REQUEST FOR PROPOSALS FOR  
DIGITAL ORTHOPHOTOGRAPHY PROJECT

The purpose of this Request for Proposals (RFP) is to solicit responses from qualified professionals for the production and supply of ortho rectified aerial imagery and associated mapping products. It is the City of Sioux Falls’ (City) intention to select one successful respondent to deliver all of these services.

I. SCOPE OF WORK

The proposed project involves ground control, color digital aerial photography acquisition, digital orthophotography, and digital topographic mapping. A description of each task is provided to help guide firms in the formulation of responses to this RFP. The City is requesting separate pricing for three tasks. These options may be exercised at the discretion of the City and can only be started with City authorization.

- Task 1: Collect and post-process aerial imagery to create digital orthophotography for a 218 square mile area as shown in Figure 1.
- Task 2: Update portions of the existing DTM as necessary to reflect changes on the ground since the 2008 acquisition. Create a new DTM and topographic contour lines within the orthophotography extent.
- Task 3: Compilation of digital building footprint features.

Project Area

The project area includes the City of Sioux Falls and adjoining areas for a total of 218 square miles.

Ground Control

It is the consultant’s responsibility to furnish basic ground control, pre-marking, and airborne Global Positioning System (GPS) services, sufficient to meet the specifications of the digital orthophoto program and digital topographic mapping. The consultant may propose to utilize existing control information from previous ground control surveys. Many of the control locations used for previous aerial photography projects are not permanent control points. A map of existing control points may be obtained from the City of Sioux Falls GIS Department. The selected consultant will complete all paneling, maintain paneling as needed, and remove all of the targeting materials after the flights. The consultant shall submit a ground control report containing narrative, computations, and field notes for all points used in the ground control solution.

Accuracy Requirements: It shall be the responsibility of the consultant to ensure that the final products meet National Standards of Map Accuracy at the specified scale. Survey and control standards must comply with the FGCC standards and
specifications for geodetic control networks as referenced in the US Army Corps of Engineers Photogrammetric Mapping/Engineering Manual. Establishment of the ground control for the work is regulated by Article 36-18A-4 as a practice of land surveying, and requires that the person in charge be licensed as a land surveyor by the State of South Dakota. The following projection parameters will be adhered to:

Projection: Universal Transverse Mercator, Zone 14  
Horizontal Datum: NAD 83  
Vertical Datum: NAD 88  
Units: US Survey Feet

**Digital Imagery Specifications**

**Digital Aerial Camera:** Imagery shall be collected utilizing a direct digital aerial mapping camera without the use of film. The consultant must use a camera that is certified by the USGS or prove the camera system has been calibrated, modeling all known errors, and exhibits a high degree of internal geometric accuracy and meets or exceeds USGS standards. Specifications of all proposed digital aerial cameras must be submitted with the proposal. The digital camera shall capture natural color but may optionally capture other light bands such as near infrared.

**Photographic Conditions:** Color aerial photography shall be acquired during the leaf-free season in the spring of 2012 during the period when deciduous trees are barren. Photography will not be taken when the ground is obscured by snow, haze, fog, dust, smoke, or when cloud shadows will appear on more than five percent (5%) of the area in any one photo. Photography will not be taken when the ground is obscured by flood water, snow, or ice. Consultant shall notify the City one week in advance of scheduled flight date.

**Flight Planning:** The proposed approach to aerial photography acquisition should outline the respondents intended flight plan including proposed date and time of photography, flight height, scale, flight lines, endlap and sidelap, planned aerial equipment, materials, and relevant quality control procedures. The aerial acquisition will extend two exposures beyond the mapping limits to obtain full orthophoto images and to reach pre-targeted ground control points, as necessary. Full Analytical Aerial Triangulation (FAAT) techniques shall be used in conjunction with ground control to establish a consistent horizontal datum for the entire project area.

**Orthophoto Scale:** The respondents shall meet the National Map Accuracy Standards (NMAS) for a six inch pixel and 1"=100’ map scale. The flight height necessary to obtain the output scale and accuracy required should be documented in the proposal.

**Digital Orthophoto Production**

**Imagery Resolution:** Digital Orthophoto Imagery shall be produced in the area shown in Figure 1. The six-inch (6”) pixel imagery shall be rectified to the newly produced DTM.
Image Quality and Tone Balancing: The delivery of the orthophotography shall be tiled and provide seamless coverage. The tiling scheme will follow a one square mile scheme provided by the project manager or a recommended scheme agreed upon by the City and the consultant. The digital images are to be edge matched with no pixel gaps between geographic partitions. Density matching of digital ortho images is required to create the appearance of a seamless mosaic. Respondents are expected to identify the quality assurance and checking procedures that will be employed to guarantee proper tone balancing and overall image quality. The complete set of the imagery shall be delivered on an external computer hard-drive (purchased by the consultant) in a standard GeoTIFF file format and ERDAS Imagine (.img) file format.

Compressed Image Files: MrSID compressed image file(s) shall be made for each square mile tile (or tile size agreed upon by the City and consultant). A MrSID image shall also be developed containing a mosaic of the entire project area. Exact compression specifications for the MrSID format will be worked out with the selected firm as part of contractual arrangements.

Elevation Data

Update Existing DTM: The proposed Digital Terrain Model (DTM) project area is the same as the orthophoto area. The City’s existing DTM may be used except where it requires updating to reflect ground elevation changes since 2008 and where the imagery extent has been modified. The areas that require updates in elevation may exist anywhere in the City but there have definitely been modifications to the levee system that must be captured in this update. There are a few square miles along the eastern edge of this proposed project not captured in the 2008 project. The successful consultant will be given the existing DTM data.

Topographic Elevation Contours: Two foot (2’) contours shall be generated and filtered to bare-earth and shall be certified to meet or exceed National Map Accuracy standards for two-foot interval contours and 1”=100’ mapping. The final contour lines shall have z-values for each contour line. Elevation values shall be assigned to contour lines as attributes. The contour lines will be smoothed, continuous, and not be broken. Lines will be topologically clean with the minimum necessary number of pseudo and dangle nodes. The recommended tile size for this component is a township (36 square miles).
Digital Planimetric Feature Compilation – Building Footprints

Building Footprint Update: The feature class shall meet or exceed National Map Accuracy standards for 1”=100’ mapping. The City will supply the database schema for the feature class or the existing feature class if the consultant chooses to update it rather than creating an entirely new feature class. The lines for building footprints shall be digitized as closed polygons with no dangling nodes. The average height of the roof of each building must be included in the attributes. The minimum size of buildings to be digitized will be 10 feet by 10 feet.

Deliverables

- Point feature class of ground control used for the project in ESRI geodatabase format and ground control report
- Digital Orthorectified images in GeoTIFF format and ERDAS Imagine files
- Digital Terrain Model (bare-earth) in ESRI grid format and used in the orthophoto rectification
- Digital Elevation Contours with attributes of index and intermediate values in ESRI Geodatabase format
- Building footprint feature class in ESRI Geodatabase format
- Metadata documents compatible with the FGDC Content Standards for Digital Geospatial Metadata.

Ownership of Product: All maps, photographs, documents, reports or digital data prepared or completed during the performance of services specified in this RFP shall become the property of the City of Sioux Falls and shall not be copyrighted by the proposer. Also, the same materials shall not be released or made available to any third party or used for other purposes at any time without the written approval of the purchasing agency. All City departments will have unrestricted access and use of the products and deliverables at the sole discretion of the City.

II. FIRMS INTERESTED IN PROVIDING AERIAL PHOTOGRAPHY AND MAPPING SERVICES ARE REQUESTED TO SUBMIT THE FOLLOWING INFORMATION.

Submission of Proposals

It is intended that each consultant furnish all information requested in this document. Each consultant shall be required to include the following items in their proposal. These items should be used as the format around which the proposal is organized. Exclusion of any of these items could be grounds for proposal rejection by the City.

A. Transmittal Letter. A letter of transmittal, not to exceed one page in length, which bears the signature of an authorized representative of the consultant and designates by name not more than two individuals authorized to negotiate and sign an agreement with the City on behalf of the respondent.
B. Organizational Description. A description of your organization, including qualifications addressing your organization's capability to provide the services requested. Also include a description of your understanding of the City's needs in the proposed project and your staffing commitments to assure your ability to meet the City's time frame. This must also include a description of additional subconsultants and associations with other firms you wish to utilize in the performance of the tasks, including the intended working relationships and responsibilities of each.

C. Product Procedures. Describe how you will produce each of the products requested in this RFP. This must include the methods used and quality control and quality assurance procedures that will be observed. The minimum data product specifications described under each work component must be met. Subconsultants or other firms that will work on the project must also be identified, including the general nature and scope of work that will be undertaken by these firms.

D. Project Schedule. Include a schedule or time line for completing the work specified in this request, including a progress reporting strategy.

E. City Obligations. Provide a list of all items to be provided by the City to assist you in completing the requested work. This should include any data and/or proposed use of staff, office space, and any equipment or materials/supplies that will be expected from the City. This component should also describe a strategy for project management indicating the mechanisms intended to be used to coordinate and communicate the proposed work with the City.

F. Product Example. Provide an example digital orthophoto image file and DTM and contour data set(s) from similar work completed by your organization. The digital orthophoto image should be delivered in a GeoTIF file format. The example DTM and contours should be delivered in a standard ESRI format.

G. References. Each proposal must provide the name, address, and phone number of five (5) individuals from organizations that have procured similar services to act as references for the consultant. The individuals identified must at least hold a position of project management or other contract authority.

H. Statement of Estimated Cost of Services. A separate price for each project component shall be submitted in a separate sealed envelope. Please note that some project components requested may not be pursued or may be limited in scope depending upon availability of funds.

III. EVALUATION OF PROPOSAL

A consultant selection team comprised of Engineering and GIS staff will review all proposals. The selection team shall select the firm they feel will supply the best and most complete effort. The selection of a qualified firm will be made no later than January 13, 2012. Selection will be based on the proposals and subsequent oral interviews, if needed. Proposal evaluations shall proceed on the following schedule:
November 18, 2011  Post on the website
December 9, 2011  Deadline for Questions
December 16, 2011  Proposals received at City Hall
January 9-13, 2012  Oral interviews if necessary
January 13, 2012  Select consultant and prepare agreement
February-March 2012  Acquisition of Survey Control and Paneling
April 2012  Aerial Photography Acquisition
September 1, 2012  Final delivery of all products

Please furnish five copies of the proposals to Ms. Shannon Ausen, PE, Office of Public Works-Engineering, 224 West Ninth Street, Sioux Falls, SD 57117-7402 by 2:00 P.M. Central Time, December 16, 2011. Submittals received after the stated time will be returned unopened and will not be considered.

The Proposer’s Statement of Estimated Cost of Services should be sealed in an envelope separate from the main document.

Questions and/or Revisions to the Specifications and Requirements.

Questions about the proposal should be addressed in writing or email before 2:00 Central Time, December 9, 2011, to: Ms. Shannon Ausen, Office of Public Works-Engineering, 224 West Ninth Street, Sioux Falls, SD 57104-6407; phone: (605) 367-8601; email: sausen@siouxfalls.org. All questions will be posted daily on the City’s website on the Request for Proposals home page. This approach allows all respondents to receive the same information.

Respondents are encouraged to monitor the website for daily updates.

Respondents are expected to raise any questions, exceptions, or additions they have concerning the RFP document. If a respondent discovers any significant ambiguity, error, conflict, discrepancy, omission, or other deficiency in this RFP, they should immediately notify the above named individual of such error and request modification or clarification of the RFP document.

Selection Process

The selection committee will review all proposals which are submitted prior to the deadline. The selection committee reserves the right to reject any or all proposals or cancel the selection process at any time. The selection committee also reserves the right to request additional information or clarification from respondents, or to allow the correction of errors or omissions.
The selection committee will select the top firms which it determines to be the most qualified to provide the services requested. The selection committee may require, if necessary, each of these firms to make a presentation to the committee regarding its qualifications to perform the project. The top firms will then be ranked in order of qualifications. The selection committee will then attempt to negotiate a contract at a fair and reasonable price with the top-ranked firm. If unable to negotiate a contract with the top-ranked firm, negotiations will be terminated and the selection committee will then initiate negotiations with the second-ranked firm.

The selection committee shall have the final authority and discretion to make a selection based upon the qualifications, responsibility, and capabilities of respondents, the fairness of price and other factors. Any decision by the selection committee shall be final. The City of Sioux Falls will not be liable in any way for the costs incurred by respondents in replying to this RFP or the costs incurred in making a pre-selection presentation to the project selection committee.

**General Requirements**

The consultant shall make an effort to involve DBE/MBE businesses in this project.

The successful firm shall comply with the requirements of Title 49 CFR Part 21 and Title VI of the Civil Rights Act of 1964. The successful firm shall submit upon request quarterly Title VI (civil rights) State of Contractor reports to the SDDOT. The successful contractor shall provide services in compliance with the American with Disabilities Act of 1990.

Any and all resulting agreements from this RFP shall require the successful firm to provide and maintain professional liability insurance as well as worker’s compensation, public liability and property damage insurance in amounts set forth by the City of Sioux Falls policy in force at the time of agreement or subsequent revisions of said policy.

Federal funding will be utilized in this project; and thus, this project will be subject to all requirements that are incurred as a result.

No member officer or employee of the City of Sioux Falls, the State of South Dakota or SECOG or member of its governing body or of a local public body having jurisdiction within the metropolitan area during his or her tenure or one year thereafter shall have any interest, direct or indirect, in any resultant contract or the proceeds thereof.

Unless otherwise indicated the process shown shall not include taxes of any kind. All agency members are exempt from Federal Excise Tax under Chapter 32 of the Internal Revenue Code. The City of Sioux Falls is exempt from all state taxation including state sales and use taxes.

**All work related to this project must be performed in the United States.**
**Statement of Estimated Cost of Services**  
Sioux Falls 2012 Aerial Photography and Mapping Services

Company Name______________________________________________________________

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<thead>
<tr>
<th>Description</th>
<th>Unit Cost</th>
<th>Extended Cost</th>
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<tbody>
<tr>
<td>Ground Control</td>
<td></td>
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<tr>
<td>Digital Color Orthophotography</td>
<td>$________</td>
<td>x 218 Sq. Mi. = $________</td>
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<tr>
<td>DTM Update and 2’ Contours</td>
<td>$________</td>
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<td>Building Footprints</td>
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Total Estimated Cost of Services ......................................................... $________