



**Wisconsin Department of Transportation  
Transportation Pooled Fund Program**

**Request for Proposal**

**Axle and Length Classification Factor Analysis and Effects on AADT**

**TPF-5(340)**

**Issued March 7, 2016**

**Proposal Deadline**

**Proposals must be submitted no later than  
4:30 p.m. Central Time on April 11, 2016**

For more information regarding this RFP contact the WisDOT Research Program at [research@dot.wi.gov](mailto: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

## II. Problem Statement

State DOTs face ongoing challenges to ensure quality and soundness of traffic data. The multitude of traffic count equipment/software on the market, data collection best practices, number of length bins, and data processing hurdles are the usual topics talked about when discussing data quality.

Axle factors are used to estimate annual average daily traffic (AADT) volume. Axle classification and length classification sites are used to determine axle factors. To fully understand the relationship of axle classification *versus* length classification when generating axle factors will require analysis of millions of traffic records.

## III. Background

The Wisconsin DOT is leading a pooled fund to utilize resources and expertise to research and analyze the complex issue of how length-based data affects axle factoring and leverage more cost-effective traffic data collection methods to support factor generation.

Wisconsin has completed an initial study on this topic with High Desert Traffic that provides a foundation to build upon. The Wisconsin study also examined the use of individual vehicle records to calculate updated average axles for each length classification binning scheme used. This study continued the ground work done in the *TPF 5-(192) Loop and Length Based Classification Pooled Fund* led by Minnesota DOT to address the multifaceted issues of developing reliable axle factors from length-based classification data.

Participation in this pooled fund presents an opportunity for partner agencies to take advantage of a wide range of expertise in *axle* and *length* classification traffic data and factor generation analysis to ensure their programs are efficient, cost effective and provide sound traffic data.

## IV. Objectives

Assemble State DOTs and industry experts to conduct research and statistical analysis on millions of traffic data records to provide guidance and understanding on the variability of how axle and length classification data affect AADT, specifically with regard to the creation of axle factors.

Gain a quantitative understanding of how length classification traffic data affects the calculation of AADT. Length classification sites are more cost effective than axle classification sites from

installation to maintenance. This objective will allow State DOTs to fully understand the statistical significance and soundness when using this cost-effective data collection option.

Gain a quantitative understanding of how axle classification data and length classification traffic data interact and affect the calculation of AADT when these disparate classification systems are combined. State DOTs that have both types of continuous classification traffic site installations or State DOTs who are considering including the less expensive length classification sites to their continuous program will understand the advantages and distinctions of utilizing these combined data sources.

## **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 that describe work done in early tasks and update the work plan for the remaining 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 and at least one face to face interim report review meeting. The following scope of work tasks described below is 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 VIII. Project Duration and Budget of this RFP.

Task 1 Identify current literature/survey on axle and length comparative cost/benefit

Task 2 Outline method to collect data and considerations

Task 3 Identify criteria for selecting participating dot pilot states

Task 4 Identify and agree on sample size (possibly 3-5 states)

Task 5 Conduct statistical analysis and compile draft findings

Task 6 Produce quarterly and final reports

### **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).

## **VI. 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

#### **Participating States, Including Lead State**

- Review, comment on and recommend for approval all project proposals generated through their participation on the Technical Advisory Committee
- Make final decisions of the approval of any project proposal
- Participating states, including the lead state, will have one vote on the Technical Advisory Committee
- 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 teleconference or scheduled face-to-face meeting
- Provide timely review of quarterly and final report

#### **Selected Researcher**

- 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

## **VII. 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 researcher(s) will be expected to interact regularly with the project manager(s) and 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 researcher must provide written reports of progress to WisDOT and the TAC at the end of each project quarter for the duration of the contract using the report template required by the 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 twelve (12) printed copies.

## **VIII. Project Duration and Budget**

### **Project Duration**

The contract shall be effective on the date signed and continue for 12 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 \$90,000.** 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).

**IX. Proposal Submission Process and Deadline**

The issue date for this RFP is March 7, 2016.

Proposers may direct any questions, noted errors, discrepancies, ambiguities or deficiencies concerning this proposal via e-mail to [research@dot.wi.gov](mailto:research@dot.wi.gov) by **4:30 PM Central time on March 21, 2016**. 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 March 28, 2016**. Proposers must direct questions, etc., about this RFP only to this designated e-mail and not to any other staff or agent of WisDOT.

Proposers must submit an electronic version of their proposal (Adobe PDF required) by **4:30 PM Central time on April 11, 2016**, via e-mail to [research@dot.wi.gov](mailto: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(340) Axle and Length Classification Factor Analysis and Effects on AADT**

**March 7, 2016**

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](mailto: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](mailto: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.
- 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 twelve (12) 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:

<b>Criteria</b>	<b>Guideline Section</b>	<b>Points</b>
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.	10
Utilization of staff	2.i.	15
Qualifications of research team	2.k.	15
<b>TOTAL</b>		<b>100</b>

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
<b>TOTALS</b>	\$0	\$0	\$0			\$0	\$0	\$0	\$0

**Table 2 Total Contract Summary**

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