

Uncrewed Aerial Systems (UAS) Bridge Inspection Demonstration

Request For Proposal

Iowa Department of Transportation

Introduction

The Iowa Department of Transportation's (Iowa DOT) Bridges and Structures Bureau is interested in entering into a professional services contract with four consultants to participate in a demonstration of the use of Uncrewed Aircraft Systems (UAS) in the performance of inspections of bridges in accordance with the National Bridge Inspection Standards (NBIS). If your firm is interested in providing the described services, please submit a proposal stating your ability and availability to complete this work.

Project Background

The intent of this work is to evaluate the effectiveness and efficiency of inspecting bridges without non-redundant steel tension members (NSTM) would normally require the use of access equipment and lane restrictions. The intent is not to develop a digital model of the bridge but is to provide a qualified inspector with information equivalent to a routine inspection, of areas that are not readily accessible, for determining the condition of bridge elements and identifying locations that require an in-depth inspection to evaluate damage or deterioration. The elements to be inspected will be located below the deck where ground access is not practical. These inspections do not require a hands-on inspection per the NBIS. The results of this work will be used in the evaluation and development of UAS use in routine NBIS bridge inspections.

Project Scope

The selected consultants will be provided with a list of up to six bridges on state-maintained highways to be inspected. The bridges will be of routine design with a superstructure comprised of multiple prestressed concrete beams or steel girders. The inspections are to be performed with minimal, if any, impacts to traffic. The consultant is expected to follow all federal regulations associated with the operation of a UAS. A Team Leader, as defined in the NBIS, shall be present during the inspection and shall be involved in the evaluation of the inspection findings. The selected consultants will be provided a list of bridges to inspect and access to the bridge inspection records and plans for their bridges.

Inspection Specifications:

Reference Standards:

The inspection shall be performed in accordance to the current versions of the following:

National Bridge Inspection Standards, Federal Highway Administration
Bridge Inspector's Reference Manual, Federal Highway Administration

Specifications for the National Bridge Inventory, Federal Highway Administration

The Manual for Bridge Evaluation, AASHTO

Manual for Bridge Element Inspection, AASHTO

Bridge Element Inspection Guide, Iowa Department of Transportation

Bridge Inspection Manual, Iowa Department of Transportation

Standard Specifications for Highway and Bridge Construction, Iowa Department of Transportation

Standard Road Plans, Iowa Department of Transportation

Inspection level:

The consultant shall perform an inspection of the bottom of deck, superstructure and above ground/water portions of the substructure of the specified spans by the State. The inspection level shall be adequate for a routine inspection in accordance with the NBIS using the Specifications for the National Bridge Inventory. The inspection shall provide a qualified inspector with adequate information to evaluate the condition of elements and identify areas requiring in-depth inspection due to damage or deterioration. The inspection shall be performed using an unmanned aircraft system operated from the ground near or under the bridge. A Team Leader, as defined in the NBIS, shall be on-site during the inspection.

UAS operation:

The inspection shall be performed in accordance with all federal regulations related to the commercial operation of unmanned aircraft.

Schedule:

The bridges are to be inspected between December 1, 2025 and March 31, 2026. The Consultant shall submit proposed inspection dates and a traffic control plan to the Engineer three weeks prior to the inspection. The Consultant shall notify the Engineer by e-mail at the completion of the inspection. The Consultant shall immediately notify the Engineer of any findings affecting the safety of the traveling public.

Report:

A report shall be developed for each bridge. The Consultant shall submit one copy of a draft report in pdf format. The Consultant shall submit one copy in pdf format of the final report. The report shall include the following:

- Images adequate for the assessment of element condition and rating
- Documentation of any identified defects
- Documentation of the process used to perform the inspection including pre-inspection preparation, UAS operation and post processing methods.
- A complete description of the equipment used for the inspection including make and model of the UAS and flight control system, details of the imaging system and all software used.

- A breakdown of hours for each worker classification for pre-inspection preparation, on-site inspection, post processing of inspection data and report development.
- All images included photographs and video collected as part of the inspection shall be submitted with the inspection report.

A supplemental report shall also be prepared for each bridge that includes a description of all equipment used including the drone, control system, payload and/or camera system and all software used in conjunction with the flight, post processing and report generation. A narrative describing the pre-inspection preparations, inspection procedures, drone operation, data collection, post processing, any challenges that occurred during the inspection and recommendations for future inspections by drones shall be included in the supplemental report. The supplemental report shall also include a table of the staff hours for each phase of the inspection, separated by job classification. While the supplemental report shall be used by the State to evaluate the future use of drones in bridge inspections, it will not be stored with the inspection report in the state database.

Component identification:

Substructure elements and bridge spans shall be identified consistent with the previous inspection reports. Sides and faces of bridge elements shall be identified as right/left/near/far from the perspective of a person facing east or north. Longitudinal members such as girders, beams and stringers shall be numbered from left to right beginning with one. Transverse members such as floor beams and diaphragms shall be numbered from near to far beginning with one in each span. The numbering of panel points shall be consistent with previous inspections.

Traffic control:

Traffic control shall be kept to a minimum. No lane closures shall be permitted as part of this work. All traffic control shall conform to the requirements of the current versions of the Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction and Iowa Department of Transportation Standard Road Plans – TC Series (Traffic Control). Parking on the shoulder of a roadway permitted in accordance with Iowa DOT Standard Road Plans TC-a, TC-202 or TC 402 as appropriate. All vehicles parked with the right of way shall be equipped with a top mounted revolving or strobing amber light visible in all directions. The consultant is responsible for all traffic control.

Contract Information

Up to four contracts are expected to be offered under this RFP. Contracts will run to project completion. The number and location of bridges to be inspected per contract will be determined after initial consultant selection is complete.

General Requirements

The consultant and their subconsultants are required to meet the requirements of specified work categories as defined in the Iowa DOT's Policy and Procedure Manual, Policy No. 300.04, at the time of contract execution, and for the duration of the contract. Work under this contract will require the consultant team to meet the requirements of work category 325 – Bridge Inspection and Analysis. Failure to meet the requirements during the contract will result in cancellation of any remaining portion of the contract.

It is the policy of the Iowa DOT that Disadvantaged Business Enterprises (DBEs) and Targeted Small Businesses (TSBs) shall have the maximum practicable opportunity to participate in the performance of Iowa DOT contracts. Funding of the work under this contract is not expected to involve federal-aid highway funds. In the event DBE participation is required on a particular contract, the goal will be established as part of the negotiation. A list of certified DBE firms may be found at <https://iowadot.gov/civilrights/disadvantaged-business-enterprise-program-dbe/dbe-program>. A list of TSB firms may be found at <https://www.iowa.gov/tsb>.

Selection Information

Emphasis should be placed upon providing information concerning your proposed project approach, similar projects your firm has recently performed and the availability and qualifications of your key staff. The proposal may include additional information, as deemed appropriate, subject to the overall length restriction established in Proposal Requirements.

The selection committee will review and evaluate the proposals submitted based on the following criteria and the weighted value assigned to each. Include a detailed statement for each evaluation criteria.

- 25% - Firm experience with NBIS inspections of routine highway bridges
 - Experience performing routine NBIS inspections of typical highway bridges.

- 25% - Firm experience with the use of UAS in the inspection of structures
 - Experience in collecting inspection information for NBIS inspections using UAS and presenting the inspection findings in a useful and beneficial format.

- 20% - Availability and quality of equipment necessary for project tasks
 - Equipment suitable for NBIS inspection including the number and types of UAS equipment that are available and have been utilized on previous projects.

- 20% - Project team experience directly related to the project tasks
 - Team experience utilizing UAS to assist in NBIS inspections.

- 10% - Project manager experience directly related to the project tasks
 - Experience managing NBIS inspection projects.

The selection committee does not anticipate the need for oral interviews.

Contacting any selection team member other than the RFP contact person is inappropriate. Marketing meetings with the Iowa DOT while this RFP is active is also considered inappropriate.

Proposal Requirements

Please provide the following information in the order listed:

1. All responders must provide adequate information on the response's cover page to clearly identify the submittal is for the **Uncrewed Aerial Systems (UAS) Bridge Inspection Demonstration** along with the replying firm and an email for the point of contact for the firm.
2. Include your firm's approach to addressing the identified tasks, your eligibility to meet the requirements of the "Required Work Categories" for the work you intend to perform, your understanding of the project's scope, key issues and relevancy to Iowa's transportation system. Briefly discuss similar projects the members on your team have completed in the past five years. This listing should be limited to the three most applicable projects.
3. Include the name, qualifications, experience, office address and availability of the contract manager as well as the manager in charge of each major work task. This information should include the identification of similar projects managed or participated in by these individuals. The selection of a contract manager and work task managers by a firm will constitute a commitment by that firm and NO substitute managers will be allowed without prior written approval by the Iowa DOT.
4. Include experience and qualifications as related to the "Required Work Categories" for any sub-consultants to be used and work they will perform.
5. Include a detailed resume, summary of current workload and a time commitment for each professional or technical person to be assigned to the project. Identify the principal or manager who will serve as the project manager.
6. The location of the office from which the majority of work will be performed.
7. A disclosure of all work for other clients that may be affected by work on the proposed contract to avoid a potential conflict of interest.
8. Inclusion of promotional literature of a general nature will not be considered in the selection process.
9. If applicable, include a statement that the consultant will meet the DBE goal. If the consultant cannot meet the minimum goal, include a commitment statement for the percentage of participation that they can meet.

The proposal may include additional information, as deemed appropriate, subject to the overall length restriction established in Proposal Requirements.

Cost information should not be submitted as part of the proposal, and if submitted, will not be considered. Inclusion of promotional literature of a general nature will also not be considered in the selection process.

The proposal must be submitted as a single electronic PDF and be formatted to print on 8.5” x 11” pages. The proposal must be limited to fifteen single-sided pages. All pages will be counted including: proposal covers, cover letter, dividers, appendices, etc. The maximum size limit of a **proposal is 7.5 megabytes.**

The electronic proposal must be submitted via email to DOT.ConsultantProposals@iowadot.us. An email will be sent confirming receipt of the proposal within 30 minutes or by 3:00 p.m. on the submittal deadline date, whichever is later.

Proposals are due by 3:00 pm on September 3, 2025.

Any technical questions or questions regarding this RFP shall be submitted via email to DOT.ConsultantProposals@iowadot.us. Any questions about this RFP must be received by noon on August 27, 2025. Questions and answers regarding this RFP will be posted with the RFP on the Consultant Utilization website, <https://apps.iowadot.gov/rfp>.

Any proposal not complying with all requirements stated in the RFP may not be accepted.

Public Records Law

The Iowa DOT will treat all information submitted by a consultant as open records following the conclusion of the selection process. Open records are public records that are open for public examination and copying. The Iowa DOT's release of records is governed by Iowa Code Chapter 22 and 761 IAC Chapter 4. Consultants are encouraged to familiarize themselves with these laws before submitting a proposal.

Statement of Non-Discrimination

Federal and state laws prohibit employment and/or public accommodation. If you believe you have been discriminated against, please contact the Iowa Civil Rights Commission at 800-457-4416 or Iowa DOT's affirmative action officer at 800-262-0003. If you need accommodations because of a disability to access the Iowa DOT's services, contact the agency's civil rights/ADA coordinator at 515-239-1427. TTY/TDD: 515-239-1514

References

PPM 300.04 – Prequalification of Architectural, Engineering and Related Professional and Technical Firms (<https://iowadot.gov/projectdev/300.04.PDF>)

PPM 300.12 – Negotiated Contracts for Architectural, Engineering, and Related Professional and Technical Services (<https://iowadot.gov/projectdev/300.12.pdf>)