TEXAS DEPARTMENT OF TRANSPORTATION

GENERAL SERVICES DIVISION

SPECIFICATION NO.
TxDOT 905-05-40*
REVISED: APRIL 2009

AERIAL PHOTOGRAPHY SERVICES

PUBLICATION

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1. SCOPE: This solicitation is an Invitation for Bid (IFB) for aerial photography and related services to support statewide and county projects to assist TxDOT in creating high quality digital maps to be used for designing transportation assets. The aerial photography services include but are not limited to: Flying the photography mission, photographing the project, processing the film and producing contact prints.

2. DEFINITIONS OF TERMS AND ACRONYMS

   2.1. ABGPS – Airborne GPS.

   2.2. DEMs – Digital Elevation Models.

   2.3. DTMs – Digital Terrain Models.

   2.4. FAA – Federal Aviation Administration.

   2.5. HIGH ALTITUDE AREA COVERAGE – Generally flown at 12,000 to 15,000 feet above the mean terrain to obtain a 1 inch = 2,000 feet or 1 inch = 2,500 feet photo scale.

   2.6. HIGHEST AIRCRAFT OPERATING ALTITUDE – Highest altitude at which the aircraft provides a stable platform for satisfactory photography, expressed in feet above mean sea level.

   2.7. LIDAR TECHNOLOGY – Light Detection and Ranging Technology.

   2.8. LOW ALTITUDE MAPPING – Generally flown at 1,500 feet above the mean terrain to obtain a 1 inch = 250 feet photo scale.

   2.9. MEAN TERRAIN – The average elevation of the primary transportation corridor.

   2.10. MEDIUM ALTITUDE AREA COVERAGE – Generally flown at 6,000 feet above the mean terrain to obtain a 1 inch = 1,000 feet photo scale.

* This Specification Supersedes Specification TxDOT No. 905-05-40, Revised December 2008.

2.11. PROJECT PHOTO LENGTH – The distance, in miles, over which photographs are required to be taken in order to complete the Task Order.

2.12. SRN – Service Request Number.

2.13. STANDBY TIME – Time that the flight mission is delayed by circumstances beyond the control of the pilots during the mission.

2.14. TILT – Departure of the aerial camera axis from the vertical line at the time of exposure.

2.15. TRANSIT DISTANCE – The distance in miles from an authorized airport to the center of the project.

2.16. USGS – United States Geological Survey.

3. APPLICABLE LAWS AND STANDARDS: The vendor shall provide the specified service requirements in accordance with all federal, state and local applicable laws, standards and regulations necessary to perform the services, including, but not limited to:

3.1. FAA Regulations.

3.2. USGS Optical Science Laboratories.

4. BACKGROUND: TxDOT has produced very high quality digital mapping products for transportation design using processes developed over several years. As a result, TxDOT is a recognized leader in the production of highly accurate DTMs. TxDOT has expended considerable resources in the perfection of these processes and strives for continuous improvement of DTMs.

5. RESPONDENT QUALIFICATIONS: The respondent shall:

5.1. Be a company engaged in the business of providing aerial photography and photographic processing for a minimum of five years within the last seven years. Recent start-up businesses do not meet the requirements of this solicitation. A start-up business is defined as a new company that has no previous operational history or expertise in the relevant business and is not affiliated with a company that has that history or expertise.

5.2. Conduct an aerial photography test flight in accordance with Schedule 2 – Aerial Photography Test Flight, and submit the results with the solicitation.

5.3. Be in good financial standing, not in any form of bankruptcy, current in payment of all taxes and fees such as state franchise fees. TxDOT reserves the right to request a copy of the respondent's audited or un-audited financial statement.

When financial statements are requested, TxDOT will review the respondent's audited or un-audited financial statement to this solicitation in accordance with Texas Government Code, Title 10, Subtitle D, Section 2156.007 to evaluate the sufficiency of the respondent's financial resources and ability to perform the contract or provide the service required in the solicitation. TxDOT will be the sole judge in determining the sufficiency of the respondent's financial resources and ability to perform the contract or provide the service. Factors to be reviewed include:

5.3.1. Balance sheets.

5.3.2. Net working capital.

5.3.3. Current asset ratio.

5.3.4. Liquidity ratio.

5.3.5. Auditor(s) notes.

5.3.6. Any notes to the financial statements.

6. KEY PERSONNEL QUALIFICATIONS: The respondent shall provide the following key personnel.

6.1. PROJECT MANAGER (PM): The respondent shall designate a PM with a minimum of five years experience within the last seven years in managing the production of aerial photography projects.

6.2. CHIEF PILOT: The Chief Pilot shall have a minimum of three years of flying experience within the last five years and one year experience within the last three years flying for low altitude mapping projects. Have a current and valid Pilot's License issued by the FAA.

6.3. CHIEF CAMERAPERSON: The Chief Cameraperson shall have a minimum of one year of experience within the last three years photographing low altitude aerial projects.

6.4. CHIEF PHOTOGRAPHIC TECHNICIAN: The Chief Photographic Technician shall have a minimum of one year of experience within the last three years developing aerial film used for mapping projects.

7. VENDOR REQUIREMENTS: The vendor shall:

7.1. Adhere to the TxDOT Terms and Conditions identified on the solicitation.

7.2. Provide camera calibration reports necessary to meet requirements of the specified services throughout the term of the purchase order.

7.3. Produce contact prints and other products in a photographic laboratory (Ref. Para. 16.).

8. KEY PERSONNEL REQUIREMENTS

8.1. The PM's primary responsibility shall be the day-to-day operation of the service in accordance with the requirements of the purchase order.

8.2. The PM shall be a permanent staff employee and shall serve as a constant primary point of contact for TxDOT.

9. SERVICE REQUIREMENTS: The vendor shall:

9.1. Conduct flight planning.

9.2. Coordinate flight date and time with the TxDOT designated point of contact.

9.3. Complete the flight within three calendar days from the proposed flight date depending on weather conditions. Any necessary changes to the flight completion dates will be approved by the designated TxDOT representative.

9.4. Fly the project and issue a Flight Log.

9.5. Photograph the project as defined in the specifications.

9.6. Develop the film, provide and assemble a set of check prints for TxDOT's review.

9.7. Deliver the developed film, Flight Log and the assembled check prints within two to four calendar days of the date of the flight. Deliver the materials to the address on the purchase order.

9.8. Collect, process and deliver LIDAR Data in DEM and ASCII XYZ files. Surface data collected from LIDAR Technology shall be delivered in a Microstation 3d DGN format.

9.9. Collect, process and deliver ABGPS data. ABGPS requirements shall be determined by TxDOT for each project.

10. AERIAL PHOTOGRAPHY TASK ORDER AND PHOTOGRAMMETRIC SERVICES FORM: TxDOT will issue a Task Order (Ref. Attachment B - Aerial Photography Task Order) to initiate the aerial photography mission including a Photogrammetric Services Request Form (Ref. Attachment C – Section 1 – Mapping Photographs, Section 2 – Non- Mapping Photographs or Section 3 – Photographic Laboratory) detailing specifics of aerial photography missions for the specific TxDOT location. TxDOT reserves the right to modify task orders as required.

11. MOBILIZATION FEE: TxDOT will pay a mobilization fee to the vendor for preparing the aircraft and crew for each flight. If more than one project is accomplished on the same flight only one mobilization fee will be paid and the costs will be prorated over the number of projects completed during that flight.

12. AIRCRAFT: The vendor shall be responsible for operating and maintaining the aircraft used for this service in accordance with the FAA regulations and the Civil Aeronautics Board.

12.1. The design of the aircraft shall be such that when the camera is mounted with all its parts within the outer structure, an unobstructed view is obtained, shielded from the exhaust gases, oil, effluence and air turbulence. If a glass window is interposed between the camera and the ground to be photographed, the window shall be of optical quality, free of scratches and blemishes, and shall not degrade the resolution or accuracy of the camera. The physical characteristics of the window shall be submitted to TxDOT within ten days after award of a purchase order.

12.2. The aircraft shall have a proven operating altitude with operating load, crew, camera, film, oxygen and other required equipment of not less than the highest altitude required to secure the specified photography. At the flight altitude required for this photography, the aircraft shall have flight characteristics to provide a stable platform for the operation of the camera and shall not degrade the orientation of the camera or the resolution of the photographic image.

12.3. STAGING OF AIRCRAFT AND TRANSIT DISTANCE: Aircraft shall be staged, hangered, and maintained at an airport chosen by the vendor. TxDOT will pay transit distance costs only from an authorized airport. TxDOT may designate additional authorized Texas airports.

12.3.1. If additional airports are authorized, transit distance will be calculated from the closest authorized airport to the center of the project.

12.3.2. If more than one project is to be completed during the same flight, TxDOT will pay transit distance costs from the authorized airport to the center of the first project, including distances between additional projects and back to the authorized airport.

12.4. FLIGHT DATE COORDINATION: The actual flight date shall be coordinated between a designated representative of the flight crew and a point of contact designated by TxDOT.

12.5. ATMOSPHERIC CONDITIONS: Unless pre-approved by TxDOT, photography shall not be taken unless visibility is greater than 10 miles and sustained winds are less than 20 mph. Wind gusts shall not be more than 40% of the sustained winds. Photography shall not be accepted when the ground is obscured by snow, haze, fog, smoke, dust, clouds or cloud shadows. The sun shall be unobscured so that objects on the ground cast sharp shadows.

13. CAMERA: The camera shall be of one of the following types:

13.1. Wild RC 30 or Zeiss RMK TOP: For response evaluation purposes, the order of camera preference is: 1) Wild RC 30; 2) Zeiss RMK TOP. The camera shall be precision vertical format aerial mapping type which takes approximately 230 mm X 230 mm aerial photographs compatible with the stereoscopic mapping instruments used by TxDOT.

13.1.1. The lens shall have a calibrated focal length of 153 mm, plus or minus 3 mm. The camera shall be mounted in the aircraft in such a manner that the film advances parallel with the line of flight allowing uncut film negatives to be viewed stereoscopically.

13.1.2. The camera shall be equipped with forward image motion compensation (FMC). The lens shall have an area weighted average resolution (AWAR) of at least 85 line pairs per millimeter as determined by the USGS Report of Calibration.

13.2. FILTER: A glass light filter with a metallic anti-vignetting coating shall be used. The filter shall have surfaces parallel within 10 seconds of arc and its optical quality shall be such that its addition to the camera shall not cause an undesirable reduction in image definition. The filter shall be the same filter used for the calibration report and shall be compatible with the film used.

13.3. SHUTTER: The camera shall be equipped with a between- the- lens shutter with variable speed settings such that, in conjunction with flight height and aircraft speed, the camera produces high definition photographs at full aperture.

13.4. MAGAZINE PLATEN: The camera shall be equipped with a means of flattening the film at the instant of exposure.

13.5. FIDUCIAL MARKS: The camera lens shall produce eight fiducial marks that are clear and well defined on each negative. The marks shall be located in each corner and at the center of each side.

13.6. STEREOMODEL FLATNESS: The average departure from flatness (at negative scale) for two computer simulated stereo models shall be 10 microns or less.

13.7. CALIBRATION REPORT: Each camera used for aerial photography shall have a calibration report prepared by the USGS Optical Science Laboratory, which reflects the current condition of the camera.

13.7.1. Calibration of the camera equipment shall have been completed within the last three years from the opening date of the solicitation.

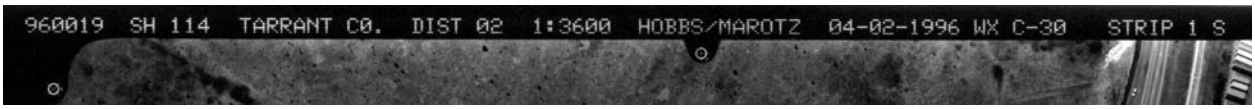
13.7.2. Cameras shall be re-calibrated by the USGS when serviced and a USGS calibration report provided to TxDOT throughout the term of the purchase order. The report shall be based on the laboratory's standard tests and measurements, made after complete assembly of all parts of the camera unit, with the light filters in place.

13.7.3. The USGS camera calibration report shall reflect the current combination of the camera filter, lens cone, camera body and magazine(s) submitted for calibration.

13.8. FLIGHT DATA ANNOTATION: The camera shall provide for recording of flight data annotation on each film exposure. This data shall come from two sources: The camera itself and an on-board personal computer.

13.8.1. At a minimum, the camera information shall consist of a clock, an exposure counter, film speed, shutter speed, f/stop, and selected overlap.

13.8.2. Flight data shall include, but not be limited to, the six digit SRN, highway or project name, county, district, photo scale (e.g., 1 inch = 250 feet), and date. For future improvements to the photogrammetry process and for airborne GPS surveys, the annotation process shall record, on the edge of each exposure, the longitude and latitude of the exposure's center. Reference example below:



14. CAMERA MOUNT: The camera mount shall compensate for the aircraft's pitch, roll, and yaw. A 3 Axis gyro stabilizing camera mount is preferred but not required.

15. FLIGHT LOG: A Flight Log shall be recorded for each Task Order. The Flight Log shall indicate the flight date, start time, end time, crew, aircraft, atmospheric conditions, flight strip information, SRN, film type and emulsion number, and camera settings (eafs, f/stop, shutter speed). The Flight Log shall note any significant adverse flying conditions (turbulence, clouds, etc.) and fully document any standby time.

15.1. Standby time may be weather related or dictated by air traffic control and may be accumulated in the air or at an airport near the project.

15.2. Standby time shall be documented by the start time, end time, total duration, location (in the air or at an airport), and reason.

15.3. FLIGHT LINES

15.3.1. TxDOT will provide the vendor with flight maps that describe the exact flight lines. All flying shall be done in strict conformance with the exact location on the flight maps. The flight shall not deviate right or left from the alignment (plotted on the flight map) by a ground distance that is greater than 16% of the required flying height above mean elevation. In the event that the flight maps are incorrect and a re-flight is required, TxDOT will pay for the re-flight.

15.3.2. Flight line lengths shall be continuous and unbroken. If approved by TxDOT, certain flight lines may be segmented into two or more flight lines at different flight heights to adhere to photo scale requirements over varying terrain.

15.4. RE-FLIGHTS: Flights consisting of 15 or more rejected exposures shall require a re-flight of the entire flight line. Flights consisting of 14 or less rejected exposures shall require a re-flight for that portion of the flight line.

15.4.1. All re-flights shall be centered on the plotted flight line(s) and shall be retaken with the same camera system as used in the original photography.

15.4.2. Re-flights for a portion of a flight line being replaced, shall provide at least 100% overlap with accepted adjoining exposures in the same flight line.

15.4.3. Re-flights for mapping photography shall be completed within three calendar days, depending on weather conditions. Re-flights for non-mapping photography shall be completed within seven calendar days, depending on weather conditions.

15.5. FLIGHT HEIGHT: The nominal photo scale and required flight height above mean terrain will be noted on the flight maps. The departure above or below the required height above mean terrain to achieve the specified camera negative scale shall not exceed 5%.

15.6. IMAGE OVERLAP: The image overlap shall provide full stereoscopic coverage.

15.6.1. Flight Line Overlap: The overlap in line of flight shall average 60% plus or minus 2%. Flight line overlap of less than 55% or more than 65% in one or more exposures may be cause for rejection of the flight line or exposures in which such deficiency or excess of overlap occurs. Wherever flight lines intersect, photography on the beginning of the second flight line shall overlap the photography of the first flight line by at least 100%.

15.6.2. Side lap: Any flight line with an exposure having sidelap (overlap of parallel strips of vertical photography) of less than 20% or more than 40% may be rejected. Sidelap, per strip, shall average 30%, plus or minus 5%.

15.7. AIRCRAFT TILT AND CRAB FUNCTION: Tilt shall not exceed 4 degrees for any exposure and shall not exceed 5 degrees between any two successive exposures. Crab as measured from the line of flight and as indicated by the principal points of the consecutive photographs, shall not exceed 5 degrees between any two consecutive photographs.

15.8. BLACK AND WHITE FILM: For low altitude mapping projects, and medium and high altitude area coverage, the vendor shall provide and use a black and white aerial film with extremely high resolving power (more than 200 line pairs/mm at 1000:1 contrast), extremely fine grain (not more than 20 RMS granularity), intermediate speed, intermediate contrast, extended red sensitivity, and a 4 mil polyester base. Kodak Panatomic-X Aerographic II film 2412 or AGFA Aviphot Panchromatic PAN 80 PE-1 shall be the preferred black and white film used year round.

15.9. COLOR FILM AND COLOR INFRARED: TxDOT's approved color film is AGFA Aviphot Color X-100 PE-1 (Natural Color) and Kodak Aerochrome III Infrared Film 1443 (color Infrared).

NOTE: TxDOT reserves the right to review, evaluate and approve other film for use during the term of the purchase order. TxDOT will work with the awarded vendor(s) to transition or develop new guidelines for acceptance of film substitutions.

15.10. EXPOSURE: Exposure shall be performed using accepted photographic practices to meet TxDOT's density aim specifications. Photography shall not be undertaken when the sun angle is less than 30 degrees above the horizon. Photography shall not be undertaken when the shadow of the airplane is falling onto the center area of the project to be mapped or when shadows of buildings or trees obscure major portions of the area to be mapped. If a project requires using more than one roll of aerial film or a re-flight involving adding to existing film, an equivalent film type and emulsion number shall be used. In order to reduce image motion, an effective aerial film speed shall be used that will affect a shutter speed of 1/300 of a second or faster. The project film shall not have more than 5% of the frames containing image motion. The project film shall not have more than two consecutive frames containing image motion.

16. PHOTOGRAPHIC LABORATORY SERVICES: The vendor shall provide photographic laboratory services and products as detailed below on an as needed basis to include but not be limited to:

16.1. Develop the exposed film.

16.2. Provide the contact prints.

16.3. Provide the titled film for archiving purposes.

16.3.1. Photographic Processing: Development of aerial negatives shall be in accordance with the manufacturer's recommendations in order to meet TxDOT density aims. The aerial film negatives shall be fixed and washed for archiving purposes. The film shall remain stable for making enlargements and contact prints for up to 100 years. The aerial film shall be free of dust, processor artifacts, fingerprints, age marks, banding, streaks, scratches, static marks, chemical stains, tear, and stress marks. The film shall not be stretched, distorted, or rolled tightly at any time. There shall be no deficiencies which would interfere with the intended use of the aerial film. The negatives shall be clear and sharp in detail and of fine grain quality. Reducing or intensifying of negatives is not permitted after the film is developed.

16.3.2. Development shall include the exposure of a 21 step sensitometric wedge onto each roll of aerial film to be developed. The 21 step sensitometric wedge shall be used as a control for the testing of proper development.

16.3.3. Developed aerial film shall be delivered on a film spool size of 5-1/4 inches in diameter in a moisture proof plastic 5-3/4 inches aerial film can. All film shall be cleaned before shipment and carefully packed and shipped in a shipping box. Film containers shall be labeled showing the SRN, project name, and date flown.

16.3.4. Density Measurements for extremely high resolution photography: All aerial film negatives shall be subject to testing by TxDOT. A transmission densitometer and microscope shall be used to examine developed aerial film. The purpose of this testing is to ensure high quality film for producing contact prints, and enlargements. The film density measurement goals for low and medium altitude mapping photography exposed and developed onto an extremely high resolution aerial film, are: Gross base+fog of not more than 15 density units, low density image readings aim of .25 density units and between a range of .20 and .35 density units. A high density image readings aim of 1.65 and between a range of 1.55 and 1.75 density units. Upon delivery of film, the vendor shall provide the average density readings for base+fog, low density, and high density of the developed film.

16.3.5. Image Gamma: The goal for the effective working image gamma is 1.20, within a range of 1.00 to 1.30. TxDOT will reject the film if TxDOT determines the density readings and gamma, taken as a whole, will result in unusable film.

16.3.6. Contact Prints: The aerial contact prints shall be printed on an electronic dodging contact printer. The contact printer shall provide adequate dodging and good contact between the negative and photographic paper. Contact printers such as EPC UG – 1 and LogE MarkIV are recommended.

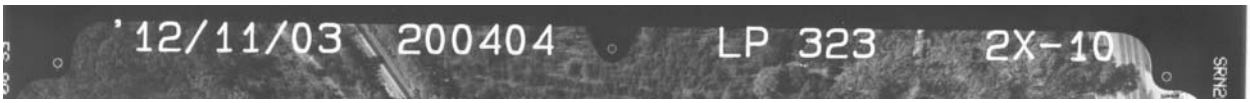
16.3.6.1. Contact prints shall be exposed emulsion to emulsion and shall be printed on medium contrast, medium weight, RC type, matte surface, 9.5 inch (241 mm) wide photographic paper, such as Kodak Kodabrome II RC N2M or equivalent.

16.3.6.2. The aerial negatives shall be exposed and developed so that the contact prints are of medium contrast and the high density areas, containing usable detail, are recorded in the contact print as visible detail. Low density shadow areas, containing usable densities, are recorded as visible shadow detail. The unexposed photographic paper base fog shall have a white appearance.

16.3.6.3. Contact prints shall be trimmed with an approximate 10 mm border on all sides. All prints shall be clear and free from chemicals, stains, blemishes, uneven spots, air bells, light fog, creases, scratches, and any other defect that would interfere with their use or in any way decrease the usefulness. Trimmed prints shall be delivered in a smooth flat condition.

16.3.7. Aerial Enlargements: Aerial enlargements shall be made on a medium contrast, medium weight, semi-mat, RC type, photographic paper, such as Kodak Kodabrome II RC or TxDOT approved equal. Enlargements shall be made on equipment that will hold the paper flat and allow scaled enlargements. Enlargements shall be printed to the scale requested.

16.4. TITLING AND LABELING: The final aerial film negatives shall be labeled with permanent ink on the backing side, so that the prints are labeled with readable and properly positioned text. The stamped title information shall be clearly visible approximately 1/8 inch into the image area, perpendicular to the line of flight. The stamped title information shall be in letters (not less than 1/4 inch and not greater than 3/8 inch tall), to be easily readable in a darkroom. The following information shall be placed on one line reading left to right, on all negatives: flight date of photography, the SRN, the project name, and the TxDOT photo numbering system. Details on the components of the TxDOT photo numbering system will be provided to the vendor upon award of the purchase order. Cross flights shall be labeled with an "X" after the strip number. Parallel flights shall be labeled with a "P" after the strip number. Reference example below:



16.5. LIDAR TECHNOLOGY: TxDOT may require the capture and delivery of DEMs collected utilizing LIDAR Technology. The aircraft shall be equipped with an Inertial Measurement Unit (IMU), GPS receivers to record the position of the camera at the time of exposure and to collect the returned pulses of the laser.

16.6. 3DEM: The DEM shall provide complete coverage of the paneled flight line or the left and right coverages of the project area required.

16.6.1. The DEM shall have a verifiable, absolute horizontal accuracy of 6 inches but not to exceed 1 foot and a verifiable, absolute vertical accuracy of 3 inches but not to exceed 6 inches for low altitude projects.

16.6.2. The surface data of the DEM shall be delivered using the North American Datum 1983 (NAD 83) and converted to survey feet. The surface adjustment factor or the project adjustment factor shall be applied and delivered in a Microstation 3d DGN Format. The ground coordinates shall be delivered in an ASCII X, Y, and Z file format.

16.6.3. For non-controlled flights and high altitude flights the accuracy shall be relative to the flying altitudes.

17. VENDOR DELIVERABLES: The vendor shall submit to the designated TxDOT representative (Ref. Para. 9.7.):

17.1. Developed aerial film, including the 21 step sensitometric wedge.

17.2. Check prints.

17.3. A CD containing the DEM data (ASCII X, Y, and Z ground coordinates) and the Microstation 3d DGN file (Ref. Paras. 9.8. and 16.6.2.).

17.4. Flight Log.

18. PERSONNEL CONTINUITY AND REPLACEMENT

18.1. TxDOT recognizes that events beyond the control of the vendor such as the death, physical or mental incapacity, long-term illness, or the voluntary termination of employment of the PM, and any key respondent personnel will require the vendor propose a replacement. In the event such a replacement is necessary, vendor agrees that personnel shall not begin work on the project without prior written approval from TxDOT.

18.2. The vendor agrees that the PM assigned to the project shall remain available for the entirety of the project throughout the term of the purchase order as long as that individual is employed by the vendor.

18.3. If TxDOT determines the PM, or other key personnel is unable to perform in accordance with the service requirements or to communicate effectively, the vendor shall immediately remove that person.

18.4. Proposed replacement personnel shall meet minimum qualifications and have experience comparable to the person(s) being replaced. Replacement personnel shall be provided at no additional cost to TxDOT. Resume(s) and reference(s) may be requested for the proposed replacement(s). TxDOT may reject any replacement if references or past working performance is questionable or unfavorable. TxDOT will be the sole judge of the qualifications of the proposed replacement personnel.

19. QUALITY ASSURANCE PLAN: The vendor shall provide a comprehensive, continuous, and measurable quality assurance plan. The plan shall include:

19.1. Maintenance of aircraft per FAA standards.

19.2. Calibration of cameras.

19.3. Procedures to periodically measure and report quality performance to TxDOT throughout the term of the purchase order.

19.4. How often the vendor conducts internal audits and engages external audit firms to conduct audits of its operations.

19.5. Controls to be used within the project to ensure quality and consistency.

20. VENDOR PERSONNEL SAFETY: The vendor shall provide all required safety equipment and instruct personnel to observe all safety policies, rules and requirements at all times.

21. SUBCONTRACTING

21.1. Subcontractors providing service under the purchase order shall meet the same service requirements and provide the same quality of service required of the vendor.

21.2. No subcontract under the purchase order shall relieve the primary vendor of responsibility for the services.

21.3. The vendor shall be the primary contact for TxDOT and subcontractor(s).

21.4. The vendor shall manage all quality and performance, project management, and schedules for subcontractors. The vendor shall be held solely responsible and accountable for the completion of all work for which the vendor has subcontracted.

21.5. TxDOT retains the right to check subcontractor's background and make a determination to approve or reject the use of submitted subcontractor(s). Any negative responses may result in disqualification of the subcontractor.

21.6. TxDOT reserves the right to request the removal of vendor's subcontractor staff deemed unsatisfactory by TxDOT.

21.7. Subcontracting shall be at the vendor's expense.

21.8. During the term of the purchase order, if the vendor determines a need for a subcontractor change, TxDOT shall be notified in writing by the vendor within seven days of any proposed change. The vendor shall be required to provide references and work history for any proposed subcontractor to TxDOT. No change will be allowed without written authorization by TxDOT.

21.9. SOLICITATIONS OVER $100,000: TxDOT will make an initial determination of whether subcontracting is probable. It is the respondent's determination if they choose to subcontract any of the work under this purchase order with a Texas Certified Historically Underutilized Business (HUB) or other businesses.

21.9.1. If TxDOT has determined that subcontracting opportunities are probable, the class and items in which HUBs may be registered will be noted in the solicitation.

21.9.2. The respondent shall identify all proposed HUB and other subcontractors at the time of response submittal. The required forms with video instructions can be found at the following website:

http://www.window.state.tx.us/procurement/prog/hub/hub-subcontracting-plan/

21.10. HUB SUBCONTRACTING PLAN (HSP) PRIME CONTRACTOR PROGRESS ASSESSMENT REPORT: After award of the purchase order, the vendor shall report all HUB and non-HUB subcontractor information using the HSP Prime Contractor Progress Assessment Report form. The report shall be submitted to the TxDOT contract manager monthly. The report shall be submitted monthly even during the months the vendor is not invoicing TxDOT. All payments made to subcontractors shall be reported. TxDOT may verify the amounts being reported as paid by requesting copies of cancelled checks paid to subcontractors.

22. BUSINESS CONTINUITY PROCEDURES AND DISASTER RECOVERY PLAN: The respondent shall submit business continuity procedures and a disaster recovery plan (limit one page) which shall include the following:

22.1. Business continuity procedures shall be implemented to fulfill all requirements of the purchase order including, but not limited to: Fire, theft, natural disaster, technical difficulty, workforce problems, equipment failure or other disruption of business.

22.2. A disaster recovery plan for this service shall be maintained. The vendor shall be responsible for all cost of disaster recovery.

23. CONFLICT OF INTEREST: The vendor, vendor's personnel, and vendor's subcontractor(s) shall affirm not to have, nor acquire any interest during the term of the purchase order that would conflict in any manner with the performance of the vendor's obligations in regards to services authorized.

24. LIQUIDATED DAMAGES

24.1. Liquidated damages of $1500 per day, will be assessed if the vendor neglects, fails, or refuses to complete the work within the time specified on the specification. Each calendar day the service is delayed will be considered as a breach of contract unless the vendor has been granted an extension in writing by TxDOT.

24.2. Failure to perform in accordance with the specification and terms and conditions of the purchase order, after having been notified in writing by TxDOT of the specific deficiency, may result in TxDOT requiring the vendor to pay liquidated damages, at a minimum of $1500 per day until the deficiency is corrected. If the deficiency is not corrected within three days from the proposed date of photography, the vendor will be considered in default. This provision is not entered as a penalty but as liquidated damages.

25. OWNERSHIP OF PRODUCTS: All products of the vendor's work under this purchase order shall be the property of TxDOT. This includes film negatives, contact prints, and enlargements. The vendor shall not archive or in any way retain these products for other uses.

26. INVOICING INSTRUCTIONS: The vendor shall provide a comprehensive and detailed invoice with reference to the basis for each item charged. Original documentation that validates the charges shall be attached. The original invoice shall be sent to the address shown on the purchase order or emailed to FIN_Invoices@dot.state.tx.us to ensure timely payment and shall include the following:

26.1. Complete 16-digit purchase order number.

26.2. Vendor Employer Identification Number (EIN).

26.3. Invoice Date.

26.4. Flight Date.

26.5. Film Process Date.

26.6. Product Shipping Date

26.7. County and Highway.

26.8. Service Request Number (SRN).

26.9. An invoice requiring correction shall be re-submitted with a new invoice date.

27. PAYMENT REQUIREMENTS: Payment shall be based on actual usage for each line item called for on the purchase order. If requested and approved by TxDOT, payment will be made for partial items to include but not be limited to: roll of film, mileage, hours etc.

28. TxDOT RESPONSIBILITIES: TxDOT will:

28.1. Provide a point of contact.

28.2. Provide the coordinates of ground control points.

28.3. Provide Flight Maps.

28.4. Handle aerotriangulation.

28.5. Handle the compilation of map products (Planimetrics and DTMs).

28.6. Determine the photo length of each project.

28.7. Determine acceptability of the flight by reviewing the "check prints."

28.8. Determine acceptability of photography by reviewing the aerial film and contact prints.

28.9. Provide contract administration, perform periodic audits or field reviews as needed to ensure that the vendor is operating the program under the requirements of state law, the terms of the program rules contained in the agreement executed between TxDOT and the vendor.

29. RESPONSE SUBMISSION

29.1. Failure by the respondent to submit the documentation listed below will disqualify the respondent from further consideration. The response submission shall be submitted in the following format:

29.2. GENERAL FORMAT: The respondent shall submit one signed and dated original (marked Original) and three copies (marked Copy). The submission shall be in separate loose leaf binders on one sided 8-1/2 x 11 inch paper and shall be tab-indexed corresponding to the sections listed below. Plastic spine-bound or wire bound submittals are highly discouraged.

29.3. ORIGINAL RESPONSE: The original response shall include the following:

29.3.1. Section 1 – Invitation for Bid (IFB): Original signed, dated and completed IFB.

NOTE TO RESPONDENT: If addendums are generated as part of this solicitation, include the original signed and dated addendum(s) in Section 1.

29.3.2. Section 2 – Financial Standing: The respondent shall:

29.3.2.1. Submit a statement from the president, owner or financial officer on company letterhead certifying that the company is in good financial standing, not in any form of bankruptcy, current in payment of all taxes and fees (Ref. Para. 5.3.).

29.3.2.2. Additional information demonstrating financial stability and ability to meet the financial responsibilities for the requirement to perform this service.

29.3.3. Section 3 – Schedule 1 – Equipment List

29.3.3.1. The respondent shall submit a list of all proposed equipment required to provide this service.

29.3.3.2. The respondent shall submit the USGS Optical Science Laboratory Calibration Report for each camera proposed.

29.3.4. Section 4 – Schedule 2 – Aerial Photography Test Flight: The respondent shall complete a test flight as defined in Schedule 2 and submit the response deliverables specified in Para. 4 of the Schedule.

29.3.5. Section 5 – Schedule 3 – Company Qualifications and Experience: The respondent shall demonstrate successful past performance through submission of documentation of relevant qualifications and experience.

29.3.6. Section 6 – Schedule 4 – Key Personnel Qualifications and References: Complete and return for each proposed key personnel position.

29.3.7. Section 7 – Schedule 5- Respondent References: The respondent shall submit references for similar services, which are alike in size and scope that verify the qualifications and experience requirements for services completed within the past three years. References shall illustrate respondent's ability to provide the services outlined in the specification. References shall include name, point of contact, telephone number, and dates services were performed. The response may be disqualified if TxDOT is unable to verify qualification and experience requirements from the respondent's references. The response may be disqualified if TxDOT receives negative responses. TxDOT will be the sole judge of references.

29.3.8. Section 8 – Demonstration of Capability

29.3.8.1. The respondent's approach and ability to meet the service requirements as specified in the solicitation shall be demonstrated. The response should be specific and address all requirements described in the solicitation in the order presented in Para. 9.

29.3.8.2. The respondent shall submit written documentation addressing how the vendor intends to meet the following: Staffing Plan – Submit a proposed staffing plan to demonstrate staff qualification and experience, including subcontractors. This plan should describe the number of staff proposed for this project, the functions they will perform, and the percentage of time they will be assigned to this project during the contract term.

29.3.9. Section 9 – Quality Assurance Plan: The vendor shall provide a comprehensive, continuous, and measurable quality assurance plan (Ref. Para. 19.).

29.3.10. Section 10 – Business Continuity and Disaster Recovery Plan: The respondent shall submit a business continuity and disaster recovery plan detailing how they propose to meet the specifications in the event vendor service is interrupted. The plan shall detail the vendor's backup and recovery process (Ref. Para. 22.).

29.3.11. Section 11 – HUB Subcontracting Plan (if applicable).

29.4. COPIES: The three reproduced copies (marked Copy) shall include only the following tab-indexed sections:

29.4.1. Section 5 – Schedule 3 – Company Qualifications and Experience.

29.4.2. Section 6 – Schedule 4 – Key Personnel Qualifications.

29.4.3. Section 8 – Demonstration of Capability.

29.4.4. Section 9 – Quality Assurance Plan.

29.4.5. Section 10 – Business Continuity and Disaster Recovery Plan.

30. RESPONSE EVALUATION

30.1. STEP 1 – REVIEW OF RESPONSES BY PURCHASING: Only a complete response with the listed required submittal documents (Ref. Attachment A – Minimum Response Submission Requirements) and meeting minimum qualifications will be considered. Failure to meet the minimum qualifications and submit the required documents will result in a response being declared non-responsive.

30.2. STEP 2 – INITIAL EVALUATION: A TxDOT evaluation committee will evaluate and score each response based on established criteria. Respondents shall not contact members of the evaluation team. Responses will be evaluated according to the respondent's ability to best satisfy TxDOT requirements.

30.2.1. Respondent qualifications and response submission information will comprise 60% of the evaluation total.

30.2.2. Pricing submitted for the solicitation requirements will be 40% of the evaluation total.

31. AWARD

31.1. TxDOT reserves the right to award a single purchase order to the most responsive, responsible respondent meeting the specification. TxDOT may award to a single vendor, or multiple vendors as needed to serve the best interest of TxDOT.

31.2. TYPES OF AWARD

31.2.1. Single Award: One purchase order awarded to a single vendor.

31.2.2. Multiple Award: A multiple award is the award of multiple purchase orders for the same line item(s) from a single solicitation to two or more vendors to provide the same or similar goods or services.

32. POST AWARD MEETING: Vendor(s) may be required to attend a post award meeting in the city identified on the solicitation with the TxDOT division or district responsible for the solicitation within five calendar days after the award of the purchase order. The purpose of the meeting is to discuss the terms and conditions of the purchase order and to provide additional information regarding the purchase order.

33. TRANSITION OF TXDOT PROPERTY: TxDOT will provide assistance as needed for the efficient and smooth transfer of all TxDOT property, including but not limited to: Publications, documents, property, equipment, and other material which TxDOT retains ownership rights related to work provided under a previous or current purchase order.

33.1. BEGINNING PHASE: The vendor awarded a purchase order as a result of this solicitation, shall, at the request of TxDOT, be responsible for contacting the previous vendor to request the transfer of all TxDOT property. The transition of TxDOT's property shall occur within an agreed upon time frame to assure the new vendor can begin providing services as required by TxDOT.

33.2. CANCELLATION OR TERMINATION OF THE PURCHASE ORDER: At the end of the contract term or if the purchase order is cancelled by either party, the vendor(s) shall return all TxDOT property to TxDOT or transfer all TxDOT property to the TxDOT designated vendor(s) immediately upon TxDOT's request.

34. CONTRACT ADMINISTRATION: Administration of the purchase order is a joint responsibility of the TxDOT Contract Administrator and TxDOT Purchasing. TxDOT Purchasing staff will be responsible for administering the contractual business relationship with the vendor.

34.1. Any proposed changes to work to be performed, whether initiated by TxDOT or the vendor, must receive final written approval in the form of a Purchase Order Change Notice signed by the authorized TxDOT purchasing agent.

34.2. Upon issuance of purchase order, TxDOT will designate an individual who will serve as the Contract Manager and point of contact between the agency and the vendor. The Contract Manager does not have any express or implied authority to vary the terms of the purchase order, amend the purchase order in any way or waive strict performance of the terms or conditions of the purchase order. This individual's contract management and contract administration responsibilities include, but are not limited to:

34.2.1. Monitoring the vendor's progress and performance and ensuring services conform to established specification requirements.

34.2.2. Managing the financial aspects of the contract including approval of payments.

34.2.3. Meeting with the vendor as needed to review progress, discuss problems, and consider necessary action.

34.2.4. Identifying a breach of contract by assessing the difference between contract performance and non-performance.

34.2.5. Other areas as identified by the Comptroller of Public Accounts Contract Management Guide, latest edition.

ATTACHMENT A
MINIMUM RESPONSE SUBMISSION REQUIREMENTS
(PROVIDED FOR INFORMATION ONLY)
SOLICITATION NO. B442009009599000

Respondent: _____

Reviewed Minimum Response Submission Requirements: _____

RESPONSE SUBMISSION REQUIREMENTS	YES	NO	COMMENTS
1. Section 1 – Signed and dated Invitation for Bid (IFB) (Ref. Para. 29.3.1.).			
2. Section 2 – Financial Standing – Submit the most recent two years audited financial statements, or if audited financial statements are unavailable, un-audited financial statements shall be submitted and certified as true, correct and accurate by the chief financial officer or treasurer of the respondent's company (Ref. Para. 29.3.2.).			
3. Section 3 – Schedule 1 – Equipment List (Ref. Para. 29.3.3.).			
4. Section 4 – Schedule 2 – Aerial Photography Test Flight Deliverables (Ref. Para. 29.3.4.).			
5. Section 5 – Schedule 3 – Company Qualifications and Experience (Ref. Para. 29.3.5.).			
6. Section 6 – Schedule 4 – Key Personnel Qualifications and References (Ref. Para. 29.3.6.).			
7. Section 7 – Schedule 5 – Respondent References (Ref. Para. 29.3.7.).			
8. Section 8 – Demonstration of Capabilities: Staffing Plan (Ref. Para. 29.3.8.).			
9. Section 9 – Quality Assurance Plan (Ref. Para. 29.3.9.).			
10. Section 10 – Business Continuity and Disaster Recovery Plan (Ref. Para. 29.3.10.).			
11. Section 11 – HUB Subcontracting Plan, if applicable (Ref. Para. 29.3.11.).			

If additional clarification is required for any information on the response submission to determine responsiveness, the purchaser will request assistance from the D/D/O to determine if the respondent meets minimum submission requirement.

ATTACHMENT B
AERIAL PHOTOGRAPHY TASK ORDER
(PROVIDED FOR INFORMATION PURPOSES ONLY)

Task Order Number: _____

SRN _____ County _____ Highway _____ Date _____
PROJECT DETAILS: (**See attached Photogrammetric Services Request Form and Flight Map**)

FILM TYPE TO BE USED**:** **Black and White**

☐ Kodak Panatomic-X Aerographic II Film 2412
☐ AGFA :Aviphot Panochromatic PAN 80 PE-1

Color and Color Infrared

☐ AGFA :Aviphot Color X-100 PE-1 (Natural Color)
☐ Kodak Aerochrome III Infrared Film 1443 (Color Infrared)

TO: *Vendor* Name _____
Vendor Address_____ City_____ St____Zip_____
Vendor POC Name_____ Phone_____

Filled in by TSD:	**Filled in by *Vendor*:**
1. Proposed Flight Date: _____ 2. Approved Transit Miles: _____ From Authorized Airport	3. Actual Flight Date: _____ 4. Date Film/Check Prints shipped to TxDOT: _____
5. Date Film/Check Prints Received by TxDOT _____ 6. Film/Check Prints Accepted☐or Rejected☐ by Name _____ Reason for rejection _____ _____ 7. Phone Call to *Vendor* Accepting/Rejecting Film/Check Prints Date _____ Time _____ *Vendor* POC receiving acceptance/rejection phone call _____	

SPECIFICATION NO.
TxDOT 905-05-40
REVISED: APRIL 2009

ATTACHMENT C
TEXAS DEPARTMENT OF TRANSPORTATION – TECHNOLOGY SERVICES DIVISION
PHOTOGRAMMETRIC SERVICES REQUEST FORM
(PROVIDED FOR INFORMATION PURPOSES ONLY)

DATE: _____ SERVICE REQUEST NUMBER: _____ (assigned by TSD)

PROJECT DATA:

DISTRICT: _____ COUNTY: _____ HIGHWAY: _____

DIST. NO.	SEG ID	CONTROL	SEC	JOB	FUNC	**Must be a valid CSJ**
_____	- _____	- _____	- _____	- _____	- _____	

PROJECT LIMITS (Beginning and ending points) _____

PROJECT LENGTH: _____miles X-FLIGHT LENGTHS: (1)_____mile (2)_____mile (3)_____mile (4)_____mile
PROJECT LENGTH: _____km (1)_____km (2)_____km (3)_____km (4)_____km
(Please be as accurate as possible. Schedule is based on original miles provided not actual miles.)
PROJECT DESCRIPTION: ☐Public Involvement ☐New Construction ☐New ROW

☐Reconstruction ☐Widening ☐Grading ☐Structures ☐Other (Please Explain) _____

DISTRICT POINTS OF CONTACT:
_____ NAME _____ PHONE
_____ NAME _____ PHONE

DISTRICT ADDRESS TO WHICH TSD PRODUCTS ARE TO BE DELIVERED _____

PROJECT DATES:

1. Advanced Planning:
PROPOSED DATE OF PHOTOGRAPHY (**filled in by District**) _____
PRODUCTS DATE NEEDED BY (**filled in by District**) _____

2. Detailed Planning:
NOTES: a. Prior to submitting task orders to the contractor for aerial photography, all ground control panels must be in place (*except those panels that must be placed the day before or the day of the flight).* See the User's Guide to TSD Products and Services for information about panels and panel layouts.

b. Weather permitting, the flight date for aerial photography will be no later than 14 calendar days from the PROPOSED DATE OF PHOTOGRAPHY. The aerial photography contractor will coordinate directly with the district point of contact for the actual flight date and time.

GROUND CONTROL DATES: (**filled in by District**) Paneling complete by: _____
(**filled in by District**) Survey data to TSD within 30 days of flight: _____

GRAPHICS DELIVERY DATE (**filled in by TSD**) Negotiated delivery date: _____
(**filled in by TSD** point of contact (below) after analysis of District's needs, project size and existing workload)

TSD Point of Contact: NAME _____ PHONE _____

PRODUCTS OR SERVICES BEING REQUESTED:

1. Aerial Photography -- Mapping Request	Complete Section 1 (pg. 1 & 2)
2. Aerial Photography -- Non-Mapping (Photos-Only) Request	Complete Section 2 (pg. 3)
3. Photographic Laboratory Request (Reproductions, Enlargements, etc. of previously flown projects)	Complete Section 3 (pg. 4)

ATTACHMENT C – (CONT.)
PHOTOGRAMMETRIC SERVICES REQUEST FORM
SECTION 1 - MAPPING PHOTOGRAPHS

PHOTO SCALE 1"=250' or 1:3000

A. SUPPORT DATA

1. Location: Attach Flight Map (required **USGS QUAD SHEET**) and/or Vicinity Map (optional).
   The flight map must show: beginning and ending panels, longitude and latitude of box panels, cross flight locations and the high and low spot elevations.

2. Do you want this project to tie to previous mapping project(s)?
   NO☐ YES☐ Service Request Number(s) _____
   If yes, there must be at least one common, paneled and surveyed control point, in the same coordinate system, with the same coordinate and elevation X, Y and Z in both or all projects.

3. Coordinate System: State Plane, NAD 83 converted to feet _____ Surface Adjustment Factor Used _____
   Submit Control in the CONTROLFORM.DOC format located at the following link:
   ftp.tsd.dot.state.tx.us/pub/tsd/photogrammetry

4. Wing Panel Point distance off Centerline: Left _____ feet Right _____ feet
   Left _____ meters Right _____ meters
   (For photo scale of 1"=250' the minimum Wing Panel distance off centerline is 150 ft, the maximum is 600 ft)
   60m 180m

5. Terrain Characteristics: Topo: Flat ☐ Rolling ☐ Rough ☐
   Vegetation: Light ☐ Moderate ☐ Dense ☐

6. Remarks: _____

B. MAPPING PRODUCTS

PLANIMETRICS: NO ☐ YES ☐ Coverage: _____ feet left _____ feet right of centerline
_____ meters left _____ meters right

Is this **centerline** the (check one): Paneled flight line? ☐ or Existing centerline of the road? ☐

Planimetric estimated percentages: Light _____% Moderate _____% Heavy _____%

Vegetation to be mapped: None ☐ Large Trees ☐ Timber Boundaries ☐

DTM: NO ☐ YES ☐ Coverage: _____ feet left _____ feet right of centerline
_____ meters left _____ meters right

Number of Contact Print Sets to District (9" x 9") _____

Is there a Priority area needed? NO ☐ YES ☐ If yes, please describe: _____
Remarks or Special Instructions: _____

ORTHOPHOTOGRAPHY: NO ☐ YES ☐ (Created using the DTM) Delivered on CD (tiff format with world file)

SCANNED PHOTOGRAPHY: NO ☐ YES ☐ (Scanned negative aerial film) Delivered on CD.

C. DO YOU WANT AN ENLARGEMENT: NO ☐ YES ☐

Finished Photo Scale 1"= _____ Finished Size _____

Paper Prints: NO ☐ YES ☐ If Yes, how many?: _____
Cronaflexes: NO ☐ YES ☐ If Yes, how many?: _____

Remarks _____

ATTACHMENT C – (CONT.)
PHOTOGRAMMETRIC SERVICES REQUEST FORM
SECTION 2 – NON-MAPPING – PHOTOGRAPHS

A. Scale: 1"= _____

Do you want Contact Prints (9" x 9")? NO ☐ YES ☐ How Many? _____

B. Do you want a photo enlargement NO ☐ YES ☐

Size of enlargement(s) _____ Scale of enlargement(s) 1"= _____

Number of enlargements as: Paper Prints _____ Cronaflexes _____

Remarks _____

C. Other photography? NO ☐ YES ☐

Type (e.g., color IR or oblique): _____

Photo Scale desired: _____

Paper Prints	Size	Quantity
	_____	_____
	_____	_____

D. Remarks _____

DISTRICT ADDRESS TO WHICH PHOTO
PRODUCTS ARE TO BE DELIVERED: _____
(filled in only if different from address on the front page of this request)

ATTACHMENT C – (CONT.)
PHOTOGRAMMETRIC SERVICES REQUEST FORM
SECTION 3 – PHOTOGRAPHIC LABORATORY

A. Contact Prints for Project Name _____ County _____ Highway _____

SRN _____ Photo Date _____

Photo Number(s) _____

Number of sets _____

Remarks _____

B. Enlargements for Project Name _____ County _____ Highway _____

SRN _____ Photo Date _____

Photo Number(s) _____

Size of enlargement(s) _____ Scale of enlargement(s) 1: _____

Number of enlargements as: Paper Prints _____ Cronaflexes _____

Remarks _____

C. Other Products for Project Name _____ County _____ Highway _____

SRN _____ Photo Date _____

Photo Number(s) _____

Type of product _____

Remarks _____

DISTRICT ADDRESS TO WHICH PHOTO
PRODUCTS ARE TO BE DELIVERED: _____
(filled in only if different from address on the front page of this request)

SCHEDULE – 1
EQUIPMENT LIST

Instructions: The respondent shall provide the proposed equipment to provide the service in accordance with the solicitation requirements.

Aircraft

Highest Aircraft Operating Altitude
(Feet above mean sea level) _____

Camera

Type _____

Camera Calibration Reports _____

Camera Mount Type _____

Film Type

For Mapping _____

For Non-Mapping _____

Photo Lab Equipment

Film Processor Type _____

Developer Type _____

Contact Print Printer _____

Contact Print Paper Type _____

Enlarger Type _____

Enlargement Paper Type _____

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SCHEDULE – 2
AERIAL PHOTOGRAPHY TEST FLIGHT
(FOR EVALUATION PURPOSES)

1. SCOPE: Each respondent shall photograph a test strip of the same area and submit the requirements with the response.

2. TEST FLIGHT AREA: The test flight area is located in Austin, Texas, Travis County along Mopac Loop 1. The area can be found on the Austin West Quadrangle from FM 2222-Northland Drive to Westover Drive. The north end of the project is at latitude 30 degrees 20 minutes 11.54 seconds, longitude 97 degrees 45 minutes 19.62 seconds. The south end of the project at latitude 30 degrees 18 minutes 01.84 seconds, longitude 97 degrees 45 minutes 29.70 seconds. The test flight area is 2.5 miles long.

3. ALTITUDE: The test flight shall be flown at a low altitude for mapping; 1,500 feet above the mean terrain. Mean terrain height is 700 feet. The required flight photo scale: 1 inch =250 feet

4. RESPONDENT DELIVERABLES

   4.1. Developed aerial film.

   4.2. One set of contact prints assembled as check prints.

   4.3. Flight log.

   4.4. FLIGHT CHECK PRINTS: The vendor shall use flight check prints for checking flight lines, flight coverage, overlap, shift, and panel layouts. Flight check prints will be evaluated to ensure compliance with the instructions outlined below: The first set of contact prints made after the development of the aerial film shall be put together in the following manner:

      4.4.1. The contact prints shall be stapled together so that each image overlays its stereo pair. The staple shall be behind the mid-fiducial on the top photo so the photos can be fanned. Care shall be exercised so that the photograph on top is aligned with the middle and bottom of the photograph that is its stereo pair underneath.

      4.4.2. Each flight strip shall be stapled together in one long strip. After each strip has been stapled together, the first and last photograph in each strip shall be labeled with the date of the photography, the SRN, the project name, the strip number, and the sequential frame number using a marking pen.

      4.4.3. After the check contact prints have been stapled and marked, each flight strip shall be checked for overlap and drift.

      4.4.4. The best flight strips shall be marked for use in editing the aerial film.

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SCHEDULE 3
COMPANY QUALIFICATIONS AND EXPERIENCE
SOLICITATION NO. B442009009599000

Respondent shall use this schedule to clearly show how they meet the requirements set forth in the response submission (Ref. Para. 29.3.5.).

Respondent Name:	
Addresses: Physical: Mailing:	
Phone Number: Fax Number:	
Name: Phone Number: Email address: of person to contact with questions regarding the solicitation.	
Number of years in business	
Name and title of person signing the response:	
DOCUMENTATION OF COMPANY QUALIFICATIONS AND EXPERIENCE:	
Qualifications and experience in the areas of services to be provided.	

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SCHEDULE 4
KEY PERSONNEL QUALIFICATIONS AND REFERENCES
SOLICITATION NO. B442009009599000

Respondent Name: _____

The respondent shall complete one profile not to exceed two pages for each individual to be assigned to this purchase order. TxDOT reserves the right to reject the proposed Key Personnel if references or past working performance are questionable or unfavorable.

KEY PERSONNEL INFORMATION	RESPONSE
FULL NAME:	
NUMBER OF YEARS EMPLOYED BY RESPONDENT:	
TITLE	

KEY PERSONNEL QUALIFICATIONS	# YRS EXP.	FROM	TO	HOW/WHERE OBTAINED
NUMBER OF YEARS EXPERIENCE IN (REQUIRED SERVICE):				
SPECIFIC EDUCATION, QUALIFICATIONS, TRAINING, CERTIFICATIONS:				

Reference: No. ___

Name of Organization:			
BUSINESS ADDRESS:			
BUSINESS CITY:			
BUSINESS STATE:		ZIP:	
CONTACT PERSON NAME:			
CONTACT PERSON TITLE:			
PHONE NUMBER:		FAX:	
E-MAIL ADDRESS			
Project Title:			
PROJECT DESCRIPTION AND DOLLAR AMOUNT:			
ROLES AND RESPONSIBILITIES OF THE PROPOSED STAFF DURING THIS PROJECT			
PROJECT START DATE:		PROJECT END DATE:	
CLIENT COMMENTS:			

This page may be reproduced as needed to document each reference.

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SCHEDULE 5
RESPONDENT REFERENCES
SOLICITATION NO. B442009009599000

RESPONDENT'S NAME: _____ **Page 1 of** _____

Company Name:	
Address:	
City:	State: Zip Code:
Phone Number:	Fax Number:
Point of Contact:	Date Services Performed:

Reference Response (to be filled in by TxDOT):

Company Name:	
Address:	
City:	State: Zip Code:
Phone Number:	Fax Number:
Point of Contact:	Date Services Performed:

Reference Response (to be filled in by TxDOT):

Company Name:	
Address:	
City:	State: Zip Code:
Phone Number:	Fax Number:
Point of Contact:	Date Services Performed:

Reference Response (to be filled in by TxDOT):

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