



**Ohio Department of Transportation
Office of Statewide Planning & Research
Research Section
Research Request for Proposal
Fiscal Year 2020**

RFP Solicitation Number: 2020-05

Research Title: Optimizing Maintenance Equipment Tracking

Problem Statement

Resource sharing across county and district lines is an important part of everyday work at the Ohio Department of Transportation (ODOT). The realization that maintenance equipment is one of our most treasured assets has become an integral part to the department becoming “one ODOT.” As an agency we strive to support each other in our efforts to serve the motoring public in cost effective and efficient ways.

Maintenance equipment (e.g.: skid steers, tractors etc.) is often costly and is purchased in limited quantities. To share a piece of equipment the equipment owner needs to know exactly where the piece of equipment is located at any given time. Often the equipment is moved from one location to another without the equipment owner being notified. This causes time delays when another request for the equipment is received and the equipment owner must call around to find the equipment. The loss of time can be substantial causing significant delays in the work to be performed. Real time notification of equipment tracking could help ODOT save time and money.

This research will look at how ODOT currently tracks maintenance equipment in order to find cost effective ways to perform the same function in real time giving notification when equipment has been moved from a designated location.

Goals and Objectives

The overall goal of the project is to provide ODOT with cost effective alternative to track maintenance equipment in real time. Objectives of this project include:

- Developing a tracking system for all maintenance equipment
- Easily implementable statewide
- Proven cost effectiveness
- Ability to allow multiple users with different administrative authority

Proposed Research

The purpose of this research is to identify maintenance equipment tracking alternatives and document the pros and cons of each alternative.

To accomplish this research, the scope of work should be divided into two phases. The scope of work should include, at a minimum, the activities noted below. Additional tasks may be included in the proposal by the research team as appropriate to ensure achievement of research objectives. ODOT's decision to invest in Phase 2 will be based on the Phase 1 interim report and recommendations, and it will consider both ODOT's ability to implement and the expected cost-benefit.

The first phase of the research requires a comprehensive look at current available tracking technology conducive for tracking a variety of equipment used in maintenance functions. An analysis of the current tracking systems used at different ODOT locations will be necessary to compare with any “new” system to be considered, the research team will work closely with ODOT District 2 (Williams County Garage). The recommendations will be developed by reviewing and documenting ODOT’s current tracking practices, new practice options, and then developing a matrix of choices and opportunities to enhance ODOT’s procedures for tracking maintenance equipment.

Proposals should be developed for Phase 1 only. Preliminary information on potential Phase 2 activities is being provided so that researchers may gain insight into the expected final deliverable for this research and focus their Phase 1 work accordingly.

Phase 1

- 1) Evaluate nationwide best practices for tracking maintenance equipment.
- 2) Complete an extensive technology review regarding these practices in other states, government agencies or private sector contractors.
- 3) Develop a matrix of practices used within ODOT as well as other states, government agencies or private sector contractors. In this matrix, include both the technology/software for equipment tracking.
- 4) Recommend equipment and practices to study or implement. Equipment may need to be purchased or modified to be a benefit to the ODOT practices. Provide an interim report detailing the findings from all the above steps. Recommend solutions for in-field testing and analysis. Solutions should be a combination of available products and process improvement. Recommendations should be presented in the form of a comprehensive matrix or decision tree considering all items involved in the analysis. **Interim report and matrix is due within four months of the project start date.**
- 5) Meeting with ODOT to review the interim report and discuss recommendations for Phase 2 will happen within four months of the contract start date. ODOT will then consider whether investing in Phase 2 work is warranted, based on the interim report and recommendations, and it will consider both ODOT's ability to implement and the expected cost-benefits.

If ODOT decides to continue to Phase 2, ODOT will work with the researcher on a Phase 2 proposal at that time. That proposal must include a comprehensive scope of work for field trials, updated project schedule, budget, and deliverables. If ODOT decides NOT to continue to Phase 2, then the interim report will serve as the draft final report for this project. Comments on the report will be provided to the researcher for incorporation and publication as a final report. A fact sheet may be requested.

Phase 2

- 1) Perform in-field analysis of approved methods and/or equipment from Phase 1.
- 2) Prepare a comprehensive report documenting findings from in-field testing.

Requirements of the Research Team

The research team should consist of experts in applied research. Proposals without demonstrating the components below will not be considered:

- Demonstrated knowledge of tracking equipment technology
- Demonstrated ability to perform a cost benefit analysis or return on investment
- Demonstrated ability to perform efficient and timely project management

The proposal must demonstrate that these requirements are met in the "Qualifications of the Research Team" section as well as in the attached resumes. Contracting requirements of the State of Ohio require the inclusion of an Ohio-based entity on the research team.

Assistance from ODOT

The research team will work closely with District 2, Williams county garage. The research team may need to work with other counties within the state as needed to gather adequate amount of data for both Phase 1 & 2.

Project Specific Deliverables

- Monthly conference calls (at a minimum)
- Matrix of current process for task 3
- Matrix of recommended changes to process including introduction of available products or new technology for task 3
- Meeting with ODOT 4 months after start date to discuss recommendations

Research Contract Deliverables

- Electronic Word version of the draft final report and draft fact sheet shall be submitted 60 days prior to the contract completion date; will be an interim report if phase 2 is approved.
- PDF and MS Word version for both documents shall be submitted by the contract completion date;
- Participation in a project start-up meeting and monthly conference calls

Benefits

The expected benefit will be to save time and money by locating equipment in a timely fashion, getting equipment to the job sight when requested by anyone in the state of Ohio. This would help in emergency management situations as well as equipment to and from job site locations. No more going to get equipment from a job site that has been moved months ago.

Preliminary Literature Search Results

N/A

Duration

6 months (for Phase 1 only)

An interim report should be submitted for consideration no later than 4 months following the contract start date. A meeting between ODOT and the research team will be scheduled within 3 weeks of submission of the interim report to discuss in detail the findings and recommendations for Phase 2.

If ODOT decides to continue to Phase 2, ODOT will work with the researcher on a Phase 2 proposal at that time.

If ODOT decides NOT to continue to Phase 2, then the interim report will serve as the draft final report for this project and a draft fact sheet will be requested for review. The research team will use the remaining time to modify and publish the report as instructed by the Research Section.

Specific Assurances with Respect to Federally-Assisted Projects

The Ohio Department of Transportation in accordance with Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, all bidders including disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, sex, age, disability, low-income status, or limited English proficiency in consideration for an award.