AGREEMENT

PINELLAS COUNTY GOVERNMENT IS COMMITTED TO PROGRESSIVE PUBLIC POLICY, SUPERIOR PUBLIC SERVICE, COURTEOUS PUBLIC CONTACT, JUDICIOUS EXERCISE OF AUTHORITY AND SOUND MANAGEMENT OF PUBLIC RESOURCES, TO MEET THE NEEDS AND CONCERNS OF OUR CITIZENS TODAY AND TOMORROW.

CONTINUING PROFESSIONAL SERVICES AGREEMENT

RFP TITLE: Photogrammetric and Digital Aerial Mapping Professional Service

RFP CONTRACT NO. 23-0623-CN

CONTINUING FIRM: GPI GEOSPATIAL, INC.

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SECTION 1 - INTENT OF AGREEMENT

AGREEMENT FOR PROFESSIONAL PHOTOGRAMMETRIC AND DIGITAL AERIAL MAPPING PROFESSIONAL SERVICES FOR

BUSINESS TECHNOLOGY SERVICES DEPARTMENT

This Agreement entered into on the 16th day of January,2024 . between Pinellas County, a political subdivision of the state of Florida, hereinafter referred to as the County, represented by its board of County commissioners, and GPI GEOSPATIAL, INC, with offices in Orlando, Florida, hereinafter referred to as the consultant.

WITNESSETH, that:

WHEREAS, the County Business Technology Department requires professional PHOTOGRAMMETRIC AND DIGITAL AERIAL PHOTOGRAPHY PRODUCTS AND SERVICES associated with photogrammetric and high-resolution aerial photography on an as needed basis, herein referred as project.

WHEREAS, the County desires the consultant provide professional PHOTOGRAMMETRIC AND DIGITAL AERIAL PHOTOGRAPHY PRODUCTS AND SERVICES requisite to the management needs of the County Business Technology Services department, and

WHEREAS, the consultant has expressed the willingness and ability to provide the aforementioned services on an as needed basis.

NOW THEREFORE, the County and the consultant, in consideration of the mutual covenants hereinafter set forth, agree as follows:

SECTION 2 - GENERAL CONDITIONS AND PROFESSIONAL REQUIREMENTS

1. **DESCRIPTION OF OVERALL REQUIRED SERVICES**

Board of County Commissioners of Pinellas County is seeking qualified consultants to provide the County with high-resolution aerial photography (Orthogonal Imagery and Oblique Imagery) products and services. The products and services will be used to enhance mapping systems and improve related applications for the COUNTY (also referred to herein as "work").

2. **ASSIGNMENT OF WORK**

Work to be performed by the consultant shall be on an assignment-by-assignment basis. Work assignments shall be made by the County's director of Business Technology Department or designee. Prior to any work assignments being made, based on mutual discussions between the County and the consultant, the consultant shall prepare a detailed scope of work for the assignment which shall include a not to exceed budget amount for the assignment. All work assignment authorizations by the County shall be in writing. The consultant shall perform no work under this Agreement without written authorization. The consultant hereby agrees to waive any claim for compensation for any work performed without written authorization.

3. **CONSULTING RESPONSIBILITIES**

A. It is the intention of the County that the consultant is held accountable for its work, including checking and plans review, and that submittals are complete.

B. The consultant shall be responsible for the accuracy of the work and shall promptly correct its errors and omissions without additional compensation. Acceptance of the work by the County will not relieve the consultant of the responsibility for subsequent correction of any errors and the clarification of any ambiguities.

C. The consultant represents that it has secured or will secure all personnel necessary to complete this Agreement; none of whom shall be employees of or have any contractual relationship with the County. Primary liaison with the County will be through the consultant's project manager. All of the services required herein will be performed by the consultant or under the consultant's supervision, and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under law to perform such services.

D. The consultant shall endorse all reports, calculations, contract plans, and survey data. Services shall be prepared under the direction of a Professional Surveyor and Mapper.

E. The consultant shall be responsible for the preparation of a project design schedule, which shows a breakdown of all tasks to be performed, and their relationship in achieving the completion of each phase of work. A bar chart schedule showing overall project time frames should also be prepared. These schedules must be submitted for County approval within 10 days of the initial project notice to proceed. These schedules will be used to verify consultant performance in relationship to fees claimed and to allow the County's project manager to monitor the consultant's efforts. The consultant shall be responsible for any updates to these schedules and for documenting in writing to the County any major deviations in the actual versus estimated project time frames.

F. The consultant shall respond, in writing, to all review comments made by the County, within 10 days of their receipt, and shall incorporate appropriate design adjustments resulting from the review exchange into the project, in the next scheduled submittal.

4. **GOVERNING SPECIFICATIONS, REGULATIONS AND PERTINENT DOCUMENTS**

A. The project shall be designed by the consultant in accordance with applicable industry standards. The consultant shall be responsible for utilizing and maintaining current knowledge of any laws, ordinances, codes, rules, regulations, standards, guidelines, special conditions, specifications, or other mandates relevant to the project or the services to be performed.

B. Supplier acknowledges and warrants that all digital content and services provided under this contract conforms and shall continue to conform during the Term of this Agreement to the W3C Web Content Accessibility Guidelines, version 2.0 ("WCAG 2.0") at conformance Level A and AA. If all digital content and services does not fully conform to WCAG 2.0 A and AA, Supplier shall advise Pinellas County in writing of the nonconformance prior to execution of this Agreement and shall provide Pinellas County a plan to achieve conformance to WCAG 2.0 A and AA, including but not limited to, an intended timeline for conformance. Failure to achieve conformance, as

determined in Pinellas County's sole discretion, on its intended timeline shall be considered a material breach of this Agreement and grounds for termination by Pinellas County.

If during the Term of this Agreement, Supplier fails to maintain compliance with WCAG 2.0 A and AA or Pinellas County otherwise identifies an issue related to accessibility of the product (the "Accessibility Issue") that renders the product inaccessible, then Pinellas County shall notify Supplier of non-compliance. Within 30 days of Supplier's receipt of a non-compliance notice ("Notice"), Supplier and Pinellas County shall meet and mutually agree upon an appropriate timeline for resolution of the Accessibility Issue(s) ("Initial Meeting").

Should Supplier:

i. fail to acknowledge receipt of the notice within 30 days of receipt of the Notice;
ii. unreasonably and solely withhold agreement regarding a timeline for resolution for more than 30 days following the Initial Meeting; or
iii. fail to materially resolve the Accessibility Issue(s) within the agreed-upon timeline,

Failure to comply with the requirements of this section shall constitute a material breach of this Agreement and shall be grounds for termination of this Agreement by Pinellas County and subject Supplier to section 20 of this Agreement, "Indemnification."

5. **KEY PERSONNEL**

A. The individual(s) who are to be assigned to work under this Agreement are necessary for the successful performance of this Agreement. The consultant agrees that whenever, for any reason, one more of the aforementioned individuals are unavailable for performance under this Agreement, the consultant shall replace such individual(s) with an individual(s) of substantially equal abilities and qualifications.

The consultant shall submit to the County a resume giving the full name, title, qualifications, and experience, for all successors and/or new persons prior to assignment of such personnel to perform work under this Agreement. Should the County decide the successor personnel does not meet the qualifications of the replaced personnel, or in the case of new personnel, the County determines they are not qualified to perform the work assigned, the County will advise the consultant accordingly. The consultant shall then submit name(s) and qualifications of an individual(s) to the County until a determination is made by the County that the replacement meets equivalent or required qualifications.

B. The contractor and their subcontractor(s) must register with and use the E-verify system in accordance with Florida statute 448.095. The County will verify the work authorization of the contractor and subcontractor. A contractor and subcontractor may not enter into a contract with the County unless each party registers with and uses the E-verify system.

If a contractor enters a contract with a subcontractor, the subcontractor must provide the contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with unauthorized aliens. The contractor must maintain a copy of the affidavit for the duration of the contract.

If the County, contractor, or subcontract has a good faith belief that a person or entity with which it is contracting has knowingly violated Florida statute 448.09(1) they shall immediately terminate the contract with the person or entity.

If the County has a good faith belief that a subcontractor knowingly violated this provision, but the contractor otherwise complied with this provision, the County will notify the contractor and order that the contractor immediately terminate the contract with the subcontractor.

A contract terminated under the provisions of this section is not a breach of contract and may not be considered such. Any contract termination under the provisions of this section may be challenged to section 448.095(2)(d), Florida statute. Contractor acknowledges upon termination of this Agreement by the County for violation of this section by contractor, contractor may not be awarded a public contract for at least 1 year. Contractor acknowledges that contractor is liable for any additional costs incurred by the County as a result of termination of any contract for a violation of this section.

Contractor or subcontractor shall insert in any subcontracts the clauses set forth in this section, requiring the subcontracts to include these clauses in any lower tier subcontracts. Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clause set for in this section.

SECTION 3 - SERVICES TO BE FURNISHED BY THE CONSULTANT

1. **SERVICES**

   A. The consultant shall furnish all services, equipment, and manpower necessary for the work assignment in accordance with the intent of the Agreement.

2. **GENERAL SERVICES/SUPPORT TO COUNTY AS NEEDED**

   The consultant shall also provide miscellaneous services not otherwise described but required by the County during the course of this Agreement. Examples could include presentations to local government, citizen groups and regulatory agencies, or any other tasks associated with the County's operations.

SECTION 4 - PERFORMANCE SCHEDULES

The consultant shall plan and execute the performance of all services provided for under this Agreement in such a manner as to insure their proper and timely completion in accordance with the following:

A. The work assignments to be performed by the consultant shall commence upon receipt, from the County, of a written notice to proceed (also referred to as "Purchase Order") from the County's director of Business Technology Department or designee who is a County employee.

B. The consultant's performance schedule for any authorized work assignments shall be established upon the County's acceptance and approval of a detailed schedule to be submitted, by the consultant, prior to each assignment.

C. Each individual work assignment issued to the consultant must have at least a 10% financial commitment to a certified Pinellas County small business enterprise subconsultant for individual work assignments valued at $50,000.00 or greater. If the prime firm is an SBE, the requirement is already satisfied.

SECTION 5 - INFORMATION AND SERVICES TO BE FURNISHED BY THE COUNTY

The County shall provide the following for the consultant's use and guidance:

A. Copies of existing maps, existing aerial photographs, as-built construction plans and data pertinent to work assignments, which the County may have in its possession.

B. Sample copies of the County standard contract documents and specifications, if required.

SECTION 6 - PAYMENT SCHEDULE/INVOICING REQUIREMENTS

1. The County shall make payments to the consultant for work performed in accordance with the local government prompt payment act, F.S. Section 218.70 et. Seq.
2. Should an invoiced amount for fees earned appear to exceed the work effort believed to be completed, or not to exceed amount approved, the County may, prior to processing of the invoice for payment, require the consultant to submit satisfactory evidence to support the invoice. All invoices requesting payment for reimbursable, or expense items (as defined in the Compensation to the Consultant Section below) must have copies of actual billings, invoices, or receipts attached which support the amount invoiced.
3. The consultant shall provide a progress report with each invoice in a format to be provided by the County. The progress report shall include a written narrative describing the work performed that period, and the work planned to be completed the following period. All progress reports shall be mailed to the attention of the designated project manager.

4. Supplier shall submit invoices for payment due as provided herein with such documentation as required by Pinellas County and all payments shall be made in accordance with the requirements of section 218.70 et. Seq, Florida statutes, "the local government prompt payment act." Invoices shall be submitted to the address below unless instructed otherwise on the purchase order, or if no purchase order, by the ordering department:

   Finance division accounts payable

   Pinellas County board of County commissioners

   P. O. Box 2438

   Clearwater, FL 33757

   Each invoice shall include, at a minimum, the supplier's name, contact information and the standard purchase order number. The County may dispute any payments invoiced by supplier in accordance with the County's dispute resolution process for invoiced payments, established in accordance with section 218.76, Florida statutes, and any such disputes shall be resolved in accordance with the County's dispute resolution process.

SECTION 7 - COMPENSATION TO THE CONSULTANT

1. The County shall compensate the consultant for authorized work assignments using the following methods of compensation. The method of compensation shall be determined by the County based on the work assignment to be performed.
   A. For work assignments where the scope can be reasonably defined, and have a specific time frame, compensation shall be a lump sum fee negotiated and agreed upon prior to the assignment's authorization. This fee shall be the total and complete amount payable to the consultant for performance of the work assignment and shall include the cost of all labor, overhead, profit, and expenses of any nature.
   B. For indeterminate work assignments, compensation shall be on an hourly rate basis, compensation shall be for the actual work performed in accordance with the schedule of rate value attached to this Agreement and incorporated herein as **Exhibit A**.
2. The upset limit for all compensation to be paid under the maximum five (5) year term of this Agreement is an amount not to exceed **$**1,800,000.00. Total payments to the consultant may not exceed this amount without board of County commissioners or County administrator's approval to raise this upset limit. This Agreement contains one (1) additional two (2) year term extension option, based upon performance, beyond the primary Agreement period.
3. In the event that this Agreement is terminated under the provisions of this contract the total and complete compensation due the consultant shall be as established by the County based on the County's determination of the percentage of work effort completed to date of termination.

SECTION 8 - WORK ASSIGNMENT

1. The County and the consultant shall mutually agree on scope of services based on individual work assignment as needed throughout the Agreement term, thus work assignment authorization by an approved purchase order.
2. The consultant shall perform no services contemplated to merit compensation beyond that provided for in detailed work assignment unless such services and compensation, therefore, shall be provided for by appropriate written authorization via a change order to the work assignment. Such change orders will be issued by the board of County commissioners' purchasing department.

SECTION 9 - ASSIGNMENT/SUBCONTRACTING/CORPORATE ACQUISITIONS AND/OR MERGERS

1. The consultant shall perform this contract. No assignment or subcontracting shall be allowed without prior written consent of the County. If a proposer intends to subcontract a portion of this work, the proposer must disclose that intent to the County. In the event of a corporate acquisition and/or merger, the consultant shall provide written notice to the County within 30 business days of consultant's notice of such action or upon the occurrence of said action, whichever occurs first. The right to terminate this contract, which shall not be unreasonably exercised by the County,

shall include, but not be limited to, instances in which a corporate acquisition and/or merger represent a conflict of interest or are contrary to any local, state, or federal laws.

2. The County reserves the right to review the qualifications of any and all subconsultants, and to reject any subconsultant in a proper and timely manner, deemed not qualified. The consultant may propose an alternate and/or additional subconsultant, other than the subconsultant(s) provided in the Agreement, however, the consultant: 1) shall provide a written explanation to the purchasing department and the responsible County department director or authorized designee for the alternate and/or additional subconsultant prior to the engagement; and 2) must receive written approval from the responsible County department director or authorized designee prior to the engagement.

   Alternate and/or additional subconsultants shall have labor/equipment rates and labor categories consistent with those presented in the Agreement and shall not cause an increase to the original contract award amount. If the labor/equipment rates and labor categories offered by the alternate and/or additional subconsultant are not contained in the Agreement, the consultant must verify in writing to the purchasing department and the responsible County department director or authorized designee that the rates for the services and equipment provided are fair and reasonable and shall not cause an increase to the original contract award amount.

SECTION 10 - SATISFACTORY PERFORMANCE

All services to be provided by the consultant under the provisions of this Agreement, including services to be provided by subconsultants, shall be performed to the reasonable satisfaction of the County's designated departmental director or designed.

SECTION 11 - RESOLUTION OF DISAGREEMENTS

1. The County shall reasonably decide all questions and disputes, of any nature whatsoever, that may arise in the execution and fulfillment of the services provided for under this Agreement.
2. The decision of the County upon all claims, questions, disputes and conflicts shall be final and conclusive, and shall be binding upon all parties to this Agreement, subject to judicial review.

SECTION 12 - CONSULTANTS ACCOUNTING RECORDS

1. Records of expenses pertaining to all services performed shall be kept in accordance with generally accepted accounting principles and procedures.
2. The consultant's records shall be open to inspection and subject to examination, audit, and/or reproduction during normal working hours by the County's agent or authorized representative to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims submitted by the consultant or any of his payees pursuant to the execution of the Agreement. These records shall include, but not be limited to, accounting records, written policies and procedures, subconsultant files (including proposals of successful and unsuccessful bidders), original estimates, estimating worksheets, correspondence, change order files (including documentation covering negotiated settlements), and any other supporting evidence necessary to substantiate charges related to this Agreement. They shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with this Agreement. The County shall not audit payroll and expense records on work assignments paid by lump sum fee.
3. The County reserves the privilege of auditing a vendor's records as such records relate to purchases between the County and said vendor. Such audit privilege is provided for within the text of the Pinellas County code 2-176(j). Records should be maintained for 5 years from the date of final payment.
4. The County's agent or authorized representative shall have access to the consultant's facilities and all necessary records in order to conduct audits in compliance with this section. The County's agent or authorized representative shall give the consultant reasonable advance notice of intended inspections, examinations, and/or audits.

AGREEMENT

SECTION 13 - OWNERSHIP OF PROJECT DOCUMENTS

Upon completion or termination of this Agreement,

1. Drawings, specifications, designs, models, photographs, reports, surveys, calculations, and other data provided in connection with this Agreement are and shall remain the property of the County whether the project for which they are made is executed or not. Such finished or unfinished documents, data, calculations, studies, surveys, specifications, drawings, maps, models, photographs and reports prepared by the consultant shall be delivered by the consultant to the County at the conclusion of the project or the termination of the consultant's services.
2. The consultant at its own expense may retain copies for its files and internal use.

SECTION 14 - INSURANCE COVERAGE

The Consultant must maintain insurance in at least the amounts required in the Request for Proposal throughout the term of this contract. The Consultant must provide a Certificate of Insurance in accordance with Insurance Requirements of the Request for Proposal, evidencing such coverage prior to issuance of a purchase order or commencement of any work under this Contract. See Section C Insurance Requirements – Attached.

SECTION 15 - EQUAL EMPLOYMENT OPPORTUNITY CLAUSE FOR CONTRACTS NOT SUBJECT TO EXECUTIVE ORDER 11246

In carrying out the contract, the consultant shall not discriminate against employees or applicants for employment because of race, color, religion, sex or national origin.

SECTION 16 - INDEPENDENT CONTRACTOR STATUS AND COMPLIANCE WITH THE IMMIGRATION REFORM AND CONTROL ACT OF 1986

Consultant acknowledges that it is functioning as an independent Consultant in performing under the terms of this contract, and it is not acting as an employee of Pinellas County. The consultant acknowledges that it is responsible for complying with the provisions of the Immigration Reform and Control Act of 1986, located at 8 U.S.C. Section 1324, et seq., and regulations relating thereto. Failure to comply with the above provisions of the contract shall be considered a material breach and shall be grounds for immediate termination of the contract.

SECTION 17 - PROHIBITION AGAINST CONTINGENT FEE

The consultant warrants that he has not employed or retained any company or person, other than a bona fide employee working solely for the consultant to solicit or secure this contract and that he has not paid or agreed to pay any person, company, corporation, individual, or firm other than a bona fide employee working solely for the consultant, any fee, commission, percentage, gift or any other consideration, contingent upon or resulting from the award or making of this contract.

SECTION 18 - TRUTH IN NEGOTIATIONS

The consultant certifies to truth-in-negotiation and that wage rates and other factual unit costs supporting the compensation are accurate, complete and current at the time of contracting. Further, the original contract amount and any additions thereto shall be adjusted to exclude any significant sums where the County determines the contract price was increased due to inaccurate, incomplete or non-current wage rates and other factual unit costs. Such adjustments must be made within 1 year following the end of the contract.

SECTION 19 - SUCCESSORS AND ASSIGNS

The consultant shall not assign, sublet, or transfer his interest in this Agreement without the written consent of the County.

SECTION 20 - INDEMNIFICATION

If the consultant is an individual or entity licensed by the state of Florida who holds a current certificate of registration or is qualified under chapter 481, Florida statutes, to practice architecture or landscape architecture, under chapter 472, Florida statutes, to practice land surveying and mapping, or under chapter 471, Florida statutes, to practice engineering, and who enters into a written Agreement with the County relating to the planning, design, construction, administration, study, evaluation, consulting, or other professional and technical support services furnished in connection with any actual or proposed construction, improvement, alteration, repair, maintenance, operation, management, relocation, demolition, excavation, or other facility, land, air, water, or utility development or improvement, the consultant will indemnify and hold harmless the County, and its officers and employees, from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the consultant and other persons employed or utilized by the consultant in the performance of the Agreement.

SECTION 21 - INTEREST ON JUDGMENTS

In the event of any disputes between the parties to this Agreement, including without limitations thereto, their assignees and/or assigns, arising out of or relating in any way to this Agreement, which results in litigation and a subsequent judgment, award or decree against either party, it is agreed that any entitlement to post judgment interest, to either party and/or their attorneys, shall be fixed by the proper court at the rate of 5%, per annum, simple interest. Under no circumstances shall either party be entitled to pre-judgment interest. The parties expressly acknowledge and, to the extent allowed by law, hereby opt out of any provision of federal or state statute not in Agreement with this paragraph.

SECTION 22 - TERMINATION OF AGREEMENT

1. Pinellas County reserves the right to terminate this contract without cause by giving 30 days prior notice to the consultant in writing of the intention to terminate or with cause if at any time the consultant fails to fulfill or abide by any of the terms or conditions specified.
2. Failure of the consultant to comply with any of the provisions of this Agreement shall be considered a material breach of Agreement and shall be cause for immediate termination of the Agreement at the discretion of Pinellas County.
3. In the event sufficient budgeted funds are not available for a new fiscal period, the County shall notify the bidder of such occurrence and Agreement shall terminate on the last day of current fiscal period without penalty or expense to the County.
4. In addition to all other legal remedies available to Pinellas County, Pinellas County reserves the right to terminate and obtain from another source, any items which have not been delivered within the period of time stated in the proposal, or if no such time is stated, within a reasonable period of time from the date of order as determined by Pinellas County.

SECTION 23 - AGREEMENT TERM

1. This Agreement will become effective on the date of execution first written above and shall remain in effect for five (5) years, unless terminated at an earlier date under other provisions of this Agreement, or unless extended for a longer term by amendment. The negotiated rates shall remain fixed for the first five (5) year term however, the County reserves the right to re-negotiate rates based on current market conditions. The hourly rates provided are fully loaded and include all labor, overhead, expenses and profit of any nature including travel within the Tampa bay metropolitan statistical area. Travel outside of the Tampa bay metropolitan statistical area will be reimbursed in accordance with section 112.061 F.S. And/or the County travel policy, as approved by the County.
2. This Agreement may exercise a term extension subject to written notice of Agreement from the County administrator and consultant, for one (1) additional two (2) year term extension, beyond the primary Agreement period. This term extension shall be exercised only if all terms and conditions remain the same. Rates will be subject to negotiation based on current market conditions.

SECTION 24 - CONFLICT OF INTEREST

1. By accepting award of this contract, the consultant, which shall include its directors, officers, and employees, represents that it presently has no interest in and shall acquire no interest in any business or activity which would conflict in any manner with the performance of services required hereunder, including as described in the consultant's own professional ethical requirements. An interest in a business or activity which shall be deemed a conflict includes but is not limited to direct financial interest in any of the material and equipment manufacturers suppliers, distributors, or consultants who will be eligible to supply material and equipment for the project for which the consultant is furnishing its services required hereunder.
2. If, in the sole discretion of the County administrator or designee, a conflict of interest is deemed to exist or arise during the term of the contract, the County administrator or designee may cancel this contract, effective upon the date so stated in the written notice of cancellation, without penalty to the County.

SECTION 25 - EXTENT OF AGREEMENT

This Agreement represents, together with the RFP, addenda, the proposer's response, any exhibits, the entire written Agreement between the County and the consultant and may be amended only by written instrument signed by both the County and the consultant.

SECTION 26 - PUBLIC ENTITY CRIMES

Consultant is directed to the Florida Public Entity Crime act, Fla. Stat. 287.133, and Fla. Stat. 287.135 regarding scrutinized companies, and consultant agrees that its bid and, if awarded, its performance of the Agreement will comply with all applicable laws including those referenced herein. Consultant represents and certifies that consultant is and will at all times remain eligible to bid for and perform the services subject to the requirements of these, and other applicable, laws. Consultant agrees that any contract awarded to consultant will be subject to termination by the County if consultant fails to comply or to maintain such compliance.

The consultant is directed to the Florida Public Entity Crime Act, §287.133, Florida Statutes, and the County's requirement that the successful proposer comply with it in all respects prior to and during the term of this contract.

SECTION 27 - PUBLIC RECORDS

Consultant acknowledges that information and data it manages as part of the services may be public records in accordance with Chapter 119, Florida Statutes and Pinellas County public records policies. Consultant agrees that prior to providing services it will implement policies and procedures to maintain, produce, secure, and retain public records in accordance with applicable laws, regulations, and County policies, including but not limited to the Section 119.0701, Florida Statutes. Notwithstanding any other provision of this Agreement relating to compensation, the Consultant agrees to charge the County, and/or any third parties requesting public records only such fees allowed by Section 119.07, Florida Statutes, and County policy for locating and producing public records during the term of this Agreement.

CONTRACTOR'S DUTY

If the contractor has questions regarding the application of Chapter 119, Florida Statutes, to the contractor's duty to provide public records relating to this agreement, the contractor shall contact:

Pinellas County Board of County Commissioners

Purchasing and Risk Management Division

AGREEMENT

400 S. Ft. Harrison Ave, 6th Floor,

Clearwater, FL 33756

Public Records Liaison

Phone: 727-464-3237

Email: mcchartier@pinellas.gov

AGREEMENT

SECTION 28 - GOVERNING LAW AND AGREEMENT EXECUTION

This Agreement shall be governed by the laws of the State of Florida.

IN WITNESS WHEREOF, the parties herein have executed this Agreement as of the day and year first written above.

Firm Name **GPI Geospatial, Inc.**

By: Digitally signed by Michael J Zoltek Date: 2023.11.30 17:46:10 -05'00'

Print Name: Michael J. Zoltek

Title: Assistant Vice President

Date: 11/30/2023

PINELLAS COUNTY, by and through its Board of County Commissioners

By: Chairman

Date: January 16, 2024.

SEAL

ATTEST: Ken Burke, Clerk of the Circuit Court

By: Deputy Clerk

Date: January 16, 2024

APPROVED AS TO FORM

By: *Joseph Morrissey*
Office of the County Attorney

Photogrammetric and Digital Aerial Mapping Professional Service

Contract No. 23-0623-RFP-CCNA-CN

for Pinellas County, Florida

November 3, 2023

Submitted by:
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FAX: (727) 464-39
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Subject: Photogrammetric and Digital Aerial Mapping Professional Service

Contract No. 23-0623-RFP-CCNA-CN

GPI Geospatial, Inc. Proposal No. 2300349.00

GPI Geospatial, Inc., (GPI) greatly appreciates this opportunity to provide **Pinellas County**, hereafter referred to as the Client, with our proposed scope and rates to perform professional geospatial services as requested. The following rate proposal is based on our understanding of the scope of work.

PROJECT DESCRIPTION

The scope is to provide rates for survey ground control to support digital ortho photography, oblique photography, and software for hosting, as well as any other photogrammetric services that may be requested by the Client.

The project location is Pinellas County, Florida.

Scope items may include:

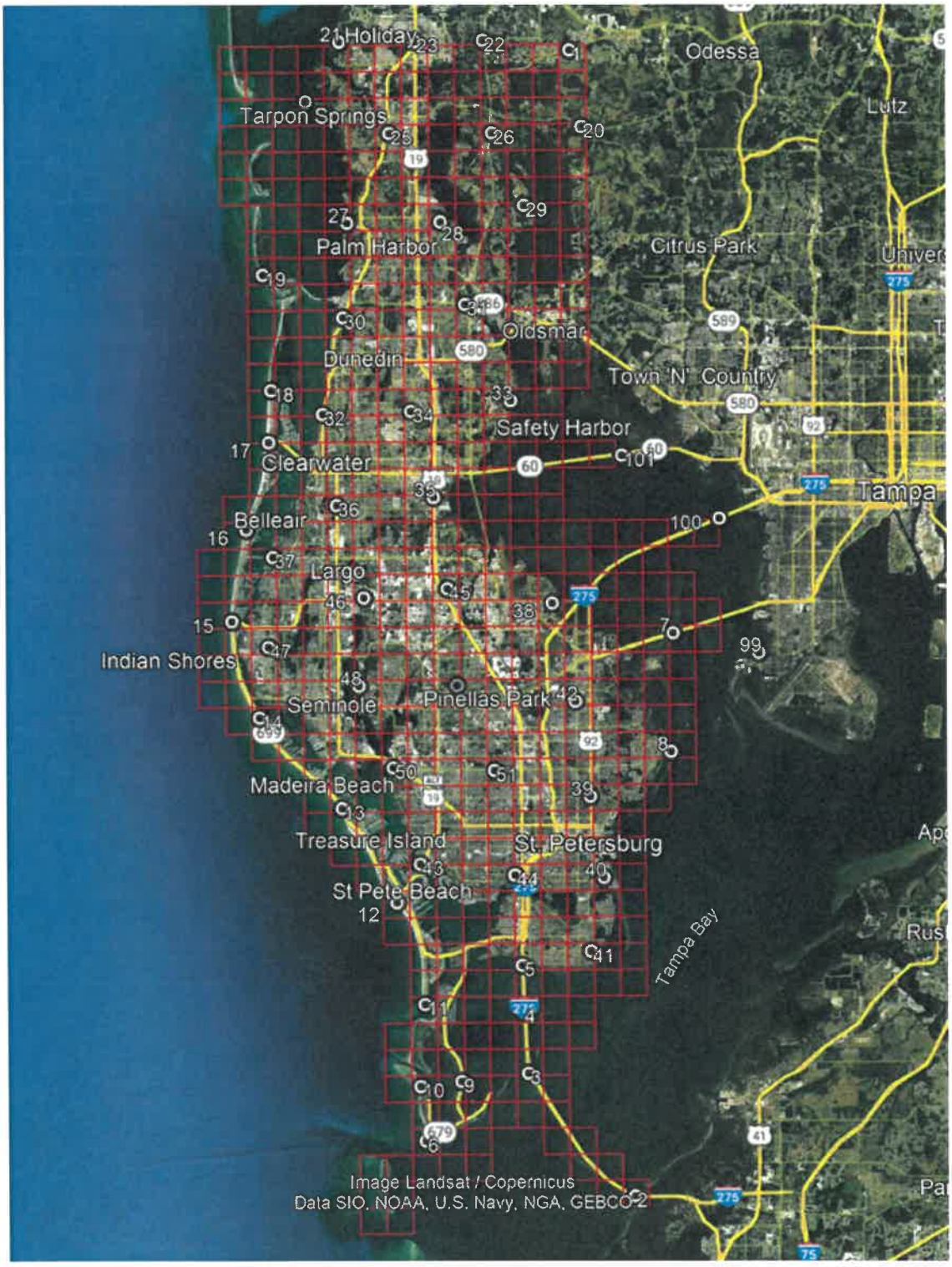
- Software Hosting
- Software License
- Oblique Photography
- Color Ortho Photography
- Color with IR Ortho Photography
- 3D Mesh Imagery

The provided data will be in accordance with FDOR standards (as applicable), and for the use of the County in the administration of their government duties.

All geospatial tasks will be performed in accordance with the current Standards of Practice for Surveying and Mapping in the State of Florida.

PROJECT LIMITS

The project limits are Pinellas County, Florida, and areas immediately adjacent, covering approximately 280 square miles. The client-provided Pinellas County FDOR tile layout for this orthophotography project, including 7 adjacent tiles in Hillsborough County, is shown below:



GPI GEOSPATIAL - APPROACH FOR THIS PROJECT

GPI Geospatial Team

GPI Geospatial will be acquiring aerial imagery to support the digital ortho photography products requested for this project. We have teamed with EagleView™ to assist with providing software hosting, software licensing, oblique photography, and 3D mesh imagery, and Hyatt Survey for survey ground support.

Oblique Photography

EagleView™ will utilize their custom camera system mounted on a manned aircraft to collect and produce oblique imagery products that meet the requirements of Pinellas County, seen below. Please see **Exhibit A** for a breakdown of services and fee.

- Software Hosting
- Software License
- Oblique Photography, including JPEG format

Ortho Photography

GPI Geospatial is proposing to collect the aerial digital imagery for this project utilizing our Vexcel UltraCam Eagle Mark 3 large format metric camera mounted in a fixed-wing manned aircraft. This imaging system is mounted in a gyro-stabilized mount and can capture four-band (RGB and NIR) imagery to support photogrammetric mapping and orthophotography production.

Image quality and capture will be critical indicators of the project's success. All flight plans shall be designed and approved by a Certified Photogrammetrist prior to acquisition.

Countywide ortho photography, in accordance with FDOR standards, will be provided in either 3" or 6" pixel resolution, as requested by the County. The cost for GPI Geospatial to produce 3Band RGB imagery is the same as our cost for 4Band RGBNIR imagery. The project approach is based upon providing Photogrammetric Services as follows:

1. Use County-provided existing Aerial Control points / Photo ID points, and set additional points:
   a) Aerial Control points / Photo ID points, as provided by County for prior Ortho projects will be field checked, and additional Photo ID points surveyed, as needed by Hyatt Survey.
   b) Any new points will be supported by a Survey and Map Report, provided by Hyatt Survey. Please see **Exhibit B** for price proposal.
2. Acquire new 4Band digital aerial photography
3. Use a publicly available USGS LiDAR derived Digital Elevation Model (DEM) for ortho rectification of imagery

Aerial Imagery Requirements:

1. The imagery must follow the most current Florida Department of Revenue (FDOR) Orthophoto Specifications.
2. The imagery will follow the FDOR tile index.
3. The flight window shall be coordinated with the County, prior to task authorization.
4. Imagery collected outside of this flight season will require written approval from contracting agency.
5. The AOI covers the land of Pinellas County with 280 square miles of the selected pixel resolution in both the urban and the rural areas.
6. The deliverables must follow the Florida Department of Revenue Orthophoto Specifications at a minimum.

Accuracy Standards

Consultant will use the American Society of Photogrammetry and Remote Sensing (ASPRS) Standards for Digital Geospatial Data (edition 1, version 1.0-November 2014) guidelines. The 15cm (6-inch) orthoimagery will meet the ASPRS 30cm Horizontal Accuracy Class of 1.414 feet @ 95% confidence level. The 7.5cm (3-inch) orthoimagery will meet the ASPRS 15cm Horizontal Accuracy Class of 1.2-feet @ 95% confidence level.

The imagery products delivered will be owned by the County to use and distribute as needed.

Deliverables:

1. Natural color and color infrared imagery at the selected pixel resolution in TIFF and MrSID format with associated world files.
2. Delivery of final data 90 days after imagery capture.
3. Cut-lines polygon shape file that indicates the date when an area of imagery was acquired.
4. Initial delivery of imagery will be made via a consultant web portal (if requested) to allow the County to have multiple team members perform the initial and final imagery QA/QC tasks. Separate logins will be provided upon request.
5. Metadata.
6. Signed & sealed surveyor report.
7. All final digital files will be delivered on an external hard drive.

Combined Oblique & Ortho Photography, and Damage Response Program Provided by EagleView

Oblique Photography (RGB only)

EagleView™ will utilize their custom camera system mounted on a manned aircraft to collect and produce oblique imagery products that meet the requirements of Pinellas County, seen below. Please see **Exhibit A** for a breakdown of services and fee.

- Software Hosting
- Software License
- Ortho Photography
- Oblique Photography

Ortho Photography (4-band)

EagleView™ will utilize their custom camera system mounted on a manned aircraft to collect and produce Ortho imagery products that meet the requirements of Pinellas County, seen below. Please see **Exhibit A** for a breakdown of services and fee.

Image quality and capture will be critical indicators of the project's success. All flight plans shall be designed and approved by a Certified Photogrammetrist prior to acquisition.

Countywide ortho photography, in accordance with FDOR standards, will be provided in 3" pixel resolution, as requested by the County. The project approach is based upon providing Photogrammetric Services as follows:

1. Use County-provided existing Aerial Control points / Photo ID points, and set additional points:
   a) Aerial Control points / Photo ID points, as provided by County for prior Ortho projects will be field checked, and additional Photo ID points surveyed, as needed by Hyatt Survey.
   b) Any new points will be supported by a Survey and Map Report, provided by EagleView™. NOTE: Control price is "all inclusive, and not a variable cost every year.
2. Acquire new 4Band digital aerial photography
3. Use a publicly available USGS LiDAR derived Digital Elevation Model (DEM) for ortho rectification of imagery

Aerial Imagery Requirements:

1. The imagery must follow the most current Florida Department of Revenue (FDOR) Orthophoto Specifications.
2. The imagery will follow the FDOR tile index.
3. The flight window shall be coordinated with the County, prior to task authorization.
4. Imagery collected outside of this flight season will require written approval from contracting agency.

5. The AOI covers the land of Pinellas County with 280 square miles of the selected pixel resolution in both the urban and the rural areas.
6. The deliverables must follow the Florida Department of Revenue Orthophoto Specifications at a minimum.

Accuracy Standards

Consultant will use the American Society of Photogrammetry and Remote Sensing (ASPRS) Standards for Digital Geospatial Data (edition 1, version 1.0-November 2014) guidelines. The 7.5cm (3-inch) orthoimagery will meet the ASPRS 15cm Horizontal Accuracy Class of 1.2- feet @ 95% confidence level. The entire product will be owned by the County to use and distribute as needed.

Deliverables:

1. Natural color and color infrared imagery at the selected pixel resolution in TIFF and MrSID format with associated world files.
2. Delivery of final data 90 days after imagery capture.
3. Cut-lines polygon shape file that indicates the date when an area of imagery was acquired.
4. Initial delivery of imagery will be made via a consultant web portal (if requested) to allow the County to have multiple team members perform the initial and final imagery QA/QC tasks. Separate logins will be provided upon request.
5. Metadata.
6. Signed & sealed surveyor report.
7. All final digital files will be delivered on an external hard drive.

Damage Response Program

EagleView™ will provide updated imagery following a disaster in Pinellas County.

Disaster Coverage Imagery Shall Be Provided at No Additional Charge – The Consultant will, upon request of the County and at no additional charge, provide updated imagery of up to 200 square miles of affected areas (as determined by the County) upon the occurrence of any of the following events during any period the Customer is under contract:

1. Hurricane Winds: All Pinellas County areas that were affected by a hurricane of Category 1 or higher. Area to be determined by the County.
2. Hurricane Storm Surge: All Pinellas County areas that were affected by hurricane storm surge when the forecasted storm surge is 6 feet or higher. Area to be determined by the County.
3. Tornado: Areas affected by a tornado rated EF2 and higher or travel for over 25 miles on the ground in Pinellas. Area to be determined by the County.
4. Terrorist\Man-Made Disaster: Areas affected by damage from terrorist\man-made disaster attack. Area to be determined by the County.
5. Earthquake: Areas affected by damage resulting from an earthquake measured at 6.0 or higher on the Richter scale. Area to be determined by the County.
6. Tsunami: Areas affected by damage from a tsunami. Area to be determined by the County

3D Mesh Imagery Provided by EagleView

EagleView™ will provide 3D Mesh products based on their oblique imagery. The cost is the same for producing a 3D Mesh from newly collected oblique imagery, or oblique imagery from previous years' projects. The cost of a 3D mesh model is $250 per square mile, with a minimum threshold of 6 square miles per contiguous area. Please see **Exhibit C** for a breakdown of services and fees for county wide 3D Mesh.

PROPOSED FEES

Based upon the above services, our fee for these Services shall be as follows:

Task Item – EagleView - Combined 6-inch RGB Oblique and 3-inch 4-band Ortho Photography (Software Hosting, Software License, Ortho and Oblique Photography) – Per Year	Subtotal
EagleView™ Proposal: - **Exhibit A**	
Pictometry Connect - CA – 100	
Media Drive Capacity 931G – Drive Model 1T – EXTPOWER	
RapidAccess - Disaster Response Program	
AccuPlus Imagery Bundle w/One(1) Year of EFS Maint & Support	
Pictometry Connect – EarlyAccess	
State License Fee	$249,000.00
Survey Report - AccuPlus Imagery Project - Compiled To Accuracy Statement	
Reveal Advanced Property	
Survey-Aerial Imaging Project NSSDA Compliant Independent Ground Control Survey	
Pictometry Connect View – CA	
CONNECT ImageService CA	
Ground control as per prior years	
Lump Sum (Total Fee)	*$249,000.00*

Task Item – GPI Geospatial - 3" 4-Band Ortho Photography, imagery	Subtotal
Ground Control – Hyatt Survey – **Exhibit B**	$ 11,030.00
3" Ortho Imagery – FDOR standard delivery	$125,000.00
Lump Sum (Total Fee)	*$136,030.00*

Task Item – GPI Geospatial - 6" 4-band Ortho Photography, with or without infrared imagery	Subtotal
Ground Control – Hyatt Survey – **Exhibit B**	$ 8,565.00
6" Ortho Imagery – FDOR standard delivery	$105,000.00
Lump Sum (Total Fee)	*$113,565.00*

Task Item – EagleView - 3D Mesh	Subtotal
EagleView™ Proposal – **Exhibit C**	
TerraExplorer Plus 3D Software – See Exhibit C for software details	$ 600.00
Reveal 3D Textured Mesh – See Exhibit C for software details	$ 70,000.00
Lump Sum (Total Fee)	*$ 70,600.00*

Any Photogrammetric service, or survey service to support Photogrammetry services can be provided on a task basis, with a scope and fee based on the attached proposed rate schedules:

GPI Geospatial Rates – Please see **Exhibit D**

Hyatt Survey Rates – Please see **Exhibit E**

NOTE: The proposed rates and fees for GPI Geospatial and the subconsultant(s) listed herein are "fully loaded" (burdened). Each hourly rate includes all labor, direct/indirect overhead, margins/profit, customary expenses such as copies, postage, etc., and travel within the Tampa Bay Metropolitan Statistical Area, and shall be held firm for the initial contract term. No rate increases shall be granted during this time.

GPI Geospatial will not receive overhead and operating margin for sub-consultant services.

This proposal can be individually modified to meet your requirements, upon request.

We trust this rate proposal meets with your approval. If you have any questions, or need additional information, please let us know.

We are excited to be working with Pinellas County to provide Photogrammetric and Digital Aerial Mapping Professional Services.

Very truly yours,
GPI Geospatial, Inc.

Harold B. Peters, PSM
Assistant Vice President / Survey Manager
November 3, 2023

GPI Geospatial, Inc. Schedule of Fees for Surveying Services

Position Description	5 Year Rates	Hourly or Unit
Admin/Clerical	$158.20	Hourly
Contract Management Tasks		
Principal	$348.04	Hourly
Project Director	$288.72	Hourly
Surveyor/Project Manager 1	$177.98	Hourly
Surveyor/Project Manager 2	$209.62	Hourly
Surveyor/Project Manager 3	$249.17	Hourly
Aerial Acquisition for Imagery and LiDAR		
Single Engine Pilot	$118.65	Hourly
Dual Engine Pilot	$193.80	Hourly
Aerial Sensor Operator	$90.97	Hourly
Mobile Sensor Operator	$119.64	Hourly
Single Engine Aircraft	$750.00	Hourly
Dual Engine Aircraft	$1,300.00	Hourly
Surveying and Mapping Office Production Tasks		
Survey Office Technician 1	$79.10	Hourly
Survey Office Technician 2	$110.74	Hourly
Survey Office Technician 3	$138.43	Hourly
Photogrammetric/Lidar/GIS Office Technician 1	$110.74	Hourly
Photogrammetric/Lidar/GIS Office Technician 2	$156.74	Hourly
Photogrammetric/Lidar/GIS Office Technician 3	$199.69	Hourly
Surveying and Mapping Field Tasks		
Rod Person	$75.15	Hourly
Instrument Person	$94.92	Hourly
Party Chief	$130.52	Hourly
Two Person Survey Crew	$225.44	Hourly
Three Person Crew	$300.58	Hourly
Four Person Crew	$375.73	Hourly
SUE Designation Crew	$225.44	Hourly
Test Hole Excavation Crew	$225.44	Hourly
Direct Costs for Specialized Equipment		
UAS System with Camera	$250.00	Hourly
Utility Test Hole Vacuum Excavation System	$250.00	Hourly
Mobile Mapping System - Riegl VMX-450	$500.00	Hourly
Ultra-Cam Eagle MKIII Digital Camera	$750.00	Hourly
Riegl VQ1560ii Airborne LiDAR Scanning and Imagery System	$2,000.00	Hourly
Riegl VZ 400i Terrestrial Laser Scanning and Imagery System	$150.00	Hourly
NavVis Mobile Mapping SLAM System	$150.00	Hourly

Budget Proposal

eagleview™

Proposal for: Pinellas County, FL
Project Name: FLPINE - 2016 Flight 8 - TT C
Quote Number: Q-32867
Contract Term: 1 Year(s)
Number of Projects: 1

EagleView Rep: Carl Decator
Phone Number:
Email: carl.decator@eagleview.com
Expiration Date: 3/31/2023

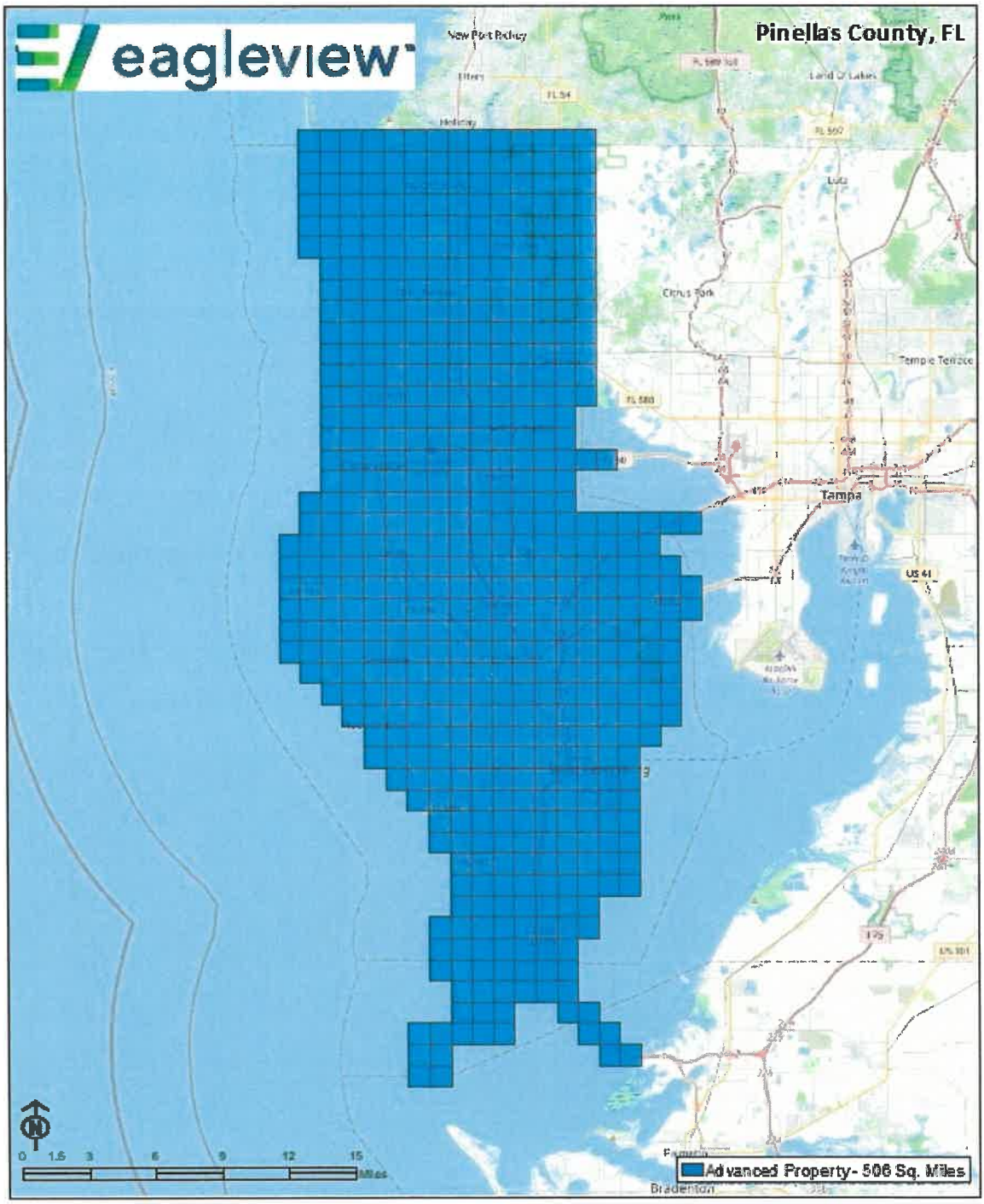
Multi-Project Summary
Project 8 Total: USD 249000.00
Annual Payments : USD 249000.00

Project 8

QTY	Product Name	List Price	Disc (%)	Subtotal
1.00	Pictometry Connect - CA - 100	USD 3,300.0000	100.00	USD 0.00
1.00	Media Drive Capacity 931G - Drive Model 1T - EXTPOWER	USD 199.0000	100.00	USD 0.00
1.00	RapidAccess - Disaster Response Program	USD 0.0000		USD 0.00
1.00	AccuPlus Imagery Bundle w/One(1) Year of EFS Maint & Support	USD 0.0000		USD 0.00
1.00	Pictometry Connect - EarlyAccess	USD 10,000.0000	100.00	USD 0.00
1.00	State License Fee	USD 0.0000		USD 0.00
1.00	Survey Report - AccuPlus Imagery Project - Compiled To Accuracy Statement	USD 2,500.0000	100.00	USD 0.00
506.00	Reveal Advanced Property	USD 500.0000	2.77	USD 246,000.00
1.00	Survey-Aerial Imaging Project NSSDA Compliant Independent Ground Control Survey	USD 3,000.0000	0.00	USD 3,000.00
1.00	Pictometry Connect View - CA	USD 750.0000	100.00	USD 0.00
1.00	CONNECT ImageService CA	USD 2,000.0000	100.00	USD 0.00
		Project 8 TOTAL:		USD 249,000.00

TOTAL: USD 249,000.00

This quote is non-binding, creates no legal rights, duties or obligations, expressed or implied, on either party, and shall become binding only in the event that Pictometry and Customer enter into a definitive agreement incorporating it. The pricing quoted above does not reflect applicable taxes, which will be reflected in any resulting definitive agreement with Customer. This quote is valid until the date shown above, after which it expires. All Discounts are approximate.



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EagleView Reveal

Advanced Property deliverables

Product	Advanced Property
Product Description	Provides measurable high resolution ortho and oblique imagery at the Property level as well as Reveal Four Band Color Infrared, Reveal Certified Ortho and Reveal TrueTouch add-on features. Color balanced orthomosaic imagery is generated by a fully automated photogrammetric process and delivered digitally in various formats with the associated metadata.
Ortho frame imagery	• Nominal 2in GSD ortho imagery, Imagery as good as 1.2in and no worse than 3in
Orthomosaic Specifications	Reveal Property Orthomosaic enhanced with the following Reveal add-ons: • Certified Ortho • TrueTouch • Four Band Color Infrared
Oblique Imagery	Nominal 2.6in GSD oblique imagery ranging from 1.7in to 3.5in GSD: • Where available fully automated photogrammetric mosaiced imagery. Imagery may contain seamlines
Metadata and Reporting	Metadata and reporting: • Certified Ortho metadata and reporting • Shapefile(s) with discrete deliverable boundaries and directional metadata
Orthomosaic Deliverable Format (Online) - RGB Only	Resolution: • Nominal 2in GSD, no worse than 3in (Best Available Provided) Access Methods: • Available via web-based viewer (Connect) - Contracted separately • Also available via WMS/WMTS (Image Service) - Contracted separately
Orthomosaic Deliverable Format (Physical)	Resolution: • Nominal 2in GSD, no worse than 3in (Best Available Provided) Projection/Coordinate System: • Customer Selectable Datum: • Customer Selectable File Format: • Mosaic Tiles o Available as JPEG, GeoTIFF, JPEG2000, PNG, ECW, MrSID (All versions) with world file o Includes separate Pictometry Map Image (PMI) trailer file • Project-Wide Mosaic o Available in ECW, MrSID (All versions) format
Oblique Imagery & Frame Imagery Deliverable Format	Access methods: • Available via web-based viewer (Connect) - Contracted separately
Delivery Timeline	• Best efforts to make frame imagery available online within 20 days of capture complete • Best efforts to make oblique imagery available online and/or ready for physical delivery within 30 days of capture completion • Best efforts to make ortho imagery available online and/or ready for physical delivery within 200 days of final data collection.

Essentials Add-on - Certified Ortho

Products Related to	Essentials Essentials+ Advanced
Product Description	*Certified Ortho* upgrades an Essentials orthomosaic to an authoritative orthomosaic produced in accordance with state and local requirements
Product Eligibility	• Reveal Certified Ortho can only be purchased in conjunction with a related product type • Reveal Certified Ortho is only applicable to Reveal orthomosaic imagery
Orthomosaic Accuracy	Absolute Horizontal Accuracy: • Produced to meet ASPRS Horizontal Accuracy Standards of ≤3 px RMSEx,y • Optional 2 px RMSEx,y (where available)
ASPRS Accuracy Standards	https://www.asprs.org/a/society/committees/standards/Positional_Accuracy_Standards.pdf
Metadata and Reporting	Reporting • FGDC Compliant metadata • Project report in accordance with state and local requirements
Optional Reporting*	• Signed & Sealed Produced to Accuracy Statement • Signed & Sealed Tested to Accuracy Statement o Requires Independent Accuracy Assessment to ASPRS Standards Product

* Available upon request. May require purchase of additional products

Essentials Add-on - TrueTouch

Products Related to	Essentials Essentials+ Advanced
Product Description	TrueTouch is the application of visual improvements to customers' orthomosaic imagery
Product Eligibility	Can only be purchased with appropriate Reveal product TrueTouch is only applicable to customer RGB and CIR orthomosaic imagery

Content Specifications	Seam Artifacts
	• There will be no obvious seam edges between two adjacent orthophotos
	• Orthomosaic will have edits to eliminate feature misalignment caused by seamlines which pass through features above the elevation surface including roads. Feature alignment across seamlines will be 3px or better.
	  o Exceptions may include residential buildings and industrial complexes
	
	Building and Bridge Lean
	• Correction of bridges
	• Correction of major buildings obstructing roadways
	  o Exceptions may include residential buildings and industrial complexes

Essentials Add-on – Four Band Color Infrared

Products Related to	Essentials Essentials+ Advanced
Product Name	Reveal Four Band Color Infrared
Product Description	*Four Band Color Infrared* provides an automatically generated 3-Band color infrared orthomosaic with respective tiles. Imagery may contain seamlines.
Product Eligibility	• Reveal Four Band Color Infrared can only be purchased in conjunction with a related product type • Reveal Four Band Color Infrared is only applicable to Reveal orthomosaic imagery
Content Specifications	Mosaics: • 3-Band false color infrared orthomosaic • 4-Band orthomosaic (Available upon request) Mosaic Tiles: • 4-Band orthomosaic tiles • 3-Band false color infrared orthomosaic tiles (Available upon request)
Orthomosaic Deliverable Format (Online)	Currently Unavailable

EagleView Product Names & Descriptions

PRODUCT NAME	PRODUCT DESCRIPTION
Reveal Advanced Imagery	The capture of imagery per specifications provided; 4 Band orthos to meet then current FL DOR standards
Physical Delivery	Provides a digital copy of the orthomosaic tiles and mosaics at the GSD specified in industry standard formats to include TIFF and MrSID; delivery may include ECW at customer requrest
Connect CA 100	Access to Eagleview software and analytics
Connect View	Access to Eagleview software designed for use by general public
Image Service	Provides customer with ability to consume imagery as a service
Authorized subdivisions	Extends the ability for the customer the ability6 to authorize access to Connect to any political unit or subdivision located totally or substnatially within the county boundary
Early Access	Allows users to use new imagery within Connect immeidately following its preliminary processing and quality control checks and prior to its final processing
Disaster Response	Includes Disaster Response Program as detailed in Pinellas County RFP
Image Library within Connect	Includes access to all historical orhto and oblique frame imagery from the Eagleview archies

EagleView Cloud Product Specifications

Imagery - 3in Certified

Product Description	Provides entitlement to the EagleView Platform, a secure hosted infrastructure and access to EagleView enabled workflow, analytics, and high-resolution imagery to dramatically improve efficiency for government agencies. Includes regular refreshes of ortho and oblique imagery at the GSD and frequency specified. Target capture season subject to weather and airspace permissions. Services term commences on date of activation.
Image Frame(s)	Oblique and orthogonal image frames collected at 3in GSD or better.
Orthomosaic(s)	Includes the delivery of two orthomosaics, a preliminary RGB orthomosaic and a final orthomosaic inclusive of workflows to achieve the final image accuracy and image quality specifications. Preliminary Orthomosaic: • Orthomosaic GSD: 3in • Color-Balancing: Includes project-wide color and contrast balancing. • The preliminary orthomosaic will utilize a fully automated photogrammetric process where visible seamlines may be present. Final Orthomosaic: • Orthomosaic GSD: 3in • Color-Balancing: Includes project-wide color and contrast balancing. • Produced in accordance with state and local requirements and is produced to meet ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014) for a 6in RMSEx / RMSEy Horizontal Accuracy Class. • Includes corrections to address visible seamline edges between two (or more) adjacent orthophotos, misalignment of features on the ground (such as roads and buildings) > 12in, removal of image warping or smearing, and the reduction of building lean so that tall buildings do not obstruct transit features.
Metadata and Reporting	Reporting: • FGDC Compliant metadata • Project report in accordance with state and local requirements • Shapefile(s) with discrete deliverable boundaries and directional metadata Optional*: • Signed & Sealed Produced to Accuracy Statement • Signed & Sealed Tested to Accuracy Statement ○ Requires Independent Accuracy Assessment (Check Points)
Delivery and File Formats	Online Delivery: • Access provided via EagleView Cloud platform. • Integrations available between the EagleView Cloud platform and 3rd party customer environments (including compatible CAMA providers, 911/PSAP, Cityworks, and ESRI/GIS). Offline Image Frame Delivery*: • Delivery of ortho and oblique image frames suitable for local access and backup purposes Offline Orthomosaic Delivery*: • Offline delivery available in one file format, projection, and coordinate system selected by the customer from those which are supported by EagleView. • Additional deliveries (in alternate file formats, projections, coordinate systems, etc) available upon request. Delivery extent based on an EagleView approved delivery grid shapefile.

*Available upon request. May require purchase of additional products.

Budget Proposal

eagleview™

Proposal for: Pinellas County, FL
Project Name: FLPINE - 2024 3D Mesh
Quote Number: Q-44007
Contract Term: 1 Year(s)
Number of Projects: 1

EagleView Rep: Carl Decator
Phone Number:
Email: carl.decator@eagleview.com
Expiration Date: 12/31/2023

Multi-Project Summary
Project 1 Total: USD 70600.00
Annual Payments : USD 70600.00

Project 1

QTY	Product Name	List Price	Disc (%)	Subtotal
1.00	TerraExplorer Plus 3D Software	USD 600.0000		USD 600.00
280.00	Reveal 3D Textured Mesh	USD 250.0000		USD 70,000.00
			Project 1 TOTAL:	USD 70,600.00

TOTAL: USD 70,600.00

This quote is non-binding, creates no legal rights, duties or obligations, expressed or implied, on either party, and shall become binding only in the event that Pictometry and Customer enter into a definitive agreement incorporating it. The pricing quoted above does not reflect applicable taxes, which will be reflected in any resulting definitive agreement with Customer. This quote is valid until the date shown above, after which it expires. All Discounts are approximate.

April 18, 2023

Mr. Hal Peters, P.S.M.
GPI Geospatial, Inc.
3051 E Livingston St Ste 300
Orlando, FL 32803

Re: Proposal for Professional Surveying & Mapping Services
Pinellas County Aerial Imagery: Horizontal / Vertical Control Survey
Pinellas County, FL

Dear Mr. Peters:

Pursuant to the information you provided, Hyatt Survey Services, Inc. is pleased to submit this proposal for the following professional surveying services required on the above-referenced project:

SCOPE OF SERVICES

A. Horizontal / Vertical Control Survey:

1. Hyatt Survey will perform a Horizontal / Vertical Control Survey to provide ground control for geo-referencing aerial imagery in support of the annual aerial imagery data collection efforts performed by the client for Pinellas County, Florida.

2. Hyatt Survey will recover and/or reestablish aerial photo identifiable control / check points throughout Pinellas County as directed by the client.

3. Horizontal control data will be referenced to the Florida State Plane Coordinate System, West Zone and the North American Datum of 1983, Adjustment of 2011 (NAD 83/2011).

4. Vertical Control data will be referenced to the North American Vertical Datum of 1988 (NAVD88).

5. All survey data will be collecting utilizing redundant RTK GPS observations referenced to the FDOT Permanent Reference Network (FPRN).

6. The positional accuracies of this survey will meet or exceed:
   Horizontal ± 0.13 ft; Vertical ± 0.25 ft

7. **DELIVERABLES**
   a. Hyatt Survey will provide an "Aerial Photo Control Survey Report" as well as the following digital media:
      1. **Coordinates**: a digital spreadsheet containing all coordinates, descriptions, and RMS values for each control point (.xlsx).
      2. **Geofile**: surveyed locations (.kml)
      3. **Photos**: A minimum of two photos per each control point; corresponding point ID clearly labeled in the image and in the image file name (.jpg)
      4. **Raw Data**: All GNSS data observed and produced during the survey (.txt)

EXHIBIT "A":

HYATT SURVEY SERVICES, INC.
Pinellas Co.: Professional Surveying and Mapping Services – Annual Aerial Imagery Collection
Contract No. 23-0623-CN

SCHEDULE OF RATE VALUES
8-17-23

Classification	Daily Rate
Daily Rate(S): Field Surveying	(8 hr. Day)
One (1) Person Survey Team Includes: survey equipment/instruments (GPS, Total Stations, Levels) vehicles, personnel and all supplies/fuel	$ 1,120.00
Two (2) Person Survey Team Includes: survey equipment/instruments, (GPS, Total Stations, Levels) vehicles, personnel and all supplies/fuel	$ 1,503.00
Three (3) Person Survey Team Includes: survey equipment/instruments, vehicles (GPS, Total Stations, Levels,) personnel and all supplies/fuel	$ 2,016.00
Four (4) Person Survey Team includes: survey equipment/instruments, vehicles, (GPS, Total Stations, Levels,) personnel and all supplies/fuel	$ 2,493.00
Hydrographic Survey Team Includes, vehicles, personnel, all supplies, and fuel (Hydrographic sensors and vessel priced separately)	$ 1,400.00
Hourly Rate(S): Office Function/Management/Supervision	**Hourly Rate**
Senior Professional Surveyor and Mapper or Project Manager	$ 260.00
Professional Surveyor and Mapper	$ 205.00
Senior CADD Technician	$ 155.00
CADD Technician	$ 140.00

Other Categories (can be expanded to be specific to your equipment)	Rate
Hydrographic Vessels (boats under 20')	$ 65.00
Hydrographic Vessels (boats 20' & over)	$ 120.00
Hydrographic Sensors (Single Beam)	$ 80.00
Hydrographic Sensors (Multi Beam)	$ 120.00
Marsh Master (w/o Operator)	$ 95.00
Airboat (w/o Operator)	$ 90.00
4WD ATV	$ 40.00

2012 Lena Road, Bradenton, Florida 34211 Phone: 941-748-4693 Fax: 941-744-1643

Florida County Digital Orthoimagery Program Standards

Contact Information

Charles Russell
Property Tax Oversight
Florida Department of Revenue
Room 2-3200
2450 Shumard Oak Blvd.
Tallahassee, Florida 32399-0126
Tele: (850) 617-8867
russellc@dor.state.fl.us

Brett C. Wood, PSM
State Surveyor
Florida Department of Transportation
605 Suwannee Street, MS 5-L
Tallahassee, FL 32399-0450
Phone (850) 414-4431
brett.wood@dot.state.fl.us

OCTOBER 1, 2021

1. CONTENTS

1. ABBREVIATIONS AND DEFINITIONS

- **AT** - Aerotriangulation
- **ASPRS** – American Society for Photogrammetry & Remote Sensing
- **CADD** – Computer Aided Design & Drafting
- **CSDGM** – Content Standard for Digital Geospatial Metadata
- **DEM** – Digital Elevation Model
- **ESRI** – Environmental Systems Research Institute
- **F.A.C.** – Florida Administrative Code
- **FGDC** – Federal Geographic Data Committee
- **FIPS** – Federal Information Processing Standards
- **FCDOP** – Florida County Digital Orthoimagery Program
- **FDOT** – Florida Department of Transportation
- **FPRN** – Florida Permanent Reference Network (established and maintained by FDOT)
- **F.S.** – Florida Statutes
- **GeoTIFF** – Raster image file. GeoTIFF fully complies with the TIFF 6.0 specifications, and its extensions do not in any way go against the TIFF recommendations, nor do they limit the scope of raster data supported by TIFF. GeoTIFF uses a small set of reserved TIFF tags to store a broad range of georeferencing information, catering to geographic as well as projected coordinate system needs.
- **GNSS** – Global Navigation Satellite System (includes GPS)
- **GSD** – Ground Sample Distance
- **IMU** – Inertial Measurement Unit
- **INS** – Inertial Navigation System
- **Lidar** – Light Detection and Ranging
- **LAS** – A binary file standard supported by ASPRS for storing point location and attribute information primarily used for Lidar data.
- **NAD83 (2011)** - North American Datum of 1983, NGS 2011 realization
- **NAVD88** – North American Vertical Datum of 1988
- **NGS** - National Geodetic Survey
- **NSRS** – National Spatial Reference System
- **NSSDA** – National Standard for Spatial Data Accuracy
- **Orthoimagery (Digital)** – Digital orthoimages are georeferenced images of the earth's surface that have been collected by a sensor and then, by correcting for sensor distortions and orientation as well as terrain relief, have had image object displacement removed. They encode the optical intensity of sensed radiation in one or more bands of the electromagnetic spectrum as discrete values in an array of georeferenced pixels that model the scene observed. ***Federal Geographic Data Committee FGDC-STD-014.2-2015 Geographic Information Framework Data Content*** **Standard Part 2: Digital Orthoimagery**

- **Orthorectification –** A special case of image resampling whereby the effects of image perspective and relief displacement are removed so that the resulting orthoimage has uniformly scaled pixels, resembling a planimetric map. (Source: American Society for Photogrammetry and Remote Sensing *Manual of Photogrammetry Fifth Edition*, 2004, page 963)
- **Photogrammetry** – The art, science and technology of obtaining reliable information about physical objects and the environment through processes of recording measuring and interpreting photographic images and patterns of electromagnetic radiant energy and other phenomena. (Source: American Society for Photogrammetry and Remote Sensing *Manual of Photogrammetry Fifth Edition*, 20, page 2)
- **PSM** – Professional Surveyor and Mapper
- **RMSE** – Root Mean Square Error
- **RTK** – Real Time Kinematic
- **RTN** – Real Time Network
- **USft** – United States Survey Feet
- **USGS** – United States Geological Survey
- **XML** – Extensible Markup Language

2. INTRODUCTION

Since 1972, Florida Statutes have stipulated cooperation between USGS, FDOT, and the State Water Management Districts to facilitate statewide topographic mapping efforts. Currently, the horizontal component of the statewide topographic map is being accomplished through the Florida County Digital Orthoimagery Program (FCDOP). The FCDOP is supported by partnerships and agreements between several state and county agencies. The current FCDOP mapping efforts consist of statewide orthoimagery coverage of Florida on a three-year cycle, with a maximum GSD resolution of 0.5 feet.

3. PURPOSE

This document defines the minimum standards for providing Florida county digital orthoimagery products for inclusion into the FCDOP.
Any exceptions to these standards may be requested in writing from FDOR before commencement of work.
All final data will be considered public record as defined by applicable Florida Statutes.
Any products created from oblique aerial imagery acquired during the orthoimagery project collection are beyond the scope of this document.
All work performed must be in accordance with the ***Standards of Practice*** as set forth in ***Rule Chapter* 5J-17, *F.A.C.***, pursuant to ***Chapter 472, F.S.***

4. ORTHOIMAGERY SPECIFICATIONS

4.1. DIGITAL CAMERA

All imagery shall be collected using a digital aerial camera capable of collecting multispectral imagery in natural color (RGB) bands and near infrared band (N). The sensor must also have a documented bore-sight calibration performed within six months of image acquisition.

4.2. IMAGE SPATIAL RESOLUTION

The consultant shall deliver images that have been resampled to the desired resolution of 0.5 feet. The original imagery must have native sensor resolution finer than or equal to the desired final resolution of the orthoimagery. Images of higher resolution can be used to create orthoimages of lower resolution but the reverse is not acceptable. The allowable RMSEx and RMSEy shall be less than or equal to 1.0 feet (2 pixels)

FGDC-STD-014.2-2015 2.8.2 Resolution

4.3. HORIZONTAL AND VERTICAL DATUM

Orthoimagery and other topographic products shall be referenced to the most current national datum, which presently is the NAD83 (2011). The map projection referenced shall be the appropriate Florida State Plane Coordinate System in units of USft. Orthoimagery and other topographic products shall be referenced to the NAVD88 in units of USft.

Unless otherwise stated, the horizontal and vertical accuracy of orthoimagery products shall be meet the requirements of the ***ASPRS Positional Accuracy Standards for Digital Geospatial Data***[1].

[1] American Society for Photogrammetry and Remote Sensing. (2014, November). ASPRS Positional Accuracy Standards for Digital Geospatial Data. Photogrammetric Engineering & Remote Sensing, Vol. 81, No. 3, pp. A1–A26. Retrieved from https://www.asprs.org

4.4 ACCURACY

Figure 1 – Accuracy Table for .50 ft GSD Orthoimagery

Common Ortho Image Pixel Size (Feet)	Horizontal Accuracy Class RMSEx and RMSEy (Feet)	Ortho Image RMSEx and RMSEy in terms of pixels	Horizontal Accuracy RMSEr (Feet)	Maximum Ortho Image Mosaic Seamline Mismatch (Pixels)	Maximum Ortho Image Mosaic Seamline Mismatch (Feet)	Allowable Aerotriangulation (AT) or INS-based (in feet)		Allowable Ground Control RMSE (Feet)		NSSDA Horizontal Accuracy at the 95% Confidence Level (Feet)
						RMSEx and RMSEy	RMSEz	Horizontal x and y	Vertical z	
0.50	0.5	≤1-pixel	0.707	2	1.0	0.250	0.50	0.125	0.250	1.22
	1.0	**2-pixels**	**1.414**	**4**	**2.0**	**0.500**	**1.00**	**0.250**	**0.500**	**2.45**
	1.5	3-pixels	2.121	6	3.0	0.750	1.50	0.375	0.750	3.67
	2.0	4-pixels	2.828	8	4.0	1.000	2.00	0.500	1.000	4.90

*The maximum allowable orthoimage mosaic seamline mismatch is 3 pixels for all transportation infrastructure features, unless approved in writing by FDOR or FDOT.

Horizontal accuracy of orthoimagery products shall be tested to meet 2.5 feet at the 95% confidence interval. The ASPRS standards require direct comparison to checkpoints from an independent source of at least three times greater accuracy. The minimum number of well distributed check points should meet the ASPRS recommendations see *Table C.1*.

Figure 2 – Recommended Number of Checkpoints Based on Area

Project Area (Square Kilometers)	Horizontal Accuracy Testing of Orthoimagery and Planimetrics
	Total Number of 2D/3D Checkpoints (Clearly Defined Points)
≤500	20
501-750	25
751-1000	30
1001-1250	35
1251-1500	40
1501-1750	45
1751-2000	50
2001-2250	55
2251-2500	60

Note- Some project conditions may dictate the need for greater or fewer checkpoints to satisfy the testing of project accuracy. When less than the minimum checkpoints are proposed, or when distribution of checkpoints is limited, an exception to the ASPRS recommendations may be approved if requested in writing from FDOR or FDOT. The request shall include a digital map file (*.kml) displaying proposed locations of AT control and checkpoints, aerial imagery footprints, and a written explanation of why the exception is necessary.

4.5 DIGITAL ELEVATION MODEL

A surface model adequate to support orthoimagery accuracy specifications identified for this project must be created to accurately orthorectify the imagery. The consultant is responsible for evaluating the accuracy of the DEMs used in the orthorectification process and if necessary, collect supplemental data to further enhance the DEM.

Bridges and overpasses requiring surface edits shall be properly represented as a 3d surface and the resulting surface shall be utilized in the orthorectification process. These elevated features will not be included as part of the delivered DEM data.

One DEM file per tile matching approved index tile scheme is required to be delivered. All DEM will be delivered according to the tile index provided.

Approved Formats

- USGS DEM
- Raster GeoTIFF
- ERDAS IMAGINE (IMG) Format
- Floating Point Raster File (.flt)
- ASCII XYZ
- LAS/LAZ

The consultant will submit information in the final survey report and metadata which documents the source, enhancements made, and density of the surface data utilized for the orthoimage mapping project.

In addition, if lidar data is acquired as part of the project, the classified scan data must be provided in LAS file format as per ASPRS LAS Specification 1.4 with associated metadata.

4.6 IMAGE RECTIFICATION

Image rectification methodology must be compliant with the FGDC Geographic Information Framework Data Content Standard

FGDC-STD-014.2-2015 2.9 Image rectification and restoration

Supplemental Photo Editing

- Edit Polygon File. A shapefile shall be provided that contains polygons designating the areas where image anomalies and warping were photogrammetrically corrected and edited into the orthoimage using photo editing software. The description of this photo editing process will be included in the tile metadata and orthoimagery reports provided by the consultant. Polygons will be assigned unique ID numbers and coordinate values for each occurrence. Individual orthoimage tile metadata will reference only those polygon IDs that occur within that image tile

4.7 GROUND CONTROL

Enough ground control points shall be established to support orthoimage mapping. All control shall meet the requirements of the FCDOP, see *Attachment A.*

4.8 GNSS/INS SOLUTIONS

Unless otherwise approved, all GNSS/INS measurements shall be differentially processed to the FPRN, the resulting solutions shall be included in the aerotriangulation bundle adjustment.

4.9 FLIGHT SEASON

The specified flight season will be from October 1st through March 15th. Every effort should be made to collect imagery prior to January 30th. Imagery collected outside of this flight season will require written approval from contracting agency.

4.10 IMAGE QUALITY

Imagery shall be acquired to minimize excessive tilt/lean in buildings, obstruction by shadows, image smear, environmental conditions (clouds, haze, smoke, glare, solar reflection over water bodies, etc.), vegetative conditions, etc. Every effort should also be made to acquire imagery under optimum tide conditions. Radiometric and color balancing of the imagery is described in Section *5: Orthoimage Deliverables*. All images must be collected with a sun angle no less than 30°. Imagery shall be acquired at sufficient overlap coverage in "high-rise" urban areas to ensure all transportation infrastructure is clearly visible.

5 ORTHOIMAGERY DELIVERABLES

All deliverables will be the property of the contracting agency and are considered public record. The consultant will document all data deliveries with an itemized transmittal letter.

Written permission from the agency must be obtained to release data to any party prior to final publication. Per ***Rule Chapter 5J-17, F.A.C.***, the consultant shall keep a copy of the original data for a minimum of six (6) years. The consultant shall contact the agency before destroying the data.

5.1 FILE FORMATS AND IMAGE TYPES

5.1.1. ORIGINAL SOURCE IMAGERY

Original source imagery shall be delivered as uncompressed four-band TIFF images consisting of natural color (RGB) and near infrared (N) at the native bit-depth per band of the sensor.

5.1.2 TILED ORTHOIMAGERY

The consultant shall deliver ortho-rectified, uncompressed four-band GeoTIFF image tiles. These image tiles shall consist of natural color (RGB) and near infrared (N) bands at a bit-depth of 8-bits per band, with valid projection header information. Orthoimagery tiles shall be produced using a four-band workflow meaning all processes affecting final orthoimagery tile shall be performed using the aforementioned four-band imagery. Tiled orthoimagery shall meet the requirements set forth in the ***Federal Geographic Data Committee FGDC-STD-014.2-2015 Geographic Information Framework Data Content* Standard Part 2: Digital Orthoimagery.**

- *Natural Color Imagery* – The natural color, RGB, bands will be color balanced across the entire area of interest to allow viewing of the image tiles as a seamless mosaic. During radiometric processing care shall be taken to avoid loss of detail in shadows and overexposure on bright surfaces such as bare ground and light-colored building roofs.

- *Color Infrared Imagery* – The near infrared band will be radiometrically processed in a manner that preserves original image characteristics. Corrections for seasonal variations in ground cover are not to be performed. However, care should be taken to ensure appropriate coloration of different vegetation types (e.g., deciduous, evergreen, etc.) is evident.

- All orthoimagery tiles should have a neutral color balance and should closely represent the natural color of the ground at the time of image collection.

One GeoTIFF file per tile matching approved index tile scheme is required. All orthoimages will be delivered according to the tile index provided.

Tiles will be contiguous and non-overlapping and will be suitable for creating a seamless image mosaic that includes no data void cells or gaps. Tile naming convention is as follows:

YYYY__NNNNNN.TIF
Where:
YYYY = Ending year of the flying season that typically ends in March.
NNNNNN = Appropriate tile (cell) index number values from project tiling index provided.

Example: Orthoimage tile that was acquired during the 2020-2021 flying season.
2021_200001.tif

5.2 GEOSPATIAL METADATA

A metadata file in XML format must be delivered for each GeoTIFF image file, the DEM used for orthoimage production, and any other relevant mapping files.

ISO Compliant metadata

- Metadata must be compliant with the International Organization for Standardization requirements: ISO 19115-2, Schema ISO-19139

The following information will be provided in all orthoimagery tile metadata:

- Date of flight information included in metadata should reference the date(s) of image collection for each orthoimage tile. Range of dates will not be accepted
- QA/QC Processes
- Project name and usage
- Citations, abstract, and purpose
- Minimum bounding rectangle entry
- Geospatial information (coordinate system, units, horizontal datum).
- All processing steps and software utilized
- All image corrections should be well documented in the metadata
    - Photo editing polygon ID and coordinates will be included in description
- Accuracy statement. RMSE and confidence interval at 95% should be reported
- Aircraft type and tail number
- Average flying/acquisition height (AGL)
- Sensor manufacturer and model
- Camera calibration process
- Raw imagery pixel resolution and bit depth
- Final pixel resolution of product
- Total bands of data acquired
- Sources of elevation data used and detailed process description for terrain editing

5.3 IMAGE SEAMLINE FEATURE CLASS

The consultant will include a file "ProjectName_Seamlines" in shapefile format, containing a feature class of non-overlapping polygons with no data voids for the area of interest. Each polygon will delineate images by capture date and time used in the mosaicking of images to produce orthoimagery.

The feature class should conform to the area of interest, and have the following attributes:

FRAME CAMERA

DOF = Date of Flight
EXPOSURE = Exposure filename
TIMESTAMP = GNSS time in HH:MM:SS
HEIGHT = Approximate height of aircraft at time of exposure

Figure 3 – Frame Camera Attributes

	FID	Shape	NAME	DOF	EXPOSURE	TIMESTAMP	HEIGHT
	0	Polygon	035_0067	12-Feb-2016	6409_035_0067	19:14:59	4525
	1	Polygon	033_0067	12-Feb-2016	6409_033_0067	19:40:01	4516
	2	Polygon	016_0041	17-Feb-2016	6409_016_0041	16:09:09	4562
	3	Polygon	017_0067	17-Feb-2016	6409_017_0067	15:53:49	4576
	4	Polygon	019_0067	17-Feb-2016	6409_019_0067	15:27:24	4566
	5	Polygon	023_0067	13-Feb-2016	6409_023_0067	17:14:11	4567
	6	Polygon	018_0042	17-Feb-2016	6409_018_0042	15:42:43	4590
	7	Polygon	015_0067	17-Feb-2016	6409_015_0067	16:20:22	4578
	8	Polygon	032_0041	12-Feb-2016	6409_032_0041	19:55:05	4505
	9	Polygon	029_0067	13-Feb-2016	6409_029_0067	15:53:47	4537
	10	Polygon	022_0041	13-Feb-2016	6409_022_0041	17:29:45	4506
	11	Polygon	021_0067	13-Feb-2016	6409_021_0067	17:40:42	4507

PUSHBROOM SENSOR

DOF = Date of Flight
IMAGE = Image Filename
START TIME = GNSS time in HH:MM:SS for Line Begin
END TIME = GNSS time in HH:MM:SS for Line End
HEIGHT = Approximate height of aircraft at time of exposure

Figure 4 – Push Broom Sensor Attributes

FID	SHAPE	IMAGE	DOF	START TIME	END TIME	HEIGHT
0	POLYGON	088_20190110_184413	5-Feb-19	11:05:04	11:06:55	1341
1	POLYGON	092_20190110_180412	5-Feb-19	11:11:58	11:14:19	1341
2	POLYGON	086_20190110_190142	5-Feb-19	11:20:15	11:22:52	1341
3	POLYGON	090_20190110_182422	5-Feb-19	11:27:33	11:30:27	1341
4	POLYGON	096_20190110_171635	5-Feb-19	11:35:23	11:38:34	1341
5	POLYGON	094_20190110_174345	5-Feb-19	11:42:58	11:46:09	1341
6	POLYGON	098_20190110_165912	5-Feb-19	11:50:38	11:54:04	1341
7	POLYGON	095_20190110_172538	5-Feb-19	11:58:14	12:01:55	1341
8	POLYGON	085_20190110_190934	5-Feb-19	12:07:12	12:12:53	1336
9	POLYGON	097_20190110_170714	5-Feb-19	12:15:22	12:20:19	1336
10	POLYGON	099_20190110_165107	5-Feb-19	12:24:15	12:29:13	1336
11	POLYGON	099_20190110_165107	5-Feb-19	12:32:35	12:37:30	1336
12	POLYGON	093_20190110_175342	5-Feb-19	12:41:16	12:46:13	1336
13	POLYGON	091_20190110_181435	5-Feb-19	12:49:38	12:54:21	1336
14	POLYGON	089_20190110_183354	5-Feb-19	12:57:18	13:02:46	1336
15	POLYGON	087_20190110_185345	5-Feb-19	13:05:18	13:10:46	1333
16	POLYGON	084_20190118_193502	5-Feb-19	13:13:18	13:18:46	1333

5.4 SURVEY REPORT

The consultant PSM will prepare a digitally signed survey report that documents all processes and is compliant with relevant ***Standards of Practice*** as set forth in ***Rule Chapter 5J-17, F.A.C.***, pursuant to ***Chapter 472, F.S.*** and shall, at a minimum, include the following items:

- Project title and reference number
- Name and address of corporation
- Certificate of authorization number
- Surveyor in responsible charge, including contact information
- Abbreviations
- Data sources
- Final deliverable listing of files stating filename with extension and delivery date in the appendix of the survey report.
- Survey date(s) (first and last date of field measurements)
- Introduction, purpose and objectives
- Reference to ground control survey by title, survey date, corporation, and certifying PSM.
- Describe all equipment, software, etc.
- Image sensor description and factory sensor calibration and boresight calibration reports
- Digital orthoimage image acquisition dates and flight logs
- DEM acquisition (identify source and accuracy)
- If lidar data is collected, then the following items shall be included:
  - Data acquisition dates and logs
  - Sensor description and calibration report
- Digital orthoimagery image accuracy NSSDA analysis according to the ***FGDC National Standard for Spatial Data Accuracy (FGDC-STD-007.3-1998).***
- List of field and office personnel
- Map overlay which will display the following items:
  - All horizontal and vertical ground control identifying which points were constrained during aerial triangulation and which points were used for check during NSSDA analysis
  - Aerial triangulation blocks
  - Digital orthoimagery tile limits and layout
  - Lidar quality control locations and accuracy (if applicable)
  - Base map features (ex: county boundaries, cities, major roads)

5.5 DIGITAL SUBMITTALS

Digital files shall be submitted on an external hard drive (USB version 3.0 or later) and be accompanied by an itemized transmittal letter. All deliverables will become the property of the agency.

5.6 CONTENTS

The hard drive shall contain:

- Digitally signed copy of the orthoimagery survey report
- Digitally signed copy of the control survey report (if separate from orthoimagery report)
- Four-band (RGBN) original source imagery
- Survey control and checkpoint locations as kml\kmz files and comma delimited coordinate file.
- Four-band (RGBN) orthoimagery image tiles
- Metadata XML file for each image tile
- Final elevation data used to rectify imagery
- Metadata XML for Digital Elevation Model
- Delivery of breaklines collected and used in support of the project are required for FCDOP projects. This includes breaklines used for bridge surface modeling. Breaklines will be as shapefile format including PolylineZ and PolygonZ feature classes.
- Classified lidar data files (*.LAS) (if applicable) Airborne sensor trajectory/exterior orientation report
- Image sensor calibration documentation
- Boresight calibration files
- Aerial triangulation control coordinates and aerial triangulation blocks along with statistical summaries
- Flight Index map in .kml/kmz format. This shall include the project area outline, flight lines, and image centers.
- All horizontal and vertical ground control identifying of which points were constrained during aerial triangulation and which points were used for check during NSSDA analysis
- Outline polygon of each aerotriangulation block
- Digital orthoimagery seamlines and dates associated with the photographs (see *Section 5.3*)
- Digital orthoimagery tile limits and layout
- Scope of Work, aka Scope of Services, from contracting agency

5.7 LABEL

The drive shall be labeled on the outside with the following information:

- Project title
- Consultant name and contact information
- Contracting agency contract number
- Date of survey
- Mobile Survey Tracking System (MSTS) number (FDOT) if available

6 GROUND CONTROL SURVEY REQUIREMENTS

6.1 PURPOSE

The purpose of this document is to specify the requirements for a geodetic control survey to support 0.5-foot ground sample distance resolution county aerial orthoimagery mapping. The positional accuracy required for this imagery resolution is 2.5 feet at the 95% confidence level.

All surveying and mapping work performed shall meet the ***Standards of Practice*** set forth in ***Chapter 5J-17, F.A.C.,*** pursuant to ***Chapter 472, F.S.***

6.2 SURVEY CONTROL

- GNSS techniques shall be used to establish horizontal and vertical positions on targeted and/or well-defined photo identifiable points that will be used as control for aerial photogrammetric mapping. New photo control point positions shall be identified in the field by a survey mark.
- Positions may be established by static, rapid-static or RTK/RTN methods. If real-time methods are used, a minimum of two observations at least 60 minutes apart are required.
- When aerial panels are used, the vertical offset from top of mark to the panel surface shall be measured and recorded.
- Ground control shall be referenced to NAD83(2011) based on redundant ties to the FPRN.
- The photogrammetric ground control network shall meet the horizontal and vertical accuracies necessary to support the required map accuracy of the orthoimagery. The ASPRS standards require direct comparison to checkpoints from an independent source of at least three times greater accuracy.
- A minimum of four published NAVD88 benchmarks shall be included in the control network to ensure accurate elevations can be computed from GNSS measurements through local network adjustment using the latest FPRN Geoid Model.
- Where conditions dictate differential leveling may be used to establish elevations on photo control points from the nearest ground control network station or published NSRS vertical station within a 5-mile radius from the photo control point. Leveling procedures adequate to support vertical accuracy specifications of orthoimagery shall be observed and documented.
- In rare circumstances where the photo identifiable control point cannot be occupied directly, either horizontally and/or vertically, offset distances of less than 0.5 feet from the occupied survey mark may be used. Field survey measurements of sufficient precision must be collected and recorded to allow accurate coordinate computation of the photo identifiable point from the offset mark.
- With prior approval of the orthoimage project surveyor, ground control points may be moved from their original proposed locations to ensure safety, or if the proposed point is ambiguous or no longer exists. Such control points shall be documented as moved.

- A field sketch with survey date, GNSS satellite visibility and weather conditions at the time of GNSS data collection shall be prepared for each ground control and check point site.
- Digital photo(s) shall be taken showing the exact location of the ground control and check point, preferably while the point is occupied by the GNSS unit setup. Digital photo filenames shall include the control point name.
- Point names shall be consistent in all delivered files.

6.3 SUBMITTAL ITEMS

6.3.1 SURVEY REPORT

The PSM will prepare a digitally signed and sealed control survey report that shall at a minimum include the following items:

- Project title and reference number
- Name and address of corporation
- Certificate of authorization number
- Surveyor in responsible charge, including contact information
- Abbreviations
- Final deliverable listing of files stating filename with extension and delivery date in the appendix of the survey report.
- Introduction, purpose and objective
- Description and scope of work
- Describe equipment, software, etc.
- Describe the accuracy standards and specifications, procedures and methodology for establishing ground control
- Describe and list the geodetic control (existing and newly established), displaying the horizontal and vertical coordinates, datum used, geoid model and individual point errors (RMSE, standard deviation or 95% confidence level)
- List the field and office personnel
- Survey dates (first and last date of field measurements)
- Describe monumentation recovered and set
- Map overlay which will display the following items:
    - GNSS baseline network, indicate repeated measurements
    - Existing horizontal and vertical geodetic control
    - Newly established photogrammetric control
    - Base map features (ex: county boundaries, cities, major roads)
- When revisions are made, a note will be made indicating that the report has been revised and will reference the date of the original report

6.3.2 DIGITAL SUBMITTALS

Digital files shall be packaged and delivered with the final orthoimagery submittal as described in *Section 1.15* of this document and shall include:

- Digitally signed and sealed copy of the control survey report
- Existing geodetic control recovery/to-reach descriptions. Condition of NSRS marks should be reported to the National Geodetic Survey.
- All ground control and check point documentation as stated in ***Section 2.0*** above.
- Copies of GNSS data logs and a listing of GNSS occupations
- All GNSS data observed and produced during the survey (digital format), including the raw observation data, processed baselines, loop closures and least squares adjustments (free and fixed)
- A Microsoft EXCEL spreadsheet file list of final control with datum header information along with point name, geographic (Latitude, Longitude), grid (State Plane Zone Northing and Easting), and elevation values for control points. Grid coordinates and elevations shall be in units of USft. Errors at the 95% confidence interval should be included. See Figure 5 below.

Figure 5 – Ground Control Table Example

FINAL ADJUSTED HORIZONTAL AND ORTHOMETRIC HEIGHT VALUES FOR MARION COUNTY (PD6027) POST FLIGHT PHOTO POINT

UNITS ARE US Survey Feet (USft)

HORIZONTAL DATUM IS NAD 83 (2011)

STATE PLANE ZONE IS FLORIDA WEST ZONE 0902

ORTHOMETRIC HEIGHT DATUM IS NAVD 88

ALL CONTROL STATION VALUES ARE DERIVED BY STATIC GNSS OBSERVATIONS FROM PUBLISHED NGS CONTROL

	GPS Control Station - Geographic			GPS Control Station - USft			Error (specify RMSE, SD or 95%)	
PHOTO_ID	LATITUDE	LONGITUDE	ELLIP_HGT (meters)	NORTHING	EASTING	ORTHO_HGT	Horizontal Error	Vertical Error
D510S010	29 29 44.73172	-82 24 24.26473	1.757	1876786.20	526773.97	97.18	0.07	0.11
D510S011	29 28 42.07552	-82 3 20.32535	-4.497	1870232.35	638460.51	77.18	0.04	0.08
D510S012	29 30 29.98811	-81 51 49.10517	10.530	1881156.88	699540.72	127.11	0.05	0.09
D510S013	29 19 32.46883	-81 58 11.18511	-5.832	1814716.87	665798.44	72.96	0.04	0.09
D510S014	29 21 52.50874	-81 44 25.40237	-16.367	1828952.74	738861.52	39.27	0.06	0.10
D510S015	29 17 40.65095	-81 39 9.97229	-27.655	1803585.22	766847.02	2.34	0.04	0.07

SUMMARY OF CHANGES

1. ABBREVIATIONS AND DEFINITIONS (Page 3)

- Added RTK and RTN

4.4 ACCURACY (Page 6-7)

- Accuracy table added. Highlighted horizontal accuracy requirements
- Maximum seamline mismatch for transportation features defined as 3 pixels
- Checkpoint requirement description modified to include approval from FDOT for any deviation from ASPRS recommendations for total number and distribution of checkpoints

4.5 DIGITAL ELEVATION MODEL (Page 7)

- Removed requirement for bridge and overpasses to be integrated into the DEM for delivery.
- Reinforced requirement for DEM to be delivered as tiles matching the approved 5000ft x 5000ft tile index
- Added ASCII XYZ and LAS/LAZ as approved delivery formats

4.6 IMAGE RECTIFICATION (Page 8)

- Section has been added to the 2021-2022 FCDOP standards
- Added reference to FGDC image rectification methodology
- Defined requirements for the delivery of photo edit polygon file

4.8 GNSS/INS SOLUTIONS (Page 8)

- Added reference to utilizing FPRN solutions in aerotriangulation

4.10 IMAGE QUALITY (Page 8)

- Removed previous section 4.10 description referencing historical images

5.1.2 TILED ORTHOIMAGERY (Page 9)

- Defined color balancing requirements

5.2 GEOSPATIAL METADATA (Page 10)

- Added requirement for compliance to latest ISO Standards for metadata: ISO 19115-2
- Added list of required information for orthoimagery tile metadata deliveries

5.4 SURVEY REPORT (Page 12)

- Added requirement for digitally signed survey report

5.6 CONTENTS (Page 13)

- Added requirements for the delivery of:
  - Survey control and checkpoint locations kmz files and comma delimited coordinate files.
  - Breaklines captured as part of surface modeling utilized for image rectification to be delivered in shapefile format
  - Index Map in .kml format
  - Outline polygons for each aerotriangulation block in shapefile format

5.6 LABEL (Page 13)

- Mobile Survey Tracking System (MSTS) number (FDOT) if available

6. GROUND CONTROL SURVEY REQUIREMENTS (Page 14)

- Removed this section from "ATTACHMENT A" in 2020-2021 FCDOP standards

6.2 SURVEY CONTROL (Page 14-15)

- Detailed the requirements for Survey Control methodology
- Requirement added for consistent naming of survey control points in all deliverables

6.3.1 SURVEY REPORT (Page 15)

- Added a reference to a digitally signed and sealed control survey report
- Specified the requirements for the delivery of revised reports

6.3.2 Digital Submittals (Page 16) and Figure 5 (Page 17)

- Removed reference to control point offsets and added point error columns