

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
EQUIPMENT AND PROCUREMENT DIVISION  
BID INVITATION**

Bid Number: M-07-119P

**BID OPENING LOCATION:**  
AHTD Equipment and  
Procurement Division  
11302 W. Baseline Road  
Little Rock, AR 72209

**MAIL TO:**  
AHTD Equipment and  
Procurement Division  
P.O. Box 2261  
Little Rock, AR 72203

**DELIVER TO:**  
AHTD Equipment and  
Procurement Division  
11302 W. Baseline Road  
Little Rock, AR 72209

Bid Opening Date: May 1, 2007 Time: 11:00 a.m.

Sealed bids for furnishing the commodities and/or services described below, subject to the Conditions on Page 2 of this Bid Invitation will be received at the above-noted mail and delivery locations until the above-noted bid opening date and time, and then publicly opened at the above-noted bid opening location. **Bids must be submitted on this form, with attachments when appropriate, or bids will be rejected. Late bids and unsigned bids will not be considered.**

In compliance with this Bid Invitation and subject to all the Conditions thereof, the undersigned offers and agrees to furnish any and all items upon which prices are quoted, at the price set opposite each item.

Company Name: \_\_\_\_\_

Name (Type or Print): \_\_\_\_\_

Address: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Federal Tax ID or Social Security No.: \_\_\_\_\_

**Signature:** \_\_\_\_\_

Signature must be legible, original (not photocopied) and in ink.  
Unsigned bids will be rejected.

Item No.	Description	Quantity	Unit	Unit Price	Amount
1.	<p>Laser Scanner System consisting of Laser Scanner and Accessories with Standard Warranty for Hardware and Software</p> <p>Optional One Year Extended Warranty for a total of Two Years for Hardware and Software \$ _____</p> <p>Optional Two Year Extended Warranty for a total of Three Years for Hardware and Software \$ _____</p> <p>To meet the requirements of Arkansas State Highway and Transportation Department Specifications attached to and made a part of this bid.</p> <p>FOB: AHTD – Surveys Division, 10324 I-30, Little Rock, AR 72209 Contact Person: Michael Kelly (501-569-2086)</p> <p>Laser Scanner System proposed to furnish: Brand _____ Model _____</p> <p><b>Bid Bond</b> in the amount of 5% of total bid price required of all bidders at time of bid opening or bid will be rejected. <b><u>Personal and company checks are not acceptable as Bid Bonds.</u></b> See Condition 3 on page 2 of Bid Invitation.</p> <p><b>Performance Bond</b> in the amount of 5% of total bid price will be required of successful bidder prior to providing goods/services. <b><u>Personal and company checks are not acceptable as Performance Bonds.</u></b> See Condition 3 on page 2 of Bid Invitation.</p> <p>The successful bidder will be required to complete delivery within 10 days after notice to begin from Surveys Division.</p> <p>Bids and Specifications are available on-line by going to the AHTD Web Site – <a href="http://www.arkansashighways.com">www.arkansashighways.com</a> <a href="http://www.ahtd.state.ar.us/">http://www.ahtd.state.ar.us/</a> and clicking on “Bids/Contracts”. Tabulations will also be available at this site within 72 hours after bid opening. If you have any questions, call this office at 501-569-2667.</p> <p>(69-8)</p>	1 ea.	\$	_____	

## STANDARD BID CONDITIONS

M-07-119P

1. **ACCEPTANCE AND REJECTION:** The Arkansas State Highway and Transportation Department (AHTD) reserves the right to reject any or all bids, to accept bids in whole or in part (unless otherwise indicated by bidder), to waive any informalities in bids received, to accept bids on materials or equipment with variations from specifications where efficiency of operation will not be impaired, and to award bids to best serve the interest of the State.
2. **PRICES:** Unless otherwise stated in the Bid Invitation, the following will apply: (1) unit prices shall be bid, (2) prices should be stated in units of quantity specified (feet, each, lbs., etc.), (3) prices must be F.O.B. destination specified in bid, (4) prices must be firm and not subject to escalation, (5) bid must be firm for acceptance for 30 days from bid opening date. In case of errors in extension, unit prices shall govern. Discounts from bid price will not be considered in making awards.
3. **BID BONDS AND PERFORMANCE BONDS:** If required, a **Bid Bond** in the form of a cashier's check, certified check, or surety bond issued by a surety company, in an amount stated in the Bid Invitation, must accompany bid. Personal and company checks are not acceptable as Bid Bonds. Failure to submit a Bid Bond as required will cause a bid to be rejected. The Bid Bond will be forfeited as liquidated damages if the successful bidder fails to provide a required Performance Bond within the period stipulated by AHTD or fails to honor their bid. Cashier's checks and certified checks submitted as Bid Bonds will be returned to unsuccessful bidders; surety bonds will be retained. The successful bidder will be required to furnish a **Performance Bond** in an amount stated in the Bid Invitation and in the form of a cashier's check, certified check, or surety bond issued by a surety company, unless otherwise stated in the Bid Invitation, as a guarantee of delivery of goods/services in accordance with the specifications and within the time established in the bid. Personal and company checks are not acceptable as Performance Bonds. In some cases, a cashier's check or certified check submitted as a Bid Bond will be held as the Performance Bond of the successful bidder. Cashier's checks or certified checks submitted as Performance Bonds will be refunded shortly after payment has been made to the successful bidder for completion of all terms of the bid; surety bonds will be retained. Surety bonds must be issued by a surety company authorized to do business in Arkansas, and must be signed by a Resident Local Agent licensed by the Arkansas State Insurance Commissioner to represent that surety company. Resident Agent's Power-of-Attorney must accompany the surety bond. Certain bids involving labor will require Performance Bonds in the form of surety bonds only (no checks of any kind allowed). In such cases, the company issuing the surety bond must comply with all stipulations herein and must be named in the U. S. Treasury listing of companies holding Certificates of Authority as acceptable sureties on Federal Bonds and as acceptable reinsuring companies. Any excess between the face amount of the bond and the underwriting limitation of the bonding company shall be protected by reinsurance provided by an acceptable reinsuring company. Annual Bid and Performance Bonds on file with E & P Division must have sufficient unencumbered funds to meet current bonding requirements, or the bid will be rejected, unless the balance is submitted as set forth above, prior to bid opening.
4. **TAXES:** The AHTD is not exempt from Arkansas State Sales and Use Taxes, or local option city/county sales taxes, when applicable, and bidders are responsible to the State Revenue Department for such taxes. These taxes should not be included in bid prices, but where required by law, will be paid by the AHTD as an addition thereto, and should be added to the billing to the AHTD. The AHTD is exempt from Federal Excise Taxes on all commodities except motor fuels; and excise taxes should not be included in bid prices except for motor fuels. Where applicable, tax exemption certificates will be furnished by the AHTD.
5. **"ALL OR NONE" BIDS:** Bidders who wish to bid "All or None" on two or more items shall so stipulate on the face of bid sheet; otherwise, bid may be awarded on an individual item basis.
6. **SPECIFICATIONS:** Complete specifications should be attached for any substitution or alternate offered, or where amplification is necessary. Bidder's name must be placed on all attachments to the bid.
7. **EXCEPTIONS TO SPECIFICATIONS:** Any exceptions to the bid specifications must be stated in the bid. Any exceptions to manufacturer's published literature must be stated in the bid, or it will be assumed that bidder is bidding exactly as stated in the literature.
8. **BRAND NAME REFERENCES:** All brand name references in bid specifications refer to that commodity or its equivalent, unless otherwise stated in Bid Invitation. Bidder should state brand or trade name of item being bid, if such name exists.
9. **FREIGHT:** All freight charges should be included in bid price. Any change in common carrier rates authorized by the Interstate Commerce Commission will be adjusted if such change occurs after the bid opening date. Receipted common carrier bills that reflect ICC authorized rate changes must be furnished.
10. **SAMPLES, LITERATURE, DEMONSTRATIONS:** Samples and technical literature must be provided free of any charge within 14 days of AHTD request, and free demonstrations within 30 days, unless AHTD extends time. Failure to provide as requested within this period may cause bid to be rejected. Samples, literature and demonstrations must be substantially the same as the item(s) being bid, unless otherwise agreed to by AHTD. Samples that are not destroyed will be returned upon request at bidders expense. Samples from successful bidders may be retained for comparison with items actually furnished.
11. **GUARANTY:** Unless otherwise indicated in Bid Invitation, it is understood and agreed that any item offered or shipped on this bid shall be newly manufactured, latest model and design, and in first class condition; and that all containers shall be new, suitable for storage or shipment and in compliance with all applicable laws relating to construction, packaging, labeling and registration.
12. **BACKORDERS OR DELAY IN DELIVERY:** Backorders or failure to deliver within the time required may constitute default. Vendor must give written notice to the AHTD, as soon as possible, of the reason for any delay and the expected delivery date. The AHTD has the right to extend delivery if reasons appear valid. If reason or delivery date is not acceptable, vendor is in default.
13. **DEFAULT:** All commodities furnished will be subject to inspection and acceptance by AHTD after delivery. Default in promised delivery or failure to meet specifications authorizes the AHTD to cancel award or any portion of same, to reasonably purchase commodities or services elsewhere and to charge full increase, if any, in cost and handling to defaulting vendor. Applicable bonds may be forfeited.
14. **ETHICS:** *"It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure a State contract upon an agreement of understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies maintained by the contractor for the purpose of securing business."* (Arkansas Code, Annotated, Section 19-11-708).

**ARKANSAS STATE HIGHWAY  
AND  
TRANSPORTATION DEPARTMENT**



**BID INVITATION**

**FOR**

**LASER SCANNER SYSTEM**

**CONSISTING OF**

**ONE LASER SCANNER  
AND ACCESSORIES**

**APRIL 11, 2007**

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## 1.0 GENERAL INFORMATION

### 1.1 Introduction and Background

The Arkansas State Highway and Transportation Department (AHTD) intends to award a contract for Laser Scanner System. Therefore, the purpose of this document is to provide interested parties with information to enable them to prepare and submit a bid for a Laser Scanner System

### 1.2 General Instructions

The evaluation and selection of a contractor will be based on the information submitted in the bid plus references and any required site visits. Bidders shall respond clearly and completely to all requirements

Note: Bids will be rejected for failure to respond completely and as specified in the sections that follow.

## 2.0 BID PROPOSAL ORGANIZATION AND FORMAT

Bids shall be submitted and bound with the following sections.

### (a) Section A - VENDOR DATA SHEET/REFERENCE DATA SHEET.

Include here Attachment A - Reference Data Sheet that has been requested in Section 3.6 in this **BID INVITATION**.

Each vendor must furnish a list of a minimum of four (4) references that will be capable of verifying information supplied by the vendor in their bid. The references must have been supplied the same product requested in this bid invitation by the Department. Vendors shall submit additional Reference Data Sheet forms if they have more than four (4) references. At least one of the references shall be a State Department of Transportation in order to verify similar use of the system for state highway surveys.

### (b) Section B - RESPONSE TO GENERAL REQUIREMENTS.

- Provide a point-by-point response to each and every general requirement specified in Section 3.0 in this **BID INVITATION**.
- Responses to general requirements must be in the same sequence and numbered as they appear in this **BID INVITATION**.
- Responses must indicate that either vendor's bid "complies or exceeds" with specifications or that it "does not comply".
- A succinct explanation of how each requirement can be met or cannot be met must be included.

### (c) Section C - RESPONSE TO TECHNICAL REQUIREMENTS.

- Provide a point-by-point response to each and every technical requirement specified in Section 4.0 in this **BID INVITATION**.
- Responses to technical requirements must be in the same sequence and numbered as they appear in this **BID INVITATION**.
- Responses must indicate that either vendor's bid "complies or exceeds" with specifications or that it "does not comply".
- A succinct explanation of how each requirement can be met or cannot be met must be included.

### (d) Section D - RESPONSE TO PERFORMANCE REQUIREMENTS.

- Provide a point-by-point response to each and every performance requirement specified in Section 5.0 in this **BID INVITATION**.
- Responses to performance requirements must be in the same sequence and numbered as they appear in this **BID INVITATION**.
- Responses must indicate that either vendor's bid "complies or exceeds" with specifications or that it "does not comply".
- A succinct explanation of how each requirement can be met or cannot be met must be included.

(e) Section E - RESPONSE TO SUPPORT REQUIREMENTS.

- Provide a point-by-point response to each and every support requirement specified in Section 6.0 in this **BID INVITATION**.
- Responses to support requirements must be in the same sequence and numbered as they appear in this **BID INVITATION**.
- Responses must indicate that either vendor's bid "complies or exceeds" with specifications or that it "does not comply".
- A succinct explanation of how each requirement can be met or cannot be met must be included.

(f) Section F - ADDITIONAL INFORMATION.

Include additional information that will be essential to an understanding of the bid. This might include diagrams, excerpts from manuals, or other explanatory documentation that would clarify and/or substantiate the bid. Any material included here should be specifically referenced elsewhere in the bid.

(g) Section G - GLOSSARY.

Provide a glossary of any abbreviations, acronyms, and technical terms used to describe the services or products proposed which is not industry standard. This glossary should be provided even if these terms are described or defined at their first use in the bid.

(h) Section H – SUMMARY.

Include here Attachment B – Summary Sheet. Provide a summary with each item being provided by the Vendor including model number, manufacturer name, and quantities as specified in Section 4.2 and Section 4.3 **This summary sheet must be attached to or included with the bid sheet.** Vendors shall submit additional Summary Sheet forms if necessary.

2.1 Multiple Bids

Multiple bids from a vendor will be permissible. However, each bid must conform fully to the requirements for bid submission. Each such bid must be separately submitted and labeled as Bid #1, Bid #2, etc., on each page included in the response. Alternate plans do not constitute multiple bids.

2.2 Demonstrations

Bidders may be required to install and demonstrate their product(s) and/or service(s) at the Surveys Division of the AHTD. Product(s) being demonstrated must be delivered to that AHTD site. Any demonstration shall be done prior to the bid opening date as shown on the bid invitation. The AHTD will furnish detailed specifications concerning the demonstration site and particular tests it will use to exercise the bidder's product(s) and/or service(s) no later than the date of notification of product demonstration.

Bidders who demonstrate a product(s) and/or service(s) shall also comply with all other requirements as specified in this document.

Failure of a bidder to furnish the product(s) and/or service(s) it has proposed for demonstration within the time constraints of the preceding paragraph will result in rejection of the bid. Failure of any product(s) and/or service(s) furnished by the bidder for the purposes of this demonstration must be identical in every respect to those that will be furnished for acceptance testing under the terms of the Department contract.

### 3.0 GENERAL BID REQUIREMENTS

3.1 Description of Equipment for Laser Scanner System

The AHTD desires to procure a Laser Scanner System consisting of a laser scanner and accessories. The system must be the latest model in current production as offered to commercial trade. The vendor represents that all equipment furnished shall be new. Demonstrator, prototype, and discontinued models or releases will not be accepted.

The successful bidder shall furnish all parts not specifically mentioned which are necessary for the unit to be complete and ready for operation or which are normally furnished as standard equipment. All parts shall conform in strength, quality and workmanship to the accepted standards of the industry.

### 3.2 Objectives

The objective of the AHTD is to acquire One (1) Laser Scanner System as described in this specification which must meet or exceed the specifications. The laser scanner and all of the accessories directly relating to its operation shall be manufactured by the same company and are compatible for use together. Tripods may be supplied from other manufacturers.

### 3.3 Needs

The AHTD has a need to collect data using scanning and positioning techniques for engineering and topographic surveys, as well as scanning historical bridge for archival purpose. The AHTD has a need to have the latest technology that provides the most cost effective and productive system for the applications and minimum requirements specified.

### 3.4 Organization Capabilities

Describe the firm's experience and capabilities in providing similar services to those required. Be specific and identify projects, dates, and results.

### 3.5 Staff Qualifications

Provide resumes describing the educational and work experiences for each of the key staff that would be assigned to the project for training and support.

### 3.6 Bidder References

Bidders must include in their proposals, a list of organizations, including points of contact (name, address, and telephone number), that can be used as references for work performed in the area of service required. Selected organizations may be contacted to determine the quality of work performed, product provided, and personnel assigned to the project. The results of the reference check will be provided to reviewers and used in scoring the written bid. Attachment A - Reference Data Sheet as described in 2.0(a) will be considered your response to this section.

### 3.7 Summary

The AHTD has a need to collect data using scanning and positioning techniques for engineering and topographic surveys, as well as scanning historical bridge for archival purpose. Specifically, the bidder shall agree to provide the following:

- One (1) Laser Scanner System that satisfies the specifications described under Section 4.0 and Section 5.0.
- The Laser Scanner System shall include all components listed in Section 4.2 and 4.3.

## 4.0 TECHNICAL REQUIREMENTS

Vendors must respond to the technical requirements in this section in accordance with the instructions given in Section 2.0(c) above.

### 4.1 Laser Scanner System

The Laser Scanner System shall include the combination of Laser Scanner, tripod, power supply unit, cables, carrying cases, scan targets, software, and other accessories. All hardware and software shall be manufactured and distributed by the same vendor, with the exception of tripods and accessories.

## 4.2 Laser Scanner Hardware

Hardware includes as a minimum:

- Laser Scanner
- Tripod(s)
- Power Supply Unit
- Cables
- Carrying cases
- Scan Targets

### 4.2.1 Laser Scanner

#### 4.2.1.1 General

- Base Plate: To fit Flat Head, or Flat Head and Spherical-Head tripod base.
- Base Screw: 5/8 in. x 11 tpi.

#### 4.2.1.2 Dimension & Weight

- The Laser Scanner must be portable and weigh no more than 44 pounds (20 kilograms).
- Overall dimensions of the Laser Scanner shall be no more than 20.0 inches (510 millimeters) high by 14.5 inches (370 millimeters) wide by 10.5 inches (265 millimeters) deep.

#### 4.2.1.3 Environmental

Each Laser Scanner System shall operate within the environment extremes that follow without sustaining damage.

- Temperature - 32°F to +104°F (0°C to +40°C)
- Humidity – 95% or higher, non condensing
- Dust/Water – IP52 or higher

#### 4.2.1.4 Interface

- Ethernet cable interface for data transfer and external control thru the use of a Static Internet Protocol (IP) address.

#### 4.2.1.5 Laser

- Type : Pulsed
- Color: Green
- Class: 3R (IEC 60825-1)
- Range: 300m @ 90% albedo; 130m @ 18% albedo

#### 4.2.1.6 Scan Rate

- Up to 4000 points per second under ideal conditions.

#### 4.2.1.7 Scan Resolution (0-50m range)

- Spot size : 4mm – FWHH based, 6mm – Gaussian based
- Point spacing – 1.2mm (0-300m range)
- Scan row (horizontal) – 20,000 points/row
- Scan column (vertical) – 5,000 points/column

#### 4.2.1.8 Field of View

- Horizontal – 360°
- Vertical – 270°

#### 4.2.1.9 Scanning Optics

- Single mirror, panoramic, front and upper window
- Environmentally protected by housing and two glass shields

#### 4.2.1.10 Integrated color digital imaging

- User-defined pixel resolution to a minimum of 1024 x 1024 pixels (1 mega pixel)
- Multiple images automatically spatially rectified

#### 4.2.1.11 Status Indicators

- 3 LEDs – System Status, Laser Status, Communication Status

#### 4.2.1.12 Compensator

- Survey Grade Dual-axis compensator through full range of view
- 1" Resolution
- Dynamic Range of +/- 5'

#### 4.2.1.13 Bubble Level

- External level vial

#### 4.2.1.14 Power

- Consumption <80w
- 2 - Hot-swappable AC/DC Power Ports

#### 4.2.2 Power Supply Unit

- One (1) AC power adapter
- Two (2) sealed lead acid batteries to be supplied with system
- The batteries shall possess an adequate charge to obtain a minimum of six (6) hours of data collection.
- Two (2) sets of cables for connection from the battery to the laser scanner
- One (1) battery charger that is standard 110 VAC
- Dimension & Weight
  - The Power Supply Unit must be portable and weigh no more than 33 pounds (15 kilograms).
  - Overall dimensions of the Power Supply Unit shall be no more than 8.5 inches (215 millimeters) high by 9.5 inches (250 millimeters) wide by 6.5 inches (165 millimeters) deep

#### 4.2.3 Tripod

The vendor shall supply two (2) wide frame heavy duty wood tripods. The tripod shoes shall have large spurs with hardened steel replaceable tips. The tripod shall have a 5/8-inch x 11 flat head capable of supporting the laser scanner. Dowels shall be 1 in. minimum diameter. Tripods may be supplied from other manufacturers. Both tripods shall be capable of being used for the laser scanner.

#### 4.2.4 Cables

The system must include a cable capable of connecting the Laser Scanner to a Windows based PC for the purpose of controlling the Laser Scanner and transferring data.

#### 4.2.5 Carrying Cases

Laser Scanner System – A carrying case/s made of rigid material that provides superior protection, as well as, being lightweight.

#### 4.2.6 Scan Targets

The vendor shall supply the standard scan target package which shall include the following:

- 20 – Adhesive backed targets
- 20 – Magnetic backed targets
- 4 – Tilt & turn targets with 5/8" threads
- 2 – Flat magnetic mounts with 5/8" threads for tilt & turn targets
- 1 – V-Block magnetic mount with 5/8" threads for tilt & turn targets
- 1 – Twin target pole with targets
- Carrying cases and bags for all targets and mounts

#### 4.2.7 Miscellaneous Accessories

- Tribrach
- Cleaning kit
- Lens Cap

#### 4.2.8 Operating Manuals

Each Laser Scanner System shall include at a minimum of one (1) paper and one (1) electronic set of operation manual(s). The manual(s) are to include, stated in easily understood English; a logically sequenced step-by-step description of the laser scanner in general and they shall include specific sections devoted to the detailed operation of each system component.

#### 4.3 Software Specifications

The software shall be from the same manufacturer as the laser scanner. The software package(s) shall include modules for:

- Laser Scanner control and operation software
- 3d Point Cloud processing and modeling software

##### 4.3.1 Laser Scanner Control and Operation Software

###### 4.3.1.1 Minimum Configuration

The data processing software shall be capable of operating and running on the following:

- Computer: IBM PC or compatible with at least a Pentium 2.0 GHz processor.
- Random Access Memory (RAM) (Minimum of 1.0 GB.)
- Hard drive available (free) disk space (Minimum of 40 GB.)
- Mouse - Microsoft® or compatible.
- Software - Microsoft® Windows™ XP.

###### 4.3.1.2 Scan Controls

- Independent vertical and horizontal selection of scan density
- Selection of area to be scanned via a rectangle
- Set atmospheric correction parameters
- User-customizable latitude/longitude grid lines
- Scan filtering based on:
  - Area of interest
  - Range
  - Return intensity

###### 4.3.1.3 Workflow Controls

- View scanner locations and field of view
- Automated re-acquisition of targets
- Station Set-up
- Traversing
- Resection
- Known Backsight / Known Occupation Point
- Known Azimuth
- Direct coordinate/station entry
- Measure and Dimension: slope distance,  $\Delta x$ ,  $\Delta y$ ,  $\Delta z$
- Set target and instrument height
- In-field geo-referencing to coordinate system

###### 4.3.1.4 Camera Management

- Environmental lighting control for internal camera images
- Set image resolution (high, medium, & low)

###### 4.3.1.5 Viewing Controls

- Full "fly-around", pan & zoom and free rotation of scanned image
- View point clouds with intensity mapping, image color mapping, and elevation mapping
- Real time 3d visualization during scan

###### 4.3.1.6 Point Cloud Database Management

- Automatic linking of scans and images with scanner

- Unify point clouds

#### 4.3.2 3D Point Cloud Processing and Modeling Software

##### 4.3.2.1 Minimum Configuration

The data processing software shall be capable of operating and running on the following:

- Computer: IBM PC or compatible with at least a Pentium 2.0 GHz processor.
- Random Access Memory (RAM) (Minimum of 1.0 GB.)
- Hard drive available (free) disk space (Minimum of 40 GB.)
- Mouse - Microsoft® or compatible.
- Software - Microsoft® Windows™ XP.
- Graphics Card - 128 MB 3D OpenGL accelerated graphics card

##### 4.3.2.2 Point Cloud Registration

- Constraint Management
- Target-based Registration
- Cloud-Based Registration

##### 4.3.2.3 3D Modeling

- Least-squares fitting of 3D geometric primitives
- Fit points inside fence
- User-defined error tolerance
- Statistical QA reports

##### 4.3.2.4 Point Cloud Editing

- Automatically remove extraneous data
- Decimation of point clouds (every Nth point)

##### 4.3.2.5 Virtual Surveyor

- Assign descriptor/ feature codes to specific points
- Export feature codes and point coordinates to ASCII
- Fit 2D templates along point cloud data to extract features of interest

##### 4.3.2.6 Surface Modeling

- Intelligent decimation
- Polyline and breakline support
- Delete and add faces
- Fill in holes

##### 4.3.2.7 Data Exchange

- ASCII
- Microstation DGN

##### 4.3.2.8 Server Applications

- The data shall be able to be stored and accessed from a server through a LAN
- A minimum of Two (2) node licenses shall be included such that at least Two (2) simultaneous users can access and manipulate the data in a networked environment without the need of exchanging hardware locks.

#### 4.4 Standard of Performance

If requested, the apparent successful vendor meeting all requirements shall demonstrate the use of the proposed hardware and software as a condition of accepting the bid. A standard of performance must also be met for all equipment by performing the function for which it is intended for a period of forty-five (45) consecutive calendar days, beginning at the conclusion of the initial training period.

In the event the equipment does not meet the standard of performance during the initial forty-five (45) consecutive calendar days, the standard of performance test shall continue on a day-by-day basis until the standard of performance is met for a total of forty-five (45) consecutive days. The Laser Scanner System will not be accepted and no charges shall be paid until the performance requirements have been maintained for a period of forty-five (45) consecutive days. If the Laser Scanner System fails to meet the standard of performance after

one hundred twenty (120) calendar days from commencement of the performance period, the Arkansas State Highway and Transportation Department may require a replacement system or terminate the contract

## 5.0 PERFORMANCE REQUIREMENTS

Vendors must respond to the performance requirements in this section in accordance with the instructions given in Section 2.0(d) above.

### 5.1 Laser Scanner Accuracy

- Position: 6mm @ 50m (one sigma)
- Distance: 4mm @ 50m (one sigma)
- Horizontal Angle: 15" (one sigma)
- Vertical Angle: 15" (one sigma)

## 6.0 SUPPORT REQUIREMENTS

Vendors shall respond to the support requirements in this section in accordance with the instructions given in Section 2.0(e) above.

### 6.1 Training for Laser Scanner System

If requested, a qualified representative of the manufacturer shall provide instruction in the operation, calibration, and maintenance of the Laser Scanner Survey System at no extra cost. This instruction shall be provided to at least five (5) operators, engineers, and engineering specialists who have previous Survey experience. The purpose of the instruction shall be to train five (5) operators, engineers, and engineering specialists with the features, operation, calibration and maintenance of the Laser Scanner System.

The training is to be scheduled no later than ten (10) calendar days after delivery and installation of the Laser Scanner System. The training shall begin no later than thirty (30) days after delivery and installation of the Laser Scanner System. The training will typically consist of as a minimum of a two (2) day session or longer if necessary and a one (1) day follow-up session or longer if necessary. At the conclusion of training, all trainees should be able to operate the Laser Scanner System.

The vendor shall provide a proposal on the training and include, but not necessarily limited to, the following:

- Topics of instruction.
- Format of training (i.e. how will the training be presented).
- Number of days of training

### 6.2 Warranty and Calibration for Laser Scanner System

The successful bidder shall warranty the Laser Scanner System against defective workmanship or materials for a period of twelve (12) months of actual field services, commencing with the successful completion of the standards of performance. Any defect of workmanship, material, or software failure, which develops during the first year of field operation, shall be replaced, repaired or corrected at no expense to the Department.

The successful bidder shall also calibrate the laser scanner annually at no expense to the Department.

During the last thirty- (30) days of the warranty period, the Laser Scanner System will be checked by the successful bidder's service personnel and will make any necessary adjustments.

If the vendor's standard warranty is for a period in excess of twelve (12) months the standard warranty shall apply.

7.0 ATTACHMENT A – REFERENCE DATA SHEET

FOR VENDER: \_\_\_\_\_

Provide company name, address, contact person, telephone number, and appropriate information of contracted services that are similar to this solicitation document. (Any subcontractor arrangements for the completion of this work shall be listed on a separate bid page.)

**Company Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Contact Person:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_ **Services Provided:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Company Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Contact Person:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_ **Services Provided:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Company Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Contact Person:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_ **Services Provided:** \_\_\_\_\_

\_\_\_\_\_

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