

**2022 Design On-Call Engineering Surveying
including Mobile Scanning Technology and Small
Unmanned Aircraft Systems
Iowa Department of Transportation**

Introduction

The Design Bureau of the Iowa Department of Transportation is interested in entering into a professional services contract with four consulting firms for work on various topographic engineering, mobile scanning and small unmanned aircraft system (sUAS) survey projects. The selected consultants for these contracts will be expected to perform services related to highway improvement projects. When projects are identified, the consultant will be allowed to bring in subconsultants that fit the project need. If your firm is interested in providing any of the described services, please submit a proposal stating your ability and availability to complete this work.

Project Background

Due to the expiration of the existing on-call survey contracts, the Iowa Department of Transportation is seeking to negotiate and enter into a new 3-year service agreement contracts with four survey firms capable of performing topographic survey, geodetic surveying and subsurface utility location. In addition to these methods of surveying this RFP will include mobile scanning and sUAS collection methods.

The new contracts are expected to become effective by the beginning of Spring 2022.

It is anticipated that several projects will be ready for immediate survey work and current estimates indicate a steady workflow for at least the first year of the contract.

Project Scope

The services performed by the consulting firms shall encompass and include all detail work, materials, equipment and supplies necessary to provide topographic services. This includes, but is not limited to preparing and delivering all field survey data and observations, reports outlined in the *November 2010, Office of Design, English Preliminary Survey Specification*, CADD drawings of mapped survey information using the Survey section MicroStation seed file that includes required models, including the Design Bureau feature coding and attribute information, and One-Call utility locations and information. The deliverables are to focus on meeting the needs of a highway designer using Bentley MicroStation Connect and V8i software.

The services for mobile scanning will also include all work, materials, and equipment necessary to collect the data to meet the Iowa DOT requirements for final deliverables. The positional accuracy, relative to project control, of the data collected shall be a standard error of less than

0.06 ft on hard surface topography and less than 0.15 ft. on soft surface topography. The expectations and deliverables will typically include, but are not limited to, the following:

- Setting control points for scanning
- Project control information report
- GPS control time line report
- Unedited electronic field data
- Field data transformed to the project coordinates
- Extracted line work in a SUR file. MicroStation Connect CADD drawings of the mapped survey information using the Iowa DOT's MicroStation seed file
- Derived TIN file
- Images captured during scanning
- Bentley Noise free .pod file
- Grid points on the pavement

The services for small unmanned aircraft systems will include all work, materials, and equipment necessary to collect the data to meet the Iowa DOT requirements for final deliverables. Paved surfaces must not exceed 0.06 ft. vertical error at 2-sigma (or 95% confidence), with reference to Iowa DOT provided project control. Paved surface features must not exceed 0.08 ft. horizontal error at 2-sigma (or 95% confidence) with reference to IA DOT provided project control.

The consultant shall perform their own accuracy QC, however IA DOT will provide the official QC survey to verify the planimetric deliverables on pavement edge lines, etc. meet the specified accuracy requirements. The consultant will provide a FAA Part 107 certified pilot and observe relevant FAA guidelines for sUAS missions including but not limited to flying directly above traffic or people not participating in the project. The consultant will use sUAS photo and sensor data along with methodology capable of achieving the above specified accuracies. The proposal shall specify the UAV platform, camera, special lens or any other relevant information. The consultant will bear costs incurred for significant additional hours required over those proposed to meet the specification. The expectations and deliverables will typically include, but are not limited to the following:

- Photogrammetrically Derived Color Point Cloud including both Digital Scan Model (DSM) containing noise and Digital Terrain Model (DTM) with noise removed.
- Raw Image Frames with a comma delimited text file with the following format: Image Name, Project Easting, Project Northing, NAVD88 height tied to project control, Yaw, Pitch, Roll.
- Image files shall be uniquely named using date and 24-hour time format: CameraFilename_yyyymmddhhmmss.jpg. Camera Calibration file in xml format. Files names to be submitted in Excel format for sorting. Time gaps in file names will indicate breaks between flights.
- Seamless, orthoimage mosaic to be provided of entire coverage extent for planimetric extraction of features on or near roadway.
- Provide Survey Report including survey methodologies used and horizontal/vertical accuracy achieved. Check points must be compared directly to the resultant point cloud

and/or CAD surface. Aerial triangulation report shall be included in survey report. Ground control Points shall be listed and reported in a .csv project coordinate system format.

- Iowa DOT Bentley Open Roads Designer and V8i format SUR files containing terrain points on a 3 foot grid and linear roadway features to be included in terrain between paved edge lines. Non DTM planimetric features such as bridges will be mapped to non DTM inclusion levels designated by Iowa DOT leveling configuration. XYZ file of the data included in this file shall be submitted in N,E, Elevation text format.

The estimated time frame for the completion of each specific survey project will be determined by mutual agreement between the Department and the selected firm.

Contract Information

The Iowa DOT anticipates that the selection process will be completed by the end of February of 2022. Negotiation with the top selected consultants will commence upon notice that the selection process is completed. The selected consultants will perform on-call agreements for three-years. It is anticipated that a Cost Plus Fixed Fee payment method will be used.

There is no specific allocated dollar amount dedicated or assigned to this work, and expenditures will vary dependent upon the number and magnitude of work orders over the contract period. The Iowa DOT will not guarantee a set amount of work or contract value for these services.

General Requirements

All work associated with the data collection and preparation shall be performed by qualified consultants. Qualifications for performing data collection will be based on experience, typical licensure, certification or registration, or seals of approval from others as demonstrated in the consultant's reply to the Request for Proposal (RFP). Any additions to or replacement of consultant team members during the contract period shall have the prior approval of the Iowa DOT.

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. Although a DBE / TSB goal is not established, the Department still encourages the spirit of the program to be incorporated in the proposed contract whenever possible. 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://secure.iowadot.gov/DBE/Directory/Index/>. A list of TSB firms may be found at <https://iowaeda.microsoftcrmpartals.com/tsb-search/>.

Selection Information

The emphasis of a proposal should be placed upon providing information regarding your firm's project approach, similar projects your firm has recently performed, and the availability and qualifications of your key staff.

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.

1. Staff Experience – 30%

Describe the qualifications and experience of the project manager, key staff, and subconsultants related to the collection and preparation of engineering survey data, mobile scanning technologies and unmanned aerial system data collection surveying for use in the development of highway improvement projects.

2. Survey Process – 20%

Describe your firm's understanding of the process that needs to be followed to successfully collect all of the information needed to generate a complete survey for a proposed roadway project that includes topography, roadway alignments, control information, and drainage features.

3. Project Management – 20%

Answer the following questions relating to project management:

1. How will your firm ensure accuracy of the completed surveys?
2. Does the project manager have the authority to allocate additional resources to maintain a schedule?
3. Are the surveyors involved in data collection also responsible for post-collection data processing?

4. Project Deliverables – 20%

Describe the project deliverables that will be submitted and the experience of your staff in generating those deliverables.

5. Technology Resources– 10%

Describe the survey equipment, computer software and hardware, and associated equipment that your firm possess and has extensive experience in applying to survey projects. The Department will require that files be submitted in MicroStation Connect format.

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

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

Contacting any selection team member other than the RFP contact person is inappropriate.

Proposal Requirements

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

Provide the following information in the order listed:

1. Include your firm's approach to addressing the identified tasks, 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.
2. 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 this individual. 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 Department.
3. Include experience and qualifications for any sub-consultants to be used and work they will perform.
4. 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.
5. A project schedule outlining the timeline and estimated completion date of each major task identified in your scope of work. This should include a schedule with a description of all deliverable products throughout the period. A graphical representation of the proposed schedule should be included. This RFP requirement allows the consultant the opportunity to describe the steps and deliverables associated with a typical topographic survey project.
6. The location of the office where 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. 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.

Cost information should not be submitted as part of the proposal.

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 20 single-sided pages. All pages will be counted including: proposal covers, cover letter, dividers, etc. The maximum size limit of a proposal is 7 megabytes.

On the cover page of the proposal, include the title of the RFP for which the proposal is

submitted and the email address of the person who should receive the results of the selection. Inclusion of promotional literature of a general nature will not be considered in the selection process.

The electronic proposal must be submitted via email to jacqui.digiacinto@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 February 8, 2022.

Any technical questions or questions regarding this RFP shall be submitted via email to jacqui.digiacinto@iowadot.us. Any questions about this RFP must be received by noon February 1, 2022. 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 Department 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 Department'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

The selection and contract are subject to the provisions of Executive Order 11246 (Affirmative Action to Insure Equal Employment Opportunity). Federal and state laws prohibit employment and/or public accommodation discrimination on the basis of age, color, creed, disability, gender identity, national origin, pregnancy, race, religion, sex, sexual orientation or veteran's status. 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 515-239-1693. If you need accommodations because of a disability to access the Iowa DOT's services, contact the agency's civil rights/ADA coordinator at 515-239-1921. 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>)