



Wisconsin Department of Transportation

Transportation Pooled Fund Program

Request for Proposal

Bridge Element Deterioration for Midwest States TPF-5(432)

Issued June 11, 2019

Proposal Deadline

**Proposals must be submitted no later than
4:30 p.m. Central Time on August 5, 2019**

For more information regarding this RFP contact the WisDOT Research Program at research@dot.wi.gov. This RFP and all related materials are posted to the Internet at <http://wisconsindot.gov/Pages/about-wisdot/research/researchers.aspx>

I. Definitions

The following definitions are used throughout the Request for Proposal:

- Contractor or Researcher: proposer that is awarded the contract
- Proposer: company, agency, institution or individual submitting proposal
- RFP: Request for Proposal
- TAC: Technical Advisory Committee, comprised of WisDOT and other pooled fund representatives from partner states to oversee the research
- WisDOT: Wisconsin Department of Transportation
- Participating Midwest DOT: one that is funding this pooled fund study and providing access to data, records, policy and liaison to project

II. Problem Statement

The objective of this pooled fund research is to have 12 Midwest DOTs pool resources and historic Midwest DOT bridge data related to the National Bridge Inventory (NBI) components and element level deterioration, operation practices, maintenance activities and historic design/construction details to provide the basis for research to determine select deterioration curves.

III. Background

Asset management (of bridges) is a strategic and systematic process of developing, operating, maintaining and improving physical assets, with a focus on engineering and economic analysis based upon quality research, information and analysis. Asset management will identify a structured sequence of preservation, maintenance, repair, rehabilitation and replacement actions that will achieve and sustain a desired state of good repair (SOGR) over the lifecycle of the assets at minimum practicable cost. Fundamental to achieving this as a process is the current condition of bridges from inspection data, criteria to identify work actions based on condition thresholds, and the ability to deteriorate current conditions to identify future needs and work actions.

Asset management connects user expectations for system condition, performance and availability with data-driven system management and investment strategies. Bridges are inspected at regular intervals and inspection information collected in the NBI condition data for many components of the bridges (deck, superstructure, substructure and others). This NBI data has been collected since 1992 for structures. Some DOTs had collected Commonly Recognized (CoRe) Structural Elements since the early 1990s. FHWA has required State DOTs to use bridge element level inspection in addition to NBI inspection starting in April 2015. The element level inspection provides for more granular (quantified) information on the magnitude and extent of deterioration of bridge elements as well as the causes of the deterioration (defects).

The identification of needs based on current conditions is fundamental to current operations of many DOTs. Each DOT has criteria to identify work actions based on the condition of their bridges.

As such, many Midwest DOTs are required to manage their bridge assets in such a manner that it is necessary to have insight to rates of deterioration to be able to anticipate future work actions. Forecasting future condition based on accurate current condition and deterioration rates provides the ability to identify, prioritize, plan, budget and implement work in a systematic manner.

Deterioration curves need to be developed through data analysis and research that are reflective of the Midwest environment (winter/summer), operations practices (application of deicing chemicals and representative rates of application), maintenance practices and design/construction details. In addition, these deterioration curves need to be specific and focused to address key transition points in a life of bridge structures so that accurate determination of timing of work actions is possible. These deterioration models must be compatible and complement the effectiveness of various Bridge Management Systems (BMS) used by agencies (BrM, Agile Assets and others).

IV. Objectives

The objective of this pooled fund research is to have multiple Midwest DOTs pool resources and historic Midwest DOT bridge data related to element level deterioration, operation practices, maintenance activities and historic design/construction details. This data will provide the basis for research to determine deterioration curves. A select number of deterioration curves will provide needed utility for the time-dependent deterioration of bridge elements to be used in making estimates of future conditions and work actions. This effort will pool data and through the analysis and research processes create results that will improve accuracy of various bridge management and asset management applications that the member DOTs use (AASHTO BrM, Agile Assets and others).

This study will be sequenced into three tiers based on the priorities of the DOTs:

Tier 1 National Bridge Elements (NBE) & National Bridge Inventory (NBI) Components

- Develop element level deterioration curves for Reinforced Concrete Deck. The curves should address coated and uncoated reinforcement use. Other features or environmental factors could also be addressed in the development of these curves. Access to data will be provided as the basis for the research to determine the curves.
- Develop element level deterioration curves for Reinforced Concrete Slab from data that will provide the basis for research to determine the deterioration curves.
- Develop deterioration curves for NBI component items (i.e. bridge deck, superstructure, and substructure) from data that will provide the basis for research to determine the deterioration curves.
- Develop element level deterioration curves for Reinforced Concrete Deck after a major preservation activity such as mill and overlay with rigid concrete wearing course.
- Develop predicted improvement in condition of Reinforced Concrete Deck element after a major preservation activity such as mill and overlay.
- In addition to probabilistic deterioration curves, also develop select deterministic deterioration curves.

Tier 2 Bridge Management Elements (BME) & Remaining NBE Elements

- Develop element level deterioration curves for each type of wearing surface (bare concrete, sealed concrete, thin polymer overlay, Polyester Polymer Concrete (PPC) overlay, ridged concrete overlay, Polymer Modified Asphalt overlay, and asphalt overlay with membrane) from data that will provide the basis for research to determine the deterioration curves.
- Develop element level deterioration curves for Strip Seal Deck Joints and Modular Deck Joints from data that will provide the basis for research to determine the deterioration curves.
- Determine defect level deterioration curves that describe defect development and progression (e.g., cracking and delamination).
- Develop deterioration curves for Paint system (protective steel) effectiveness.
- Develop defect level deterioration curves for Steel Girder corrosion, and correlate to Paint system effectiveness; specifically, how long from new paint to 75% and 50% effective and end of life.
- Develop element level deterioration curves for substructure elements in harsh environments (e.g., pier caps under expansion joints, pier columns in spray zone from snow plows, etc.).

Tier 3 Similar Agency Defined Elements (ADE) & Inspection Related

- Identify Agency Defined Elements (ADE) that would be of use for other Midwest DOTs to consider adopting.
- Determine what type of inspection information related to Nondestructive Evaluation (NDE) Midwest DOTs have and how it is used that translates into information on element level defects (Ground Penetrating Radar (GPR), Infrared Thermograph, or other).
- Provide summary of policy, guidance, and practices that Midwest DOTs employ to relate NDE results to defect reporting (to describe delamination and deterioration) and how DOTs use NDE to make quantifiable inspection and actionable work actions for concrete bridge decks.

V. Scope of Work

Proposers are asked to develop and include a detailed research plan for accomplishing the project objectives. Proposers are expected to describe research plans that can realistically be accomplished within the constraints of available funds and the contract time.

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.

The work proposed must be divided into tasks and proposers must describe the work proposed in each task in detail. The research plan should build in appropriate deliverables that include, at a minimum, at least two interim reports (Tier 1 and Tier 2) that describe work done in early tasks and update the work plan for the remaining (Tier 3) tasks; a final report, and a PowerPoint close-out presentation describing the background, objectives, research method, findings and conclusions.

The research plan should build in appropriate checkpoints; the TAC anticipates a launch meeting (possibly linked to the Midwest Bridge Preservation Partnership in October 2019) and one face-to-face

interim report review meeting. The following scope of work tasks described below are meant to provide a project outline to proposers. Proposers are free to review tasks or suggest other tasks or research techniques that would contribute to a more robust study, but proposers should justify the additions or changes in the proposal. All proposals must remain within the not-to-exceed budget outlined in Section IX. Project Duration and Budget of this RFP.

This describes tasks that the Contractor or Researcher must perform to successfully complete this project. The Contractor or Researcher may propose alternative tasks based on their understanding of the project.

1. Meet with Transportation Pooled Fund (TPF) Technical Advisory Committee (TAC) and share/develop workplan related to:
 - a. Priorities of deliverable products
 - b. Data collection plan and approach including what types of data the Contractor or Researcher believes are significant
 - c. Contact list (names) within participating DOTs and FHWA
 - d. Analytical methods
 - e. Overall work plan, schedule, Contractor or Researcher resources
2. Conduct a comprehensive literature review and assessment of current practices related to creation of bridge deterioration curves. This should be inclusive of recent studies and publications done for DOTs and current Bridge Asset Management (AASHTO BrM and other) applications as appropriate.
3. Data Collection
 - a. Develop familiarity of the inspection practices and coding methods of the DOTs related to element inspection and recording.
 - b. Compare state definitions of elements and coding practices for consistency and applicability.
 - c. Collect all available National Highway System (NHS) and Non-NHS Component and Element Level information from the DOTs. This may also include historic CORE Element information. This may also include available and pertinent Non-destructive Evaluation (NDE) information to be considered or employed in data analysis process.
 - d. Determine method to collect construction history data from DOTs as related to the analysis needs (original/maintenance/preservation) to address items like wearing surface.
 - e. Collect relevant DOT policies and practices related to bridge construction, preservation and maintenance as appropriate.
 - f. Conduct a systematic evaluation of FHWA NBI component and element level bridge condition data. The research team should utilize the FHWA, Long Term Bridge Performance "InfoBridge" for collection of national bridge demographic and condition information.
4. Develop a logical criterion to screen data for consistency applicability and share with oversight team for comment and approval.
 - a. This would include examining state DOT Preservation Policies and inspection policies for bridges as it may relate to this project.
 - b. This would also include reviewing existing guidance state DOTs have correlating non-destructive test inspection data to NBI Component and Element Level condition.

5. Develop an organizational method to identify, relate and preserve key data for bridges used in analysis of generating deterioration curves.
6. Develop deterioration curves consistent with priorities of team and work plan. This should document statistical parameters and tools used. The format of the deterioration curves (relationships) should be consistent with workplan and directly usable in asset management applications (compatible with BrM, InfoBridge and other applications). This should also include key transition points that may indicate need for work actions on bridge elements and components.
 - a. Consider physical (climate) environmental factors in analytical process.
 - b. Provide recommendations to DOTs on what information and format should be collected for future inclusion in deterioration modeling.
 - c. Provide tools, guidance and summary of how to make updates to the curves at future dates based on more available information.

Special Note

- Proposals should include a task-by-task breakdown of labor hours for each staff member and all costs (e.g., wages, indirect costs, travel, materials and total). Proposal should outline a plan and resourcing to effectively reach out to Participating DOTs within an appropriate amount of time to promote success of this project. Number and type of staff, methods of contact and data collection need to be detailed.
- The researcher should plan to progress work in order through Tier 1, Tier 2, and finally Tier 3 items. TAC review and approval will be required at the completion of each Tier of project items.
- Researcher should plan, schedule, and make allowances for two face-to-face meetings during the course of the project. Researcher will also need to plan and schedule for three web-based meetings after Tiers 1, 2 and 3.

VI. Deliverables

- A. Reporting Requirements: Sixteen (16) hard copies and an electronic copy of the final report delivered to WisDOT by the contract end date. This includes the report, deterioration curves and support details. Each report (quarterly progress report, interim and final report) will have a concise summary of key findings and action items. Reports should use appendices to contain extensive background and reference.
- B. Produce first generation of select deterioration curves with documented methodology to update these curves and add additional element curves.
- C. Provide data set used to develop deterioration curves and other related products in format that may be used by DOTs for future updates.
- D. Development of a PowerPoint presentation to serve as a training tool for DOT Bridge Management staff.

- E. Presentation Requirements: All projects require the Contractor or Researcher to give a close-out presentation to the TAC after submittal of the draft final report.
- F. Deterioration models consistent with format needed for use in contemporary Bridge/Asset Management applications (BrM, Agile Asset and defined in work plan development). This will include:
1. Component level deterioration, time-in-rating.
 2. For element deterioration, the Weibul shaping factor and three “median year times” which generate the deterioration curves.
 3. Formulas to apply varying factors to the base element deterioration curve

VII. Member States’ Roles and Responsibilities

TECHNICAL ADVISORY COMMITTEE – State Department of Transportation Agencies (or select DOTs)

Lead State – Wisconsin DOT

- Agency proposing the pooled fund
- Act as the sponsoring agency
- Oversee and handle administrative and logistical details of the project with the researcher
- Oversee the TAC and provide direction to the researcher as needed
- Provide Midwest DOT contacts for Bridge Management Data, Inspection Data, As-Built Plan Data and Policy information.

Participating States, Including Lead State

- Provide Bridge Management Data, Inspection Data, access to As-Built Plan Data (as needed as appropriate) and Policy information.
- Respond to questions from Contractor or Researcher
- Review, comment on and recommend for approval all project proposals generated through their participation on the TAC
- Make final decisions of the approval of any project proposal
- Participating states, including the lead state, will have one vote each on the TAC
- Each project partner will review project implementation to make sure project outputs will be useful
- Review project methodology and provide feedback
- Selected States will provide traffic data for statistical analysis
- Participate in quarterly or other scheduled teleconferences or any scheduled face-to-face meetings
- Provide timely review of deliverables

Federal Highways Administration (FHWA) – Long Term Bridge Performance (LTBP)

- Provide historic NBI and limited Element information for National Inventory
- As able, respond to questions from Contractor or Researcher

Selected Researcher

- Provide outreach to all Participating DOTs to request related bridge data (historic inspection, element, NBI, plan, policy, specifications and other)
- In person or via phone or web meeting, discuss data needs and progress with DOTs
- Prepare invoices to be sent to Wisconsin DOT for research activities
- Plan, coordinate and facilitate meetings using teleconferencing and other available technologies
- Manage activities to meet scope of work completion
- Prepare draft proposals that include work plans and budgets to be presented for review, comment and approval
- Prepare quarterly and final reports

VIII. Project Requirements

Full project requirements will be identified in the final contract and scope that will be negotiated with the researcher. However, proposals at a minimum should account for these requirements in the scope of work, timeline and budget.

1. Project meetings

The Contractor or Researcher will be expected to interact regularly with the TAC to approve task methods, discuss task findings, review the remaining steps of the project and consider any outstanding barriers, issues, concerns or questions that need to be addressed. At a minimum, proposals should account for meetings to cover these elements:

- Project kickoff / orientation
- Selection of method to collect data and considerations for Task 2
- Selection of pilot states for Task 3
- Review and approval of number of sample size for Task 4
- Presentation of findings and draft final report

Proposals should identify a recommended schedule of meetings to meet these requirements. Certain meetings may be combined, and meetings may occur through web or teleconference with the concurrence of the TAC.

2. Quarterly progress reports

The Contractor or Researcher must provide written reports of progress to WisDOT and the TAC at the end of each calendar quarter for the duration of the contract using the report template required by the FHWA Transportation Pooled Fund Program.

3. Final report and presentation

As indicated in Task 6, the researcher must present findings and a draft final report. The final report must conform to the following specifications:

- The final report must include an executive summary and the statistical details to validate research results and recommendations.

- The researcher is expected to submit the draft final report with quality technical writing and proper grammar. It is acceptable to include a technical editor on the research team to ensure these requirements are met.
- Once vetted, edited and approved, the researcher must provide the final research report to WisDOT in electronic (PDF) format and sixteen (16) printed copies.

IX. Project Duration and Budget

Project Duration

The contract shall be effective on the date signed and continue for 24 months from that date. Proposals should include a detailed schedule showing the placement of the tasks, meetings and expected review periods.

Project Budget

Proposals cannot exceed \$400,000. Any proposal that exceeds this amount shall be considered non-responsive to the RFP requirements and will not be accepted.

Special Note

Proposals should include a task-by-task breakdown of labor hours for each staff member(s) and all costs (e.g., wages, indirect costs, travel, materials and total).

X. Proposal Submission Process and Deadline

The issue date for this RFP is June 11, 2019.

Proposers may direct any questions, noted errors, discrepancies, ambiguities or deficiencies concerning this proposal via e-mail to research@dot.wi.gov by **4:30 PM Central time on June 28, 2019**. WisDOT will collectively post all questions and answers to <http://wisconsindot.gov/Pages/about-wisdot/research/researchers.aspx> by **4:30 PM Central time on July 12, 2019**. Proposers must direct questions, etc., about this RFP only to this designated e-mail and not to any other staff or agent of WisDOT or other TPF partner agency.

Proposers must submit an electronic version of their proposal (Adobe PDF required) by **4:30 PM Central time on August 5, 2019**, via e-mail to research@dot.wi.gov. Proposals submitted after the deadline will not be accepted for evaluation.

All proposals should conform to the WisDOT guidelines that follow in Appendix A.

APPENDIX A:



WisDOT Transportation Pooled Fund Program Proposal Preparation Guidelines TPF-5(432) Bridge Element Deterioration for Midwest States

June 11, 2019

The Wisconsin Department of Transportation (WisDOT) participates in transportation pooled fund projects that focus on safety, operations, policy, financing, planning, economy, environment and other topics. As lead state of a pooled fund, WisDOT contracts with colleges, universities, consultants, foundations and other research institutions to complete policy-related studies and other. This document provides instructions to interested parties to submit proposals for the Transportation Pooled Fund Program in response to a Request for Proposal (RFP).

1. PROPOSAL PROCESS & FORMAT

- a. Proposers must submit an electronic version of their proposal (Adobe PDF required) on or before the deadline specified in the RFP via e-mail to: research@dot.wi.gov. Proposals submitted after the deadline will not be accepted for evaluation.
- b. Proposals should include page numbers, use single spacing and use a minimum 10-point font. WisDOT recommends that proposals should be concise; however, there is no page limit to the proposal except for the work plan section as indicated below.
- c. Proposers may direct any questions, noted errors, discrepancies, ambiguities or deficiencies concerning this proposal via e-mail to: research@dot.wi.gov by the deadline indicated in the RFP. WisDOT will collectively post all questions and answers to the website designated in the RFP and by the date designated in the RFP. Proposers must direct questions about this RFP only to this designated e-mail and not to any other staff or agent of WisDOT or any other Participating DOT.
- d. WisDOT staff and project committees will review and evaluate all proposals. WisDOT will notify each proposer of the status of the proposal only after a project is awarded or after the department makes a decision not to conduct the project.

2. REQUIRED ELEMENTS

- a. Cover – The cover must contain the title of the project, limited use disclaimer and identification of the submitting agency. An example cover page is provided in Figure 1.

- b. Summary page – The summary page should immediately follow the cover and include the information in Figure 2.
- c. Table of contents.
- d. Background – The proposer should demonstrate a clear understanding of the problem statement as described in the RFP. The proposal should address how the project relates to state DOT practices and how it will benefit state DOTs. The proposer should demonstrate an awareness of recent research and current practice on the topic.
- e. Work plan – The proposal must limit the work plan to ten (10) pages. The plan should outline the approach the researcher(s) will take to address the objectives, the scope of work, the project requirements and project deliverables. The work plan should demonstrate the following qualities and will be evaluated on the same:
 - i. The work plan should display a clear understanding of how the tasks relate to the overall research objective, especially as it focuses on the needs of the participating pooled fund partners.
 - ii. The work plan should utilize established and valid research techniques while at the same time providing for creative methods and ideas to deliver effective results.
 - iii. The plan must specify deliverables and note the activities needed to provide those deliverables according to the timeline specified.
- f. Expected contribution from partner states and lead state staff – The proposal must identify involvement or guidance required or expected from state DOTs or agents to support completion of the project.
- g. Implementation plan – The proposal must include a plan or approach for partner states to implement the findings of the research, focusing on the following:
 - i. Expected findings (or type of findings) from the research;
 - ii. The stakeholder or intended audience that will likely be impacted by the research findings;
 - iii. The activities, tools, practices, policies or methods in partner states that would be impacted by the research findings; and
 - iv. The expected benefits to partner states and other agencies that could be achieved by implementing the research findings.

- h. Timeline – The time allowed to complete the research project is indicated in the RFP. The proposal must provide a project timeline including a Gantt chart showing the start and end dates of major tasks, project milestones and submittal of deliverables.
- i. Utilization of staff resources – The proposal must detail the number of hours by task committed to the project by each individual member of the research team, including subcontractors, with the Principal Investigator(s) clearly indicated. A template is provided in Figure 3.
- j. Itemized budget – The maximum funding available for the project is provided in the RFP. The proposal must provide a detailed budget based on project tasks. Any proposal that exceeds this amount will not be accepted for evaluation. Proposers should not include matching funds or in-kind contributions in the proposal or the budget. As per WisDOT contracting / consulting policies, the prime contractor / lead agency must perform at least 30 percent of the work on the project as measured by the budget. A proposal that does not call for at least 30 percent of the work by the prime contractor / lead agency will not be accepted for evaluation. **For the deliverables, the researcher will provide sixteen (16) print copies and one (1) electronic copy of the final report.** A budget template is provided in Figure 4.
- k. Qualifications of research team – The proposal should list experience and qualifications for the Principal Investigator(s) and all other key project team members, including subcontractors, with a focus on how the experience and qualifications relate to the project.
- l. Experience and references – The proposal should describe the experience of the organization(s) contributing to the project by identifying up to five previous initiatives that are relevant to the research project. The descriptions should include nature of the work, dates, locations, results and client reference contact information. WisDOT reserves the right to contact any client listed by the proposer as a reference either before or after evaluating the proposal.

3. PROPOSAL EVALUATION

The partner states will evaluate and score all valid proposals based on the following criteria and points:

| Criteria | Guideline Section | Points |
|---|-------------------|------------|
| Background / awareness of recent work | 2.d. | 5 |
| Work plan – understanding of problem | 2.e.i. | 20 |
| Work plan – activities & techniques | 2.e.ii. | 25 |
| Work plan – deliverables | 2.e.iii. | 10 |
| Anticipated results & implementation plan | 2.g. | 5 |
| Utilization of staff | 2.i. | 15 |
| Qualifications of research team | 2.k. | 20 |
| TOTAL | | 100 |

Figure 1

WisDOT

Transportation Pooled

Fund Program

Project Title

LIMITED USE DOCUMENT

This proposal is for use of the recipient in selection of a research agency to conduct work for WisDOT. Proposals are regarded as fully privileged, and dissemination of the information included therein must be approved by WisDOT.

Agency Name

Date

Figure 2

Summary Page

Project Title:

Proposing Agency and Contact Information: (Use the name, address and telephone number that will appear on a contract for work.)

Person Submitting the Proposal: (Name and title)

Proposal Written By: (Name and title)

Proposal Date:

Principal Investigator: (Name and title, address, telephone number, and email address)

Administrative Contact: (Name and title, address, telephone number, and email address)

Proposed Contract Period: (In months)

Total Contract Amount:

Overhead/ Indirect Cost Portion at ____%

Figure 4 Budget Worksheet
Table 1 Work Effort by Task

| INDIVIDUALS | TASKS | | | | | | Total Salaries | Fringes | Total Salaries and Fringes |
|--------------------------------|-------|-----|-----|---|---|-----|----------------|---------|----------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| Principal Investigator | | | | | | | \$0 | | \$0 |
| Graduate Students/Senior Staff | | | | | | | \$0 | | \$0 |
| Hourly Students/Junior Staff | | | | | | | \$0 | | \$0 |
| Office Staff | | | | | | | \$0 | | \$0 |
| TOTALS | \$0 | \$0 | \$0 | | | \$0 | \$0 | \$0 | \$0 |

Table 2 Total Contract Summary

| Table 2 Total Contract Summary | | | | | | | | | TOTALS |
|---|-----|-----|-----|--|--|-----|-----|-----|---------------|
| Total Salaries, Wages and Fringes (From Table 1) | | | | | | | | | \$0 |
| Sub-Contracts (Please list each subcontract separately) | | | | | | | | | |
| <i>Subcontractor 1 (Provide Name)</i> | | | | | | | | | \$0 |
| <i>Subcontractor 2 (Provide Name)</i> | | | | | | | | | \$0 |
| Subtotal | \$0 | \$0 | \$0 | | | \$0 | \$0 | \$0 | \$0 |
| Other Direct Costs | | | | | | | | | |
| <i>Item 1</i> | | | | | | | | | \$0 |
| <i>Item 2</i> | | | | | | | | | \$0 |
| <i>Item 3</i> | | | | | | | | | \$0 |
| Subtotal | \$0 | \$0 | \$0 | | | \$0 | \$0 | \$0 | \$0 |
| Materials & Supplies (List all items over \$1000 separately) | | | | | | | | | |
| <i>Item 1</i> | | | | | | | | | \$0 |
| <i>Item 2</i> | | | | | | | | | \$0 |
| Subtotal | \$0 | \$0 | \$0 | | | \$0 | \$0 | \$0 | \$0 |
| Travel (State number of trips and estimated cost/trip) | | | | | | | | | |
| <i>Trip 1</i> | | | | | | | | | \$0 |
| <i>Trip 2</i> | | | | | | | | | \$0 |
| Subtotal | \$0 | \$0 | \$0 | | | \$0 | \$0 | \$0 | \$0 |
| Communications (Printing is required) | | | | | | | | | |
| <i>Printing (12 printed final reports are required)</i> | | | | | | | | | \$0 |
| <i>Other</i> | | | | | | | | | \$0 |
| Subtotal | \$0 | \$0 | \$0 | | | \$0 | \$0 | \$0 | \$0 |
| TOTAL DIRECT COSTS | | | | | | | | | \$0 |
| TOTAL INDIRECT COSTS (Provide Rate and Base) | | | | | | | | | \$0 |
| Fixed Fee if Applicable | | | | | | | | | \$0 |
| TOTAL CONTRACT COST | | | | | | | | | \$0 |