INTRODUCTION

Version Date: November 21, 2016

The Request for Proposal is part of a competitive procurement process which will facilitate a fair opportunity for qualified firms to offer their plans and services for consideration. The process of competitive negotiation being used should not be confused with competitive sealed bidding where goods and services can be precisely described and price is generally the determination factor. The competitive Request for Proposal will provide the participating agencies of Central Oklahoma Alliance of Government Agencies 2017 (COAGA 2017) the flexibility to negotiate with firms to arrive at a mutually agreeable relationship, where price alone is not the major determination factor; however, price will be a priority factor.

1. Purpose: The COAGA 2017 seeks proposals from qualified and experienced firms to collect and produce digital orthophoto images; and separately collect, detect changes and update the participating agencies planimetric and topographic data for the project areas defined in the RFP**.** The goal is to have a complete up-to-date accurate digital ortho data set for the entire project area as well as updated planimetric and drainage-enforced contour data sets for the specified municipal areas. Each participating agency may negotiate a separate agreement.

2. Award:

2.1 The participating agencies of COAGA 2017 reserve the right to award this contract, not necessarily to the firm with the lowest cost, but to the firm that best meets the requirements and needs of the participating agencies of COAGA 2017 as determined by the participating agencies of COAGA 2017.

2.2 Upon submission of the responses to this RFP, the participating agencies of COAGA 2017 will evaluate and score the responses of the firms. The participating agencies of COAGA 2017 may conduct interviews with the finalists. The final evaluation and selection of a contractor will be made by the participating agencies of COAGA 2017 and submitted to each agency for approval.

3. RFP Submittal:

All proposals must be mailed or hand delivered to ACOG before the FINAL CLOSING DATE AND HOUR as shown on this RFP. Proposals submitted AFTER the time set for receipt of proposals WILL NOT BE CONSIDERED. One (1) unbound original, 6 (6) copies, and an electronic copy of the response shall arrive no later than the closing date and time to the following location:

ACOG
4205 N Lincoln Blvd.
Oklahoma City, OK 73105-5210
Phone (405) 234-2264 e-mail: jmsharp@acogok.org

3.1. **Mailed in proposals or proposals hand delivered directly to ACOG are to be received in sealed envelopes with the name of the respondent, RFP number, project name (**Request for Proposal for Professional Services for Regional Digital Orthophoto Images and Associated Data**) and closing date plainly stated on the face of the sealed envelope**. All costs associated directly or indirectly with responding to this RFP including, but not limited to, preparation of a response, any oral presentation or meetings required to supplement and/or clarify a proposal, which may be required by the participating agencies of COAGA 2017, shall be the sole responsibility of and shall be borne by the respondent.

3.2. Facsimile proposals will not be accepted.

3.3. The proposals shall be in the specific format prescribed herein. Proposals may contain promotional or display materials pertinent to displaying the quality of print publication to be expected, and all material shall pertain to the requirements set forth in this document. Proposals shall be straightforward, providing a concise description of the respondent's ability to meet the requirements of this RFP. Emphasis should be on completeness and clarity of intent. Submitted proposals are subject to release under the Oklahoma Open Records Act.

3.4. Failure to provide required data to allow for evaluation, failure to complete the RFP form(s) or failure to follow all directions within this RFP may be grounds for rejecting the RFP.

3.5. Inquiries: Inquiries should be submitted in writing by email:

ACOG
Phone (405) 234-2264
e-mail: jmsharp@acogok.org
Attn: John Sharp

Responses to written questions will be made by way of addendum sent to all vendors who are registered with ACOG as having received a Request For Proposal. Only replies by formal written addenda (amendments) shall be binding.

3.6. Schedule of Events

Proposal Issued	11/21/2016
Inquiries Due	11/28/2016 – 5:00pm CST
Proposal(s) Due	12/6/2016 – 2:00pm CST
Evaluation Completed	12/13/2016 - Approximate
Anticipated Date of Award	1/26/2017 - Approximate

4. Insurance or Other Required Documents (if required):

4.1 Permits: The contractor shall procure all necessary permits and pay for same, and shall obtain all official licenses for the work necessary. The contractor shall be responsible for all violations of the law for any cause in connection with the work caused by the contractor.

4.2 Insurance: The contractor will be responsible for all required insurance of property owned or services provided by the contractor.

4.3 Comprehensive General and/or Public Liability with a minimum of $1,000,000.00 Bodily injury, and Property damage, combined single limit.

4.4 Automobile Insurance with a minimum $1,000,000.00 per accident Bodily injury and Property damage, combined single limit.

5. Terms & Conditions:

5.1 Terms and conditions below will govern the submission and evaluation of proposals and the award. Respondents are requested to carefully review the following:

5.2 Award Status: The response to this RFP will be considered as a legal offer to contract. An acceptance of any proposal will be issued by the participating agencies of COAGA 2017 in accordance with the following paragraphs of this section and constitutes a legal and binding contract.

5.3 Contract Format/Requirements: The resulting acceptance will incorporate this Request for Proposal. All additional agreement(s) and stipulations and the results of any final negotiations will be incorporated. Due to the nature of this request and number of participating agencies, this may result in multiple contracts.

5.4 Contract Modification: All modifications and/or changes to the contract must be agreed to in writing by both parties prior to executing any change.

5.5 Contract Termination: The participating agencies of COAGA 2017 may terminate any resulting contract for cause by providing a Show of Cause Letter to the contractor citing the instances of noncompliance with the contract.

5.6 If the noncompliance is not cured within 30 days, the participating agencies of COAGA 2017 may terminate the contract.

5.7 The participating agencies of COAGA 2017 reserve the right to terminate the contract for convenience upon sixty (60) day written notice.

5.8 Conflict of Interest: In the event there is a potential or actual conflict of interest, the respondent(s) shall provide full disclosure to the participating agencies of COAGA 2017. The participating agencies of COAGA 2017 shall determine if the conflict, whether potential or actual, is material.

5.9 Contractor Liability: The contractor shall hold the participating agencies of COAGA 2017 harmless and shall be liable in the event of injury to agency personnel or damage or loss of

their property caused by the contractor's equipment, personnel, supplies or material furnished. The participating agencies of COAGA 2017 will not be liable for loss or damage caused by fires, lightning, sprinkler leakage, earthquake, severe weather, smoke and smudge, aircraft or motor vehicle damage, strikes, riots and civil disturbance or collapse of building or structures, etc. The participating agencies of COAGA 2017 and its personnel shall not be liable for any loss of or damage to contractor property unless due to their fault or negligence.

5.10 Liens: The contractor shall keep the participating agencies of COAGA 2017 free and clear from all liens asserted by any person or firm for any reason arising out of the furnishing of services or materials by or to the contractor.

5.11 Indemnification: The contractor shall indemnify and hold the participating agencies of COAGA 2017 harmless from all claims and related expenses arising out of the contractor's performance or failure of performance under the resulting contract.

5.12 Disclosure of Proposal Content: All proposals become a matter of public record once opened. By submitting a proposal, a respondent specifically assumes any and all risks and liabilities associated with the information contained in the proposal and the release of that information. If a respondent does not desire proprietary information in the proposal to be disclosed, each page must be identified and marked proprietary at time of submittal. The participating agencies of COAGA 2017 will, to the extent allowed by law, endeavor to protect such information from disclosure. If the respondent fails to identify proprietary information, he agrees that by submission of his proposal those sections shall be deemed non-proprietary and available upon public request.

5.13 Choice of Law and Venue: The resulting contract shall be construed under the laws of the State of Oklahoma and venue in any action and/or litigation commenced to enforce the contract shall be instituted in the appropriate courts in Canadian, Cleveland or Oklahoma County in the State of Oklahoma.

5.14 Federal, State and Local Laws and Regulations: The contractor will comply with all laws and regulations including taxes, licenses and permits.

6. RFP Status:

6.1. COAGA 2017 Rights:

- The participating agencies of COAGA 2017 reserve the right to determine whether a proposal is responsive and has the ability and resources to perform the contract in full and comply with the specifications.
- The participating agencies of COAGA 2017 reserve the right to reject proposals that incorporate counter proposals and conditions in the form of vendor’s pre-printed clauses.
- The participating agencies of COAGA 2017 reserve the right to accept or reject all or part of any proposal, waive informalities, minor irregularities or substitute items as desired if deemed in the best interest of the participating agencies of COAGA 2017, therefore selecting the optimum proposal or issue a new RFP.
- The participating agencies of COAGA 2017 reserve the right to reject proposals when procedures stated within are not followed.
- Should the proposal include any work of a subcontract nature, the participating agencies of COAGA 2017 reserve the right to approve or disapprove the engagement or use of the subcontractor as it relates to services provided to the participating agencies of COAGA 2017 as described in this RFP.
- The participating agencies of COAGA 2017 reserve the right to negotiate separately if

deemed necessary.

6.2. Effective Period: Proposals submitted must remain in effect for a period of ninety (90) days after the closing date. An award will be signed and issued within that time or at a negotiated later date.

6.3. Withdrawal of Proposals: Proposals may be withdrawn at any time prior to the closing date; however, the participating agencies of COAGA 2017 reserve the right to withdraw respondents(s) from future RFPs who have withdrawn a proposal after the closing date and prior to the effective period of the RFP without the participating agencies of COAGA 2017's approval.

6.4. Changes: It shall be the respondent's responsibility to bring to the attention of the participating agencies of COAGA 2017 any discrepancies in, omissions from or errors in the documents, or enhancements which would be in the best interest of the participating agencies of COAGA 2017, or if they are in doubt as to the meaning of any part of the RFP.

6.5. Examinations: Before submitting a proposal, contractor shall thoroughly examine the RFP as well as location and otherwise be fully informed as to all existing conditions and limitations.

6.6. Modifications of RFP: Oral modifications will not be considered. Any respondent may modify his/her proposal in writing prior to the date and time of RFP closing. Only modifications received in sealed envelopes with the RFP number, closing date, and the project name clearly marked on the outside will be accepted. Written confirmation of the modification must be received under the same signature as the prior submitted proposal. All modifications are to be clearly numbered and dated as to determine the final one.

6.7. Sales Tax Exemption: All proposals must be submitted exclusive of Federal Excise Tax and Oklahoma State Tax. The participating agencies of COAGA 2017 are exempt from Federal Excise Tax and Oklahoma State Tax. When proof of a tax exemption status is required, a notation should be made in the proposal and an Exemption Letter shall be furnished.

6.8. Clarification: The participating agencies of COAGA 2017 reserve the right to request clarification of information submitted and to request additional information from any or all of the respondents.

7. Exceptions, Omissions, and Alternatives:

7.1 Exceptions: If any exceptions are taken to any portion of the RFP, the respondent must clearly indicate the exceptions taken and include a full explanation as a separate attachment to the proposal. The failure to identify exceptions or proposed changes with a full explanation will constitute acceptance by the Respondent of the RFP as proposed by the participating agencies of COAGA 2017.

7.2 Omissions: Add descriptions of any possible omissions from the RFP.

7.3 Alternatives: Provide descriptions of any alternative or optional functionality that the respondent deems advantageous or beneficial to the participating agencies of COAGA 2017.

8. Proposal Format and Contents:

8.1 Contents: All proposals shall include the following information as a minimum:

- Cover Letter
- Project Overview
- Project Approach
- Management Proposal
- Exceptions to the RFP
- Additional Pertinent Information
- Fee Proposal

8.2 Cover Letter: The Cover Letter shall identify the persons in the respondent's organization who will respond to questions or additional requests by the participating members of COAGA 2017

8.3 Project Overview: The Project Overview should highlight the major features of the Respondent's company and proposal. It should also include information about the firm and any proposed subcontractors. A summary of the project approach should be presented in this section.

8.4 Project Approach: This section is intended to be the core of the proposal and should demonstrate the respondent's knowledge of the data conversion/update process. This section shall clearly show the respondent understands the scope of work as presented in the Technical Specifications. A detailed explanation of the process methodology to be used on this project shall be thoroughly defined.

Respondents shall develop and present in their proposals a technical plan of operations for providing aerial photography for use in the production of digital orthophotography and the compilation/update of the geodatabase as defined in the appendices. The respondent's proposed plan shall clearly demonstrate a complete understanding of the project. The respondent shall use accepted map compilation and conversion procedures and equipment to achieve the levels of accuracy, detail, and quality required by the RFP.

The technical plan of operations shall detail the methodology, equipment, and proposed techniques to be used to capture the aerial photography and the production of digital orthoimagery. The plan shall detail the sequence of operations to be performed for the entire project, emphasizing steps taken to ensure meeting quality and accuracy standards. It shall also clearly indicate any additional information pertinent to this project.

All proposed equipment to be used by the respondent shall be specified. The contractor is required to deliver products in a format as stated in the specifications and appendices in this RFP. The contractor shall be able to deliver Digital Orthoimagery as uncompressed TIFF formatted file associated with a TIFF World header file (.TFW), MrSID and JP2000.

All aerial photography shall be accomplished with such equipment as to afford photographs meeting all precision requirements for aerotriangulation and map compilation conforming to National Map Accuracy Standards. The respondent's hardware and software shall have the capability to digitize; perform graphic editing; use automated techniques to match edges of automated map sheets (edge matching); create topological relationships of the digitized points, lines, and polygons automatically; provide for the automatic creation and storage of attributes for point, line, and polygon features; and also have the capabilities for error analysis and DVD output.

8.5 Management Proposal: This section should include available resources for completing this project, as well as an anticipated project schedule. Include relevant experience of the company and project team. This should include, at a minimum, three comparable customer references. The same information and relevant experience should be included for subcontractors of the respondent.

The Management Proposal shall include at a minimum the respondent's description of how they propose to satisfy the following requirements:

8.6 Coordination with the participating members of COAGA 2017: Communication between the participating members of COAGA 2017 and the contractor is critical. A designated staff person from each participating member of COAGA 2017 will be responsible for the coordination of each agency with the vendor for the duration of the contract. The respondents shall indicate how they will arrange and monitor communication and document ensuing decisions and resolutions. A description shall be provided of the proposed questions and resolution procedures to be used for this project

8.7 Overview of Proposed Schedule: Indicate the schedule for completing the deliverables indicated in the RFP. The COAGA 2017 reserves the right to negotiate a different schedule from that proposed.

8.8 Project Tracking and Reporting: The Contractor shall maintain procedures throughout the project for tracking and reporting progress in the data conversion and update process.

8.9 Staffing: The respondent will identify the essential staff resources assigned to this project and will provide their resumes. Essential staff includes at a minimum the project manager and the quality assurance specialist assigned to this project. The respondent shall indicate the role of these individuals in this project and what percent of their overall time this project shall represent. The participating members of COAGA 2017 reserve the right to approve any reassignment of these essential staff resources.

8.10 Resolution of Source Anomalies: It is anticipated that inconsistencies and anomalies between source materials and specifications will occur. It shall be the responsibility of the contractor to bring such issues to the attention of each of the participating designated project managers. The contractor and the participating members of COAGA 2017 shall work together to resolve issues and problems that arise. Techniques for communicating such problems to the project manager for each participating agency shall be addressed in the respondent's proposal. Procedures and guidelines for the resolution of problems shall be included in the proposal, with procedures being formalized during the project initiation phase and reviewed and modified as necessary during the project.

8.11 Exceptions to the RFP: List any exceptions to the RFP. Elaborate on the reasons for the exceptions and proposed alternatives.

8.12 Additional Pertinent Information: Add descriptions of any possible omissions from the RFP.

8.13 Fee Proposal: The COAGA 2017 is seeking firm fixed prices for the performance and delivery of regional digital orthoimagery and updates to planimetric and topographic data in specific areas. Refer to the Appendices C-J for detailed information on deliverables. Section 9 of the RFP contains specifications that apply to all data collected as a part of this project. Forms that must be completed include the cost worksheet in Section 10 of the RFP and the Appendix L - Forms.

9. **Specifications:**

9.1 Project Background: The RFP is being coordinated by the Association of Central Oklahoma Governments to support the data acquisition needs related to digital orthoimagery, planimetric mapping, and topographic mapping of its member governments and agencies participating in the COAGA 2017. The total area of the base project is approximately 1,230 square miles. All of the participating governments will be updating their digital orthoimagery base map. Appendix B contains the overall project map for deliverables needed for the orthoimagery portion of this project. One municipality that has chosen to participate in this project has existing planimetric and topographic base maps that they will update as a part of this project. Appendix A provides a summary map of the project area as well as a list of the potential participating agencies. Appendix K contains the standards for the metadata that will be collected as a part of this project.

The following central Oklahoma municipalities are participating in the project: Edmond, Del City, Midwest City, Moore, Norman, Oklahoma County, Oklahoma City and Yukon. Special attention needs to be paid to the coordinate system and datum which the mapping products will be delivered in as the divide between Oklahoma State Plane North and Oklahoma State Plane South occurs in the project area. All of the products will be delivered in a version of the State Plane Coordinate System; however, each jurisdiction will give the specifics of their projection system within the Appendix which details their individual requirements. Different jurisdictions use different adjustments to the datum. These adjustments include both NAD83 and HARN. It is the responsibility of the contractor to convert the final deliverables to the coordinate system used by the jurisdiction taking final possession of the products in a manner that will meet all map accuracy requirements. The orthoimagery delivered to each jurisdiction will match the coordinate system and datum of their base map. See Appendices C - J for overview maps of the coordinate systems and datum used by the participating entities. A brief synopsis of each of the participating communities including the appendix in which you will find a more detailed description of the scope of work required by each community follows.

Appendix C details the requirements of the **City of Edmond**. The City of Edmond is situated in the northern part of the project area. Edmond's project area is approximately 127 square miles with a population of approximately 81,405. The aerials were last updated in 2016.

***Appendix* D** details the requirements of the **City of Del City**. Del City in Oklahoma County. It has a population of approximately 21,332 and a land area of 7.52 square miles. The aerials were last updated in 2015.

Appendix E describes the requirements of the **City of Midwest City**. Midwest City has a population of approximately 55,000 and covers an extent of 24.37 square miles. The aerials were last updated in 2015

Appendix F describes the requirements of the **City of Moore**. Moore has a population of 52,361 and covers an extent of 21.9 square miles. Moore last updated its aerial data in 2015.

Appendix G describes the requirements of the **City of Norman**. Norman has a population of 116,000 and covers an extent of 256 square miles. Norman last updated its aerial data in 2015.

Appendix H describes the requirements of **Oklahoma County**. Oklahoma County has a population of 776,864 and covers an extent of 718 square miles. Oklahoma County last updated its aerial data in 2015.

Appendix I describes the requirements of the **City of Yukon**. Yukon has a population of 23,000 and covers an extent of 35.78 square miles. Yukon last updated its aerial data in 2015.

Appendix J describes the requirements of the **City of Oklahoma City**. Oklahoma City has a population of 631,346 and covers an extent of 620.34 square miles. Oklahoma City last updated its aerial data in 2015.

Respondents are directed to refer to the following sections and Appendices C-J of this RFP for technical specifications and a clear definition of the features and attributes which are considered deliverables, and therefore the responsibility of the contractor to provide.

9.2 Scope of Work: The contractor shall produce and deliver to each of the participating agencies digital orthoimagery, flight plan map including ground control, and a Full Analytic Aerial Triangulation (FAAT) report, to the standards stipulated in this section, Appendix C-J and elsewhere in this Request For Proposals.

All work required by the contract will be performed in conformance with these specifications and any contractual modifications to these specifications. Any deviation from the specifications, unless specifically authorized in writing by the Technical Project Manager overseeing the part of the project in question, shall be sufficient cause for rejecting any part or all of the work performed.

The technical specifications in the main body of the RFP apply to all of the work completed as a part of the project unless waived in writing by the committee administering the project. The additional specifications in each of the appendices will be administered by the Technical Project Manager designated by that agency in the final contract/s.

9.3 Technical Specifications: The imagery shall be flown in color. The respondent shall clearly detail the scale or scales needed to accomplish the digital orthoimagery. While the most recent aerials followed the National Map Accuracy Standards (NMAS), the COAGA 2017 understands that there is the American Society for Photogrammetry and Remote Sensing (ASPRS) Accuracy Standards as well. It is expected that the deliverables from this contract shall have an overall average accuracy of +/- 2.5 feet or better. In the areas where 3 inch pixel resolution is specified, the accuracy should meet the appropriate standards for 1”=50’ scale mapping 6 inch pixel = 1”=100’). The respondent shall address the issue of the different accuracy between NMAS and ASPRS as it relates to this project, and whether it is feasible to increase the accuracy of the current datasets.

9.4 Flight The respondent shall detail flight and equipment specifications for the flight, including such information as endlap, sidelap, tilt and crab. The respondent shall also clearly indicate the process to insure the accuracy of the data compiled.

9.5 Project Area: See Appendix B for the project limit. Aerials shall be taken to obtain complete coverage of the designated flight areas with a minimum of a 200 foot buffer outside of the designated flight areas. In areas where City limits are in a portion of a PLSS section, the deliverables shall include the complete section.

9.6 Conditions During Imagery: The aerial photography must be obtained when the sky is clear of clouds, haze, smoke, dust, or any other aerial particles that may degrade the image. Ground features must be free of snow and ice. All unmanaged water bodies (lakes and streams) must not be at flood levels – photo acquisition must not take place within 2 days after a rainfall of 0.5 inches or greater or within 5 days after a rainfall of 2 inches or greater. Further, all deciduous trees must be in a leaf off state to ensure minimum ground obstruction from the existing tree canopy. Sun angle will not be less than 35 degrees. Respondents should describe how they will ensure that these condition constraints will be managed and met as part of the data

acquisition.

9.7 Flight Plan: The strips of imagery shall be flown in conformance with a plan developed by the contractor and approved by the COAGA 2017. All strips shall be flown as straight as possible and shall be void of crab, tilt and altitude variation to the extent that they afford good stereoscopic coverage of the entire minimum areas. The project shall be flown on or near the date agreed to by the Contractor and the COAGA 2017.

9.8 Re-Flights: The contractor at no additional cost to participating COAGA 2017 agencies shall correct unacceptable aerial imagery with the re-flight coverage overlapping the accepted imagery by a sufficient amount to provide continuous stereoscopic coverage.

9.9 Aerial Sensor and Equipment: Respondents shall include in their proposals detailed information on type of sensor and equipment used for aerial imagery and control, including airborne GPS equipment if applicable. Aerial sensors used to acquire data must have current USGS certification or USGS digital aerial sensor type certification.

9.10 Aerotriangulation: Respondents shall include in their proposals detailed information on how the fully analytical aerotriangulation (FAAT) for control will be accomplished to meet accuracy guidelines outlined in this RFP, and whether Airborne GPS control points or ground control points will be used or if a combination of the two methods is suggested. Contractor must specify if additional ground control is needed or should be set. It is expected that the ground survey control will be performed under the supervision of a professional surveyor registered in the State of Oklahoma and experienced in geodetic control.

9.11 Scale and Accuracy of Orthophoto Images: See Appendix B.

9.12 Format For this project, all imagery will be output as tiled uncompressed TIFF formatted files associated with a TIFF World header file. Each primary image will cover an area approximately a PLSS section unless recommended otherwise. These images will be imported into SDE and other formats depending on community. The contractor shall also provide a project-wide MrSID image viewable by current versions of ArcGIS.

9.13 Pixel Resolution: The maximum horizontal ground resolution of the base digital orthophoto pixel size shall be no larger than 6 inches (.5 foot) except in those areas of the project requiring 3 inch (.25 foot) pixels. The digital orthophoto pixels may be delivered in a multiple resolution format for viewing enhancement software or allow for an Image pyramid for Digital Ortho Display.

9.14 Quality Control: The images and applicable reports will be examined to ensure that all processes and procedures used were adequate to meet the specifications agreed upon. Prior to authorizing full scale production, COAGA 2017 will examine sample images at each pixel resolution to ensure tonal quality in representative areas to be agreed upon by COAGA 2017 and the contractor.

All images will undergo visual inspection to ensure the following:

- Completeness of data to cover the specified geographic extent, with no omissions or corrupt data.
- Tonal balancing problems across the block.
- Ground Sample Distance to ensure that it meets the specified resolution.
- Mis-joins between linear features
- Cloud cover, smoke/haze, corrupt data, and void areas.
- Extreme tonal or color variation across seamlines.
- Extreme tonal or color variations in water features.
- Excessive horizontal displacement along seamlines in images
- Excessive tilt in bridges, buildings, and other raised features.
- Transportation features obstructed by buildings or shadows.
- Clipping of features (e.g. radio towers, water tanks, buildings) at tile boundaries.

- Building/structure warp that may indicate bad elevation data.
- Smearing.
- Evidence of over saturation or under saturation as a result of image processing or histogram manipulation.
- Evidence of image compression.

9.15 Attribute Data: All required nongraphic attributes for the geodatabase are identified in Appendices C-J of this RFP. In the event that necessary attribute data is missing, confused, or unreadable on any source material, the contractor will contact the appropriate Technical Project Manager designated in the final contract/s for assistance. In cases concerning minor irregularities in the data or source maps where the answer is obvious or defined by precedent, the contractor may act to resolve the problem on his own initiative thereby reducing work stoppages and interruptions. When this occurs, the appropriate Technical Project Manager shall be informed of the action that the contractor took within 24 hours and the contractor will document how the problem was resolved.

9.16 Graphic Standards: Graphic component placement shall follow good cartographic practices so as to ensure aesthetic presentations of displays and plots. It is the responsibility of the Contractor to ensure that no overshoot or undershoot (closure and snapping) errors go unresolved and that proper topology exists. COAGA 2017 will leave the exact setting of the snap tolerances to the discretion of the Contractor, knowing that different map areas sometimes require different tolerances to be set. The Contractor is hereby informed that any data submitted that is shown to contain dangles, overshoots, or any other errors that result from the incorrect setting of tolerances will be unacceptable.

9.17 Feature Placement Methods: Unless otherwise specified in this RFP, Respondents shall include in their proposals suggested placement methods for positioning all features that are to be captured from the source materials. Respondents shall detail those methods, as well as the accuracy that they expect to achieve by employing those methods.

COAGA 2017 recognizes that there are different methods of data conversion. Deviations from standard accepted methods of conversion such as coordinate geometry and controlled graphic placement, which do not detract from the intended scope, quality and accuracy of data conversion may be accepted at the approval of the appropriate Technical Project Manager/s.

9.18 Digital construction requirements: The Respondent must adhere to the following digital graphic construction requirements:

- Edge-matching — All digital conversion units (maps) must be both visually and coordinate edge-matched with adjacent sheets. No edge-match tolerance will be allowed. Attributes for splitable features must also be identical.
- Common Boundaries — All features that share a common boundary, regardless of map layer, must have exactly the same digital position of that feature in all common layers.
- Point Duplication — No duplication of points within a data string is permitted.
- Connectivity — Where graphic elements visually meet, they must also digitally meet. All confluences of line and point or node data must be exact; that is, no “overshoots,” “undershoots,” or “offsets” are permitted.
- Line Quality — A high quality cartographic appearance shall be achieved. Transitions from straight lines to arcs and other curvilinear elements shall be smooth, with angular inflections at the point of intersection. The digital representation must not

contain extraneous data. There should be no jags, hooks, or zero length segments. Any lines that are straight, or should be straight, should be digitized using only two points that represent the beginning and ending points of the line.

- Polygon Closure — Polygons and regions must be topologically correct per the Geodatabase data model and should contain no duplicate arcs.

- Graphic Precision — All graphic elements must contain positional coordinates significant to one ten thousandth (.0001) of a foot. Specification of Deliverables: The Contractor will deliver formatted Geodatabase, orthophoto data in TIFF, MrSID formatted files (transparent backgrounds) and JP2000, and topographic data in both an ESRI formatted Geodatabase and AutoCAD format, all of which are agreed upon by the participating agency and the Contractor

9.19 Topographic data: Data collection methods must support the development of a digital terrain model (DTM) sufficient to attain a horizontal and vertical accuracy to support 1' contour generation at 1"=100' scale (or better) or 2 foot contours (or better) depending on the requirements of the requesting agency. The methods must conform to the latest version of the ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014). All digital elevation models (DEM) must be hydro-flattened and breaklines used for this process must be maintained as part of final deliverables. If lidar is used to develop the topographic data the collection of the lidar must comply with the standards put forth in Lidar Base Specification Version 1.0 published by the USGS: Chapter 4 of Section B, U.S. Geological Survey Standards, Book 11, Collection and Delineating of Spatial Data published in October 2014.

A report on the assessed absolute vertical accuracy of the bare earth-surface surface in accordance with the guidelines set forth in the ASPRS Positional Accuracy Standards for Digital Geospatial Data (2014) is required.

The respondent must identify all equipment and methods used to collect the topographic data and how they meet ASPRS/USGS Standards.

9.20 Accuracy: The Contractor shall use accepted map compilation procedures and equipment to achieve the levels of accuracy, detail, and quality required by these specifications. Based on the source documents and proven past performance, the Contractor shall prepare statements of achievable levels of absolute and relative accuracy for the compiled features.

9.21 Acceptance Procedures: The participating agencies of COAGA 2017 will report any problems encountered in a timely manner, and in a standard format agreed to with the Contractor.

9.22 Ownership of Deliverables: The participating agencies will retain ownership of all source data and documents; database schema components; custom software; and digital and hard copy products procured, created, or generated in the development of the document database. These records, data, programs, and other materials shall be surrendered to participating agencies upon completion or termination of the project.

Respondents, the Contractor or subcontractor shall not make any claim or right of ownership under patent or copyright law to any of the materials, data, or programs created specifically for this project. The Contractor may not reveal, share, or sell any of these products without written permission of the agency or agencies for which it was written. These terms and conditions exclude any pre-existing conversion software the Contractor may have developed or commercial software acquired prior to beginning work on this project.

10 **Cost Proposal Forms:** The COAGA 2017 is seeking firm fixed prices for the performance and delivery of digital orthoimagery and flight plan map. Prices shall cover all necessary work, materials, supplies, data preparation, entry, translation and quality control, etc. Reproduction, travel and other direct and indirect costs should also be included.

It is the responsibility of the Respondent to verify any count information used in estimating the cost of conversion. These estimates are based on the most current information available.

The following firm fixed cost worksheet should be filled out as a minimum. ***The worksheet must be accompanied by the non-collusion affidavits found in Appendix L - Forms***.

10.1 Firm fixed Unit Costs: Appendix B – Digital Color Orthoimagery (TIFF)

City of Edmond (127 miles @ 3") _____

City of Del City (8 miles @ 3") _____

City of Del City (12.5 miles @ 3") _____

Midwest City (42.43 miles @ 3") _____

Midwest City (42.43 miles @ 6") _____

City of Moore (21.9 miles @ 6") _____

City of Norman (164 miles @ 6") _____

City of Norman (92 miles @ 3") _____

Oklahoma County (552 miles @ 6") _____

Oklahoma County (552 miles @ 3") _____

Oklahoma County (718 miles @ 6") _____

Oklahoma County (718 miles @ 3") _____

City of Yukon (35.78 miles @ 3") _____

Oklahoma City (712.48 miles @ 6") _____

Oklahoma City (6.85 miles @ 6 True Ortho) _____

Optional mosaic products:

1. Mr SID and JP2000 of City of Edmond _____
2. Mr SID and JP2000 of City of Del City _____
3. Mr SID and JP2000 of City of Midwest City (see Appendix) _____
4. Mr SID and JP2000 of City of Moore _____
5. Mr SID and JP2000 of City of Norman _____
6. Mr SID and JP2000 of Oklahoma County _____
7. Mr SID and JP2000 of City of Yukon _____
7. Mr SID and JP2000 of City of Oklahoma City _____
8. Mr SID and JP2000 of Entire Project Area - ACOG _____
(All TIFFs combined in a single seamless Mr SID)

10.2 Optional Mapping Deliverables (more detail in Appendices)

City of Edmond

Planimetric Change Detection & Collection - Pilot Study Area Cost _____
Planimetric Change Detection & Collection - Remainder of the City _____
Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours- Pilot Area _____
Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours - Remainder of the City _____

Del City

LiDAR topographic data with 1' contours, .7m classification, breaklines and hydro enforcement (8 square miles) _____
LiDAR topographic data with 1' contours, .7m classification, breaklines and hydro enforcement (12.5 square miles) _____

Midwest City

Digital Terrain Model (DTM) _____

Digital Terrain Model (DTM) with building heights _____

Moore

Planimetrics – Building footprints, Hydrography – linear and polygon features Street centerlines, Railroads, Edge of pavement, Sidewalks, Parking Lots _____

Topography – raw Lidar, 1 Foot contours, Spot elevation and Hydrologically re-enforced DEM – breaklines and mass points _____

Norman

Planimetric Change Detection & Collection - Pilot Study Area Cost _____
Planimetric Change Detection & Collection – 82 miles @ 1"=50' & 115 miles @ 1"=100' _____

Yukon

Planimetric Change Detection & Collection - Pilot Study Area Cost _____
Planimetric Change Detection & Collection - Remainder of the City _____
Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours- Pilot Area _____
Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours - Remainder of the City _____

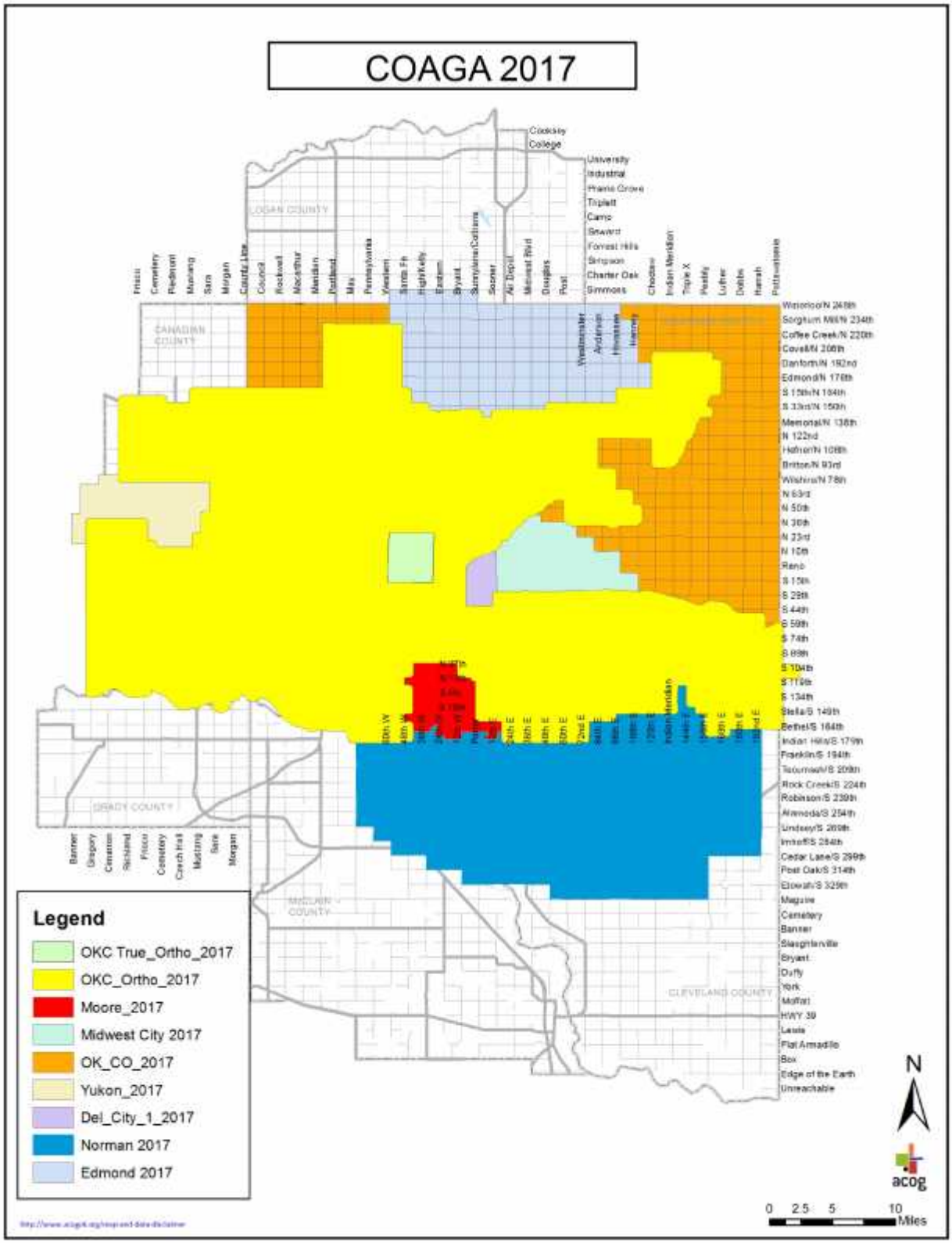
In addition, the Respondent may propose alternative pricing methods per Section 8.13. The participating agencies of COAGA 2017 reserve the right to limit the scope of the project.

APPENDIX A – PARTICIPATING AGENCIES AND PROJECT OVERVIEW MAPS

The Central Oklahoma Alliance of Government Agencies 2017 is comprised of the following communities and agencies:

Association of Central Oklahoma Governments
City of Edmond
Cleveland County
City of Del City
City of Midwest City
City of Moore
City of Norman
Oklahoma County
Oklahoma City
City of Yukon

See maps in Attachment to Appendix A for an overview of extent of data to be collected.


COAGA 2017
Legend
OKC True_Ortho_2017
OKC_Ortho_2017
Moore_2017
Midwest City 2017
OK_CO_2017
Yukon_2017
Del_City_1_2017
Norman 2017
Edmond 2017
N
acog
0 2.5 5 10
Miles

APPENDIX B -- Orthoimagery Project 2017

Scope: The project area covers 1,230 square miles depending upon the options taken. Some cities participating in this project stores their imagery in ArcSDE. Their delivery must be in a seamless format compatible with ArcSDE. The other entities have their requests in their specific Appendices. The cities have major investments in base maps and survey monuments that are tied to specific coordinate systems and datum. Because of the need to integrate the data collected by this project into the existing datasets, different coordinate systems will be used for final deliverables.

Projection: Below are the coordinate systems and datum currently being used by participating agencies:

Edmond, Del City, Midwest City, Oklahoma County and Yukon.
Coordinate system: Oklahoma State Plane, North Zone 3501
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Spheroid: GRS 1980
Map Units: US Survey Feet

Moore and Norman:
Coordinate system: Oklahoma State Plane, South Zone 3502
Horizontal Datum: NAD83 (HARN) - 1993 adjustment
Vertical Datum: NAVD88
Spheroid: GRS 1980
Map Units: US Survey Feet

Accuracy: The final scale will be NMAS 1" = 50', 1" = 100', or 1" = 200' based upon the alternative chosen. The respondent shall detail the possibility of meeting the ASPRS Standard for Class 1 Map Accuracy for such scale mapping. Otherwise, it shall meet the National Map Accuracy Standard for such scale mapping.

Tiling Scheme: The tiling scheme will be based upon the Public Land Survey System (PLSS) modified to make certain that it overlaps each individual city's boundary by at least 200 feet. It is the responsibility of the contractor to use the generic PLSS grid and the grids of the participating cities determine the best way to create a region-wide grid.

Deliverables: All imagery will be output as tiled uncompressed TIFF formatted files associated with a TIFF World header file at the resolution and accuracy selected. The images will follow the tiling scheme proposed by the contractor and agreed upon by COAGA 2015. These images will be imported into SDE. All tiles will also be delivered resampled to 1 foot resolution in uncompressed TIFF formatted files associated with a TIFF World header file. The contractor shall also provide a project-wide MrSID image viewable by current versions of ArcGIS. A summary of major work products is below. Each city will be delivered a copy of the tiles which cover its extent and understand that there will be a 200' project buffer.

Required for selected alternative:

- Flight line diagram
- Calibration report
- FAAT report
- MrSID of Project in NAD83

Optional Products:

1. Mr SID and JP2000 of City of Edmond
2. Mr SID and JP2000 of City of Del City
3. Mr SID and JP2000 of Midwest City
4. Mr SID and JP2000 of Moore
5. Mr SID and JP2000 of Norman
6. Mr SID and JP2000 of Oklahoma County
7. Mr SID and JP2000 of Yukon
8. Mr SID and JP2000 of Entire Project Area - ACOG

Appendix C – City of Edmond

Background

The City of Edmond project covers an area of approximately 127 square miles. The City has a population of approximately 81,405. There are 709 miles of streets, 46,879 address points, and approximately 62,886 buildings. Elevations within the City limits range from 899 to 1,229 feet above sea level. The City of Edmond contracted with Sanborn Map Company, Inc in 2016 to update its orthophoto, planimetric and topographic data.

Aerial photography

3 inch (0.25 foot) pixels resolution color ortho photography (2016 date)

Planimetrics (2016 Date)

Hydrography – linear and polygon features
Street centerlines
Railroads
Building footprints – to include building heights
Edge of pavement
Driveways
Sidewalks
Vegetation (Tree mass)
Single Trees in the Right-of-Way along section line roads
ParkingLots
Fences

Topography (2016 Date)

1-foot elevation contours
Spot elevations
Hydrologically enforced Digital Elevation Model (DTM) – breaklines and masspoints

The City of Edmond relies on a robust GIS to perform business operations. All data is stored in a 10.1 SP1 ArcSDE repository located in a MS SQL Server 2012 database. At this time the City of Edmond is seeking to upgrade in the spring of 2017.

Respondents are directed to refer to the RFP, the following sections and Appendices A and B of this RFP for technical specifications and a clear definition of the features and attributes that are considered deliverables, and therefore the responsibility of the Contractor to provide.

Objectives

Obtain updated color digital orthophotography according to NMAS 1" = 50' standards – 3" (0.25 foot) pixel resolution.
Obtain updated Hydrologically Enforced DTM and 1-foot elevation contours.
Update existing GIS base datasets according to NMAS 1" = 50' standards.

Scope of Work

The Contractor shall produce and deliver to the City of Edmond photogrammetric change detection and update of the existing hydrological enforced Digital Terrain Model (HE-DTM) with 1-foot contour database with labels and spot elevations, photogrammetric change detection and collection of the planimetric features to the standards stipulated in this section and elsewhere in this Request For Proposals. The

Contractor shall furnish all materials, equipment, labor, management, insurance, postage, and transportation necessary to complete this work. The Respondent should propose the best procedures and commonly accepted professional techniques in order to assure complete compliance with this RFP.

All work required by the contract will be performed in conformance with these specifications and any contractual modifications to these specifications. Any deviation from the specifications, unless specifically authorized in writing by the GIS Project Manager, shall be sufficient cause for rejecting any part or all of the work performed.

Technical Specifications

The initial planimetric data and most recent aerials followed the National Map Accuracy Standards (NMAS). It is expected that the deliverables from this contract shall have an overall average accuracy of 1 inch = 50 feet. The respondent shall address the issue of the different accuracies of the other participating agencies as it relates to this project, and how they will maintain or improve the accuracy of the City of Edmond's current datasets.

Planimetric Features

The planimetric data to be updated is road edges (paved, unpaved, trail centerlines, sidewalks and driveways), parking lots, buildings, (minimum size is 12' x 10'), hydrology (including drainage features such as ditches), railroad centerlines, street centerlines, tree mass outlines, single trees in the R.O.W (of section line roads) and fences that follow along R.O.W lines and lots (parcels) to depict ownership. Sample digital data may be provided as an attachment. Respondents are also directed to refer to Appendix C – Attachment D of this RFP for a clear definition of the features and attributes that are considered deliverable, and therefore the responsibility of the Contractor to populate into the GIS database as part of the conversion effort. Respondents shall indicate in their technical plan of operations suggested data conversion techniques for the compilation of source map data.

Please see Appendix C – Attachment C for a map of building permits issued since the last flight in February 2016 to show where building has occurred. Since there continues to be development in the City, these areas should not be considered all inclusive for the change detection portion of this RFP. The City has placed some building footprints from plans to depict construction in the building layer. These are identified by attributes. The contractor shall update these structures based on an accurate representation from the photography. If there are any physical changes to any existing structure, due to additions or modifications, the contractor shall update the geometry of those structures as part of the change detection.

Pilot Study *For Planimetric data*. The Pilot Study is necessary for the City of Edmond to evaluate the process of detecting change and updating the planimetric data. The Pilot will be used to refine the scope of the remaining data conversion project in terms of quality, accuracy and, timeliness. An important component of this phase will be to clarify and test procedures used by the Contractor and the City to complete this project.

Selected Pilot Area The Pilot Study Area section (Section 20 Township 14 North, Range 2 West) was chosen to be the pilot in this conversion process because of its development. The Pilot Study Area is a one square mile section with approximately 398 parcels with approximately 26 building permits.

Pilot Study Process In the City of Edmond's conversion plan, the Contractor will be supplied with source data to use in the conversion process. The source material for this pilot will be a version of the planimetric feature dataset. The pilot study process will give the Contractor and the City of Edmond the opportunity to work with the source data and to identify and resolve any questions or problems that arise as actual data conversion is initiated. It gives both parties, prior to full production, the time needed to implement procedures and resolve problems reducing delays and reworks.

Scale and Accuracy of Planimetric Data The final scale will be 1" = 50' and the respondent shall meet the National Map Accuracy Standard for such scale mapping. All spatial data shall conform to the following:

Coordinates/Projection:	State Plane Coordinate System,
Zone:	Oklahoma North, FIPS Zone 3501
Horizontal Datum:	NAD83
Map Units:	Feet

Topographic Data – Optional

The existing one-foot contour topographic mapping data was collected LiDAR data. The City of Edmond's Stormwater/Drainage Engineering division requires a hydrologically enforced DTM to ensure a high level of detail with regards to the breaklines for the generation of one foot contours. The contractor will update the 3D breaklines at abrupt changes in slope. Breaklines will be collected at appropriate areas, produced by either naturally or man-made features. The contractor will also digitize masspoints in addition to breaklines, taking careful note of high and low spots. Respondents shall indicate in their technical plan of operations suggested data conversion techniques for the compilation of source map data.

The City is requesting that respondents address the ability to support the update of 1 foot contours with the aforementioned requirements of it being drainage enforced, as well as it meeting the vertical accuracy of one-half of the contour level.

The respondents should refer to Appendix C – Attachment D for the data dictionary and required geodatabase and Autocad DWG formats of the topographic data.

Pilot Study *For Topographic data*. The Pilot Study is necessary for the City of Edmond to evaluate the generation of 1-foot contour from the Digital Terrain Model. The Pilot will be used to refine the scope of the remaining data conversion project in terms of quality, accuracy and, timeliness. An important component of this phase will be to clarify and test procedures used by the Contractor and the City to complete this project.

Selected Pilot Area The Pilot Study Area section (Section 20 Township 14 North Range 2 West) was chosen to be the pilot in this conversion process because of its development. The Pilot Study Area is a one square mile section with approximately 398 parcels with approximately 26 building permits.

Pilot Study Process The pilot study process will give the Contractor and the City of Edmond the opportunity to work with the source data and to identify and resolve any questions or problems that arise as actual data conversion is initiated. It gives both parties, prior to full production, the time needed to implement procedures and resolve problems reducing delays and reworks.

Scale and Accuracy of Topographic Data The respondent shall detail how the contours will be generated and verified to ensure the vertical accuracy of one-half the contour level. The respondent shall also detail the possibility of meeting ASPRS Standard for Class 1 Map Accuracy for such scale mapping that supports 1 foot contour. Otherwise, it shall meet the National Map Accuracy Standard for such scale mapping. All spatial data shall conform to the following:

Coordinates/Projection:	State Plane Coordinate System,
Zone:	Oklahoma North, FIPS Zone 3501
Horizontal Datum:	NAD83
Elevation Datum:	NAVD88
Ellipsoid:	GRS83
Map Units:	US Survey Feet

Attribute Data All required nongraphic attributes for the geodatabase are identified in Appendix C – Attachment D of this RFP. In the event that necessary attribute data is missing, confused, or unreadable on any source material, the Respondent will contact the City of Edmond GIS Project Manager for assistance. In cases concerning minor irregularities in the data or source maps where

the answer is obvious or defined by precedent, the Contractor may act to resolve the problem on his own initiative thereby reducing work stoppages and interruptions. When this occurs, the City of Edmond GIS Project Manager shall be informed of the action that the Contractor took within 24 hours and the Contractor will document how the problem was resolved.

The City of Edmond is seeking firm fixed prices for the performance and delivery of photogrammetric change detection and collection of the Digital Elevation Model (DEM),1 foot contour interpolation photogrammetric change detection and collection of the planimetric features. Prices shall cover all necessary work, materials, supplies, data preparation, entry, translation and quality control, etc. Reproduction, travel and other direct and indirect costs should also be included.

It is the responsibility of the Respondent to verify any count information used in estimating the cost of conversion. These estimates are based on the most current information available.

Deliverables

Cost Worksheet in Section 10 of the RFP must be completed.

Firm Fixed Unit Costs

City of Edmond: (127 square miles @ 3")

Digital Orthophotos

1. Aerial Triangulation Report
2. A set of color digital orthos in georeferenced TIFF format (uncompressed)
3. A full citywide color MrSID mosaic (40:1 compression)

Planimetrics/GIS Base Data – see Appendix C – Attachment D for geodatabase design

Planimetric Change Detection & Collection - Pilot Study Area Cost
Planimetric Change Detection & Collection - Remainder of the City

Topography/Lidar - Optional Mapping Deliverables:

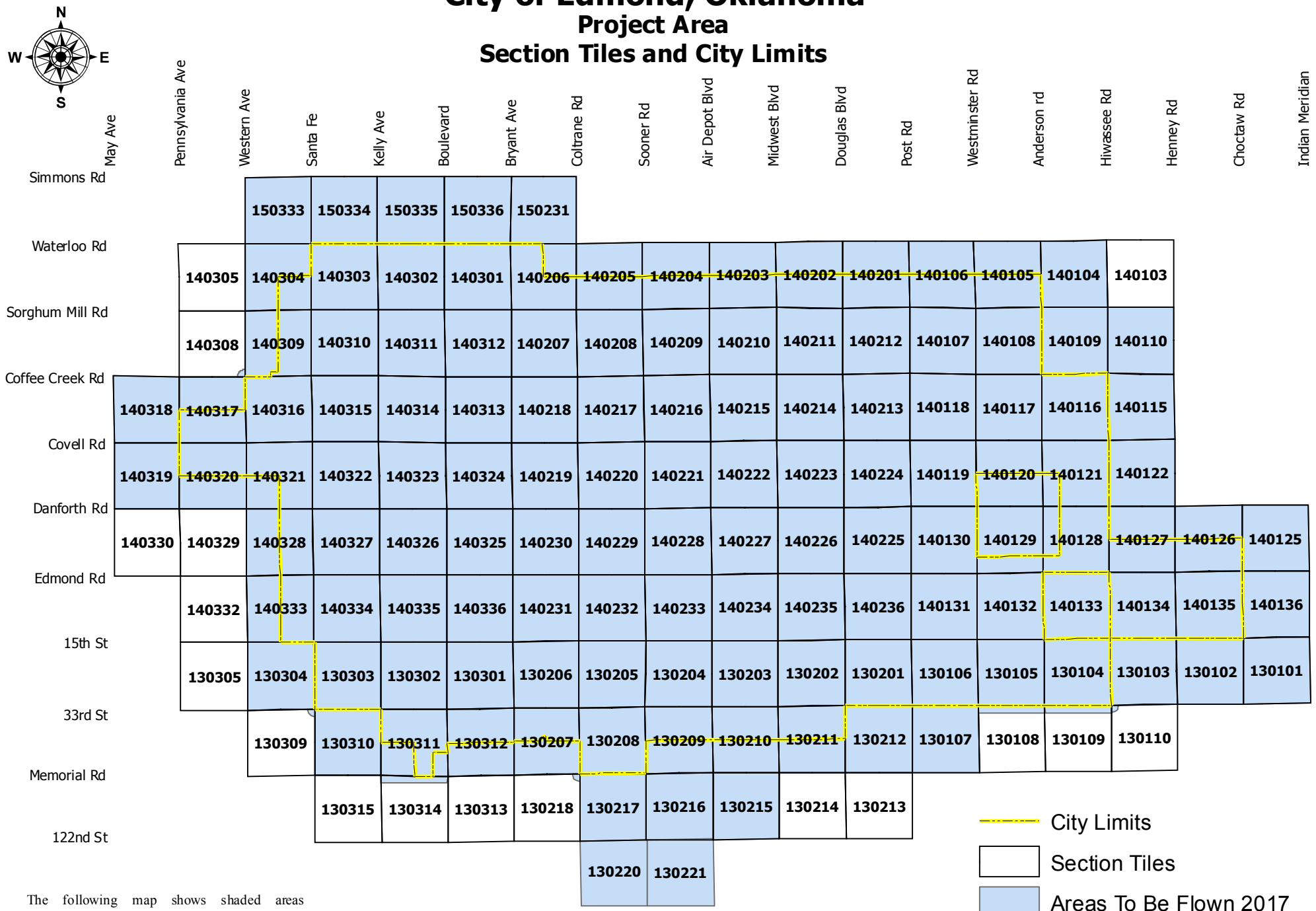
Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours- Pilot Area
Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours - Remainder of the City

1. Vertical Accuracy Report
2. Topographic databases in ArcGIS GeoDatabase and AutoCAD dwg formats
3. ASCII Digital Terrain Model (DTM) data
4. Hydro Flatten, bare earth DEM
5. Raw Point File fully compliant with LAS 1.4

Metadata

1. Metadata must be included in all geodatabases deliveries for all feature classes using the FGDC format.
2. Metadata should include: author information, a description of the dataset, data capture techniques, definitions for all fields, subtypes and domain code descriptions, statement of accuracy, compilation scale, and dates of the completed compilation.

City of Edmond, Oklahoma
Project Area
Section Tiles and City Limits

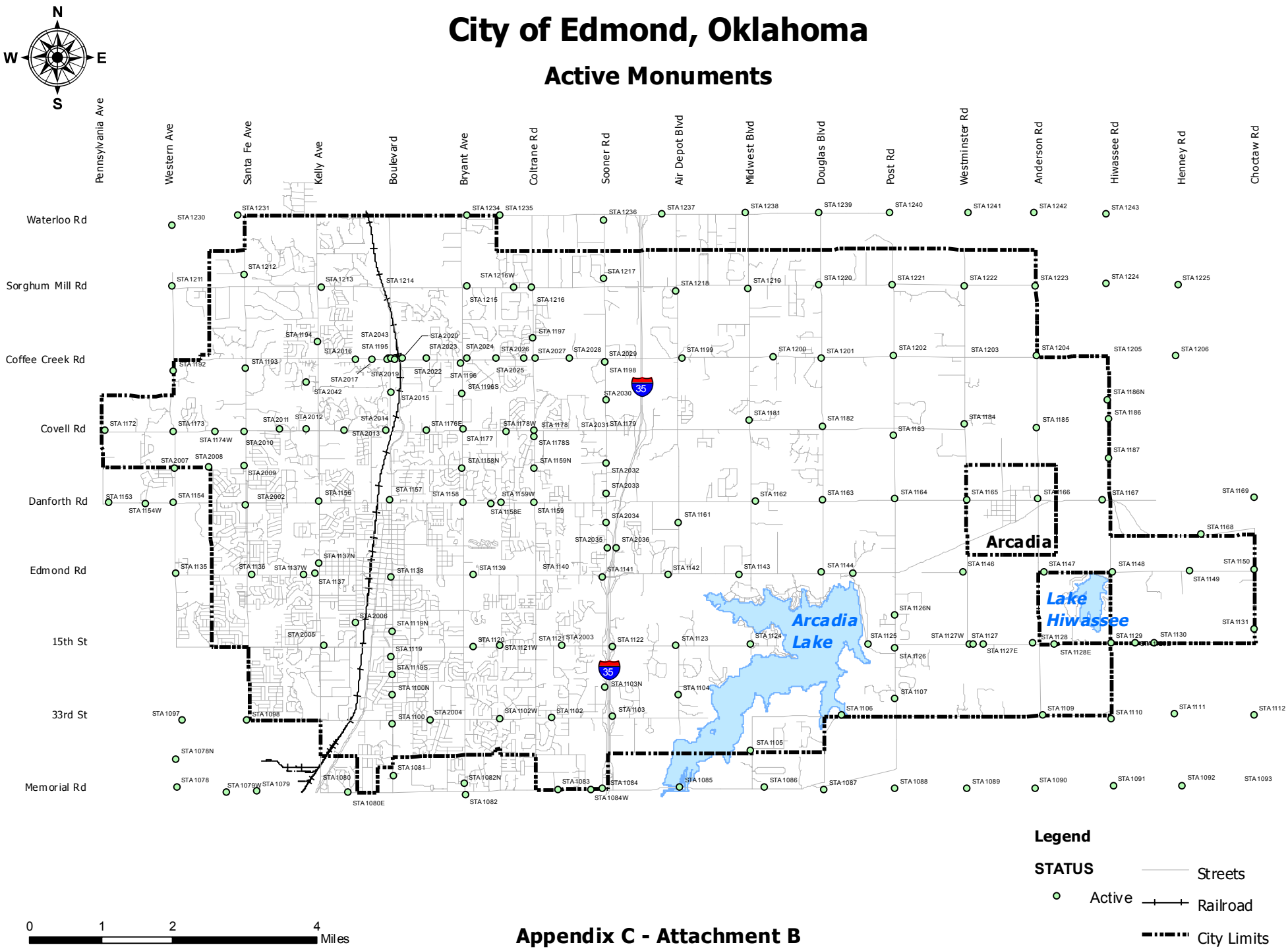


The following map shows shaded areas where data needs to be collected. Air photo coverage needs to include all of the City of Edmond. Unless otherwise noted by a FULL tile, there is an additional 600 FT from city boundary.

Appendix C - Attachment A

City of Edmond, Oklahoma

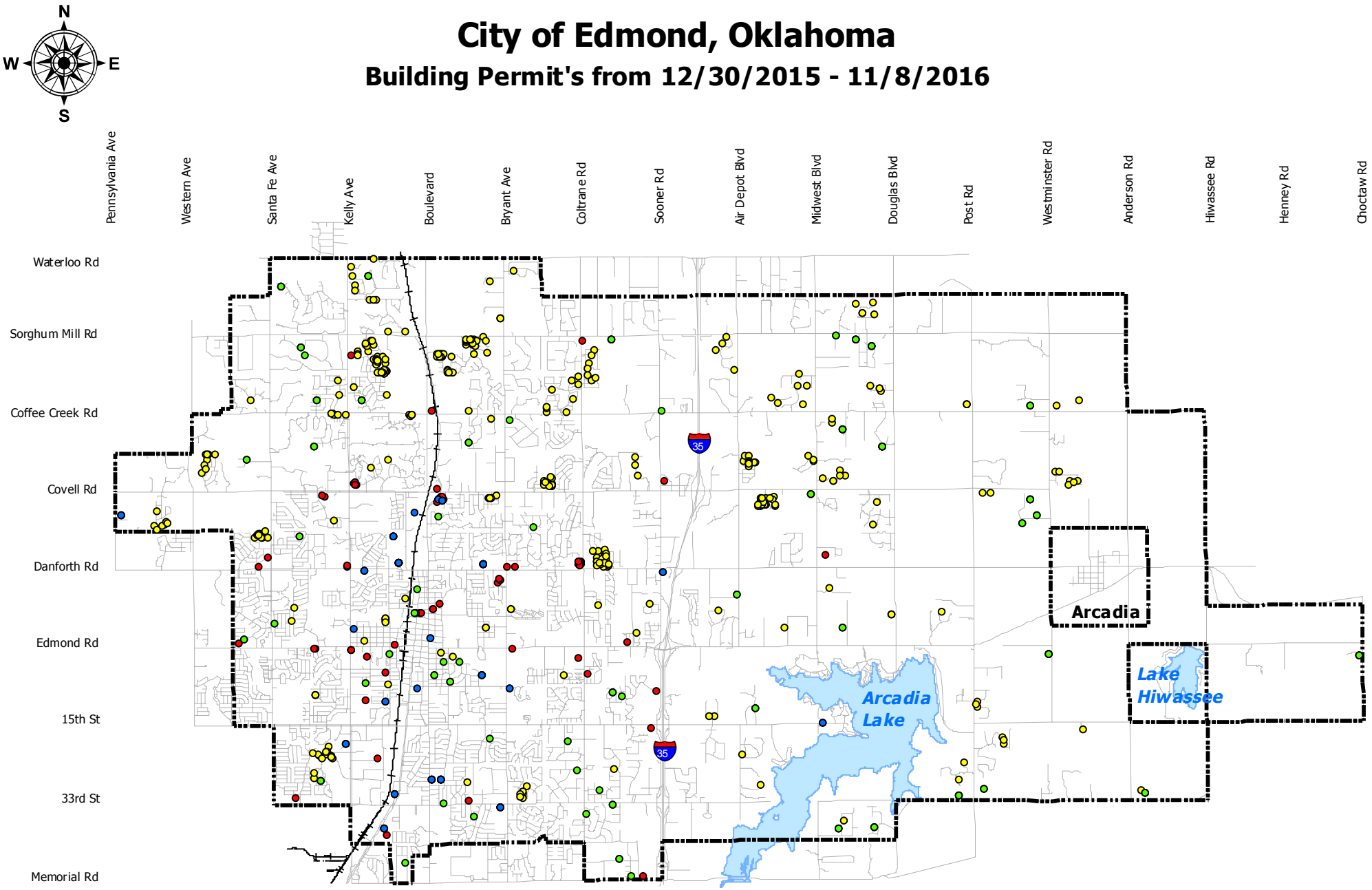
Active Monuments



Appendix C - Attachment B

City of Edmond, Oklahoma

Building Permit's from 12/30/2015 - 11/8/2016



Appendix C - Attachment C

Appendix C – Attachment D

Edmond Geodatabase Design – Planimetric and Topographic Data

This version of the City of Edmond geodatabase data model follows a standard planimetric data model. The following describes the GIS database design for the feature dataset. The Contractor will conform their attribute capture and population of the data sets the data model illustrated below.

The planimetric data compiled includes road edges (paved, unpaved, trail centerlines, sidewalks and driveways), parking lots, buildings (minimum size is 12'x10'), hydrology (including drainage ditches), railroad centerlines, street centerlines, tree mass outlines and single trees in the right of way, and fences that show ownership. Updates include any modifications to existing features such as road widenings and building additions or demolitions.

The topographic data set includes breaklines and masspoints feature class in addition to the contour lines and spot elevations.

The following pages show the feature attribute tables in detail. Whenever codes or a set of valid values is used for an attribute, a domain table is utilized. The information in the lookup tables is not included in this document.

The Respondent is encouraged to add to any aspect of this design in order to better meet the needs of the city of Edmond. Examples of such modifications might include adding new feature types or creating a domain table in the geodatabase for definitions of allowable values. However, the Contractor will be required to report any such changes to the City and to request prior approval for any change, which would preclude creating layers in the specified formats.

Data File-Type Information and System Requirements:

Planimetric Data

Buildings (polygon)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
TYPE	Type	Long Integer	4	Subtype code (see below).
UPDATED	Updated	Date	8	Feature updated date.
SHAPE	Shape	Geometry	0	Feature geometry.
ASSET_TYPE	Asset Type	Text	20	Building Type.
FIRE_SUPRESSION	Fire Suppression	Text	8	Buildings with sprinklers.
ELEVATION	Elevaton	Double	8	Building heights
MODIFIED BY	Modified By	Text	30	Modify by
MODIFIED DATE	Date Modified	Date	*	Date of Modification
STATUS	Status	Text	20	Status of building
SHAPE.AREA	SHAPE.AREA	Double	8	Area of feature.
SHAPE.LEN	SHAPE.LEN	Double	8	Length of feature.

Building Subtypes

Code	Description
0	Government Building
1	Building
2	Foundation
3	Ruin
4	Tank
99	Out Areas

Fence (line)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	Long Integer	4	Subtype code (see below).
UPDATED	Updated	Date	8	Feature updated date.
SHAPE_LENGTH	Shape_Length	Double	8	Length of feature (in units).

Fence Subtypes

Code	Description
1	Fence

Hydrology (polygon)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
DISPLAY	Display	ShortInteger	2	Display code (not used).
TYPE	Type	Long Integer	4	Subtype code (see below).
NAME	Name	Text	35	Name of water body.
UPDATED	Updated	Date	8	Feature updated date.
Shape_Length	Shape_Length	Double	8	Length of features (in units).
Shape_Area	Shape_Area	Double	8	Area of features (in units)

Hydrology Subtypes

Code	Description
1	River
2	Lake, Reservoir
3	Pond
4	Island
5	Irrigation Canal
6	Creek
99	Out Area

Hydrology Lines (line)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	Long Integer	4	Subtype code (see below).
DISPLAY	Display	ShortInteger	4	Display code (not used).
NAME	Name	Text	35	Hydrology line name.
UPDATED	Updated	Date	8	Feature updated date.
Shape_Length	Shape_Length	Double	8	Length of features (in units).

Hydrology Line Subtypes

Code	Description
1	River
2	Lake, Reservoir
3	Pond
4	Island
5	Irrigation Canal
6	Creek
7	Irrigation Ditch
99	Tile Edge

Parking Lot (polygon)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	ShortInteger	2	Subtype code (see below).
UPDATED	Updated	Date	8	Feature updated date.
Shape_Length	Shape_Length	Double	8	Length of features (in units).
Shape_Area	Shape_Area	Double	8	Area of features (in units).

Parking Lot Subtypes

Code	Description
1	Parking Lot
99	Out Areas

Pavement (polygon)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	ShortInteger	2	Subtype code (see below).
DISPLAY	Display	ShortInteger	2	Display code (not used).
UPDATED	Updated	Date	8	Feature updated date.
Shape_Length	Shape_Length	Double	8	Length of features (in units).
Shape_Area	Shape_Area	Double	8	Area of features (in units).

Pavement Subtypes

Code	Description
1	Paved Road
2	Unpaved Road
3	Bridge
4	Sidewalk
5	Driveway
6	Unpaved Driveway
99	Out Areas

Pavement Lines (line)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	Long Integer	4	Subtype code (see below).
DISPLAY	Display	ShortInteger	2	Display code (not used).
UPDATED	Updated	Date	8	Feature updated date.
Shape_Length	Shape_Length	Double	8	Length of features (in units).

Pavement Lines Subtypes

Code	Description
5	Trails
9	Bike Paths
99	Tile Edge

Railroad (line)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	ShortInteger	2	Subtype code (see below).
DISPLAY	Display	ShortInteger	2	Display code (not used).
NAME	Name	Text	35	Railroad name.
UPDATED	Updated	Date	8	Feature updated date.

Shape_Length	Shape_Length	Double	8	Length of features (in units).

Railroad Subtypes

Code	Description
1	Railroad Centerline

Road Centerline (line)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	ShortInteger	2	Subtype code (see below).
DISPLAY	Display	ShortInteger	2	
NAME	Name	Text	35	Road centerline name.
UPDATED	Updated	Date	8	Feature updated
Shape_Length	Shape_Length	Double	8	Length of features (in units).
Shape_Area	Shape_Area	Double	8	Area of Features (in units).

Road Centerlines Subtypes

Code	Description
1	Paved Road Centerline
2	Unpaved Road Centerline

Single Trees (point)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	LongInteger	4	Subtype code (see below).
UPDATED	Updated	Date	8	Feature updated
Shape_Length	Shape_Length	Double	8	Length of features (in units).
Shape_Area	Shape_Area	Double	8	Area of Features (in units).

Single Trees Subtypes

Code	Description
1	Coniferous Tree
2	Deciduous Tree

Vegetation (polygon)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
SHAPE	Shape	Geometry	0	Feature geometry.
TYPE	Type	LongInteger	4	Subtype code (see below).
UPDATED	Updated	Date	8	Feature updated date.

Shape_Length	Shape_Length	Double	8	Length of features (in units).
Shape_Area	Shape_Area	Double	8	Area of Features (in units).

Vegetation Subtypes

Code	Description
1	Tree Line
2	Tree Line Opening

Topographic Data

Contours (line)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
TYPE	Type	LongInteger	4	Subtype code (see below).
UPDATED	Updated	Date	36	Feature updated date.
ELEVATION	Elevation	Double	8	Elevation.
SHAPE	Shape	Geometry	0	Feature geometry.
Shape_Length	Shape_Length	Double	8	Length of features (in units).

Contour Subtypes

Code	Description
1	Index Contour
2	Intermediate Contour
3	Hidden Index Contour
4	Hidden Intermediate Contour

Spot Elevations (point)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
TYPE	Type	LongInteger	4	Subtype code (see below).
UPDATED	Updated	Date	36	Feature updated date.
ELEVATION	Elevation	Double	8	Elevation.
SHAPE	Shape	Geometry	0	Feature geometry.

Spot Elevation Subtypes

Code	Description
1	Ground Elevation
2	Bridge Elevation
3	Water Elevation

Obscured Areas (polygon)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
TYPE	Type	LongInteger	4	Subtype code (see below).
UPDATED	Updated	Date	36	Feature updated date.
SHAPE	Shape	Geometry	0	Feature geometry.
Shape_Area	Shape_Area	Double	8	Area of Features (in units).
Shape_Length	Shape_Length	Double	8	Length of features (in units).

Obscured Areas Subtypes

Code	Description
1	Obscured Area

DTM Breaklines (line)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
TYPE	Type	LongInteger	4	Subtype code (see below).
UPDATED	Updated	Date	36	Feature updated date.
SHAPE	Shape	Geometry	0	Feature geometry.
Shape_Length	Shape_Length	Double	8	Length of features (in units).

DTM Breaklines Subtypes

Code	Description
1	Breakline

DTM Mass Points (points)

Attributes	Alias	Data Type	Width	Definition
OBJECTID	OBJECTID	OID	4	Internal feature number.
TYPE	Type	LongInteger	4	Subtype code (see below).
UPDATED	Updated	Date	36	Feature updated date.
ELEVATION	Elevation	Double	8	Elevation.
SHAPE	Shape	Geometry	0	Feature geometry.

DTM Mass Points Subtypes

Code	Description
1	Mass Point

Topographic Data CAD Format Requirements

CAD File Objects:

Each .dwg group layer contains 5 object classes. These object classes include:

Annotation	An object layer that is used to store text related to another CAD object or a drawing title block. Each spot elevation point contains annotation.
Point	An object layer that stores CAD points. Spot elevations are represented points.
Polyline	An object layer that is used to store CAD lines. Each contour line in this object class is represented as a line.
Polygon	An object class that is used to store closed areas, or polygons in the CAD and GIS drawing environment. Contour lines that are closed are represented as polygons.
MultiPatch	This geometry type is used for storing 3D objects - such as buildings, geological bodies, 3D no-fly zones, etc – in both the geodatabase and shapefile formats.

CAD Data Attributes:

The following table provides a description of each CAD field.

Name	Type	Width	Description	Feature class
FID	Object ID	4	Unique feature identifier.	All
Shape	Shape	*	Geometric shape of entity.	All
Entity	String	16	The type of CAD entity that the feature represents. Entity and element are synonymous.	All
Handle	String	16	The CAD unique identifier for entities and elements.	All
Layer	String	255	A logical grouping of data in a drawing. Layers can contain a mixture of feature types.	All
LyrFrzn	Short	2	The CAD frozen status of the layer. Frozen layers are not displayed.	All
LyrLock	Short	2	The CAD locked status of the layer. Locked layers are displayed.	All
LyrOn	Short	2	The CAD display status of the layer.	All
LyrVPFrzn	Short	2	The CAD frozen status of the layer's viewport. Frozen layers are not displayed.	All
LyrHandle	String	16	The CAD-maintained internal identifier for a layer.	All
Color	Short	2	The display color of the entity.	All
EntColor	Short	2	The assigned color of the entity.	All
LyrColor	Short	2	The color of the layer in which the entity resides.	All

BlkColor	Short	2	The color of the block with which the entity is associated.	All
Linetype	String	255	The display line type of the entity.	All
EntLinetype	String	255	The assigned line type of the entity.	All
LyrLinetype	String	255	The line type of the layer in which the entity resides.	All
BlkLinetype	String	255	The line type of the block with which the entity is associated.	All
Elevation	Double	8	The z-coordinate value of an entity. In cases where the z-coordinate values of an entity's vertices vary, the z-coordinate value of the vertex encountered will be used.	All
Thickness	Double	8	The extrusion distance of an entity.	All
LineWt	Short	2	The display line weight of an entity.	All
EntLineWt	Short	2	The assigned line weight of an entity.	All
LyrLineWt	Short	2	The line weight of the layer in which the entity resides.	All
BlkLineWt	Short	2	The line weight of the block with which the entity is associated.	All
RefName	String	255	Name of the parent object in which the entity resides.	All
LTScale	Double	8	The scale of the entity's line type.	All
Angle	Double	8	The rotation angle of an entity (in degrees).	Annotation/Point
ExtX	Double	8	X-coordinate extrusion value.	All
ExtY	Double	8	Y-coordinate extrusion value.	All
ExtZ	Double	8	Z-coordinate extrusion value.	All
DocName	String	255	Name of the CAD file.	All
DocPath	String	4096	Path of the CAD file.	All
DocType	String	255	Type of CAD file (by extension).	All
DocVer	String	16	Version of CAD file.	All
ScaleX	Double	8	X-coordinate scale value.	Annotation/Point
ScaleY	Double	8	Y-coordinate scale value.	Annotation/Point
ScaleZ	Double	8	Z-coordinate scale value.	Annotation/Point
<Attribute Tag>	Double	8	An object that is part of an insert that stores alphanumeric data.	All
<Attribute Tag>	Long	4	An object that is part of an insert that stores alphanumeric data.	All
<Attribute Tag>	String	15	An object that is part of an insert that stores alphanumeric data.	All
Style	String	255	Text style.	Annotation
FontId	Short	2	Text symbol ID number (specific to ArcGIS).	Annotation
Text	String	255	Text string.	Annotation
Height	Double	8	Text height.	Annotation
TxtWidth	Double	8	CAD text entity width factor.	Annotation
TxtOblique	Double	8	CAD text entity oblique angler.	Annotation
TxtGenType	String	32	CAD text generation type.	Annotation
TxtJust	String	32	CAD text entity justification parameter.	Annotation
VertAlign	String	32	CAD text entity vertical alignment parameter.	Annotation

TxtFont	String	255	CAD text entity font.	Annotation
TxtBoxHt	Double	8	CAD text entity bounding box height.	Annotation
TxtBoxWd	Double	8	CAD text entity bounding box width.	Annotation
TxtRefWd	Double	8	CAD multiline text width factor.	Annotation
TxtAttach	Short	2	CAD multiline text attachment parameter.	Annotation
TxtDir	Short	2	CAD multiline text direction parameter.	Annotation
LnSpace	Short	2	CAD multiline text spacing type.	Annotation
SpaceFact	Double	8	CAD multiline text spacing factor.	Annotation
TxtMemo	String	2048	Entire CAD text string.	Annotation

Del City

Background

The City of Del City is located in Oklahoma County. Del City has a population of 21,332 and encompasses 7.52 square miles. The City contracted with Sanborn in 2015 to update its orthophotos and topographic information. The primary area of capture is an 8 square miles. An enlarged capture area is 12.5 square miles. The last Ortho and LiDAR flight for the primary area was in Spring 2015.
Del City would like price estimates for the following products:

- Orthophoto data at 3" resolution.
- LiDAR topographic data with 1' contours, .7m classification, breaklines and hydro enforcement. LiDAR topo should conform to USGS 1.2 LAS spec.

Del City would like the products bid at two areas, a primary area and an enlarged area. The enlarged area represents a .5 mile buffer on the north, west and south sides of the city.

Projection

All spatial data shall conform to the following projection:

Coordinates/Projection:	NAD_1983_StatePlane,
Zone:	Oklahoma_North_FIPS_3501_Feet
Horizontal Datum:	D-North_American_1983
Map Units:	US Survey Feet

Software Capability

The City of Del City currently has ArcGIS 10.3.

Deliverables

The final ortho deliverables will be required to be in:

GeoTIFF, uncompressed
Mr.SID, compressed no greater than 15:1*
Lossless JPEG 2000

*Note: No re-compression of compressed data is acceptable. Image mosaics shall be equal in quality to image tiles.

Final topological data to be delivered in Shapefiles and AutoCAD DWG files.

Appendix E - City of Midwest City

BACKGROUND

The City of Midwest City project covers an area of approximately 24.37 square miles – see 2017 DOP Areal Coverage Requirements map (layer: Midwest City Limits) below. Midwest City has a population of approximately 55,000. The City of Midwest City procured the following data in the last ten (10) years:

Year	Digital Orthophotos	Planimetrics/Others
2010	6" DOPs	2'-contours, 1'-contours, building footprints and impervious surface
2013	6" DOPs	None
2015	3" DOPs with DTM for ground surface	1'-contours

DELIVERABLES

Digital Orthoimagery

The City of Midwest City would like to obtain color digital orthoimagery for our city and surrounding areas. Although our intent is to acquire 3"-pixel resolution DOPs (Option A), we would also like pricing information for acquiring 6"-pixel resolution DOPs (Option B).

Option A	Option B
NMAS 1" = 50' standard 3"-pixel resolution	NMAS 1" = 100' standard 6"-pixel resolution

The required DOP collection area for the City of Midwest City is shown in the 2017 DOP Areal Coverage Requirements map below as the layer entitled 2017 MWC DOP Collection Area. The area is approximately 42.43 sq miles in size. The collection area extent has been included as a shapefile name MWC_2017_DOPCollectionArea.shp with this RFP. The city limits extent has been included as a shapefile named MWC_2017_CityLimits.shp with this RFP.

In the past, contractors have produced the DOPs for the whole COAGA group using one color map for the entire area of all entities involved. The City of Midwest City will require color optimization for its area alone on this deliverable (separate from the other entities involved in this project) so as to create a pleasing color map for the City of Midwest City specifically. The Contractor will work directly with the City of Midwest GIS Project Manager to deliver a color map that is acceptable to the City of Midwest City.

The tiling scheme for the DOP delivery will approximate the PLSS for the Midwest City area and is included as a shapefile named MWC_2017_ImageTilingGrid.shp with this RFP. Image tiles should be labeled with the labels shown in this data in the field SECTION (see 2017 DOP Image Tiling Grid map below).

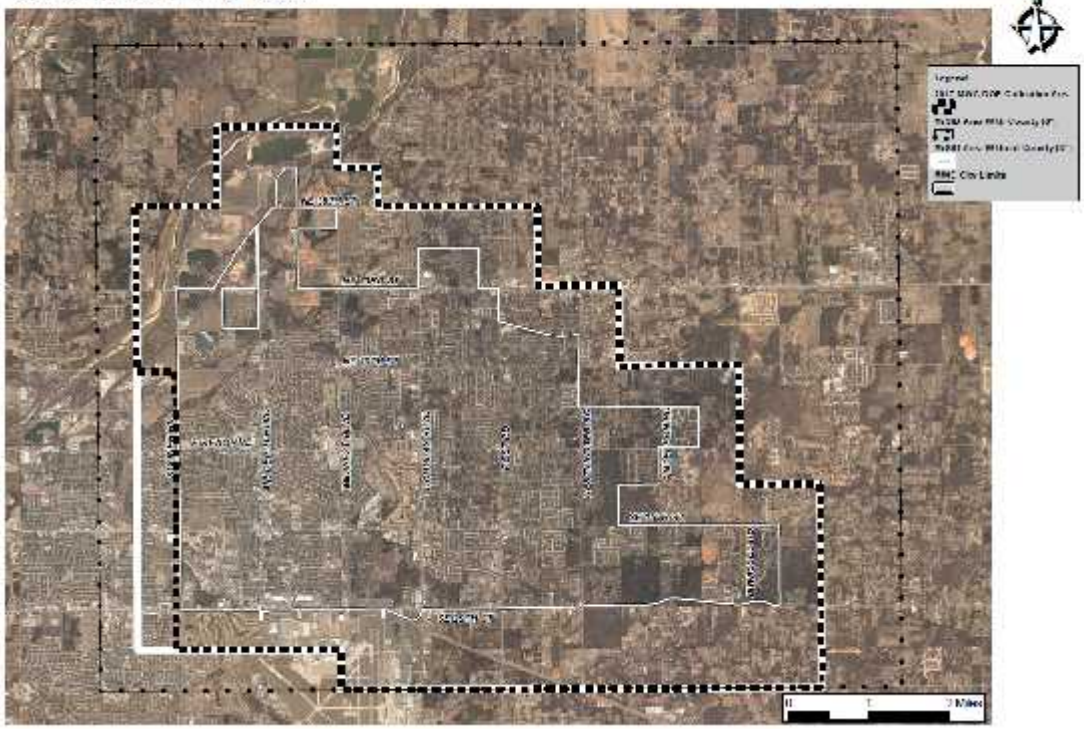
The DOPs should be delivered in the following format: georeferenced TIFF, uncompressed, with an ESRI 10.2 compatible image catalog. All spatial data shall be projected into the following projection/coordinate system:

Coordinates/Projection:	State Plane Coordinate System,
Zone:	Oklahoma North, FIPS Zone 3501
Horizontal Datum:	NAD83 (2011)
Vertical Datum:	NAVD88
Map Units:	US Feet

*Note: No re-compression of compressed data is acceptable. Image mosaics shall be equal in quality to image tiles.

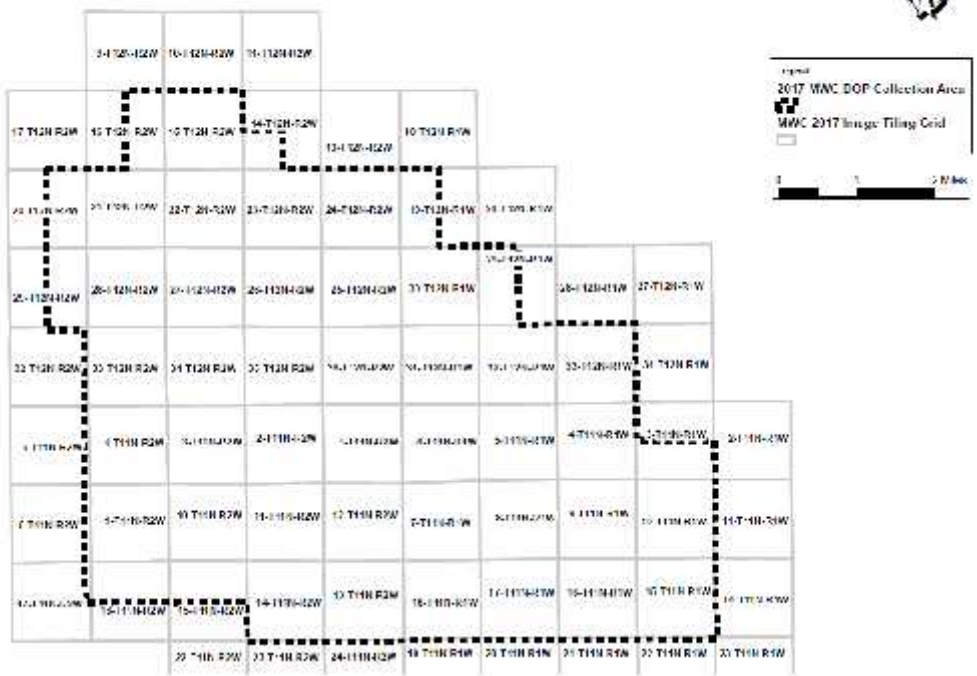
2017 DOP Areal Coverage Requirements

City of Midwest City



2017 DOP Image Tiling Grid

City of Midwest City



Digital Terrain Model with Building Heights (optional)

The City of Midwest City would like pricing information to obtain a Digital Terrain Model (DTM) with building heights included as an optional task. During the 2015 DOP project, 1'-contours were created and a DTM was created using the ground surface. The City of Midwest City would like to know what it would cost and what would be required to create a DTM with building heights included to be used in line of sight analyses. The area required to be included in the DTM is shown in the 2017 DOP Areal Coverage Requirements map above as the layer entitled 2017 MWC DOP Collection Area and included with this RFP in the shapefile named MWC_2017_DOPCollectionArea.shp.

Other Items Required as Part of Deliverable

The City of Midwest City would like pricing information for the following additional deliverables required:

1.	MrSID compressed format using the 3-in resolution merged images (will need to use some of the City of Del City's 3-in images) with the extent shown in the layer named MrSID Area Without County (3") on the 2017 DOP Areal Coverage Requirements map shown above and in the shapefile named MWC_2017_MrSID_3inch.shp found with this RFP. The MrSID image should be trimmed to the image boundary so as not to have a white area that would mask any data underneath the MrSID image.
2.	MrSID compressed format using the 3-in resolution images from City of Midwest City (resampled to 6") and the Oklahoma County Assessor 6" images merged to the extent shown in the layer named MrSID Area With County (6") on the 2017 DOP Areal Coverage Requirements map shown above and in the shapefile named MWC_2017_MrSID_6inch.shp found with this RFP. The MrSID image should be trimmed to the image boundary so as not to have a white area that would mask any data underneath the MrSID image.
3.	MrSID compressed format using the 6-in resolution merged images of the entire Oklahoma County area. The MrSID image should be trimmed to the image boundary so as not to have a white area that would mask any data underneath the MrSID image.
4.	JPEG 2000 of the extent shown in the layer named MrSID Area Without County (3") on the 2017 DOP Areal Coverage Requirements map shown above and in the shapefile named MWC_2017_MrSID_3inch.shp found with this RFP.
5.	JPEG 2000 of the extent shown in the layer named MrSID Area With County (6") on the 2017 DOP Areal Coverage Requirements map shown above and in the shapefile named MWC_2017_MrSID_6inch.shp found with this RFP.
6.	A shapefile of the control points used for the data collection for the City of Midwest City.
7.	

GENERAL SPECIFICATIONS

The Contractor shall furnish all materials, equipment, labor, management, insurance, postage, and transportation necessary to complete this work. The Respondent should propose the best procedures and commonly accepted professional techniques in order to assure complete compliance with this RFP.

All work required by the contract will be performed in conformance with these specifications and any contractual modifications to these specifications. Any deviation from the specifications, unless specifically authorized in writing by the City of Midwest City GIS Project Manager, shall be sufficient cause for rejecting any part or all of the work performed.

Cost Worksheet in Section 10 of the RFP must be completed.

Appendix F - Moore

Background

Moore has a population of 52,361 and approximately 21.9 square miles. It is adjoins Oklahoma City on the north, east and west side of its city boundary and Norman and an incorporated area of Cleveland county on the south. Last Ortho was flown in 2015.

The City of Moore will provide the Contractor with all of our data from the past project, as well as current street centerline, parcel and city boundary data, and building permits. Because of confusion during the last aerial acquisition we are missing aerial data on the east and south sides of the city. In addition we need updated contour and hydrology data.

Projection

All spatial data shall conform to the following:

Coordinates/Projection:	State Plane Coordinate System,
Zone:	Oklahoma South, FIPS Zone 3502
Horizontal Datum:	HARN NAD83
Map Units:	US Survey Feet

Aerial photography

6” resolution color ortho photography

Planimetrics

Building footprints
Hydrography – linear and polygon features
Street centerlines
Railroads
Edge of pavement
Sidewalks
Parking Lots

Topography

Raw Lidar data
1-foot elevation contours
Spot elevation
Hydrologically Re-enforced Digital Elevation Model (DEM) – breaklines and masspoints

Appendix G – City of Norman

Background

The City of Norman project covers an area of approximately 256 square miles for orthophotography and 197 square miles for the planimetric and topographic update– see City of Norman Project Maps Appendix G Attachments A and B. The City of Norman contracted with Sanborn Map Company, Inc in 2015 to update its orthophoto, planimetric and topographic data.

Aerial photography

.25 and .5 foot resolution color orthophotography (2015 date)

Planimetrics (2015 Date)

Hydrography – linear and polygon features
Street centerlines
Railroads
Building footprints – to include building heights
Edge of pavement
Driveways
Sidewalks
Vegetation (Tree mass)
Single Trees in the Right of Way
Parking Lots
Fences

Topography (2015 Date)

1-foot elevation contours
Spot elevation
Hydrologically Re-enforced Digital Terrain Model (DTM) – breaklines and masspoints

The City of Norman relies on a robust GIS to perform business operations. All data is stored in a 10.1 SP1 ArcSDE repository located in a MS SQL Server 2008 R2 database. At this time the City of Norman is seeking to upgrade to ArcSDE 10.4.1 and MS SQL Server 2012 R2 in the spring of 2017.

Respondents are directed to refer to the RFP, the following sections and the Data Dictionary, Appendix G Attachment C, section for technical specifications and a clear definition of the features and attributes that are considered deliverables, and therefore the responsibility of the Contractor to provide.

Objectives

Obtain updated color digital orthophotography according to NMAS 1" = 50' standards - .25 foot pixel resolution and 1" = 100' and .5 foot pixel resolution and update existing GIS base datasets according to NMAS 1" = 50'and 1"=100' standards.

Scope of Work

The Contractor shall produce and deliver to the City of Norman photogrammetric change detection and update of the planimetric features to the standards stipulated in this section and elsewhere in this Request For Proposals. The Contractor shall furnish all materials, equipment, labor, management, insurance, postage, and transportation necessary to complete this work. The Respondent should propose the best procedures and commonly accepted professional techniques in order to assure complete compliance with this RFP.

All work required by the contract will be performed in conformance with these specifications and any contractual modifications to these specifications. Any deviation from the specifications, unless specifically authorized in writing by the GIS Project Manager, shall be sufficient cause for rejecting any part or all of the work performed.

Technical Specifications

The initial planimetric data and most recent aerials followed the National Map Accuracy Standards (NMAS). It is expected that the deliverables from this contract shall have an overall average accuracy of 1 inch = 50 feet in urbanized areas and 1 inch = 100 feet. The respondent shall address the issue of the different accuracies of the other participating agencies as it relates to this project, and how they will maintain or improve the accuracy of the City of Norman's current datasets.

Planimetric Features The planimetric data to be updated is road edges (paved, unpaved, trail centerlines, sidewalks and driveways), parking lots, buildings, (minimum size is 10' x 10'), hydrology (including drainage features such as ditches), railroad centerlines, street centerlines, tree mass outlines, single trees, fences, and utility points. At the request of our Engineering Division, we are adding several feature codes to existing layers to assisting in assessing stormwater applications. They are shaded in the data dictionary. All are new except for driveways, which they want separated into paved and unpaved. Sample digital data may be provided as an attachment. Respondents are also directed to refer to Appendix G – Attachment C of this RFP for a clear definition of the features and attributes that are considered deliverable, and therefore the responsibility of the Contractor to populate into the GIS database as part of the conversion effort. Respondents shall indicate in their technical plan of operations suggested data conversion techniques for the compilation of source map data.

Pilot Study *For Planimetric data*. The Pilot Study is necessary for the City of Norman to evaluate the process of detecting change and updating the planimetric data. The Pilot will be used to refine the scope of the remaining data conversion project in terms of quality, accuracy and, timeliness. An important component of this phase will be to clarify and test procedures used by the Contractor and the City to complete this project.

Selected Pilot Area The Pilot Study Area sections (Section 18 Township 9 North, Range 2 West for 1" = 50' and Section 29 Township 9 North, Range 1 West for 1" = 100') were chosen to be the pilots in this conversion process. The Pilot Study Area is a one square mile section in each scale.

Pilot Study Process In the City of Norman's conversion plan, the Contractor will bae supplied with source data to use in the conversion process. The source material for this pilot will be a version of the planimetric feature dataset. The pilot study process will give the Contractor and the City of Norman the opportunity to work with the source data and to identify and resolve any questions or problems that arise as actual data conversion is initiated. It gives both parties, prior to full production, the time needed to implement procedures and resolve problems reducing delays and reworks.

Scale and Accuracy of Planimetric Data The final scale will be 1" = 50' and 1' = 100'. The respondent shall meet the National Map Accuracy Standard for such scale mapping. All spatial data shall conform to the following:

Coordinates/Projection:	State Plane Coordinate System,
Zone:	Oklahoma South, FIPS Zone 3502
Horizontal Datum:	HARN
Map Units:	Feet

Attribute Data All required nongraphic attributes for the geodatabase are identified in Appendix G – Attachment C of this RFP. In the event that necessary attribute data is missing, confused, or unreadable on any source material, the Respondent will contact the City of Norman GIS Project Manager for assistance. In cases concerning minor irregularities in the data or source maps where the answer is obvious or defined by precedent, the Contractor may act to resolve the problem on his own initiative thereby reducing work stoppages and interruptions. When this occurs, the City of

Norman GIS Project Manager shall be informed of the action that the Contractor took within 24 hours and the Contractor will document how the problem was resolved.

The City of Norman is seeking firm fixed prices for the performance and delivery of photogrammetric change detection and collection of the planimetric features. Prices shall cover all necessary work, materials, supplies, data preparation, entry, translation and quality control, etc. Reproduction, travel and other direct and indirect costs should also be included.

It is the responsibility of the Respondent to verify any count information used in estimating the cost of conversion. These estimates are based on the most current information available.

Deliverables

Cost Worksheet in Section 10 of the RFP must be completed.

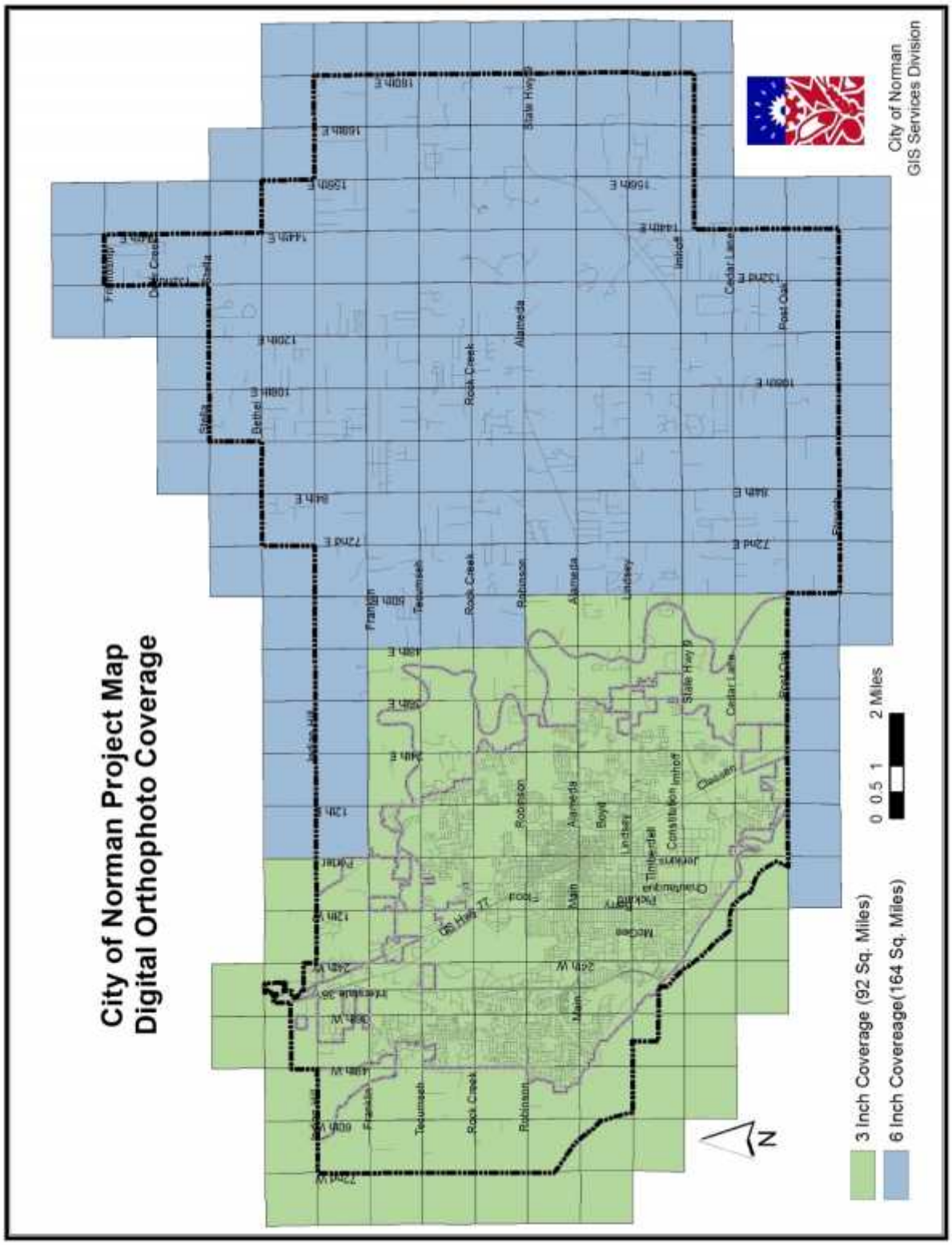
Firm Fixed Unit Costs – Digital Color Orthoimagery (TIFF):

City of Norman: (92 miles @ 3")
(164miles @ 6")

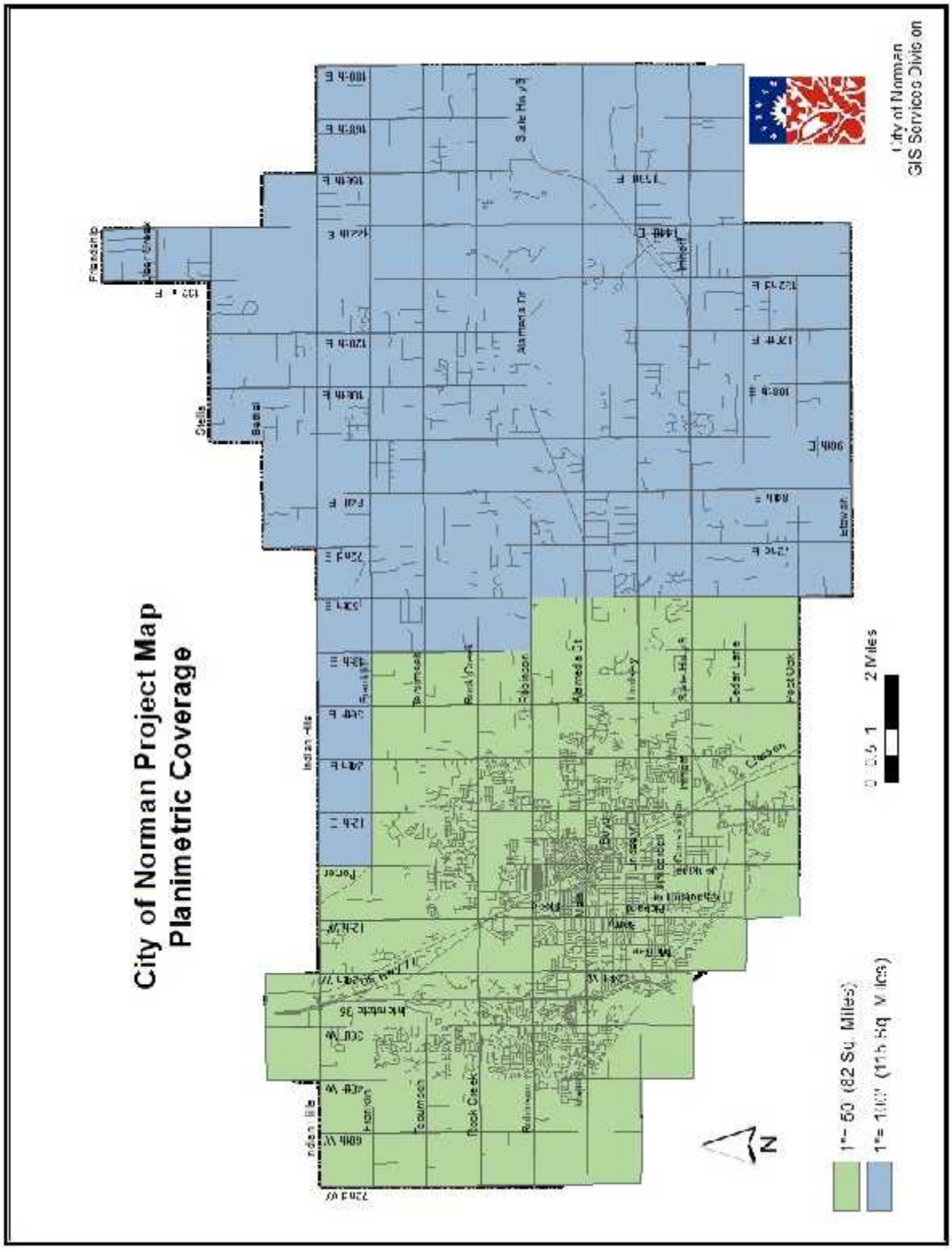
Optional mosaic products:
Mr SID of City of Norman

Planimetric Change Detection & Collection - Pilot Study Area Cost
Planimetric Change Detection & Collection - Remainder of the City

Attachment A – Orthophotography Project Map



Attachment B – Planimetric Project Map



TRANSPORTATION FEATURE DATASET

AIRPORT (Polygon)

Properties

Feature Dataset TRANSPORTATION **Type:** Polygon **Topology/Network:** n/a
Feature Class AIRPORT

Description

Visible airport runway related infrastructure within the imagery.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap
SHAPE	Geometry		Polygon			S	ArcMap
SHAPE_LENGTH	Double		<not null>			S	ArcMap
SHAPE_AREA	Double		<not null>			S	ArcMap
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor
CODE	Integer	4	0	Y		R	Conversion Vendor

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1812	Runway	Edge of paved surface
1813	Taxiway	Edge of paved surface
1814	Access Road	Edge of paved surface

ROAD (Polygon)

Properties

Feature Dataset TRANSPORTATION **Type:** Polygon **Topology/Network:** n/a
Feature Class ROAD

Description

Visible and hidden road and pavement-related features within the imagery.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap
SHAPE	Geometry		Polygon			S	ArcMap
SHAPE_LENGTH	Double		<not null>			S	ArcMap
SHAPE_AREA	Double		<not null>			S	ArcMap
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor
CODE	Integer	4	0	Y		R	Conversion Vendor

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1800	Paved Road	Paved road over 100’ long, or 10’ in width
1801	Paved Shoulder	Shoulder of road that is outside of the visible driving surface (paved road)
1802	Hidden Paved Road	Edge of paved road that is obscured by a bridge or other man-made feature. Collect to continue paved road surface
1803	Unpaved Road	Unpaved road over 100’ long, or 10’ in width. Unpaved surfaces will include dirt, gravel or other compact surface.
1804	Hidden Unpaved Road	Edge of unpaved road that is obscured by a bridge or other man-made feature. Collect to continue unpaved road surface

CODE	DESCRIPTION CLASS	*Description*
1805	Bridge Overpass	Pedestrian or vehicle bridge. Collect outer edge of bridge surface.
1806	Hidden Bridge Overpass	Pedestrian or vehicle bridge obscured by other bridge (interstate interchange is best example).
1807	Paved Alley	Paved alley over 50' long, or 8' in width.
1811	Curb	Edge of paved surface
1814	Road Under Construction	Collect as road under construction only if road is new or re-designed. If only a portion of road is under construction, collect as paved or unpaved surface.
1816	Unpaved Alley	Unpaved alley over 50' long, or 8' in width.
1821	Rural Trail	Unpaved paths on rural acreage.
1899	Median	Paved or unpaved median feature wholly contained within the road. Treat islands within roads as medians.

PARKING (Polygon)

Properties

Feature Dataset TRANSPORTATION **Type:** Polygon **Topology/Network:** n/a
Feature Class PARKING

Description

Paved or unpaved parking features visible within the imagery.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Polygon			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated perimeter length of the polygon (assigned by ArcMap)
SHAPE_AREA	Double		<not null>			S	ArcMap	Internal attribute with calculated area of the polygon (assigned by ArcMap)
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion	Assigned by Conversion Vendor, this

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
							Vendor	attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1809	Paved Parking	Commercial and/or Residential paved surfaces used primarily for parking vehicles. Must have at least 1 side that is 10' or greater to be compiled.
1816	Unpaved Parking	Commercial and/or Residential unpaved surfaces (dirt, gravel, grass, other) used primarily for parking vehicles. Must have at least 1 side that is 10' or greater to be compiled.
1822	Pervious Parking	Engineering code. Conversion vendor may see as paved.
1899	Island	Paved or unpaved island feature wholly contained within the parking feature. Treat medians within parking lots as islands.

UN-CLASSIFIED PAVEMENT (Polygon)

Properties

Feature Dataset TRANSPORTATION **Type:** Polygon **Topology/Network:** n/a
Feature Class PAVEMENT

Description

Pavement features visible within the imagery that are not contained in the ROAD or PARKING Feature Classes.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap
SHAPE	Geometry		Polygon			S	ArcMap

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source
SHAPE_LENGTH	Double		<not null>			S	ArcMap
SHAPE_AREA	Double		<not null>			S	ArcMap
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor
CODE	Integer	4	0	Y		R	Conversion Vendor

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1808	Paved Driveway	Paved commercial and/or residential driveway.
1823	Unpaved Driveway	
1810	Public Sidewalk	All public visible paved sidewalks, greater than 3'x10' in area, intended exclusively for pedestrian traffic.
1817	Private Sidewalk	All residential, commercial, or apartment complex paved sidewalks, greater than 3'x10' in area, intended exclusively for pedestrian traffic.
1820	Concrete Pad / Patio	Any miscellaneous concrete slabs such as concrete around swimming pool or a patio.
1825	Concrete Pad / Patio – Not Concreate	Any gravel /bricked area or wood or composite decks

STRUCTURE FEATURE DATASET

BUILDING (Polygon)

Properties

Feature Dataset STRUCTURE
Feature Class BUILDING

Type: Polygon

Topology/Network: n/a

Description

Buildings and related structural elements visible in the imagery.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Polygon			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated perimeter length of the polygon (assigned by ArcMap)
SHAPE_AREA	Double		<not null>			S	ArcMap	Internal attribute with calculated area of the polygon (assigned by ArcMap)
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.
BuildingHeight	Numeric					R	Conversion Vendor	Height of Building

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1700	Building	Polygon enclosing all erect (not under construction) buildings; i.e. houses, apartments, outbuildings, commercial. Building must have at least 1 side 10' or greater to be compiled.
1701	Approximate Building	Polygon enclosing all buildings under construction. Building must have at least 1 side 10' or greater to be compiled.
1702	Foundation	Polygon enclosing all building foundations that do not contain a housing unit on top. Does not include buildings under construction but does include ruins.
1703	Single-wide Trailer	Polygon enclosing mobile home. Double-wide trailer shall be shown as building.
1799	Building Courtyard	Artificial polygon created when building is fully encompassing of an open area.

POOL (Polygon)

Properties

Feature Dataset STRUCTURE **Type:** Polygon **Topology/Network:** n/a
Feature Class POOL

Description

Swimming pools visible in the imagery.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Polygon			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated perimeter length of the polygon (assigned by ArcMap)
SHAPE_AREA	Double		<not null>			S	ArcMap	Internal attribute with calculated area of the polygon (assigned by ArcMap)
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
2003	Public Pool	Polygon enclosing all public swimming pools. Public pools will be evident by their size. Digitize the pool only, not the deck or paved area around the pool.
2004	Private Pool	Polygon enclosing all in-ground private swimming pools. Digitize the pool only, not the deck or paved area around the pool.

UN-CLASSIFIED STRUCTURES (Polygon)

Properties

Feature Dataset STRUCTURE **Type:** Polygon **Topology/Network:** n/a
Feature Class MISC_STRUCTURE

Description

Structures visible in the imagery that do not fit logically into the other Feature Classes under the STRUCURE Feature Dataset.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Polygon			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated perimeter length of the polygon (assigned by ArcMap)
SHAPE_AREA	Double		<not null>			S	ArcMap	Internal attribute with calculated area of the polygon (assigned by ArcMap)

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Level*	*Color*	*Weight*	*Style*	*Description*
1709	Dam	41	0	2	2	Barrier across river, creek, or swamp to regulate or obstruct water flow. Visible beaver dams large enough to affect water flow shall be outlined also.
1710	Oil Storage Tank	17	1	1	0	Polygon enclosing oil storage tank.
1711	Signal Controller	35	5	1	0	Square or rectangular metal box found in right of way at intersection used to control overhead traffic signal.
1712	Well House					
1713	Substation					
1714	Cell Phone Tower					
1715	Other Oil/Gas Facility					

BARRIER (Line)

Properties

Feature Dataset STRUCTURE
Type: Line
Topology/Network: n/a
Feature Class BARRIER

Description

This feature class includes all man-made barriers such as walls and/or fences.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Line			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated length of the Line (assigned by ArcMap)
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1704	Wall	Line showing fixed structure of concrete or brick not used for retention of earth
1705	Head Wall	Concrete on the end of a transverse drain or pipe culvert.
1706	Fence	Commercial or residential fence meant to show distinction between adjacent properties.
1707	Retaining Wall	Fixed structure retaining earth. Structure can be concrete or other man-made surface.

LAND USE FEATURE DATASET

LAND USE (Polygon)

Properties

Feature Dataset LAND USE
Feature Class LAND USE

Type: Polygon

Topology/Network: n/a

Description

Features relating to land use that are visible in the imagery.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Polygon			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated perimeter length of the polygon (assigned by ArcMap)
SHAPE_AREA	Double		<not null>			S	ArcMap	Internal attribute with calculated area of the polygon (assigned by ArcMap)
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Level*	*Color*	*Weight*	*Style*	*Description*
1500	Wooded Area	50	2	1	0	Polygon indicating a tree line or edge of a forest
1501	Cemetery	25	3	1	5	Approximate polygon boundary enclosing a cemetery. If cemetery is bound by fence or wall, that feature shall have precedence over cemetery.
1502	Quarry / Borrow Pit	28	2	1	2	Mining area. No distinction is made between rock (consolidated) material mines and loose (unconsolidated) material mines.

TREE (Point)

Properties

Feature Dataset LAND USE **Type:** Point **Topology/Network:** n/a
Feature Class TREE

Description

Points showing individual street trees.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Point			S	ArcMap	Internal geometry (assigned by ArcMap)
SYMBOL	Integer		0	Y		S	ArcMap/ Conversion Vendor	Internal attribute storing the symbol of the point feature (used by ArcMap)
ANGLE	Integer		0			S	ArcMap/ Conversion Vendor	Internal attribute storing the rotation angle for the symbol (used by ArcMap)
FEATURE_SUBTYPE	Text	30	1	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1503	Tree	Point showing single tree (on public or private property) that has a canopy diameter of at least 20’ – do not show small ornamental trees or shrubs.

HYDROLOGY FEATURE DATASET

HYDROLOGY_WATERBODY (Polygon)

Properties

Feature Dataset HYDROLOGY **Type:** Polygon **Topology/Network:** Topology

Feature Class HYDROLOGY _WATERBODY

Description
Visible double line hydrology and standing water bodies within the imagery.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Polygon			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated perimeter length of the polygon (assigned by ArcMap)
SHAPE_AREA	Double		<not null>			S	ArcMap	Internal attribute with calculated area of the polygon (assigned by ArcMap)
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
PK_COM_ID	Long Integer		<not null>		PK	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a unique common identifier assigned to each hydro shape feature to support NHD modeling.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.
NAME	Text	50	<null>			O		Common/Local Name for water body. Not intended for GNIS compatibility.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1602	River / Stream	Well-defined shoreline of streams and rivers with an average width greater than 10’ wide.
1603	Approximate River / Stream	Approximate shoreline of streams and rivers with an average width greater than 10’ wide. River / Stream takes precedence over this feature. Entire feature must have undefined or approximate shoreline to qualify.

CODE	DESCRIPTION CLASS	*Description*
1604	Lake	Shoreline of natural lake. Determination of actual feature type is subjective and assigned by Conversion Vendor staff.
1605	Farm Pond	Shoreline of non-industrial pond not found in a residential or commercial development. Determination of actual feature type is subjective and assigned by Conversion Vendor staff.
1606	Industrial Pond	Shoreline of industrial pond used for treating industrial or man-made refuse. Determination of actual feature type is subjective and assigned by Conversion Vendor staff.
1607	Reservoir	Shoreline of man-made reservoir. Reservoir will be defined as a water body containing an Earthen dam or man-made damn feature on one end of the water body. Determination of actual feature type is subjective and assigned by Conversion Vendor staff.
1610	Hidden River / Stream	Shoreline of stream or river with an average width greater than 10' wide obscured by an overhead feature.
1611	Natural Channel	
1699	Island	Shoreline of feature and collected *only* if necessary to produce contiguous features (i.e. clarification of a void area).
2400	Detention Pond	Shoreline of non-industrial pond found in a residential or commercial development. Determination of actual feature type is subjective and assigned by Conversion Vendor staff.
2401	Retention Pond	
2402	Paved Channel	Paved ditch or channel designed to constrict the flow of water.
2403	Pipe / Culvert	Large culverts or above-ground pipes that tie into the hydrographic network. Determination of actual feature type is subjective and assigned by Conversion Vendor staff.

HYDROLOGY DRAIN (Line)

Properties

Feature Dataset HYDROLOGY **Type:** Line **Topology/Network:** Topology
Feature Class HYDROLOGY_DRAIN

Description

The visible centerline of a hydrology feature within the imagery that is less than 10' wide. Additionally, centerline abstractions oriented in the direction of flow through all open water bodies captured in the hydrology_waterbody feature class. The resulting lines are designed to create a geographic network compatible with the National Hydrological Dataset (NHD) modeling standards for representing NHD drainage network.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Line			S	ArcMap	Internal geometry (assigned by ArcMap)
SHAPE_LENGTH	Double		<not null>			S	ArcMap	Internal attribute with calculated length of the Line (assigned by ArcMap)
FEATURE_SUBTYPE	Text	30	0	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a subtype identifying the feature. The description of the feature subtype is displayed.
NHD_FTYPE	Text	24	<null>	Y		O	NHD	Type of NHD network element. NHD feature types include: Artificial Path, Canal/Ditch (1-dimensional), Connector, Pipeline, and Stream/River (1-dimensional)
NHD_FCODE	Integer	5	<null>			O	NHD	Numeric value that encodes the type and values for a set of characteristics for an NHD feature. This five-digit code has two parts: the first three digits encode the feature type; the last two digits encode values for a set of characteristics associated with the feature.
PK_COM_ID	Long Integer	10	<not null>		PK	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a unique identifier of each hydrology drain element in the network to support NHD modeling.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.
NAME	Text	50	<null>			O		Common/Local Name for drain feature. Not intended for GNIS compatibility.
FK_WB_COM_ID	Long Integer	10	-9999		FK	R	NHD	Unique identifier of the waterbody that the network element (artificial path only) flows through. (-9999 FOR Not Applicable)
FK_NHD_RCH_COM_ID	Long Integer	10	<null>		FK	O	NHD	Unique identifier of the transport reach and coastline reach of which the network element is part. (Tie to NHD)

Feature Subtype Definitions (Domain)

CODE	DESCRIPTION CLASS (NHD _FTYPE)	*Description*
1600	Single Line Stream	Centerline of creek or stream with an average width LESS than 10’ wide.
1601	Hidden Single Line Stream	Centerline of creek or stream with an average width LESS than 10’ wide obstructed by an overhead feature.
1602	River / Stream	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
1603	Approximate River / Stream	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
1604	Lake	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
1605	Farm Pond	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
1606	Industrial Pond	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
1607	Reservoir	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
1610	Hidden River / Stream	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
1611	Natural Channel	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
2400	Detention Pond	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
2401	Retention Pond	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
2402	Paved Channel	A centerline abstraction to facilitate hydrologic modeling through open water bodies.
2403	Pipe / Culvert	A centerline abstraction to facilitate hydrologic modeling through open water bodies.

HYDROLOGY POINT SOURCE (Point)

Properties

Feature Dataset HYDROLOGY **Type:** Line **Topology/Network:** n/a
Feature Class HYDROLOGY _POINT_SOURCE

Description

Single points showing source of input into the hydrographic model.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
SHAPE	Geometry		Point			S	ArcMap	Internal geometry (assigned by ArcMap)
SYMBOL	Integer		0	Y		S	ArcMap/ Conversion Vendor	Internal attribute storing the symbol of the point feature (used by ArcMap)
ANGLE	Integer		0			S	ArcMap/ Conversion Vendor	Internal attribute storing the rotation angle for the symbol (used by ArcMap)
FEATURE_SUBTYPE	Text	30	1	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
2404	Storm Inlet	Catch basin or inlet located within a curb, road or parking feature.

UTILITY FEATURE DATASET

UTILITY POINT (Point)

Properties

Feature Dataset UTILITY
Feature Class UTILITY_POINT

Type: Point

Topology/Network: n/a

Description

Single point features showing location of visible utility features.

Attributes

Name (Alias)	Type	Length	Default Value	Domain	Index	System, Required, Optional	Data Source	Description
OBJECTID (FID)	Object ID		<not null>		Y	S	ArcMap	Internal object / feature ID number (assigned by ArcMap)
SHAPE	Geometry		Point			S	ArcMap	Internal geometry (assigned by ArcMap)
SYMBOL	Integer		0	Y		S	ArcMap/ Conversion Vendor	Internal attribute storing the symbol of the point feature (used by ArcMap)
ANGLE	Integer		0			S	ArcMap/ Conversion Vendor	Internal attribute storing the rotation angle for the symbol (used by ArcMap)
FEATURE_SUBTYPE	Text	30	1	Y	Y	R	Conversion Vendor	Assigned by Conversion Vendor, this attribute is a code identifying the feature. The description of the feature code is displayed.
CODE	Integer	4	0	Y		R	Conversion Vendor	Assigned by Conversion Vendor, this attribute identifies a general feature class code associated with each subtype. The description of the feature subtype is displayed.

Feature Subtype Domain Definitions

CODE	DESCRIPTION CLASS	*Description*
1901	Utility Pole	Point indicating a single feature.
1902	Street Light	Point indicating a single feature

Appendix H – Oklahoma County

Background

Oklahoma County is located in central Oklahoma and has a population of 718,633. The last time aerials were flown for Oklahoma County was 2015.

The County would like to have 552 miles flown in 2017.

They would like quotes on both 3” and 6” resolution.

Projection

All spatial data shall conform to the following projection:

Coordinates/Projection:	NAD_1983_StatePlane,
Zone:	Oklahoma_North_FIPS_3501_Feet
Horizontal Datum:	D_North_American_1983
Map Units:	US Survey Feet

Software Capability

SDE
Oklahoma County currently has ArcGIS 9.3.

Deliverables

The final ortho deliverables will be required to be in:
GeoTIFF, uncompressed
Mr.SID, compressed no greater than 15:1*
Lossless JPEG 2000
*Note: No re-compression of compressed data is acceptable. Image mosaics shall be equal in quality to image tiles.

Appendix I - City of Yukon

Background

The City of Yukon project covers an area of approximately 35.78 square miles. It has a population of approximately 23,000. There are 219 miles of streets, 9,601 address points, and approximately 14,571 buildings. Elevations within the City limits range from 1245 to 1402 ft above sea level. The City of Yukon contracted with Sanborn Map Company in 2015 to update its orthophoto, planimetric and topographic data. Yukon currently uses ArcGIS 10.3.

Aerial photography

.25 foot resolution color ortho photography (2015 date)

Planimetrics (2015 Date)

Hydrography – linear and polygon features
Street centerlines
Railroads
Building footprints – to include building heights
Edge of pavement
Driveways
Sidewalks
Vegetation (Tree mass)
Single Trees in the Right of Way
ParkingLots

Topography (2015 Date)

1-foot elevation contours
Spot elevation
Hydrologically Re-enforced Digital Terrain Model (DTM) – breaklines and masspoints

Respondents are directed to refer to the RFP, the following sections and Appendices A, B, and G of this RFP at the attachments to these sections for technical specifications deliverables, and therefore the responsibility of the Contractor to provide.

Objectives

Obtain updated color digital orthoimagery according to NMAS 1" = 50' standards - .25 pixel resolution.
Obtain updated Hydrologically Enforced DTM and 1-foot elevation contours.
Update existing GIS base datasets according to NMAS 1" = 50' standards.

Scope of Work

The Contractor shall produce and deliver to the City of Yukon photogrammetric change detection and update of the existing hydrological enforced Digital Terrain Model (HE-

DTM) with 1-foot contour database with labels and spot elevations, photogrammetric change detection and collection of the planimetric features to the standards stipulated in this section and elsewhere in this Request For Proposals. The Contractor shall furnish all materials, equipment, labor, management, insurance, postage, and transportation necessary to complete this work. The Respondent should propose the best procedures and commonly accepted professional techniques in order to assure complete compliance with this RFP.

All work required by the contract will be performed in conformance with these specifications and any contractual modifications to these specifications. Any deviation from the specifications, unless specifically authorized in writing by the GIS Project Manager, shall be sufficient cause for rejecting any part or all of the work performed.

Technical Specifications

It is expected that the deliverables from this contract shall have an overall average accuracy of NMAS for 1 inch = 50 feet. The respondent shall address the issue of the different accuracies of the other participating agencies as it relates to this project, and how they will maintain or improve the accuracy of the City of Yukon's current datasets.

Technical Specifications

The initial planimetric data and most recent aerials followed the National Map Accuracy Standards (NMAS). It is expected that the deliverables from this contract shall have an overall average accuracy of 1 inch = 50 feet. The respondent shall address the issue of the different accuracies of the other participating agencies as it relates to this project, and how they will maintain or improve the accuracy of the City of Yukon's current datasets.

Planimetric Features

The planimetric data to be updated is road edges (paved, unpaved, trail centerlines, sidewalks and driveways), parking lots, buildings, (minimum size is 12' x 10'), hydrology (including drainage features such as ditches), railroad centerlines, street centerlines, tree mass outlines, single trees in the R.O.W (of section line roads) and fences that follow along R.O.W lines and lots (parcels) to depict ownership. Sample digital data may be provided as an attachment. Respondents are also directed to refer to Appendix C – Attachment D of this RFP for a clear definition of the features and attributes that are considered deliverable, and therefore the responsibility of the Contractor to populate into the GIS database as part of the conversion effort. Respondents shall indicate in their technical plan of operations suggested data conversion techniques for the compilation of source map data.

Please see Appendix C – Attachment C for a map of building permits issued since the last flight in February 2015 to show where building has occurred. Since there continues to be development in the City, these areas should not be considered all-inclusive for the change detection portion of this RFP. The City has placed some building footprints from plans to depict construction in the building layer. These are identified by attributes. The

contractor shall update these structures based on an accurate representation from the photography. If there are any physical changes to any existing structure, due to additions or modifications, the contractor shall update the geometry of those structures as part of the change detection.

Pilot Study *For Planimetric data*. The Pilot Study is necessary for the City of Yukon to evaluate the process of detecting change and updating the planimetric data. The Pilot will be used to refine the scope of the remaining data conversion project in terms of quality, accuracy and, timeliness. An important component of this phase will be to clarify and test procedures used by the Contractor and the City to complete this project.

Selected Pilot Area The Pilot Study Area section (Section 29 Township 12 North, Range 5 West) was chosen to be the pilot in this conversion process because of its development. The Pilot Study Area is a one square mile section with approximately 398 parcels with approximately 26 building permits.

Pilot Study Process In the City of Yukon's conversion plan, the Contractor will be supplied with source data to use in the conversion process. The source material for this pilot will be a version of the planimetric feature dataset. The pilot study process will give the Contractor and the City of Yukon the opportunity to work with the source data and to identify and resolve any questions or problems that arise as actual data conversion is initiated. It gives both parties, prior to full production, the time needed to implement procedures and resolve problems reducing delays and reworks.

Scale and Accuracy of Planimetric Data The final scale will be 1" = 50' and the respondent shall meet the National Map Accuracy Standard for such scale mapping. All spatial data shall conform to the following:

Coordinates/Projection:	State Plane Coordinate System,
Zone:	Oklahoma North, FIPS Zone 3501
Horizontal Datum:	NAD83
Map Units:	Feet

Topographic Data – Optional

The existing one-foot contour topographic mapping data was collected LiDAR data. The City of Yukon's Stormwater/Drainage Engineering division requires a hydrologically enforced DTM to ensure a high level of detail with regards to the breaklines for the generation of one foot contours. The contractor will update the 3D breaklines at abrupt changes in slope. Breaklines will be collected at appropriate areas, produced by either naturally or man-made features. The contractor will also digitize masspoints in addition to breaklines, taking careful note of high and low spots. Respondents shall indicate in their technical plan of operations suggested data conversion techniques for the compilation of source map data.

The City is requesting that respondents address the ability to support the update of 1 foot contours with the aforementioned requirements of it being drainage enforced, as well as it meeting the vertical accuracy of one-half of the contour level.

The respondents should refer to Appendix C – Attachment D for the data dictionary and required geodatabase and Autocad DWG formats of the topographic data.

Pilot Study *For Topographic data*. The Pilot Study is necessary for the City of Yukon to evaluate the generation of 1-foot contour from the Digital Terrain Model. The Pilot will be used to refine the scope of the remaining data conversion project in terms of quality, accuracy and, timeliness. An important component of this phase will be to clarify and test procedures used by the Contractor and the City to complete this project.

Selected Pilot Area The Pilot Study Area section (Section 29 Township 12 North Range 5 West) was chosen to be the pilot in this conversion process because of its development. The Pilot Study Area is a one square mile section with approximately 398 parcels with approximately 26 building permits.

Pilot Study Process The pilot study process will give the Contractor and the City of Yukon the opportunity to work with the source data and to identify and resolve any questions or problems that arise as actual data conversion is initiated. It gives both parties, prior to full production, the time needed to implement procedures and resolve problems reducing delays and reworks.

Scale and Accuracy of Topographic Data The respondent shall detail how the contours will be generated and verified to ensure the vertical accuracy of one-half the contour level. The respondent shall also detail the possibility of meeting ASPRS Standard for Class 1 Map Accuracy for such scale mapping that supports 1 foot contour. Otherwise, it shall meet the National Map Accuracy Standard for such scale mapping. All spatial data shall conform to the following:

Coordinates/Projection:	State Plane Coordinate System,
Zone:	Oklahoma North, FIPS Zone 3501
Horizontal Datum:	NAD83
Elevation Datum:	NAVD88
Ellipsoid:	GRS83
Map Units:	US Survey Feet

Attribute Data All required nongraphic attributes for the geodatabase are identified in Appendix C – Attachment D of this RFP. In the event that necessary attribute data is missing, confused, or unreadable on any source material, the Respondent will contact the City of Yukon GIS Project Manager for assistance. In cases concerning minor irregularities in the data or source maps where the answer is obvious or defined by precedent, the Contractor may act to resolve the problem on his own initiative thereby reducing work stoppages and interruptions. When this occurs, the City of Yukon GIS Project Manager shall be informed of the action that the Contractor took within 24 hours and the Contractor will document how the problem was resolved.

The City of Yukon is seeking firm fixed prices for the performance and delivery of photogrammetric change detection and collection of the Digital Elevation Model (DEM),1 foot contour interpolation photogrammetric change detection and collection of the planimetric features. Prices shall cover all necessary work, materials, supplies, data preparation, entry, translation and quality control, etc. Reproduction, travel and other direct and indirect costs should also be included.

It is the responsibility of the Respondent to verify any count information used in estimating the cost of conversion. These estimates are based on the most current information available.

Deliverables

Cost Worksheet in Section 10 of the RFP must be completed.

Firm Fixed Unit Costs

City of Yukon: (35.78 miles @ 3")

Digital Orthophotos

1. Aerial Triangulation Report
2. A set of color digital orthos in georeferenced TIFF format (uncompressed)
3. A full citywide color MrSID mosaic (40:1 compression)

Planimetrics/GIS Base Data – see Appendix C – Attachment D for geodatabase design

Planimetric Change Detection & Collection - Pilot Study Area Cost
Planimetric Change Detection & Collection - Remainder of the City

Topography/Lidar - Optional Mapping Deliverables:

Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours- Pilot Area
Change Detection, Collection and interpolation of the HE-DTM into 1 foot Contours - Remainder of the City

1. Vertical Accuracy Report
2. Topographic databases in ArcGIS GeoDatabase and AutoCAD dwg formats
3. ASCII Digital Terrain Model (DTM) data
4. Hydro Flatten, bare earth DEM
5. Raw Point File fully compliant with LAS 1.4

Metadata

1. Metadata must be included in all geodatabases deliveries for all feature classes using the FGDC format.
2. Metadata should include: author information, a description of the dataset, data capture techniques, definitions for all fields, subtypes and domain code

descriptions, statement of accuracy, compilation scale, and dates of the completed compilation.

Appendix J – Oklahoma City

Background

Oklahoma City is located in central Oklahoma and has a population of 718,633. The last time aerials were flown for Oklahoma County was 2015.

The City would like to have 712 square miles flown in 2017.
The City would also like 6.85 miles of true orthoimagery flown in 2017.

They would like a quote on 6” resolution.

Projection

All spatial data shall conform to the following projection:

Coordinates/Projection:	NAD_1983_CORS96 StatePlane,
Zone:	Oklahoma_North_FIPS_3501_Feet US
Horizontal Datum:	D_North_American_1983
Map Units:	US Survey Feet

Software Capability

SDE
Oklahoma City currently has ArcGIS 10.1

Deliverables

The final ortho deliverables will be required to be in:
GeoTIFF, uncompressed
Mr.SID, compressed no greater than 15:1*
Lossless JPEG 2000
*Note: No re-compression of compressed data is acceptable. Image mosaics shall be equal in quality to image tiles.

Appendix K - Metadata Requirements

Metadata shall be produced in a format (FGDC CSDGM (TXT) or FGDC CSDGM) that can be imported into the Metadata Editor in ArcCatalog. At minimum, metadata shall include the following information:

Identification_Information:
  Citation:
    Citation_Information:
      Originator:
      Publication_Date:
      Title:
      Geospatial_Data_Presentation_Form:
      Online_Linkage:

Description:
    Abstract:
    Purpose:

Time_Period_of_Content:
    Time_Period_Information:
      Single_Date/Time:
        Calendar_Date:
    Currentness_Reference:

Status:
    Progress:
    Maintenance_and_Update_Frequency:

Spatial_Domain:
    Bounding_Coordinates:
      West_Bounding_Coordinate:
      East_Bounding_Coordinate:
      North_Bounding_Coordinate:
      South_Bounding_Coordinate:

Keywords:
    Theme:
     Place:

Access_Constraints:
Use_Constraints:
Native_Data_Set_Environment:

Data Quality:
   Positional Accuracy:
      Horizontal Accuracy:

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Planar:
      Grid_Coordinate_System:
        Grid_Coordinate_System_Name:
        State_Plane_Coordinate_System:

SPCS_Zone_Identifier:
Lambert_Conformal_Conic:
Standard_Parallel:
Standard_Parallel:
Longitude_of_Central_Meridian:
Latitude_of_Projection_Origin:
False_Easting:
False_Northing:
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method:
Coordinate_Representation:
Abscissa_Resolution:
Ordinate_Resolution:
Planar_Distance_Units:
Geodetic_Model:
Horizontal_Datum_Name:
Ellipsoid_Name:
Semi-major_Axis:
Denominator_of_Flattening_Ratio:

Entity Attribute:
Detailed Description:
Entity Type:
Label:
Definition:
Definition Source:
Attribute:
Definition:
Definition Source:

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization:
Contact_Person:
Contact_Position:
Contact_Address:
Address_Type:
Address:
State_or_Province:
Postal_Code:
Contact_Voice_Telephone:
Contact_Facsimile_Telephone:
Contact_Electronic_Mail_Address:
Hours_of_Service:
Distribution_Liability:

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
Logical_Consistency_Report:
Completeness_Report:
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:

Lineage:
  Source_Information:
    Source_Citation:
      Citation_Information:
        Originator:
        Publication_Date:
        Title:
        Geospatial_Data_Presentation_Form:
    Source_Scale_Denominator:
    Type_of_Source_Media:
    Source_Time_Period_of_Content:
      Time_Period_Information:
        Range_of_Dates/Times:
          Beginning_Date:
          Ending_Date:
      Source_Currentness_Reference:
    Source_Citation_Abbreviation:
    Source_Contribution:

Process_Step:
    Process_Date:
    Process_Description:
    Process_Contact:
      Contact_Information:
        Contact_Person_Primary:
          Contact_Person:
          Contact_Organization:
        Contact_Address:
          Address_Type:
          Address:
          City:
          State_or_Province:
          Postal_Code:
          Country:
        Contact_Voice_Telephone:
        Contact_Facsimile_Telephone:
        Contact_Electronic_Mail_Address:
        Hours_of_Service:
  Cloud_Cover:

Metadata_Reference_Information:
  Metadata_Date:
  Metadata_Review_Date:
  Metadata_Contact:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization:
        Contact_Person:
      Contact_Address:
        Address_Type:
        Address:
        City:
        State_or_Province:
        Postal_Code:
      Contact_Voice_Telephone:

Contact_Facsimile_Telephone:
Contact_Electronic_Mail_Address:
Hours_of_Service:
Metadata_Standard_Name:
Metadata_Standard_Version:
Metadata_Use_Constraints:

Appendix L - Forms

All forms in this section must be submitted with the proposal.

All forms associated with this RFP are to be delivered to (**ACOG**) **Association of Central Oklahoma Governments, 4205 N Lincoln Blvd., Oklahoma City, OK, 73105-5210.** ACOG will distribute the Proposals to the members of COAGA 2015.

1. Non-collision Affidavit – City of Edmond
2. Non-collision Affidavit – City of Del City
3. Non-collision Affidavit – City of Midwest City
4. Non-collision Affidavit – City of Moore
5. Non-collision Affidavit - Norman
6. Non-collision Affidavit – Oklahoma County
7. Non-collision Affidavit – Yukon
8. Non-collision Affidavit – Oklahoma City