



REQUEST FOR PROPOSAL #24-03

Development of a Project-Scale Air Quality Screening Tool

POSTED DATE: 4/1/2024

CLOSE DATE: 4/30/2024 at 11:59 p.m. CST

Submit Proposals to: ICTProjectManagement@illinois.edu

PROJECT INFORMATION

Funds: \$300,000 total (includes a required 25% cost share of \$75,000 from proposing agency)

Estimated Contract Term: 30 months

Projected Start Date: 8/16/2024

BACKGROUND

In recent years, there has been an increased interest in transportation-related air pollution and the impact of new transportation projects on air emissions. The Illinois Department of Transportation collaborates with state and local partners to implement projects that improve transportation-related emissions through a variety of strategies. The IDOT project development process is detailed in its *Bureau of Design and Environment Manual*, which outlines all procedures used by IDOT and other project sponsors to comply with all relevant laws and regulations associated with air pollution control.

While the extent of environmental analysis depends on the project's scope and nature, IDOT currently focuses solely on carbon monoxide, one of the six principal air pollutants regulated by the US Clean Air Act, due to its impact on public health. IDOT developed a software program used for forecasting emissions during the Phase 1 process known as COSIM (see FHWA-ICT-08-019, FHWA-ICT-13-020), which performs carbon monoxide hotspot screening analysis for intersections.

Although IDOT is currently in compliance with all federal and state requirements, stakeholders have expressed interest in a greater understanding of emissions generated by transportation projects. This increased interest includes a broader scope of project types for which emissions forecasting is desired as well as a larger number of pollutant types analyzed. Anticipated actions at the federal level may also increase certain analysis requirements in the future. The challenge lies in integrating various tools to assess different pollutants into a user-friendly platform suitable for Phase 1 needs.

OBJECTIVE

The objective of the proposed research is to develop an analysis tool that can be used by IDOT and its partners for project-level air quality analysis. The analysis tool is intended to provide IDOT, local agency, and consultant staff with an efficient way to forecast project-level emissions in response to applicable current and future air quality regulations. The scope of the analysis tool shall, at a minimum, incorporate or account for the following items:

- All relevant federal and state requirements for air emissions forecasting shall be addressed (e.g., use of appropriate emissions rates from the most current EPA MOVES software). Illinois-specific parameters for weather conditions and dispersion shall be incorporated.
- Minimally, the tool shall include carbon monoxide, ozone, particulate matter (both PM_{2.5} and PM₁₀), and greenhouse gas pollutant emissions. The tool should accommodate more than one dispersion model if it is warranted based on pollutant behavior.
- Forecasting for highway intersection and highway segment projects shall be incorporated.
- Data to operate the analysis tool shall be based on data that is typically available to the analyst during the IDOT Phase 1 process. Consideration for future changes in the fleet mix (e.g., electrification) shall be incorporated as appropriate.
- Emissions from construction activity shall be addressed; however, the construction emissions tool may be a separate product from the operations tool.

RESEARCH TASKS AND REQUIRED DELIVERABLES

The proposed research will address the following tasks.

Task 1 — Develop a comprehensive, “open source,” and forward-compatible tool for estimating air pollutant emissions for proposed transportation projects as part of the IDOT Phase 1 process. This may be a stand-alone software package, web-based tool, or spreadsheet tool as determined by the researcher in conjunction with IDOT. Complete source code or similar provision shall be included to allow updates of various inputs to the analysis with minimal effort.

Task 2 — Provide a full user’s guide and training course as part of the research effort.

Task 3 — Prepare a final report detailing the study’s process, findings, and recommendations. Suggested updates for IDOT’s *Bureau of Design and Environment Manual* and *Air Quality Manual* are anticipated as recommended products from the research.

INSTRUCTIONS FOR SUBMITTING A PROPOSAL

The proposal shall be prepared in accordance with the guidelines presented in Appendix A.

By submitting a proposal, potential principal investigators are acknowledging they have read and understand the IDOT/ICT [PI responsibilities and Guidebook](#) and terms and requirements under the current [IDOT/ICT Intergovernmental Agreement \(IGA\)](#)*.

Technical questions regarding the research project or RFP procedures should be submitted to the ICT Project Management team via email at ICTProjectManagement@illinois.edu within 14 days of the posting date. Technical questions and answers will be posted on ICT's website as they are received.

* A new IGA will be effective July 1, 2024. Terms and conditions are not anticipated to change.

SPECIAL CONDITIONS FOR REVIEWING PROPOSALS AND AWARDING ICT FUNDS

Please note that the following conditions will be applied when reviewing all received proposals and in awarding ICT funds:

- 1) Preference will be given to Illinois universities (both public and private) when multiple proposals from this solicitation are reviewed and have identical scores.
- 2) The award of this project is contingent upon the availability of funds at the time of award.

APPENDIX A:

Guidelines for Preparing Proposals for the Illinois Center for Transportation

Please use the following format when submitting Illinois Center for Transportation proposals for consideration. Proposals should be a maximum of 15 pages (excluding the cover page, itemized budget, budget justification and optional appendices) with a minimum 11pt font, standard margins, and in Adobe PDF file format.

1. Cover Page

Use the cover page found [here](#).

2. Research Plan

Clearly and concisely address the proposed approach for solving the issue described in the problem statement. The research plan should be subdivided into the following sections:

(a) Introduction, Including Research Objective

Introduce the proposal and provide a concise overview of the research approach. Outline the objectives of the research project and explain the questions that will be answered by the research.

(b) Research Approach/Work Plan

Include details of the research project and strategies to accomplish the project objectives. Itemize the tasks and provide clear explanation of the research approach, deliverables, and identify the research team lead for each task.

(c) Anticipated Research Results

State the anticipated research results and deliverables.

(d) Expected Implementable Outcome(s)

All IDOT/ICT research is expected to be implementable. Describe what implementable outcomes (e.g., specification, test, recommendations, etc.) are anticipated that will facilitate implementation of the research results.

3. Qualifications and Accomplishments of the Research Team

Identify who will perform the research and provide a brief explanation of each researcher's qualifications and related research efforts.

4. Other Commitments of the Research Team

Outline the other commitments of the research team to demonstrate the ability to fulfill the commitments of the proposal.

5. Facilities and Equipment

Describe the facilities and equipment available to conduct the research.

6. Timeline Requirements

Include a timeline of the research project's tasks in this section. Describe the required time to complete the research, including final report preparation, ICT's editing process, review of the report by the Technical Review Panel, and publication of the report. Please note the final report must be submitted in Section 508 compliant format at least three months before the project's end date. Below is an example of a project timeline.

Project Milestones (assuming an August 16 Start Date, and a 24 month project)		2024					2025												2026							
		8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
1	Kickoff Meeting																									
2	PI conducts Research																									
3	PI writes DRAFT report																									
4	PI Submits Final DRAFT report to ICT for editing																									
5	ICT Preliminary editing phase																									
6	PI/TRP editing phase																									
7	Final editing phase																									
8	Report published																									
	(Quarterly Progress Reports Due)																									
	(TRP Meetings)																									

7. Itemized Budget

Provide an itemized project budget including the cost of personnel, consultants, subcontracts, equipment, materials, travel, indirect costs, and cost share.

A minimum 25% of the total project budget must be cost share from the proposing agency. Under the new IGA effective July 1, 2024, the indirect cost rate used for institutions with a federally negotiated F&A rate cannot exceed 42.97% of the modified total direct costs. If the proposing agency does not have a federally negotiated rate, a 10% de minimus rate must be used.

Subaward costs from outside the proposing agency cannot exceed 50% of the total project budget without prior approval.

A part of the cost share requirement may be fulfilled using unrecovered indirect costs. Any proposal submitted by an agency outside of the University of Illinois system that plans to use unrecovered indirect cost as cost share must submit a request for approval to IDOT/Federal Highway Administration. More information on this letter will be provided if a proposal is selected for funding.

Please utilize ICT's budget templates when submitting a proposal: [UIUC Budget Template](#) and [Subawardee Budget Template](#).

8. Budget Justification

Include a budget justification that explains the itemized budget in narrative form. The budget justification shall provide sufficient detail so there is a clear understanding of how

the project costs were calculated and why they are necessary. The narrative discussion of the project cost categories and related line items should be presented in the same order as they appear in the itemized budget. If the project requires the purchase of equipment, out-of-state travel, or out-of- or in-state conference registration/attendance expense, please list and explain here.

*Under the terms of our IGA, equipment is defined as any tangible or intangible product, having a useful life of **two years or more**, an acquisition cost of at least **\$500**, and solely purchased for use in the IDOT-ICT project. Equipment purchased on IDOT-ICT projects is to be returned to IDOT at the conclusion of the project, unless otherwise agreed upon. Equipment purchases on IDOT-ICT projects must have a **signed** pre-approval.*

*Travel expenses should include, but are not limited to, travel to TRP meetings, travel for testing / sampling, etc. Any out-of-state travel expenses and **any** conference expenses charged to the project must have a **signed** pre-approval.*

Inclusion of equipment and travel expenses in the project budget and workplan does not meet the requirement for pre-approval. Signed, pre-approval request forms must be submitted prior to purchase of any equipment or travel meeting the above criteria to be considered allowable expenses on the project. Expenses not meeting this requirement may not be reimbursed.

9. Cooperative Features (if appropriate)

If assistance or cooperation is required from other agencies, public or private, to complete this proposed research, describe the plans for securing this assistance.

10. Appendices (if appropriate)

References or any additional materials deemed necessary may be provided here.