect the viability of wastewater from vehicle washing as an ingredient for making salt brine, and if different brine makers have a greater tolerance for the use of vehicle wash water than others
- Evaluate different wastewater storage methods for practicability and cost effectiveness
- Determine implementation costs and perform benefit-cost analysis for various best practices
- Determine approximate current water consumption and wastewater discharge rates under traditional practices vs. post-implementation of best practices

## **RESEARCH PRODUCTS**

- Final report summarizing the research and results, including all tasks, deliverables, findings, recommendations and an implementation strategy, as applicable. Final reports are to adhere to **Attachment A, Requirements for the Final Report** (page 6)
- Vehicle and Equipment Washing Best Management Practices (BMP's) handbook
- Vehicle and Equipment Washing BMP's training materials

## **URGENCY / EXPECTED BENEFITS**

This project will reduce vehicle/equipment maintenance costs and increase vehicle service life. It will also reduce environmental compliance costs (permit fees, discharge monitoring costs, etc.) and decrease the risk of environmental violations. Additionally, the project will result in a reduction in the discharge of contaminants into the environment.

## **RESEARCH PERIOD**

24 Months (covering 2 full S&I seasons, which generally run 10/1 through 3/31). The anticipated project start date is August 1, 2018.

## **FUNDING**

**\$610,000** has been budgeted for this project, exclusive of the City University of New York Research Foundation (RF-CUNY) and the University Transportation Research Center (UTRC) 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.)

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, SPR Program Administrator  
Head, Research and Policy Studies Section, 6<sup>th</sup> Floor  
Statewide Planning Bureau, Policy and Planning Division  
New York State Department of Transportation  
50 Wolf Road, Albany, NY 12232

## **SPECIAL NOTES**

- **Proposals are due by close of business, Tuesday, May 22, 2018.** This Request for Proposals is being offered to the University Transportation Research Center (UTRC) members only. UTRC members must submit both a technical and a cost proposal through the UTRC research consortium RFP online submission system. 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.
- **Seven (7) hard copies** of the proposal should be provided.
- NYSDOT and the City University of New York Research Foundation (RF-CUNY) on behalf of the UTRC have an executed University Transportation Research Consortium

Agreement, Contract #C030793, in place. RF-CUNY/UTRC is the prime consultant for NYSDOT Task Assignments executed under this prime contract agreement. All sub-consultants (UTRC consortium members included) and sub-contractors performing work under the prime consultant contract shall be bound by the same required contract provisions as the prime Consultant. All sub-agreements between UTRC and a sub-consultant or sub-contractor shall include all standard required contract provisions, and such agreements shall be subject to review by the State.

- Publicity, including any material, data, information or analyses other than Confidential Information, that derive from activity under the Project; State materials; the State's name or other references to the State or NYSDOT ("Project Information"), in any document or forum disclosed to the public, is subject to the publicity and disclaimer terms and conditions of the NYSDOT/RF-CUNY UTRC prime contract agreement #C030793-01, Supplemental Agreement #1, Article 8, Section 8.05, Publicity, and Article 2, Section 2.03, Disclaimer.
- 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.dot.ny.gov/main/business-center/consultants/non-architectural-engineering/active-solicitations>

- **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: [Deborah.Mooney@dot.ny.gov](mailto:Deborah.Mooney@dot.ny.gov)

## CRITERIA FOR SELECTION

- **Expertise / Understanding / Approach (Weight: 65 %)**
  - 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: 15 %)**

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 wastewater treatment, water/environmental chemistry.
- **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)** color, hard copies of a bound, final report are 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 or research brief, 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;
- The title 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);
- A color photograph or design on cover to add professional appearance; 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