

# AGREEMENT FOR PROFESSIONAL SERVICES

FOR

## PHOTOGRAMMETRIC MAPPING SERVICES

THIS IS AN AGREEMENT made as of 2-24-14 between Champaign County GIS Consortium (OWNER) and Ayres Associates Inc, 5201 E. Terrace Drive, Suite 200 Madison, WI 53718 (CONSULTANT).

OWNER intends to retain the CONSULTANT to acquire aerial imagery and prepare digital orthoimagery of Iroquois County in Illinois. Orthoimagery products will meet ASPRS Standard specifications for Class 1 orthoimagery of 1" = 100' map scale.

OWNER and CONSULTANT agree to 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 orthophotography project referenced in OWNER'S Request for Proposal #2014 – 001: "Proposal for Aerial Services, Champaign and Piatt Counties, IL" issued on December 9, 2013 (included as Attachment A to this agreement); and CONSULTANT'S proposal for "Aerial Photography Services" dated January 9, 2014 (included as Attachment B to this agreement). Specifications explicitly stated in the scope of services of this agreement supersedes corresponding specifications the scope of services from both Attachment A and Attachment B.
- 1.1.2 Obtain aerial imagery of the Champaign County GIS Consortium (CCGIS) project area, consisting of Champaign County and Piatt County. Aerial imagery shall be acquired using a calibrated, digital photogrammetric camera in the spring of 2014. All photography will be flown with 60 percent forward lap and 30 percent sidelap. Imagery shall be acquired during leaf-off conditions and when the ground is free of snow.
- 1.1.3 Prepare natural color (RGB) 6-inch resolution, 1"= 100' scale digital orthophotography for Champaign County and Piatt County, a map depicting the orthophotography coverage is attached as Attachment C.
  - Prepare georeferenced orthophotography tiles in GeoTIF and format with associated world files (tiled by the OWNER'S existing 2,500-foot x 2,500-foot index grid tile scheme).

- Prepare compressed orthophotography tiles in JPG format with associated world files (tiled by the OWNER'S existing 2,500-foot x 2,500-foot index grid tile scheme).
  - Prepare compressed County-wide mosaics in JPG format. Mosaics will edge match to eliminate white space between mosaics.
  - Orthophotography products will conform to ASPRS Class 1 accuracy standards. CONSULTANT shall prepare an NSSDA accuracy report utilizing independent check point survey data collected by OWNER.
- 1.1.4 Prepare a Digital Elevation Model (DEM) suitable for the development of the orthophotography using the OWNER'S existing LiDAR bare earth digital terrain model (DTM). The DTM may be updated and supplemented by various means of input by CONSULTANT to prepare the DEM in ESRI GRID format.
- 1.1.5 Reference all mapping data 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.
- 1.1.6 Prepare FGDC compliant metadata for each deliverable product.
- 1.1.7 In summary, final deliverable products to OWNER 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 of the pilot area source imagery, GeoTIFF format
    - Geodatabase of "as-flown" data including: point feature class of photo centers of each exposure and line feature class of the flight lines
  - One complete set of digital, color orthophotography
    - Uncompressed TIFF format (with associated world files)
    - Compressed tiles in JPG format
    - Compressed county-wide mosaics in JPG format
    - DEM suitable for orthoimagery in ESRI GRID format
    - FGDC compliant metadata
  - Aerotriangulation report
    - RMS error summaries
    - Coordinate values, in ASCII file format, of all triangulation points, including control, pass, drop, tie, and quality control
  - Control Survey
    - GPS coordinates in ASCII file format (new control points as needed)
    - Coordinates as a geodatabase point feature class

## **ARTICLE 2 – CHANGES IN THE SCOPE OF SERVICES**

### **2.1 Additional Services: 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 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 Designate in writing a person to act as OWNER's representative.
- 3.2 Provide all criteria and full information as to OWNER's requirements.
- 3.3 Place at CONSULTANT's disposal all available pertinent information, upon which the CONSULTANT can rely.
- 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 boundary and tile scheme in vector format, referenced to the appropriate coordinate system
- 3.6 Provide the most recent, existing orthophotography for reference (compressed mosaics are acceptable)
- 3.7 Provide existing bare earth LiDAR, hydro-breaklines, and associated metadata to be used for the ortho-rectification process
- 3.8 Provide GPS survey of photo-identifiable ground control points to support the ortho-rectification process. 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 the control points.

- 3.9 Provide GPS survey of independent check-points to support the CONSULTANT'S NSSDA accuracy test and report. 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 services called for in Attachment A - Scope of Services will be completed and submitted according to the following schedule:
- Finalize flight plan : February 2014
  - Aerial imagery acquisition: March 2014 (as weather permits)
  - Submit raw, unprocessed imagery: April 2014
  - Pilot Area submittal and Review: June 15, 2014
  - Complete Ortho Products : October 31, 2014
- 4.2 CONSULTANT's services under this Agreement shall be considered complete at the earlier of (1) the date when the submissions have been accepted by OWNER or (2) thirty days after the date when such submissions are delivered to OWNER.
- 4.3 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.
- 4.4 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 5.3.2.

#### **ARTICLE 5 - PAYMENTS**

##### **5.1 Compensation for Services**

- 5.1.1 Basic Services. Basic Services OWNER shall pay CONSULTANT for Basic Services rendered as follows:

Champaign County:	\$ 82,500.00
Piatt County:	<u>\$ 40,950.00</u>
<b>Total Lump Sum Fees:</b>	<b>\$123,450.00</b>

Basic services shall not exceed the total lump sum fee of \$123,450.00

- 5.1.2 Additional Services. OWNER shall pay CONSULTANT for Additional services rendered as agreed upon in accordance with Article 2.

## **5.2 Times of Payments**

5.2.1 CONSULTANT shall submit itemized monthly invoices for rendered Basic Services and any agreed upon Additional Services. 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.

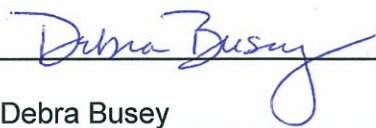
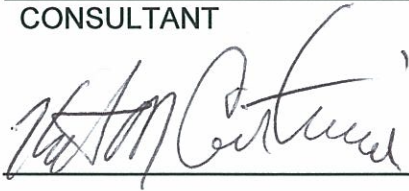
## 6.5 Data ownership Assignment

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.

## 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 #2014 – 001: “Proposal for Aerial Services, Champaign and Piatt Counties, IL” - consists of 18 pages.
  - 7.1.2 Attachment B – CONSULTANT’S proposal for “Aerial Photography Services”- consists of 34 pages.
  - 7.1.3 Attachment C – Project Area Map - consists of 1 page.
- 7.2 This Agreement (consisting of pages 1 to 6, 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.

Champaign County GIS		Ayres Associates Inc
Champaign Consortium		
OWNER		CONSULTANT
	(Signature)	
Debra Busey	(Typed Name)	Kirk M. Contrucci
Champaign County Administrator	(Title)	Vice President
2/19/2014	(Date)	2/24/14

# Attachment A

## *Proposal for Aerial Services* *Champaign and Piatt Counties, Illinois*

Issue Date:

***Monday, December 9, 2013***

Proposals Due:

***11:30 am, Wednesday, January 9, 2014***



## 1.0 Introduction

The Champaign County GIS Consortium (CCGISC), acting as the administrative agent for Champaign County, Piatt County, the City of Champaign and the Champaign County Forest Preserve, 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 and Piatt 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. Ortho-photography was last acquired for these counties in 2011.

Champaign and Piatt 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.

This RFP does not commit CCGISC, Champaign County, Piatt County, the City of Champaign or the Champaign County Forest Preserve District 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 natural color aerial imagery for Champaign and Piatt counties. The aerial imagery is to be processed to produce ortho-imagery. The CCGISC is soliciting bids for the following ortho-imagery product options. CCGISC will determine which, if any, option(s) to proceed forward with based on the provided responses.

### **County-wide (CW) Options:**

- CW-2ft – 2-foot resolution covering a 1694 square-mile contiguous area. (*Piatt 546 square-miles; Champaign 1148 square-miles*)
- CW-1ft – 1-foot resolution covering a 1694 square-mile contiguous area. (*Piatt 546 square-miles; Champaign 1148 square-miles*)



**Urbanized Area (UA) Options:**

- UA-Champ-6inch – 6-inch resolution covering 2 non-contiguous areas in Champaign County totaling 233 square-miles
- UA-Piatt-6inch – 6-inch resolution covering a number of non-contiguous areas in Piatt County totaling 86 square-miles
- UA-Forest-6inch - 6-inch resolution for a number of non-contiguous Champaign County Forest Preserve property totaling 12 square-miles
- UA-Combined-6inch - 6-inch resolution for area covered in options *UA-Champ-6inch*, *UA-Piatt-6inch*, *UA-Forest-6inch*
- UA-COC-3inch - 3-inch resolution covering 36 square miles of the City of Champaign

The County-wide (CW) option areas are illustrated at *Attachment A*. The Urbanized Area (UA) option areas are illustrated at *Attachment B and C*.

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

**2.1 Acquisition of Aerial Imagery**

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

*2.1.1 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.

*2.1.2 Flight Specifications*

Imagery shall be flown when deciduous foliage is under leaf-off conditions. The target flight window shall be within February 20, 2014 and April 4, 2014, 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).

### *2.1.3 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 three-band imagery from separate co-registered red, green, and blue bands.
- Supporting high geometric accuracy and forward motion compensation.

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

### *2.1.4 Flying Height*

#### 2-foot Pixel Resolution Areas:

The aerial acquisition flying height shall be capable of achieving a native ground sample distance of less than 2-feet to produce an output resolution of 2-feet. Flight height shall be appropriate for the generation of 1:4,800 scale (1"=400') ortho-imagery that shall meet or exceed the American Society of Photogrammetry and Remote Sensing (ASPRS) class 1 standard at 1:4,800-scale. Proposed flying height shall be provided by the Contractor.

#### 1-foot Pixel Resolution Areas:

The aerial acquisition flying height shall be capable of achieving a native ground sample distance of less than 1-foot to produce an output resolution of 1-foot. Flight height shall be appropriate for the generation of 1:2,400 scale (1"=200') ortho-imagery that shall meet or exceed the American Society of Photogrammetry and Remote Sensing (ASPRS) class 1 standard at 1:2,400-scale. Proposed flying height shall be provided by the Contractor.

#### 0.5-foot Pixel Resolution Areas:

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.

#### 0.25-foot Pixel Resolution Areas:

The aerial acquisition flying height shall be capable of achieving a native ground sample distance of less than 0.25-foot to produce an output resolution of 0.25-foot. Flight height shall be appropriate for the generation of 1:600 scale (1"=50') ortho-imagery that shall meet or exceed the American Society of Photogrammetry and Remote Sensing (ASPRS) class 1 standard at 1:600-scale (1"=50'). Proposed flying height shall be provided by the Contractor.

#### *2.1.5 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, and exposure stations, and ground control locations.

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.

#### *2.1.6 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 this output specification.

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

#### *2.1.7 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.

#### *2.1.8 Camera Station Control*

##### *Airborne GPS*

Sensor position (latitude, longitude and elevation) shall be recorded at the instant of exposure with airborne GPS (AGPS). AGPS shall be differentially corrected. An AGPS data capture solution shall follow the necessary industry acceptable standards to meet the specifications as described in this Scope of Work. It is suggested that a dual-frequency GPS systems be used during the aerial imagery missions. Geodetic positions corresponding to the photo centers at the instant of exposure shall be calculated and (later) combined when necessary with supplemental control point values in an analytical aerotriangulation solution. The horizontal root-mean-square error (RMSE) shall be based on industry acceptable standards.

The contractor shall use AGPS techniques that provide high accuracy camera station coordinates. It is suggested that during the acquisition of the imagery, survey grade geodetic receivers shall be equipped on the aircraft and referenced to at least two ground stations.

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

##### *IMU Exterior Orientation Data*

The Contractor shall record the sensor altitude at the instant of exposure.

*The Contractor shall produce a statistical report summarizing the overall accuracy of the adjusted IMU data. The RMSE of the adjusted IMU data shall be based on industry acceptable standards.*

#### *2.1.9 Supplemental Ground Control*

Ground control from surveyed ground targets and control points established in Aerotriangulation (AT) shall be sufficient 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 21, 2014. The cost of the PLS will not be incurred by the Contractor however the contractor will be responsible for placing any needed panels.

## 2.2 Digital Ortho-Imagery Production

### 2.2.1 Digital Elevation Model

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

### 2.2.2 Aerotriangulation

The CCGISC encourages use of analytical aerotriangulation to reduce field control costs, and to verify integrity of the survey. Best available technology shall be utilized. The use of softcopy analytical aerotriangulation, or digital aerotriangulation, is acceptable.

*The Contractor shall document the used aerotriangulation process and methods and deliver a copy of the analytical aerotriangulation results. 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.*

#### 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, 2014 to provide enough time for the PLS to complete capture by the first week in May, 2014.

The positional values of these points may subsequently be used in the aerial triangulation adjustment once the checks have been evaluated and approved.

### 2.2.3 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 required pixel resolutions.

#### Resolution

##### *2-foot Pixel Resolution Areas:*

The final output resolution desired is 2-foot ground sample distance.

##### *1-foot Pixel Resolution Areas:*

The final output resolution desired is 1-foot ground sample distance.

##### *0.5-foot Pixel Resolution Areas:*

The final output resolution desired is 0.5-foot ground sample distance.

##### *0.25-foot Pixel Resolution Areas:*

The final output resolution desired is 0.25-foot ground sample distance.

#### Radiometric Characteristics

All orthophotos shall be composed of three (3) R,G,B spectral bands: Red (R), Green (G), and Blue (B). 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

1 to 2-foot Pixel Resolution Areas:

The Contractor shall deliver the TIFF/TFW images perfectly aligned with and named according to an existing 5,000 feet x 5,000 feet index grid.

0.5-foot Pixel Resolution Areas:

The Contractor shall deliver the TIFF/TFW images perfectly aligned with and named according to an existing 2,500 feet x 2,500 feet index grid.

0.25-foot Pixel Resolution Areas:

The Contractor shall deliver the TIFF/TFW images perfectly aligned with and named according to an existing 1,250 feet x 1,250 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 aerial triangulation, 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>.*

#### 2.2.4 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.*
- *A flight diagram composed of the project area outline, flight lines, and approximate image centers – flying height is also to be provided.*
- *An index map illustrating each delivered tile.*
- *Airborne GPS positional data and a statistical summary report.*
- *IMU sensor orientation data and a statistical summary report.*
- *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 NSSDA guidelines which are available at <http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3>.*
- *Digital orthorectified imagery in TIFF with TFW format, 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. No exceptions to this format will be accepted. 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 D 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
  - b. Provide costs for each of the three 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, January 9, 2014 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 2014 – 001, time and date of opening, "*January 9, 2014 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](mailto:lbrehob-riley@co.champaign.il.us)

The email subject line shall state "*RFP 2014 – 001: Aerial Photography Services*".

Inquires pertaining to Request for Proposal must include "RFP 2014-001 Questions" in the subject line. Questions should be referred via email by 4:30 pm, local prevailing time, on or before December 20, 2014 to:

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

## 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 the CCGISC.

Rights of CCGISC: The CCGISC, acting as an administrative agent for Piatt County, City of Champaign and the Champaign County Forest Preserve District, reserve 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.

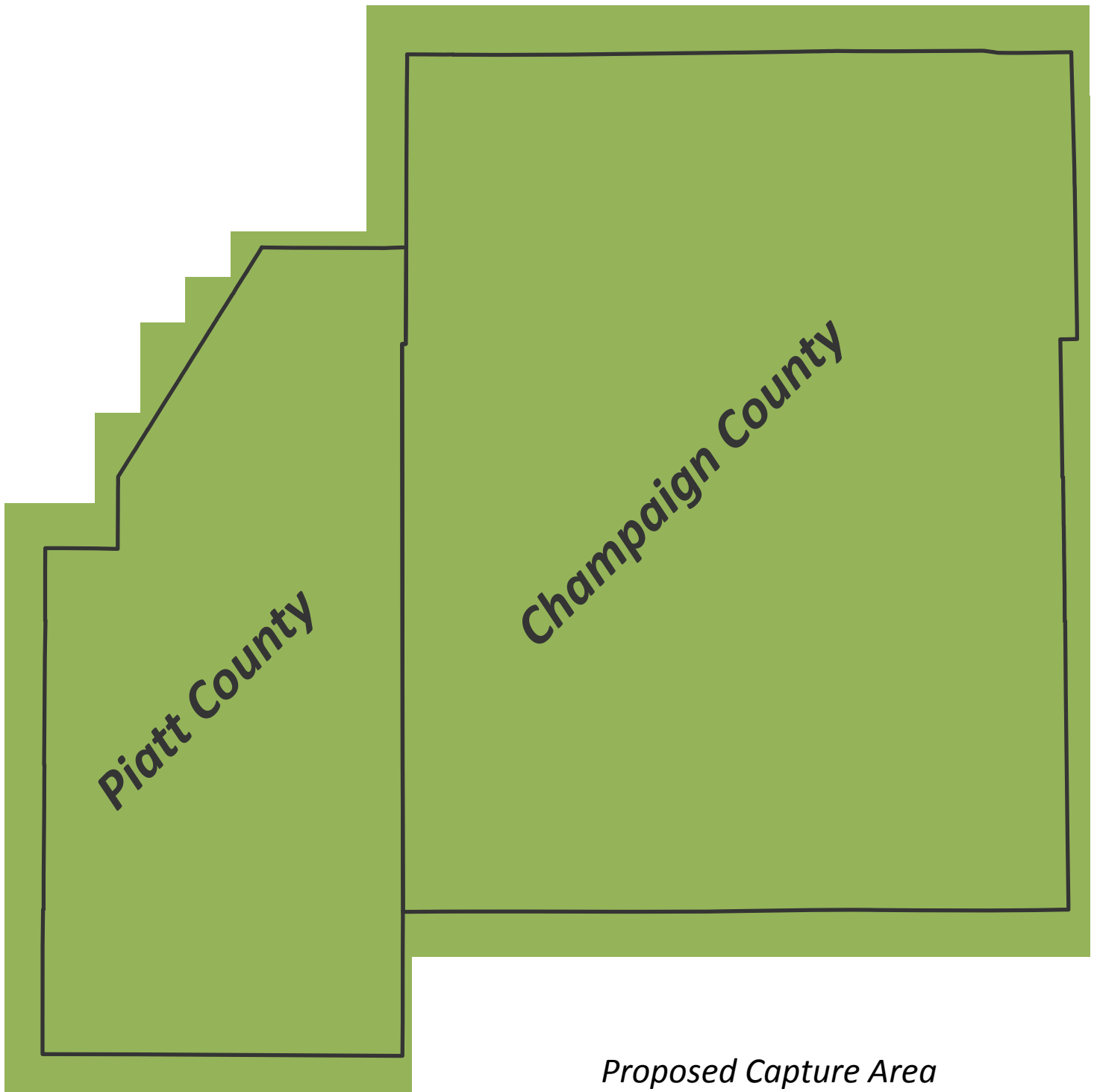
Realistic Cost Estimates: While cost estimates are requested with responses, the practice of "low balling" a cost in response to this RFP is STRONGLY DISCOURAGED. Should a contractor attempt to negotiate project costs unjustifiably higher than estimates indicated in the RFP, the negotiations will be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

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


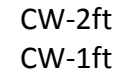
Off Shore Services: The use of subcontractors or service providers outside of the United States of America will NOT be accepted. The contractor will provide a signed statement assuring the CCGISC that all required services will be performed within the United States of America.

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

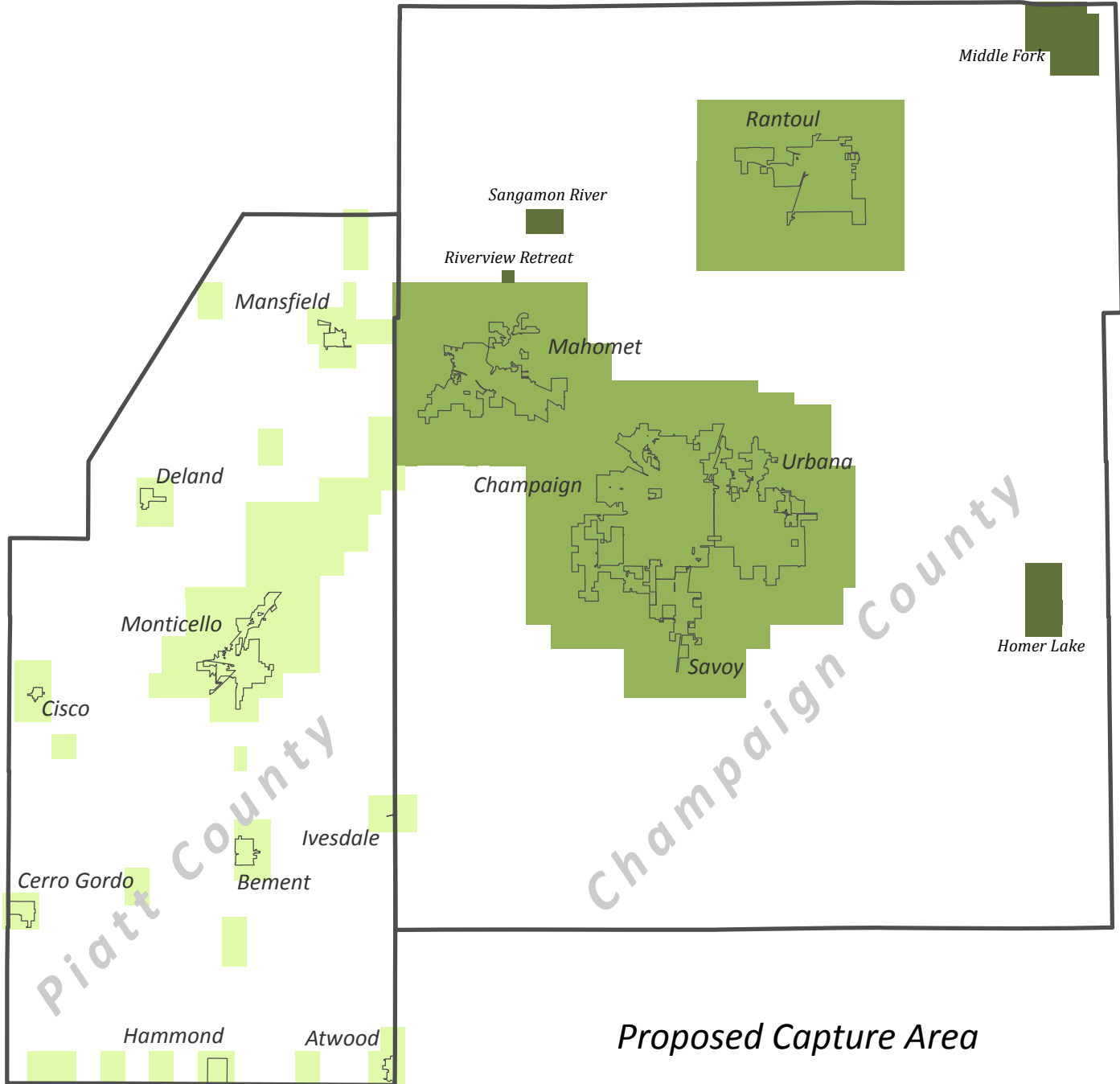
-  CW-2ft - 2' Pixel Resolution
-  CW-1ft - 1' Pixel Resolution

(1694 total sq miles - Champaign 1148 sq miles; Piatt 546 sq miles)




0 1.5 3 6 Miles



# Attachment B



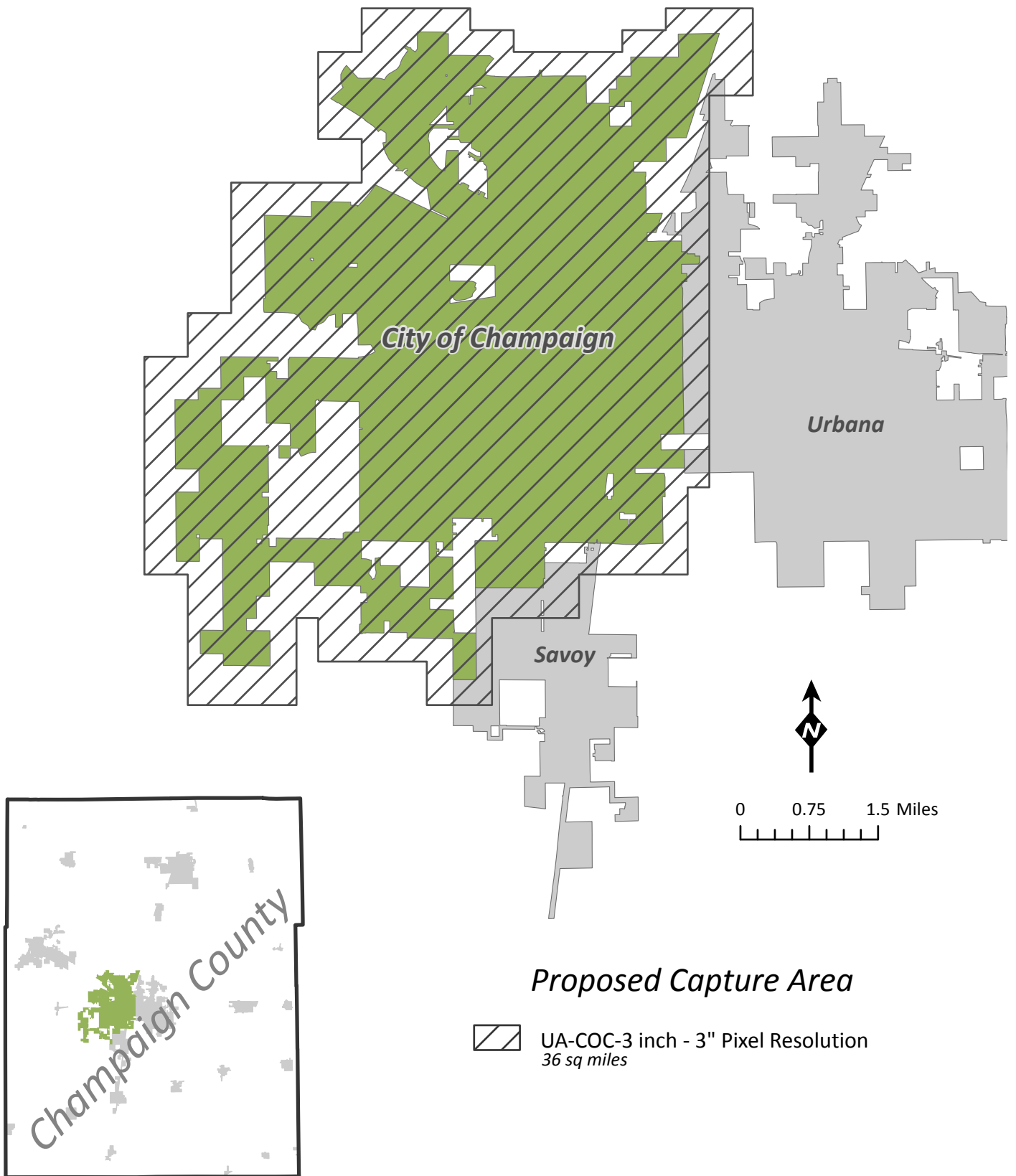
## Proposed Capture Area

-  UA-Champ-6 inch - 6" Pixel Resolution  
233 sq miles
-  UA-Piatt-6 inch - 6" Pixel Resolution  
86 sq miles
-  UA-Forest-6 inch - 6" Pixel Resolution  
12.5 sq miles

0 1.5 3 6 Miles



# Attachment C



## ***Attachment D***

### **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-

a. **BROAD FORM COMPREHENSIVE GENERAL LIABILITY:**

\$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.

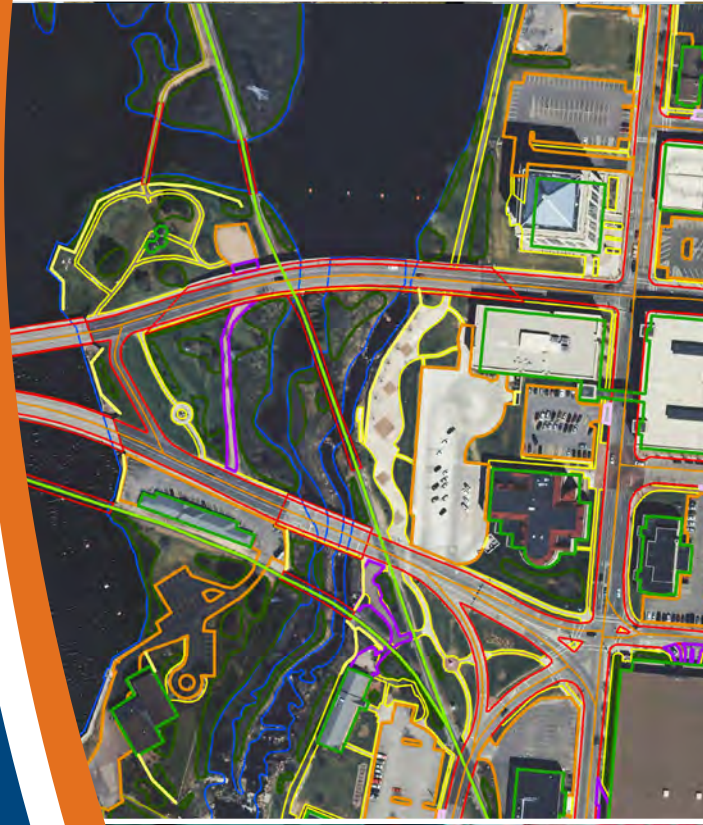


# Proposal

RFP 2014 – 001:

Aerial Photography Services

The Champaign County GIS Consortium (CCGISC)



**January 9, 2014 at 11:30 a.m.**

January 7, 2014

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

Re: RFP 2014 – 001: Aerial Photography Services

Dear Ms. Brehob-Riley and Selection Committee Members:

Large-scale orthophotography projects are a smart, cost-effective way to acquire valuable geospatial data. The Champaign County GIS Consortium (CCGIS) knows this and wants to bring the many benefits of quality, up-to-date imagery to the local agencies and residents of your area. The Ayres Associates team can assist you by bringing its capabilities in geospatial services to your project.

Ayres Associates has established a track record of providing GIS users in Illinois with innovative, cost-effective geospatial solutions. We have consistently demonstrated that we not only provide quality work – we can provide it with significant cost savings. In 2013 we prepared more than 3,000 square miles of high-resolution orthoimagery within Illinois; this includes six county-wide projects and numerous municipal projects. All of these projects benefited from consortium-based pricing.

We're gearing up for another big year of aerial imagery missions in 2014 and have significant resources dedicated to the area this coming spring. This translates to lower-cost orthoimagery for the CCGISC, plus peace of mind knowing your project will be well on its way to a successful outcome. For the proposed services, I will be your project manager. My focus on Illinois has involved creative project solutions for public and private entities in issues ranging from municipal stormwater management to wind energy production. I actively participate in the Illinois GIS community and have presented on various topics at the Illinois GIS Association conferences and other GIS user groups. Complementing Ayres Associates' experience is our partner, Midwest Aerial Photography, which will provide flight services during the imagery acquisition phase of the project. Midwest Aerial is a trusted partner on our Illinois flights and shares our commitment to quality.

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 me if you have any questions or would like additional information after reviewing our proposal on the pages that follow.

Sincerely,

Ayres Associates Inc



Jason Krueger, CP, GISP  
Project Manager, Geospatial Services

5201 E. Terrace Drive, Suite 200; Madison, WI 53718  
Phone: 608.443.1230; Cell: 608.577.0048; Fax: 608.443.1250  
Email: KruegerJ@AyresAssociates.com

## 2. Company Overview

---

Ayres Associates is a nationwide professional consulting firm providing services in photogrammetry, lidar, and digital mapping; GIS; survey; civil, structural, transportation, river, levee, and water resources engineering; environmental science; planning; and architecture.

Incorporated in 1959 in Eau Claire, Wisconsin, Ayres Associates provides services from a network of twelve offices around the country. Geospatial mapping and imagery services are provided from our office in Madison, Wisconsin.



**Company name and contact information:**

Ayres Associates Inc  
5201 E. Terrace Drive, Suite 200  
Madison, WI 53718

Phone: 608.443.1200  
Fax: 608.443.1250  
Web: [www.AyresAssociates.com](http://www.AyresAssociates.com)

**Contacts:**

Jason Krueger, CP, GISP, Project Manager  
Phone: 608.443.1230  
Email: [KruegerJ@AyresAssociates.com](mailto:KruegerJ@AyresAssociates.com)

Kirk Contrucci, CP, Vice President – Geospatial Services  
Phone: 608.443.1213  
Email: [ContrucciK@AyresAssociates.com](mailto:ContrucciK@AyresAssociates.com)

**Type of organization:** Employee-owned corporation

**Total number of staff:** 275



### 3. Company History and Related Experience

#### Summary of Related Experience

Ayres Associates 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 CCGISC and its participating entities. We have established a core group of repeat clients that appreciate knowing Ayres Associates can be relied upon to deliver quality products at a fair price.

Ayres Associates 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.

#### 2013 Illinois County Orthoimagery

Ayres Associates provided high accuracy orthoimagery services throughout Illinois for Bruce Harris & Associates. Together, Ayres and Bruce Harris have built project partnerships between municipal and/or county entities that have similar mapping needs and can cooperatively share imagery acquisition and processing costs.

**In 2013 alone, Ayres and Bruce Harris teamed to provide high resolution digital orthoimagery to six counties in Illinois totaling approximately 3,000 square miles.** With multiple aircraft and cameras, aerial imagery was collected for several counties simultaneously. This made it possible for all imagery to be acquired in peak flying conditions and before leaf-on conditions – ensuring that all participants received high quality imagery.

With the unpredictable spring weather of the past few years, we have maintained an excellent track record for completing our missions and for

expediting production schedules. Participants have included the following Illinois entities:

- Clark County
- Effingham County
- City of Effingham
- Kane County
- LaSalle County
- Lawrence County
- Shelby County



We have performed repeat orthoimagery projects for Effingham and Clark Counties (previous projects were completed in 2009). Other recent Illinois partner projects have included Edgar County, Macoupin County, Putnam County, and the City of Carbondale.

#### Reference: [LaSalle County, Illinois](#)

**Services:** Ayres Associates teamed with Bruce Harris and Associates to provide LaSalle County with orthoimagery services in 2013. Aerial imagery was collected this past spring using a large format digital camera system and supported the development of county-wide 6-inch pixel resolution orthoimagery. The ortho tiles were completed by early August of this year, with all remaining products delivered by early September.



**Client Contact Information:** Linda Kendall,  
Supervisor of Assessments  
**Telephone:** 815.434.8233  
**Email:** [assessor@lasallecounty.org](mailto:assessor@lasallecounty.org)

**Project Duration:** March 2013 – August 2013  
**Project Fees:** approximately \$112,000  
**Key Team Members:** Kirk Contrucci (Principal),  
Jason Krueger (PM), Aaron Sale (Ortho Supervisor),  
Midwest Aerial Photography (Aerial Imagery  
Subconsultant)

### Illinois GIS Consortium (GISC)

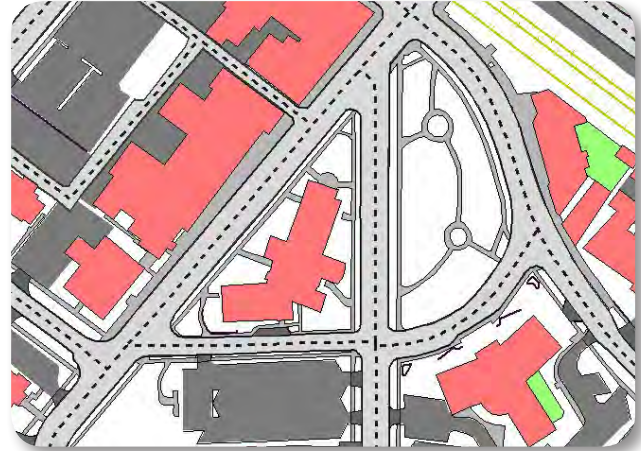
The Illinois GISC is a public entity formed in 1999 that now comprises 23 suburban Chicago communities in three counties. Ayres Associates had been working with communities in the area since the early 1990s. When approached with the concept of a collaborative mapping effort, Ayres Associates built a consortium pricing model that would bring cost down with expanded participation.

Ayres Associates has provided the GISC with survey, aerial photography acquisition, planimetric and topographic mapping, digital orthoimagery, and lidar services. Ayres Associates was awarded a five-year renewal for mapping services by the GISC in 2012, and we are prepared for considerable expansion of services to these member communities.

### Reference: Tinley Park, Illinois

**Services:** Ayres Associates has provided base mapping services to the Village of Tinley Park,

Illinois over a three-year period. Aerial imagery was collected in each of the past three past spring flying seasons using a large format digital camera system. The imagery has supported the development of 3-inch resolution orthoimagery and planimetric mapping to 1" = 50' map scale.



**Client Contact Information:** Steve Tilton, Assistant  
Village Manager  
**Telephone:** 708.444.5050  
**Email:** [stilton@tinleypark.org](mailto:stilton@tinleypark.org)

**Project Duration:** March 2011 – present  
**Project Fees:** approximately \$250,000  
(cumulatively)  
**Key Team Members:** Kirk Contrucci (Principal),  
Jason Krueger (PM), Aaron Sale (Ortho Supervisor),  
Midwest Aerial Photography (Aerial Imagery  
Subconsultant)

### Carbondale, Illinois

**Services:** The City of Carbondale retained Ayres Associates to provide digital orthophotography services in 2012. Approximately 100 square miles of digital aerial imagery were collected in February 2012 and processed to four-inch resolution orthoimagery. Additionally, a new DEM was prepared to orthorectify the images.

**Client Contact Information:** Chris Wallace,  
Development Services Director  
**Telephone:** 618.457.3248  
**Email:** [cwallace@ci.carbondale.il.us](mailto:cwallace@ci.carbondale.il.us)





**Project Duration:** February – July 2012  
**Project Fees:** approximately \$26,500  
**Key Team Members:** Kirk Contrucci (Principal), Jason Krueger (PM), Aaron Sale (Ortho Supervisor), Midwest Aerial Photography (Aerial Imagery Subconsultant)

### Kankakee County, Illinois

**Services:** Since 1999, Ayres Associates has provided many geospatial services to a cooperative of municipal and county departments in Kankakee County. Ayres Associates was again selected by this cooperative to provide orthoimagery services in 2010.

Aerial imagery was collected this past spring using Intergraph's DMC and supported 6-inch pixel resolution orthoimagery to ASPRS Class 1 accuracy standards. The ortho tiles were submitted

to Kankakee County by July 6, 2010, and all remaining ortho products were delivered by July 31. Additionally, the County's existing planimetric geodatabase was updated using the new imagery and was delivered by the end of December 2010.



**Client Contact Information:** Roger Diercks, GIS Specialist  
**Telephone:** 815.937.2986  
**Email:** rdiercks@k3county.net

**Project Duration:** March 2010 – December 2010  
**Project Fees:** approximately \$250,000 (cumulatively)  
**Key Team Members:** Kirk Contrucci (Principal), Jason Krueger (PM), Aaron Sale (Ortho Supervisor), MJ Harden (Aerial Imagery Subconsultant)

## 4. Financial / Legal

---

### Longevity and Financial Strength

---

Ayres Associates has been in business for more than 50 years and has established 12 offices in six states. In recent years, Ayres Associates' professional service fees have been approximately \$40 million annually. Ayres Associates maintains a minimum of \$3 million line of available credit. None of this credit is the personal liability of any officer or employee of the firm. Ayres Associates' Dun & Bradstreet number (Duns number) is 06-283-6309, and our rating is an excellent 3A3.

### Year-end Financial Statement

---

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

### State of Illinois Business License

---

See documentation included in this section.

### Insurance Coverage

---

See certificates included in this section.

### Current Legal Actions Relating to Current or Past Projects

---

No current or past legal actions exist related to Ayres Associates' geospatial mapping and imagery services.



## Independent Auditor's Report

Board of Directors  
Ayres Associates Inc  
Eau Claire, Wisconsin

### Report on the Financial Statements

We have audited the accompanying financial statements of Ayres Associates Inc, which comprise the balance sheets as of December 31, 2012 and 2011, and the related statements of income and comprehensive 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 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, 2012 and 2011, 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

February 20, 2013

Eau Claire, Wisconsin

# State of Illinois

## Department of Financial and Professional Regulation Division of Professional Regulation

LICENSE NO.  
**184.003316**

The person, firm or corporation whose name appears on this certificate has complied with the provisions of the Illinois Statutes and/or rules and regulations and is hereby authorized to engage in the activity as indicated below.

EXPIRES:  
**04/30/2015**

### PROFESSIONAL DESIGN FIRM LS/ARC/PE CORPORATION

**AYRES ASSOCIATES INC  
ATTN: ACCTG-WENDY SMITH  
3433 OAKWOOD HILLS PKWY  
EAU CLAIRE, WI 54701**



MANUEL FLORES  
ACTING SECRETARY

JAY STEWART  
DIRECTOR

The official status of this license can be verified at [www.idfpr.com](http://www.idfpr.com)

**7765338**

Cut on Dotted Line


**For further reference, the Department is now providing a personal customer identification "Contact Number" which you may use in lieu of your social security number or FEIN number when contacting the Department. Your number is: 988272**

State of Illinois  
Department of Financial and Professional Regulation  
Division of Professional Regulation


LICENSE NO. **184.003316**

\*\*\*\* VOID \*\*\*\*  
\*\*\*\* VOID \*\*\*\*  
\*\*\*\* VOID \*\*\*\*

EXPIRES: **04/30/2015**



MANUEL FLORES  
ACTING SECRETARY



JAY STEWART  
DIRECTOR

The official status of this license can be verified at [www.idfpr.com](http://www.idfpr.com)

**7765338**

Cut on Dotted Line

WWW.CYBERDRIVEILLINOIS.COM

JESSE WHITE  
SECRETARY OF STATE



## CORPORATION FILE DETAIL REPORT

Entity Name	AYRES ASSOCIATES INC	File Number	56825614
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	THOMAS W PULSE 3433 OAKWOOD HILLS PKWY EAU CLAIRE WI 54701
Agent City	SPRINGFIELD	Secretary Name & Address	JAN F ZANDER SAME
Agent Zip	62703	Duration Date	PERPETUAL
Annual Report Filing Date	04/30/2013	For Year	2013
Old Corp Name	04/25/2005 - OWEN AYRES AND ASSOCIATES, INC.		

[Return to the Search Screen](#)

[Purchase Certificate of Good Standing](#)

(One Certificate per Transaction)

BACK TO CYBERDRIVEILLINOIS.COM HOME PAGE



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
01/02/2014

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 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. 500 1st Street, Suite 1100 Wausau, WI 54403 BILL SAILER	1-715-301-9330	CONTACT NAME: Kathy Kraus PHONE (A/C No. Ext): 715-301-9330 E-MAIL ADDRESS: Kathy_Kraus@AJG.com	FAX (A/C, No): 715-301-9326
INSURED AYRES ASSOCIATES INC PO BOX 1590 EAU CLAIRE, WI 54702-1590		INSURER(S) AFFORDING COVERAGE	
		INSURER A: TRAVELERS IND CO OF AMER	NAIC # 25666
		INSURER B: TRAVELERS PROP CAS CO OF AMER	25674
		INSURER C: TRAVELERS IND CO OF CT	25682
		INSURER D:	
		INSURER E:	
		INSURER F:	

**COVERAGES**

CERTIFICATE NUMBER: 37966291

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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC			P- 630-2183P260-TIA-14	01/01/14	01/01/15	EACH OCCURRENCE	\$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 100,000
							MED EXP (Any one person)	\$ 5,000
							PERSONAL & ADV INJURY	\$ 1,000,000
							GENERAL AGGREGATE	\$ 2,000,000
							PRODUCTS - COMP/OP AGG	\$ 2,000,000
								\$
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS			P-810-3790P125-TIL-14	01/01/14	01/01/15	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
							BODILY INJURY (Per person)	\$
							BODILY INJURY (Per accident)	\$
							PROPERTY DAMAGE (Per accident)	\$
								\$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB DED <input checked="" type="checkbox"/> RETENTION \$ 0			PSM-CUP-3790P149-TIL-14	01/01/14	01/01/15	EACH OCCURRENCE	\$ 5,000,000
							AGGREGATE	\$ 5,000,000
								\$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			PJ-UB-2528P88-1-14 (AOS)	01/01/14	01/01/15	<input checked="" type="checkbox"/> WC STATUTORY LIMITS	OTHER
C			N/A	PE-UB-2522P94-4-1 (FL & WI)	01/01/14	01/01/15	E.L. EACH ACCIDENT	\$ 500,000
							E.L. DISEASE - EA EMPLOYEE	\$ 500,000
							E.L. DISEASE - POLICY LIMIT	\$ 500,000

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

**CERTIFICATE HOLDER**

Ayres Associates  
3433 OAKWOOD HILLS PARKWAY  
EAU CLAIRE, WI 54701  
USA

**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

© 1988-2010 ACORD CORPORATION. All rights reserved.





# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

7/1/2013

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 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).

<b>PRODUCER</b> Johnson Insurance Madison 525 Junction Road Madison, WI 53717	<b>CONTACT NAME:</b> Mary Jo Nowak <b>PHONE (A/C, No, Ext):</b> (608) 203-3880 <b>FAX (A/C, No):</b> (877) 254-8586 <b>E-MAIL ADDRESS:</b> mnowak@johnsonins.com
	<b>INSURER(S) AFFORDING COVERAGE</b> INSURER A : <b>Continental Casualty Co</b> INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

**COVERAGES**                      **CERTIFICATE NUMBER:**                      **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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						EACH OCCURRENCE	\$
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS  <input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE  <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						COMBINED SINGLE LIMIT (Ea accident)	\$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input type="checkbox"/> Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		N / A				WC STATUTORY LIMITS	OTHER
A	<b>Professional Liab</b>			AEH254025050	6/30/2013	6/30/2014	<b>Each Claim</b>	<b>5,000,000</b>
A	<b>Professional Liab</b>			AEH254025050	6/30/2013	6/30/2014	<b>Aggregate</b>	<b>5,000,000</b>

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

**CERTIFICATE HOLDER**

**CANCELLATION**

Ayres Associates, Inc.  
 3433 Oakwood Hills Pkwy  
 Eau Claire, WI 54701

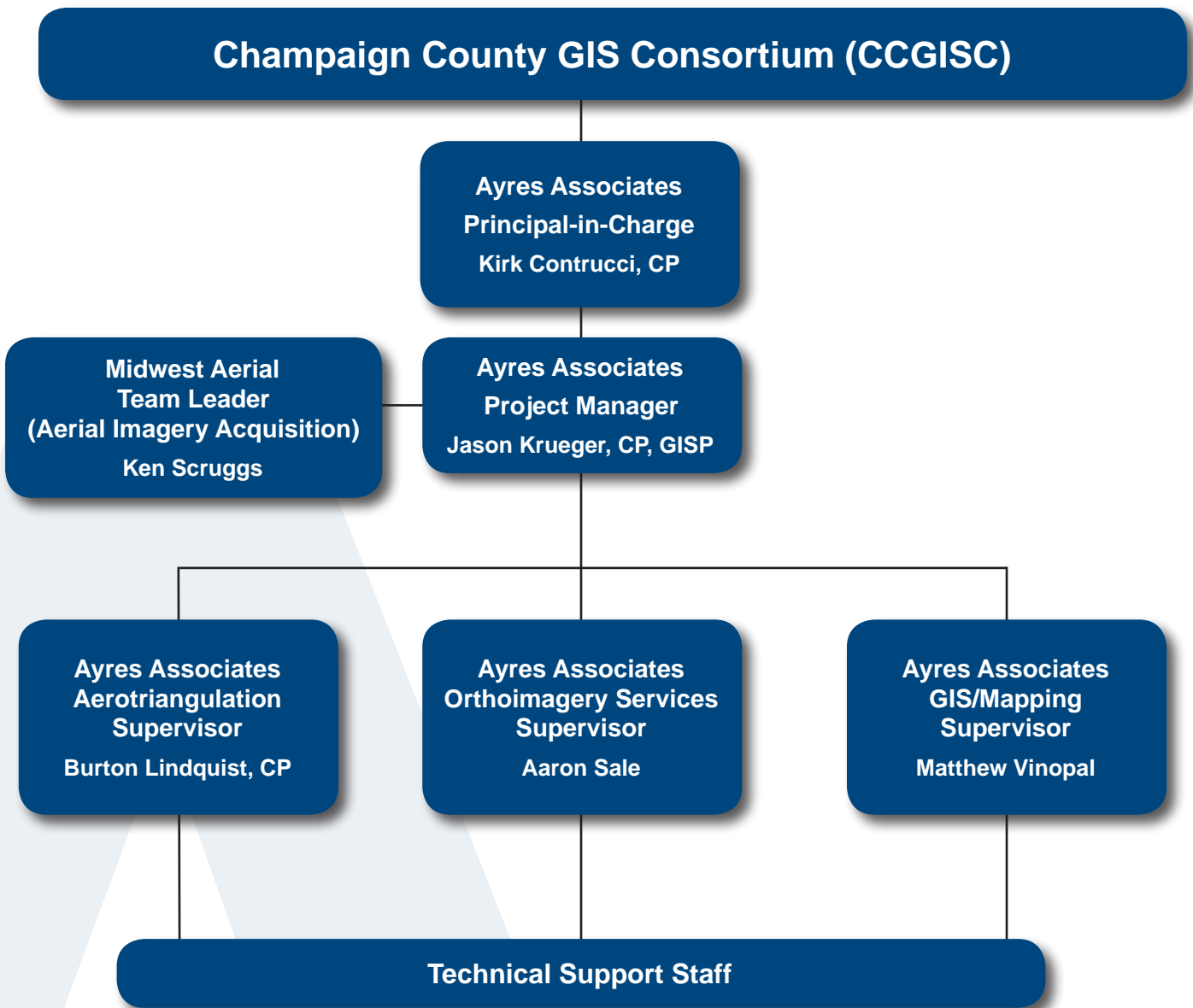
SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

## 5. 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 Associates team can be found in the pages that follow.



## Kirk Contrucci, CP, Principal-in-Charge



Mr. Contrucci is vice president of geospatial services at Ayres Associates. He has served as project manager on hundreds of mapping and imagery projects. His duties have included project design, planning, management, and cost estimating. Mr. Contrucci has extensive experience in design and management of aerial photography, global positioning system (GPS) and conventional surveys, analytical aerotriangulation, digital planimetric and topographic mapping, digital orthophotography, and lidar technology.

### Related Project Examples

#### **Wisconsin Regional Orthophotography Consortium (WROC)**

Program manager. WROC is a statewide, multi-entity mapping initiative led by seven regional planning commissions (RPCs) involving counties, municipalities, utilities, and state and federal agencies. This initiative is designed to allow participants to receive products and services tailored to their individual geospatial needs. Products and services include color, color IR, and black-and-white digital imagery, as well as photogrammetric mapping, lidar, and remote sensing data.

#### **Fly Dane 2009-2010, Dane County, WI**

Principal-in-charge. Ayres Associates is working with the County to provide a detailed terrain surface and countywide imagery. The first phase of the project, started in 2009, consisted of developing a detailed terrain surface using Lidar technology. Ayres Associates produced 1- and 2-foot contour datasets for areas specified by Dane County partners (numerous municipalities within county).

#### **Bismarck-Mandan Metropolitan Planning Organization (MPO), ND**

Principal-in-charge. The Ayres Associates team obtained new color aerial imagery using the Intergraph DMC. The MPO also opted for topographic mapping to support 2-foot interval contours and spot elevations for 400 square miles. The Ayres Associates team used lidar technology to develop terrain model to support production of contours. Two-foot interval contours were generated from lidar data that met NMAS accuracy specifications.

#### **Kankakee County Orthophotography, IL**

Principal-in-charge. Ayres Associates has provided geospatial services to a cooperative of municipal and county departments in Kankakee County since 1999. In 2010, aerial imagery was collected using Intergraph's DMC and supported 6-inch pixel resolution orthoimagery and 1" = 100' map scale planimetrics to ASPRS Class 1 accuracy standards. The orthos were submitted to the County within three months of the flight. Additionally, the County's existing planimetric geodatabase was updated and delivered as an ESRI 9.3 geodatabase product.

### Total Experience

30 Years

### Registrations

*Certified Photogrammetrist,  
ASPRS, US, 2004*

### Education

*BS, Cartography, University of  
Wisconsin-Madison, 1984*

### Memberships

*American Society for  
Photogrammetry and Remote  
Sensing*

*Association of State Floodplain  
Managers*

*Geospatial Information and  
Technology Association, Board of  
Directors, Wisconsin Chapter*

*Society of American Military  
Engineers*

## Jason Krueger, CP, GISP, Project Manager



Mr. Krueger brings more than 16 years of experience in the field of mapping and GIS. He has worked as both a technician and as a project manager for a broad range of mapping and land information services projects. His experience includes work in the public and private sectors. His specialties include lidar and photogrammetric project design for transportation engineering applications. He has overseen the mapping and imagery services provided to the Suburban Chicago GIS Consortium (GISC) for several years, a group of 23 communities that receive ongoing services from Ayres Associates for a variety of municipal infrastructure needs.

### Related Project Examples

#### **GIS Consortium, Chicago Suburbs, IL**

Project manager. Ayres Associates has been providing high-accuracy mapping services to members of the GIS Consortium (GISC) since the 1990s. Today, the GISC comprises 23 municipalities, representing more than half a million people over 150 square miles in the Chicago area. Ayres has provided the GISC with survey, aerial imagery, planimetric mapping, and lidar. Standard deliverable products include 3-inch resolution orthoimagery, 1-foot contours, and planimetric mapping to 1" = 50' map scale.

#### **Kankakee County Orthophotography, IL**

Project manager. Ayres Associates has provided geospatial services to a cooperative of municipal and county departments in Kankakee County since 1999. In 2010, aerial imagery was collected using a digital photogrammetric camera and supported 6-inch pixel resolution orthoimagery and 1" = 100' map scale planimetrics to ASPRS Class 1 accuracy standards. The orthos were submitted to the County within three months of the flight. Additionally, the County's existing planimetric geodatabase was updated using the new imagery.

#### **Bismarck-Mandan Metropolitan Planning Organization (MPO), ND**

Project manager. The Ayres Associates team obtained new color aerial imagery using the Intergraph DMC. The MPO also opted for topographic mapping to support 2-foot interval contours and spot elevations for 400 square miles. The Ayres Associates team used lidar technology to develop terrain model to support production of contours. Two-foot interval contours were generated and met NMAS accuracy standards.

#### **Wisconsin DOT IH 43 Mobile lidar, Milwaukee**

Project manager. Ayres Associates is providing mobile lidar acquisition services for IH 43 corridor in parts of Milwaukee and Ozaukee County for the Wisconsin Department of Transportation. The project consists of approximately 50 total linear miles of lidar collection to support survey grade data and transportation design applications.

#### Total Experience

*16 Years*

#### Certifications

*Certified Photogrammetrist,  
ASPRS, US, 2013*

*GIS Professional, 2008*

#### Education

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

#### Memberships

*American Society for  
Photogrammetry and Remote  
Sensing*

*Wisconsin Land Information  
Association*

*Illinois GIS Association*



## Aaron Sale, Orthoimagery Supervisor



### Total Experience

18 Years

### Education

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

### Training

ESRI ArcView Training, 1999

Intergraph OrthoPro Training,  
1999

Supervisory/Management  
Certification Program, 1999

Z/I Imaging Digital Mapping  
Camera Seminar, 2006

Mr. Sale joined Ayres Associates in 1996 as a digital orthophotography technician. Since then, he has become supervisor for all orthoimagery development and has made major contributions to large-scale orthophotography projects around the country. His experience includes the 2010 WROC program, which involved the development of 18-inch orthophotography for the entire state of Wisconsin as well as higher resolution imagery for individual clients.

### Related Project Examples

#### **GIS Consortium, Chicago Suburbs, IL**

Responsible for digital orthophotography. Ayres Associates has been providing high-accuracy mapping services to members of the GIS Consortium (GISC) since the 1990s. Today, the GISC comprises 23 municipalities, representing more than half a million people over 150 square miles in the Chicago area. Ayres has provided the GIS GISC with survey, aerial imagery, planimetric mapping, and lidar. Standard deliverable products include 3-inch resolution orthoimagery, 1-foot contours, and planimetric mapping to 1" = 50' map scale.

#### **Bismarck-Mandan Metropolitan Planning Organization (MPO), ND**

Responsible for digital orthophotography. The Ayres Associates team obtained new color aerial imagery using the Intergraph DMC. The MPO also opted for topographic mapping to support 2-foot interval contours and spot elevations for 400 square miles. The Ayres Associates team used lidar technology to develop terrain model to support production of contours. Two-foot interval contours were generated from lidar data that met NMAS accuracy specifications.

#### **Kankakee County Orthophotography, IL**

Responsible for digital orthophotography. Ayres Associates has provided geospatial services to a cooperative of municipal and county departments in Kankakee County since 1999. In 2010, aerial imagery was collected using Intergraph's DMC and supported 6-inch pixel resolution orthoimagery and 1" = 100' map scale planimetrics to ASPRS Class 1 accuracy standards. The orthos were submitted to the County within three months of the flight. Additionally, the County's existing planimetric geodatabase was updated and delivered as an ESRI 9.3 geodatabase product.

#### **Wisconsin Regional Orthophotography Consortium (WROC)**

Responsible for digital orthophotography. WROC is a statewide, multi-entity mapping initiative led by seven regional planning commissions (RPCs) involving counties, municipalities, utilities, and state and federal agencies. Products and services include color, color IR, and black-and-white digital imagery, as well as photogrammetric mapping, lidar, and remote sensing data.

## Ken Scruggs

Title:	Owner / Photographer / Pilot Midwest Aerial Photography
Experience with Midwest Aerial Photography:	Founded company in 1989
Total Industry Experience:	Since 1978 (33 years)
Formal Education:	Miami University - Engineering Technology Franklin University - Business Administration

---

Mr. Scruggs founded Midwest Aerial Photography in 1989. He is responsible for contract administration and contract negotiation for all aerial imaging, and aerial geodetic projects. His management responsibilities include overseeing all aspects of project scheduling, flight operations, deliverable digital or hard copy imaging products, new technology implementation, and product development.

Mr. Scruggs has performed all duties relative to aerial image acquisition for image interpretation, photogrammetric mapping, and GIS data management services including:

- Aerial survey pilot, film and digital sensor operation, flight planning, weather forecasting, and training of individuals to perform these functions.
- Developing the logistics of an airborne GPS system for precise camera positioning during film exposure, and the firing of the aerial camera at predetermined exposure station coordinates.
- Coordinating software development to incorporate customer needs with emerging technologies.
- Developing quality control standards and implementing quality control procedures and equipment maintenance in airborne and laboratory functions.

In addition, Mr. Scruggs and Midwest Aerial Photography was selected by Zeiss/Intergraph for the initial flight testing of all digital cameras, the Zeiss DMC , Zeiss RMK D (2009), and Zeiss DMC II (2010) digital mapping cameras to test, prove and improve these systems before being released for sale on the world market.

Mr. Scruggs also holds an FAA pilot certificate and can perform as well as train personnel in all flight crew functions.

Prior to forming Midwest Aerial Photography, Mr. Scruggs was a supervisor of aerial photography and photo laboratory operations for a photogrammetry firm in Columbus, Ohio. His interest in optics extends to hobbies in photography, telescope, and microscopy.

### Continuing Education:

- Agfa Aerial Film Conference (October 2000, 2002, 2003, 2004, 2008) Antwerp, Belgium
- Kodak Aerial Imaging Training Seminar (September 1999 and 1998) Rochester, New York
- Zeiss RMK-TOP/DMC Aerial Camera System Workshop (February 1997, 1998, 2001, 2005, 2006, 2008) Colorado
- Leica RC-30 Aerial Camera System, Operator, Service and Maintenance Workshop (August 1994, and 1995) Denver, Colorado.
- Waypoint GrafNAV-GrafNET software training in Calgary, June 2009.

## Additional Support Staff

---

### Burton Lindquist, CP

---

Registration: Certified Photogrammetrist, ASPRS, US, 2009

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

Years of Experience: 26

Mr. Lindquist 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, Mr. Lindquist 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.

### Matthew Vinopal

---

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

Years of Experience: 14

Mr. Vinopal joined Ayres Associates in 2000 as a stereo compilation technician. His responsibilities have included stereo compilation of planimetric and topographic map features on first order analytical and digital photogrammetric stereo compilation systems. In addition to stereo compilation duties, Mr. Vinopal serves as supervisor for Ayres Associates' GIS services and lidar processing.

### Jeffrey Koppensteiner, Senior Technician Support Staff

---

Education: BS, Geography, University of Wisconsin-Stevens Point, 1995

Years of Experience: 18

Mr. Koppensteiner joined Ayres Associates in 1999 as a photogrammetric technician. His responsibilities include stereo compilation of planimetric and topographic map features on first order analytical and digital photogrammetric stereo compilation systems.

### Jason Wahleithner, Technician Support Staff

---

Education: BS, Geography, University of Wisconsin-Stevens Point, 2003

Years of Experience: 6

As a stereo compilation technician, Mr. Wahleithner is responsible for stereo compilation of planimetric and topographic map features on first order digital photogrammetric workstations.

### Jason Komorowski, Technician Support Staff

---

Education: BS, Geography, University of Wisconsin-Stevens Point, 2004

Years of Experience: 6

As a photogrammetric technician, Mr. Komorowski is responsible for stereo compilation of planimetric and topographic map features on first order digital photogrammetric workstations.

### Tyler Schwartz, Technician Support Staff

---

Education: BS, Geography, University of Wisconsin-Eau Claire, 2012; AS, Graphic Design Media, Duluth Business University, 2003

Years of Experience: 1

As a stereo compilation technician, Mr. Schwartz is responsible for stereo compilation of planimetric and topographic map features on first order digital photogrammetric workstations.

## 6. Project Approach

### Services Associated with the Project

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

We are confident that we have a dynamic, well-planned approach to working with the CCGIS. 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 Associates team will obtain new color aerial imagery for the CCGIS product option areas in the spring of 2014 using the recently introduced Intergraph DMC II, a calibrated, photogrammetric digital mapping camera. The CCGIS has identified seven different options for the orthoimagery; these consist of different project areas and four resolution options ranging from 3-inch up to 2-foot.

### Alternative Option: 6-inch County-wide Orthos.

In addition to responding directly to the CCGIS's desired pricing options, Ayres Associates has included an alternative option for developing 6-inch county-wide orthoimagery products for both counties. The CCGIS may find that producing larger blocks of contiguous 6-inch orthos may be more cost effective and efficient for day-to-day use. This option is identified as "**CW 6-inch**" within the cost proposal page.

### Ground Control

Ayres Associates will use a combination of ground control points and airborne GPS (ABGPS) technology to orient the aerial imagery. We understand that the CCGIS will provide all necessary GPS survey work for the ground control targets.

### 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 project manager, **Jason Krueger, CP, GISP**. Mr. Krueger is experienced in project management and has a strong history of involvement in Illinois with GIS, survey, and other geospatial disciplines.

As project manager, Mr. Krueger will update CCGIS 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 timeframe agreed upon.

**Initial Coordination Meeting.** Prior to project initiation, we propose that Mr. Krueger and key staff from the CCGIS 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, Mr. Krueger will participate in conference calls and/or on-site meetings with the CCGISC as needed. Given our close proximity to the project area, further on-site meetings can be arranged as needed. A formal monthly status report will be presented to the CCGISC to document project status. The format of these reports will be finalized with input from CCGISC staff prior to the start of the project.

### Quality Assurance and Quality Control Procedures

Ayres Associates' Quality Program defines quality as meeting client expectations. Therefore, quality performance requires consensus between the County and project team members with regard to the requirements of the project and design of project strategies based on those requirements. Ayres Associates' 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 Associates and Kirk Contrucci, CP, vice president of geospatial operations, in particular, are ultimately responsible for the successful completion of quality products and services for each project. Mr. Contrucci establishes the philosophy, organization, and policy that set Ayres Associates' 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 Associates and Midwest Aerial Photography have formal, co-developed QA/QC checks in place and standard operating procedures designed so that all required information is collected accurately and that products meet or exceed project standards and specifications.

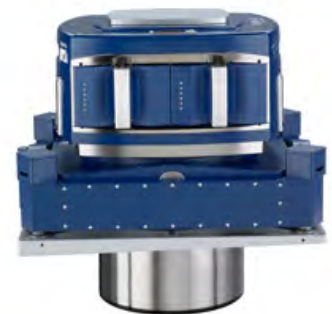
**Task Specific Quality Assurance/Quality Control Procedures.** QA/QC procedures and the respective supervisors responsible for their implementation are included in the production phases outlined in this technical approach. Ayres Associates will work with the CCGISC to develop additional QA/QC procedures 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: Z/I Intergraph's DMC II

Utilization of a frame-based, digital photogrammetric camera is crucial for performing the most effective acquisition procedures and best meeting your needs. Specifically, Ayres Associates recommends and will use **Z/I Imaging's DMC II** camera. This is the same system used – with great success – on many of our previous projects throughout Illinois.



To provide the digital camera for the imagery acquisition, we have teamed with Midwest Aerial Photography of Columbus, Ohio. Midwest 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 Illinois – from Carbondale to Chicago.

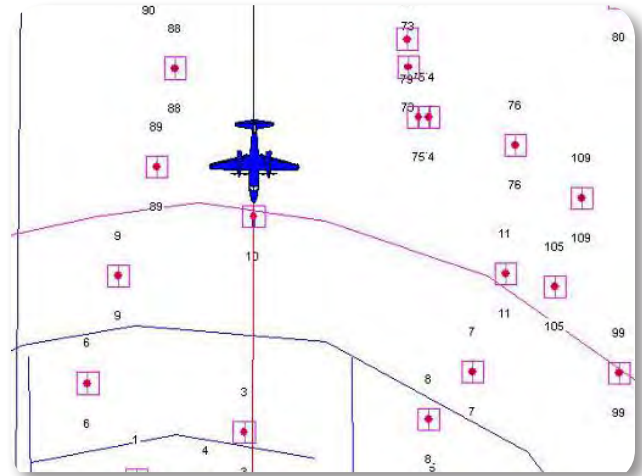
Midwest Aerial Photography owns and operates **three** Z/I Imaging DMC II digital mapping cameras. These large-format sensors mimic the frame geometry of traditional film cameras while providing unparalleled image sharpness and multispectral information content. The DMC IIs acquire black-and-white panchromatic and multispectral color (red, green, blue and near-infrared) imagery simultaneously on a single pass. The digital cameras are extremely cost-effective for wide-area coverage projects.

**Aircraft.** Midwest Aerial operates five airplanes – 2 Piper Aztecs, 2 Cessna 206s, and a Rockwell 500 S Shrike Aero Commander. These are all turbocharged and fully equipped to support all mapping needs. The aircraft are retrofitted with Q-tip props to reduce vibration and winglets to improve stability. This provides a stable platform to produce clear image products.

### Flight Management System

The flight management system will provide navigation and orientation information to the pilot and photography information to the camera

operator. The system will fire the camera at each photo's coordinates when the aircraft reaches the correct location.



A flight plan containing the flight lines and exposure stations will be generated within our Track'Air flight management system. The accepted flight plan will be uploaded into the Z/I Inflight flight management system utilized by the DMC II. The following tables summarize the acquisition specifications for each resolution option. (AGL=above ground level).

OPTION AREA	GROUND SAMPLE	FLYING HEIGHT	# FLIGHT LINES/ # IMAGES
CW 2-foot totals	1.47-foot	18,628-foot	20/705
CW 1-foot	0.96-foot	12,365-foot	31/1581
CW 6-inch (Alternative Option)	0.43-foot	5,449-foot	60/5847
Urbanized Area (UA) Options			
UA Champaign 6-inch	0.43-foot	5,449-foot	28/996
UA Piatt 6-inch	0.43-foot	5,449-foot	35/572
UA Forest 6-inch	0.43-foot	5,449-foot	9/85
UA Combined 6-inch	0.43-foot	5,449-foot	70/1619
UA COC 3-inch	0.23-foot	2,934 foot	19/655

### 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. We will keep the CCGISC informed of these conditions and optimal times to obtain photography.

**Stereoscopic Coverage.** The entire area of the project shall be stereoscopically covered by successive and adjacent overlaps of photographs within the usable portion of the field of the lens. The coverage will extend a minimum of 1000 feet beyond the project area boundary (outside of the buffer area).

**End Lap/Side Lap.** The end lap shall 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 shall average 30%. Any image having side lap less than 25% or more than 35% will be rejected.

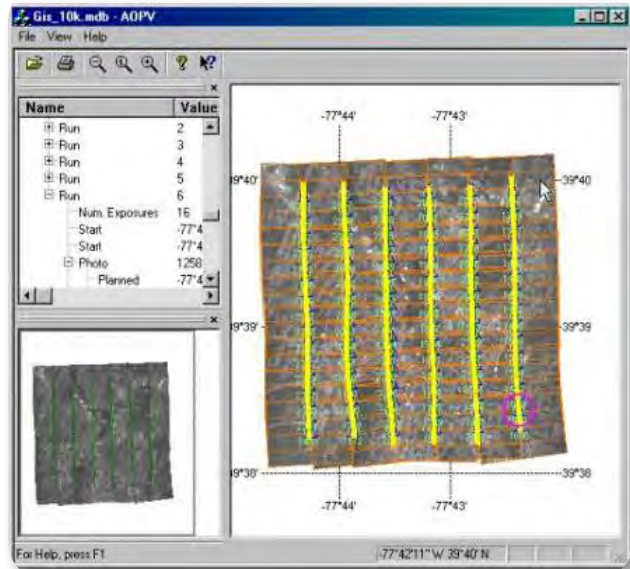
**Re-flights.** Lack of acceptable imagery shall be corrected by re-flights, with no additional cost to the CCGISC. All re-flights will be centered on the plotted flight lines and will be taken with the same camera system.

#### Image Capture Quality Assurance

During the aerial acquisition phase, the DMC 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 re-flown at that time. (See screenshot to the right. The Airborne Quickview Project Viewer: 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 re-flight will be scheduled and the client notified.



#### Ground Control Survey

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

**Photo-identifiable Targets.** Ayres Associates 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.

**Number of Control Points Needed.** The minimum number of control points needed for each project area is dependent upon which ortho options are selected by CCGISC. Any combinations of the options may result in a modification to our control network plan. The following tables illustrate



approximately how many control points will be need if each option area is planned as a stand-alone project:

CW 2-FOOT	MINIMUM # OF GPS CONTROL POINTS TO SURVEY
Piatt County	5
Champaign County	5
<b>CW 2-foot totals</b>	<b>10</b>

CW 1-FOOT	MINIMUM # OF GPS CONTROL POINTS TO SURVEY
Piatt County	7
Champaign County	10
<b>CW 1-foot totals</b>	<b>17</b>

CW 6-INCH (ALTERNATIVE OPTION)	MINIMUM # OF GPS CONTROL POINTS TO SURVEY
Piatt County	10
Champaign County	14
<b>CW 6-inch totals</b>	<b>24</b>

CW 6-INCH (ALTERNATIVE OPTION)	MINIMUM # OF GPS CONTROL POINTS TO SURVEY
UA Champaign 6-inch	12
UA Piatt 6-inch*	36
UA Forest 6-inch	10
UA Combined 6-inch*	45
UA COC 3-inch	10

**\*A minimum of 1 control point per 6-inch ortho area is highly recommended.**

**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 ABGPS systems. Location accuracy of the AGPS capture points will range between .02 and .05 meter.

**GPS Base Stations.** The Ayres Associates 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 Associates 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 utilize GPS checkpoints for the completion of an NSSDA accuracy report. Ayres Associates will not be responsible for the collection of independent checkpoints; it is recommended that the CCGISC utilize photo-identifiable targets for checkpoints. Ayres Associates may utilize 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 Associates 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 DMC 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 in order 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 can be employed to ortho-rectify the imagery. To some extent, however, 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, Matthew Vinopal. Ayres Associates will apply any modifications to the existing surface as needed by various means of input in order 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 in order 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:

- 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.
- 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 Associates 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 Associates 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 Associates 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. Unless an alternative specification is negotiated, Ayres Associates will utilize a standard forward-lap (60%) and side-lap (30%) for the imagery acquisition. We can provide cost options to increase the overlap to further mitigate building lean during negotiations, but this will result in substantially more imagery to acquire and process. If there are other specific building structures that CCGISC members desire to address, we can provide solutions on a case-by-case basis.

**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 Associates understands that the CCGISC intends to utilize NSSDA testing procedures to report realized accuracy. The CCGISC will provide all independent check point survey to be utilized 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 National Map Accuracy Standards for the associated mapping scales of each option.

- 2-foot Pixel Resolution: 1" = 400' (+/- 13.33' at 90% Confidence)
- 1-foot Pixel Resolution: 1" = 200' (+/- 6.67' at 90% Confidence)

- 0.5-foot Pixel Resolution: 1" = 100' (+/- 3.33' at 90% Confidence)
- 0.25-foot Pixel Resolution: 1" = 50' (+/- 1.67' at 90% Confidence)

### Orthoimagery Tiling Scheme and Naming

**Convention.** The orthoimagery tiling structure will conform to the Counties' existing schematic and naming convention:

- 1- to 2-foot Pixel Resolution: 5,000-foot x 5,000-foot index grid
- 0.5-foot Pixel Resolution: 2,500-foot x 2,500-foot index grid
- 0.25-foot Pixel Resolution: 1,250-foot x 1,250-foot index grid

**Coordinate System/Datum.** All of the 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 Associates' 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 – prepare production workflow, finalize flight plan	January – February 2014	CCGISC and Ayres Associates
Aerial imagery acquisition	February – March 2014 (as weather permits)	Ayres Associates
Submit and review raw, unprocessed imagery	March – April 2014	CCGISC and Ayres Associates
Analytical aerotriangulation of all imagery	April – May 2014	Ayres Associates
Prepare DEM	May – June 2014	Ayres Associates
Ortho production of Pilot Areas	June 2014	Ayres Associates
Pilot Area submittal and Review	June 15, 2014	CCGISC and Ayres Associates
Complete Ortho Products <ul style="list-style-type: none"> <li>• 2-foot County-wide Orthos</li> <li>• 1-foot County-wide Orthos</li> <li>• 6-inch County-wide Orthos</li> <li>• 3-inch County-wide Orthos</li> <li>• UA Champaign 6-inch</li> <li>• UA Piatt 6-inch</li> <li>• UA Forest 6-inch</li> <li>• UA Combined 6-inch</li> <li>• UA COC 3-inch</li> </ul>	September 30, 2014 September 30, 2014 October 31, 2014 September 30, 2014 October 15, 2014 October 30, 2014 September 30, 2014 November 15, 2014 September 30, 2014	Ayres Associates

### Product Deliverables

#### 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 of the pilot area source imagery, GeoTIFF format
- Geodatabase of “as-flown” data including:

- point feature class of photo centers of each exposure
- line feature class of the flight lines

#### Color Orthoimagery

- One complete set of digital, color orthoimagery
  - Uncompressed TIFF format (with associated world files)
  - MrSID compressed tiles
  - MrSID project-wide or area-wide mosaics

## Aerotriangulation

---

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

## Control Survey

---

- Survey report (provided by CCGISC), including procedures, and control used
- GPS coordinates in ASCII file format (new control points as needed)
- Coordinates as a geodatabase point feature class
- Values will be provided in Illinois State Plane, East Zone coordinates

## Metadata

---

All data produced by Ayres Associates 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 Associates 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 of Madison, Wisconsin. All work for the CCGISC will be performed within the United States by the Ayres Associates team. Please see our letter of confirmation on the following page.**

## Client Responsibilities

---

The CCGISC will be responsible for supplying Ayres Associates 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 most recent, existing orthophotography for reference (compressed mosaics are acceptable)
- ✓ Provide the existing lidar data and associated metadata to be used for the ortho-rectification process
- ✓ Provide GPS survey of ground control points

January 7, 2014

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

Re: RFP 2014 – 001: Confirmation That Offshore Services Will Not Be Utilized

Dear Ms. Brehob-Riley and Selection Committee Members:

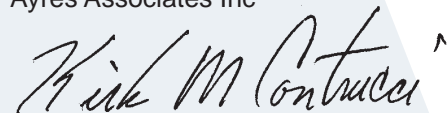
Ayres Associates appreciates the CCGISC's support for US-based labor and for stating this as a project requirement. All work performed by the Ayres Associates team for the Consortium will be performed in the United States.

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 Associates is proud to be among them.

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

A handwritten signature in black ink that reads "Kirk M. Contrucci". The signature is written in a cursive style with a small upward-pointing arrow at the end of the last name.

Kirk M. Contrucci, CP  
Vice President – Geospatial Services



## 7. Firm / Individual Commitment to Project

---

### Capacity to Accomplish Project Goals

---

Ayres Associates 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 CCGISC 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 for the CCGISC, 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.

### Strategic Mobilization and Rapid Deployment

---

The aerial acquisition aircraft and camera will be strategically located in the vicinity for fast mobilization to project sites. Ayres Associates and Midwest Aerial have teamed to provide orthoimagery services to nearby projects in 2014 and will have aircraft on stand-by as we prepare for optimal environmental conditions for aerial imagery collection.

Additionally, Ayres Associates comprehends the intrinsic complexities of aerial photography acquisition in Illinois. Being a Wisconsin-based geospatial services firm, we fully appreciate the complications of uncooperative weather. Despite the

long winters, heavy rain and flooding, and cloudy skies that we've experienced here in the Midwest over the past few years, we have maintained an excellent track record of completing our aerial imagery missions as scheduled.

### Future Availability & Contract Commitments

---

#### Staffing Commitments

---

Projected workloads for the period concurrent with this project allow us to state with confidence that ample staff and equipment allocation – including those of our subconsultant – will be made to meet your desired timeframe. Our project team will commit the resources required for your project and has the ability to mobilize additional resources if the project demands it.

#### 2014 Illinois Orthoimagery

---

Ayres Associates is looking forward to the upcoming 2014 flight season in Illinois. We already have prepared contracts with several counties and municipalities within Illinois, including the counties of Iroquois, Cumberland, and Kendall, as well as multiple municipalities within the Chicago region. We have already secured commitments for five aircraft equipped with digital imaging systems dedicated to the area for similar flight. In addition to providing adequate resources to accomplish the flights, this also translates to substantial savings for CCGISC in mobilization costs for equipment and personnel.

#### Current Contractual Commitments

---

We do not have any contracts or potential contracts that will interfere with our ability to complete the aerial imagery mission or ortho production schedule as presented in this proposal. Within Illinois, we have contractual commitments for two large-scale projects – Iroquois County and Cumberland County.

Several other contracts within the area are pending. At present, Ayres Associates has 45% of the anticipated 2014 projects under contract. By February, we expect to have 60%. Much of

our backlog comprises projects in higher latitudes (Wisconsin, Minnesota, North Dakota). Because of their later start date, we are expecting that these negotiations will continue up to May. By this time, your project will already be well underway.

### Orthoimagery Processing Capacity

To estimate the labor hours for processing time and the resource requirements, we have assumed an approximate production schedule of four months for all data products. We understand that the proposed schedule will be refined as the full project scope is negotiated.

The following table provides a general summary of the number of production stations available for the various phases of orthophotography production. We do not anticipate that all of the equipment listed will be used.

The purpose of this list is to demonstrate the significant amount of resources at our disposal – more than enough processing and personnel resources for any of the proposed services for the project. Orthoimagery and stereo compilation resources include the following:

EQUIPMENT OR SYSTEM	APPLICATION	AVAILABLE EQUIPMENT
Aerotriangulation workstations	Aerotriangulation	2
Digital ortho-rectification workstations	Digital rectification, mosaicking, tone balancing, tiling of imagery	8
Image processing workstations	Image finishing, raster format conversion, raster/vector integration, satellite image processing, land cover classification	8
Softcopy workstations	Photogrammetric mapping	10
GIS workstations	GIS data generation and editing, geodatabase development, spatial analysis, raster/vector integration, digital image acquisition flight planning, 3-D visualization	4

## 8. Cost Proposal

### Basic Pricing Information

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

OPTION	PROPOSED COST	PROPOSED
CW 2-foot	\$47,432.00	September 30, 2014
CW 1-foot	\$76,230.00	September 30, 2014
CW 6-inch (Alternative Option)	\$127,050.00	October 31, 2014
Urbanized Area (UA) Options		
UA Champaign 6-inch	\$27,960.00	October 15, 2014
UA Piatt 6-inch	\$21,500.00	October 30, 2014
UA Forest 6-inch	\$ 7,320.00	September 30, 2014
UA Combined 6-inch	\$43,030.00	November 15, 2014
UA COC 3-inch	\$21,600.00	September 30, 2014

### Detailed Pricing Information

The following chart illustrates the breakdown of cost by task and unit cost for each option:

#### County-wide (CW) Options

CW-2ft	Costs per Task			Proposed Cost		
	Flight Cost	Production Cost	Project Mgmt & Admin Cost	Cost per Square Mile	Apprx Cost per Tile	Total Cost
Piatt County	\$ 7,832	\$ 6,374	\$ 1,081	\$ 28.00	\$ 100	\$ 15,288
Champaign County	\$ 16,468	\$ 12,924	\$ 2,752	\$ 28.00	\$ 100	\$ 32,144
<b>CW-2ft totals</b>	<b>\$ 24,300</b>	<b>\$ 19,299</b>	<b>\$ 3,833</b>	<b>\$ 28.00</b>	<b>\$ 100</b>	<b>\$ 47,432</b>

CW-1ft	Costs per Task			Proposed Cost		
	Flight Cost	Production Cost	Project Mgmt & Admin Cost	Cost per Square Mile	Apprx Cost per Tile	Total Cost
Piatt County	\$ 11,217	\$ 11,698	\$ 1,656	\$ 45.00	\$ 161	\$ 24,570
Champaign County	\$ 23,583	\$ 24,595	\$ 3,481	\$ 45.00	\$ 161	\$ 51,660
<b>CW-1ft totals</b>	<b>\$ 34,800</b>	<b>\$ 36,293</b>	<b>\$ 5,137</b>	<b>\$ 45.00</b>	<b>\$ 161</b>	<b>\$ 76,230</b>

CW-6inch (Alternative Option)	Costs per Task			Proposed Cost		
	Flight Cost	Production Cost	Project Mgmt & Admin Cost	Cost per Square Mile	Apprx Cost per Tile	Total Cost
Piatt County	\$ 23,336	\$ 15,510	\$ 2,105	\$ 75.00	\$ 17	\$ 40,950
Champaign County	\$ 49,064	\$ 32,610	\$ 4,425	\$ 75.00	\$ 17	\$ 86,100
<b>CW-6inch totals</b>	<b>\$ 72,400</b>	<b>\$ 48,120</b>	<b>\$ 6,530</b>	<b>\$ 75.00</b>	<b>\$ 17</b>	<b>\$ 127,050</b>

Urbanized Area (UA) Options	Costs per Task			Proposed Cost		
	Flight Cost	Production Cost	Project Mgmt & Admin Cost	Cost per Square Mile	Apprx Cost per Tile	Total Cost
UA-Champ-6inch	\$ 12,300	\$ 13,927	\$ 1,733	\$ 120.00	\$ 27	\$ 27,960
UA-Piatt-6inch	\$ 9,300	\$ 10,875	\$ 1,325	\$ 250.00	\$ 56	\$ 21,500
UA-Forest-6inch	\$ 2,700	\$ 4,192	\$ 428	\$ 610.00	\$ 131	\$ 7,320
UA-Combined-6inch	\$ 21,900	\$ 18,314	\$ 2,816	\$ 130.00	\$ 29	\$ 43,030
UA-COC-3inch	\$ 7,700	\$ 12,651	\$ 1,249	\$ 600.00	\$ 34	\$ 21,600

## 9. Project References

---

### LaSalle County, Illinois

Ayres Associates teamed with Bruce Harris and Associates to provide LaSalle County, Illinois with orthoimagery services in 2013. Aerial imagery was collected this past spring using a large format digital camera system and supported the development of county-wide 6-inch pixel resolution orthoimagery. The ortho tiles were completed by early August of this year, with all remaining products were delivered by early September.

LaSalle County, 707 Etna Road, Ottawa, IL  
61350

Linda Kendall, Supervisor of Assessments,  
815.434.8233, [assessor@lasallegcounty.org](mailto:assessor@lasallegcounty.org)

### Kankakee County, Illinois

Since 1999, Ayres Associates has provided many geospatial services to a cooperative of municipal and county departments in Kankakee County. Ayres Associates was again selected by this cooperative to provide orthoimagery services in 2010.

Aerial imagery was collected this past spring using Intergraph's DMC and supported 6-inch pixel resolution orthoimagery to ASPRS Class 1 accuracy standards. The ortho tiles were submitted to Kankakee County by July 6, 2010, and all remaining ortho products were delivered by July 31.

Additionally, the County's existing planimetric geodatabase was updated using the new imagery and is scheduled to be delivered by the end of December 2010.

Kankakee County, 280 E. Court Street, Kankakee, IL  
60901

Roger Diercks, GIS Specialist, 815.937.2986  
[rdiercks@k3county.net](mailto:rdiercks@k3county.net)

### Carbondale, Illinois

The City of Carbondale has retained Ayres Associates to provide digital orthophotography services in 2012. Approximately 100 square miles of digital aerial imagery will be collected in February 2012 and processed to four inch resolution orthoimagery. Additionally, a new DEM was prepared to orthorectify the images.

City of Carbondale, 200 South Illinois Avenue  
Carbondale, IL 62901-2918

Chris Wallace, AICP, Development Services Director  
618.457.3248, [cwallace@ci.carbondale.il.us](mailto:cwallace@ci.carbondale.il.us)

### Bismarck-Mandan, North Dakota

Ayres Associates provided geospatial services for the Bismarck-Mandan Metropolitan Planning Organization (MPO). Ayres Associates obtained new color aerial imagery for the MPO in the spring of 2013 and 2009, using a digital photogrammetric camera.

Ortho coverage totaled approximately 400 square miles and conformed to National Map Accuracy Standards (NMAS) for 1"=100' scale mapping. The digital aerial imagery was collected in May of 2013. The resultant orthoimagery was prepared and delivered by September 2013.

Bismarck-Mandan Metropolitan Planning  
Organization, 221 N 5th Street, Bismarck, ND  
58554

Steve Saunders, MPO Transportation Planner  
701.355.1848, [ssaunder@nd.gov](mailto:ssaunder@nd.gov)