AGREEMENT FOR PROFESSIONAL SERVICES

FOR

GEOSPATIAL SERVICES

THIS AGREEMENT is made by and between the Champaign County GIS Consortium, Illinois, (OWNER) and Ayres Associates Inc, 5201 East Terrace Drive, Suite 200, Madison, Wisconsin, 53718 (CONSULTANT).

WHEREAS, the OWNER intends to retain the CONSULTANT to provide geospatial services within the project area delineated in Attachment C.

NOW, THEREFORE, the OWNER and CONSULTANT agree to the performance of professional services by CONSULTANT and payment for those services by OWNER as set forth below:

ARTICLE 1 – SCOPE OF SERVICES

1.1 BASIC SERVICES

After written authorization to proceed, CONSULTANT shall:

1.1.1 Provide OWNER with photogrammetric services for the completion of the orthoimagery project referenced in OWNER's Request for Proposal "RFP2020-001_Orthophotography_ChampaignCountyGISConsortium" issued October 25, 2019 (included as attachment A to this agreement); and CONSULTANT's proposal for "Aerial Photography Services_Ayres" dated November 27, 2019 (included as Attachment B to this agreement). Specification explicitly stated in the scope of services of this agreement supersedes corresponding specification the scope of services from both Attachment A and Attachment B.

1.1.2 Obtain digital aerial imagery of the Champaign County GIS Consortium project area, consisting of Champaign, Piatt, and Douglas Counties during the spring of 2020 using a calibrated digital photogrammetric camera. The aerial imagery will be collected during leaf-off conditions when the sun angle is 30 degrees or greater above the horizon. Aerial imagery will be suitable for the production of four band (RGB-NIR) orthoimagery at 6-inch ground pixel resolution. Aerial imagery over countywide products will be planned and collected with full stereo-coverage, 30% sidelap and 60% forward overlap (+/- 5%). Over the project area for additional building lean reduction in the specified Urbana-Champaign city centers imagery will be collected with 80% sidelap and 80% forward lap. Additional nadir images will be collected over points identified in the RFP. The project area is 2039 square miles. See Attachment C for a map of the project area.

1.1.3 Prepare an analytical aerotriangulation solution for the aerial imagery to support digital orthoimagery meeting American Society for Photogrammetry and Remote Sensing (ASPRS) Level 1 accuracy.

1.1.4 Prepare 6-inch pixel resolution digital orthoimagery for the project area which will meet ASPRS Level 1 horizontal accuracy.

- Prepare pilot GeoTIFF orthoimagery of an area not to exceed a contiguous nine square mile block.

- The orthoimagery will follow tiling structure provided by the OWNER, delivered in uncompressed, GeoTIFF format (with world file) and will be accompanied by a tiling schematic in ESRI format.

- Orthoimagery will include JPEG2000 format (with world files) compressed tiles and three mosaics, one for each county.

- Deliverable products will be referenced to the Illinois State Plane, East Zone, US survey feet, NAD83 (2011 adjustment).

1.1.5 Final deliverable products to OWNER will include:

- Preliminary flight diagram, including flight lines and image centers
- ABGPS and IMU data
- Camera calibration certificate
- One complete set of original, unprocessed images, GeoTIFF format
- RMS error summery report
- Coordinate values, in ASCII file format, of all triangulation points, including control, pass, drop, tie, and quality control
- 6-inch pilot orthoimagery tiles in uncompressed GeoTIFF format.
- 6-inch orthoimagery tiles in uncompressed GeoTIFF format.
- 6-inch orthoimagery tiles in compressed JPEG2000 format.
- 6-inch orthoimagery individual county mosaics in compressed JPEG2000 format.
- Ground control locations in ASCII format
- FGDC compliant metadata
- Tile schematic in ESRI geodatabase format
- NSSDA summary report

1.1.6 CONSULTANT may render to the OWNER advice, consultation, and expertise with respect to the development, use, and technical application of the deliverables provided under this project.

ARTICLE 2 – CHANGES IN THE SCOPE OF SERVICES

2.1 Services Requiring Changes in the Scope of Services

The OWNER or the CONSULTANT may, from time to time, request changes in the scope of services to be performed hereunder. Such changes, while not anticipated, may include an increase or decrease in the amount of CONSULTANT'S compensation. Any such changes must be mutually agreed by and between OWNER and CONSULTANT and shall be incorporated in written amendments to this agreement. Such changes may include:

2.1.1 Services to investigate existing conditions or facilities or to verify the accuracy of information furnished by OWNER.

2.1.2 Services resulting from significant changes in the general scope, extent or character of the Project.

2.1.3 Furnishing services of independent professional associates and consultants for other than Basic Services.

2.1.4 Preparing to serve or serving as a consultant or witness for OWNER in any litigation, arbitration or other legal or administrative proceeding involving the Project.

2.1.5 Additional services in connection with the Project, including services, which are to be furnished by OWNER and services not otherwise, provided for in this Agreement.

ARTICLE 3 - OWNER'S RESPONSIBILITIES

OWNER shall do the following in a timely manner so as not to delay the services of CONSULTANT:

3.1 Place at CONSULTANT's disposal all available pertinent information, upon which the CONSULTANT can rely. This may include project boundaries in georeferenced vector format, existing digital terrain models, and existing ground control information.

3.2 Arrange for access to and make all provisions for CONSULTANT to enter upon public property as required for CONSULTANT to perform services under this Agreement.

3.3 Furnish approvals and permits from all governmental authorities having jurisdiction over the Project and such approvals and consents from others as may be necessary for completion of the Project.

3.4 Give prompt written notice to CONSULTANT whenever OWNER observes or otherwise becomes aware of any development that affects the scope or timing of CONSULTANT's services.

3.5 Provide accurate mapping boundaries (or tile scheme) in vector format, referenced to the appropriate coordinate system.

3.6 Provide the existing lidar data and associated metadata to be used for the ortho-rectification process.

3.7 Provide Registered Professional Land Surveyor (PLS) licensed by the State of Illinois for the capture of GPS survey ground control points. OWNER shall provide field notes detailing procedures, coordinate system, NGS reference used, and coordinates in ascii format. CONSULTANT will provide approximate control locations and instructions for locating ground control points.

3.8 Provide GPS survey of independent check-points to support the CONSULTANT'S accuracy test. Registered Professional Land Surveyor (PLS) licensed by the State of Illinois for the capture of GPS survey ground control points. OWNER shall provide field notes detailing procedures, coordinate system, NGS reference used, and coordinates in ascii format

ARTICLE 4 - PERIODS OF SERVICE

4.1 The provisions of this Article 4 and the compensation for CONSULTANT's services have been agreed to in anticipation of the orderly and continuous progress of the Project. If completion dates are exceeded through no fault of CONSULTANT, compensation provided

herein shall be subject to equitable adjustment. Any such changes must be mutually agreed by and between OWNER and CONSULTANT and shall be incorporated in written amendments to this agreement.

4.2 The services called for in Article 1 will be completed and submitted by December 31, 2020. Specific tasks will be completed and delivered according to the following schedule:

- Project initiation meeting: January-February 2020
- Ground control collection: February-April 2020
- Aerial imagery acquisition: February-March 2020 (as weather permits)
- Submittal and review of raw, unprocessed imagery: March-April 2020
- Analytical aerotriangulation of all imagery: April-May 2020
- Prepare DEM: May-June 2020
- Ortho production of pilot areas: June 2020
- Pilot area submittal and review: June 15, 2020
- GeoTIFF delivery for QC August 31, 2020
- Deliver Orthoimagery Products: September 30, 2020

4.3 The expiration date of this Agreement is December 31, 2025.

4.4 CONSULTANT's services under this Agreement shall be considered complete when submissions have been accepted by the OWNER.

4.5 If OWNER has requested significant modifications or changes in the general scope, extent or character of the Project, the time of performance of CONSULTANT's services shall be adjusted equitably. Any such changes must be mutually agreed by and between OWNER and CONSULTANT and shall be incorporated in written amendments to this agreement.

4.6 If CONSULTANT's services for the Project are delayed or suspended in whole or in part by OWNER for more than three months for reasons beyond CONSULTANT's control, CONSULTANT shall on written demand to OWNER (but without termination of this Agreement) be paid as provided in paragraph 5.1.1.

ARTICLE 5 - PAYMENTS

5.1 Compensation for Services

5.1.1 OWNER shall compensate CONSULTANT for services provided on a lump sum basis for a total amount not to exceed $156,328.66. This includes:

5.1.1.1 Champaign County aerial data acquisition and orthoimagery processing:

$93,556.98

5.1.1.1 Piatt County aerial data acquisition and orthoimagery processing:

$34,195.49

5.1.1.1 Douglas County aerial data acquisition and orthoimagery processing:

$28,576.19

5.2 Times of Payments

5.2.1 CONSULTANT shall submit monthly invoices for Basic and Additional Services rendered. OWNER shall make prompt monthly payments in response to CONSULTANT's invoices.

5.3 Other Provisions Concerning Payments

5.3.1 Payment shall be made pursuant to the Illinois Local Government Prompt Payment Act (50 ILCS 505/1 et. Seq.).

5.3.2 In the event of termination by OWNER, CONSULTANT will be reimbursed for all charges and services rendered.

5.3.3 Records pertinent to CONSULTANT's compensation will be kept in accordance with generally accepted accounting practices.

5.3.4 Factors determining compensation payable to CONSULTANT will be adjusted periodically and equitably to reflect changes in various elements that comprise such factors. Any changes must be mutually agreed by and between the OWNER and the CONSULTANT and shall be incorporated in written amendments to this agreement.

ARTICLE 6 - GENERAL CONSIDERATIONS

6.1 Reuse of Documents

Any reuse of the services and documents provided under this agreement for purposes not intended, will be at the owners sole risk.

6.2 Controlling Law

This Agreement is to be governed by the law of the State of Illinois.

6.3 Termination

The obligation to provide further services under this Agreement may be terminated by either party upon seven days' written notice in the event of substantial failure by either party to perform in accordance with the terms hereof through no fault of the terminating party.

6.4 Indemnification

The CONSULTANT hereby agrees to indemnify the OWNER for all claims arising solely from negligent acts, errors or omissions of the CONSULTANT in the performance of professional services under this agreement.

6.5 Data ownership Assignment

The CONSULTANT assigns ownership of the data to the OWNER and its project participants for all deliverable products produced under this contract. The CONSULTANT agrees that the products and documents shall not be made available to nor used to prepare additional products for any individual or organization at any time without prior written approval by the OWNER.

6.6 Order of Precedence

Should any ambiguity, inconsistency or conflict arise In the Interpretation of the Contract Documents, the same shall be resolved by reference first to the terms and conditions of this Agreement, and then by reference to Attachment A and its standard terms and conditions, special conditions, scope of services, project tasks, specifications, submittal requirements, and attachments, and then by reference to Attachment B and its written representations and contents, unless otherwise mutually agreed by the CCGISC and the Consultant."

ARTICLE 7 - EXHIBITS AND SCHEDULES

7.1 The following Exhibits are attached to and made a part of this Agreement.

7.1.1 Attachment A – OWNER's Request for Proposal "RFP2020-001_Orthophotography_ChampaignCountyGISConsortium" (consists of 16 pages).
7.1.2 Attachment B – CONSULTANT's proposal for "Aerial Photography Services_Ayres" (consists of 37 pages).
7.1.3 Attachment C – Project Area Map (consists of 1 page).

7.2 This Agreement (consisting of pages 1 to 61, inclusive), together with the Exhibits and Attachments identified above, constitute the entire agreement between OWNER and CONSULTANT and supersede all prior written or oral understandings. This Agreement and said Exhibits may only be amended, supplemented, modified or canceled by a duly executed written instrument.

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

The Champaign County GIS Consortium, IL		Ayres Associates Inc
OWNER		CONSULTANT
	(Signature)	
Darlene A Kloeppel		Jason Krueger
County Executive	(Typed Name)	Jason Krueger
	(Title)	Manager
2/14/2020	(Date)	2-18-2020

Proposal Request for Aerial Services

Champaign, Piatt, and Douglas Counties, Illinois

Issue Date:
Friday, October 25, 2019

Proposal Due:
11:30 am
Wednesday, November 27, 2019

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1.0 Introduction

The Champaign County GIS Consortium (CCGISC), acting pursuant to the authority given by Champaign County as Lead Agency of CCGISC and as an administrative agent for Piatt and Douglas counties for the purpose of soliciting proposals as described herein, solicits qualified and interested firms to submit proposals for providing the services, supervision, labor, equipment, products and materials necessary to provide digital ortho-imagery services for areas within Champaign, Piatt, and Douglas counties as described in and meeting the specifications of the Scope of Work. The imagery and related products will be used within a GIS for parcel, infrastructure, and other mapping. Orthophotography was last acquired for Piatt and Champaign in 2017; Douglas was last captured in 1999.

Champaign, Piatt, and Douglas counties are located about 135 miles south of Chicago, in the heart of East-Central Illinois. Champaign County was incorporated in 1833 and is approximately 1000 square miles in area, with a population of 201,081 (2010 census estimate). Approximately two-thirds of Champaign County's population lives within a 140 square mile area that surrounds the Cities of Champaign and Urbana, the Village of Mahomet, and the Village of Savoy.

Piatt County was incorporated in 1841 and is approximately 450 square miles in area, with a population of 16,729 (2010 census estimate). The largest community in Piatt County is Monticello with a population of approximately 5,500.

Douglas County, named for Stephen A. Douglas, was incorporated in 1859 and is approximately 420 square miles. Tuscola is the county seat and the largest city with a population of 4,480 (2010 census estimate.

This RFP does not commit CCGISC, Champaign County, Piatt County, or Douglas County to award a contract or pay for any costs incurred in the preparation of a proposal. CCGISC reserves the right to accept or reject any or all proposals received, or to cancel, in part or in whole, this RFP.

2.0 Scope of Work

The Champaign County GIS Consortium is interested in acquiring 4-band color infrared aerial imagery for Champaign, Piatt, and Douglas counties. The aerial imagery is to be processed to produce ortho-imagery. The CCGISC is soliciting bids for 6-inch resolution ortho-imagery covering a 2079 square-mile contiguous area *(Douglas 457; Piatt 499 square-miles; Champaign 1123 square-miles).*

2.1 Options

All bids need to include costs for the following options.

OPTION 1: Standard 6-inch resolution ortho-imagery covering a 2079 square-mile contiguous area. *(Douglas 417; Piatt 499 square-miles; Champaign 1123 square-miles)*

OPTION 2: 6-inch resolution ortho-imagery covering a 2079 square-mile contiguous area *(Douglas 417; Piatt 499 square-miles; Champaign 1123 square-miles)* **with reduced building lean in the specified Urbana-Champaign city centers** *(approximately 1.85 square miles)*.

OPTION 3: 6-inch resolution ortho-imagery covering a 1694 square-mile contiguous area *(Douglas 417; Piatt 499 square-miles; Champaign 1123 square-miles)* **with building lean eliminated for specified points.**

OPTION 4: 6-inch resolution ortho-imagery covering a 1694 square-mile contiguous area *(Douglas 417; Piatt 499 square-miles; Champaign 1123 square-miles)* **with reduced building lean in the specified Urbana-Champaign city centers and building lean eliminated for specified points.**

See Attachment A and B for illustrations of Options 1, 2, 3, and 4.

CCGISC will determine which, if any, option to proceed forward with based on the provided responses.

The resulting product is to meet the specifications as described herein.

2.2 Acquisition of Aerial Imagery

The Contractor shall adhere to the following specifications for the acquisition and delivery of the requested natural-color aerial imagery.

2.2.1 Coordinate System and Datum

All data shall be geo-referenced to the Illinois State Plane Coordinates, East Zone, US Survey Feet on the North American Datum (NAD) 1983 horizontal datum (2011 adjustment), and North American Vertical Datum (NAVD) 1988.

2.2.2 Flight Specifications

Imagery shall be flown when deciduous foliage is under leaf-off conditions. The target flight window shall be within February 27, 2020 and April 4, 2020, or as otherwise specified by CCGISC.

The sun angle for all flights shall be at least (30) degrees above horizon. In no case shall imagery be captured when the ground is obscured by haze, snow, fog, smoke, light streaks or dust. Aerial imagery shall be flown when streams are in their normal banks and there is no evidence of temporary standing water or excessive soil moisture. The imagery shall be free of clouds and cloud shadows, and be clear, sharp, and evenly exposed. Photographs shall not contain objectionable shadows caused by building relief or low solar altitude.

All airborne equipment must be properly installed and mounted in aircrafts that provide a stable aerial photography platform. These aircrafts must be properly maintained, registered, and operated according to the rules and regulations of the Federal Aviation Administration (FAA).

2.2.3 Digital Aerial Camera

The aerial camera shall be a large format precision digital camera equipped with low distortion, high-resolution optics, high geometric accuracy and forward motion compensation, and an airborne GPS and Inertial Measuring Unit (IMU). It must be capable of:

- Obtaining ground resolution better than 0.25-foot.
- Generating four-band imagery from separate co-registered IR, red, green, and blue bands.
- Supporting high geometric accuracy and forward motion compensation.

The successful Contractor must provide the most recent calibration report for the digital sensor.

2.2.4 Flying Height

The aerial acquisition flying height shall be capable of achieving a native ground sample distance of less than 0.5-foot to produce an output resolution of 0.5-foot. Flight height shall be appropriate for the generation of 1:1,200 scale (1"=100') ortho-imagery that shall meet or exceed the American Society of Photogrammetry and Remote Sensing (ASPRS) class 1 standard at 1:1,200-scale. Proposed flying height shall be provided by the Contractor.

2.2.5 Flight Planning

A flight map shall be submitted for the given project area prior to acquisition. Flight line features shall be attributed with appropriate identification information including project boundary, line numbers, exposure stations, and ground control locations. It is suggested both denser flight lines and perpendicular flight lines be used for option 2, 3 and 4. It is expected that images with reduced and/or eliminated building lean shall be incorporated into the final deliverable.

The aerial mission shall be flown with coverage extending beyond the project boundary to ensure adequate coverage. All flight lines shall extend one full photo base beyond each end boundary, and all side boundaries shall be covered by a minimum of 25% of the photo image format.

The Contractor shall provide a map of proposed flight lines for options 1 through 4 in their response.

2.2.6 Stereo Images

Overlapping images in each flight line and between flight lines shall provide full stereoscopic coverage of the area to be mapped. Appropriate endlap and sidelap along with adjustment for crab and tilt shall be accounted for to meet output specification options 1, 2, 3, and 4. It is suggested a minimum of 60% sidelap and 80% endlap be used for options 2, 3 and 4.

The Contractor shall provide proposed percentages of endlap and sidelap in their response as well as proposed tolerances for crab and camera tilt.

The Contractor shall explain the proposed method that will be used to reduce/eliminate building lean (options 2, 3 and 4) in the specified areas (Attachment B).

2.2.7 Aerial Imagery Review

Contractor shall review the processed digital frames for the following:

- Adherence to the flight plan
- Ground Sample Distance
- Density
- Contrast
- Hot spots
- Clarity
- Shadow detail
- Overall quality

In addition, within 4-6 weeks of the aerial flight, the Contractor shall deliver on portable USB2 external hard drives the RAW images of the aerial flight for initial photo checking. Unacceptable aerial imagery shall be corrected at no additional cost to the CCGISC.

2.2.8 Camera Station Control

Airborne GPS (AGPS) - latitude, longitude and altitude - and Inertial Measurement Unit (IMU) - attitude and velocity - data shall be recorded at the instant of exposure. An AGPS/IMU data capture solution shall follow the necessary industry acceptable standards to meet the specifications as described in this Scope of Work. Geodetic positions corresponding to the photo centers at the instant of exposure shall be calculated and combined with supplemental ground control point values in an analytical aerotriangulation solution. The horizontal root-mean-square error (RMSE) shall be based on industry acceptable standards for the specified mapping scale.

The contractor shall use tightly coupled AGPS/IMU collection techniques that provide high accuracy camera station coordinates. It is suggested that during the acquisition of the imagery, dual frequency GPS receivers shall be referenced to at least two reference stations.

The Contractor shall produce a statistical report summarizing the results of the airborne GPS/IMU adjustment.

2.2.9 Supplemental Ground Control

Surveyed ground control shall be used to support the production and meet the accuracy standards of ortho-imagery as described herein. The CCGISC will provide a Registered Professional Land Surveyor (PLS) licensed by the State of Illinois for the capture of supplemental ground control. The Contractor will be required to coordinate the needed work with the PLS supplied by CCGISC. The capture of supplemental control needs to begin by January 1, 2020. The cost of the PLS will not be incurred by the Contractor, however, the contractor will be responsible for placing any panels if needed.

2.3 Digital Ortho-Imagery Production

2.3.1 Digital Elevation Model

To support the production of the ortho-imagery, the CCGISC can provide the Contractor with a 2008 Digital Elevation Model (DEM) that has a vertical accuracy better than 2-feet. The DEM will contain at least 4-foot horizontal spacing.

2.3.2 Aerotriangulation

The Contractor shall document the used aerotriangulation process/methods and deliver a report of the analytical aerotriangulation results. Coordinates and residual values shall be reported for all points. RMSE values shall be completed and reported for the final adjustment. Discarded points shall be noted and discussed.

CHECKPOINTS

The calculation of the positional values (x,y,z) for the independent checkpoints shall be used for NSSDA product accuracy reporting. The CCGISC will provide a Registered Professional Land Surveyor (PLS) licensed by the State of Illinois for the capture of checkpoints. The cost of the PLS will not be incurred by the Contractor. The placement of any required panels will be the responsibility of the Contractor and the Contractor will be required to coordinate the needed work with the PLS. Checkpoint capture must begin no later than the first week in April, 2020 to provide enough time for the PLS to complete capture by the first week in May, 2020.

2.3.3 Digital Ortho-imagery

Digital ortho-imagery shall be produced from the processed digital aerial imagery. Each processed image (raster file) shall be geo-referenced to simulate its position in space at the time of exposure. The DEM shall be applied to the raster file to rectify the image to eliminate distortion. The rectification process shall involve the solution of the appropriate photogrammetric equations for each pixel in the output image. Solution of photogrammetric equations at anchor points only, and warping the content of the original image between anchor points (rubber-sheeting) shall not be permitted. All ortho-imagery shall be edge-matched, radiometrically corrected, and color balanced. Once the imagery has been processed, it shall be structured and formatted in a seamless image database and sampled to the final output resolution of 0.5-foot ground sample distance. Reduced and/or eliminated building lean tiles *(options 2, 3, and 4)* shall be incorporated into the final deliverable.

RADIOMETRIC CHARACTERISTICS

All orthophotos shall be composed of four (4) R,G,B, IR spectral bands: Red (R), Green (G), Blue (B), and IR (infrared). The radiometric resolution of each band shall be eight (8) bits at minimum, where the image brightness for each band is represented by 256 levels, ranging from 0 to 255.

IMAGE QUALITY

Orthophotos shall not contain defects such as out-of-focus imagery, marks, scratches, or inconsistencies in tone and density between individual orthophotos.

Radiometric Distortion: The Contractor shall correct distortions caused by elevated or depressed structures such as bridges, rail beds, overpasses, and steep terrain. The CCGISC shall reject any image that contains these types of distortions.

Image Mosaicking: Where two or more digital orthophoto images are mosaicked, the image judged to have the best contrast shall be used as the reference image. All other images shall have their brightness values adjusted to that of the reference image. Join lines between overlapping images shall be chosen so as to minimize tonal variations. Localized adjustment of the brightness values shall be performed to minimize tonal differences between join areas. Visible seams or sutures within a digital orthophoto which exhibit a noticeable “edge” or “feather” effect shall be grounds for rejection of that digital orthophoto.

Edge-Matching: All tiles shall not have more than 3 pixels offset between the principal tiles.

Band to Band Registration: Misalignment between any color bands shall not exceed 1 pixel.

TILING SCHEME AND NAME

The Contractor shall deliver the GeoTIFF images with associated TFW files as well as compressed jpeg 2000 with associated jpw files. Both files are to be aligned with and named according to the provided 2,500 feet x 2,500 feet index grid.

DATA DELIVERY

All ortho-imagery shall be delivered on USB2 external hard drive(s). Each drive shall contain the following reference information:

- Identification number
- Our name - Champaign County GIS Consortium
- Consultant name
- Date of delivery
- Listing of tiles

PRODUCT ACCURACY AND PRODUCT ACCURACY REPORTING

All inputs and processes such as aerotriangulation, control, general methodologies, and sensor calibrations used in the production of digital ortho-imagery shall be sufficient to ensure that all final digital ortho-imagery deliverables meet the defined project accuracy standards.

Product accuracy shall be reported according to NSSDA specifications which are available at http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3*.*

2.3.4 Non-Image Data

Ortho-imagery shall not contain any non-image data. Non-image data includes photographic frame borders, fiducial marks, artifacts, and titling. Non-image data also includes "fill" induced by lack of elevation surface model coverage that results in white, black, or spurious intensity values.

3.0 Deliverables

All reports, documentation, and maps shall be delivered as an Adobe Acrobat (.pdf) document.

The Contractor shall certify in writing that the all deliverables described herein meet the technical standards of this RFP.

ACQUISITION OF AERIAL IMAGERY *(SECTION 2.1)*

- Copy of the most recent calibration report for the digital sensor.
- Camera certification report containing focal length, radial lens distortion, average flying height (above ground distance) and exterior orientation.
- GIS layers of the project area outline, flight lines, and approximate image centers – flying height is also to be provided.
- A statistical report summarizing the results of the airborne GPS/IMU adjustment.
- Analytical aerotriangulation results that include the aerotriangulation process and methods. Coordinates and residual values shall be reported for all points. RMSE values and ground elevation accuracy shall be completed and reported for the final adjustment. Discarded points shall be noted and discussed.
- One set of RAW imagery within 4-6 weeks of aerial acquisition.

DIGITAL ORTHO-IMAGERY PRODUCTION *(SECTION 2.2)*

- A report describing the aerotriangulation process.
- A report of the aerotriangulation results.
- Final product accuracy shall be reported according to most recent NSSDA guidelines.
- Digital orthorectified imagery in both GeoTIFF format with associated TFW files & compressed jpeg 2000 format with associated jpw files, meeting all standards and specifications as described herein.

METADATA

- FGDC compliant metadata for the ortho-imagery.

3.1 Quality Control of Deliverables

The CCGISC has the right to perform its own quality control and due diligence. Any image or other deliverable not meeting the requirements of this Scope of Work may be rejected for non-compliance. CCGISC shall have ninety (90) calendar days to evaluate a deliverable.

4.0 Contractor Responsibilities

- It shall be the responsibility of the Contractor to obtain flight clearances for any airports or other facilities that may interfere with flight plans.
- Quality control and responsibility for adherence to standards and specifications described herein rest with the Contractor.
- The Contractor shall be responsible for obtaining any necessary clearances related to controlled air space. The Contractor must also obtain all licenses, permits, and clearances necessary for performance of the Scope of Work.

5.0 Suggestions or Modifications to the Scope of Work

Contractors may and are even encouraged to provide alternate approaches or modifications to the specifications as found in Scope of Work. However, for a Contractor to be considered, a response to the provided Scope of Work following the Proposal Submittal Guidelines found in Section 6.0 must be supplied. Any modifications and or suggestions are to be supplied in addition to the response of the provided Scope of Work.

6.0 Proposal Format / Requirements

All responses must follow the same format. To be accepted for evaluation, the response format must address all required components in order.

The requirement of a response format is to simplify 1) the response preparation and 2) the evaluation process, to ensure that all responses receive the same orderly review.

All responses must include the following components:

1. **Cover Letter**
    a. A brief statement of the respondent's understanding of the project
    b. The name, title, phone number, fax number, E-mail address, and street address of the person in the proposer's organization who will respond to questions about the response.
    c. Highlights of the respondent's proposal and ability to perform the project services
2. **Company Overview**
    a. Company Name / Address / Telephone /Fax Numbers
    b. Contact Person
    c. Type of Organization
    d. Total Number of Staff
3. **Brief Company History Summary of Related Experience**
    a. Project Name / Location / Dollar Value / Owner Information. Include Contact Person with Phone Number.
    b. Start / Finish Dates.
    c. Services Provided
    d. Key Team Members and Consultants in Project Team.

4. **Financial / Legal**
    a. Provide a Copy of Last Year-End Financial Statement or Letter from Accountant / Bank Regarding Firm's Financial Position. Financial References may be substituted for Financials if necessary, but Financial Statement would be preferred.
    b. State of Illinois Business License.
    c. Provide Insurance Coverage Certification. See Attachment C for insurance guidelines.
    d. Provide Statement of Current Legal Actions Relating to Current or Past Projects.
5. **Project Team**
    a. Organizational Chart
    b. Individual Team Members /Position Title / Job Function
    c. Resumes
    d. Preliminary Staff Allocation Schedule by Percent
        - Per Month
        - Overall Totals
        - Consultants Percentage Allocation Schedule
6. **Project Approach**
    a. Describe detailed approach to Scope of Work.
    b. Describe unique or innovative approaches to any of the required services.
    c. Provide estimate of project completion term with anticipated delivery schedule of project deliverables.
    d. Describe experience in meeting the stated project specifications and deliverables.
7. **Firm / Individual Commitment to Project**
    a. Future Availability
    b. Current Contractual Commitments
8. **Cost Proposal**
    a. An itemized cost for each task – including time estimates and separate costs for Champaign, Piatt, and Douglas counties.
    b. Provide costs for each of the products as described in the Scope of Work.
9. **Project References**
    a. list of at least three (3) current references for whom comparable work has been performed
    b. Include client name, person to contact, address and telephone number with each project reference.

7.0 Proposal Submittal

One (1) printed copy and one (1) digital copy *(PDF format)* of the proposal must be received on or before ***Wednesday, November 27, 2019 at 11:30 am***.

The printed proposal shall be addressed to:

Leanne Brehob-Riley, GIS Director
Champaign County GIS Consortium
Brookens Administrative Center
1776 East Washington Street
Urbana, Illinois 61802

The outside of the package shall be marked with RFP 2019 – 001, time and date of opening, "*November 27, 2019 at 11:30 am"*, and proposal subject, "*Aerial Photography Services*".

The digital proposal shall be emailed to:

Leanne Brehob-Riley, GIS Director at lbrehob-riley@co.champaign.il.us

The email subject line shall state *"RFP 2019 – 001: Aerial Photography Services"*.

Inquires pertaining to Request for Proposal must include "RFP 2019-001 Questions" in the subject line. Questions should be referred via email by 4:30 pm, local prevailing time, on or before Wednesday, November 13, 2019 to:

Leanne Brehob-Riley, GIS Director
(217) 819-4050
lbrehob-riley@co.champaign.il.us

Addenda question answers will be posted on the Champaign County GIS Consortium's website at: https://www.ccgisc.org/administration.aspx

8.0 Proposal Evaluation

Selection shall be made of Contractors deemed to be fully qualified and best suited among those submitting proposals, on the basis of the following factors:

- **Proposed Scope of Services:** The proposal will be evaluated based on the Contractors demonstrated understanding of the Scope of Work.
- **Qualifications of the Project Team:** The quality and experience of the proposed staff and the proper balance of relevant skills.
- **Delivery Schedule**
- **Proposal Content:** The proposal will be evaluated for brevity, professional accuracy, and content. There is no need for elaborate presentation documents or brochures.
- **Cost:** Please note that while costs shall be considered, it will not be the sole determining factor.

9.0 General Information and Requirements

CONTRACT: Should a contract be awarded as a result of this RFP; the contract will be with Champaign County as the lead agency of CCGISC.

RIGHTS OF CCGISC: The CCGISC, acting pursuant to the authority given by Champaign County as Lead Agency of CCGISC and as an administrative agent for Piatt and Douglas counties for the purpose of soliciting proposals as described herein reserves the right to accept or reject all or any part of any proposal, waive informalities and award the contract to the proposer that best serves its interests.

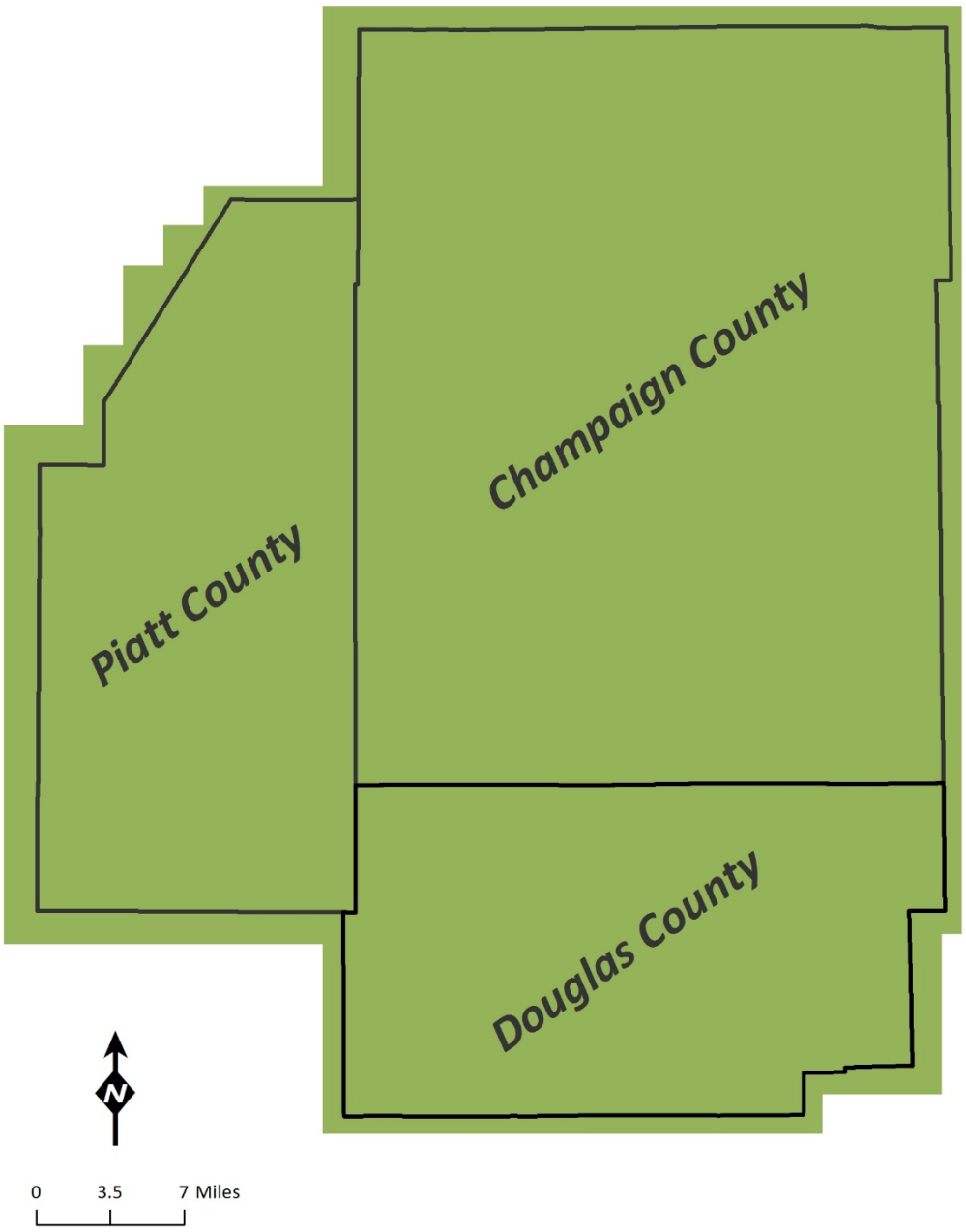
REALISTIC COST ESTIMATES: While cost estimates are requested with responses, the practice of "low balling" a cost in response to this RFP is STRONGLY DISCOURAGED. Should a contractor attempt to negotiate project costs unjustifiably higher than estimates indicated in the RFP, the negotiations will be IMMEDIATELY TERMINATED.

SUBCONTRACTORS: All proposers shall include a list of all subcontractors with their proposal.

OFF SHORE SERVICES: The use of subcontractors or service providers outside of the United States of America will NOT be accepted. The contractor will provide a signed statement assuring the CCGISC that all required services will be performed within the United States of America.

LICENSE REQUIREMENT: All firms doing business in Champaign County are required to be licensed in good standing with the State of Illinois.

Attachment A

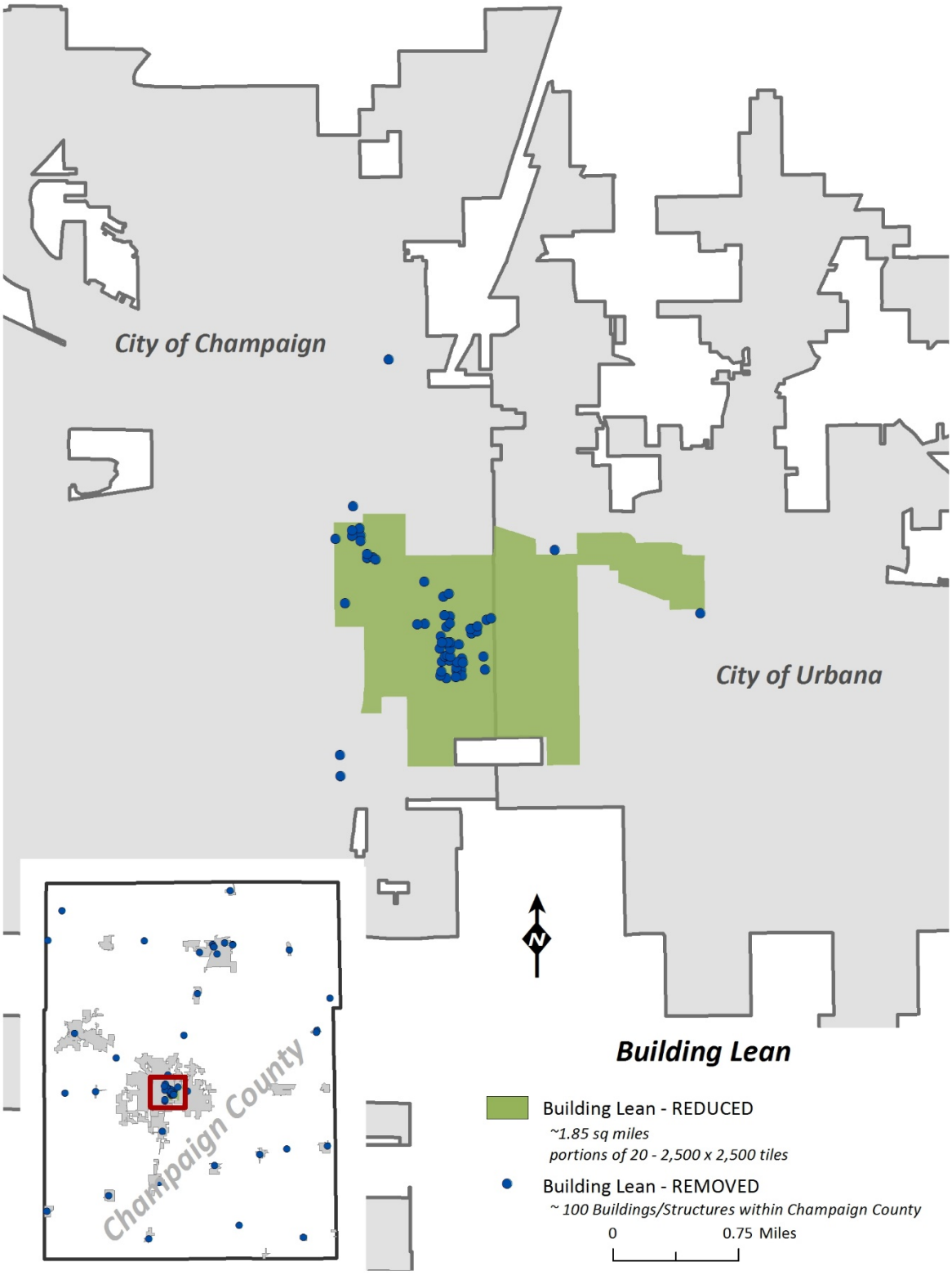


Proposed Capture Area

0.5' Pixel Resolution

(2079 total sq miles - Champaign 1123 sq miles; Piatt 499 sq miles; Douglas 417 sq miles)

Attachment B



Attachment C

INSURANCE GUIDELINES

1. **Binders/Certificates of Endorsements/Endorsements/Coverage Verification:**

All vendors submitting bids must provide binders or certificates of endorsement insurance forms as completed by authorized agent or broker. Insurance coverage must be placed with an insurance company that has at least a Best A rating. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. CCGISC reserves the right to require complete, certified copies of all required insurance policies at any time. If subcontractors are to be utilized, vendors shall include them as insured's and shall furnish separate certificates of insurance and endorsements for each subcontractor.

2. **Adjustments to Insurance Policy**: Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after twenty (20) days prior written notice by certified mail, return receipt requested, has been given to CCGISC.

3. **Minimum Limits of Insurance**: Vendors shall maintain each category of insurance and its corresponding minimums-

$1,000,000 combined single limit **per occurrence** for bodily injury, personal injury and property damage. Contractual Liability, Broad Form Property Damage, Products and Completed Operations Liability insurance is to be carried in sufficient **aggregate value** as to sufficiently cover this project.

Policies are to contain the following provisions:

1. CCGISC, its officials and employees are to be covered as insured's as respects: liability arising out of activities performed by or on the behalf of the vendor; products and completed operations of the vendor, or all automobiles utilized by the vendor. The coverage shall contain no special limitations on the scope of protection afforded to CCGISC, its officials or employees.

2. The vendor's insurance coverage shall be primary insurance as respects CCGISC, its officials and employees. Any insurance issued to CCGISC, its officials or employees shall be in excess of that vendor's insurance and shall not contribute with it.

3. Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to CCGISC, its officials or employees.

4. The vendors insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

Digital Orthoimagery Services

Champaign, Piatt, and Douglas Counties, Illinois

Champaign County GIS Consortium
November 27, 2019

AYRES

Ingenuity, Integrity, and Intelligence.

www.AyresAssociates.com

AYRES

Ingenuity, Integrity, and Intelligence.

November 22, 2019

Leanne Brehob-Riley, GIS Director
Champaign County GIS Consortium
Brookens Administrative Center
1776 East Washington Street
Urbana, IL 61802

Re: RFP 2019 – 001: Aerial Photography Services

Dear Ms. Brehob-Riley and Selection Committee Members:

High-quality orthoimagery projects are a smart, cost-effective way to acquire valuable geospatial data. The Champaign County GIS Consortium (CCGISC) knows this and wants to bring the many benefits of quality, up-to-date imagery to the local agencies and residents of your area. Like you, Ayres understands this and stands ready to assist you once again by bringing its capabilities in geospatial services to your project.

Ayres has established a track record of providing GIS users in Illinois and the greater Midwest with innovative, cost-effective geospatial solutions. We have been providing high-accuracy mapping and surveying services to member communities in the Illinois-based GIS Consortium since the 1990s and have served as the prime consultant for a large-scale imagery and elevation program in Wisconsin for more than 20 years. We have consistently demonstrated that we not only provide quality work but also provide it at an excellent value. In the past few years we prepared orthoimagery for more than 25 counties and many more municipalities within Illinois, including Lake, Kane, and McHenry County's first countywide 3-inch orthoimagery project – which they have again awarded to Ayres.

Ayres understands that, in a consortium, many priorities need to be met. The CCGISC's primary goal is to acquire accurate 6-inch orthoimagery for Champaign, Piatt, and Douglas Counties. The Consortium realizes that some areas of this project are heavily urbanized and may benefit from a project that addresses issues such as building lean to aid in mapping projects in these communities. Ayres specializes in projects that require this attention to detail and will give the Consortium options that provide value to these communities. Additionally, Ayres' past experience with your project will provide peace of mind knowing the team and feeling confident that your project will be well on its way to a successful outcome.

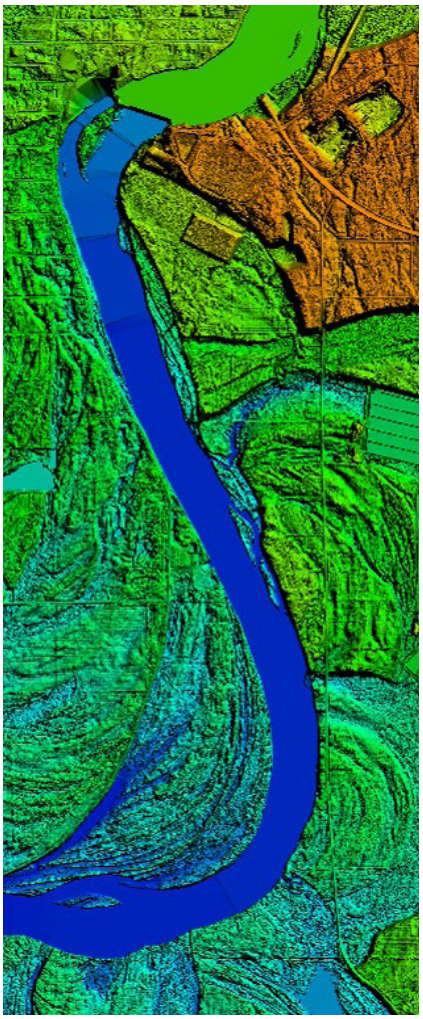
All of our work will be completed in the United States and, more specifically, right here in the Midwest. Our approach to your project involves bringing the CCGISC personnel into the team to interact and participate in each phase of the project – from design to completion. We believe completing projects means more than just the delivery of final products. We're committed to understanding your spatial data needs and hope to further discuss how we can meet the goals of the CCGISC. In the meantime, please contact us if you have any questions or would like additional information after reviewing our proposal.

Sincerely,

Ayres Associates Inc

Adam P. Derringer, GISP
Project Manager
608.443.1231
DerringerA@AyresAssociates.com

Jason B. Krueger, CP, GISP
Manager – Aerial Mapping
608.443.1230
KruegerJ@AyresAssociates.com



Company Overview

About Ayres

Ayres is a nationwide team of experts and innovative problem-solvers. We stand behind thousands of our projects that strengthen communities and our country's infrastructure, economy, and environment every day.

Nationally recognized for our skill and experience in aerial mapping, land surveying, and GIS, we deliver efficient and intelligent solutions for your project. As a project partner, working with us is a turnkey process: Tell us about your budget, schedule, and situational conditions, and we'll respond with a plan that brings exceptional value without sacrificing quality or service.

- Aerial Imaging
- Aerial & Mobile Lidar
- As-Built Survey
- Asset Management
- Boundary Survey
- Construction Staking
- Digital Orthoimagery
- Electric Transmission Line Corridors
- Electric Utility Survey
- Engineering Design Surveys
- Geodetic Control
- GIS Consulting
- Ground Control
- Land Surveying
- HD Scanning
- Hydrographic Survey
- Impervious Surface Mapping
- Mining Sites, Wind Farms & Energy Corridors
- Photogrammetric Mapping
- Remote Sensing
- Right-of-Way Plats
- Telecom Network & Infrastructure Mapping
- Topographic & Site Survey
- Unmanned Aerial Systems
- USGS Grant Assistance

"The project was delivered on time, within budget, and with very limited demand on City resources."

Ross Buetow
Deputy Public Works Director/
City Engineer,
City of Appleton

Company name and contact information:

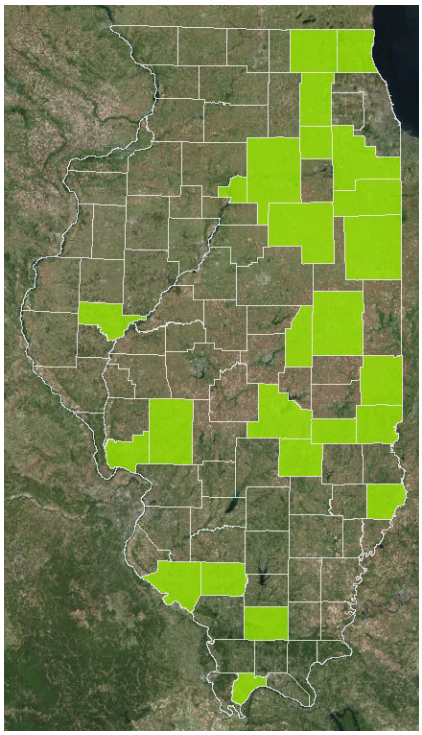
Ayres Associates Inc
5201 E. Terrace Drive, Suite 200
Madison, WI 53718
Phone: 608.443.1200
Fax: 608.299.2184

Type of organization:

Employee-owned corporation

Total number of staff:

312



Counties Ayres has provided orthoimagery services

Company History/ Related Experience

Ayres has a long history of services to counties and municipalities in Illinois and looks forward to the opportunity to bring our expertise and experience to the Champaign County GIS Consortium (CCGISC) and its participating entities. We have established a core group of repeat clients that appreciate knowing Ayres can be relied on to deliver quality products at a fair price.

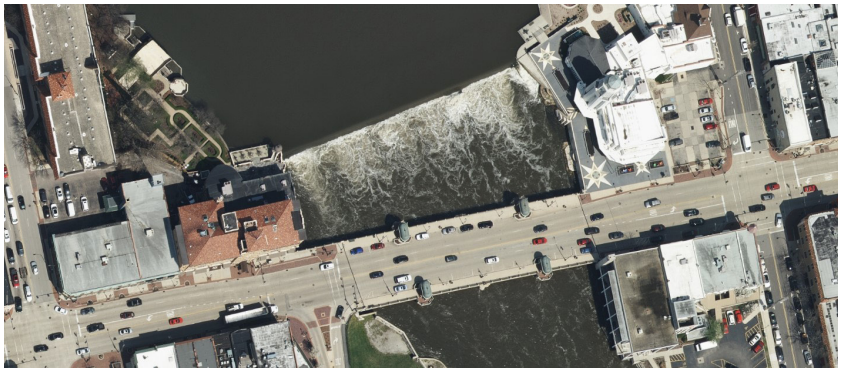
Ayres has established a unique ability to build partnerships among our clients. We have helped build many grassroots partnership programs in which participants work together to take advantage of cost-sharing opportunities. We understand the many benefits of consortium approaches and do all we can to encourage and facilitate their implementation.

Please find specific examples of related project experience below.

Kane County 3-Inch Orthoimagery

Location: Kane County, Illinois
Dollar Value: $134,511.66
Client: Kane County GIS-Technology Department
Contact: Thomas Nicoski, 630.208.8655, gistech@co.kane.il.us
Start/Finish Dates: March 2017-November 2019
Key Staff: Adam Derringer, GISP; Jason Krueger, CP, GISP; Burton Lindquist; Aaron Sale
Services Provided: Kane County hired Ayres to provide digital orthophotography services in 2017 and 2019.

In spring 2017, approximately 624 square miles of digital aerial imagery were collected to cover the County lands plus a 1-mile buffer around the County boundary. The aerial imagery was collected and processed for Countywide 3-inch resolution orthoimagery.



This project was completed with two sister projects covering Lake and McHenry Counties. This challenging three-county project covered over 1,800 square miles, much of which was flown in O'Hare's restricted airspace – requiring constant communication with the project team and air traffic control. In addition to the flight restrictions and project size, our team needed to navigate early and late snow storms as well as the resulting flooding that occurred in spring 2017.

Ayres produced the resources and expertise required at all phases of this complex project, from flight to final delivery, without any requested edits after a through quality review by the client.

In spring 2019, Ayres acquired 4-band aerial imagery during leaf-off, snow-free conditions at a 35-degree sun angle or greater. The imagery was processed to 3-inch orthos, using the existing surface or lidar from NEIL 4 to meet ASPRS Accuracy Standards (2014) for imagery of 36.7 cm horizontal accuracy at the 95% confidence level (Level 1).

Lake County 3-Inch Orthoimagery

Location: Lake County, Illinois
Dollar Value: Total fees = $200,561.93
Client: Lake County Purchasing Division
Contact: Keith Caldwell, 847.377.2578, KCaldwell@lakecountyil.gov
Start/Finish Dates: March 2017-present
Key Staff: Adam Derringer, GISP; Jason Krueger, CP, GISP; Burton Lindquist; Aaron Sale; Matthew Vinopal, CP, CMS-Lidar, GISP
Services provided: Lake County selected Ayres to provide 3-inch aerial imagery acquisition and processing services in 2017 with four optional additional one-year extensions. Much of Lake County is in O'Hare's restricted airspace – requiring constant communication with the project team and air traffic control. The imagery was processed to 3-inch orthos, using Geiger lidar from NEIL 4, which Ayres reprocessed for the ortho surface to meet ASPRS accuracy. The Lake County project area is 546 square miles, which is Countywide with a 1-mile buffer. Ayres was asked to complete this project again in spring 2018, marking the first time Lake County was able to have new 3-inch orthoimagery in back-to-back years to help account for change in the County. Services to the County are ongoing as it continues to look to Ayres for its professional geospatial needs. Services include collecting aerial imagery, providing orthoimagery in multiple formats and mosaics, and mapping buildings and impervious surfaces.

Wisconsin Regional Orthoimagery Consortium

Location: Various locations
Dollar Value: Approximately $6 million
Client: North Central Wisconsin Regional Planning Commission
Contact: Andy Faust, 715.849.5510, afaust@ncwrpc.org
Start/Finish Dates: March 2020-June 2021
Key Staff: Adam Derringer, GISP, Matthew Vinopal, CP, CMS-Lidar, GISP; Zachary Nienow, GISP; Burton Lindquist, Aaron Sale

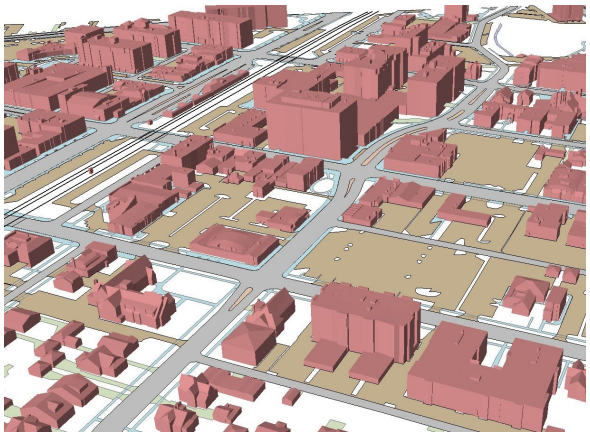
Services provided: The Wisconsin Regional Orthoimagery Consortium (WROC) is a multi-entity group with the goal of building and sustaining a program to acquire digital orthoimagery and elevation data statewide. The WROC approach brings potential benefits to members, including cost savings, specifications and standards support, data sharing between members and partners, and procurement support.

Flights to collect aerial imagery are planned to be carried out in spring 2020. The WROC team will deploy aircraft equipped with precision aerial sensors over more than 60 counties to capture the imagery in a short window of opportunity after snow has melted and before leaves emerge. Separate missions will be mobilized over some counties during this time period to collect aerial lidar (light detection and ranging) for topographic mapping.

To facilitate a cooperative approach for orthoimagery data acquisition, WROC representatives work with the Wisconsin land information community to strengthen relationships among local, regional, state, federal, and private entities. The benefits of a consortium approach, however, should not come at the expense of meeting each member's specific needs. To that end, WROC is designed to allow all participants to receive products and services tailored to their individual needs.

With a five-year cycle, WROC 2020 marks the sixth time since 1995 that a major grassroots consortium has worked together for mutual benefit in Wisconsin. Ayres has been the mapping consultant for each of these efforts, a strong indicator of our commitment to client service and long-term client satisfaction. In 2014 and 2015 the WROC team, along with its members and partners, acquired 35,000 square miles of high-resolution orthoimagery throughout the state. The current program features a significant increase in funding support – resulting in higher resolution datasets for nearly every participant. The increased funding support has enabled all participants to acquire 6-inch, and even 3-inch, pixel resolution orthoimagery.

Suburban Chicago GIS Consortium



Location: Various locations
Dollar Value: Approximately $250,000 annually
Client: GIS Consortium
Contact: Andrew Shuman, 847.656.5698, ashuman@mgpinc.com
Start/Finish Dates: Continuous
Key Staff: Jason Krueger, CP, GISP; Burton Lindquist; Aaron Sale; Matthew Vinopal, CP, CMS-Lidar, GISP
Services provided: The Illinois-based GIS Consortium (GISC) represents one of Ayres' most complex geospatial programs and exemplifies our background in performing large-scale mapping in urban environments. The GISC is a group of more than 30 communities in the Chicago region that work together to develop GIS solutions to support a wide range of applications, including municipal engineering, planning, forestry, and public safety. Ayres has been providing high-accuracy mapping and surveying services to member communities since the 1990s. The GISC recently awarded Ayres a five-year renewal of geospatial services, which will extend our partnership through at least 2021.

The mapping performed for the GISC is designed primarily for daily use in municipal engineering. Annual aerial missions maintain up-to-date base mapping data, consisting of 3-inch resolution orthoimagery, 1" = 50' scale planimetrics, and 1-foot interval contours derived from high-resolution lidar. Ancillary products have included leaf-on aerial imagery for urban forestry applications, 3D modeling of structures, and tall building-lean mitigation in business districts.

Most of the GISC falls within a 10-nautical-mile radius of Chicago's O'Hare International Airport. This is one of the most difficult airspace environments in the United States and presents unique challenges during each flying season. Ayres has built strong relationships with the Federal Aviation Administration, Terminal Radar Approach Control Facilities, and the O'Hare Air Traffic Control Tower. Recurring temporary flight restrictions add another dimension to security restrictions in the area.

"Services from Ayres have been excellent. Every time I've had a problem, they've offered solutions for us to look at. A lot of the issues have been more with our own software, but they've given us ideas to look at and avenues to go down."

Scott Hand
Supervisor of GIS Services,
Wisconsin Public Service

Financial/Legal

Year-End Financial Statement

See documentation included in this section for our most recent version of the requested information.

State of Illinois Business License

See documentation included in this section.

Insurance Coverage

See certificate included in this section.

Current Legal Actions Relating to Current or Past Projects

Below is the status and outcome of any current significant claims or lawsuits against Ayres Associates Inc:

Claim Name: ECI v. Dakota County (Ayres as added third party)
Claim Date: 10/28/19
Claim Description: The claim involves failing shotcrete treatment on a hydroelectric dam.
Disposition: Currently in litigation

Claim Name: Anna Maria v. Ayres Associates
Claim Date: 8/14/19
Claim Description: The claim involves design of a fire protection system and building layout on a new pier.
Disposition: Currently in discussions

Claim Name: WisDOT v. Ayres Associates
Claim Date: 6/10/19
Claim Description: The claim involves existing pavement type being different in field than shown on plans.
Disposition: Notification of potential claim

Claim Name: WisDOT v. Ayres Associates
Claim Date: 4/4/19
Claim Description: The claim involves design of a new bridge where the piling for the piers hit a foundation from a previous bridge requiring modifications to design.
Disposition: Currently in discussions

Claim Name: WisDOT v. Ayres Associates
Claim Date: 3/28/19
Claim Description: The claim involves design of a rehabilitated bridge where piling for abutments hit old bridge foundation, and additional work was necessary to stage stormwater construction.
Disposition: Currently in discussions

Ayres Associates Inc

Eau Claire, Wisconsin

Financial Statements

Years Ended December 31, 2018 and 2017

WIPFLi LLP

Independent Auditor's Report

Board of Directors
Ayres Associates Inc
Eau Claire, Wisconsin

We have audited the accompanying financial statements of Ayres Associates Inc, which comprise the balance sheets as of December 31, 2018 and 2017, and the related statements of income, stockholders' equity, and cash flows for the years then ended and the related notes to the financial statements.

Management's Responsibility for the Financial Statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility
Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Ayres Associates Inc as of December 31, 2018 and 2017, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States.

Wipfli LLP

Wipfli LLP

March 6, 2019
Eau Claire, Wisconsin

Ayres Associates Inc
Balance Sheets

December 31, 2018 and 2017	2018	2017
Assets		
Current assets:		
Cash and cash equivalents	$ 4,832,033	$ 1,762,227
Current portion of notes receivable	63,933	55,231
Accounts receivable - Less allowance for doubtful accounts of $261,703 and $232,666	6,580,253	6,183,522
Work in process, costs and estimated earnings in excess of billings	2,184,485	2,854,806
Prepaid expenses	1,242,440	1,075,206
Other receivables	155,685	142,203
Total current assets	15,058,829	12,073,195
Net property and equipment	2,396,916	1,917,538
Other assets and investments:		
Notes receivable - Less current portion	132,205	110,000
Intangibles - Net of amortization of $447,081 and $328,513	696,934	815,502
Investment in unconsolidated entities	5,931,601	5,586,421
Total other assets	6,760,740	6,511,923
TOTAL ASSETS	$ 24,216,485	$ 20,502,656

Ayres Associates Inc
Statements of Income

Years Ended December 31, 2018 and 2017	2018	2017
Professional services revenue	$ 47,101,434	$ 43,961,336
Operating costs and expenses:		
Salaries and wages	23,945,295	22,236,076
Subconsultants	6,508,716	6,557,236
Insurance	2,496,612	2,703,413
Meetings and travel	2,168,152	1,971,204
Rent	2,371,123	2,279,700
Depreciation and amortization	991,959	899,527
Payroll taxes	1,675,118	1,583,168
Office supplies	312,479	267,022
Retirement plan	1,697,856	1,350,324
Bad debt expense (recovery)	(10,621)	37,000
Utilities	479,505	486,650
Computer expense	694,292	601,979
Professional fees	238,732	265,802
Other	1,150,451	984,513
Total operating costs and expenses	44,719,669	42,223,614
Income from operations	2,381,765	1,737,722
Other income (expense):		
Interest income	20,274	7,121
Gain on disposal of property and equipment	35,550	14,132
Equity in income of unconsolidated entities	358,680	338,622
Interest expense	(174,475)	(130,833)
Total other income (expense)	240,029	229,042
Income before provision (benefit) for income taxes	2,621,794	1,966,764
Provision (benefit) for income taxes	370,000	(53,100)
Net income	$ 2,251,794	$ 2,019,864

See accompanying notes to financial statements.

Ayres Associates Inc
Statements of Stockholders' Equity

Years Ended December 31, 2018 and 2017	Common Stock 2,000,000 Shares Authorized No Par Value $.015 Stated Value Shares	Amount	Additional Paid-In Capital	Retained Earnings	Total Stockholders' Equity
Balances at December 31, 2016	177,943	$2,669	$3,406,181	$ 131,829	$ 3,540,679
Net income	0	0	0	2,019,864	2,019,864
Issuance of common stock	3,152	47	290,441	0	290,488
Redemption of common stock	(13,405)	(201)	(268,280)	(966,924)	(1,235,405)
Balances at December 31, 2017	167,690	2,515	3,428,342	1,184,769	4,615,626
Net income	0	0	0	2,251,794	2,251,794
Issuance of common stock	2,831	43	357,853	0	357,896
Redemption of common stock	(1,880)	(28)	(41,773)	(393,893)	(435,694)
Balances at December 31, 2018	168,641	$2,530	$3,744,422	$3,042,670	$ 6,789,622

See accompanying notes to financial statements.

5

Ayres Associates Inc
Statements of Cash Flows

Years Ended December 31, 2018 and 2017	2018	2017
Increase (decrease) in cash and cash equivalents:		
Cash flows from operating activities:		
Net income	$ 2,251,794	$ 2,019,864
Adjustments to reconcile net income to net cash provided by operating activities:		
Provision for depreciation and amortization	991,959	899,527
Provision (recoveries) for bad debts	29,037	(18,170)
Gain on disposal of property and equipment	(35,550)	(14,132)
Benefit for deferred income taxes	(279,900)	(642,100)
Equity in income of unconsolidated entities	(358,680)	(338,622)
Changes in operating assets and liabilities:		
Accounts receivable	(425,768)	(368,926)
Work-in-process	1,896,730	283,968
Prepaid expenses	(167,234)	(36,319)
Other receivables	(8,482)	10,833
Accounts payable	54,286	(102,332)
Income taxes payable	141,875	232,055
Accrued expenses	724,619	396,029
Deferred rent payable	(9,308)	(8,337)
Total adjustments	2,553,584	293,474
Net cash provided by operating activities	4,805,378	2,313,338
Cash flows from investing activities:		
Payments received on notes receivable	67,653	59,644
Proceeds from disposal of property and equipment	51,403	19,375
Property and equipment purchases	(560,701)	(414,993)
Distributions from equity investments	8,500	10,500
Net cash used in investing activities	(433,145)	(325,474)

Ayres Associates Inc

Statements of Cash Flows (Continued)

Years Ended December 31, 2018 and 2017	2018	2017
Cash flows from financing activities:		
Principal payments on long-term notes payable	$ (1,523,645)	$ (1,328,970)
Principal payments on capital lease obligation	(38,118)	(36,169)
Proceeds from issuance of common stock	259,336	180,174
Net cash used in financing activities	(1,302,427)	(1,184,965)
Net change in cash and cash equivalents	3,069,806	802,899
Cash and cash equivalents at beginning	1,762,227	959,328
Cash and cash equivalents at end	$ 4,832,033	$ 1,762,227

CORP/LLC - File Detail Report

OFFICE OF THE ILLINOIS SECRETARY OF STATE

JESSE WHITE
SECRETARY OF STATE

CORPORATION FILE DETAIL REPORT

File Number	56825614		
Entity Name	AYRES ASSOCIATES INC		
Status	ACTIVE		
Entity Type	CORPORATION	**Type of Corp**	FOREIGN BCA
Qualification Date (Foreign)	05/08/1992	**State**	WISCONSIN
Agent Name	ILLINOIS CORPORATION SERVICE C	**Agent Change Date**	06/04/2013
Agent Street Address	801 ADLAI STEVENSON DRIVE	**President Name & Address**	BRUCE A OMMEN 3433 OAKWOOD HILLS PKWY EAU CLAIRE WI 54701
Agent City	SPRINGFIELD	**Secretary Name & Address**	JAN F ZANDER SAME ADDRESS
Agent Zip	62703	**Duration Date**	PERPETUAL
Annual Report Filing Date	04/17/2019	**For Year**	2019
Old Corp Name	04/25/2005 - OWEN AYRES AND ASSOCIATES, INC.		

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 1/2/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Arthur J. Gallagher Risk Management Services, Inc. 245 South Executive Drive, Suite 200 Brookfield WI 53005	**CONTACT NAME:** Sharon Bannach **PHONE (A/C, No, Ext):** 262-792-2214 **FAX (A/C, No):** 262-792-1712 **E-MAIL ADDRESS:** Sharon_Bannach@ajg.com
INSURED AYREASS-02 AYRES ASSOCIATES INC 3433 Oakwood Hills Parkway Eau Claire, WI 54702-1509	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** Travelers Property Casualty Co of America — 25674 **INSURER B :** The Travelers Indemnity Company of CT — 25682 **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 844103742 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY X PRO-JECT LOC OTHER:			P6302183P260TIA19	1/1/2019	1/1/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY			8102L352245	1/1/2019	1/1/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ $ $ $
A	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $ 0			CUP9J784097	1/1/2019	1/1/2020	EACH OCCURRENCE AGGREGATE Products/Compl Ops	$ 8,000,000 $ 8,000,000 $ 8,000,000
B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		UB9H9437751843E	1/1/2019	1/1/2020	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

EVIDENCE OF COVERAGE

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Michael Berg.

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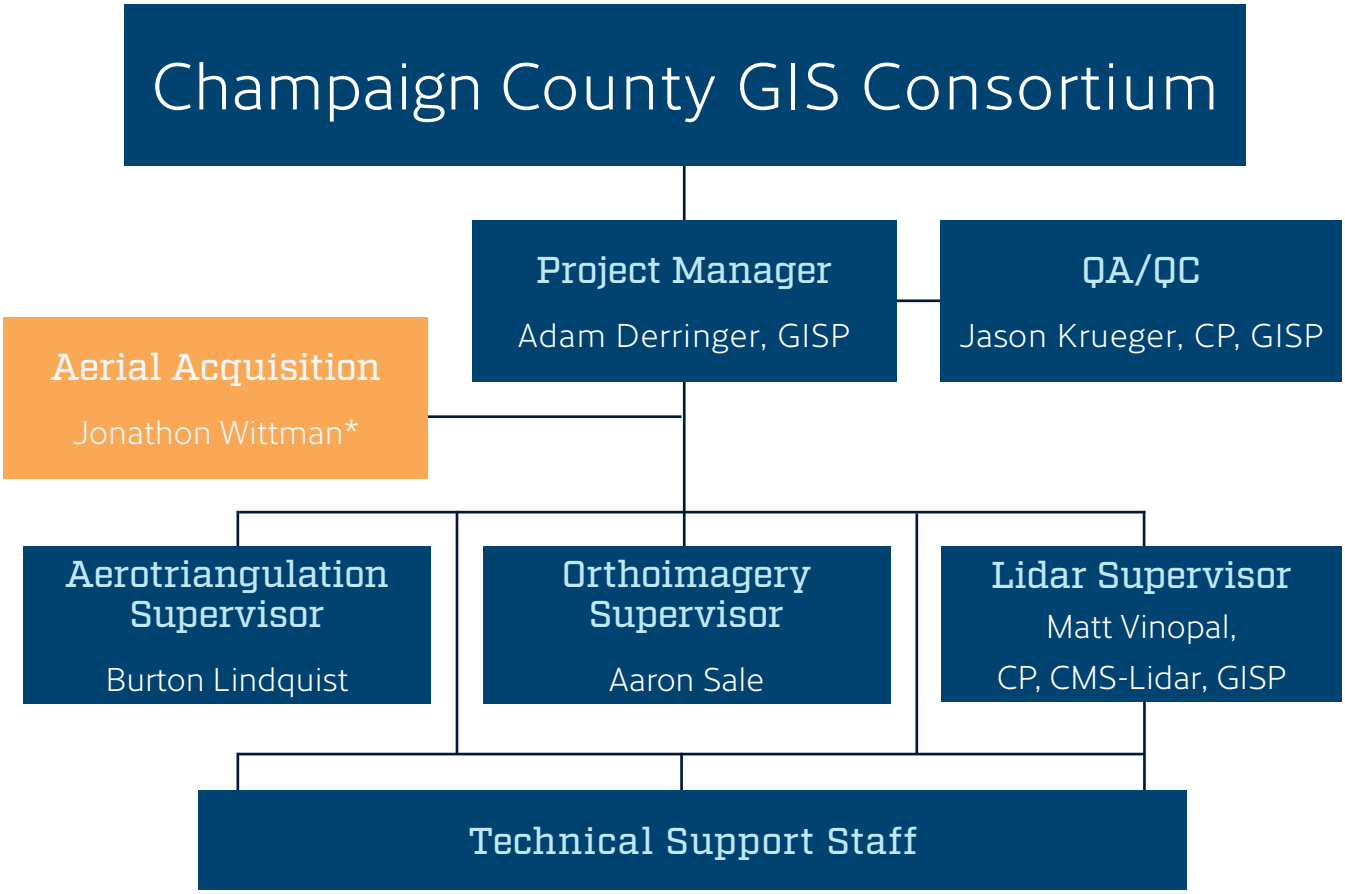
Project Team

The chart below indicates the lines of communication and the structure of the project team assembled for your project. Information on the qualifications of key members of the Ayres team can be found in the pages that follow.



*** Subconsultant**

Preliminary Staff Allocation

We estimate the following hours:

- Adam Derringer, 8 hours per month between February and September
- Burton Lindquist, 140 hours between April and May
- Matt Vinopal, 40 hours between April and May
- Aaron Sale and technical staff, 410 hours between June and August

Certifications

Certified ArcGIS Desktop Professional, Esri

Certified Geographic Information Systems Professional, GIS Institute, 2013

Education

BS, Physical Geography/ Cartography, University of Wisconsin-Stevens Point, 2001

Awards

Esri Special Achievement in GIS Award

Wisconsin Land Information Association Outstanding Contribution Award

Wisconsin Land Information Association Distinguished Service Award

Memberships

Esri Wisconsin User Group, Board and Committee Chair

Illinois GIS Association

Wisconsin Land Information Association, Past President

Wisconsin Land Information Association Foundation, Board Member

Wisconsin Land Information Council, Chairman

Years of Experience

18

Adam Derringer, GISP

Project Manager

Adam joined Ayres' geospatial operations in 2013 as a project manager. He excels in project design and management, client relations, problem solving, bidding, estimating, budgeting, cost reduction, and staff training and development. Adam values long-term client relationships and works effectively on projects with multidisciplinary teams. He has experience establishing and managing a GIS department. He also has experience in the public sector in Wisconsin, where he implemented Juneau County's first GIS.

Adam has consulted worldwide on GIS department best practices and workflows, and he is the recipient of an international Esri Special Achievement in GIS award. He has extensive experience with geoprocessing, scripting, modeling, and data conversions. Adam is a Wisconsin Land Information Association past president, chairman of the 12-member Wisconsin Land Information Council, and a board member of the Esri Wisconsin User Group.

Select Experience

- Lake County, IL, 3-inch Orthos, 2017, 2018
- Kane County, IL, 3-inch Orthos, 2017, 2019
- McHenry County, IL, 3-inch Orthos, 2017, 2018
- Kendall County, IL, Spring Aerial Orthoimagery, 2016
- Chicago Transit Authority 95th Street Terminal, 2013
- Boone County, IL, Orthos, 2018
- Perry County, IL, Orthos, 2017
- Shelby County, IL, Orthos, 2018
- Livingston County, IL, Contour Generation, 2017
- Wisconsin Regional Orthoimagery Consortium 2015, 2020
- USGS 3D Elevation Program Funding (22,000 square miles of Wisconsin lidar collected)
- GIS Consortium, providing geospatial services to communities in the Chicago region since the 1990s, including: Buffalo Grove, Carbondale, Deerfield, Des Plaines, Elk Grove, Glencoe, Glenview, Highland Park, Lake Forest, Lincolnshire, Lincolnwood, Morton Grove, Norridge, Northbrook, Northfield, Oak Brook, Park Ridge, Riverside, Rolling Meadows, Skokie, Tinley Park, Villa Park, Western Springs, Wheeling, Winnetka

Jason Krueger, CP, GISP

Quality Assurance/Quality Control

Jason brings experience in the fields of mapping and GIS. He has worked both as a technician and as a project manager for a broad range of mapping and land information services, and his experience includes work in the public and private sectors. His specialties include lidar and photogrammetry project design, flight planning, and customized spatial data services.

Registration

Certified Photogrammetrist, ASPRS, US, 2013

Certification

Certified Geographic Information Systems Professional, GIS Certification Institute, 2008

Education

BS, Geography, University of Wisconsin-Stevens Point, 1997

Years of Experience

22

Select Experience

- Champaign/Piatt Counties, IL, Orthoimagery, 2014
- Lake County, IL, 3-inch Orthos, 2017, 2018
- Kane County, IL, 3-inch Orthos, 2017, 2019
- McHenry County, IL, 3-inch Orthos, 2017
- Jersey County, IL, Orthoimagery, 2016
- Kendall County, IL, Orthoimagery, 2014, 2016
- Pulaski County, IL, Orthoimagery, 2015
- Randolph County, IL, Orthoimagery, 2014
- Schuyler County, IL, Orthoimagery, 2016
- Will County, IL, Contour Generation, 2015
- Williamson County, IL, Orthoimagery, 2014
- GIS Consortium

Aaron Sale

Orthoimagery Supervisor

Aaron joined Ayres in 1996 as a digital orthophotography technician. His experience with Ayres is in the use and production of digital orthophotography and flight planning for geospatial projects. He has led imagery development for major orthoimagery projects around the nation. His experience includes the award-winning Wisconsin Regional Orthoimagery Consortium project, which was the first statewide, leaf-off orthoimagery project in the state and included the development of 18-inch resolution imagery of the entire state as well as higher resolution imagery for a range of public and private entities.

Education

BS, Geography/Earth Sciences, University of Wisconsin-La Crosse, 1996

Years of Experience

24

Select Experience

- Champaign/Piatt Counties, IL, Orthoimagery, 2014
- Lake County, IL, 3-inch Orthos, 2017, 2018
- McHenry County, IL, 3-inch Orthos, 2017
- Jersey County, IL, Orthoimagery, 2016
- Schuyler County, IL, Orthoimagery, 2016
- Kendall County, IL, Orthoimagery, 2014, 2016
- Shelby County, IL, Orthoimagery, 2018
- Northfield, IL, Lidar/Orthos, 2017
- Perry County, IL, Orthos, 2017

Registrations

Certified Photogrammetrist, ASPRS, US, 2018

Certified Mapping Scientist, Lidar, ASPRS, US, 2018

Certification

Certified Geographic Information Systems Professional, GIS Institute Inc, 2014

Education

BS, Geography-Resource Management, University of Wisconsin-Eau Claire, 1998

Years of Experience

20

Matt Vinopal, CP, CMS-Lidar, GISP

Lidar Supervisor

Matt joined Ayres in 2000 as a stereo compilation technician. As supervisor, he plays an integral role in developing and maintaining an outstanding lidar processing group and has led complex lidar missions for projects around the country. This includes the completion of approximately 50,000 square miles of lidar for local government, state departments of transportation, and the U.S. Geological Survey. Matt personally oversees all lidar projects from start to finish, maintaining oversight on all project requirements and ensuring accuracy expectations are met and deliverables are complete. He has undertaken the responsibility of understanding a variety of nationally recognized accuracy standards that are applied to our lidar mapping projects.

Select Experience

- Champaign/Piatt Counties, IL, Orthoimagery, 2014
- Lake County, IL, 3-inch Orthos, 2017, 2018
- Kane County, IL, 3-inch Orthos, 2017, 2019
- McHenry County, IL, 3-inch Orthos, 2017
- Jersey County, IL, Orthoimagery, 2016
- Pulaski County, IL, Orthoimagery, 2015
- Schuyler County, IL, Orthoimagery, 2016
- Livingston County, IL, Contour Generation, 2017
- Northfield, IL Lidar/Orthos 2017
- Will County, IL, Contour Generation, 2015

Education

BS, Cartography/Geography, University of Wisconsin-Eau Claire, 1986

Years of Experience

32

Burton Lindquist

Aerotriangulation Supervisor

Burton joined Ayres Associates in 1989, bringing three years of experience in stereo plotter operation and analytical aerotriangulation, as well as additional skills in orthophoto production and digital file editing. Since 1998, Burton has been in charge of overseeing all phases of analytical aerotriangulation. He has an extensive background in conventional analytical aerotriangulation (AT) and is trained and experienced in the use of Z/I ISAT softcopy AT software.

Select Experience

- Champaign/Piatt Counties, IL, Orthoimagery, 2014
- Lake County, IL, 3-inch Orthos, 2017, 2018
- McHenry County, IL, 3-inch Orthos, 2018
- Kane County, IL, 3-inch Orthos, 2019
- Kendall County, IL, Orthos, 2014, 2016
- Iroquois County, IL Orthos, 2014
- Randolph County, IL, Orthos, 2014
- GIS Consortium

Jonathon Wittman

Flight Operations Manager

Jon directly manages flight coordination for all aerial acquisition projects, including emergency response, digital imagery, lidar data acquisition, and imagery for photogrammetric and GIS mapping. Jon is also responsible for resources allocation of aircraft, sensors, and associated flight personnel. He monitors all aerial operations with real-time tools, including live RSS feed tracking of all mobilized assets. He has several degrees, including an Associate of Arts in aeronautics from Gateway Technical College and a Bachelor of Arts in specialized administration and Master of Business in project management from Lakeland College. Additionally, he is a registered airline transport pilot.

Select Experience

- 2015 Digital Orthophotography for Grand Forks – East Grand Forks MPO, MN
- 2016 Digital Orthos for Southeastern Wisconsin Regional Planning Commission, WI
- 2018 On-Call Photogrammetric Services for the Minnesota DOT, MN
- 2018 On-Call Photogrammetric Services for the Oklahoma DOT, OK
- 2016 Photogrammetric Services for the Montana DOT/DOWL, MT

Registrations

Certified FAA Airline Transport Pilot #2832031

Certified Flight Instructor #2832031 CFI

FAA Commercial Pilot #3968338 Remote Pilot

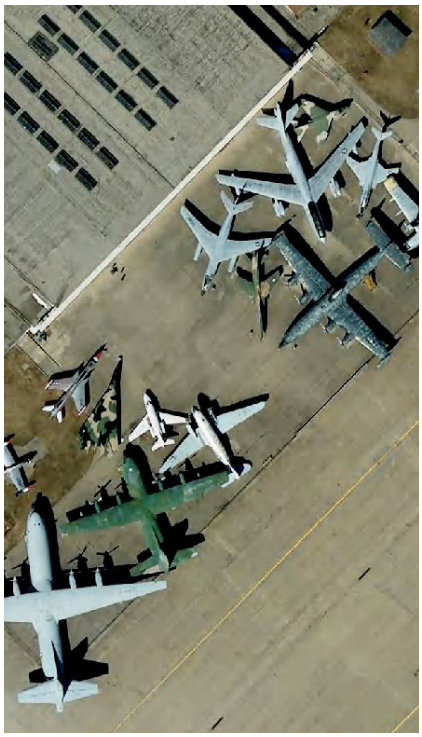
Education

BA, Specialized Administration, Lakeland College, 2006

AA, Aeronautics, Gateway Technical College, 1991

Years of Experience

32



Project Approach

Services Associated with the Project

The following section summarizes the Ayres team's technical approach for the Champaign County GIS Consortium (CCGISC) project. We understand that the primary objective is developing digital orthoimagery.

We are confident that we have a dynamic, well-planned approach to working with the CCGISC. We have carefully estimated the capacity and resources needed – with a focus on maintaining the necessary resources to complete the project on schedule. Based on our project understanding, we have developed a technical approach that addresses the key issues involved in the successful completion of a phased process of project planning, ortho production, and product review.

Digital Orthoimagery

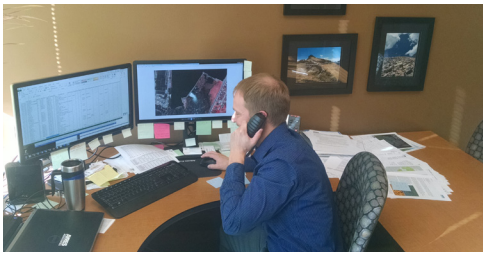
The Ayres team will obtain new color aerial imagery for the CCGISC product option areas in spring 2020 using the groundbreaking UltraCam Eagle M3, an outstanding calibrated, photogrammetric digital mapping camera. The CCGISC has identified four options for the orthoimagery; these consist of projectwide 6-inch color ortho imagery with a request for three options to reduce or virtually eliminate lean from building in specified areas.

Ground Control

Ayres will use a combination of ground control points and airborne GPS (ABGPS) technology to orient the aerial imagery. We understand that the CCGISC will provide all necessary GPS survey work for the ground control targets. We worked well with Tim Horton and Parkland College on the 2014 project ground control, and we understand the local geography and how the consortium approaches ground control. We believe there is existing control that can be used and will work with the consortium to identify new control where needed.

Project Coordination

Our approach to managing the project begins with a dedication to understanding your needs and designing solutions that address them. Too often, firms propose technical approaches that fit the contractor better than they fit the client. We will commit ample management resources to the project, led by our senior project manager, Adam Derringer, GISP. Adam is experienced in project management



and has strong experience in aerial mapping, GIS, survey, and other geospatial disciplines. As project manager, Adam will update CCGISC personnel during the course of the project to discuss pertinent project issues as needed. Additionally, he will participate in weekly internal meetings with team supervisors to assess the status of the project and address key technical issues, thereby maintaining high standards for product specifications and keeping the project on track to meet the time frame agreed upon.

Initial Coordination Meeting. Before project initiation, we propose that Adam and key staff from the CCGISC participate in an initial coordination meeting. During this meeting, we will review and refine the project schedule and scope, as well as establish a Pilot Project Area.

Progress Meetings and Reports. Throughout the life of the project, Adam will participate in conference calls with the CCGISC as needed. Given our proximity to the project area, further on-site meetings can be arranged as needed. A formal monthly status report may be presented to the CCGISC to document project status. The format of these reports will be finalized with input from CCGISC staff before the project starts.

Quality Assurance and Quality Control Procedures

Ayres' Quality Program defines quality as meeting client expectations. Therefore, quality performance requires consensus between the CCGISC and project team members with regard to the requirements of the project and design of project strategies based on those requirements. Ayres' Quality Program is dynamic and promotes continuous improvement based on feedback from our clients, from our own project operations, and from opportunities created by changing technologies.

Ayres and Jason Krueger, GISP, CP, manager of aerial mapping, in particular, are ultimately responsible for the successful completion of quality products and services for each project. Jason establishes the philosophy, organization, and policy that set Ayres' QA/QC program in place. Project managers or their designated project quality assurance officers implement the QA/QC program on individual projects.

A major strength we bring is our ability to coordinate large, complex projects. We understand that only through consistent implementation of quality procedures can we complete projects to our clients' satisfaction. Ayres and our acquisition partner, Quantum Spatial, have formal, co-developed QA/QC checks in place and standard operating procedures designed so required information is collected accurately and products meet or exceed project standards and specifications.

Task Specific Quality Assurance/Quality Control Procedures. QA/QC procedures and the supervisors responsible for their implementation are included in the production phases outlined in this technical approach. Ayres will work with the CCGISC to develop additional QA/QC procedures tailored to the participants' needs during this phase.

Quality Monitoring. A QA/QC team will be assigned for each aspect of the project and will consist of photogrammetric, mapping, survey, and GIS specialists. The QA/QC reviews will include reviews of results and weekly progress meetings with each project group. As issues are brought to the attention of the project manager, they will be addressed immediately. The project manager will also coordinate the subcontractor's efforts to ensure consistent results and also ensure that all procedures implemented will be incorporated into QA/QC documentation.

Aerial Imagery Acquisition

Digital Aerial Imagery: UltraCam Eagle

Using a large-format, frame-based, digital photogrammetric camera is crucial for performing the most effective acquisition procedures and best meeting your needs. A frame-based system is of particular importance given the interest in reducing building lean. Specifically, Ayres recommends and will use the UltraCam Eagle camera. This is the same system used – with great success – on many projects throughout Illinois.

To provide for the imagery acquisition services, we have teamed with Quantum Spatial. Quantum is among the top firms in the nation in providing quality aerial photography services and has provided our team with high-quality service for imaging projects across the Midwest for years. The firm's location in Wisconsin will allow for rapid mobilization to your project, further ensuring successful data collection.

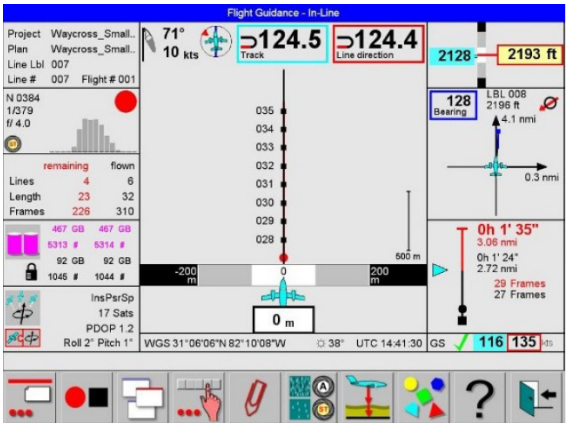
Ayres is proposing the Vexcel UltraCam Eagle digital mapping camera for this project. The UltraCam Eagle is the most advanced large-format digital camera system in the industry today. The UltraCam is a frame-based digital sensor capable of simultaneous capture of red, green, blue, and NIR bands and is the best option for downstream mapping. It is capable of obtaining ground resolution better than 0.25-foot and exploits the most valuable developments of the industry in the fields of sensor technology, data storage technology, and data transfer technology.

The UltraCam family of sensors is integrated with a tightly coupled ABGPS receiver and inertial measurement unit (IMU) that streams aircraft position and attitude data (pitch, roll, and yaw) for direct computation of image external orientation (EO). The UltraCam also has project-specific alongtrack overlap and sidelap settings. This digital system is so advanced in size, weight, and performance that projects can be completed with fewer flight lines and with greater efficiency.

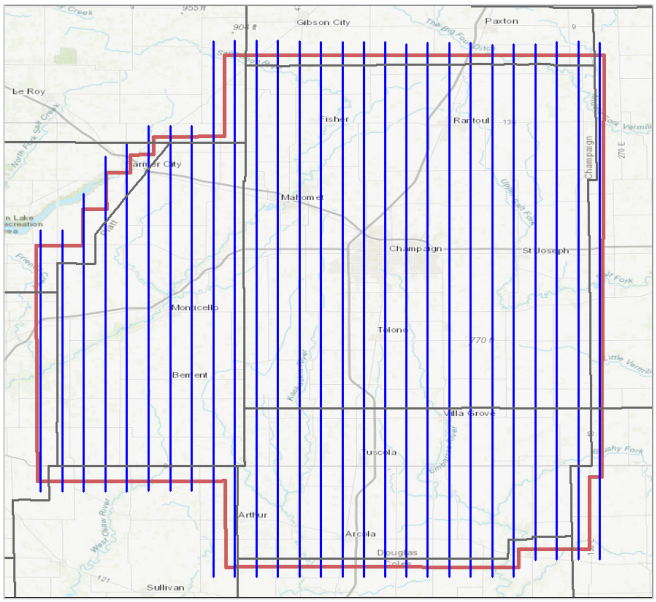
Fewer images further translate to processing efficiencies during orthorectification, radiometric balancing, and seam line removal. To date, we have collected imagery for tens of thousands of square miles using this system, demonstrating its superior performance and reliability. The result is high-quality imagery delivered faster.

Flight Planning Quality Assurance

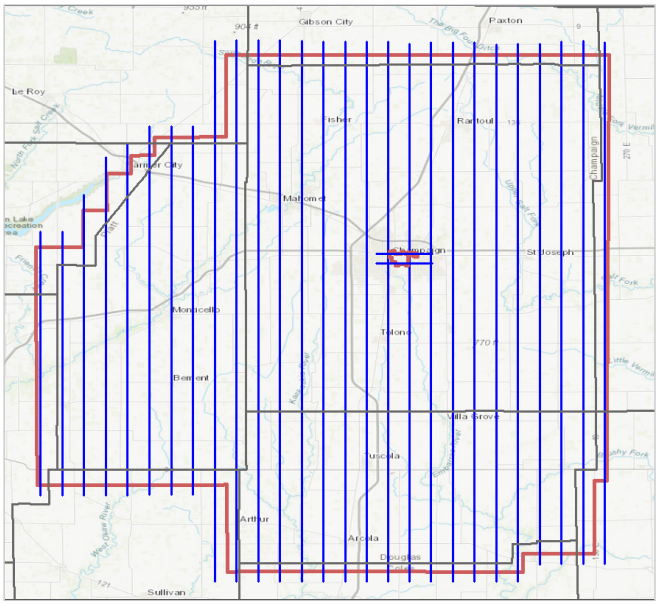
Ayres will take special care in designing an optimal flight pattern for the Eagle system that will achieve maximum coverage and efficiency for each of the CCGISC's project options. Flight specifications can be included in the flight plan for review and approval. The flight plan will incorporate contingencies such as flight in or near controlled airspace, and assigned areas for turns and standby, to ensure that all project operations are conducted safely. The data acquisition manager will identify the total number of flight line miles and exposures required for orthoimagery generation.



The images on the following pages show the flight plans for projectwide 6-inch aerial imagery, high overlap reduced building lean areas, and building lean eliminating spot shots.



Option 1



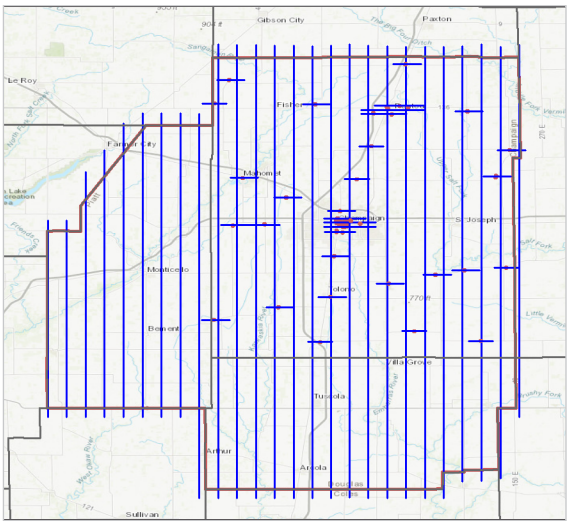
Option 2

Option 1: The map shows the flight plan for the projectwide 6 inch aerial imagery acquisition. It plans for 60% end lap and 30% side lap with an approximate AGL 10,000'.

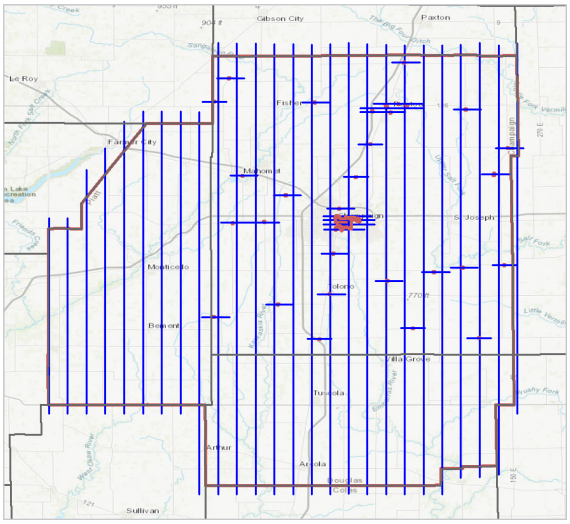
Option 2: This map shows the flight plan for reduced building lean aerial imagery acquisition in the Urbana-Champaign city centers. In that general area we will plan for 60% end lap and 30% side lap and in the reduced lean areas we are planning for 80% end lap and 80% side lap with an approximate AGL of 10,000'.

Option 3: This map shows the flight plan for eliminating building lean in specified points. It will be flown with an approximate AGL 10,000'. In the general areas we will plan for 60% end lap and 30% side lap and in the eliminated lean areas we are planning to fly directly over the specified points.

Option 4: This map shows the flight plan for eliminating building lean in specified points and reduced in the Urbana-Champaign area. It will be flown with an approximate AGL 10,000'. In the general areas we will plan for 60% end lap and 30% side lap, in the reduce lean areas we are planning for 80% end lap and 80% side lap, and in the eliminated lean areas we are planning to fly directly over the specified points.



Option 3



Option 4

Conditions During Acquisition

Imagery will be collected during leaf-off, snow-free conditions. We have accumulated estimates for the on-line flight time required to collect all image data sets under normal conditions. These estimates have been compared with the annual average clear weather days within Illinois as reported by the National Oceanic and Atmospheric

Administration. Depending on the amount of winter and spring snowfall, spring melt conditions, and warm temperatures promoting vegetation leaf-out, the window for snow-free, no-leaf conditions is challenging. Despite these challenges, Ayres has maintained an excellent track record of successful data acquisition in Illinois. We will keep the CCGISC informed of these conditions and optimal times to obtain photography.

Acquisition Date. Imagery will be flown when deciduous foliage is under leaf-off conditions. The target flight window will be within February 27, 2020, and April 4, 2020, or as weather permits.

Sun Angle. The sun angle for all flights will be at least 30 degrees above horizon.

Stereoscopic Coverage. The entire area of the project will be stereoscopically covered by successive and adjacent overlaps of photographs within the usable portion of the field of the lens.

End Lap/Side Lap. For the standard areas the end lap will average not less than 55% or more than 65%. End lap of less than 55% or more than 65% in one or more images will be cause for rejection. The side lap will average 30%. Any image having side lap less than 25% or more than 35% will be rejected.

For reduced building lean areas in option 2 and option 4, the average end lap will not be less than 75% and average side lap will not be less than 75%.

Reflights. Lack of acceptable imagery shall be corrected by reflights, with no additional cost to the CCGISC. All reflights will be centered on the plotted flight lines and will be taken with the same camera system.

Image Capture Quality Assurance

During the aerial acquisition phase, the Eagle system displays a low-resolution image of each exposure that is monitored and reviewed by the camera operator.

If there are data or image capture issues, such as unpredictable shadows cast by clouds, the area can be reflown at that time. (In-flight quality control is accomplished using real-time video information on project status, flight lines, image centers, and mosaics of the mission area.)

Image Review. Immediately upon completion of the acquisition, the imagery will be forwarded for inspection to our digital orthoimagery supervisor, Aaron Sale. Once we confirm successful acquisition and image quality, the CCGISC will be notified. Additionally, if any imagery does not meet the acceptance criteria, a reflight will be scheduled and the CCGISC notified. The CCGISC will receive raw and unprocessed aerial imagery within six weeks of the aerial flight completion on a USB2 external hard drive for initial photo checking.

Ground Control Survey

To reduce control costs for the project, Ayres will use a combination of ground control points and AGPS control. Ayres understands that we will be responsible for establishing ground control targets and that the CCGISC will provide the GPS survey of the targets as we did on the 2014 project.

Photo-identifiable Targets. Ayres will use photo-identifiable ground control targets for this project, which does not require establishing and removing temporary panels. Photo-identifiable targets will consist of easily distinguished ground features such as ends of paint lines, sidewalk corners, and corners where driveways meet road edge.

We will provide the CCGISC with the approximate coordinates of these features and maps to locate them in the field after the flight is completed. This approach is efficient because it allows the AT supervisor to first set up the project, pick the best locations for control, and then coordinate with the CCGISC to survey the GPS coordinates.

AGPS. Our primary method of control for the project will be by AGPS. All airborne cameras and sensors used for this project will use highly accurate geodetic-grade AGPS systems. Location accuracy of the AGPS capture points will range between 0.02 and 0.05 meter.

GPS Base Stations. The Ayres team will provide the personnel to manage the GPS base stations during flight. These stations will be selected carefully to ensure reliable differential processing of AGPS data. A base station at the mobilization airport will allow the GPS unit on the aircraft to initialize before the flight.

Where possible, GPS base stations shall have ellipsoid height to an accuracy of 2 centimeters relative to the continuously operating reference stations (CORS) or the high-accuracy reference network (HARN). The Ayres team will use a high-quality, dual-frequency GPS receiver and associated antennas at the GPS base stations.

GPS Check Points. The CCGISC has indicated its preference to use GPS checkpoints for the completion of an NSSDA accuracy report. Ayres will not be responsible for the collection of independent checkpoints; it is recommended that the CCGISC use photo-identifiable targets for checkpoints. Ayres may use the checkpoint coordinates in the AT solution upon successful completion of the NSSDA test.

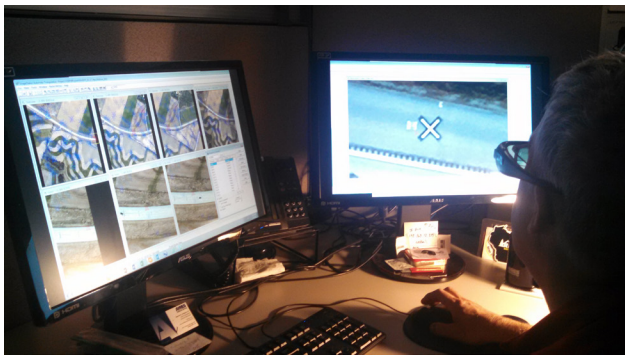
Digital Orthophotography Production

As imagery collection missions are completed, orthoimagery production will begin. Ayres has significant digital orthoimagery production capability and has trained and experienced staff running fully equipped Z/I Imaging digital workstations, dual core orthoimagery workstations, and dedicated image editing stations.

We have designed our production methodologies to facilitate a completely digital workflow using all Z/I hardware and software environments. Our production facilities and methods are completely compatible and will result in a consistent approach to orthoimagery production and a high-quality end product. Specific procedures and processes are outlined on the following pages.

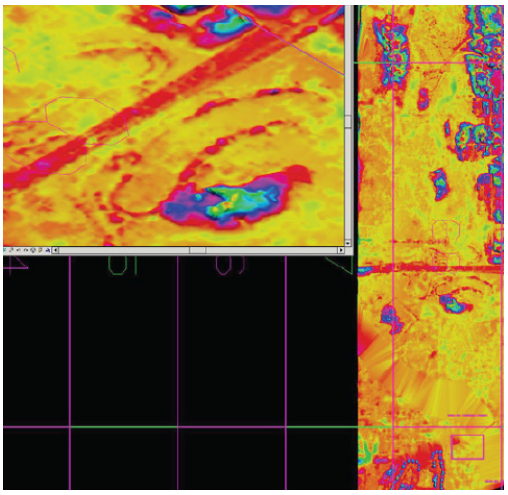
Analytical Aerotriangulation (AT)

To maintain an aggressive schedule, it will be critical to prepare for AT immediately upon the successful completion of each imagery mission. This is the first step in the orthoimagery production process and must be completed in an efficient manner for the rest of the ortho process to proceed on schedule. Planning for sufficient capacity in this area is critical to the project.



A number of important factors will contribute to the efficient AT processing under our UltraCam approach. The first is the use of AGPS and IMU data, which provide image orientation information to streamline AT production. The orientation data significantly reduces processing time and allows us to process large blocks of image data at a rapid rate.

AT Solution. Although orientation data will be supplied from the IMU, we will still complete an AT solution to verify the AGPS and IMU data. We will prepare the AT solution on a Z/I Imaging digital photogrammetric workstation using Z/I Imaging ISAT software. ISAT offers a complete softcopy aerotriangulation software suite that includes interior orientation, point mensuration, relative orientation, and a fully analytical simultaneous least squares adjustment with robust error detection. ISAT incorporates the capability to weigh control points on an individual basis and to correct for image deformation, atmospheric refraction, earth curvature, and lens distortion.

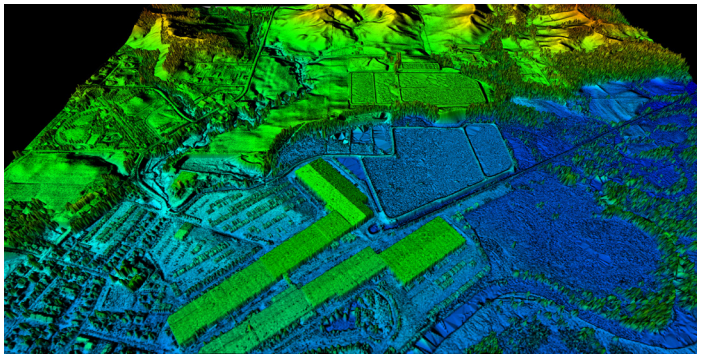


Aerotriangulation QA/QC. When a block of aerotriangulation has been completed, all reports and supporting documentation will be examined for compliance with project specifications. This testing will include, at a minimum, the following:

- Inspect AGPS positions against AT-derived exposure coordinates
- Compare AT-derived coordinates of independent QA points against ground survey
- Inspect measurements, residuals, weights, RMSE in AT listings
- Verify all AT support and measurement files are in archive
- Verify metadata is complete and in proper format

Digital Elevation Model (DEM)

As a cost saving alternative to producing an entirely new ortho surface, existing lidar digital terrain model (DTM) data and the surface we created for your 2014 project can be employed to ortho-rectify the imagery. To some extent the existing data may need to be updated and supplemented for the new orthoimagery. The data will be thoroughly reviewed by the ortho supervisor, Aaron Sale, and he will report any inconsistencies to the compilation supervisor, Matt Vinopal. Ayres will apply any modifications to the existing surface as needed by various means of input to support the horizontal accuracy of the orthos.



Creating Updated DEMs. Once our specialists have completed a review of the existing data, we may find it necessary to update and supplement the data to produce a DEM sufficient to support orthoimagery horizontal accuracy requirements. Specialists will apply modifications to the existing surface as needed and will employ several methods to efficiently identify areas requiring updates, including the following:

1. Change detection tools will be applied to aid in identifying areas of significant change. Using autocorrelation methods, we can efficiently produce large surfaces from the new imagery and compare it to the existing data. This surface will not be suitable for ortho-rectification to the stated accuracy objective but will be helpful for identifying areas of significant change.

2. Visual inspection of river crossings and major highways is often the most effective method of correcting the existing surface around bridges and overpasses. A quick visual scan of imagery in a stereo environment will be the most efficient method to inspect and correct the DTM around bridges.

The final step in the surface update process involves inspection of the ortho-rectified imagery. At this point, most of the required updates will already be applied, but this final step will identify remaining surface busts. These will be inspected by our ortho supervisor, who will then notify the compilation staff of required changes.

Most importantly, we know the most efficient and cost-effective methods to employ updates to each surface on a case-by-case scenario to reflect significant topographic changes. Our specialists will review the data and will apply updates to the DEM as needed to support specific accuracy requirements for this project.

Orthoimagery Production

Specialists at Ayres will be responsible for all orthoimagery production components of the project. Advancements in production software and our investments in infrastructure favor an increasingly aggressive schedule for the upcoming project; we are committed to meeting the CCGISC's schedule expectations for this project.

Ayres has trained and experienced staff running fully equipped Z/I Imaging digital workstations, NT orthoimagery workstations, and dedicated image editing stations. We've designed our complementary production methodologies to facilitate a completely digital workflow using all Z/I hardware and software environments, resulting in a consistent approach to orthoimagery production and a high-quality end product.

Ayres brings extensive experience in producing large- and small-scale orthoimagery in gray scale, color, and color infrared, with ground resolutions as detailed as 2 inches.

Tone Balancing. Digital orthoimagery is subject to tonal imbalances due to a number of factors, including source photography (sun angle, illumination, atmospheric conditions, and date and time of exposure), image characteristics, and image processing. Our ortho specialists will not only tonal balance the individual images but also will employ tonal balancing techniques to the project as a whole. This process will eliminate the flight line effect and individual photo effect.

Rectification Type. We will use a cubic convolution resampling method for all orthoimagery rectification. This method preserves fine detail better than the common bilinear algorithm.

Radial Displacement. Our ortho production staff will also manually correct radial displacement and distortion of bridges and overpasses through a series of pre-rectification measures and post-processing edits. A thorough examination of these features will be conducted during the interim and final QA/QC checks.

Building Lean Mitigation. We will take care to mitigate lean for structures that exceed 100 feet in height across the entire project area **(Option 1)**. Ayres will use a standard forward lap (60%) and side lap (30%) for the imagery acquisition across Champaign and Piatt Counties. This will be done as the base orthoimagery project should the CCGISC select Ayres.

Additional options have been requested by the CCGISC in specified locations in Champaign County to further reduce building lean.

Option 2: Ayres will fly over the requested ~1.85 square miles with an additional flight with 80% forward lap and 80% side lap. This additional imagery will be tied into the final orthoimagery deliverables and will significantly reduce lean in the specified Champaign-Urbana area.

Option 3: Ayres will plan an additional flight over the specified areas in the City of Champaign to collect nadir aerial images

over the taller buildings in the area. These nadir images will be tied into the final orthoimagery deliverable and will virtually eliminate the lean on these buildings.

Option 4: Ayres will collect projectwide aerial imagery with a standard forward lap (60%) and side lap (30%). Additionally, aerial imagery will be collected with an 80% forward lap and 80% side lap over the specified area in the Champaign-Urbana region and collect selected nadir aerial images over tall buildings in the specified areas. All imagery will be used in the final orthoimagery deliverable.

Mosaicking. To achieve consistent tone across the project area and to address the overlap between tiles, we will seamlessly mosaic the images. We will select imagery in a way to use the most advantageous area of each photo to maximize color, tone, and contrast and at the same time reduce building lean and glare in water bodies. Image mosaicking will be accomplished by a combination of automated tools and manual methods. All seam lines will be placed manually to eliminate the issues of noticeable seam lines through buildings, bridges, and other features.

We will use manual editing procedures to QA/QC every tile for visible seam lines in water bodies, warped bridges, and any anomalies that may affect the accuracy or aesthetics of the imagery. We will employ the use of photogrammetric software products such as Z/I Imaging's Digital Ortho-Production Suite: ImageStation OrthoPro, PixelQue, IRAS/c, and Digital Image Analyst.

Accuracy. Ayres understands that the CCGISC intends to use NSSDA testing procedures to report realized accuracy. The CCGISC will provide all independent check point survey to be used in the calculation of RMSE within the AT solution and for the statistical measurements against the completed orthoimagery.

All phases of imagery acquisition and production will be completed by our team in a fashion that results in products that conform to ASPRS Class 1 Standards.

Orthoimagery Tiling Scheme and Naming Convention. The orthoimagery tiling structure will conform to the Counties' existing schematic and naming convention: 0.5-foot pixel resolution: 2,500-foot x 2,500-foot index grid.

Coordinate System/Datum. All mapping products associated with this project will be prepared and delivered in Illinois State Plane, East Zone, US survey feet, NAD83.

Final Image Quality Check Quality Control (QC)

The team will then conduct the following QC procedures on all the ortho image tiles to ensure their quality:

1. Create an overview of each delivery and combine the overviews to inspect overall radiometry, geographic accuracy, and complete coverage.

2. Orthoimagery QA technicians will perform QC on each image. QC forms will be submitted with the Project Planning Manual.

A thorough inspection of every ortho image tile will be conducted with an evaluation criteria based on:

- seamless geometry
- seamless radiometry
- appropriate dynamic range

- appropriate mean intensity
- appropriate contrast
- detection of data dropouts
- complete coverage
- appropriate resolution
- shadows, clouds, low sun angle
- bridge, overpass distortion

Digital Orthoimagery Pilot Projects

During initial project discussions we will delineate digital orthoimagery pilot project areas. The digital orthoimagery tiles for these areas will be delivered to the CCGISC for approval prior to full scale production.

Proposed Schedule

Ayres' production schedule favors an aggressive delivery date for CCGISC. We have prepared a schedule based on our technical methodology and will work with you to further refine the details of the Pilot Project Area and other major milestones during the project initiation phase. The table on Page 32 outlines our vision for the project schedule.

Description of Options

Option 1: Standard 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area. (Douglas 417; Piatt 499 square miles; Champaign 1,123 square miles)

Option 2: 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area (Douglas 417; Piatt 499 square miles; Champaign 1,123 square miles) with reduced building lean in the specified Urbana-Champaign city centers (approximately 1.85 square miles).

Option 3: 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area (Douglas 417; Piatt 499 square miles; Champaign 1,123 square miles) with building lean eliminated for specified points.

Option 4: 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area (Douglas 417; Piatt 499 square miles; Champaign 1,123 square miles) with reduced building lean in the specified Urbana-Champaign city centers and building lean eliminated for specified points.

It is assumed that the RFP's intent was that all options would include the same standard 6-inch project area over approximately 2,079 square miles. Ayres has priced and scheduled the project options accordingly.

Product Deliverables

In summary, if Ayres is selected, final deliverable products to the CCGISC will include:

Aerial Imagery Data

- Preliminary flight diagram, including flight lines and image centers
- ABGPS and IMU data
- Camera calibration certificate
- One complete set of original, unprocessed images, GeoTIFF format

Aerotriangulation

Aerotriangulation report

- RMS error summaries
- Coordinate values, in ASCII file format, of all triangulation points, including control, pass, drop, tie, and quality control

Color Orthoimagery

One complete set of digital, color orthoimagery

- Uncompressed TIFF format (with associated world files)
- JPEG 2000 compressed tiles
- JPEG 2000 County-wide mosaics
- All coordinate values will be provided in Illinois State Plane, East Zone

Metadata

All data produced by Ayres will comply with the Federal Geographic Data Committee's (FGDC) Data Content and Process Standards. The FGDC, as lead entity in coordinating the National Spatial Data Infrastructure, has developed a set of standards that includes specifications on data content, classification, symbology, transfer and usability, and process standards. These standards include data collection, storage, and presentation of geospatial digital data.

Delivery Format

All deliverables will be provided to the CCGISC on USB2 hard drive(s).

Ownership

There is an important distinction between ownership of data and holding the copyright to the data. Ownership means that a client may use the data for internal purposes, but it may not distribute this data to other organizations without the written approval from the data producer.

Copyright, on the other hand, allows the client to use the data for its own purposes and to distribute it to outside organizations as it desires. Ayres has always assigned ownership and copyright to our clients at the completion of a project and fully intends to do the same with this project.

Please note that all proposed services shall be under the direction of Ayres Associates Inc of Madison, Wisconsin. All work for the CCGISC will be performed within the United States by the Ayres team. **Please see our letter of confirmation on Page 33**.

Client Responsibilities

The CCGISC will be responsible for supplying Ayres with required project materials in a timely fashion that does not delay the proposed production schedule. The CCGISC will be responsible for the following:

- Provide accurate mapping boundaries (or tile scheme) in vector format, referenced to the appropriate coordinate system
- Provide the existing lidar data and associated metadata to be used for the ortho-rectification process
- Provide GPS survey of ground control points

Proposed Schedule

Ayres' production schedule favors an aggressive delivery date for CCGISC. We have prepared a schedule based on our technical methodology and will work with you to further refine the details of the pilot project area and other major milestones during the project initiation phase. The following table outlines our vision for the project schedule:

TASK	APPROXIMATE TIMEFRAME	PARTIES
Project initiation meeting	January-February 2020	CCGISC and Ayres
Ground control	February-April 2020	CCGISC and Ayres
Aerial imagery acquisition	February-March 2020 (as weather permits)	Ayres
Submittal and review of raw, unprocessed imagery	March-April 2020	CCGISC and Ayres
Analytical aerotriangulation of all imagery	April-May 2020	Ayres
Prepare DEM	May-June 2020	Ayres
Ortho production of pilot areas	June 2020	Ayres
Pilot area submittal and review	June 15, 2020	CCGISC and Ayres
GeoTIFF delivery for QC	August 31, 2020	Ayres
*****Complete Ortho Products • Option 1 (Base Project) • Option 2 • Option 3 • Option 4	 September 30, 2020 September 30, 2020 September 30, 2020 September 30, 2020	Ayres

Description of Options:

Option 1: Standard 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area. (Douglas 417; Piatt 499 square miles; Champaign 1,123 square miles)

Option 2: 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area (Douglas 417; Piatt 499 square miles; Champaign 1,123 square miles) with reduced building lean in the specified Urbana-Champaign city centers (approximately 1.85 square miles).

Option 3: 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area (Douglas 417; Piatt 499 square miles; Champaign 1,123 square miles) with building lean eliminated for specified points.

Option 4: 6-inch resolution orthoimagery covering a 2,079-square-mile contiguous area (Douglas 417; Piatt 499 square miles; Champaign 1123 square miles) with reduced building lean in the specified Urbana-Champaign city centers and building lean eliminated for specified points.

It is assumed that the RFP's intent was that all options would include the same standard 6-inch project area over approximately 2,079 square miles. Ayres has priced and scheduled the project options accordingly.

Ingenuity, Integrity, and Intelligence.

November 22, 2019

Leanne Brehob-Riley, GIS Director
Champaign County GIS Consortium
Brookens Administrative Center
1776 East Washington Street
Urbana, Illinois 61802

Re: RFP 2019 - 001: Aerial Photography Services
Confirmation That Off Shore Services Will Not Be Used

Dear Ms. Brehob-Riley and Selection Committee Members:

Ayres appreciates the CCGISC's support for United States-based labor and for stating this as a project requirement. All work performed by the Ayres team for the Consortium will be performed in the United States.

Our team possesses more than enough resources to accomplish this project with skilled professionals based in the United States. There remain only a few geospatial firms that have their entire production staff within the country; Ayres is proud to be among them, and as an employee-owned firm, that will not change.

We are dedicated to maintaining and growing career opportunities for highly skilled specialists, not outsourcing them. Each member of our team – from the project principal and experience project managers to first-year technicians – has a personal stake in the satisfaction of our clients.

Sincerely,
Ayres Associates Inc

Jason B Krueger

Jason B. Krueger, CP, GISP
Manager – Aerial Mapping
608.443.1200
KruegerJ@AyresAssociates.com

Firm/Individual Commitment to Project

Ayres understands the importance of fulfilling our commitments to production and delivery schedules for all of our clients. We have built a strong reputation for negotiating fair schedules and for treating each project with equal importance, no matter how large or small.

We make the commitment to the Champaign County GIS Consortium that no other aerial photography missions will distract the team from accomplishing the acquisition goals and schedule described in our proposal.

We appreciate the significant size and scope of your project. In preparing our submittal, we have estimated the resources necessary to complete all project tasks on schedule. Appropriate resources have been assigned to these tasks, and we believe they will provide the capacity necessary for the project.

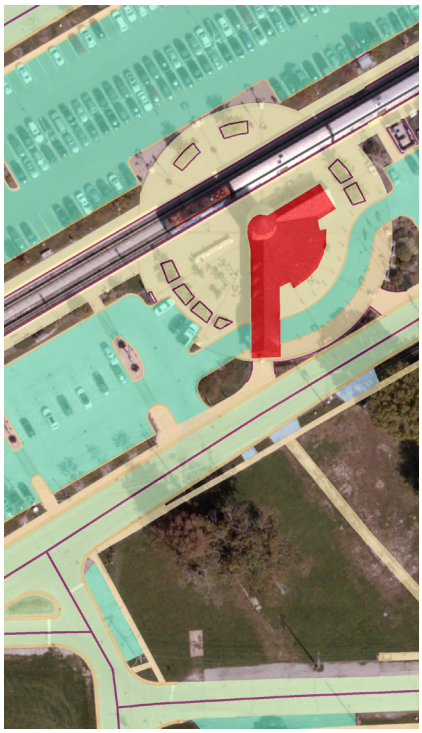
With a project of this size, however, adjustment may be needed over its course. For this reason, the number of staff and equipment resources will be assessed weekly as work is completed. The team will adjust these resources as needed to complete the work in accordance with the negotiated schedule.

Future Ability

By February, Ayres expects to have 75% of our workload capacity contracted for 2020.

Current Contractual Commitments

At present, Ayres has approximately 45% of the anticipated 2020 projects under contract.



Cost Proposal

Basic Pricing Information

Ayres will provide the services as described in our proposal for the following lump-sum fees:

OPTION	PROPOSED COST
Option 1 (Base Project)	$139,728.66
Option 2	$143,228.66
Option 3	$152,828.66
Option 4	$156,328.66

Detailed Pricing Information

The following chart illustrates the breakdown of cost for each option:

OPTION 1	TOTAL COST
Piatt County	$34,195.49
Champaign County	$76,956.98
Douglas County	$28,576.19
OPTION 2	**TOTAL COST**
Piatt County	$34,195.49
Champaign County	$80,456.98
Douglas County	$28,576.19
OPTION 3	**TOTAL COST**
Piatt County	$34,195.49
Champaign County	$90,056.98
Douglas County	$28,576.19
OPTION 4	**TOTAL COST**
Piatt County	$34,195.49
Champaign County	$93,556.98
Douglas County	$28,576.19

Notes:

1) These costs assume that Champaign, Piatt, and Douglas Counties select Ayres to complete countywide 6-inch orthoimagery in 2020.
2) Piatt & Douglas County have no areas listed in the RFP requiring reduced or eliminated building lean, meaning no additions fees are needed for Options 2, 3, or 4.
3) It is assumed that the RFP's intent was that all options would include the same standard 6-inch project area over approximately 2,079 square miles. Ayres has priced and scheduled the project options accordingly.

Project References

The quality of our services is demonstrated by the extent of repeat business we enjoy from our clients; we believe this is a true reflection of our clients' satisfaction toward our overall performance. Approximately 90% of our 2018 revenues were from clients we had served within the previous five years.

Our experience has shown us that close and open communication with our clients is the foundation for a successful working relationship. We place a high priority on understanding our clients' needs, openly addressing issues, involving clients in decision-making, and resolving project concerns. In every project we undertake, our goal is client satisfaction.

We invite you to contact the references below for a firsthand account of our work.

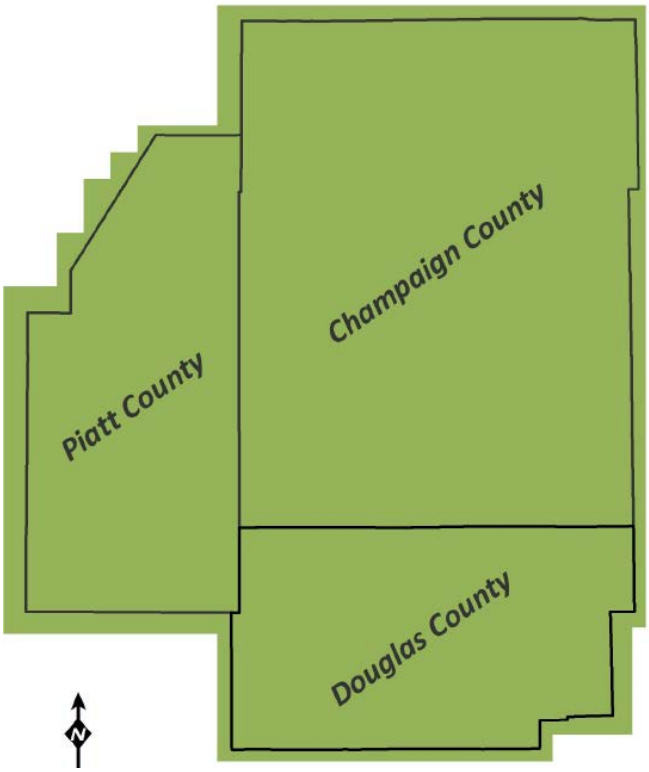
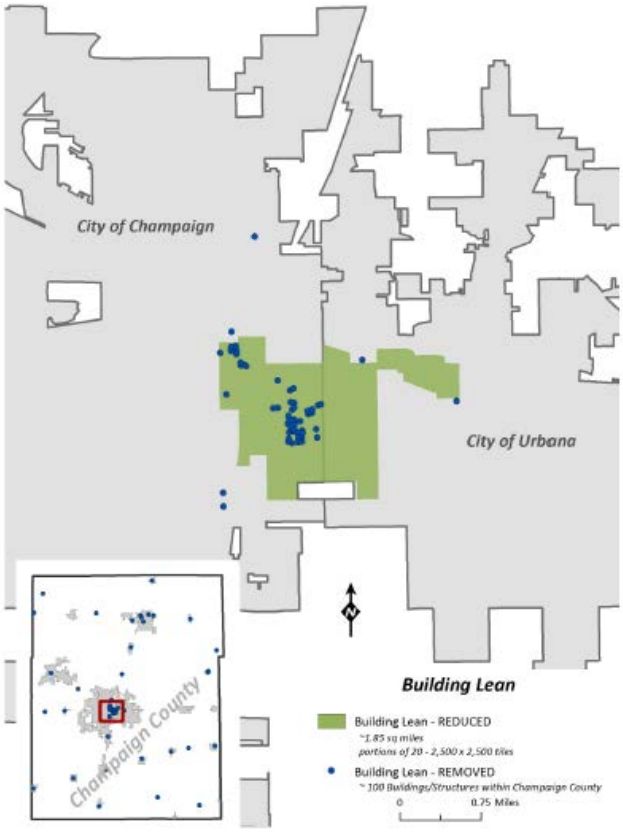
Kane County, Illinois, Orthoimagery

Client Name: Kane County GIS-Technology Department
Contact: Thomas Nicoski, GIS Director
Address: 719 S. Batavia Avenue, Bldg. C, Top Floor, Geneva, IL 60134
Phone: 630.208.8655

Lake County, Illinois, Orthoimagery

Client Name: Lake County Purchasing Division
Contact: Keith Caldwell, GIS Manager
Address: 18 N. County Street, 9th Floor, Waukegan, IL, 60085
Phone: 847.377.2578

Wisconsin Regional Orthoimagery Consortium, Lidar and Aerial Imagery

Client Name: North Central Wisconsin Regional Planning Commission
Contact: Andy Faust, Senior GIS Analyst
Address: 210 McClellan Street, Suite 210, Wausau, WI 54403
Phone: 715.849.5510

Attachment C
Map of Project Area