

Grant-Hampshire-Hardy-Mineral WV 2015 Aerial Photography Request for Proposal 2015 Digital Orthophotography

1. RFP Purpose

Grant, Hampshire, Hardy and Mineral Counties, WV (The Counties) are seeking proposals from qualified firms to acquire full color (four band) digital orthophotography during the acceptable leaf off/sun angle/weather aerial photography flight season of 2015. The specifications are six-inch pixel resolution for 1"=200' scale mapping Countywide. These contiguous mountain Counties have agreed to work together for management of this project as a single initiative; however, the selected respondent will execute a separate contract with each County after notification of award. The contracts for the 2015 imagery will be an agreement between the selected provider and each of the County Governments participating. The Counties will retain ownership of their respective imagery and associated products in accordance with State law and Freedom of Information Statutes. Other State and Federal agencies may participate in ownership via Inter-local Agreement with each County. This Request for Proposal (RFP) provides an overview of the project task areas, imagery specifications, and the information required to respond to this RFP. This RFP in no way commits Grant, Hampshire, Hardy and Mineral Counties to contracting for services. Funding commitments from local participants may not be fully confirmed until proposals with pricing are received, reviewed and approved by participants. It is worth noting that Hampshire, Hardy and Mineral Counties have mature GIS with numerous data layers that have been developed from use of 2003 1"=400' scale two foot pixel orthoimagery (with supplemental 2010 Pictometry oblique imagery). Grant County has a current GIS tax parcel mapping project underway. New 6 inch resolution at an improved scale of 1"=200' (ASPRS Class I accuracy) is considered essential to continuing development of GIS and mapping technology for a host of applications, to include 911 dispatch, cadastral mapping, tax and planning applications within these County governments. In this regard, the Counties are also requesting that proposals include a separate line item of technical discussion and pricing for acquisition and delivery of oblique imagery. This would be in addition to, not in lieu of, the specified 1"=200' scale 6 inch resolution digital orthophotography. Further, Hampshire County is also requesting an optional proposal for Countywide LiDAR acquisition with delivery of a DEM sufficiently accurate to reassess existing Flood boundary maps. Project cost is certainly a major consideration for selection of a Consultant for this initiative; however, the qualifications, equipment capability, past experience and proposed technical solutions for producing the required products are also serious considerations for selection of a single Consultant to complete this multi-county initiative.

2. Project Overview

The State of West Virginia embarked on a structure re-addressing and 911 dispatch project in about 2003 entitled West Virginia Statewide Addressing and Mapping Board (WVSAMB). Grant, Hampshire, Hardy and Mineral Counties have completed the field work and database development aspects of this project and implemented Computer Aided Dispatch within 911 Centers. WV County Tax Assessors are charged with development and maintenance of tax parcel maps that are regularly audited by the WV State Tax Commission for compliance to WV 189CSR4 Statewide Procedures for the *Manual Maintenance of Surface Tax Maps* that has been supplemented in part by *Statewide*

Grant-Hampshire-Hardy-Mineral WV Aerial Photography

RFP

Procedures for the Maintenance and Publishing of Surface Tax Maps (January 2007). Hampshire, Hardy and Mineral Counties have mature GIS websites that provide public access to tax parcel and 911 address data. A GIS website for Grant County is being implemented as a part of the current GIS tax parcel mapping project. All of these requirements/initiatives, as well as numerous County property appraisal and planning applications depend heavily upon having accurate and reasonably current aerial orthoimagery as a base and background map.

2.1 Project Area

The total land area for the 2015 flight is currently estimated at slightly more than 2027 square miles and includes all of the following contiguous Counties: Grant (477 sq. miles), Hampshire (640 sq. miles), Hardy (582 sq. miles) and Mineral (328 sq. miles) Counties, West Virginia. Areas shown above in parentheses are derived from the US Census Bureau reported areas and do not include a buffer zone beyond the county border. It is probable that the extent of the acquisition area for this project will not change; however, it is possible that some jurisdictions currently planning to participate may opt out due to budget constraints after review of proposals. Prospective Consultants are requested to provide cost proposals on a per-square - mile basis (then extended to a total cost amount, as shown within enclosed Attachment C: Fee Proposal Form) to accommodate this uncertainty. The final extent of the project will be determined after the proposal process has been completed. The square mile area to be mapped per County designated within Attachment C has been enlarged from the above Census Bureau area to accommodate an approximate 1000 foot buffer beyond each County boundary as described herein.

3. Proposal Instructions

3.1 Registration - In order to receive addenda, answers to information requests, and other important communications regarding this RFP, it is imperative you register your receipt of this RFP by sending the following information to Aaron Cox at HampshireGIS@Gmail.com.

- Name of Firm
- Address
- Contact Name
- Phone
- Fax
- Email

3.2 Submission Instructions - Submit one original (clearly marked original) and four copies of the proposal along with one complete document pdf (CD, DvD or thumb-drive) in a sealed package to the following:

Hampshire County GIS
66 North High Street
Romney, WV 26757
Phone: 304 822 5195 Fax: 304 822 8164
Faxed proposals will not be considered.

The original proposal shall be signed by a person who is authorized to sign contracts for the respondent. The copies of the proposal should show copies of the signature. The proposal package shall also include a digital copy of the proposal in Adobe PDF format on CD-ROM, DvD or USB flash-drive. Sample orthophoto imagery at a similar scale and resolution from prior respondent

projects is also requested on a separate DVD or USB flashdrive within the proposal package. Label the outside of the sealed package as follows:

Project Name: Grant-Hampshire-Hardy-Mineral WV 2015 Aerial Photography

Company: (Insert Your Company Name and Address Here)

3.3 Deadline - Proposals shall be received at the location stated above no later than the Proposal Due Date shown in the Project Schedule. Proposals received after the deadline will not be accepted. The Counties shall not be held responsible for the receipt of any proposal for which the delivery was attempted and failed for any reason after the specified date and time. Each respondent shall be required to ensure the delivery and receipt of its proposal by the agency prior to the date and time of the proposal opening.

3.4 Presentations and Site Visits - The top three qualified respondents following the evaluation of the proposals may be invited to make a presentation in person, by teleconference or via the web. If so, The Counties will notify the respondents of the date and time of the presentation. In addition, certain respondents may be asked to participate in one or more site visits by The Counties representatives to investigate the respondent's ability to meet the project requirements. All costs incurred by the respondent in the presentations or interviews shall be the responsibility of the respondent. The Counties will be responsible for its staff and any travel expenses to any respondent site. After any such presentation, visits, or demonstrations, proposals may be evaluated again as an integral part of the process to select a single Consultant.

3.5 Project Schedule - The Counties have established a tentative schedule for proposal submission, review, Consultant selection, and project initiation, as follows:

Project Schedule

- RFP Released December 17, 2014.
- Pre-Proposal meeting (not required or anticipated).
- Written questions from respondents by COB December 29, 2014.
- Written response to questions by COB January 2, 2015.
- Proposal Due Date January 13, 2015 by 4:00 PM EST
- Proposal Opening Date: January 13, 2015 (Note: Only respondent firm names will be announced at the formal proposal opening). Proposals will then be distributed and evaluated by The Counties committee members.
- Oral Presentations or interviews (if required) January 20, 2015.
- Contractor(s) Selection Approval January 22, 2015.
- Contracts preparation and execution during late January 2015.
- Notice to Proceed approximately February 2, 2015.
- Aerial imagery to be completed in full by April 15, 2015 (weather and leaf-bud dependent).
- Sample raw imagery files delivered for specified locations within 15 days of imagery acquisition.
- Ground control report due by May 15, 2015.
- Pilot project orthophoto imagery due by June 30, 2015.
- First County orthophoto imagery complete sets due by end of July 2015, with subsequent Counties evenly staged for monthly deliveries. All four Counties to be delivered, reviewed and approved by October 30, 2015.

3.6 Proposal Acceptance and Rejection - The Counties reserve the right to accept any proposal, to

reject any or all proposals, to waive irregularities or informalities in any proposal, and to make the award in any manner deemed in the best interest of The Counties.

3.7 Technical Approach and Quality Control - In conjunction with qualifications and cost, proposals will be closely evaluated on the basis of the technical approach, equipment capability and apparent effectiveness of the respondent's proposed quality control program. The respondent will follow ASPRS (American Society of Photogrammetry and Remote Sensing) accuracy standards. Technical photogrammetric mapping shall be accomplished and documented as to compliance by an ASPRS Certified Photogrammetrist.

3.8 Questions - Any questions about this RFP, deliverables, administrative or the technical procedures should be submitted in writing by email or fax by the Respondent questions deadline indicated in the Project Schedule. Requests received after this deadline will not be considered. All requests received before the deadline will be answered by The Counties in an email to all registered recipients of this RFP. The requestor shall be responsible for notifying The Counties of any problem in receiving replies. Email or fax questions about this RFP to:

Aaron Cox at HampshireGIS@Gmail.com

4. Selection Criteria-The following criteria and considerations as a minimum will be used to evaluate proposals. This is not intended to be a comprehensive list, nor is the arrangement of the criteria meant to imply order of importance in the selection process.

4.1 Compliance with RFP Instructions - The proposals will be evaluated for general compliance with instructions issued in the RFP. Noncompliance with significant instructions may be grounds for proposal disqualification.

4.2 Technical Expertise - The proposal will be evaluated on the respondent's demonstrated technical suitability and qualifications for performing the project services.

4.3 Digital Camera System - The Counties require the use of a four band large format digital mapping camera system for this project. Properties and any calibration reports or data regarding the characteristics of the digital camera proposed shall be included as an attachment within proposals. Both frame and push-broom type cameras that meet the stated requirements will be considered. Camera calibration or manufacturer characteristic reports must be submitted and respondents should be aware that no replacement cameras will be permitted unless the Consultant is able to prove to the satisfaction of The Counties technical evaluators for equal or better capability. Camera reports must be specific in regards to capture width and pixel array, simultaneous capture of red, green, blue and NIR bands, and radiometric resolution of pixel depth (bbp) for each band/channel. Proposals shall be very specific and *clearly state the general designed Above Ground Level (AGL) altitude and camera system that is proposed for the specified scale and pixel resolution of mapping. For digital sensors, this statement of basic system AGL must include some basic straight forward presentation from the manufacturer of the exact raw image pixel capture of the sensor at this AGL.* The inclusion of Airborne GPS and IMU to supplement ground control is a requirement. Completion of an aero-triangulation (AT) adjustment for each block of imagery is required along with an AT report documenting results. Proposals should be very specific and straight forward in identifying and describing any proposed application of these technologies. Proposals may be disqualified on the basis of non-compliance to this (these) factor(s).

4.4 Technical Approach - The proposal will be evaluated on the methods and technical details of

equipment and procedures that will be used to complete the project.

4.5 Quality Control – The proposal will be evaluated on the basis of the apparent effectiveness of the respondent’s proposed quality control program. The proposal should outline and discuss the specific points within the production cycle at which QA tasks are completed and describe the QA work to be performed.

4.6 Professional Registration - The proposals will be evaluated for professional registration. The proposal Team shall include an ASPRS Certified Photogrammetrist having an integral role within project layout, design, implementation and product approval. New ground control surveys within West Virginia must be performed under the direct supervision of a West Virginia Professional Land Surveyor.

4.7 Business Registration - The respondent shall be licensed to do business in the State of West Virginia *prior to award* of the contracts.

4.8 Firm Background - The proposal will be evaluated on the basis of the respondent’s background, including the number of years in business, capability of resources to complete a project of this magnitude within the schedule, financial stability, quality of references, etc.

4.9 Staff Qualifications - The proposal will be evaluated on the basis of the respondent’s demonstrated staff qualifications, including the required professional registrations and certifications, background experience of photogrammetry staff members, etc.

4.10 Similar Project Experience - The proposal will be evaluated on the basis of project experience that is of a similar technical nature and complexity, for clients that are similar in size, location, and type as this WV Counties project. A minimum of five client references shall be provided with a specific current contact that is knowledgeable of the respondent’s work and can be reached directly via provided email and telephone.

4.11 Schedule and Availability - The respondent’s projected schedule and resource availability, and any major project in-house competing workload or resource allocation will be evaluated in the choice of a Consultant.

4.12 Sample Digital Orthophoto - Respondents shall submit sample digital orthophoto data with proposals from the proposed (or same type) camera system that is similar in pixel resolution, map scale and accuracy to the requirements of this project. The sample digital orthophotos will be an important factor in evaluating the Consultant’s ability to meet the requirements of the specification. Each sample data set must include an outline of the sample data project to include at a minimum: location, map scale, accuracy specification, pixel resolution, camera system, month/year date of imagery acquisition, summarized project scope and extent, and client reference and contact.

4.13 Other Services- Respondent may address any other services available to The Counties as options and priced separately for individual County negotiations on a buy up or as needed basis. Any such optional or recommended tasks products or deliverables should be clearly separated and identified within the proposal as such and should *not* be included within the basic project pricing shown on Attachment C.

At this time, pricing and technical discussion regarding LiDAR acquisition for Hampshire County and oblique imagery acquisition for any of the four Counties are being requested. The Counties are requesting that respondents provide technical discussion and pricing for optional oblique imagery in

addition to the required 6 inch orthophotography. Oblique imagery views from north, south, east and west may optionally be acquired in 2015. Oblique imagery delivery must include application software that enables the oblique images to be viewed and manipulated within an application that is interactive with ArcGIS 10x. A fee quotation for options of 6 inch and 9 inch pixel oblique images is requested. Respondents acting as Prime Consultant for the orthophoto imagery acquisition may choose to subcontract this optional oblique imagery acquisition and application software, or use in-house capability.

4.14 **Fee** - The respondent's fee will be considered in the choice of Consultant but will not be the sole determining factor.

5. Proposal Format

All proposals shall follow the same format. No exceptions to this format shall be accepted in that proposals will be evaluated by a committee and consistency by the process is greatly dependent upon how the proposals are formatted. To be accepted for evaluation, the proposal format shall address all required components in order. The aim of the required format is to simplify the proposal preparation and evaluation processes and to ensure that all proposals receive the same orderly review. All proposals shall include the Components as follows.

6. Proposal Components

6.1 **Cover Letter** - Provide a one or two page cover letter. Include the original signed cover letter with the original proposal and a copy of the cover letter with each copy of the proposal.

The cover letter shall provide the following:

6.1.1: A brief statement of the respondent's understanding of the project

6.1.2: The name, title, phone number, fax number, email address, and street address of the person in the respondent's organization who shall respond to questions about the proposal

6.1.3: Highlights of the respondent's qualifications and ability to perform the project services

6.2 **Section 1: Company Overview** - Provide the following information about your firm:

6.2.1: The firm's name, business address, phone number, and fax number

6.2.2: The year the firm was established

6.2.3: Former names of the firm, if applicable

6.2.4: The type of ownership and parent company, if applicable

6.2.5: The location of the office or offices that would provide the project services

6.2.6: A brief statement of the firm's background, demonstrating longevity and financial stability

6.2.7: A discussion of any offshore services that are included within the proposal to include location, name and ownership of any offshore service provider, any past track record or projects completed by a Team member with the referenced offshore service provider and the respondent, specific tasks to be completed by offshore services, etc. Respondents are required to identify within this section of the proposal any intended use of offshore services or labor and/or make a statement that no offshore services or labor will be utilized. Proposals that do not make any statement on whether or not offshore services are to be utilized may be rejected by The Counties solely by the absence of this notification/discussion within the proposal. This section is not intended to preclude or restrict respondents from using offshore services or labor, but simply to require notification with the proposal that offshore services will or will not be used.

6.3 Section 2: Project Services - In this section, which is intended to be the technical presentation of the proposal, describe the respondent's expertise with the methods, QA/QC procedures, hardware and software necessary to perform the project services described in Part 7 of this RFP. This section should include technical information about the proposed sensors, ground control layout, proposed flight plan, GPS-IMU equipment and procedures, AT procedures, DEM/DTM source/compilation, accuracy statement, discussion of orthophoto processing, radiometry, etc. Include information about the respondent's quality control steps, tasks and program.

6.4 Section 3: Project Team - Provide detailed background for the designated project manager and the key individuals within the project production team. The selection criteria in Part 4 require the proposed team to include an ASPRS Certified Photogrammetrist for photogrammetry and a West Virginia Professional Land Surveyor for any new ground control surveys. Include a project team organization chart and resumes for key individuals.

6.5 Section 4: Related Experience - For up to five (5) relevant projects, include a one or two page project description that demonstrates similar capabilities in similar projects, for local government, state or federal clients. Project description should include scope of services, map scale, sensor utilized, pixel resolution, general description of project size, year of imagery acquisition and project current status. Include the name of the client organization, the name of the person who can be contacted for reference, and the specific contact information for that person. Please try to provide both phone and email contact information for a current contact at the client location that is familiar with the project and can discuss contract performance and deliverables.

6.6 Section 5: Proposed Schedule - Include a brief schedule for the completion of the project services and the deliverables (identified as herein as Attachment G) of your proposal. Include the proposed project start and end dates. Describe your projected resource availability for the anticipated duration of the project.

6.7 Section 6: Fee - Complete "Attachment C" (the Fee Proposal Form).

6.8 Section 7: Sample Orthophoto - Provide a minimum of two different sample digital orthophotos on a CD, DvD or USB flash-drive. The samples shall be similar to this RFP's criteria for six inch imagery. The samples must have been created by the respondent company as prime consultant with the same basic type of camera system and processes you are proposing for this project. The digital orthophoto samples shall be in uncompressed, ortho-rectified GeoTIFF format. The samples shall be basically representative of the requirements for orthophotos as specified by this Counties project. This sample imagery is to be submitted solely as an example of the respondent's

product and does not imply any alteration of specification or deliverable, or acceptance by The Counties of any other specification or radiometric processing for this project.

6.9 Section 8: Additional Information - At your discretion, include additional information such as an equipment list, sensor calibration report, additional references, and other information that supports your proposal.

7. Technical Specifications

7.1 Existing Conditions-Each County will provide the following data which will be made available to the selected Consultant.

7.1.1 Existing tax map index map. The intent is that these files can provide a base for detailed final flight and ground control planning.

7.1.2 Project Area Boundaries for each County. It is intended that final delivered orthoimagery extend at least 1000 feet beyond each County boundary.

7.1.3 All files will be made available in ESRI shapefile format.

7.1.4 Any additional available GIS files that would assist layout and design of this project and may not be listed above.

The successful Consultant, acting under the authority and approval of the The Counties, shall provide the following professional services for the 2015 Digital Orthophotography Project. A blank boilerplate example contract is also provided as an Attachment to this RFP. This boilerplate contract is provided only as a starting template for the contract that will be subsequently negotiated with each of the participating Counties.

7.2 General Requirements

7.2.1 Datum, Projection and Accuracy

The final digital orthophotography will reference the West Virginia State Plane Coordinate System NAD83 (2011) for all Counties. Consultants are responsible for verifying the correct West Virginia State Plane Coordinate System NAD83 designation for each County. Digital orthophotography shall be developed to meet a minimum map accuracy standard of ASPRS Class I for 1"=200' scale mapping, as designated by ASPRS Accuracy Standards for Large-Scale Maps. Published as a white paper, March 1990.

7.2.2 Aerial Acquisition

Four band (R,G,B,NIR) digital orthophotography will be developed for the areas prescribed in Attachment C at a scale of 1 inch = 200 foot with a 6 inch ground sample distance (GSD) or pixel resolution (Countywide). Aerial acquisition will occur during periods when the deciduous foliage is dormant and the prevailing sun angle exceeds **33 degrees**. Deciduous Leaf-on imagery will be rejected and the Consultant is responsible for all costs associated with any re-flights. Further, the Consultant is responsible to acquire all imagery within the winter 2015 flight season, to include timely internal QA/QC processes to find any unacceptable imagery of flight lines or exposures and then acquire re-flight imagery within

the 2015 flight season. Final orthophoto products will contain less than 5% cloud cover or cloud shadows. Imagery will be acquired using a high resolution large format digital mapping camera/sensor. Data and specifications for the camera/sensor will be provided in the respondent's proposal as well as sample orthophoto imagery that was acquired with this sensor or one of like model and manufacture. Imagery will be collected in conjunction with Airborne GPS and IMU data. The technical proposal shall be specific in terms of how the airborne GPS will be acquired and processed (single station solution, multiple station solution, NGS monument as base station, new GPS surveyed base station, etc.) Appropriate photo-identifiable or paneled ground control will be acquired to support the aero-triangulation and orthorectification processes. Imagery will be collected in natural color of four bands (R,G,B, NIR) for true color rendition of final orthophotography. Please note that for any given final delivered pixel resolution, the imagery acquisition planning for a digital sensor should generally be smaller or equal. That is, a *generalized* process of re-sampling of data from a larger acquired pixel to a smaller pixel for delivery is not an allowed process. It is recognized that the mountainous relief of The Counties will invariably present isolated locations or small patch areas within properly designed flight plans where acquired imagery Ground Sample Distance (GSD) may exceed six inches. However, flight planning and imagery acquisition must be conducted in such a manner that acquired GSD exceeding six inches is the exception and not the design rule. That is, flight planning must be accomplished such that the vast majority of acquisition across any given exposure is at the required resolution (6 inch) or finer.

Please note that a flight plan (with flight lines) with ground control layout is a required submittal with the proposal. This can be provided as a scalable hardcopy plot showing at a minimum County boundaries with mapping limits of 1"=200' also plotted (taking into account the required buffer of 1000' across County boundaries). The source of ground control locations (existing monuments versus new GPS surveys) shall also be designated on the flight-ground control plan. Flight and ground control plans may also be provided as shapefiles that are stored within named folders on the DvD or USB flashdrive that is included with sample imagery, or on the media with the pdf copy of the proposal.

The mountainous terrain and relief of The Counties presents special challenges of controlling Ground Sample Distance (GSD) and flight geometry minimums for imagery acquisition along extended flight lines using fixed resolution digital sensors. A general specification of minimum 60% exposure endlap and 30% flight line sidelap using a flight altitude based on a flight line's Average Mean Terrain (AMT) has evolved and continued within the industry that has evolved from the era of film camera imagery acquisition and the vast experience of photogrammetry's needs for stereo mapping and orthophoto development. The Counties would like to suggest the following basic limits for flight planning with fixed resolution digital sensors for this project:

1. General design of minimum 60% endlap 30% sidelap. No exposures or flight lines having substantial image areas having less than 55% endlap and 25% sidelap. These standards maintained for evaluation of flight plans using commercially available terrain models.
2. General design of about 5.9 inches "average" GSD. No image areas exceeding 7.2 inches or less than about 1.8 inches.

Respondents are encouraged to provide a discussion of how their selected sensor's geometric characteristics and submitted flight plan will comply to these general GSD and flight overlap

requirements. This may require 3-D flight planning having variable endlap and different values of sidelap within blocks using online or sensor software available terrain data for The Counties. In this regard, the respondent's proposal-submitted flight plan should include designed exposure centers as well as flight line delineation and a designation of the design flight altitude per line. This information may also be provided as an excel spreadsheet of each exposure providing coordinates and altitudes or a shapefile with these values in order that The Counties may more closely evaluate the flight planning relative to underlying terrain and relief relative to GSD and planned geometry.

For each flight sortie, the pilot or cameraman shall prepare a signed flight log containing the date, project name, aircraft used, time interval for each flight line, altitude, sensor model and serial number, names of crew members and any other comments and observations relative to the flight and weather conditions such as smoke and ground fires, wind turbulence, ground snow cover, streams outside of apparent banks, etc.

Sample raw exploitation imagery must be provided by the Consultant to The Counties for each County project within approximately ten days of imagery acquisition. The general layout shall involve at least six raw exploitation images with full coverage (every other frame from standard 60% acquisition), with three images from each of two adjacent flight lines, picking exposures that sidelap (~30%) between the two flight lines. These raw images should include position files developed from the Airborne GPS-IMU EO data that enable the user to at least display the images within an approximate position and rotation within ArcGIS. Each County project should include at least five such sets of raw imagery from the county-wide set with one set within the interior of the County where features such as structures, subdivisions town center, etc. might exist, and four of the sets at the approximate corners or edge of the County. Note: one such single "set" of raw exploitation imagery can be applicable for delivery once where multiple adjoining Counties adjoin. That is, one such set may be used as a deliverable for multiple Counties at an approximate corner where adjacent counties of this 2015 project meet. Note: should respondents utilize a pushbroom type sensor, then the above described raw imagery samples may be provided as imagery strips over approximate equivalent areas and geometry as that described herein for frame image sensors.

The raw imagery deliverable is required strictly for the purpose of allowing The Counties to review the quality and radiometry of the raw imagery early within the program and also to provide a base level comparison of raw imagery and captured detail relative to that shown in subsequent delivery of pilot project and final orthophotography.

7.2.3 Airborne GPS-IMU:

The use of airborne GPS and IMU technology during imagery acquisition is required for this WV Counties project. Respondents shall describe the processes and equipment to be utilized for this process. A brief narrative report is required after imagery acquisition has been completed of procedures, equipment and results for each larger block of contiguous imagery divided by AT block or County boundaries with an excel spreadsheet for each sortie that includes at a minimum the following data fields: date, sortie number, sensor ID, aircraft tail number, planned altitude, flight line number, exposure number, actual easting, northing, ortho-height, Omega, Phi and Kappa as well as standard deviation calculations for these positions and attitudes. The report narrative should briefly describe how the Airborne GPS was post processed and describe any difficulties that were encountered that required reflights.

7.2.4 Ground Control:

Sufficient horizontal and, if applicable, vertical control surveys shall be established by the Consultant for all photogrammetric mapping purposes, particularly in regards to meeting the final map data accuracy requirements, taking fully into account the use of Airborne GPS and IMU technology within the aerial acquisition task and aero-triangulation within the mapping task. The technical proposal shall include a description of ground control methods, sources and quantities that are proposed for this project. A proposed generalized ground control layout must be included as a part of the flight plan to be submitted with the respondent's proposal. Any new ground control surveys must be reported as a control diagram that also describes GPS survey methods, occupation times, method of coordinate computation (RTN, OPUS, etc.) and PDOP and statement of precision based upon RMSE calculations. Permanent monumentation of new ground control surveys is *not* required for this project. A ground control report is a required submittal and must include:

- A narrative discussion of procedures and results
- A list (excel spreadsheet) of all ground control points to be utilized in AT, including at a minimum fields for point name/number, date of survey, final adjusted WV SP coordinates, elevation, type of location (PID or panel), type of coordinate computation (RTN, OPUS, post process), base stations used for differential correction, date of OPUS or post processing, time interval of occupation (start and end times), PDOP information, GPS receiver model, and crew names.
- Each ground control location shall include a sketch and description of location (data sheet) and at least two ground level pictures of the location that are suitable for reliably finding and measuring the survey point within the raw exploitation and final orthophoto imagery.
- Certification and seal of results by a West Virginia Professional Land Surveyor.

The Counties do not keep a listing or inventory of any existing ground control monument data or sources. It is the responsibility of respondents to research this issue in preparation of their proposals.

7.2.3 Analytical Aero-triangulation

Airborne GPS-IMU data and ground control will be converted to a rigid network through a bundle aero-triangulation (AT) adjustment. The final adjustment must include all contiguous data sorties within a single block, or have defined boundaries between logical sized blocks that are "tied" by both ground control and AT measured common tie points. As a demonstration of accuracy for the completed adjustment, a report detailing the results of the triangulation adjustments should be prepared and submitted for review and approval prior to initiation of the digital orthophoto rectification. Residuals shall be reported within an Excel spread sheet for all AT measured points, ground control points and all pre-paneled or photo ID ground control checkpoints. The report must provide RMSE results and provide a concise and quantified statement of AT and imagery accuracy and precision that is to be signed and certified by the project ASPRS Certified Photogrammetrist.

7.2.4 Re-flights - The Consultant at no additional fee shall correct aerial imagery that does not meet defined project specifications. All re-flights shall be centered on the plotted flight lines and shall be taken with the same camera system using the same original flight plan whenever possible.

7.2.5 Crab - Crab shall not exceed five-degrees between any two consecutive flights, nor

more than three degrees on any one flight line. At the earliest opportunity, new imagery shall be acquired to replace rejected photographs or flight lines.

7.2.6 Forward and Side Overlap - Forward lap shall be *planned* at a general *minimum* of 60 percent endlap and 30 percent sidelap. Please see above discussion (7.2.2) on flight planning.

7.2.7 Description of Methodology - Proposals shall include description of the production process, quality assurance and the quality control measures to be included.

7.2.8 Quality Control - Throughout triangulation, numerous checks shall be made to detect data and field control errors.

7.3 Photogrammetric Compilation

7.3.1 Digital Terrain Elevation Model (DTM) (DEM) A Digital Terrain Model (DTM)/Digital Elevation Model (DEM) shall be utilized at a density level necessary to support the orthophoto production map scale (1"=200'). Terrain/elevation data used in the development of the DEM may be captured by photogrammetric techniques using a softcopy workstation, derived from any available LIDAR data, available (suitable to scale and accuracy) government DEM, or utilized from a prior aerial photogrammetric project of suitable scale and pixel resolution to support the scale and pixel resolutions of this project. Auto-correlation from the new aerial imagery may also be utilized on the assumption that the project ASPRS CP approves the methodology and point density for the intended purpose and map scale. If an existing DEM or LIDAR data set is used, the project area must be reviewed to determine if significant terrain altering activity has occurred since the DEM data was acquired. If such an area is identified the Consultant shall update the DEM by supplemental and/or replacement stereo compilation or image auto-correlation. The DEM will consist of points spaced at regular intervals along a grid, points of significant high or low elevations, and ortho affected specific breaklines at significant terrain breaks. Elevation/terrain data shall be captured at a density level sufficient to accurately represent the shape of the ground and to meet the required orthophoto accuracy standards of this project as reported by the Consultant. DTM/DEM data from a prior ortho project may be used for this project only after evidence is provided by the Consultant that the prior DTM/DEM meets the scales and accuracy standards for this project, and the prior DTM/DEM has been updated and/or supplemented wherever necessary to achieve an accurate and acceptable orthophoto differential rectification and final image.

The technical proposal shall provide a discussion of the DEM source and statement of accuracy and precision that is proposed. This statement must relate the proposed DEM accuracy and precision to the stated final orthophoto map precision that is proposed (ASPRS Class I for final map orthophoto imagery data at 1"=200' scale, etc.). The Counties do not have a listing or inventory of any available DEM data or sources. It is the responsibility of respondents to research this issue in preparation of their proposals.

7.3.2 Digital Orthophotography-The vendor shall describe the production methods, quality assurance and quality control processes that shall be used to meet the following specifications:

7.3.2.1 One set of digital color balanced orthophotography with pixel resolution equal to or better than the resolutions selected from Attachment C for each county. All project areas shall include 4-color band (red, green, blue and NIR) imagery.

7.3.2.2 Tile format shall be based upon 5,000' by 5,000' tile grids. Tile names shall be

developed by alternating values of northing and easting State Plane coordinate grids, in the same manner as a number of statewide orthophoto project tile schemas (NC, SC, MS, VA, etc.). Six inch tiles shall include a -6 suffix to differentiate the pixel resolution from any prior or subsequent imagery having a different resolution. The individual Counties will then take responsibility to re-tile the imagery to match their existing map index. That is, The Counties will take the responsibility to recombine and re-cut this imagery to existing tax map scales, tax districts, map boundaries, etc. In addition, respondents should anticipate that some re-negotiation of total fee may be involved after review of proposals to adjust cost for shared tiles between County borders that participate in this year's overall project. This negotiation to adjust for duplicate tile deliveries can only realistically occur after proposals are reviewed. Therefore, in the meantime, respondents should calculate pricing for each County on the basis of each County's individual map index requirements and total area for each County as designated in Attachment C Fee proposal. This is the basis (total map area for each County, including an estimated buffer area of approximately 1000 feet beyond boundary and ignoring shared tiles along boundaries) upon which Attachment C (Cost Proposal form) is currently provided.

7.3.2.3 Visible seams or sutures within a tile or between tiles, which exhibit a noticeable "edge" or "displacement" effect, will be grounds for rejection of that tile.

7.3.2.3 Image radiometry. The Consultant will be required to provide pilot area orthophoto tiles by June 30, 2015 for review and evaluation of color balance, tone, contrast, image sharpening, clarity, portrayal of reasonable details, etc. i.e. general radiometry. These pilot area images will be reviewed by The Counties and a written report of findings and recommendations will be provided to the Consultant. Pilot imagery will consist of no less than six contiguous 1"=200' tiles with a six inch pixel. Only one Pilot area is required for the overall project covering the four Counties. A Pilot area will be selected no later than end of February 2015 to include developed, rural, farmland and mountain terrain. Pilot imagery tiles will be selected from the first County (Grant) that are scheduled for delivery in consideration that the AT and DEM for this County will be the earliest completed within the production cycle. Raw imagery files will also be delivered of the pilot tile area in order that a direct comparison can be made from natural raw imagery to final orthophoto imagery radiometry. The project goal will be to have the pilot imagery evaluated and agreed upon for radiometry between The Counties and the Consultant before the middle of July 2015 in order that the pilot radiometry standards can be confidently and consistently applied across the multiple County project.

7.4 Metadata-The Contractor shall provide metadata compiled to the current standard endorsed by the Federal Geographic Data Committee (FGDC) for each of the data deliverables. Currently, this is the Content Standard for Digital Geospatial Metadata Version 2 (FGDCSTD-001-1998). Metadata is required to pass the USGS MP Parser validation error free.

7.5 Summary of Deliverables-The Consultant shall be responsible for producing and delivering at a minimum all of the deliverables that are summarized as RFP Attachment G.

7.6 Project Data:

7.6.1 Ortho images: The Consultant shall deliver a complete set of uncompressed digital orthophoto images in a format (GeoTIFF with world file), tiled per the 5,000' by 5,000' master tile grid index and onto media (e.g. portable hard drive) as described. In addition to the uncompressed images, the

Consultant shall also deliver to each County two sets of compressed orthophoto images using an industry accepted compression tool (probably MrSID) and format agreed upon by the County. The Consultant shall prepare a set of sample compressed images of multiple adjacent orthophotos (as a part of the pilot project as described above) with compression ratios of 1:10, 1:20, 1:30, 1:40, and 1:50 for each pixel resolution of the final imagery for review by The Counties. The Counties shall then select two of these compression levels for delivery and the Consultant shall create two sets of the compressed orthophotos using the County's chosen compression ratios for delivery. This process and delivery of compressed (probably MrSID) files shall apply to County wide imagery datasets as a single compressed mosaic at six inch resolution.

7.6.2 DEM including enhancements that are necessary as updates for each County to develop orthophotography to the scale and standards described herein.

7.6.3 An ESRI shapefile containing all seamlines used for the orthophoto tiles. Seamlines as a shapefile are a required delivery with all digital orthophoto deliveries, for both pilot and production mapping. Seamline polygons shall include date of acquisition, flight line number and exposure number as attributes.

7.6.4 Final digital data (orthophotography, seamlines and DEM data) shall be delivered to each County individually on a USB 3 external portable hard drive. Digital orthophotography produced for this project shall be consistent across the entire project for all The Counties and meet or exceed the General requirements identified in the Specifications. Work outputs and products, including raw and processed data are the property of the individual Counties and any interlocal agreement funding partners that comprise this consortium and may not be conveyed other than mandated under Statute to any entity without prior approval of the County Boards.

7.6.5 A County-wide map tile index as a shapefile for each County shall be developed and delivered by the Consultant.

7.7 Oblique Imagery:

The Counties are requesting that respondents also provide technical discussion and pricing for optional oblique imagery in addition to the required 6 inch orthophotography. Oblique imagery views from north, south, east and west may optionally be acquired in 2015. Oblique imagery delivery must include application software that enables the oblique images to be viewed and manipulated within an application that is interactive with ArcGIS 10x. A fee quotation for options of 6 inch and 9 inch pixel oblique images is requested. Respondents acting as Prime Consultant for the orthophoto imagery acquisition may choose to subcontract this optional oblique imagery acquisition and application software, or use in-house capability. A detailed technical specification for this service and product is not being provided herein; rather, The Counties are requesting that respondents provide a discussion of the products and services that they can provide within this general topic.

7.8 LiDAR:

Hampshire County is requesting a proposal for countywide LiDAR acquisition and delivery of subsequently developed Digital Terrain Data. The acquired Point Cloud, a bare earth TINs and the processed data shall be deliverables. At this time, respondents should propose a minimum Nominal Pulse Spacing (NPS) of 2 meters, single swath, not including points from swath overlap. An optional proposal and cost for NPS of one meter is also requested. Design accuracy should be minimum 15 cm. RMSE. Respondents should propose the TINs data spacing geometry appropriate to their acquisition and processing.

Attachment A: Proposal format

Section	Topic
	Cover Letter
1	Company Overview
2	Project Services (technical proposal)
3	Project Team (organization chart-resumes)
4	Related Experience (references)
5	Proposed Schedule
6	Fee (Attachment C)
7	Sample Orthophoto imagery (both 6 and 12 inch imagery at a minimum)
8	Additional Information

Attachment C: Fee Proposal Form
Project: Grant-Hardy-Hampshire-Mineral 2015 Digital Orthophotography

Respondent: _____

County	Ortho Pixel Resolution		Square Miles		Unit Cost Per Square Mile		Total Cost
	County		Ortho 200' Scale sq. mi.		County 200' Scale: ASPRS Class I		
Grant	6 inch	Orthophotos	500	Orthos			
Hampshire	6 inch	Orthophotos	663	Orthos			
Hardy	6 inch	orthophotos	604	Orthos			
Mineral	6 inch	Orthophotos	348	Orthos			
Ortho Totals	6 inch	Orthophotos		Orthos			
Optional	Oblique	Imagery	Oblique sq. mi.		Obliques per sq. mi.		
Grant	6 inch	Oblique pixel	477				
Hampshire	6inch	Oblique pixel	640				
Hardy	6 inch	Oblique pixel	582				
Mineral	6 inch	Oblique pixel	328				
Oblique Totals	6 inch						
Optional	Oblique	Imagery	Oblique sq. mi.		Obliques per sq. mi.		
Grant	9 inch	Oblique pixel	477				
Hampshire	9 inch	Oblique pixel	640				
Hardy	9 inch	Oblique pixel	582				
Mineral	9 inch	Oblique pixel	328				
Oblique Totals	9 inch						

1. Partial tiles are allowed along County boundaries that do not include another 2015 consortium county. All County boundaries require mapping to at least a “buffer” distance of 1000 feet beyond exterior map block boundaries. These “buffer” areas are already generally considered within the above table. Financial adjustment for any additional minor area adjustments and overlaps will be made when compiling final map indexes for flight planning and costing (using total area times unit rate) with the selected Consultant as a part of the contract preparation task.
2. The square miles quantities provided in this table are approximate and provided only as a guide for respondents to provide basic unit pricing in order that a consistent total price extension can be calculated per county for purposes of budgeting and fee comparisons.
3. ***Pricing within this Attachment C should be based on the square mile areas shown within the table and should not be changed when submitting proposals.*** Any major discrepancies should be noted as footnotes only in the submitted Attachment C of the proposal.
4. Final reimbursement will be based upon the actual quantities of square miles that are included on the final county indexes that will be included as a part of the final contract quantities and terms.
5. Respondents should anticipate that some re-negotiation of total fee may be involved after review of proposals to adjust cost for shared tiles between County borders that participate in this year’s overall project. This negotiation to adjust for duplicate tile deliveries can only realistically occur after proposals are reviewed. Therefore, in the meantime, respondents should calculate pricing for each County on the basis of each County’s square mileage requirements as shown in the above Attachment C Table.

Attachment D: Proposal Grading Sheet

The following Chart will be used as the final score sheet for judging proposals. There may be additional concerns added based on County or funding partner requests. Areas will be graded on a scale of 1-5: 1-does not meet standard 5-meets or exceeds standard. The line items in the below chart do not necessarily have equal percentage representation in the final calculated score.

ITEM	SCORE
4.1 Compliance with RFP Instructions	
4.2 Technical Expertise	
4.3 Digital Camera System	
4.4 Technical Approach	
4.5 Quality Control	
4.6 Professional Registration	
4.7 Business Registration	
4.8 Firm Background	
4.9 Staff Qualifications	
4.10 Similar Project Experience	
4.11 Schedule and Availability	
4.12 Sample Digital Orthophoto	
4.13 Other Services	
4.14 Fee	
Ability to meet Funding Partner Needs	

RFP ATTACHMENT F

SAMPLE CONTRACT

THIS AGREEMENT, made this ____ day of _____, 2014, by and between BOARD OF SUPERVISORS OF _____ County, WV hereinafter referred to as the “**County**”, and _____, whose principal office is at _____, hereinafter referred to as the “**Consultant**”.

WITNESSETH THAT:

WHEREAS, the **County** desires to engage the **Consultant** to render certain professional services and deliver certain materials hereinafter described; and

WHEREAS, the **Consultant** represents that it is qualified, willing and able to provide the professional services and deliver the requested materials to the **County** according to the **County’s** specifications and the terms of this Agreement; it is therefore agreed and understood that:

I. SCOPE OF AGREEMENT

It is the **County’s** desire to have the **Consultant** perform aerial imagery and provide digital orthophotos for the entirety of _____ County. The detailed scope of work and deliverables to be provided under this contract are described within the RFP, proposal documents and selection process of the 2015 Grant-Hampshire-Mineral WV selection for aerial photography. All of these RFP/Proposal documents are bound herein as an integral part of this **Contract** as Exhibits A-1 through A-5. These are listed below in order of priority in the event of any inconsistent or contradictory provisions:

A-1: The Request for Proposals (RFP).

A-2: This contract document executed this ____ day of _____ 2015.

A-3: The **Consultant’s** response to RFP technical and administrative questions associated with shortlist interview dated _____, 2015.

A-4: Response to bidder’s questions dated _____, 2015.

A-5: The **Consultant’s** proposal dated _____ 2015.

All required tasks shall be completed in full and all required data and reports shall be delivered by the **Consultant** to the **County** no later than _____, 2015. Digital orthophotos shall be completed by the end of _____ 2015 with the 60 day period until _____, 2015 set aside for QA/QC, image corrections and project wrap-up. All documents, source documents, databases, indexes, digital images, digital data, reports, etc. collected and/or used by the **Consultant** in the development of this project

shall be the exclusive property of _____ **County**, and the **Consultant** shall not distribute, sell or loan any of these materials to any other party without full disclosure and *written consent* of the County Board. All materials and data used in the Orthophotography and Oblique imagery data development and processing will be delivered back to the **County** at the project completion. It is anticipated that the total fee to be paid by the County to the Consultant for this contract will be a Firm Fixed Price of \$_____ as outlined and described in contract Exhibit "C". Map accuracy for base orthophotography shall be defined as ASPRS Class I for 1"=200' scale maps.

Work shall be completed by the **Consultant** in the following summarized Phases, all of which are described in greater detail within Contract Exhibits A-2 through A-5.

- A. **Phase I.** The **Consultant** shall acquire approximate 6 inch pixel digital imagery of the entirety of _____ County with a raw exploitation Ground Sampling Distance (GSD) of slightly less than 6 inches using a _____ digital sensor. Four bands (each band at 12 or 16 bit depth) shall be captured as RGB and NIR. Aerial imagery shall be captured to an extent such that all County tax maps have full coverage and imagery capture that enables 1"=200' Orthophoto imagery development at least 1000 feet beyond all adjacent County borders, including those that are a part of the 2015 consortium. The flight plan for this imagery capture is attached as Exhibit B-1. Imagery acquisition must be completed in full prior to objectionable deciduous vegetation leafing in the 2015 flight season, and no later than April 15, 2015. Imagery acquisition shall incorporate Airborne GPS (_____ base solution) and IMU technologies with a report of results provided as a brief narrative and excel spreadsheet of exposure center and attitude results. No individual flight line shall exceed 50 miles in continuously flown length.
- B. **Phase II.** Oblique imagery (technical description based on option and area of coverage selected by County)
- C. **Phase III.** The **Consultant** shall provide and utilize pre-paneled or photo ID (PID) ground control points as laid out within Section ____ of the Consultant's proposal (Exhibit A-4).
- D. **Phase IV.** The **Consultant** shall perform an aero-triangulation (AT) adjustment of all blocks of digital imagery using the ground control points, ABGPS and IMU data as weighted control with a report of results provided as a brief narrative and excel spreadsheet of coordinates, elevations, residuals and statistics. Selected ground control points shall be used as blind check points with residuals calculated and reported. These check points may then be rolled into the final adjustment as primary control.
- E. **Phase V.** The **Consultant** shall develop a Digital Elevation Model (DEM) suitable to scale and precision to produce digital orthophotos at a scale of 1"=200' at ASPRS Class I accuracy from the digital imagery and AT. This DEM may be developed from existing datasets, auto-correlation from the

imagery, existing LiDAR data, stereo compilation or a combination of these methods. The final DEM utilized for Orthophoto rectification shall be delivered to the **County** as an x,y,z ascii file which can be processed for point position within a geodatabase or shapefile.

- F. **Phase VI.** The **Consultant** shall produce and deliver a County-wide dataset of 1"=200' digital orthophotos having a 6 inch pixel ground resolution. The 12 or 16 bit per channel four band digital imagery shall be retained through at least the initial raw exploitation image processing and color balance, with 8 bit imagery output at the end of the process for delivery to the **County**. The orthophoto imagery must be delivered as 5,000' by 5000' tiles with imagery extending at least 1000 feet beyond all county borders as described in Phase I, above. All final map data must meet ASPRS Class I accuracy standards.

II. COMMENCEMENT AND PROSECUTION OF WORK

Work done by the **Consultant** will commence immediately upon receipt of authorization to proceed, with all required contract work to be completed in full, approved and accepted by the County no later than _____, 2015. It is expected that both parties will carry out their respective responsibilities as diligently and expeditiously as possible. However, in the event that unforeseen circumstances arise that may delay the timely completion of any part of the project, the following provisions will apply:

- A. If the **County** fails to supply the **Consultant** when requested with pertinent and necessary information or materials essential for the progress or completion of any part of the project, then the **Consultant** shall be permitted to effect a temporary suspension of work and make a written request for a contract schedule extension. Whatever time is lost as a result of the **County's** delay in supplying said information or materials will become an extension of the completion date based upon the **County's** concurrence that a reasonable time extension is warranted.
- B. Delays on the part of the **Consultant**, not specifically excused by force majeure, as defined below, may be excused and become an extension of the applicable completion date, if:
1. The **Consultant** has submitted in writing and in advance of the applicable completion date, a request that certain delays of work be excused by the **County**, stating therein explicit reasons which would justify such delays; and
 2. The **County** responds in writing, granting to the **Consultant** approval for an extension to the applicable completion date for a specified time limit based upon the **Consultant's** request. The **County** shall have the sole authority to accept and grant, or deny, any schedule extension requests by the **Consultant** within this provision of the contract, and the **County** shall not be required to justify or defend any denial; however, the **Consultant** must provide

a detailed explanation as to why the **County** should consider any schedule extension request.

C. Force Majeure: The **Consultant** shall not be liable for loss or damage due to delay in delivery resulting from any cause beyond **Consultant's** reasonable control that directly cause a project delay from or due to compliance with any regulations, order, acts, instructions or priority requests of any Federal, State or Municipal Government or any department or agency thereof, civil or military authority, acts of God, acts or omissions of the **County**, fires, floods, unusually severe weather, strikes, blackouts, unforeseen factory shutdowns, embargoes, wars, riots, delays or shortages in transportation, inability to obtain labor, manufacturing facilities or material from **Consultant's** usual sources. In the event of such delay, the **County**, upon the written request of the **Consultant**, shall equitably adjust those contractual provisions as may be affected by such a delay. The **County** shall have the sole authority to accept and grant, or deny, any schedule extension requests by the **Consultant** within this provision of the contract, and the **County** shall not be required to justify or defend any denial; however, the **Consultant** must provide a detailed explanation as to why the **County** should consider any schedule extension request.

III. WARRANTY, LIABILITY, AND STANDARD OF CARE

The **Consultant** shall perform services for the **County** in a professional manner, using that degree of care and skill ordinarily exercised by and consistent with the standards of competent Consultants practicing in the same profession or a similar locality as the project. The **Consultant** shall warrant that the delivered products meet or exceed the requirements as defined by the scope and exhibits of this contract. In the event any portion of the products or deliverables fails to comply with this warranty obligation and the **Consultant** is promptly notified in writing prior to one year after completion of such portion of the services, the **Consultant** shall promptly re-perform or correct such portion of the services at no additional cost to the **County**.

The warranty provided by the **Consultant** is based on the product conforming to mutually agreeable acceptance criteria, established by the **Consultant** and the **County** defined by the scope and Exhibits of this contract. Regarding review and approval of products and deliverables, all reviews/data inspections are to be performed at the map scale specified for the delivered product. All image quality reviews for purposes of approval are to be performed at not greater than a 2:1 map scale of the specification for the delivered product. The **Consultant** shall not be held responsible for any anomalies or imperfections that may be apparent at higher levels of zoom beyond a review of 2 times the designated map scale. All alignments, seams, etc. will meet the project specification. Accuracy measurements will conform to the standard as specified for the specific delivered product and conform to the mutually agreed acceptance criteria. Map accuracy requirement shall be as specified by ASPRS Class I mapping for 1"=200' scale maps developed with a six inch pixel. Only clearly defined points shall be used for any map scale accuracy checks. This process only applies to unambiguous measurements on

clearly defined features. Radiometry/Color balancing is often subjective. The **Consultant** only warrants the imagery will meet the radiometry specification agreed to within a representative land cover Pilot area to be mapped as soon as practical after imagery acquisition and before general map production.

If the **County** believes that a delivered product does not meet the project specifications, and has evaluated the product against the acceptance criteria the **County** may submit a request for review. A determination should be made of the specific non-compliance by checking the questionable characteristic against the acceptance criteria before submitting a claim against the warranty.

Submissions should include complete information, including tile name, location within tile, nature of the problem and the relationship to the acceptance criteria. A screen shot (jpg or bmp) should be provided, if practical. If the **Consultant** agrees, then repair or replacement will occur within thirty (30) days. If the **Consultant** disagrees, the claim will be returned to the **County** with a request for mediation.

This warranty is in lieu of all other warranties. No other warranty, expressed or implied is made or intended by any proposals submitted pursuant to this Contract.

The **Consultant** will provide to the County a current Certificate of Professional Liability Insurance (E&O: errors and omissions policy for the professional services covered by this contract) to cover the tasks and deliverables of this contract, with a policy amount of at least one million dollars. This Professional Liability Insurance coverage is provided by the **Consultant** as a Professional Services Corporation to ensure the faithful and satisfactory performance of this project and is provided as one means to defend and indemnify the **County**. The **Consultant** shall also provide an Accord type certificate of insurance for all liability and workers compensation coverages, the minimum amounts of which must meet State of West Virginia standards and amounts. All referenced policies must remain in full effect for the full duration of the contract period with the E&O policy remaining in continuous effect for at least one full calendar year after the contract completion date. The E&O accord certificate shall reference the **County** as a certificate holder.

IV. PAYMENT TO CONSULTANT

- A. Cash payments of the agreed upon total cost for each task of work will be made by the **County** to the **Consultant** as the work is completed and described herein within Exhibit C.

- B. The **Consultant** may secure payment for a percentage or the full amount of monies allocated to tasks under each task by submitting to the **County** the following:
 - 1. All deliverable items or evidence of work-in-progress representing that percentage or the full amount of work for which the **Consultant** is claiming payment; and
 - 2. A dated invoice showing the amount of the claimed payment with a brief description of the work done for each separate amount

being claimed. Invoices may be submitted monthly based upon work-in-progress and/or deliverables.

3. The **Consultant** shall provide a written project status report to The Counties of the consortium; such report shall list individually the status of progress for each **County**. Written status reports shall be submitted once every two weeks for the period of February 15th, 2015 through April 15th, 2015 and then monthly thereafter until all Counties within the 2015 consortium are 100% finished, delivered and accepted.

C. The **County** will make prompt payments to the **Consultant** following receipt of the items described in Paragraph IV. A and B, above, subject to formal acceptance by the **County** as complete, satisfactory and meeting all applicable specifications of all deliverable items, or evidence of work in progress, representing that percentage of the full amount required to substantiate the claimed payment.

D. The **County** shall pay within thirty (30) days all payment claims submitted by the **Consultant**, meeting all of the above requirements, and not formally disputed by the **County**. The **County** shall not use the disputation of one payment claim as a reason for disputing or not paying on time any other payment claim.

E. The **County** may impose and charge Liquidated Damages of \$50 per calendar day for each day that the Consultant is late beyond the final completion date of _____, 2015. Liquidated damages shall be capped at a total of \$10,000 (not to exceed) for this contract. As described in previous Sections II.A.B.C, the **Consultant** may request and the **County** may approve an extension of the final completion date. Any such approved extension will become an automatic extension in regard to initiating liquidated damages. The Liquidated Damages may be charged as actual compensation for losses and do not constitute a penalty or forfeiture. Liquidated Damages may be deducted by the **County** as an offset to invoices from the **Consultant**.

V. WORK-IN-PROGRESS INSPECTIONS

The **Consultant** shall cooperate fully with the **County** or the **County's** representatives in making possible work-in-progress inspections as frequently as desired by the **County**. In the event the **County** or its representatives reasonably find that project work is not being performed in accordance with the applicable specifications, then the **County** shall promptly notify the **Consultant** in writing of the unacceptable work, and the **Consultant** shall take immediate appropriate corrective actions.

VI. OTHER LEGAL RESPONSIBILITIES OF PARTIES

A. The **Consultant** shall observe and comply with all applicable federal, state, and local laws, ordinances and regulations during its performance under this

Agreement.

- B. The **Consultant** shall save harmless the **County** and its representatives from all suits, actions or claims of any kind brought on account of any injuries or damages sustained by any person or property in consequence of any act of omission or negligence by the **Consultant** or its employees or agents, or from any claims or amounts due arising or recovered under the State's Worker's Compensation laws. **Consultant's** indemnity and hold harmless obligation undertaken pursuant to this contract, if any, shall specifically exclude that portion of such obligations which could require **Consultant** to indemnify or hold harmless **County**, its agents, employees, or County Consultants for their own negligence or willful acts or omissions.
- C. The **County** agrees to mitigate its damages, should any damages arise in the course of this Agreement, to every extent possible, and to take such reasonable measures to prevent injury or damages within its jurisdiction as any reasonable prudent individual or entity would take.

VII. ASSIGNMENT

This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. Neither party shall assign its rights and/or obligations under this Agreement without the prior written consent of the other party. The RFP required respondents to identify their entire Team, including major subcontractors. The **Consultant** identified _____ as a major photogrammetry sub-consultant which is herein approved for this contract. _____ as a _____ sub-consultant is also approved. Any additional sub-contractors that the **Consultant** chooses to use in the course of the work shall: 1) be identified in a written request to the **County** prior to use on this project by the **Consultant**. Such identification must include a basic qualifications statement as called for in the original RFP with detailed contact information for the requested sub-consultant, and 2) be approved by the **County**. The **County** shall have the sole authority to accept and grant, or deny, any sub-contractor requests by the **Consultant** within this provision of the contract; however, the **County** shall not withhold such permission unreasonably for any written request that is necessary for the **Consultant** to execute the work within the project schedule or specifications. The **Consultant** must provide a detailed explanation as to why the **County** should consider any sub-consultant and approval must be provided in writing by the **County**.

VIII. WAIVER, MODIFICATION AND SEVERABILITY CLAUSE

No waiver, modification or cancellation of any term or condition of this Agreement shall be effective unless made in writing and signed by authorized representatives of each party. Nor shall any waivers be deemed to excuse the performance of any act other than those specifically referred to in said written notice of waiver. If any provisions of this Agreement shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable, but that

by limiting such provision it would become valid or enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

IX. NOTICE PROVISION

Any notice or communication pertaining to this Agreement shall be deemed to have been duly given by the parties hereto if sent to the other by common courier (i.e. FedEx, UPS) or USPS registered mail with delivery confirmation provided by signature or signed return receipt to the address hereinafter stated, or to such other address as the parties may mutually agree upon.

For the County:
_____ **County, WV**

_____, WV _____

For the Consultant:
_____.

City, State, Zip

Attn: _____
Tax Assessor

Phone: _____
Fax: _____

Attn: _____, Project Manager
Phone: _____
email@email.com

Attn: _____, Project Principal
Phone: _____
email@email.com

The **Consultant** shall *not* replace either the designated Project Manager or Project Principal without a prior written request to the **County** and responding written approval from the **County**.

XI. CONSTRUCTION

This Agreement shall be construed and interpreted in accordance with the laws of the State of West Virginia, exclusive of its rules pertaining to conflict of laws.

XII. DISPUTES

Any dispute arising under this contract which is not settled by agreement of the parties may be litigated in the courts of the state from which the contract is issued, or federal courts. Venue for any legal or equitable action hereunder shall be in _____ County, West Virginia.

XIII. ENTIRE AGREEMENT

The terms and conditions of this Agreement and any document specifically incorporated herein by reference, if any, constitute the entire Agreement between the parties. No prior communication, whether written or oral, nor any course of prior dealings between the parties shall be read into such Agreement for purposes of construction, interpretation or any other purposes whatsoever.

IN WITNESS WHEREOF, the parties have caused this instrument, consisting of 10 pages and Exhibits A-2, A-3, A-4, A-5, B-1, B-2 and C to be executed by themselves or their duly authorized officers or agents hereunto the day and year first written above.

Board of County Commissioners _____

_____ County, WV

By: _____

By: _____

Attest: _____

Attest: _____

Contract Exhibit C

The Consultant shall be paid a Firm Fixed Price (FFP) of \$ _____ for County-wide 6 inch pixel and \$ _____ for the digital orthophotography as described in the attached contract and exhibits.

This FFP has been calculated based upon the areas to be mapped at the Ground Sampling Distance (GSD) as described within the contract documents and as graphically shown on the project flight and ground control plans; Exhibit B-1 and B-2.

This FFP has been computed by defining the entire land and water body area within the boundaries of _____ County and extending a buffer distance of a minimum of 1000 feet beyond all county borders. The resultant total area has been computed as _____ square miles. This minimum area to be mapped has then been multiplied by the contract unit rate for the complete service of digital orthophoto data production and delivery of \$ _____ per square mile to obtain the resultant FFP of \$ _____.

The Consultant shall be paid on the basis of monthly work-in-progress invoices as described by contract Section IV. Monthly invoices may be computed a work-in-progress basis using the following percentages times the FFP:

1. 30% for the aerial acquisition phase (\$_____).
2. 10% for the ground control and AT production/report phases (\$_____).
3. 50% for production and delivery of Orthoimagery (\$_____).
4. 10% retainage (\$_____).

The retainage (#4, above) is to be invoiced and paid as one final single payment when the entire project is 100% complete and approved by the County.

RFP Attachment G

List of 2015 Project Deliverables

- Contract Exhibit B-1: Flight plan with ground control layout for 6 inch imagery extent.
- County orthophoto tile index map as shapefile to include County and Municipal boundaries and major roads and water bodies for background reference. Index map to differentiate 6 inch tiles.
- Ground Control report as specified in section 7.2.4 of RFP. One single report covering all of 2015 project (The Counties, WV) will be acceptable.
- Airborne GPS-IMU report as specified in section 7.2.3 of RFP.
- Signed flight logs as specified in section 7.2.2 of RFP.
- Sample raw exploitation imagery as specified section 7.2.2 of RFP.
- Aero-triangulation reports as specified in section 7.2.3 of RFP.
- DEM as specified in section 7.3.1 of RFP.
- Ortho image seamlines as shapefiles as specified in section 7.6.3 of RFP. Seamline polygons should be attributed as noted.
- Pilot project imagery as specified in section 7.3.2.3 of RFP.
- Camera/sensor calibration and/or manufacturer report of characteristics and capability as specified in section 4.3 of RFP.
- Digital orthophoto imagery tiles as specified in sections 7.3.2 and 7.6 of RFP.
- Metadata as specified in section 7.4 of RFP.
- MrSID files as specified in section 7.6 of RFP.
- Certificate of insurance as specified example contract section III.
- Certificate of errors and omissions (E&O) insurance as specified in example contract section III.
- Written status reports as specified in example contract section IV.B.3.
- Monthly invoices as specified in example contract section IV.B.