

## Required Format for Iowa DOT Research Proposals

The following instructions are intended to help researchers prepare a research proposal that will be acceptable for review by the research staff. Where differences occur between information stated in this document and what is posted on the [Iowa DOT Proposal and Deliverable Guidelines page](#), the information posted on the website will govern.

The research proposal should be prepared in a manner that defines the research problem and objectives, provides a detailed work plan for achieving the objectives, and indicates how the research findings are expected to be used. Proposals should provide a straightforward description of the researcher's ability to meet the stated objectives.

### i. Cover Page

- a. Include the following information:
  - i. Proposal title (Maximum 7 words or from RFP)
  - ii. Research proposal number (from RFP)
  - iii. "Submitted to:  
[PROJECT MANAGER NAME]  
Iowa Department of Transportation  
Research & Analytics Bureau  
800 Lincoln Way, Ames, Iowa 50010"

### ii. Summary Page

- a. Include the following information:
  - i. "Submitted by" name, institution, address, e-mail address, phone, and [ORCID](#) of proposer
  - ii. Abstract (Maximum 300 words)
  - iii. Project cost
  - iv. Proposal date
  - v. Project length in months (**do not use dates**)
  - vi. Keywords from [Transportation Research Thesaurus \(TRT\)](#)
    - 1. [TRT Help Video](#)

### iii. Table of Contents

- a. On a separate page, list the proposal's sections and page numbers.

### iv. Problem Statement

- a. Concisely express your understanding of the problem presented in the RFP. Do not simply repeat the wording of the RFP but rather demonstrate your own insight into the problem.

**v. Background Summary**

- a. Include background information on the research topic. An online literature search of both of Transportation Research Board's [Research in Progress](#) and [Transport Research International Documentation \(TRID\)](#) records is also encouraged.
- b. Summarize these findings and state the relationship of the proposed study to prior research. The summary should reveal your understanding of underlying principles and should clearly express your appreciation of the problem.
- c. The importance of the background summary should not be underestimated. A comprehensive summary ensures that all aspects of the research topic have been adequately considered so new research can build upon prior work rather than duplicate it.

**vi. Objectives**

- a. State each of the study's technical objectives as cited in the RFP and indicate any additional objectives the proposing team will define for the project.
- b. Describe how each objective will be accomplished during the research. Any deviations from or additions to the objectives listed in the RFP must be explained and justified.

**vii. Research Plan**

- a. Describe how the objectives will be achieved through a logical and innovative plan. State each task proposed, and if listed in the RFP, also include tasks as cited in the RFP.
- b. Describe in appropriate detail how each task will be performed and how each task contributes to accomplishing the study's stated objectives. Any deviations from or additions to tasks listed in the RFP must be explained and justified.
- c. Include a task for completing the [Research Implementation Plan](#). This form is completed by the TAC, in collaboration with the research team, while the final report is in development (final three months of the contract period).
- d. If noted in the RFP, include a task for developing a [Data Management Plan](#), in collaboration with the Iowa DOT Research Project Manager, that focuses on:
  - i. Digital research data, including software and code products, that are of sufficient quality to validate and replicate research findings, regardless of whether they are used to support scholarly publications.
  - ii. Data that is difficult to replicate or of long-term interest to research communities.

Refer to Iowa DOT's [Data Management Plan guidance document](#) for assistance in developing the plan.

- e. The research plan should also describe the technical basis of the research. Describe the following, as appropriate:
  - i. Principles or theories to be used
  - ii. Significant variables to be tested
  - iii. Analytical and statistical procedures
  - iv. Experimental and testing procedures
  - v. Evaluation criteria

- vi. Inspection and survey methods
  - vii. Controls to be used
  - viii. Material or procedure development
- f. The research plan should be complete, providing the greatest level of detail that the researcher's understanding of the problem permits.
- g. Describe the facilities available to accomplish the research. Indicate equipment necessary to completion of the research and specify any restrictions on its use. Specify any equipment that is necessary but not currently on hand. If additional equipment is to be purchased with project funds, identify it and provide details in the budget estimate.

**viii. Products and Deliverables**

- a. List the products that are proposed to be delivered during the research project, which may include:
- i. Reports
  - ii. Computer programs
  - iii. Manuals
  - iv. Physical models
  - v. Photographs
  - vi. Databases
  - vii. Video or other audio/visual materials
  - viii. Data Management Plan; see [Iowa DOT's guidance](#) for details
  - ix. Final Presentation(s) & Posters
- b. Unless directed otherwise in the RFP, include the following items as products:
- i. Quarterly Progress Reports; see [Iowa DOT's guidance](#) for details
    - a. Applicable form and submittal instructions will be provided to the research team by the project manager during the kickoff meeting.
  - ii. Draft Final Report
  - iii. Final Report
  - iv. Technology Transfer Technical Brief
  - v. Research Implementation Plan(s); see [Iowa DOT's guidance](#) for details
    - a. Applicable form will be provided to the research team by the project manager during the kickoff meeting.
  - vi. Photographs and other image files
    - a. Provide a .jpg or .png file of at least two photos or images that appear in the Final Report or Technology Transfer Technical Brief that can be used in other communication products. Consider the following when selecting images:
      - i. Select a horizontal photo with a moderately high resolution, at least 500 pixels wide and preferably higher.
      - ii. Photos should have enough background-type space to accommodate a caption box.

**Note:** All products, final reports, and technology transfer technical briefs shall comply with ADA accessibility and Section 508 requirements, regardless of funding source. Section 508 is an amendment to the federal Rehabilitation Act of 1973 mandating that all electronic and information technology developed, procured, maintained, or used by

the federal government be accessible to people with disabilities. Refer to 29 U.S.C 794d for additional information.

Identify and retain a subcontractor with expertise preparing and remediating accessible documents, if needed.

- c. Electronic copies (in PDF format) of the Final Report and Technology Transfer Technical Briefs are required unless permission is specifically granted otherwise.

**ix. Implementation/Technology Transfer**

- a. Describe how (in general) Iowa cities, counties, or the Iowa DOT can apply the anticipated research results to improve their practice. If responding to a multi-state pooled fund RFP, frame in terms of general cities, counties, or DOTs instead.
  - i. Describe the form in which the research findings may be reported, such as a mathematical model, a laboratory test procedure, or a design technique. Describe these results in terms of the practicing engineer or administrator.
  - ii. State who would logically be responsible for applying the research results, such as the American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), Iowa cities and counties, the Iowa DOT, or specific bureaus within Iowa DOT.
  - iii. Identify specific standards or practices that might be affected by the research findings, such as AASHTO or Iowa DOT specifications, policies and procedures, legislation, and funding or staffing requirements.
  - iv. Identify institutional issues, including resource requirements, administrative rules, or laws, that might need to be addressed for successful implementation.
- b. If findings will not be suitable for immediate implementation, indicate what further work might be necessary.
- c. The research team, under the guidance of the TAC, will ensure that the final report includes completed *Research Implementation Plan(s)* in Appendix A.

**x. Benefits**

- a. Identify potential benefits expected from the research. Describe how the research results can be used, and by whom, to improve transportation practice. Possible benefits include:
  - i. Cost savings
  - ii. Increased safety
  - iii. Improved service
  - iv. Improved procedures
- b. To the extent possible, describe how these benefits can be measured and how their value can be determined after the study results are put into practice.

**xi. Time Schedule**

- a. Provide a bar chart or other graphical presentation illustrating the scheduling of the major research tasks (Table 1). Indicate the number of months allocated to each task. The following should be considered in the project schedule:
  - i. Determine project TAC members with Iowa DOT-designated representatives within 15

- calendar days of contract signature during a pre-kickoff meeting.
- ii. Schedule the project kick-off TAC meeting within 60 calendar days of contract signature.
- iii. Schedule TAC meetings at anticipated project milestones but not less than once every six months.
- iv. Submit quarterly progress reports.
- v. Allow 45 calendar days to obtain a Memorandum of Understanding (MOU) for access to certain datasets (if noted in the RFP).
- vi. Allow 60 to 90 calendar days for TAC review of draft final deliverables and completion of *Research Implementation Plan(s)*.
- vii. Schedule project closure presentation with the TAC to occur approximately 30 calendar days before the project end date.
- viii. Submit all final products and deliverables no later than 15 working days before the project end date.
- ix. Schedule final project presentation. Final project presentations should be performed prior to the project end date.

**Table 1 – Example of Major Tasks Schedule**

| Task                                         | Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------------------------------------------|-------|---|---|---|---|---|---|---|---|---|----|----|----|
| Literature Review                            |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Kick-off Meeting                             |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Field Surveys                                |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Field Tests                                  |       |   |   |   |   |   |   |   |   |   |    |    |    |
| TAC Meetings                                 |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Observe Construction                         |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Cost Analysis                                |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Develop Recommendations                      |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Complete <i>Research Implementation Plan</i> |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Prepare Final Report                         |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Present Findings to TAC                      |       |   |   |   |   |   |   |   |   |   |    |    |    |
| Final Project Presentation                   |       |   |   |   |   |   |   |   |   |   |    |    |    |

**xii. Staffing**

- a. Include pertinent background information for principal investigators and other team members significantly participating in the project. Provide specific information relating to their project responsibilities and to the value added to the project due to their participation. Support personnel may be identified by classification. Describe how academic, professional and research experiences relate to the project. Include a summary of past accomplishments in the same or closely related problem areas.
- b. If subcontracting is necessary, include subcontractors' key personnel and support staff in the proposal. Clearly identify subcontractors' involvement. Describe current commitments to other work in sufficient detail to permit assessment of the researchers' ability to meet the proposal's commitments.

**xiii. Iowa DOT or Local Jurisdiction Involvement**

- a. Describe any assistance required from Iowa cities, counties, or the Iowa DOT. If responding to a multi-state pooled fund RFP, frame in terms of general cities, counties, or DOTs instead. Include such items as:

- i. Traffic control
  - ii. Construction
  - iii. Highway maintenance
  - iv. Drilling and sampling
  - v. Access to transportation facilities
  - vi. Access to records or databases
  - vii. Interviews
  - viii. Material tests
- b. Quantify the required level of effort as fully as possible. Any expected participation from Iowa cities, counties, or Iowa DOT staff or resources must be approved by the responsible bureau or party in writing and submitted as part of the proposal document unless participation or resource is pre-approved as stated in the RFP.

**xiv. Budget**

- a. Show the estimated cost for the entire research project. If the proposal includes effort by subcontractors, a similar budget table should be included for each.
- b. Include description and estimated cost of any proposed equipment and non-consumable property to be purchased and used as part of the project.
  - i. Equipment means tangible property having a useful life of more than one year and a per-unit acquisition cost of \$10,000 or more.
  - ii. Non-consumable property means tangible property having a per-unit acquisition cost between \$2,000 and \$9,999.
- c. A breakdown of all travel costs must be identified separately. A detailed explanation of all travel costs shall be provided. Out-of-state travel will require Iowa DOT Project Manager approval in writing. Travel expenses to conferences are not allowed unless requested as part of the project by Iowa DOT Project Manager or outlined in the RFP.
- d. It is the policy of the Iowa DOT that payment of tuition for students involved in research is not allowed. Students may only be reimbursed based on hours worked on the project, being documented as such on invoices.
- e. Indirect administration costs, which include both facilities and administration:
  - i. May only be applied to the first \$50,000 of subcontract and support costs.
  - ii. Shall not be applied to equipment costs.
  - iii. Shall not be applied to computers, software or computer peripheral hardware usage fees.
  - iv. Shall not exceed 26% of total direct costs for contracts and subcontracts with institutions of higher education or learning.
- f. Computers and software:
  - i. Purchase of computers, software or computer peripheral hardware is not an allowable cost.
  - ii. Usage fees for computers, software or computer peripheral hardware in order to provide computers and software used in the performance of a project is an allowable cost.
    - 1. A breakdown of all usage fees by type and amount shall be provided.
    - 2. Indirect administration shall not be applied to computers, software or computer peripheral hardware usage fees.

- g. Equipment, services or systems produced by the following are not allowed:
  - i. Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
  - ii. Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- h. The amount indicated as “Funding limitation” on the RFP, if provided, represents the funding level the research topic merits and the level of funding provided to complete the proposed work. Proposers should set the scope and depth of study accordingly.
- i. Proposals responding to the RFP should respond to the identified budget and project goals. Additional project tasks, beyond those outlined in the solicitation, may be identified by the principal investigator if deemed useful in improving the general objective of the project. All additional tasks and budget items should be clearly identified in the proposal as extra work and shown separately from the project tasks and budget items associated with the RFP’s objectives. Because of budget constraints, additional funding may not be available and no budget increases should be expected to complete the additional tasks.

**xv. Submission**

- a. Submit completed proposals to [Proposal.Research@iowadot.us](mailto:Proposal.Research@iowadot.us).
- b. Use the following naming convention for the PDF submission:
  - i. ResearchProposalNumber\_Agency\_PrincipalInvestigatorLastName.pdf  
Ex. *SPR229\_ACME\_Jones.pdf* or *IHRB-1872\_DHConsultants\_Hill.pdf*