TROUP COUNTY BOARD OF COMMISSIONERS

AERIAL ORTHO AND OBLIQUE IMAGERY

The following are minimum acceptable specifications:

1. **GENERAL INFORMATION:**

   1.1. **PURPOSE** This request for bid is for the purpose of acquiring aerial orthophotography and oblique images for the entirety of Troup County, Georgia. The requirements would include high resolution ortho and oblique imagery countywide. The County requests that all proposals include details for both alternate options, 6-inch and 3-inch resolutions. The photography shall be captured in late January – early March 2019, "leaf-off" period. And the photography shall be based on a tiling structure agreed upon between the County and the Vendor. In addition, the County requests the proposal to contain specifics of acquiring Light Detection and Ranging (LiDAR), DEM/DSM countywide as well as an update to the County's current planimetrics. The County requires that the Vendor state the ideal number of ground control points needed to complete the entirety of this project. The County does desire that existing data be repositioned to match the new accuracy based on those points. The deliverables shall be in the appropriate file formats (MrSID, GeoTIFF, TIFF or JPG, ESRI .shp, etc.) see 2.2 'Deliverables'. The County will maintain the ownership of the data with the exception of the Vendor's licensed products and offerings.

   1.2. **BACKGROUND** The information in this section is intended to provide the Responder an overview of the County and to convey this project's priorities. The Responder should use this information to gain a sense of the County's size and range of services provided.

      1.2.1. **INFORMATION INTEGRATION INTERPRETATION** All information that is produced by Troup County, Georgia employees and subcontractors is viewed as "owned by Troup County, Georgia". It is critical that Troup County has the ability to move information from one information system to another information system.

      Information produced must have the ability to be integrated with the County's Geographic Information system, as well as other non-GIS information platforms.

      1.2.2. **COUNTY INFORMATION**. Troup County is located in the west central portion of the U.S. state of Georgia. The county incorporates three cities: LaGrange, West Point and Hogansville. The county seat is LaGrange. There are over 34,000 individual parcels in Troup County and a total area of 446 square miles; 414 square miles is land and 32 square miles is water. The County serves a population of about 68,000 residents.

      1.2.3. **INFORMATION TECHNOLOGY & GIS ENVIRONMENT**.

      Background. Since 2005, Troup County has contracted with the City of LaGrange for Information Technology services. Troup County has brought all of its departments under a common network with Internet services provided by the City. The IT department provides technical support and maintenance for communication services to all County departments and handles telephone support and maintenance at the Government Center. Ample computer support includes Web programming, Internet Service, computer help desk, application development and support, desktop GIS software support, maintenance of servers, printers and

all other computer components and dissemination of County datasets through a wide variety of means including intra and internet applications.

Troup County began transitioning to Geographic Information Systems (GIS) technologies using ESRI software in 2009. New high quality digital orthophotography with 6" resolution were acquired last in February 2009 along with topography using 2' contours and planimetric data. July 2015, Troup County contracted with the City of LaGrange for GIS services. GIS services include helping Troup County E-911 and emergency responders locate callers, property appraisers accurately maintain fair and equitable property values. Other services include address assignment for new developments, homes and businesses as well as address changes. Online maps are made available through a third party provider, QPublic.

> **1.2.3.1. Workstations**. Most standard employee workstations are thin clients configured with Windows 7 or Windows 10 64-bit OS. Windows active directory is in place.
> **1.2.3.2. Network**. The County's LAN is built on Ethernet standards and all network devices are set up with TCP/IP protocol. The standard operating system for file, database and web servers is Windows 2012 R2, IIS 7/8.
> **1.2.3.3. Desktop Software**. Troup County staff uses ESRI products for GIS production tasks, specifically ArcGIS Desktop product ver. 10.x.
> **1.2.3.4. Application Servers**. Troup County is a Windows based server environment, utilizing an ESX VMWare virtual environment except for those situations requiring a hardware server. Windows Server 2012 R2 is the standard OS for new installations.

A dedicated server hosts the ESRI licensing/users and internal/external web-based applications:

- Troup County E-911 utilizes an internal web-based application that is developed in the Microsoft Silverlight framework by a third party vendor, Geographic Technologies Group. This application has since been redeveloped, thus, rebuilt utilizing the Javascript framework. Both applications have the ability to consume ArcGIS Server rest services, ArcGIS Online Services as well as WMS services. Currently, the application relies on both rest and WMS services.
- Portal for ArcGIS (local ArcGIS server) and ArcGIS Online (ESRI AWS service) are utilized for the Troup County departments and residents. The internal/external web-based applications are developed from ESRI's out-of-box application builder, Web AppBuilder (Javascript).
- ArcGIS Enterprise software that houses a collection of ArcGIS Desktop applications, Desktop 10.x and Pro for ArcGIS 2.x allows rendering and processing of locally housed data quickly.

An additional server houses the GIS data.

Also, a devoted server houses an executable program, WinGap (CAMA) with data built and maintained in a Windows SQL data programming language. It is used by our Property Appraisal department.

The remainder of servers are devices fulfilling backup, recovery or specialized application roles.

1.2.3.5. <u>Database Management System (RDBMS)</u>. Troup County is a Windows SQL Server database environment and uses multiple SQL Server database systems. SQL Server 2012 and 2014 are currently in use and are preferred for new installations. As noted above, WinGap utilizes SQL which is stored on the County system.

Note: Due to the deprecation of ArcSDE (SQL) the dedicated GIS hosting server will be federated and all GIS data will be housed in the ArcGIS Data Store, relational data storage store by year 2019.

2. <u>SCOPE OF WORK</u>

The proposed project involves the following components:

- Countywide rectified digital true color orthophotography (RGB) / oblique imagery
    - Alternate A : 6-inch resolution
    - Alternate B : 3-inch resolution
- Change detection offerings and software
- Image viewing software and/or web-based portal
- Ground control points
- LiDAR, QL2 USGS standards
- Update planimetric data

Respondents must provide a detailed scope of work including specific methods and/or approaches that will be used to respond to these tasks. Costs must be included for each task as well as any additional fees that could possibly incur, please explain.

2.1. <u>ORTHOPHOTOGRAPHY IMAGERY</u>

2.1.1. Provide color, 4-band digital aerial orthophotography of the entirety of Troup County

2.1.2. The County requests that all proposals include details for both alternates. Resolution Requirements are:

    2.1.2.1. **Alternate A** : 6-Inch resolution

    2.1.2.2. **Alternate B** : 3-inch resolution

2.1.3. Rectification shall seek to minimize feature displacement and loss of features along mosaic lines

2.1.4. The ortho imagery must be geo-referenced to the Georgia State Plane Coordinate System (East or West Zone) based on the NAD83 (NA2011) adjusted horizontal and NAVD88 vertical data

2.1.5. Within two weeks of completion of the aerial flyover, the Vendor must deliver a preliminary, "working copy" of the project orthophotography

2.2. <u>OBLIQUE IMAGERY</u>

2.2.1. Provide metric color oblique aerial photography for the entirety of Troup County

2.2.2. Images must be captured from a north, south, east and west direction to provide a 360 degree view of every property

2.2.3. Each pixel of an image must be geo-referenced

2.2.4. The County requests that all proposals include details for both alternates. Resolution Requirements are:

2.2.4.1. Alternate A : 6-Inch resolution

2.2.4.2. Alternate B : 3-inch resolution

2.2.5. Oblique images will meet the same horizontal and vertical accuracy that is in the source data used in processing them, i.e. Orthphoto, DEM (Digital Elevation Model)

2.2.6. Provide oblique imagery from which measurements can be directly taken on a computer screen

2.2.7. Images should be captured simultaneously with the orthogonal imagery

2.2.8. The imagery must be compatible with ArcGIS for any derived datasets or application extensions enabling images to be viewed in ArcGIS. It must also integrate with existing Property Appraisal (WinGAP/QPublic) and E-911 applications. Vendor must explain any fees associated with these application extensions.

2.2.9. The digital oblique photography must be delivered with software tools that allow for cataloguing, extracting, viewing, measuring and analyzing said photography.

2.2.10. The oblique imagery must be geo-reference to the Georgia State Plane Coordinate System (East or West zone) based on the NAD83 (NA2011) adjusted horizontal and NAVD88 vertical data.

2.2.11. Oblique imagery must be georeferenced in such a way that allows for the overlay of all GIS data.

2.3. CHANGE DETECTION OFFERINGS & SOFTWARE

2.3.1. Vendor should describe the process used to create a complete, end-to-end changed detection software solution for over 34,000 parcels throughout Troup County.

2.3.2. Must provide building outline for the base imagery and new imagery while outlining what the change detection process will look like

2.3.3. The Vendor shall provide viewing software to compare what's new, what's changed, what's been demolished, and what hasn't changed in a split screen mode.

2.4. IMAGING VIEWING SOFTWARE AND/OR WEB-BASED PORTAL Vendor must describe the software that it provides for viewing of oblique and orthogonal images. Vendor should provide a portal application that stores Troup County's image library, provides its users the ability to access and view the imagery, client-hosted (Troup). Solutions are not to be on a third party's cloud and/or client-server. List any mobile options for viewing your imagery. Vendor must explain if there ae incurring fees associated with the solution such as seat and/or license costs to view.

Image tools shall include:

2.4.1. Measuring tools – vertical, horizontal and area, height, bearing, pitch, elevation, location and identify (to analyze information contained in uploaded GIS data)

2.4.2. Image extraction capabilities: JPG, TIF, GIF, KML, PDF for use in other programs.

2.4.3. Overlaying GIS data –Web Feature Service capabilities (WC3 Service), optional

2.4.4. Annual maintenance cost to include upgrades to the solution on the County's system as well as technical support.

2.5. GROUND CONTROL POINTS Vendor is responsible for any and all ground control points necessary to complete this project. The Vendor must provide an estimated number of ground points needed along with the cost of each additional point. The County wishes to update its current data to reflect the new map accuracy so that it's previous and most recent data align properly.

2.6. LIDAR QL2, USGS SPECIFICATIONS The County wishes to obtain LiDAR and elevation models. The County is interested in first return and ground features. Vendor must update the County's existing Digital Earth Model/Digital Terrain Model (DEM/DTM) sufficiently so that new digital contour line features at two (2) foot intervals may be generated and produced. Vendor shall describe the approach to be used in generating the DEM/DTM. Vendor must provide price and approach for generating a Digital Surface Model (DSM) as well. The County does not have an existing DSM. The deliverables must meet the requirements of "USGS LiDAR Base Specifications". The Vendor must describe the sensors that will be used in the capture. The County asks that the Vendor please provide the number of LiDAR points and point density required.

2.7. UPDATE PLANIMETRIC DATA The County requests an update of the existing planimetric features. The City will provide the Vendor with the planimetric shapefiles to be updated.

3. TECHNICAL SPECIFICATIONS

3.1. CAMERA

3.1.1. Describe the camera calibration system you use on your oblique imagery equipment
3.1.2. Describe the aircraft used in the oblique flying mission
3.1.3. Camera pixel size must be at minimum 20-megapixel in sensor size
3.1.4. List any USGS certifications in your digital oblique camera systems may have

3.2. AIRCRAFT

3.2.1. Vendor should describe its aircraft fleet size, capabilities, resources and staffing to successfully meet the project schedule
3.2.2. It is desired that the Vendor purchase fuel from the LaGrange Callaway airport

3.3. FLIGHT CONDITIONS Oblique/aerial photography shall be completed during the leaf-off conditions early in 2019 with 30% or less leaf cover conditions. Oblique and orthogonal photography shall be acquired when the ground is not obscured by snow, ice, clouds or fog, and the atmosphere is free of haze, smoke and dust. Photography that is deemed unacceptable, as determined at the County's sole discretion, must be corrected by the Photogrammetrist at no additional cost.

3.4. QUALITY ASSURANCE/QUALITY CONTROL Respondents are expected to identify all levels of their quality assurance and quality control procedures that will be employed in evaluating and processing the imagery.

3.5. INTEGRATIONS

3.5.1. The imagery will be compatible with ESRI product including ArcGIS 10.x, ArcGIS for Desktop 10.x. Plug-ins for the provided data format and viewer software should also be included.

3.5.2. Provide a list of all software packages that the oblique image viewing software is compatible with. Examples include but are not limited to ESRI's ArcGIS/ArcGISServer, WinGAP, QPublic, and CAD software applications (PTS/GTG-Vantage Points/VPCore).

3.5.3. Vendor must contain a dedicated section detailing any and all Information Technology requirements needed for their deliverables and/or web solutions: hardware/software, vendor remote access, database update, etc. The Vendor's web solution shall be hosted on GIS dedicated server and must be able to handle security tokens.

3.6. DELIVERABLES

3.6.1. Ownership. All items developed, prepared, completed or acquired under this agreement shall become the property of Troup County, Georgia. The Cooperative shall retain all reproduction rights for all materials produced under this contract.

3.6.2. Media Type and Data Storage. Sample and/or test data may be submitted on DVD, USB flash drive, or other external USB 2.0 compliant storage mediums. FTP services are also acceptable, although the County reserves the right to request a physical delivery. All final digital files must be delivered on external hard disk storage devices unless noted otherwise.

3.6.3. Complete Content. Data deliverables/web solutions will be complete in content

3.6.4. File Formats. The imagery deliverables shall be in the appropriate file formats (MrSID, GeoTIFF, TIFF or JPG, ESRI .shp, etc.)

3.6.5. Schedule. Data will be delivered to Troup County on an agreed schedule. Vendor must provide a project timeline. The project shall proceed in a timely manner. Within two weeks of completion of the aerial flyover, the Vendor must deliver a preliminary, "working copy" of the project orthophotography. The LiDAR collection may follow the same schedule as the orthoimagery.

3.6.6. Detailed and Itemized Pricing. Supply an individual price on each itemized task stated in 2. 'Scope of Work'

3.7. OTHER TECHNICAL CONSIDERATIONS Describe any other technical detail critical to the successful acquisition and processing of the imagery

3.8. TECHNICAL SUPPORT The Vendor shall provide technical support for the delivered products for the duration of the contract. Technical support shall be onsite, by phone or web-based.

3.9. TRAINING

3.9.1. Please provide a complete explanation of training (on-site as well as on-line) provided in the costs of your bid

3.9.2. Include, from past experiences the estimated amount of time required for training for end users of product(s) as well as technical training for IT and GIS department employees

3.9.3. This should include the approximate person-hours for training for each group

3.10. EXPERIENCE. To be eligible the Vendor should demonstrate that they have successfully completed services. The Vendor should provide the County with credentials supporting their

past experience, expertise, organizational, personnel and resources, to ensure satisfactory execution of services. Please provide a response to each of the following:

3.10.1. Include a detailed project description for relevant, successfully delivered projects with particular emphases on other governmental agencies, and include clients and past clients within the southeastern United States. Products should include the simultaneous captures of both orthphotography, oblique digital imagery, LiDAR and the delivery. Note the following details: customer name, address, contact person/title/phone number/email address, contract value, project size and location, contract deliverables and start and delivered dates for the captures involved.

3.10.2. Include a company profile and describe the number of years your business has been providing aerial services

3.11. INSURANCE To be Vendors, at its own expense, shall maintain sufficient liability insurance against claims or lawsuits which result from the actions of Service Provider or its employees or agents

4. SUPPLEMENTAL INFORMATION

4.1.1. PROJECT AREA MAP The project area is 446 square miles. See map figure, Figure 1.
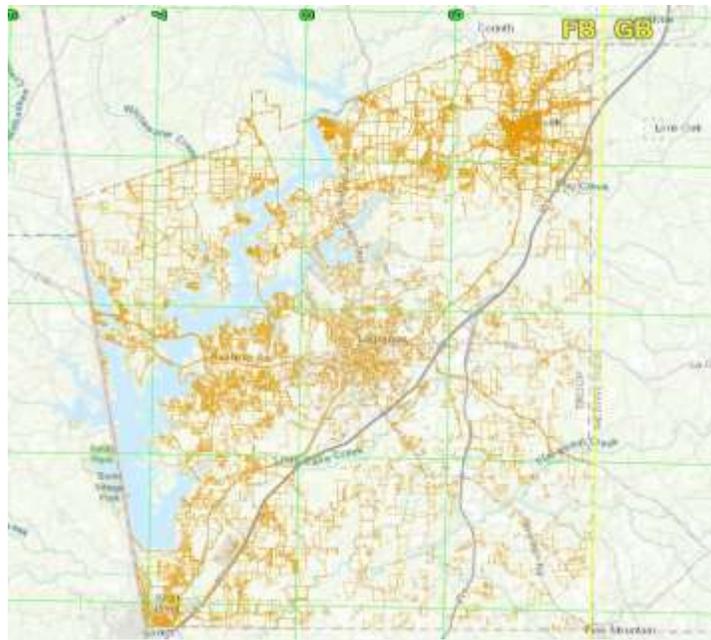
4.1.2. The County is not required to provide GIS data, unless otherwise noted. If data is needed for analyzing purposes you may visit our QPublic site, https://qpublic.schneidercorp.com/Application.aspx?AppID=633&LayerID=18434&PageTypeID=1.