



Wisconsin Department of Transportation

Wisconsin Highway Research Program



Request for Proposals FFY 2027

Evaluation of Exposed Cast-in-Place Concrete Piles in Corrosive Environments in the State of Wisconsin

	Request for Proposals Timeline and Information
November 28, 2025	Issue Date of this Request for Proposal (RFP). This RFP has been posted at: http://wisdotresearch.wi.gov/rfps-and-proposals .
	Please read the WHRP Proposal Preparation Instructions as this document has been updated recently and contains important information, including tables and templates, necessary for writing a proposal for submission.
January 5, 2026 12:00 PM (CST)	Questions regarding this RFP are due by this date and time. Questions need to be submitted with the project name to research@dot.wi.gov . Questions submitted after this date and time will not be considered.
January 13, 2026 4:30 PM (CST)	Responses to Questions will be posted on the WisDOT Research and Library website at: http://wisdotresearch.wi.gov/rfps-and-proposals
February 3, 2026 4:30 PM (CST)	Proposals are due by this date and time. Proposals must be submitted in a PDF version to: research@dot.wi.gov . Proposals submitted after this date and time will not be considered.
April 30, 2026	Award and Deny letters will be sent by email to all proposal submitters (only lead investigator will be notified)
	Project Budget and Schedule
\$250,000.	Project Budget shall not exceed this amount. Matching funds will not be considered in the proposal evaluation process. Proposals which exceed this amount will be disqualified.
24 Months	Period of Performance / Duration of Project
October 1, 2026	Anticipated Start Date of Project
July 1, 2028	Researcher's Final Report due
September 30, 2028	Anticipated End Date of Project
Structures	WHRP Technical Oversight Committee
	For more information regarding this RFP contact the WisDOT Research Program at: research@dot.wi.gov .

NOTICE: Submission of a proposal does not guarantee an award. The Wisconsin Department of Transportation (WisDOT) reserves the right to reject any and all proposals received; however, in the event WisDOT does award a project, such award will be based on uniform evaluation criteria.

Wisconsin Highway Research Program Structures Technical Oversight Committee Request for Proposal

Evaluation of Exposed Cast-in-Place Concrete Piles in Corrosive Environments in the State of Wisconsin

Acronyms and Definitions

AASHTO LRFD – American Association of State Highway and Transportation Officials Load and Resistance Factor Design

CIP – Cast-in-place

COP – Close-Out Presentation

DMP – Data Management Plan

FHWA – Federal Highway Administration

HIS – Highway Structures Information

NDT – Non-Destructive Testing

O.D. – Outside Diameter

PI – Principal Investigator, lead researcher

POC – Project Oversight Committee comprised of subject matter experts who are the main point of contact with the PI

PPE – Personal Protective Equipment

RFP – Request for Proposal

R&L – WisDOT Research and Library Unit providing administrative support

TOC – Technical Oversight Committee develop projects and provide leadership

UWTS – University of Wisconsin Technical Support

WHRP – Wisconsin Highway Research Program

WisDOT – Wisconsin Department of Transportation

1 Background and Problem Statement

The Wisconsin Department of Transportation (WisDOT) faces challenges with the long-term performance and durability of pile bent piers (Figure 1). The department's Highway Structures Information (HSI) database identifies over 500 structures utilizing this pier type, several of which are in environments categorized as strongly corrosive. Furthermore, WisDOT has documented

instances of corrosion, ranging from minor cosmetic issues to severe section loss, particularly at the waterline. While pile encased piers are strongly encouraged for enhanced protection, their construction can be cost-prohibitive or impractical in locations with high water depths where placing underwater concrete is challenging. The use of pile bent piers, while it can be deemed as a potential cost-effective alternative, carries uncertainty regarding their longevity based on the site-specific corrosivity and chosen mitigation strategies.

Current WisDOT design practice for pile bent piers allows only the axial resistance of the concrete member and neglects the painted steel shell. Past research (including WHRP Project 0092-09-04 “Composite Bridge Piles Show Hidden Strength”) has shown this approach to be a conservative approach but also recognizes that the use of the steel shell through composite action should consider the potential for the deterioration of the shell, unbraced lengths of the column, and the possibility of low-quality concrete. While WisDOT has allowed some utilization of the steel shell (i.e., up to 50% of nominal thickness) on a project-by-project basis it does not have formal policy for utilizing the steel shell for composite action.



Figure 1 – Typical pile bent pier

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Research Objectives

The primary objective of this research is to comprehensively evaluate the structural integrity, and the long-term performance of CIP concrete pile bent piers in Wisconsin's corrosive environments.

The research team selected for this study will:

- 2.1 Examine the current state of practices for the design of CIP concrete composite bridge piles for pile bent piers.
- 2.2 Investigate the corrosion mechanisms and rates affecting steel piles at or near the waterline in Wisconsin's specific environmental conditions.
- 2.3 Evaluate the longevity of concrete CIP considering corrosion resistance and structural performance at critical sections along the pile height. Consider current and alternative practices for determining site-specific corrosive environments.
- 2.4 Develop guidelines for the use of pile bents with corrosion protection strategies and design best practices for new construction.
- 2.5 Prepare recommendations for changes to WisDOT Manuals for using open pile bent piers.

3.1 Task 1: Literature Review

Conduct a comprehensive literature review and assessment of current practices across States' Departments of Transportation (DOTs), Canada's Ministries of Transportation, the Federal Highway Administration (FHWA), industries, and manufacturers. WHP has completed an initial literature search that will be provided to the research team. In addition, the research team should include a collection of relevant DOT policies and practices. Provide a summary draft report of the reviewed information.

The deliverables for Task 1 will be a Literature Review including a two-page executive summary which will be emailed to the POC and discussed at a POC meeting. Task 1 shall be completed within 12 months of the contract start date.

3.2 Task 2: Review Current Design Practices for Pile Bent Piers

Review current WisDOT and industry practices for the design of pile bent piers. For WisDOT practices, refer to the Bridge Manual Chapter 11, Chapter 13, Standard 11.01, and Section 550 of the Standard Specifications.

Consult the Project Oversight Committee (POC) members for additional information.

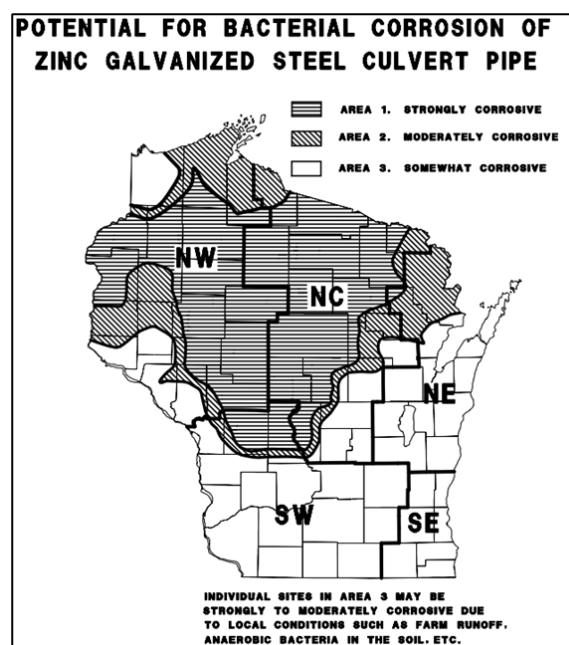
3.3 Task 3: Field and NDT Investigation

Perform a targeted field investigation of selected bridges featuring pile bent piers in various corrosive environments. Employ Non-Destructive Testing (NDT) techniques, including ultrasonic thickness gauging, eddy current testing, magnetic flux leakage, etc., to assess existing pile shell thickness and corrosion levels.

The investigation should consider the current design practice for restricting pile bents, as shown in the Facilities Development Manual 13-1-15, Attachment 15.1 (Figure 2). The current Bridge Manual Chapter 13.2.2 states "Pile bents may only be specified where the structure is located within Area 3". However, exceptions have been provided, and piles bents have been used throughout the state.

Consult with Project Oversight Committee (POC) members for site locations and data from past investigations.

Figure 2 – Wisconsin map for potential for bacterial corrosion of zinc galvanized steel culvert pipes.



3.4 Task 4: Evaluate Open Pile Bent Design Practices and Strategies

Evaluate WisDOT's current simplified non-composite pile design practice and alternative composite pile design approaches. WisDOT's current practices are documented in Bridge Manual's Chapter 11 (based on AASHTO LRFD 5.6.4) and Chapter 13. Alternative design approaches should focus on AASHTO LRFD Article 6.9.5 (composite column). Based on initial findings, WisDOT does not intend to use the composite practices according to AASHTO LRFD Article 6.9.6 (composite concrete-filled steel tubes).

Develop analytic models to evaluate design approaches using a parametric study. The analytical models should include the following parameters:

- 12.75" O.D. and 14" O.D. steel piles ASTM A252 Grade 3 filled with concrete
- Varying unbraced length of piles [1]
- Steel shell section loss (i.e., 0%, 50%, 100%) [2]
- Longitudinal reinforcement usage [3]
- Pile fixity (at top and bottom)
- Critical design sections along the pile height (i.e., waterline vs. top of pile)

[1] WisDOT practice is to limit pile bent piers to jointless structures. This limits the total structure length limit to 300-ft, with a 40-degree maximum skew, and requires fixed (or equivalent to fixed) bearings supporting the superstructure. The use of jointless structures results in minimal thermal force effects and allows loads (e.g., braking forces) to be transmitted directly to the abutments.

[2] WisDOT practice is ignore the steel shell after driving.

[3] WisDOT practice is to terminate reinforcement 10'-0" below groundline or streambed elevation and used to resist lateral forces from floating ice and debris or expanding ice. Current reinforcement exceeds the clear distance requirements according to AASHTO LRFD Article 5.12.9.5.2.

The final list of parameters will be defined in consultation with the POC.

3.5 Task 5: Develop Design Recommendations

Provide recommendations for updating WisDOT's design, construction, and maintenance guidelines concerning pile bents in corrosive environments. Include a framework for assessing life-cycle costs and durability risks.

Provide design strategies for addressing corrosion, and composite action procedures based on the finding of the outcomes of the parametric study completed in Task 4. Recommendations should be presented in a format similar to the current Bridge Manual design guidance and should avoid complicated procedures for the design of new structures.

Provide at least two design examples demonstrating usage of the design recommendations. At a minimum, one example should represent a "lightly" loaded pier with relatively short, unbraced lengths, and a second example should represent a "heavily" loaded pier with relatively long unbraced lengths attributed to high-water depths. Both examples should assume a moderate to extremely corrosive environment.

3.6 Task 6: Project Final Report

The research team will prepare and submit a Project Final Report following the timeline and requirements detailed in the [WHRP Final Report and Close-Out Presentation \(COP\) Instructions for Preparation and Submission](#). The Project Final Report will include a summary of the project background and problem statement, research objectives and approach, best practices, recommendations, and interpretations developed during the project as well as a discussion of implementation options.

As part of this report, the research team will develop recommendations and guidelines in a format consistent with WisDOT contract specifications and the Bridge Manual. Please refer to the Implementation section for further details.

The Technical Oversight Committee (TOC) and POC members will review this report. Questions and comments will be submitted to the researcher and will require edits and revisions, or a response and explanation in a Summary Report. The Final Report will be considered complete and approved when the TOC chair accepts all revisions and responses. Any data files collected from the lab and/or field testing/survey should be included for future use, analysis, and interpretation.

3.7 **Task 7: Close-Out Presentation (COP)**

The research team will create and present a one-hour PowerPoint presentation that includes a summary of the background and problem statement, research objectives and approach, best practices, recommendations, and interpretations developed during the project.

4 **Required Testing/Equipment/Materials**

4.1 **Required Testing**

Field Measurements: Non-Destructive Testing (NDT) techniques (e.g., ultrasonic thickness gauging, eddy current testing, magnetic flux leakage, etc.) to assess existing pile shell thickness and corrosion levels. The final list of tests will be defined in consultation with the POC.

Laboratory Testing: Water samples should be collected and tested (e.g., pH, resistivity, chloride, etc.). The final list of tests will be defined in consultation with the POC.

4.2 **Equipment**

Include costs in research proposal budget if equipment will be necessary for Tasks. Provide explanation if cost for any piece of equipment is over \$1,000.

The research team will provide necessary materials/equipment to access pier (pile) locations, which may be in wet (submerged) environments.

4.3 **Non-WisDOT Equipment and Materials**

The research team is responsible for providing necessary personal protective equipment (PPE) for fieldwork. PPE can be included in the research proposal budget.

The research team will provide necessary materials/equipment to access pier (pile) locations, which may be in wet (submerged) environments.

4.4 **Materials**

Include costs in research proposal budget if materials will be necessary for Tasks. Provide explanation if cost for any materials is over \$1,000.

The research team will provide necessary materials/equipment to access pier (pile) locations, which may be in wet (submerged) environments.

5 **Required Travel and Meetings**

WisDOT will only fund travel expenses if they are included in the research project proposal budget.

5.1 **Travel for Tasks and/or Field Work**

Travel is required for field measurements at project sites.

5.2 Meetings

A kick-off meeting, periodic progress meetings, and a close-out presentation are required. Meetings are anticipated to be virtual.

Please see [WHRP Meeting Information](#) for additional information.

5.2 POC Meetings

At the start of the project the POC Chair, lead PI and R&L will determine points in the project where discussions and decisions are needed. 1 hour to 1½ hour-long meetings will be set for the full POC, the researchers, and R&L staff at those times, based on meeting needs. The researcher will typically have a short presentation with relevant information and progress updates.

5.3 Check-In Meetings

Projects of less than 20 months duration - If there are gaps of more than 8 weeks between meetings, check-in meetings of 20-30 minutes may be scheduled for the POC Chair, lead PI and R&L staff.

Projects of 20 months or longer duration - Meetings four times per year are anticipated. If there are gaps of more than four months between meetings, check-in meetings of 20-30 minutes may be scheduled for the POC Chair, lead PI and R&L staff.

A presentation is not expected at check-in meetings.

5.4 Close-Out Presentation (COP)

WisDOT welcomes a virtual Close-Out presentation; however, the researcher may present the results in person, paid by contract funds, if included in the project budget.

5.5 Conferences

Research does not include funds for participation at conferences

WisDOT will NOT fund travel expenses apart from what is included in the research project proposal budget.

6 WisDOT/TOC Contribution

WisDOT will provide the following support through the Project Oversight Committee (POC) to support the successful completion of the project.

Work will be conducted with project oversight by WisDOT staff and WHRP Structures Technical Oversight Committee (TOC). The TOC members will appoint a POC to support the successful completion of the project.

The research team may assume that WisDOT staff/POC members can contribute a maximum of 40 hours over the project's duration.

The research team will not assume the availability of WisDOT staff or equipment in the proposal. If WisDOT or another entity donates equipment or staff time, a commitment letter must be included in the proposal.

The TOC and POC will coordinate access to WisDOT aggregates used in laboratory test programs, if needed. The TOC and POC will also coordinate access to WisDOT databases, if needed, as requested and approved

7 **Traffic Control** (if needed)

Traffic Control may be required for this Project.

If fieldwork to conduct this research is anticipated on or around in-service facilities the researcher shall specify the nature and extent of traffic control needs. The proposal should specify if county maintenance departments or traffic control businesses will be utilized. The researcher will make accommodations in their proposal budget for traffic control if it is needed.

Please see the [WHRP Proposal Preparation Instructions](#) for additional information.

WisDOT will NOT fund traffic control expenses apart from what is included in the research project proposal budget.

8 **Deliverables – Research Results and Implementation Plan**

WisDOT seeks to fund research with high implementation potential. Implementation potential will be tracked throughout the lifecycle of this research project and may include changes to expected implementation. The research plan must include specific statements describing anticipated research results and an assessment of implementation potential

8.1 **Research Results**

Proposals should detail the research results in terms of a specific deliverable(s).

8.2 **Implementation Plan and Deliverables**

This section also includes an implementation plan to address the planned implementation type(s) indicated in the RFP. While the plan may change as the research progresses, at a minimum the proposal should indicate:

- The product expected from the research.
- The stakeholder or intended audience that will most likely be impacted by the research results.
- Potential impediments to implementation.
- Activities necessary for successful implementation.
- Implementation deliverables
- Measures of success
- Data collection requirements

Please see the [WHRP Proposal Preparation Instructions](#) for specific directions related to Research Results and Implementation including completing the table below

Provide information and details regarding the deliverables included in the Implementation Plan and Deliverables table.

Implementation Plan and Deliverables Please add and describe implementation plans and keep this table in the Proposal.			
Successful implementation of this research will be achieved through the development of the following items:			
Implementation Type	Description	Researcher's Deliverables/ Products/ Activities	Timeline
<input type="checkbox"/> Develop a Model:			
<input checked="" type="checkbox"/> New Design Method or Guidance:	Develop new design guidance for the use composite action for the design of pile bent piers in a corrosive environment.		
<input type="checkbox"/> New Product Implementation:			
<input type="checkbox"/> Recommend Future Studies:			
<input type="checkbox"/> Revise a Specification:			
<input type="checkbox"/> Inform Policy:			
<input type="checkbox"/> Other:			

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Deliverables – Reports and Presentations

9.1
Interim Reports & Meeting Updates

Interim reports include:

- Literature Review
- Summary of state practices with CIP piles (a minimum of five is required).
- Proposed design procedures and recommendations for CIP concrete piles. Include a minimum of two design examples.

Interim Reports are flexible in format and length. These may be papers, graphs, tables, surveys, or other formats. The POC and researcher will determine what format and length is most appropriate for each report.

Meeting updates are typically short PowerPoint presentations.

Presentations with updates are typical at POC meetings, but are not expected for check-in meetings.

Email the meeting presentation and/or updates to R&L staff 1 week prior to the meeting.

9.2
Final Report Requirements, Process and Timeline

The Final Report for the research project will go through three stages as it is reviewed by the TOC/ POC and edited by the researcher(s): Project Report, Revised Report and Approved Final Report.

For full details please see [WHRP Final Report and Close-Out Presentation \(COP\) Instructions for Preparation and Submission](#).

9.3
Project Report

Submit to www.Scholastica.com 13 weeks before the project end date.

Email the Project Report in both Word and PDF formats to R&L. Send the cover, technical documentation, and disclaimer pages in a separate file, in Word format.

9.4 **Revised Report and Summary Document**

Edits and revisions within the Project Report are expected. The PI is required to respond to all comments and questions submitted by reviewers and submit a Revised Report and Summary document to Scholastica. Any items not integrated into the report are put into a Summary document with explanations or responses.

Submit to Scholastica and email to R&L in both Word and PDF formats.

The Revised Report and Summary document are due 6 weeks before the contract end date.

Revisions and responses will be reviewed and the researcher may need to repeat the revision process if edits or responses are unclear or incomplete.

9.5 **Approved Final Report**

The TOC/POC will make the determination that all edits and responses are complete and the Final Report is approved.

The TOC/POC Chair will notify the PI of approval and email the APPROVED version to R&L.

R&L will prepare the Approved Final Report for posting.

9.6 **Close Out Presentation (COP) for Project**

The PI presents a PowerPoint summary to the POC of the research project two weeks before the contract end date.

The PowerPoint presentation includes a summary of the background and problem statement, research objectives and approach, best practices, recommendations, and interpretations developed during the project.

The PowerPoint is a deliverable of the project.

9.3 **Research Data**

All research data will be identified and made available per the Data Management Plan (section 16).

Reports, Presentations and Deliverables				
Please add reports and presentations and keep this table in the Proposal.				
Report / Presentation	Description of Deliverable	Format	Task	Timeline
Literature Review and Summary	Literature Review including a two-page executive summary which will be emailed to the POC 1 week before the meeting and discussed at a POC meeting.	Word and PDF	1	Within 12 months of start date
	Summary of state practices with CIP piles (a minimum of five is required).			
	Proposed design procedures and recommendations for CIP concrete piles. Include a minimum of two design examples.			
POC Meeting Updates	Throughout the project, PowerPoints and meeting updates are emailed to R&L 1 week before POC meetings for POC review and preparation for meeting discussion.	Power Point		1 week before meeting
Project Report	Submit to https://hrp.scholasticahq.com Email Word and PDF versions to R&L See WHRP Final Report and Close-Out Presentation (COP) Instructions for Preparation and Submission	Word and PDF		13 weeks before end date
Revised Report and Summary document	Submit to https://hrp.scholasticahq.com Email Word and PDF versions to R&L.	Word and PDF		6 weeks before end date
COP Presentation	See WHRP Final Report and Close-Out Presentation (COP) Instructions for Preparation and Submission	Power Point		2 weeks before end date

10 Deliverables – Required Project Documentation

10.1 Quarterly Progress Reports (QPRs)

1-2 page summaries of project activities, next steps and expenditures for the quarter.

10.2 Quarterly Invoices

11 Project Schedule

The duration of the research project is provided on page 2 of this RFP.

The researcher will provide a work schedule based on the assumed contract start date.

11.1 Summary of Hours– The proposal must include template [WHRP Proposal Summary of Hours](#)

11.2 Gantt Chart - The project schedule must include a Gantt chart.

12	Budget
12.1	Budget Worksheet
	The researcher will completely fill-in the Excel WHRP Proposal Budget Worksheet template.
12.2	Budget Justification
	The researcher will provide a detailed description of costs related to travel, materials and supplies and other direct costs.
	See the WHRP Proposal Preparation Instructions for details.
13	Qualifications of the Research Team
	The proposer will provide information on the qualifications and background of the research team.
14	Other Commitments of the Research Team
	The proposer will complete the Summary of Commitments template in WHRP Proposal Commitments of Research Team .
15	Facilities and Information Services
	The proposer will provide their laboratory and technical certifications for project related activities.
16	Data Management Plan
	The research team will include a Data Management Plan (DMP) documenting all field/laboratory data and analyses to ensure accessibility and transparency of research data as required by the USDOT per the Public Access Plan (https://ntl.bts.gov/ntl/public-access/creating-data-management-plans-extramural-research).
	All research data will be identified and made available per the Data Management Plan.
	See the WHRP Proposal Preparation Instructions for details.
17	References
	The proposer will provide references of the research team.
18	Proprietary Information in Proposal
	DOA-3027 Designation of Confidential and Proprietary Information Form
	Any restrictions on the use of data contained within a proposal must be clearly stated in the proposal itself. Proprietary information submitted in response to a request will be handled under applicable Wisconsin procurement regulations and the Wisconsin public records law. Proprietary restrictions usually are not accepted. However, when accepted, it is the proposer's responsibility to defend the determination in case of an appeal or litigation.
	Any material submitted in response to this request that the proposer considers confidential and proprietary information and which qualifies as a trade secret, as provided in s. 19.36(5), Wis. Stats., or material which can be kept confidential under the Wisconsin public records law, must be identified on a Designation of Confidential and Proprietary Information form (DOA-3027) .
	Proposal prices cannot be held confidential.

19 **Public Records**

WisDOT intends to maintain an open and public process in the solicitation, submission, review, and approval of procurement activities. Notwithstanding the foregoing, records may not be available for public inspection before issuance of the award of the proposal.

The proposer shall retain all records produced or collected under an awarded contract for five (5) years following final payment under the contract and allow access to such records in accordance with requirements established under 49 Code of Federal Regulations 18.42, subch. II of Chapter 19, Wis. Stats. and Chapter 16, Wis. Stats.

20 **Evaluation Criteria**

The Evaluation Criteria and Scoring Matrix are in the [WHRP Proposal Preparation Instructions](#).

End of Request for Proposal