

Department/Agency	Office of Information Technology Services - Center for Geographic Information and Analysis (CGIA)
Project Title	Coastal Orthoimagery 2016
Design Services	Aerial Photogrammetry
Scope	Digital Orthophotography Acquisition
Contact	Karen Kelly
Telephone	919-754-6334
Email	Karen.kelly@nc.gov
Source of Funds	State Funds
Publish Date	August 31, 2015
Closing Date	<u>September 22, 2015</u>
Submit ONE (1) Signed Original and ONE (1) Copy of the entire Proposal Package and ONE (1) USB drive containing a text searchable PDF of the Proposal Package.	NC Office Of Information Technology Services 3900 Wake Forest Road Raleigh, NC 27609
NC Licensing Statement	In order to offer Surveying, the proposing firm must be properly licensed to practice Surveying in the State of North Carolina. More information on the North Carolina state boards may be found at the following websites: NC Board of Examiners for Engineers & Land Surveyors: (http://www.ncbels.org)
<u>SELECTION CRITERIA</u>	
In selecting firms, the selection committee should take into consideration qualification information for the following in order of priority (see Section 2.2):	
<ol style="list-style-type: none"> 1. Specialized or appropriate expertise in the type of project. 2. Record of successfully completed projects and past performance on similar projects. 3. Adequate equipment, product storage and capacity. 4. Adequate staff and workload 5. Technical specifications approaches 	
<u>SUBMITTAL CRITERIA</u>	
Please submit ONE (1) Signed Original and ONE (1) copy of the entire proposal package and one (1) USB drive containing a text searchable PDF of the Proposal Package. In the interest of costs-savings, consistency of the submittals and more efficient use of time by the pre-selection committee, the submitted information package should not include any notebooks, binders, tab, clips, etc. The format should be 8-1/2" x 11" pages stapled in the upper left-hand corner. The package length should not exceed fifteen (15) pages (see Section 2 Submission Requirements).	

RFQ 41-20162156KK
August 31, 2015

TITLE: Coastal Orthoimagery 2016
ISSUE DATE: August 31, 2015
USING AGENCY: North Carolina Center for Geographic Information and Analysis
ISSUING AGENCY: North Carolina Office of Information Technology Services

Sealed proposals subject to the conditions made a part hereof will be received until 1:00 p.m. EDT, Tuesday, September 22, 2015 for furnishing services described herein. Proposals received after this date and time will be disqualified. Table 1 is the proposed schedule for the period beginning with the RFQ opening through contract(s) award:

Event/Milestone	Proposed Date
Issue RFQ for Orthoimagery QBS	31-Aug
Q&A Close	4-Sep
Post Q&A	9-Sep
Closing date for RFQ responses	22-Sep
Host cost proposal workshop for selected vendors	29-Oct
Technical and cost proposals due	12-Nov
Negotiations with selected applicants	23-Nov
Proposed Kickoff Meeting	17-Dec

Table 1: Qualifications Based Selection Process Schedule

SUBMITTALS:
Submit proposals directly to the issuing agency, the North Carolina Office of Information Technology Services:

Building (shipping) address:
Attn: Karen Kelly
3900 Wake Forest Road.
Raleigh, NC 27609
919-754-6334
karen.kelly@nc.gov

RFQ 41-20162156KK
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IMPORTANT NOTE:

On the front of each sealed proposal envelope or package, clearly indicate the following:

1. The firm's name
2. The words "Technical Qualifications Proposal"
3. The RFQ number
4. The date for receipt of proposals specified above

QUESTIONS:

Interested applicants may submit questions concerning this RFQ no later than 1:00 p.m. EDT on Friday, September 4, 2015 via email using the format provided below. Email shall be the only acceptable method for submittal. Responses will be posted on Wednesday September 9, 2015.

- Email address: (Karen.Kelly@nc.gov)
 - Subject line: COASTAL ORTHO RFQ 41-20162156KK
[Summary of your question]

The technical administrator will summarize each submitted question and its respective answer and then post them (without identifying the questioner) on the State Interactive Purchasing System web site (<https://www.ips.state.nc.us/ips/>) as an addendum to this RFQ.

1. INTRODUCTION

The North Carolina Center for Geographic Information and Analysis, (CGIA), desires to engage qualified private photogrammetric firms (the Vendors) for the acquisition of new color digital 6” resolution aerial imagery and development of digital orthorectified imagery inclusive of all areas in 27 counties, 15,678 square miles and consists of 17,483 tiles in eastern North Carolina (the Study Area Section 4 Table 3). These services are required to support CGIA’s agreement to provide professional services for the NC 911 Board agreement dated July 21, 2015.

The selection of the Vendors will be based on the (1) qualifications of the Vendors for the professional services required and (2) demonstrated competence, and without regard to cost in accordance with North Carolina General Statute 143-64.31. Thereafter, the State will negotiate a contract for services described herein with the best-qualified Vendors. If a contract cannot be negotiated with the best-qualified Vendors, negotiations with those Vendors shall be terminated and initiated with the next best-qualified Vendors. CGIA intends to contract with multiple Vendors to perform the scope of services for up to five subsets of the Study Area. Contracted Vendors will be assigned similar technical tasks within each respective Study Area. Vendors that are determined to be qualified to perform work described under this RFQ will be eligible to contract with CGIA for a period of the duration of this contract.

Joint Ventures will not be permitted under this contract. Each proposal submitted must designate a firm that will be solely under contract with, and report directly to CGIA. This firm will be considered the prime firm and, as such, will be responsible for subcontracting with and managing its project team member firms.

2. SUBMISSION REQUIREMENTS

Submission Procedures

RFQ responses shall be delivered by mail or hand delivered to Karen Kelly by 1:00 p.m. EDT on Tuesday, September 22, 2015. One (1) signed, original response to this RFQ and one (1) complete copy are required. In addition, one (1) USB drive containing a text searchable PDF version of the RFQ response is required. **Proposals will not be considered if any of the following occur:**

1. Responses received after the deadline
2. Unsigned original response
3. Fax submittal
4. Unsigned Execution of Letter of Qualifications
5. Unsigned Attachment Number 1
6. Unsigned Attachment Number 2
7. Unsigned Letters of Commitment, Certifications and Registrations
8. Exclusion of Form 254

Submission Format and Content

All proposals are limited to fifteen (15) pages exclusive of cover sheet and shall be typed using a font size 10 or larger on 8 ½" x 11" sheets, single spaced, one side. In order to reduce costs and to facilitate recycling, the following items are prohibited: binders, dividers, tabs, etc. One staple in the upper left hand corner is required per Section. Proposals containing more than 15 pages or that are improperly formatted will not be considered. Pages, sections, and paragraphs must be numbered for easy reference. The proposal shall be ordered and labeled per section as defined in Table 2:

RFQ 41-20162156KK
August 31, 2015

Section	Requirements	RFQ Section	Page Limit	Evaluation Weighting (%)
1	Letter of Interest	2.1	2	Required
2	Evaluation Criteria	2.2	15	100 %
3	Supporting Information and Exhibits	2.3	10	Required
4	Project Team Resumes	2.4	10	Required
5	Letters of Commitment/Certifications and Registrations	2.5, 2.6, 2.9		Required
6	Form SF 254	2.7		Required
7	Attachments and Addendums (Signed Bid Addendums, Execution of Letter of Qualifications, Attachment Number 1, Attachment Number 2)	2.8		Required

Table 2: Proposal Organization Format

Each of the pre-qualified Vendors will be notified as well as posted to the CGIA website (<http://www.cgia.state.nc.us>). Notifications will not be submitted to the list of Vendors that were **not** selected **nor** will their firm names be included on the posted list of selected Vendors. The final list of awarded vendors will be posted at the IPS website (<https://www.ips.state.nc.us/ips/>).

Section 2.1 - Letter of Interest

The Letter of Interest should be addressed to Ms. Karen Kelly. This letter is limited to two (2) pages and shall contain the following information:

1. Summation or overview of information contained in the Vendor's proposal.
2. Listing of any civil or criminal indictments, guilty pleas, or convictions of offenses involving the Vendor or any principal within the past 5 years.
3. Statement regarding any possible conflict of interest on the part of the Vendors for this project.
4. Federal Tax Identification Number (FEID).
5. Date of registration and registration number with the North Carolina Secretary of State's Office.
6. Date of license and license number of Professional Land Surveyors with the Board of Examiners for Engineers and Land Surveyors.
7. Vendor's authorized officer, signature, date, Vendor's name, address, telephone number, FAX number, and email address.
8. Vendor's project contact person, signature, date, Vendor's name, address, telephone number, FAX number, and email address.
9. Vendor's authorized contracts negotiator, signature, date, Vendor's name, address, telephone number, FAX number, and email address.

Section 2.2- Selection Criteria

This section shall contain information specifically addressing the five (5) selection criteria identified in (Section 2.2.1 – 2.2.5). In responding to any given criterion, the qualifications of the entire project team (the prime Vendors plus subcontractors and consultants) should be addressed. Where appropriate, this section should include and/or provide reference to the following types of information for each of the five criteria:

1. Response or approach that is technically relevant to the criterion without emphasis on or in the context of sales, marketing, or reiteration of requirements
2. Understanding of project approach for each task and sub-tasks identified in Section 5, Scope of Work
3. Identification of project personnel qualifications as related to this project
4. Unique qualifications and availability of team members
5. Experience on similar projects
6. Innovative approaches to be used
7. List of equipment (field and office) and software applicable to the criteria

The evaluation of vendors submitting for this work will be based on the following evaluation criteria where collectively this section accounts for 100% of the total weighting. The respective weights for each criterion are indicated in parentheses. Scoring will be based on a system of assigning scores of 0-10 per selection criteria where a score of 0 is valid representing non-response. The evaluation will consider the prime Vendors' qualifications, and its proposed subcontractors' and consultants' qualifications.

2.2.1: Successfully completed projects and past performance on similar projects (45%)

1. Provide a record of successfully completed projects and past performance by project team members (prime Vendor, subcontractors, and consultants) on contracts of comparable scope and size with government agencies and/or private industry within the last five (5) years. Particular note should be made of past projects involving project team members working together on similar projects and previous experience working within North Carolina and with similar orthoimagery resolution for state or local governments.
2. Provide any quantitative quality metrics and contracting entity's formal performance evaluation reports (if not provided, state such) pertaining to relevant recent projects.
3. Provide at least three (3) references, including the information listed below. Projects that are not relevant to the scope of work are discouraged and will impact scoring adversely.
 1. Client's name, affiliations, email addresses, and phone numbers.
 2. Project budget
 3. Location, start and completion dates of projects, geographic size (study area in square miles), and scope of services (identify type and quantity of all photogrammetric products and services, specifications such as pixel resolution, bit size, number of bands, etc. and other included services)

2.2.2: Specialized or appropriate expertise in the type of project (30%)

1. Demonstrate experience and expertise of the Vendor's project team and its key personnel in developing the primary image product deliverable as well as auxiliary requirements for preparing documentation and standard reporting.
2. Outline the Vendor's project approach, standard operating procedures, and quality assurance measures particularly as they relate to the tasks and sub-tasks identified in Section 5. Specifically, identify the proposed project team work breakdown structure by percentage for **Sections 5.1 through 5.4**.
3. Describe the Vendor's methods for adherence to the State Standard, and accepted industry practices that the Vendor proposes to use to meet this project's technical and schedule requirements. This section must be organized by Task 5 sub section numbers (5.1-5.4).

2.2.3: Adequate equipment, product storage and capacity (10%)

The Vendor shall demonstrate capability of the prime Vendor's project team to secure appropriate equipment and to maintain adequate capacity for product storage and short term repository to include the following:

1. List equipment (field and office) and licensed software that are available and would be designated for use on this project. Include the description (type, version number, number of licenses).
2. Identify aircraft, digital aerial camera systems, and GNSS-IMU systems used to acquire aerial imagery.
3. Identify any planned maintenance outages for aircraft and planned conflicts for the acquisition period.
4. Identify acquisition systems (changed digital camera, GNSS-IMU system, and aircraft combinations) planned for this project that were not approved from NC Validation Range flights for any of the 2012-2015 projects as follows:
 - a. ADS 100
 - b. DMC I
 - c. DMC II 140
 - d. DMC II 230
 - e. DMC II 250
 - f. UltraCam Eagle 80
 - g. UltraCam Eagle 100
5. Identify the factory calibration date for all proposed digital camera systems.
6. Identify all potential operations bases for proposed aircraft and digital aerial camera systems.
7. Identify proposed digital camera systems' planned ground footprint dimensions in feet for cross track and along track coverage based on capturing color digital imagery with a 6-inch pixel resolution at acquisition.

2.2.4: Technical specifications approaches (10%)

The Vendor shall provide the following information:

1. Discuss your technical approach for how you intend to insure that radiometric balancing and visual consistency within reason is obtained between shared study areas with other prime contractors and among any subcontractors assisting with the Vendor's primary study area.

2. Describe your technical workflows and logistics approach for developing visually consistent images with other subcontractors and provide specific instances of an effective methodology for data sharing and team building.

2.2.5: Adequate staff and workload (5%)

The Vendor shall produce the following information:

1. Submit a workload matrix of your most recent two years of previous engagements, current assignments, and contracted forecasts over the next two years noting special considerations for state awarded projects.
2. Provide the number of primary staff assigned to each project and demonstrate the Vendor's capacity to support this project or the intent to acquire additional resources.

Section 2.3 – Supportive Information and Exhibits

The Vendor shall prepare and submit the following information:

- Listing of all affiliates and their legal addresses, including, but not limited to, subsidiaries, parent company, companies owned or controlled by the parent company, any company or firm having some mutual owners as the firm which does business with the firm and may or could be involved in any manner, shape, or form in this project.
- Organizational chart of the proposed team for the project, including subcontractors.
- Maps and figures
- Overall summary of personnel to be assigned by discipline and professional registration.

Section 2.4 – Project Team Resumes

Provide resumes of key personnel to be used on the project and their anticipated role (include professional registration information, such as license numbers).

Section 2.5 – Letters of Commitment

Provide signed Letters of Commitment from the Prime and subcontractor(s).

Section 2.6 – Certifications and Registrations

The Vendor shall submit the following information:

- Certified documentation that the Surveyor in responsible charge of the work is a registered Professional Surveyor in the State of North Carolina in good standing with the North Carolina Board of Examiners for Engineers and Surveyors.
- Certified documentation that prime and subcontractors providing professional services that are proposed to be performing land surveying are licensed in the State of North Carolina in good standing with the North Carolina Board of Examiners for Engineers and Surveyors in accordance

with North Carolina General Statute 89C.

- Certified documentation that the prime firm and any of its corporate subsidiaries to be used on the project, as well as all team members, are properly registered to do business in North Carolina with the Office of the Secretary of the State.

Section 2.7 – Form SF 254

The Vendor shall submit Form SF254 as signed documentation for the Prime and each subcontractor(s). This document may be obtained at <http://www.nc-sco.com/documents/forms/sf254-word.doc>

Section 2.8 – Bid Addendums

The Vendor shall submit signed RFQ Bid Addendum postings.

Section 2.9 – Licensing, Location, and Insurance Requirements

The photogrammetric firm performing the work and the professional in responsible charge of the work must be licensed (firm and professional) in the State of North Carolina and must have good ethical and professional standing. Any Vendors wishing to be considered must be licensed with the Board of Examiners for Engineers and Surveyors and be properly registered and demonstrate Certificate of Authority with the Office of the Secretary of State. It will be the responsibility of the prime Vendors to verify any corporate subsidiary is registered with North Carolina with the Office of the Secretary of the State prior to submitting a Letter of Interest. The Vendors must have the financial ability to undertake the work and assume the liability. The selected Vendors shall be required to furnish proof of Professional Liability insurance coverage as well as provide evidence of General Liability as referenced in the Terms and Conditions. The Vendors must have an adequate accounting system to identify costs chargeable to the project.

3. BACKGROUND

The Statewide Orthoimagery Project 2010 and the 2012 through 2015 Statewide Orthoimagery Program confirm the value of complete, consistent, and current digital orthoimagery as a fundamental dataset for Public Safety Answering Points (PSAPs) as well as numerous local, regional, state, and private purposes. The 2010 project produced North Carolina’s first statewide set of high resolution orthoimagery for 100 counties. The 2012 Coastal project began a four-phase effort to refresh the 2010 orthoimagery statewide. Phase 2 Eastern Piedmont, Phase 3 Northern Piedmont and Mountains, and Phase 4 Southern Piedmont and Mountains define the Statewide Orthoimagery Program (the Program). The 2016 Coastal project begins the next four-phase effort to refresh the 2012-2015 statewide orthoimagery. The primary goal of the Program is to fulfill base layer requirements for 911 emergency response.

The foundation of the Program is the Business Plan for Orthoimagery in North Carolina and its recommended annual approach (alternative 4b) to imagery acquisition. North Carolina’s Geographic Information Coordinating Council and its collaborating participants developed and distributed the Business Plan in October 2010 to respond to questions about the future of orthoimagery in the context of statewide programs and policies (see http://ncgicc.net/Portals/3/documents/OrthoImageryBusinessPlan_NC_20101029.pdf). Table 3 documents a revision to Plan 4b where Columbus and Duplin counties are now included in the Coastal phase.

4. PROGRAM DESCRIPTION

The Vendors shall acquire new natural color digital aerial imagery with airborne Global Navigation Satellite System-Inertial Measurement Unit (GNSS-IMU) control and ground surveyed control to support orthorectification of 6-inch pixel resolution digital orthoimagery inclusive of all sub-areas for the counties identified in Table 3, totaling 15,678 square miles and consists of 17,483 tiles in coastal plain of North Carolina (the Study Area).

Table 3 – Project Study Area

1. Beaufort	2. Dare	3. New Hanover
4. Bertie	5. Duplin	6. Onslow
7. Brunswick	8. Gates	9. Pamlico
10. Camden	11. Greene	12. Pasquotank
13. Carteret	14. Hertford	15. Pender
16. Chowan	17. Hyde	18. Perquimans
19. Columbus	20. Jones	21. Pitt
22. Craven	23. Lenoir	24. Tyrrell
25. Currituck	26. Martin	27. Washington

Data acquisition will be consistent across the acquisition area utilizing large format aerial digital camera systems and conforming to the North Carolina Technical Specifications for Digital Orthophoto Base Mapping. All technical requirements referred to in this document must adhere to the specifications set forth in the State Standard.

The duration of the contract(s) will not exceed May 31, 2017 or exhaustion of the contract amount. Table 4 is the anticipated milestones for the Project. The Vendors will be responsible for addressing quality

review submittals during the period of initial delivery through product distribution and post 60 day review cycle.

Table 4 – Proposed Milestones

Aug 2015 – Dec 2015	QBS, Selection, Award and Contracting
Dec 2015 – Jan 2016	Pre-Flight Planning, Validation Range Processing, Camera Systems Acceptance
Jan 2016 – Apr 2016	Control Surveys, Imagery Acquisition, Image Post Processing, & GNSS-IMU Post Processing
Apr 2016 – Jul 2016	Aerotriangulation & Orthophoto Product Generation
Aug 2016 – Dec 2016	Quality Review Production and Final TIFF Product Delivery
Jan 2017	Product Distribution Period
Feb 2017 – Mar 2017	End-User 60 Day Review Cycle
May 2017	Project End

The remainder of this section serves to provide an overview of the organizational structure to facilitate the Vendor’s awareness and expectations. CGIA will contract with the Vendors to perform the detailed tasks identified in Section 5 and to align with the schedule and milestones presented in this document. A focus for this project is the concept of a multi-level succession of review to be referenced throughout the document. This review includes contractors, the state project team, PSAPs, and local government GIS. A web-based image service is provided to facilitate quality review.

CGIA will provide project administration, invoicing, quality control, product delivery, and serve as project manager for a collaboration of state agencies (the Project Team) including the NC Department of Public Safety, Division of Emergency Management, NC Geodetic Survey (NCGS); the NC Department of Transportation (NCDOT); and the Department of the Secretary of State and will solicit recommendations from the Working Group for Orthophotography Planning within the Statewide Mapping Advisory Committee. Specifically, CGIA will perform the following:

1. Perform overarching project management of all contractors and partners.
2. Perform QBS procurement and issue task orders for contractors and perform procurement activities.
3. Perform administrative project management oversight of all subcontractors’ activities including invoicing, quality product delivery, meeting expectations, meeting schedules, acceptance of specifications reports and deliverables, acceptance and satisfaction of data sampling requirements, and timely delivery of final product.
4. Establish and implement payment schedules for the project partners and approve payment by the Client.
5. Specify the detailed requirements for products and services based on North Carolina Technical Specifications for Digital Orthophoto Base Mapping.
6. Specify the detailed requirements for information technology upgrades in the NC OneMap framework.
7. Develop central and effective means of communication.
8. Document the specifications, responsibilities and scopes of work of the project partners.

9. Perform outreach by communicating with counties and cities, contractors, state agencies, federal partners including military installations, and the public to explain the products and benefits of the program.
10. Organize weekly status meetings and develop all meeting materials, status reports and technical input.
11. Conduct data sharing with partnering state and federal agencies.
12. Provide public access to imagery products via the NC OneMap.

CGIA will enlist NCDOT Photogrammetry for advisory and technical services throughout the project. NCDOT has extensive expertise and experience in managing orthoimagery acquisition and managing visual quality control. NCDOT Photogrammetry will have the following responsibilities:

1. Verify the detailed requirements for products and services based on North Carolina Technical Specifications for Digital Orthophoto Base Mapping.
2. Advise CGIA on the QBS process.
3. Assist in evaluation and selection of private sector contractors.
4. Advise on the detailed requirements for products and services based on North Carolina Technical Specifications for Digital Orthophoto Base Mapping and recent imagery projects in the context of the QBS process.
5. Evaluate recommendations from the other members of the project team and from the Working Group for Orthophotography Planning.
6. Evaluate and advise on all report documentation and technical data submittals that support report deliverables.
7. Perform quality review for 30% of each county and advise on the contractors' ability to address issues and/or if issues are within the scope of work.
8. Perform image compression for 27 counties of orthoimagery and deliver MrSID content.
9. Evaluate the submission of raw product data compared to the deliverable data to verify that the product was not altered or sacrificed. Advise on contractors' ability to address issues and/or if issues are within the scope of work.
10. Serve as a member of the state project team.

The NC Geodetic Survey has extensive expertise and experience in managing positional quality control for orthoimagery. For the proposed project, the NC Geodetic Survey's responsibilities will be the following:

1. Implement a QBS process to perform field survey quality control.
2. Advise CGIA on the QBS process.
3. Assist in evaluation and selection of private sector contractors.
4. Upgrade the Continuous Operating Reference Station (CORS) network coverage in the Phase 1 region with Global Navigation Satellite System (GNSS) receivers and antennas.
5. Maintain the validation range to facilitate testing and approval of digital cameras that will be used in the project.
6. Engage an independent team of qualified contractors to perform horizontal quality control for the orthoimagery and visual quality control for a sample of images.
7. Generate field survey reports and publish to the project site.

8. Evaluate and advise on report documentation and technical data submittals that are directly related to survey control.
9. Serve as a member of the state project team.

The Department of the Secretary of State is the author of the North Carolina Technical Specifications for Digital Orthophoto Base Mapping, the state standard for orthoimagery acquisition. This standard is used as a foundational component of the statewide effort to ensure accuracy and consistency in the final product delivered to the PSAP community and other users. The Land Records Management Section will support the project in the following ways.

1. Advise CGIA on the QBS process.
2. Assist in evaluation and selection of private sector contractors.
3. Interpret the state standard for the state project team as needed during the project.
4. Update the state standard.
5. Serve as a member of the state project team.

CGIA will implement four levels of quality review that will commence with initial product delivery by the Vendors and end approximately two months prior to conclusion of the contract. The Levels serve to illustrate conditions for milestone completion or to serve as escalation to resolve documented issues which the Vendors will be accountable for. The following are general descriptions of the levels:

Level 1: CGIA will contract the Vendors with the task of providing tangible documentation that the product satisfies the requirements of the State Standard and to demonstrate that a macro level quality review has been performed.

Level 2: CGIA will enlist the services of NCDOT to perform visual quality review for 30 percent of the tiles per county submitted by the Vendors. CGIA will review NCDOT issue calls prior to official release to the Vendors for consistency across all orthoimagery review participants.

Level 3: CGIA will perform a visual quality control of 5% of the tiles per county. CGIA will submit quality issues submittals to the Vendors for remediation. CGIA will perform distribution of the final image products and supported documents including QC reports, compliance reports, and metadata.

Level 4: CGIA will enlist the services of points of contact in each of the 27 counties to perform a quality review within a time period concurrent with Level 2 and Level 3. In addition, the counties will have 60 days to perform a more detailed review of the data following distribution.

The technical framework for this project is to deliver an advanced technology solution for data sharing and accessibility to current imagery resources by 911 operations, individual counties, and North Carolina's citizens. That solution, and the ultimate deliverable for this project, culminates in the distribution of data to 911 PSAPs and county recipients and the means to access the data online. The project will be built on the methodology and success of Statewide Orthoimagery 2010 and the 2012-2015 Program. CGIA will engage, directly and indirectly, the best available technical expertise in public agencies and private service providers, and continue to rely on the services of the NC OneMap Geospatial Portal. The project will apply the following seven fundamental paradigms established by the

Project Team during 2012 as follows. To achieve these project goals, the technical tasks and numerous project elements defined in Section 5 will be performed.

1. To adhere to the North Carolina Technical Specifications for Digital Orthophoto Base Mapping (State Standard). Technical requirements referred to in this document must adhere to the specifications set forth in the State Standard.
2. To accomplish the Project Team's objective of delivering the highest quality deliverable, take a proactive approach to front-end processing guidelines, specifications, and compliance to reduce the potential of reactive measures to product issues and inconsistencies
3. To perform oversight by requiring multiple deliverables of core Attachment deliverables of compliance documentation as follows and to be defined in the Vendor's contracts:
 - 1) *Flight and Control Plan*
 - 2) *Ground Control Survey Report*
 - 3) *Imagery Acquisition Compliance Report*
 - 4) *Airborne GNSS-IMU Post Processing & Aerotriangulation Report*
 - 5) *Orthoimagery Delivery Report*
 - 6) *Vendors Final Report*
4. To provide a central means of project communication and collaboration through an online SharePoint portal
5. To institute a four tiered approach to quality review defined as Level 1 (the delivery of a product signed and sealed to be in compliance with the State Standard), Level 2 (quality review by NC DOT), Level 3 (quality review by CGIA), and Level 4 (quality review and oversight by the PSAP and county end-user community)
6. To complete a full circle lifecycle for quality review, issues tracking, and resolution through the use of a central online interface and standard issues documentation
7. To deliver a product that is free of degradation and most resembles the truest representation of the highest quality imagery

5. SCOPE OF WORK

The following tasks are the detailed scope of work. Vendors are encouraged to offer suggestions for improving upon the specifications, requirements and data designs presented. It is the Vendor's responsibility to describe thoroughly how the work detailed for each task will be completed and to include all relevant specifications and parameters. CGIA reserves the right to modify and further develop project specifications with the selected Vendors. Data acquisition will be consistent across the acquisition area utilizing large format aerial digital camera systems and conforming to the North Carolina Technical Specifications for Digital Orthophoto Base Mapping. All technical requirements referred to in this document must adhere to the specifications set forth in the "North Carolina Technical Specifications for Digital Orthophoto Base Mapping, Adopted December 11, 2014" (the State Standard). Any modifications to the State Standard or other terms of the Agreement requested by a Vendor must be submitted to CGIA for consideration together with a written justification for the requested change.

Changes shall be permitted only upon approval of CGIA, and if evidenced in writing by the Vendor and CGIA.

Section 5.1. – Pre-Flight Planning, Validation Range Processing, Camera Systems Acceptance, Control Surveys, Quality Assurance/Quality Control (QA/QC), and Reporting

The purpose of this task is to perform all necessary work to complete pre-flight planning, validation range processing, digital camera systems acceptance, control surveys, QA/QC, and reporting in accordance with the State Standard, this Scope of Work, and other project specific standards that may be mutually developed during scoping and execution of this project. CGIA will provide the Vendor with the appropriate data requirements to facilitate planning including the Vendor's tile requirements, stereo overlap, boundary data, ground control points, and a delivery order (DO) plan that specifies the number of tiles and the order of submittal on a weekly basis as defined in Task 5.4.2. This delivery order plan will facilitate the design of the flight plan.

Control and Check Points

The Vendor shall plan and survey sufficient ground control to use with airborne GNSS-IMU control to produce orthoimagery tiles that meet ASPRS Class I accuracy for 1"=200' scale planimetric data with a limiting RMSE of 1.5 feet in each X and Y. The NC Geodetic Survey will provide information on existing government control monuments. If additional controls are required, the Vendor is to indicate the location of the necessary additional control and describe how that control will be established.

Prior to flight planning and control surveys, CGIA will provide the previous project ground control points (GCP) for the project area which shall be used by each Vendor as independent check points for quality review. The Vendor shall be responsible for recovering the previous project GCP and painting or setting panels as applicable. In the event the Vendor is unable to recover any of the previous project GCP, then the vendor shall report such and establish and survey a new independent checkpoint in the same vicinity as the points that could not be recovered. Prior to aerotriangulation and after approval of the vendor flight and control plan, CGIA will also provide a subset of the previous project horizontal quality control (HQC) photo-id check points for each county which shall also be used by each Vendor as independent check points for quality review. In the event the HQC photo-id check points have been disturbed, then the vendor is expected to use their judgment regarding inclusion in the aerotriangulation adjustment.

The Vendor is expected to identify and comply with applicable specifications set forth in the State Standard and this Scope of Work that cover these work phases. Specific sub-tasks that the Vendor must address include, but are not limited to, the following:

- 5.1.1.** Develop and submit a Flight and Control Plan by Study Area based on the following specifications and the State Standard in accordance with the schedule in this Scope of Work. The flight plan will be designed to facilitate a delivery order determined by and agreed upon by the Vendor(s) and the Project Team. The following are the flight planning specifications and evaluation criteria:

Flight Plan Methodology

- It is expected that the vendors develop a flight plan for their Study Area that meets the following specifications and minimizes the overall cost to the state for the production and delivery of 0.5 foot color orthoimagery based on their proposed equipment and procedures.
- Since the project area does not have any areas of extreme elevation, 2-D flight planning with flying height set to average mean elevation over the planned flight line will be acceptable.

Sun Angle

- Minimum 33 degree sun angle

Flight Line Orientation

- N-S flight line orientation, except over the outer banks islands that have isolated tiles
- The vendor shall acquire bridge centered, nadir imagery in the along track direction at the bridge locations in Table 5. The Vendor will be responsible for the bridges applicable to its study area.

ID	Bridge
1	Point Harbor
2	Perquimans
3	Chowan River
4	Roanoke Sound 2 US64
5	Bonner
6	Roanoke Sound 1
7	Albemarle Sound 32
8	Emerald Isle
9	Atlantic Beach
10	New Bern1 17
11	New Bern2 17
12	Morehead to Beaufort
13	Ocean Isle
14	Holden Beach
15	Sunset Beach
16	Oak Island
17	New Hanover 421
18	North Topsail

Table 5 – Bridge Locations

Nadir Ground Sample Distance (GSD)

- Nadir GSD shall be between 0.15 feet to 0.50 feet for 75.0% of planned exposures or pseudo exposures for the push broom cameras

- Nadir GSD shall not be less than 0.12 feet or greater than 0.53 feet of planned exposures or pseudo exposures for the push broom cameras
- For push broom cameras, GSD nadir values will be computed at pseudo exposure station spacing along the flight line at 200 foot intervals
- If either Nadir GSD flight plan specification is not met, then flight plan revision may be directed at the sole discretion of the state after consultation with the vendor

Transportation Feature Ground Sample Distance (GSD)

- Transportation feature GSD shall be between 0.15 feet to 0.55 feet for 98.0% of tested points
- Transportation feature GSD shall not be less than 0.10 feet or greater than 0.60 feet
- For push broom cameras, transportation feature GSD values will be computed at a distance not to exceed 100 foot spacing along the flight line
- If either transportation feature GSD flight plan specification is not met, then flight plan revision may be directed at the sole discretion of the state after consultation with the vendor

Forward and Side Overlap

- Forward overlap shall be planned at a minimum of 60%
- Side overlap shall be planned at a minimum of 30%
- The sum of void areas produced from intersecting the planned minimum reduced (F60/S30) image footprints with the terrain as compared to a defined area (stereo overlap, county, AT Block, or other area) shall be less than 0.10%
- Planned forward overlap shall not be less than a nominal 58% (based on maximum void area distance parallel to flight direction – see table below)
- Planned side overlap shall not be less than a nominal 28% (based on maximum void area distance perpendicular to flight direction – see table below)
- If any forward or side overlap flight plan specification is not met, then flight plan revision may be directed at the sole discretion of the state after consultation with the vendor

If a different digital camera system is being proposed other than the five identified here, then the response should include nominal 2% forward overlap and side overlap distance values assuming a 0.5 foot GSD.

Digital Camera	58% FOL Void Distance (ft.)	28% SOL Void Distance (ft.)
DMC I	77	138
DMC II - 140	112	121
DMC II - 230	141	156
ADS100	n/a	200
UltraCam Eagle	131	200

Coverage

- The principal points of the first two and the last two exposures of each flight strip shall fall outside the project area boundaries.

- For pushbroom sensors, the flight design shall ensure the forward and aft imaging arrays coverage fall outside the ends of each strip to accommodate stereo viewing of the entire project area.
 - All side boundaries shall include an overlap at least equal to the side overlap specifications for the project.
- 5.1.2. The vendor shall acquire nadir imagery in the along track direction at central business district areas of urban area for Wilmington metro area or other areas to be determined.
- 5.1.3. The Flight and Control Plan shall include all tiles identified in study area GIS shapefiles. Full tiles shall be produced for the entire area contained in the CGIA Study Area GIS shapefiles including those that span state boundaries.
- 5.1.4. The Flight and Control Plan should include aerotriangulation (AT) blocks within each Study Area to most effectively facilitate county based orthoimagery tile delivery based on the aerotriangulation image measurement technique and the aerotriangulation software.
- 5.1.5. The Flight and Control Plan shall be stamped as preliminary and is not required to be signed and sealed by the North Carolina Professional Land Surveyor (PLS) in responsible charge for the Study Area professional photogrammetric services.
- 5.1.6. The state will evaluate flight plan submittals using the following data sets:
- NCFMP LiDAR elevation data
 - USGS NED
 - 3-D transportation data layer derived from NCDOT GIS Unit transportation layer and NCFMP LiDAR elevation data
- 5.1.7. The state will evaluate the Flight and Control Plan with respect to the above flight plan specifications and the State Standard, and issue an Advisory Report noting approval or disapproval. The Vendor shall address any non-conforming issues and re-submit for approval
- 5.1.8. Conduct a Validation Range mini-project that includes all deliverables as identified in the State Standard and this Scope of Work. Note, this task will not be required for acquisition systems (unchanged digital cameras) approved for Phases 1-4 of the 2012-2015 Orthoimagery Program. Validation range sun angles will be relaxed to no less than 25 degrees. Acceptance for each proposed digital camera system will be based on NCDOT's evaluation of NC validation range aerotriangulation and orthoimagery submission including QA/QC documentation and reports using NC's validation range and procedures. Specific information regarding these procedures can be found at <http://www.ncgs.state.nc.us/Pages/Library.aspx?DocType=Validation Range>.
- 5.1.9. Plan, survey and establish control point locations and submit a Control Surveys Report. The Ground Control Survey Report shall be signed and sealed by the North Carolina PLS in responsible charge. The Vendor will identify all proposed aerial camera, airborne GNSS-IMU, and aircraft systems in their proposal.
- 5.1.10. Per applicable study area and where military installations and specifically for the Marine Corps, Harvey Point, Army, Air Force, and Coast Guard are located (military study areas or MSAs), the Vendor will coordinate all military engagement with CGIA prior to making contact. The Vendor will establish and confirm points of contact that includes the appropriate personnel required for the Vendor to develop detailed logistics at point of engagement. The Vendor will copy CGIA on all communications with military personnel including email transactions. The vendor will coordinate with appropriate

military personnel and submit all required documentation for the purpose of acquiring permissions for acquisition. The Vendor will be required to deliver and maintain a comprehensive Point of Contact Data Sheet.

- 5.1.11. Attend project kickoff meeting.

Section 5.2. – Imagery Acquisition, Exploitation Image Post Processing, Quality Assurance/Quality Control (QA/QC), and Reporting

The purpose of this task is to perform all necessary work to complete digital aerial imagery acquisition, exploitation image post processing, QA/QC, and reporting defined by the Study Area in accordance with the State Standard, this Scope of Work, and other project specific standards that may be mutually developed during scoping and execution of this project. The Vendor is expected to identify and comply with applicable specifications set forth in the State Standard that covers these work phases. Specific sub-tasks that the Vendor must address include the following:

- 5.2.1. Perform color digital aerial imagery acquisition at a nominal pixel resolution of 0.5 feet. Imagery acquisition shall follow the Vendor submitted and State approved flight plan.
- 5.2.2. Deliver a post processed GNSS-IMU exterior orientation excel file for all acquired images for each and every sortie not to exceed five days after the flight date of each sortie in order for the state to assess acquisition geometry. For push broom cameras, exposure and time of exposure shall be treated as Pseudo Exposures spaced at a nominal 200 foot spacing not to exceed 210 feet.
- 5.2.3. Perform exploitation image post processing. The Vendors shall perform exploitation image post processing such that exploitation images are visually consistent and meet project specific Exploitation Image Post Processing Guidelines across all Study Areas. The Vendors are expected to share exploitation images that overlap Study Area boundaries to achieve visual image consistency while meeting project specific Exploitation Image Post Processing Guidelines. The Vendor will perform the necessary logistics to insure that imagery within the MSA are excluded as shared data to other vendors. To develop project specific Exploitation Image Post Processing Guidelines, the Vendors will post process and share 8-bit RGB sample exploitation images for four unique landcover classifications including Urban/Industrial, Rural/Farmland/Wooded, Suburban Residential, and Swamp. These 8-bit RGB sample exploitation images will be used by the Vendors and the Project Team to jointly establish project specific Exploitation Image Post Processing Guidelines to be used for the project. For the push broom sensor, images will be developed with complete radiometric correction. The images shall be developed within a time period not to exceed three weeks from initial acquisition. Target samples locations will be identified and received by the Project Team prior to the kickoff. The Vendors and Project Team will evaluate target samples at the kickoff meeting.
- 5.2.4. Submit an Imagery Acquisition Compliance Report per AT Block. The Imagery Acquisition Compliance Report shall not be signed and sealed by the North Carolina PLS in responsible charge for the Study Area professional photogrammetric services. The State will issue an Advisory Report noting approval or disapproval. The Vendor shall address any non-conforming issues and re-submit for approval.

- 5.2.5. The Project Team will evaluate the submitted landcover images, develop conclusions, and develop summary reports. The Project Team will review, assess and develop summary conclusions and the imagery samples submitted in Task 5.2.3. The Project Team will finalize and publish Exploitation Image Post Processing Guidelines including directives for imagery matching across study areas. The Vendors will perform adjustments as defined by the Guidelines and submit final landcover samples. All project post processed exploitation imagery and the orthoimagery tiles shall be visually consistent and conform to the project specific image metric guidelines. The four landcover sample exploitation images shall be delivered as a single RGB uncompressed GeoTIFF image with 8 bits/band and overviews. A world file shall also be delivered for each exploitation image. The landcover exploitation image delivery shall include an excel file that includes Project ID, Vendor ID, Study Area ID, Imagery Date, Sortie ID, Flight Line ID, Exposure ID, Landcover Classification, Pan Sharpening Method, and Sharpening Factor
- 5.2.6. Submit sample exploitation images for each AT Block at specified locations provided by CGIA. The number of exploitation images the vendor will be required to submit will range between +/- 5 % to 10 % of the AT Block total number of images. All project AT Block sample exploitation images shall be delivered as a single RGB uncompressed GeoTIFF image with 8 bits/band and overviews. For the push broom sensor, direct georeferenced orthoimages using a coarse DEM with radiometric corrections representative of the final GeoTIFF deliverable in Task 6 shall be submitted. A world file shall also be delivered for each exploitation image. The project AT Block sample exploitation image delivery shall include an excel file that includes Flight Line ID, Exposure ID, Shutter Speed in milliseconds for pan, near infrared, and multispectral cameras, and f-stop Aperture for pan, near infrared, red, green, and blue cameras, and Atmospheric Conditions.
- 5.2.7. The vendor will apply a filenaming convention for all exploitation images that shall adhere to the following guidelines:
- 1) StudyAreaNumber_FlightLine_FrameNumber (Use all underbars, not dashes).
EXAMPLE: SA3_100_01
 - 2) Initial planned flight line numbers will be represented as three digits (e.g. 100/101/102 or 001, 002, 003). The flight line number for re-flights will be represented as four digits by adding increments of 1000 up to 9000 to the initial flight line designation (e.g. 1100/1101/1102 or 2001, 2002, 2003).
 - 3) For the frame, there will be leading zeros only on frames 1-9 (01, 02, 03).
- 5.2.8. The state will evaluate Image Acquisition Compliance Report submittals (Attachment D) that consider the following:
- 5.2.8.1. The state will use the following data sets:
- NCFMP LiDAR elevation data
 - USGS NED
 - 3-D transportation data layer derived from NCDOT GIS Unit transportation layer and NCFMP LiDAR elevation data
- 5.2.8.2. The state shall evaluate actual acquired image forward overlap using a 55% minimum
- 5.2.8.3. The state shall evaluate actual acquired image side overlap using a 25% minimum

- 5.2.8.4. The state shall evaluate actual acquired image nadir GSD using the following ranges:
- Less than 0.12 feet
 - Greater than or equal to 0.12 feet to less than 0.15 feet
 - Greater than or equal to 0.15 feet to less than or equal to 0.50 feet
 - Greater than 0.50 feet to less than or equal to 0.53 feet
 - Greater than 0.53 feet
- 5.2.8.5. The state shall evaluate actual acquired image transportation feature GSD using the following ranges:
- Less than 0.10 feet
 - Greater than or equal to 0.10 feet to less than 0.15 feet
 - Greater than or equal to 0.15 feet to less than or equal to 0.55 feet
 - Greater than 0.55 feet to less than or equal to 0.60 feet
 - Greater than 0.60 feet
- 5.2.8.6. The state shall evaluate actual acquired image coverage for the following:
- The principal points of the first two and the last two exposures of each flight strip shall fall outside the project area boundaries.
 - For push broom sensors, the flight design shall ensure the forward and aft imaging arrays coverage fall outside the ends of each strip to accommodate stereo viewing of the entire project area.
 - All side boundaries shall include an overlap at least equal to the side overlap specifications for the project.

Section 5.3. – GNSS-IMU Post Processing, Aerotriangulation, DEM Update, Orthoimagery Product Generation, Processing Quality Assurance/Quality Control (QA/QC), and Reporting

The purpose of this task is to perform all necessary work to complete airborne GNSS-IMU post processing, aerotriangulation, orthoimagery product generation, QA/QC, and reporting defined by the Study Area in accordance with the State Standard, this Scope of Work, and other project specific standards that may be mutually developed during scoping and execution of this project. The previous project ground control points (GCP) for the project area shall be used by each Vendor as independent check points for quality review. The Vendor shall be responsible for recovering the previous project GCP and painting or setting panels as applicable. In the event the vendor is unable to recover any of the previous project GCP, then the vendor shall report such and establish and survey a new independent checkpoint in the same vicinity as the points that could not be recovered. Prior to aerotriangulation and after approval of the vendor flight and control plan, CGIA will also provide a subset of the previous project horizontal quality control (HQC) photo-id check points for each county which shall also be used by each Vendor as independent check points for quality review. In the event the previous project HQC photo-id check points have been disturbed, the vendor is expected to use their judgment regarding inclusion in the aerotriangulation adjustment. The Vendors will be responsible for collecting NCFMP LiDAR elevation data for orthoimagery product generation. Specific sub-tasks that the Vendor must address include the following:

- 5.3.1. Perform airborne GNSS-IMU post processing. For the push broom camera, exposure and time of exposure shall be treated as Pseudo Exposures spaced at a nominal 200 foot spacing not to exceed 210 feet.
- 5.3.2. Deliver a post processed GNSS-IMU exterior orientation excel file for all acquired images for each and every sortie not to exceed five days after the flight date of each sortie in order for the state to preliminarily assess acquisition geometry. CGIA will provide a custom NCDOT application to facilitate this task. All submittals must be processed with the application and all deliverables must conform to the exact parameters of the application. Detailed parameters and instruction will be provided by the Project Team. For the push broom camera, Exposure ID and Time of Exposure shall be treated as Pseudo Exposures spaced at a nominal 200 foot spacing not to exceed 210 feet.
- 5.3.3. Perform aerotriangulation using ground survey control and airborne GNSS-IMU control.
 - 5.3.3.1. Manual or auto correlated pass and tie point image measurement is acceptable. The Vendor will have image measurements for frame sensors at the 9 traditional Von Gruber locations per image. In regions of frame imagery where auto-correlated image measurements are not produced at the 9 traditional Von Gruber locations per image as a minimum, the Vendor shall make every effort to manually measure pass or tie points. For pushbroom sensors, pass points shall be located along each strip at intervals corresponding to, at a minimum, half of the nadir imaging array format width. Additionally, tie points in overlapping strips shall be measured at the same interval. If the Vendor elects to use photogrammetrically derived coordinates as “tie control points” between adjacent aerotriangulation blocks, then these points shall be manually measured on the ground surface, preferably at a photo-identifiable feature.
 - 5.3.3.2. The Vendor shall use the provided previous project ground control points (GCP) and horizontal quality control (HQC) photo-id check points as independent check points in the initial aerotriangulation solution. The vendor shall not use photogrammetrically derived “tie” control as independent check points in the initial aerotriangulation solution. The final aerotriangulation solution can incorporate these provided GCP and HQC coordinates as control points in the final aerotriangulation solution.
- 5.3.4. Submit a GNSS-IMU Post Processing & Aerotriangulation Report for each AT Block. The GNSS-IMU Post Processing & Aerotriangulation Report is required to be signed and sealed by the North Carolina PLS in responsible charge for the GNSS-IMU post processing and aerotriangulation portion of the Study Area professional photogrammetric services. The State will issue an Advisory Report noting approval or disapproval. The Vendor shall address any non-conforming issues and re-submit for approval.
- 5.3.5. The Vendor will review and update the best available elevation data (as needed) at a density level sufficient to accurately represent the shape of the ground to produce orthoimagery free of distortions due to terrain, and that meets the required orthophoto accuracy standards. The Vendors should work with the Project Team to identify best available elevation data sources. The Vendor shall acquire sufficient elevation data outside of NC to meet the contracted specifications and requirements. The Vendors will track the horizontal location where elevation data has been modified by maintaining polygon delineations or point locations where data was either removed or replaced. The Vendor will

maintain and deliver updated data in the event replacement elevation data is created. The data will be delivered in ESRI shapefile format to accompany final imagery.

- 5.3.6. Following approval of GNSS-IMU Post Processing & Aerotriangulation Reports, the Vendor will perform orthorectification using exploitation imagery, adjusted exterior orientation from aerotriangulation and updated (as needed) DEM elevation data to produce orthoimagery. The vendor shall orthorectify central business district urban area centered nadir imagery and merge this orthorectified nadir imagery into its corresponding orthoimagery tiles.
- 5.3.7. Perform seam line and elevation data editing to ensure accurate edge match between images and tiles and also correct image distortions and other artifacts caused by the orthorectification process. Seamline polygons will be delivered with imagery submitted to the image service provider as well as a final deliverable.
- 5.3.8. As necessary, perform orthoimagery radiometric and tonal processing adjustments such that resultant orthoimagery is visually consistent within each Study Area, with adjacent Study Areas, and with existing imagery.
- 5.3.9. The Vendors will attend an onsite Ortho Workshop to discuss topics specific to ortho generation, workflows, delivery schedule, and delivery requirements in preparation for upcoming initial ortho data delivery to the image service provider.

Section 5.4. – Digital Imagery Quality Assurance/Quality Control (QA/QC), Product Delivery and Data Acceptance Requirements

The Vendor will be required to deliver an image product that satisfies the specification as defined by the State Standard, this Scope of Work, and other project specific standards that may be mutually developed during scoping and execution of this project. The Vendor will ultimately provide written and visual documentation that provides tangible evidence of said compliance in a signed and sealed document during final delivery in Task 5.5.3. This will be referred to as Level 1 of four levels of review the product will undergo. Specifically the Vendor will be required to perform the following:

- 5.4.1. The Vendor will be required to perform a macro level quality review to demonstrate adequate seamless orthoimagery that is visually consistent and meets exploitation imagery guidelines across small scale regional areas and/or across its study area that satisfies the requirements of the State Standard as well as the guidelines developed in Task 5.5.3. The Vendor will be required to perform a detailed quality review of each ortho-rectified tile and correct image distortions due to seam lines, elevation data, blurring, or other artifacts caused by the orthorectification process.
- 5.4.2. The Vendor will publish the orthoimagery tiles per county for review as defined in Section 5.6. The data must meet pre-defined acceptance criteria guidelines documented in Task 5.5.3. The Vendor will confirm the orthoimagery tiles meet requirements prior to publication. The Vendor will perform reprocessing for any orthoimagery tiles that do not meet requirements. The Vendor will deliver a pre-defined set of tiles applicable to a county as defined by the Delivery Order guidelines. A first county and then subsequent delivery per county will occur at one (1) week intervals per a pre-defined county delivery order schedule. The Vendor will deliver one uncompressed GeoTIFF formatted ortho-rectified image referenced to the North Carolina State Plane Coordinate System, North American Datum NAD83 (2011) epoch 2010.0 including a world file, GeoTIFF header

- version 6.0 as required by the State Standard, and that adheres to the naming convention to be determined per tile per County as defined in the Study Area. All data within the boundary of the MSA shall be processed as null represented by pixel values of 0,0,0. The Vendor will perform the necessary logistics to insure that imagery within the MSA are excluded from public release to the Image Service Provider.
- 5.4.3. The vendors will also deliver digital seamlines polygons to CGIA for upload into the image service provider. The coverage area will be defined as the maximum extent of all tiles required for that delivery order. The attributes for each submittal will include a vendor number/study area field (StdAreaID) defined as a text format. If other contractor's seamlines are used for a portion of the tile, that contractor's vendor number will be used. Seamlines may be submitted for the entire study area, but they must be re-submitted in entirety if seamlines are adjusted for future deliveries.

Section 5.5. – Quality Review Resolutions

Imagery will be subject to four levels of quality review, as defined in the Program Description, exclusive of the Vendor's own internal measures. Procedures and criteria for QA/QC for evaluating the quality of images will be performed per the State Standard, this Scope of Work, and other project specific standards that may be mutually developed during scoping and execution of this project. The quality review lifecycle (the QC Lifecycle) shall be defined as the period of time from initial submittal of imagery defined in Tasks 5.4.2 and Section 5.6 to the time at which all final resolutions are posted or a period not to exceed 20 weeks. The QC Lifecycle shall be categorized by three blocks of linear events as follows:

- Block 1: Delivery and Review (Initial delivery identified in Task 5.4.2 and Level 2-4 review)
- Block 2: Screening, Resolutions, and Review (CGIA review of Level 2-4 reported issues, vendors' response to reported issues, and vendors' submittal of resolved issues)
- Block 3: Delivery and Validation (Final delivery of imagery and final submittal as defined in Section 5.5.3 and Section 5.6)

- 5.5.1. Upon review and reporting of quality issues, the Vendors will perform their response evaluation and initiate Task 5.5.2 in a time period not to exceed fifteen days. The Vendors will review reported issues and document their response as either Approved or Denied. The Vendors will be required to supply one or more screenshot samples of exploitation imagery if they do not intend to approve. CGIA will review denied responses and may require additional information from the Vendor or accept the vendor's response.
- 5.5.2. The Vendor will be tasked with evaluating submitted issues for all Levels and posting resolutions in a timely manner, not to exceed nine weeks past the initial delivery identified in Task 5.4.2, with resolutions in the form of the GeoTIFF product or demonstrate why resolutions are not practical or within scope. The Vendor will publish the orthoimagery tiles for review as defined in Section 5.6. CGIA will review each submitted resolution to validate issues have been addressed. If it is determined issues have not been addressed or additional issues have been created, the Vendor will rectify those issues and submit during final delivery as identified in Section 5.6. The Vendor will resolve all submitted issues for the MSA exclusive of online QC through manual submittals by CGIA
- 5.5.3. The Vendor will be required to submit as final an Orthoimagery Delivery Report pre-defined as a checklist of required items. This report is required to be signed and sealed by

the North Carolina Professional Land Surveyor (PLS) in responsible charge. The Vendor will submit the report with its signed acceptance and completeness of the product for the applicable county to the project team for evaluation. The following data as well as data developed in Task 5.5.4 will be delivered on an external drive to accompany the Orthoimagery Delivery Report. The Vendor will deliver a separate external drive for the MSA. CGIA will perform validation of the data to confirm completeness. The Vendor will perform reprocessing for any orthoimagery tiles and data that do not meet requirements.

1. One set of uncompressed GeoTIFF formatted ortho-rectified imagery tiles referenced to the North Carolina State Plane Coordinate System, North American Datum NAD83 (2011) including a world file, as required by the State Standard, contains a GeoTIFF 6.0 header and that adheres to a naming convention per tile per County as defined and finalized at the Ortho workshop and/or as the following example where the filenaming convention follow demonstrates the earliest and latest date of acquisition per county OC6i0_37_000_12345678_20120215_0305R0 where the most recent date is appended to the earliest date (Current Prefix_Imagename_8 Digit start date YYYYMMDD_4 Digit finish month and date MMDD Revision Number). In this example, February 15 is date of first acquisition and March 5 is the latest.
 2. DEM data that includes any horizontal location where NCFMP LiDAR elevation data has been modified as polygon delineations or point locations where data was either removed or replaced or updated data in the event replacement elevation data is created. The data will be delivered in ESRI shapefile format to accompany final imagery.
 3. DEM data developed in Section 5.3 and subsequent tasks in ESRI shapefile format including the horizontal location where NCFMP LiDAR elevation data has been modified as polygon delineations or point locations where data was either removed or replaced or updated data in the event replacement elevation data is created. The data will be delivered in ESRI shapefile format to accompany final imagery.
- 5.5.4. Deliver one FGDC compliant metadata record per county per one file format each in .XML and .txt that will meet the requirements. The Vendor shall perform preliminary QC of each record using the USGS MP Parser online tool <http://geo-nsdi.er.usgs.gov/validation/> and provide report documentation of adherence to the standard. CGIA will supply a metadata text file template for use by the Vendor. CGIA will perform quality review of the metadata file and reject if not found to comply with the State Standard and/or pass testing through the USGS validation tool.
- 5.5.5. Deliver one fully attributed seamlines polygon shapefile of the Vendor's study area. Attributes shall conform to a pre-defined schema standard and at a minimum. The file will be delivered at the time of the final delivery order and shall be considered representative of all final seamline adjustments. The seamlines will be aligned with the vendor's contracted tiles that include attributes for vendor ID, flight Line ID, frame number ID, and acquisition date.
- 5.5.6. The NC Geodetic Survey will conduct a field horizontal quality review and develop QC reports. Observations found to not meet the project standards will be submitted back to the Vendor for evaluation, correction, and re-submittal.
- 5.5.7. The Vendor will be tasked with any outstanding resolutions, not to exceed 20 weeks past the initial delivery identified in Task 5.4.2, with resolutions in the form of the GeoTIFF product or demonstrate why resolutions are not practical or within scope. The Vendor will publish the orthoimagery tiles for review as defined in Section 5.6.

- 5.5.8. The Vendor will deliver one additional external hard drive of data for secure imagery tied to the MSA and one additional hard drive unsecure data for public deliverables.

Section 5.6. – Image Service Delivery

An Image Service Provider will host each Vendor’s imagery and provide an interface to facilitate Level 2-4 QC review. The interface will be the sole source means for issues reporting and vendors’ response and documentation. Vendors will address those issues and generate resolutions. The Vendor shall be responsible for delivery of uncompressed TIFF format imagery per county to the online image service provider. Specifically the Vendor must perform the following tasks:

- 5.6.1. Following acceptance of the Vendor’s Level 1 review as defined in Task 5.4.1, the Vendor will submit one TIFF file each for all Vendor requirements per county to the image service provider. The Vendor will deliver a first county, and then subsequent delivery per county will occur at one (1) week intervals per a pre-defined county delivery order schedule.
- 5.6.2. As defined in Task 5.5.2, as resolutions are applied per the vendor’s response to Level 2-4, the Vendor will publish resolutions to the Image Service Provider within fifteen days after receipt of issues submittals from CGIA.
- 5.6.3. As defined in Task 5.5.7, outstanding resolutions not transmitted at time of Task 5.6.2 will be published to the Image Service Provider.

Section 5.7. – Project Closeout and Project Documentation

The purpose of this task is to list the deliverables to facilitate project closeout. In addition, this task serves to summarize the project documentation, data, and reports identified throughout the Scope of Services and address final modifications. The Vendor will document completely, accurately, concisely, and clearly all tasks defined in subsequent tasks. Specifically for Project Closeout, the Vendor shall deliver a project report.

- 5.7.1. Following product delivery the County end-user will perform an extended Level 4 60-Day review. The Vendor will be tasked with evaluating submitted issues and responding in a timely manner, not to exceed two weeks, with resolutions in the form of the GeoTIFF product or demonstrate why resolutions are not practical or within scope. The Vendor will deliver any outstanding resolutions to CGIA.
- 5.7.2. The Vendor will submit as final or submit addendums all reports (if applicable) generated during the project:
 - Signed and sealed surveyor’s certifications from the North Carolina PLS in responsible charge as identified in Scope of Work and also for the Project Final Report.
 - Final outstanding compliance documentation amendments.
 - Final outstanding data amendments.
- 5.7.3. The Vendor will submit a Project Lessons Learned Report that will be consistent in format with a pre-defined template. The report shall be due not to exceed four weeks past delivery of Task 5.6.3.
- 5.7.4. The Vendor will deliver a Final Report as defined by Section 6.28 of the State Standard. The report shall be due not to exceed four weeks past delivery of Task 5.6.3.

- 5.7.5. The Vendor shall deliver secure raw data coverage that are exclusive of contracted tile deliverables and all raw and processed data used to develop final imagery to CGIA for submittal to appropriate military personnel.
- 5.7.6. The Vendor will execute Task 5.7.4 by demonstrating the methods for and documenting purging of all secure data developed for the project.

THE PROCUREMENT PROCESS

This procurement will be conducted under the provisions of North Carolina General Statute 143-64.31: (http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_143/GS_143-64.31.pdf),

Which states:

"It is the public policy of this State and all public subdivisions and Local Governmental Units thereof, except in cases of special emergency involving the health and safety of the people or their property, to announce all requirements for architectural, engineering, surveying and construction management at risk services, to select firms qualified to provide such services on the basis of demonstrated competence and qualification for the type of professional services required without regard to fee other than unit price information at this stage, and thereafter to negotiate a contract for these services at a fair and reasonable fee with the best qualified firm. If a contract cannot be negotiated with the best qualified firm, negotiations with that firm shall be terminated and initiated with the next best qualified firm."

GENERAL TERMS AND CONDITIONS

- 1. Type of Contract:** This is a Firm Fixed Price Contract made and entered in to by and between the State of North Carolina ("State"), North Carolina Department of Information Technology, Division of the Center for Geographic Information and Analysis (collectively referred to as "CGIA") and the selected Contractor (collectively referred to as the "Parties" or individually as the "Party").
- 2. Effective Date and Term of Contract:** The effective date of this Contract shall be the last signature date the Contract is signed by CGIA and the Contractor. The initial term of the Contract shall be as stated in the RFQ and may be renewed at the sole option and discretion of CGIA as set forth in Section 3 below as limited by the State's procurement law and regulations.
- 3. Renewal of Contract:** CGIA may, in its sole discretion, renew this Contract under the same terms and conditions. Any such renewal(s) shall be in the form of a written amendment executed by CGIA and the Contractor as provided in Section 15 below. If CGIA desires to renew this Contract, either during the initial term or during a subsequent renewal term, CGIA shall give the Contractor written notice of its decision to renew at least ninety (90) days prior to the expiration date of the term. The Contractor shall respond to CGIA's notice of renewal within fifteen (15) days after receipt thereof. The Contractor's response shall indicate its acceptance or rejection of CGIA's offer to renew.
- 4. Contract Amount:** CGIA shall order work and services by Delivery Orders issued to the Contractor. The amounts payable under this Contract shall be based on a firm fixed price negotiated on a per Delivery Order basis as agreed to by the Parties. The amount payable on any Delivery Order shall not exceed the mutually agreed upon price for the specific Delivery Order.
- 5. The Contractor shall submit invoices for prescribed milestones associated with specific Delivery Orders to CGIA itemizing the services actually performed in accordance with the agreed upon Delivery**

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August 31, 2015

Order pricing. CGIA shall pay the appropriate invoice amount within thirty (30) days of receipt, subject to CGIA review and approval of the Delivery Order work satisfactorily performed. CGIA shall withhold five percent (5%) from the amounts to be paid to the Contractor on each respective Delivery Order. CGIA reserves the right to withhold the entire amount, or withhold additional amounts not to exceed 15%, if there is demonstrated risk of non-conformance on behalf of the Contractor as demonstrated in Section 31, or for reimbursable costs to CGIA in the event the Contractor is required to perform re-flights or re-deliver any product that does not meet deliverable requirements or per requirements by the State Standard, or that would cause CGIA to delay or re-deliver any portion of its deliverables to its client, or if the Contractor does not deliver per scheduled milestones. The amount withheld shall be paid to the Contractor upon the Contractor's satisfactory completion of the entire Delivery Order work. CGIA may, in its sole discretion, release withheld sums prior to final acceptance of the entire Delivery Order. Delivery Orders agreed upon by the Parties shall be made a part of this Contract by written amendment as provided in Section 15 below.

6. Documents Comprising the Contract: This Contract shall include the following: (1) The CGIA Request for Qualifications 41-20162156KK dated August 31, 2015, including the General Terms and Conditions set forth ("RFQ"); (2) The Contractor's proposal in response to the RFQ, (3) Questions and answers regarding the RFQ; and (4) Any amendments to this Contract entered into pursuant to Section 15 below. Unless otherwise provided by law, all documents comprising this Contract are subject to Chapter 132, Public Records, of the North Carolina General Statutes." In the event of an inconsistency or conflict between or among the provisions of these Contract documents, the inconsistency shall be resolved by giving precedence in the following order:

- (1) Questions and answers regarding the RFQ;
- (2) The RFQ;
- (3) The Contractor's proposal in response to the RFQ;
- (4) Any Amendments to this Contract entered into pursuant to Section 15 below.

7. Taxes: The Contractor understands and agrees that the State and CGIA are exempt from federal excise taxes.

8. Availability of Funds: Any and all payments to the Contractor under this Contract shall be and are specifically dependent and contingent upon and subject to the appropriation, allocation, and availability of funds to CGIA for the specific purposes set forth in this Contract. If funds become unavailable to make payments under this Contract, the Contractor agrees to terminate all work hereunder and to relieve CGIA and the State from any further payment obligation under this Contract except for work or services satisfactorily performed prior to funds becoming unavailable.

9. CGIA Contract Administrator: The following shall be the CGIA Contract Administrator:

Tim Johnson, Director
Center for Geographic Information and Analysis
3700 Wake Forest Road
Raleigh, NC 27609
Telephone: (919) 754-6588
E-mail: tim.johnson@nc.gov

10. Contractor Contract Administrator: Execution of this Contract, shall include designation of a Contract Administrator giving name, address, telephone number, facsimile number and e-mail address.

11. Notices: Any notice(s) required or permitted under this Contract shall be delivered to the other Party's Contract Administrator. Notice may be given to the Contract Administrator by mail, first-class postage prepaid, or by facsimile transmittal or by electronic mail with the original to follow by first-class mail.

12. Change of Contract Administrators: The Parties may change their Contract Administrator by giving the other party written notice as provided in Section 11 above.

13. Subcontractors: Other than the firms set forth in the Contractor's Letter of Qualification, the Contractor shall not subcontract any of the work or services to be performed under this Contract without the express written approval of CGIA. At all times, the Contractor shall remain solely and fully responsible to CGIA for all work or services to be performed pursuant to this Contract.

14. Independent Contractor: The Contractor and any of its subcontractors, and their respective officers, directors, employees and agents, in the performance of this Contract shall be and are independent Contractors. It is further understood by the Parties that this Contract shall not be construed as a partnership or joint venture between the Contractor and CGIA.

15. Contract Amendments: This Contract may be amended only in writing signed by duly authorized representatives of CGIA and the Contractor.

16. Assignment: No assignment of the Contractor's obligations or right to receive payment hereunder shall be permitted. However, upon written request and approval by CGIA, CGIA may:

A. Forward the contractor's payment check(s) directly to any person or entity designated by the Contractor, or

B. Include any person or entity designated by Contractor as a joint payee on the Contractor's payment check(s). In no event shall such approval and action obligate CGIA or the State to anyone other than the Contractor and the Contractor shall remain fully responsible for fulfillment of all Contractual obligations.

17. Forum and Situs: The validity of this Contract and any of its terms, conditions, provisions, or requirements, as well as the rights and duties of the Parties to this Contract, shall be governed solely by the laws of the State of North Carolina. The Contractor agrees and submits, solely for matters relating to this Contract, to the exclusive jurisdiction of the courts of the State of North Carolina and further agrees, solely for such purpose(s), that the exclusive venue for any legal proceedings whatsoever shall be Wake County, North Carolina. The place of all Contracts, transactions, agreements, their situs and forum, shall be Wake County, North Carolina, where all matters, whether sounding in Contract or tort, relating to the validity, construction, interpretation, and enforcement of this Contract shall be determined.

18. Equal Employment Opportunity: The Contractor agrees that it shall comply with all applicable laws relating to equal employment opportunity. Contractors must certify use of E-Verify per N.C.G.S. 143-48.5.

19. General Indemnity: The Contractor agrees to indemnify, defend and hold CGIA and the State, and their officers, directors, employees, and agents, harmless from any liability relating to personal injury or injury to real or personal property of any kind arising out of the ordinary negligence, willful or wanton negligence, or intentional acts of the Contractor and any of its subcontractors and their officers, employees, and agents, in the performance of this Contract. The foregoing indemnification and defense by the Contractor shall be conditioned on the following:

A. CGIA shall give the Contractor written notice within twenty (20) business days after it has actual knowledge of any such claim(s) or action(s) filed.

B. The Contractor shall have the sole control of the defense of any such claims(s) or action(s) filed and of all negotiations relating to settlement or compromise thereof, provided, however, that CGIA or the State shall have the right and option to participate at their own expense in the defense of such claims(s) or actions(s) filed.

20. Remedies: The State and CGIA and the Contractor shall have and may exercise all remedies available to them at law and equity.

21. Advertising/Press Release: The Contractor shall not publicly disseminate any information concerning this Contract without prior written approval of the CGIA Contract Administrator.

22. Patent, Copyright, Trade Secret and Intellectual Property Protection: The work performed by the Contractor under this Contract shall be work for hire. All deliverables including, but not limited to original data collected, manuals, documentation, information technology, software or any patentable or copyrightable material(s) developed, in whole or in part, by the Contractor or Contractor's subcontractors in the performance of this Contract is and shall become the property of CGIA and shall not be the subject of an application for copyright or patent by or on behalf of the Contractor, its officers, employees, agents, assigns, or subcontractor(s). To the extent that preexisting proprietary material(s) or software belonging to Contractor, its subcontractor(s), or third parties, are incorporated into the material(s) or software developed pursuant to this Contract, CGIA and the State understand and agree that paid licenses may be required by the Contractor or subcontractor(s) in order to use the material(s) or operate the software. Provided, however, should the Contractor or subcontractors use their own proprietary software to produce deliverables under this Contract, the Contractor and subcontractors agree to provide CGIA and the United States Government with a royalty-free, paid-up, perpetual, non-exclusive, nontransferable license necessary to access and manipulate deliverables including, but not limited to, data collected, manuals, documentation, information technology, and software. The Contractor shall, at its own expense, defend any action brought against CGIA or the State to the extent that such action is based upon a claim that any deliverable supplied by the Contractor, or its subcontractors infringes a United States patent, or copyright, violates a third party's trade secret or violates any other law relating to intellectual property. The Contractor shall pay any costs and damages awarded against CGIA or the State in any such action. The foregoing defense and payment by the Contractor shall be conditioned on the following:

A. CGIA shall give the Contractor written notice within twenty (20) business days after it has actual knowledge of any claims (s) or action(s) relating hereto; and

B. The Contractor shall have the sole control of the defense of any action on such claim(s) and of all negotiations relating to settlement or compromise thereof, provided, however, that CGIA and the State shall have the right and option to participate at their own expense in the defense of such claim(s) or action(s). Should any software or the operation thereof become or in the Contractor's opinion be likely to become the subject of a claim of infringement of a United States patent, or copyright, or a trade secret, CGIA and the State shall permit the Contractor, at its option and expense, to either procure the right to continue using the software, or to replace or modify same so that they become noninfringing and continue to meet the Contractual obligations. If neither of these options can reasonably be taken, or if the use of such software by CGIA or the State is prohibited by an injunction, the Contractor agrees to accept the return of such software and refund any sums paid by CGIA to the Contractor, less a commercially reasonable amount for use or damage, and make every reasonable effort to assist in procuring substitute noninfringing software. If, in the sole opinion of CGIA or the State, the return of such infringing equipment or software makes the retention of other equipment or software acquired from the Contractor under this Contract impractical, CGIA shall have the option of terminating this Contract, or applicable portions thereof. The Contractor agrees to accept the return of such equipment or software and refund any sums paid by CGIA to the Contractor, less a commercially reasonable amount for use or damage. The foregoing states the entire liability of the Contractor with respect to infringement of patents, copyrights, trade secrets and intellectual property.

23. Time and Date Warranty: The Contractor warrants that all deliverables furnished pursuant to this Contract, including, without limitation, any piece of equipment, hardware, firmware, middleware, custom or commercial software, or internal components, subroutines, and interfaces therein; which perform(s) any date and/or time data recognition function, calculation, or sequencing, will support a four digit year format, and will provide accurate date/time data and leap year calculations. This warranty shall survive termination or expiration of this Contract. Nothing in this warranty shall be construed to limit any rights or remedies CGIA or the State may otherwise have under this Contract.

24. Escrow Agreement: Reserve

25. Trade Secrets and Proprietary Information: In order to promote maximum competition in the State competitive bidding process, State agencies are authorized to maintain the confidentiality of the types of information described in G.S. § 143-53, 3 NCAC 21B .1001, and 25 NCAC 5B .1501. Such information may include trade secrets defined by G.S. § 66-152 and exempted from the Public Records Act pursuant to G.S. § 132-1.2. However, under no circumstances shall price information be designated confidential. The Contractor may designate as confidential appropriate portions of its proposal in response to the RFQ or Delivery Order for this project or other information, consistent with and to the extent permitted under the statutes and rules set forth above, by marking each page in boldface at the top and bottom "CONFIDENTIAL". By so marking, the Contractor warrants that it has formed a good faith legal opinion that the portions marked confidential meet the requirements of the rules and statutes set forth above. If an action is brought, pursuant to G.S. § 132-9, to compel CGIA or the State to disclose information marked confidential by the Contractor, the Contractor warrants and agrees that it shall, through its own counsel, intervene in the action and defend CGIA and the State, including any public official(s) or public employee(s), relating to the nondisclosure. The Contractor agrees and warrants that

it shall indemnify and hold harmless CGIA and the State and any individual official(s) and individual State employee(s) from any and all damages, costs, and attorneys' fees, if any, awarded against CGIA and the State in such action. CGIA agrees to promptly notify the Contractor in writing of any action seeking to compel the disclosure of Contractor's confidential information. The State shall have the right, at its option and expense, to participate in the defense of the action through its counsel. In any event, CGIA and the State shall have no liability to Contractor with respect to the disclosure of Contractor's confidential information ordered by a court of competent jurisdiction pursuant to G.S. § 132-9.

26. Access to Persons and Records: The State Auditor, appropriate federal officials, and their respective authorized employees and agents are authorized to examine all books, records, and accounts of the Contractor insofar as they relate to the performance and payment under this Contract. The Contractor and any subcontractor(s) shall retain any such books, records, and accounts for a minimum of three (3) years after the completion of this Contract or three (3) years after the end of any legal action or claim in any manner related to this Contract.

27. Insurance: During the term of this Contract, the Contractor and any subcontractors, at their sole cost and expense, shall provide commercial insurance of such type and with such terms and limits as may be reasonably associated with this Contract. At a minimum, the Contractor and any subcontractor(s) shall provide and maintain the following insurance, coverage and limits set forth below:

A. Worker's Compensation - The Contractor and any subcontractor(s) shall provide and maintain Worker's Compensation, as required by the laws of North Carolina.

B. Employer's Liability – Employer's Liability Insurance with insurance minimum limits of \$1,000,000, covering all of Contractor's employees who are engaged in any work under this Contract.

C. Commercial General Liability – The Contractor shall maintain General Liability Coverage on a Comprehensive Broad Form on a cost occurrence basis in the minimum amount of \$5,000,000.00, Combined Single Limit. (Defense shall be in excess of the limit of liability.)

D. Automobile – The Contractor and any subcontractor(s) shall maintain automobile liability insurance, to include liability coverage, covering all owned, hired and non owned vehicles, used in connection with this Contract. The minimum combined single limit shall be \$500,000.00 bodily injury and property damage; \$500,000.00 uninsured/under insured motorist; and \$10,000.00 medical payment.

E. Aviation - The Contractor and any subcontractor(s) actually performing aviation services pursuant to this Contract shall adequately maintain aviation liability insurance, to include liability coverage, covering all owned, hired and non-owned fixed wing and rotary aircraft, used in connection with this Contract. Providing and maintaining adequate insurance coverage is a material obligation of the Contractor and its subcontractor(s) and is the essence of this Contract. All such insurance shall meet all requirements of North Carolina General Statutes. Such insurance coverage shall be obtained from companies that are authorized to provide the required coverage and that are authorized by the Commissioner of Insurance to do business in the State of North Carolina. The Contractor shall at all times comply with the terms of such insurance policies, and all requirements of the insurer under any such insurance policies, except as they may conflict with existing North Carolina General Statutes or this Contract. The limits of coverage under each insurance policy maintained by the Contractor shall not be interpreted as limiting the

Contractor's liability and obligations under the Contract. Within ten (10) days after the acceptance of the Contractor's proposal, the Contractor shall provide the CGIA Contract Administrator with certified copies of all insurance policies referred to herein. Failure to provide such copies shall be grounds to terminate this Contract.

28. Compliance with Laws: The Contractor shall comply with all laws, ordinances, codes, rules, regulations, and licensing requirements that are applicable to the conduct of its business, including those of federal, State, and local agencies having jurisdiction and/or authority.

29. Severability: In the event that a court of competent jurisdiction holds that a provision or requirement of this Contract violates any applicable law, each such provision or requirement shall be enforced only to the extent it is not in violation of law or is not otherwise unenforceable and all other provisions and requirements of this Contract shall remain in full force and effect.

30. Federal Intellectual Bankruptcy Act: The Parties agree that CGIA and the State shall be entitled to all rights and benefits conferred upon them by the Federal Intellectual Bankruptcy Act, Public Law 100-506, and any amendments thereto.

31. Remedy to Re-perform Delivery Order Tasks: CGIA reserves the right to enforce the Contractor to perform re-flights, during an appropriate window of opportunity defined by the state standard, or re-deliver any product if CGIA determines that there is demonstrated risk of non-conformance on behalf of the Contractor that would cause the Contractor to fail to deliver any contracted requirement, fail to meet requirements per the State Standard, or provide evidence of systematic failure occurrences due to faulty equipment, imagery artifacts, or factors that are irreversible due to closed flight windows that would have been avoided by Vendor's notification of such occurrences to CGIA.

32. Termination of Contract - In addition to termination by CGIA as the result of the unavailability of funds as set forth above, this Contract may be terminated as follows:

A. Termination for Cause - If, through any cause, the Contractor shall fail to fulfill in timely and proper manner its obligations under this Contract and, if such failure is not cured within thirty (30) days of written notice by CGIA to the Contractor of such failure, CGIA shall thereupon have the right to terminate this Contract by giving thirty (30) days written notice to the Contractor and specifying the effective date of termination. In this event, all finished or unfinished deliverable items under this Contract prepared by the Contractor shall, at the option of CGIA, become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such deliverables. Notwithstanding the foregoing, the Contractor shall not be relieved of liability to CGIA or the State for damages sustained by CGIA by virtue of any breach of this Contract, and CGIA may withhold any payment due the Contractor for the purpose of setoff until such time as the exact amount of damages due CGIA from such breach is determined. In case of default by the Contractor, CGIA may procure services from other sources and hold the Contractor responsible for any excess cost occasioned thereby.

B. Bankruptcy or Insolvency of Contractor. Upon the entering of a judgment of bankruptcy or insolvency by or against the Contractor, CGIA may terminate this Contract for cause. If the Contract is

terminated by CGIA as provided herein, the Contractor shall be paid for services satisfactorily completed, reduced by any payment or compensation previously made.

C. Termination Without Cause – CGIA may terminate this Contract at any time without cause by giving sixty (60) days written notice to the Contractor. In this event, all finished or unfinished deliverable items prepared by the Contractor under this Contract shall, at the option of CGIA, become its property. If the Contract is terminated by CGIA as provided herein, the Contractor shall be paid for services satisfactorily completed, reduced by any payment or compensation previously made.

D. Termination by Mutual Agreement - This Contract may be terminated upon mutual written agreement of the Contracting Parties, specifying the effective date of termination. If the Contract is terminated by mutual agreement as provided herein, the Contractor shall be paid for services satisfactorily completed, reduced by any payment or compensation previously made.

E. Failure of State To Pay - Upon the failure of CGIA to pay for services satisfactorily provided by the Contractor and accepted by CGIA pursuant to Section 5 above, the Contractor may give written notice to CGIA of its failure to pay. If after sixty (60) days from the date of receipt of the Contractor's notification, CGIA does not make payment, the Contractor may terminate this Contract. If the Contractor terminates the Contract as provided herein, the Contractor shall be paid for services satisfactorily completed, reduced by any payment or compensation previously made. The rights and remedies provided above shall not be exclusive and are in addition to any other rights and remedies provided by law or equity or under this Contract.

33. Informal Negotiation of Disputes: Any dispute between the Parties which arises out of or relates to this Contract and which either party asserts is material, shall be reduced to writing by that Party and delivered to the other Party's Contract Administrator. The Parties shall then negotiate in good faith and use every reasonable effort to resolve such dispute(s). During the time the Parties are attempting to resolve any dispute, each shall proceed diligently to perform their duties and responsibilities under this Contract. If a dispute cannot be resolved between the Parties within thirty (30) days after delivery of notice, either Party may elect to exercise any remedies available under this Contract or at law or equity.

34. Waiver of Default: Waiver by either Party of any default or breach by the other Party shall not be deemed a waiver of any subsequent default or breach and shall not be construed to be a modification of the terms of this Contract unless stated to be such in a writing signed by authorized representatives of CGIA and the Contractor and made an amendment to this Contract pursuant to Section 15 hereof.

35. Information Provided by the State: All information provided by CGIA and the State reflects the best and most accurate information available at the time provided. No inaccuracies shall constitute a basis for neither change of payment to the Contractor nor form a basis of default by CGIA.

36. Titles and Headings: Titles and headings in this Contract are for convenience only and in no way define, limit, or prescribe the provisions of this Contract

37. Survival of Promises: All promises, requirements, terms, conditions, provisions, representations, guarantees and warranties contained herein shall survive the expiration or termination date unless

specifically provided otherwise herein, or unless superseded by applicable federal or State statutes of limitation.

38. Personnel and Facilities: The Contractor shall furnish all necessary personnel, materials, services, facilities and travel and otherwise perform all activities and actions necessary or incidental to the accomplishment of the work and services specified in this Contract. Personnel and facilities assigned under this Contract will not be used in another business without written approval of the CGIA Contract Administrator.

39. Hiring Restraints: Except by mutual agreement, the Parties agree that neither shall solicit for employment nor employ the other Party's officers or employees during the term of this Contract. This hiring restraint shall in no way interfere with CGIA's or the State's usual and routine hiring practices.

40. Force Majeure: Neither Party shall be deemed to be in default of any of its obligations hereunder if and so long as it is prevented from performing such obligation by an act of war, hostile foreign actions, nuclear explosion, riot, strike, civil insurrection, earthquake, hurricane, tornado, or other catastrophic event or act of God.

41. Competitive Offer: Pursuant to the provisions of G.S. § 143-54, and under penalty of perjury, the signatures of the authorized representatives of the Contractor certify that the Contractor's proposal has not been arrived at collusively or otherwise in violation of either federal or State antitrust statutes and that the Contractor has not employed or obtained any company or person (other than a full-time bona fide employee) to solicit or secure this Contract for a commission, percentage, brokerage, or contingency fee.

42. Beneficiary: Except as herein specifically provided otherwise, this Contract shall inure to the benefit of and shall be binding on the Parties hereto and their respective successors. It is expressly understood and agreed that the enforcement of the terms and conditions of this Contract and all rights of action relating to such enforcement shall be strictly reserved to CGIA or the State and the named Contractor. Nothing contained in this document shall give or allow any claim or right of action whatsoever to or by other third party or person.

43. Contractor's Federal Taxpayer Identification Number: The Contractor shall provide its tax payer identification number to the CGIA Contract Administrator immediately upon its selection.

44. Key Personnel: The Contractor agrees that it shall not substitute key personnel assigned to the performance of this Contract without prior written approval by the CGIA Contract Administrator and such approval not to be unreasonably withheld. The Parties shall agree to the individuals to be designated key personnel by amendment as provided in Section 11 above.

45. Confidentiality: The Contractor agrees and specifically warrants that it, its officers, directors and employees shall hold all information received during the performance of this Contract in the strictest confidence and shall not disclose any such information to any third party without the express written approval of CGIA.

46. Care of Information: The Contractor agrees to use commercial best efforts to safeguard and protect any data, documents, files, and other materials received from the State of North Carolina and CGIA during the performance of this Contract from loss, destruction, or erasure.

47. Financial Interest: The Contractor warrants that no officer or employee of the State has any financial or personal beneficial interest, direct or indirect, in the subject matter of this Contract, and that no such officer or employee has received or will receive, either by rebate, gift or otherwise, any money or thing of value whatsoever, or any promise, obligation, or Contract for future award of compensation, as an inducement for making this Contract.

48. Entire Agreement: This Contract and the documents incorporated by reference represent the entire agreement between the Parties and supersede all prior oral or written statements or agreements of any kind.

49. Federal Certificates: The Contractor agrees to execute the following certificates related to federal funding:

A. Certification regarding Lobbying, and

B. Certification regarding Debarment.

50. Merger, Acquisition, etc.: The Contractor shall notify CGIA at least thirty (30) days in prior to any of the following occurring: (1) the merger of the Contractor with another entity; (2) the acquisition of the Contractor by another entity; (3) the purchase of more than a ten percent (10%) interest in the Corporation by another person or individual; and/or (4) any change in the management of the Corporation.

51. Signature Warranty: Each individual signing any Contract or documents with CGIA warrants that he or she is duly authorized by the respective Party to sign all Contracts and documents and to bind the Party to the terms and conditions relating to this Contract.

52. E-Verify: As required by G.S. §143-48.5, the Contractor certifies that it, and each of its subcontractors used in performing this Agreement, complies with the requirements of Article 2 of Chapter 64 of the NC General Statutes, including the requirement for each employer with more than 25 employees in North Carolina to verify the work authorization status of its employees through the federal E-Verify system.

53. Acceptance of Terms and Conditions: By submitting a proposal, the Firm agrees, if selected, that it accepts these Terms and Conditions as part of the Contract with the State of North Carolina and CGIA. The Contractor further agrees that additional terms and conditions may be required depending on the subject matter of a specific Delivery Order.

GENERAL INFORMATION ON SUBMITTING PROPOSALS

1. EXCEPTIONS

- All proposals are subject to the terms and conditions outlined herein.
- All responses shall be controlled by such terms and conditions.
- The submission of other terms and conditions, price lists, catalogs, and/or other documents that are part of an offeror's response will be waived and have no effect either on this RFQ or on any contract that may be awarded resulting from this solicitation.
- Offeror specifically agrees to the conditions set forth in this RFQ by signature to the proposal.

2. COMPETITIVE OFFER

Pursuant to the provision of G.S. 143-54, and under penalty of perjury, the signer of any proposal submitted in response to this RFQ thereby certifies that this proposal has not been arrived at collusively or otherwise in violation of either Federal or North Carolina antitrust laws.

3. ORAL EXPLANATIONS

The State shall **not** be bound by oral explanations or instructions given at any time during the competitive process or after the award.

4. REFERENCE TO OTHER DATA

CGIA evaluators will ignore references to proposal packages submitted for previous RFQs. Rather, they will only evaluate proposal packages submitted in response to this RFQ.

5. ELABORATE PROPOSALS

Elaborate proposals in the form of brochures or other presentations beyond that necessary to present a complete and effective proposal are **not** desired.

6. COST FOR PROPOSAL PREPARATION

Any costs incurred in preparing or submitting proposals are the sole responsibility of each offeror. In other words, the State of North Carolina will **not** reimburse any offeror for any proposal costs.

7. TITLES

Titles and headings in this RFQ and any subsequent Contract are for convenience only and shall have no binding force or effect.

8. CONFIDENTIALITY OF PROPOSALS

By submitting a proposal, the offeror agrees not to discuss or otherwise reveal its proposal contents to any source (government or private) other than this RFQ's "issuing" or "issuing" agency (CGIA) until after the award of the Contract. The State may disqualify noncompliant offerors from Contract award.

The offeror may request this RFQ's "issuing" agency (CGIA) to grant an exemption from this provision. Note: Only discussions authorized by the issuing agency are exempt from this provision.

GENERAL INFORMATION ON SUBMITTING PROPOSALS (continued)

9. RIGHT TO SUBMITTED MATERIAL

All responses, inquiries, or correspondence relating to or in reference to this RFQ, and all other reports, charts, displays, schedules, exhibits, and other documentation submitted by each offeror shall become the property of the State when received.

10. OFFEROR'S REPRESENTATIVE

Each offeror shall submit with its proposal the name, address, and telephone number of the person(s) with authority to bind the firm and answer questions or provide clarification concerning the firm's proposal.

11. HISTORICALLY UNDERUTILIZED BUSINESSES

Pursuant to General Statute 143-48 and Executive Order #150, the State invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises, and non-profit work centers for the blind and severely disabled.

12. TABULATIONS

The Division of Purchase and Contract (P&C) has implemented an Interactive Purchasing System (IPS) that allows the public to retrieve bid tabulations online from the following URL:

www.ips.state.nc.us/ips/Default.aspx

To find a bid, click on the "Search by Bid Number" link, enter the RFQ number, and then press the [Search] button. If you find the bid, but have difficulty retrieving (downloading) a solicitation document, or the document is incomplete, click on the code or number listed in the HELP column to obtain assistance. This will bring up a new screen that will show the person to contact to help you retrieve the document.

13. VENDOR REGISTRATION AND SOLICITATION NOTIFICATION SYSTEM

The P&C Vendor Link NC allows vendors to electronically register free with the State to receive electronic notification of current procurement opportunities for goods and services available on the IPS. Online registration and other purchasing information are available online from:

<http://www.ips.state.nc.us/ips/vendor/vndpubmain.asp>

General Terms and Conditions

Federal Certificates:

The Contractor agrees to execute the following certificates related to federal funding:

- Attachment Number 1: Certification Regarding Lobbying
- Attachment Number 2: Certification Regarding Debarment.

ATTACHMENT NUMBER 1

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
2. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federally funded contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form SF-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award document for sub awards at all tiers (including subcontracts, sub grants, and contracts under grants, loans, and cooperative agreements) who receive federal funds of \$100,000.00 or more and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.

Authorized Signature: _____

Title: _____

Firm: _____

Date signed: _____

ATTACHMENT NUMBER 2

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION--LOWER TIER COVERED TRANSACTIONS

Note: The phrase "prospective lower tier participant" means providers under contract with CGIA.

1. By signing and submitting this document, the prospective lower tier participant is providing the certification set out below.
2. The certification in this clause is a material representation of the fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originates may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to whom this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal", and "voluntarily excluded" as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549, 45 CFR Part 76, which may be downloaded from the following URL:
<http://www.ucop.edu/raohome/certs/45cfr76.html>
5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter any lower tier covered transaction with a person who is debarred, suspended, determined ineligible or voluntarily excluded from participation in this covered transaction unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this document that it will include the clause titled "*Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transaction*," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

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7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency of which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized in paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension, and/or debarment.
10. The prospective lower tier participant certifies, by submission of this document, that neither it nor its principals is presently debarred, suspend, proposed for debarment, declared ineligible, nor voluntarily excluded from participation in this transaction by any federal department or agency.
11. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Authorized Signature: _____

Title: _____

Firm: _____

Date signed: _____

State of North Carolina Request for Qualifications

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EXECUTION OF LETTER OF QUALIFICATIONS (REQUEST FOR QUALIFICATIONS 41-20162156KK)

By submitting and agreeing to terms and conditions of this Request for Qualifications, the undersigned Firm certifies the following:

- _____ The Firm's Letter of Qualification is signed by representatives authorized to legally bind the Firm.
- _____ The Firm is willing and able to obtain and furnish insurance certificates required by this Request for Qualifications within 10 calendar days after signing of the Contract.
- _____ All costs will be mutually agreed upon and included in subsequent Delivery Orders.
- _____ The Firm is aware of prevailing conditions associated with performing the work and services set forth in this Request for Qualifications.
- _____ The Firm has read and understands the terms and conditions set forth in this Request for Qualifications and agrees to each of them without exception.

Therefore, in compliance with State of North Carolina Request for Qualifications No. RFQ 41-20162156KK dated August 31, 2015, and subject to the acceptance of the Firm's offer by the North Carolina Center for Geographic Information and Analysis and subject to all terms and conditions set forth therein, the undersigned Firm offers and agrees to furnish the work and services described in this Request for Qualifications which will be set forth in subsequently issued Delivery Orders.

FIRM/OFFEROR:

STREET ADDRESS: _____

MAILING ADDRESS: _____

CITY, STATE, ZIP CODE:

TELEPHONE NUMBER: _____

FEDERAL EMPLOYER IDENTIFICATION NUMBER: _____

BY: _____ (Signature) _____ (Signature) {Corporate SEAL}

Title: _____ Corporate Secretary

DATE: _____

DATE: _____

**State of North Carolina Request for
Qualifications**

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ACCEPTANCE OF PROPOSAL BY:

NORTH CAROLINA OFFICE OF INFORMATION TECHNOLOGY SERVICES

BY: _____
(Signature)
Chris Estes

DATE: _____

Unsigned proposals will not be considered as binding and legal.