**RFP 24-76258**

**TECHNICAL PROPOSAL**

**ATTACHMENT F**

**Instructions: Please supply all requested information in the areas shaded yellow and indicate any attachments that have been included to support your responses.**

Please provide a yes/no (Y/N) in the light blue shaded area, indicating your ability to meet requirements. If an item is left blank, you will be implying that your company cannot meet the requirement(s), and your proposal may be eliminated from evaluation. These Minimum Requirements will be used to evaluate respondents as described in Section 3.2 (Evaluation Criteria), Step 1.

|  |  |  |
| --- | --- | --- |
| **Item** | **Requirement Description** | **Respondent Answer** |
| 1 | Confirm your ability to complete the specifications, outlined in Attachment N. |  |
| 2 | The Respondent shall guarantee that imagery or files which are not to specification, shall be fixed or replaced at no charge to IOT for at least four years after the date of delivery to IOT. Confirm your agreement. |  |

1. **General Requirements and Definitions**
   1. Please list any additional terms and definitions used by your company or industry that you would like the State to consider incorporating in the contract. The State will not accept terms and definitions introduced after award during contract finalization and implementation.

|  |
| --- |
|  |

* 1. Please confirm you have carefully reviewed all requirements listed in RFP Section 1.4. Should your company have any exceptions, substitutions, or conditions for the State’s consideration, please list them below. The State will not accept exceptions, substitutions, or conditions introduced after award, during contract finalization and implementation.

|  |
| --- |
|  |

1. **Background and Experience**
   1. Provide information that explains how your company has been involved with the GIS community in states where you have contracts and how you would plan to be involved in Indiana, if you are not already.
   2. Describe your previous experience with dual statewide orthoimagery and lidar projects.
   3. What complications, if any, do you anticipate given that this project, while being a seamless statewide project, will be managed as 3 (three) 1-year projects and delivered county-by-county?
   4. How many aircraft outfitted with the same family of sensor are you able to make available for this project each year?
   5. Please describe your ability to prioritize the acquisition of Indiana imagery within the flying season during clear weather conditions; include length of time aircraft will remain on-site.
2. **Core Deliverables**
   1. **Aerial 4-band Digital Orthoimagery**
      1. Explain your ability to complete the specifications outlined in Section 7.1.1 of Attachment N.
      2. In the past five years, have any final deliverables for statewide orthoimagery projects been rejected by the client, and if so, how did you resolve these issues?
      3. How do you propose to manage the overlap area between counties of different resolutions (one county is acquired as 3 inch adjacent to a county that is 6 inch)?
      4. What issues do you anticipate with color balancing a project that spans multiple years, and what process do you use to mitigate any issues?
      5. Describe your approach for establishing ground control of sufficient density and accuracy to meet the requirements of the deliverable orthoimagery at the resolutions indicated (Section 4 of Attachment N). Describe how you intend to perform required independent accuracy testing.
      6. ASPRS Accuracy Standards – Propose your approach and method to perform independent accuracy testing of the orthoimagery products as outlined in Sections 6 & 7 of Attachment N.
      7. Describe how existing control from the 2021-2024 Orthoimagery project, as provided by the State, may be incorporated; include any plans for determining the availability and/or quality of any other existing ground control.
      8. Describe your method for documenting and marking collected ground control points such that they can be relocated by other surveyors and survive throughout the timeframe of the project.
      9. Describe how horizontal and vertical control will be established and used based on proposed sensors, accuracy, collection techniques and processing.
      10. Describe your process to constrain building lean within the orthoimagery and to account for excessive building lean, particularly in areas with concentrations of structures over 5 stories.
      11. Describe your experience and solution to provide an Open Geospatial Consortium (OGC) Web Map Service (WMS) to allow Internet viewing of the orthoimagery in production for visual QC.
      12. Describe how you will provide a web-based viewer to the State for visual quality control (QC) review (including tracking callouts and corrections) of the imagery before the final data delivery. Include details of your experience with web-based QC solutions.
      13. We anticipate that the photogrammetry staff from the Indiana Department of Transportation will perform a quality review. How will you use their capability to ensure a superior product for Indiana?
      14. Describe how your processes are designed to eliminate errors. Detail the steps taken for review of products. Describe how rejected products will be handled, including re-flights, tile errors, mosaic errors, and radiometry errors.
      15. Explain your ability to re-visit flights in particular areas in the event the imagery is rejected during the QC process.
      16. Describe the types of radiometric adjustment incorporated into your production processing and quality control workflow.
      17. Include a description of processes and software used for ortho rectification, mosaicking, and tiling. Address how the processes will eliminate or minimize radial displacement, building lean, and spectral reflectance from water surfaces.
      18. Describe your process to produce and quality check derived imagery products.
      19. Describe the process and tools used to create the DEM bare-earth digital elevation model (DEM) generated from the acquired lidar suitable for creating the new orthoimagery in a timely manner.
   2. **Elevation Data Captured Using Lidar**
      1. Explain your ability to complete the specifications outlined in Section 7.1.2 of Attachment N.
      2. In the past five years, have any final deliverables for statewide lidar projects been rejected by the client, and if so, how did you resolve these issues?
      3. Describe your approach for using existing control or establishing new ground control of sufficient density and accuracy to meet the requirements of the lidar deliverable. Describe how you intend to perform required independent accuracy testing.
      4. Describe how horizontal and vertical accuracy will be established and used based on proposed sensors, collection techniques and processing.
      5. Describe the process and tools used to align separate swaths and classify the lidar points including differentiating between various classifications listed in Section 7.1.2 of Attachment N.
      6. Describe your process to adequately collect lidar in urban areas to ensure adequate ground coverage.
      7. Describe the processes and software used for hydro-flattening, including how bodies of water will be determined.
      8. Describe how you will provide a web-based viewer to the State for visual quality control (QC) review (including tracking callouts and corrections) of the DEM product detailed in Section 7.1.2 of Attachment N prior to final data delivery. Include details of your experience with web-based QC solutions.
      9. We anticipate that the USGS will perform the quality assurance of the data to the Lidar Base Specification. Describe how you will work with the USGS for this process.
      10. We anticipate that the staff from the State of Indiana will perform a quality review. How will you use their capability to ensure a superior product for Indiana?
      11. Describe how your processes are designed to eliminate errors. Detail the steps taken for review of products. Describe how rejected products will be handled, including re-flights, and lidar swath.
      12. Explain your ability to re-visit flights in particular areas in the event the lidar is rejected during the QC process.
      13. Describe your process to produce and quality check deliverable lidar products.
      14. Describe the process to ensure there is an accurate or consistent transition between years of collection.
   3. **Lake Michigan Coastal Program**
      1. Explain your ability to complete the specifications outlined in Section 7.1.3 of Attachment N.
   4. **General**
      1. In general, explain your proposed project team’s ability to complete the Scope of Work Tasks detailed in Section 7 of Attachment N.
      2. What challenges do you anticipate using the same family of sensors throughout the statewide program (for each county, across all resolutions)?
      3. How will you ensure the download and storage of final deliverables through the guarantee period?
      4. How will you ensure that file naming, file format, file header information is consistent throughout the project?
      5. What additional media and process do you propose using for final deliveries?
3. **Optional Buy-Up Deliverables**
   1. Explain your ability to complete the specifications outlined in Sections 7.2 of Attachment N and listed below:
      * 3-inch orthoimagery
      * 2-foot Contours
      * Additional lidar classifications and products
      * 2-foot Digital Surface Model (DSM)
      * Building footprints
      * Planimetric data such as the edge of pavement, road markings, vegetation, etc.
      * Impervious cover
      * Land use
      * Land cover
      * Custom geographic boundaries of the base products
      * Hydro-flattened waterways wider than 25 ft
      * Lidar point density of 25 points per square meter
      * 2-foot Normalized Digital Surface Model (nDSM)
      * Raw swath data
      * Vendor-proposed additional optional buy-up deliverables
      * Meta Raster Format (MRF) overviews as a final deliverable along with the COG TIFF files
4. **Project Management**
   1. Provide a document to describe your company’s project management approach and methodology for this project. This should be a high-level document that pulls everything together.
   2. Include here a project management plan, including demonstration of the allocation of sufficient resources to complete all aspects of the work on time and within budget.
   3. Flight mission: include a description of flight planning, aircraft, sensor calibration IMU, motion compensation, camera details and data storage. Address endlap, sidelap, tip, tilt, crab, and flying height.
   4. Photogrammetric processing: include a description of processes, technology and software used for image and processing, Analytical Aerial Triangulation, block and bundle adjustment, and residuals.
   5. Lidar processing: include a description of processes, technology and software used for processing the lidar point cloud, Analytical Aerial Triangulation, block and bundle adjustment, and residuals.
   6. Delivery schedule: provide a proposed schedule for planning, flight missions, processing, and delivery.
   7. How would you respond to out-of-cycle flight needs?
   8. Please confirm that you shall provide contact information for an individual or team of individuals that will allow IOT to contact the Respondent’s “Point of Contact” anytime during regular business hours.
   9. Propose your meeting plan and reporting tools to meet the requirements outlined in Section 11.3 of Attachment N.
   10. Describe the tool(s) used to show weekly status updates of flights, data delivery, QA/QC progress and final product acceptance.