



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFO NUMBER
606R002

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
JOHN JOHNSTON 304-558-2402

VENDOR

RFQ COPY
 TYPE NAME/ADDRESS HERE

SHIP TO

DEPARTMENT OF TRANSPORTATION
 DOH ENGINEERING DIVISION
 BUILDING 5, ROOM 650
 1900 KANAWHA BOULEVARD, EAST
 CHARLESTON, WV
 25305 304-558-0602

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
04/02/2006				

BID OPENING DATE: 04/26/2006 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		305-78		
<p>ELECTRONIC SURVEY EQUIPMENT</p> <p>THERE WILL BE A MANDATORY PRE-BID CONFERENCE AT THE STATE CAPITOL COMPLEX, BUILDING 5, ROOM 122, AT 1:00PM ON 4/18/06. FAILURE TO ATTEND THE PRE-BID CONFERENCE WILL RESULT IN BID DISQUALIFICATION.</p> <p>TO PROVIDE ELECTRONIC SURVEY EQUIPMENT/SOFTWARE/TRAINING COURSES/ TECHNICAL SUPPORT AND ROBOTIC TOTAL STATION.</p> <p>SEE ATTACHED</p> <p>VENDOR PREFERENCE CERTIFICATE</p> <p>CERTIFICATION AND APPLICATION* IS HEREBY MADE FOR PREFERENCE IN ACCORDANCE WITH WEST VIRGINIA CODE, 5A-3-37 (DOES NOT APPLY TO CONSTRUCTION CONTRACTS).</p> <p>A. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>() BIDDER IS AN INDIVIDUAL RESIDENT VENDOR AND HAS RESIDED CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>() BIDDER IS A PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR AND HAS MAINTAINED ITS HEAD-QUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR 80% OF THE OWNERSHI</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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**GENERAL TERMS & CONDITIONS
(REQUEST FOR QUOTATION) RFQ AND (REQUEST FOR PROPOSAL) RFP**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$45 fee.
5. All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from Federal and State taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this contract is automatically null and void, and is terminated without further order.
14. **HIPAA Business Associate Addendum** - The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Covered Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in cases of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **DUPLICATE BIDS:** All quotations must be delivered by the bidder to the respective offices listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications.

ORIGINAL SIGNED BID TO:

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

DUPLICATE BID TO:

State Auditor's Office
Bid Observer
Building 1 Room W114
1900 Kanawha Boulevard, East
Charleston, WV 25305-0230



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<p>INTEREST OF BIDDER IS HELD BY ANOTHER INDIVIDUAL, PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR WHO HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>() BIDDER IS A CORPORATION NONRESIDENT VENDOR WHICH HAS AN AFFILIATE OR SUBSIDIARY WHICH EMPLOYS A MINIMUM OF ONE HUNDRED STATE RESIDENTS AND WHICH HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA CONTINUOUSLY FOR THE FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION.</p> <p>B. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>() BIDDER IS A RESIDENT VENDOR WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES WORKING ON THE PROJECT BEING BID ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID;</p> <p>OR</p> <p>() BIDDER IS A NONRESIDENT VENDOR EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS OR IS A NONRESIDENT VENDOR WITH AN AFFILIATE OR SUBSIDIARY WHICH MAINTAINS ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES OR BIDDERS' AFFILIATE'S OR SUBSIDIARY'S EMPLOYEES ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID.</p>						

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<p>BIDDER UNDERSTANDS IF THE SECRETARY OF TAX & REVENUE DETERMINES THAT A BIDDER RECEIVING PREFERENCE HAS FAILED TO CONTINUE TO MEET THE REQUIREMENTS FOR SUCH PREFERENCE, THE SECRETARY MAY ORDER THE DIRECTOR OF PURCHASING TO: (A) RESCIND THE CONTRACT OR PURCHASE ORDER ISSUED; OR (B) ASSESS A PENALTY AGAINST SUCH BIDDER IN AN AMOUNT NOT TO EXCEED 5% OF THE BID AMOUNT AND THAT SUCH PENALTY WILL BE PAID TO THE CONTRACTING AGENCY OR DEDUCTED FROM ANY UNPAID BALANCE ON THE CONTRACT OR PURCHASE ORDER.</p> <p>BY SUBMISSION OF THIS CERTIFICATE, BIDDER AGREES TO DISCLOSE ANY REASONABLY REQUESTED INFORMATION TO THE PURCHASING DIVISION AND AUTHORIZES THE DEPARTMENT OF TAX AND REVENUE TO DISCLOSE TO THE DIRECTOR OF PURCHASING APPROPRIATE INFORMATION VERIFYING THAT BIDDER HAS PAID THE REQUIRED BUSINESS TAXES, PROVIDED THAT SUCH INFORMATION DOES NOT CONTAIN THE AMOUNTS OF TAXES PAID NOR ANY OTHER INFORMATION DEEMED BY THE TAX COMMISSIONER TO BE CONFIDENTIAL.</p> <p>UNDER PENALTY OF LAW FOR FALSE SWEARING (WEST VIRGINIA CODE 61-5-3), BIDDER HEREBY CERTIFIES THAT THIS CERTIFICATE IS TRUE AND ACCURATE IN ALL RESPECTS; AND THAT IF A CONTRACT IS ISSUED TO BIDDER AND IF ANYTHING CONTAINED WITHIN THIS CERTIFICATE CHANGES DURING THE TERM OF THE CONTRACT, BIDDER WILL NOTIFY THE PURCHASING DIVISION IN WRITING IMMEDIATELY.</p> <p>BIDDER: -----</p> <p>DATE: -----</p>						

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<p>SIGNED: -----</p> <p>TITLE: -----</p> <p>* CHECK ANY COMBINATION OF PREFERENCE CONSIDERATION(S) IN EITHER "A" OR "B", OR BOTH "A" AND "B" WHICH YOU ARE ENTITLED TO RECEIVE. YOU MAY REQUEST UP TO THE MAXIMUM 5% PREFERENCE FOR BOTH "A" AND "B". (REV. 12/00)</p> <p>NOTICE</p> <p>AN ORIGINAL, SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>AN EXACT DUPLICATE MUST BE SUBMITTED TO:</p> <p>STATE AUDITOR'S OFFICE BID OBSERVER BUILDING 1, ROOM W114 1900 KANAWHA BOULEVARD, EAST CHARLESTON, WV 25305-0230</p> <p>BOTH BIDS MUST CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPES OR THE BIDS MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p>						

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SPECIFICATION FOR SURVEY EQUIPMENT

1.0 – GENERAL:

The Vendor is requested to provide, with the bid, an itemized equipment list and product specification specifically stating, at a minimum, how the product specifications meet or exceed the minimum specifications of this bid. Any alternatives or deficiencies to the minimum requirements should be stated. Failure to provide sufficient information to evaluate conformity with the requirements of the specification may be grounds for rejection of the bid. The equipment supplied by the Vendor shall be the most current model and/or version as of the date of this specification. The Vendor's proposal should meet the requirement of the sections below. The vendor must supply twenty-nine (29) Total Station System Packages and twelve (12) Global Positioning System Packages. All the major electrical components of the systems, excluding sections 3.2 and 4.2, shall be provided by the same manufacturer. The bid will be awarded to one Vendor only; a split Vendor bid will not be awarded. The state reserves the right to waive minor irregularities in bids or specifications in accordance with section 148-1-4 (F) of the West Virginia legislative rules and regulations. The successful bidder will be required to participate in a product demonstration within three (3) business days of notification by the Division representative. This demonstration will be held in the Charleston, WV area at a predetermined site. The Vendor will be requested to demonstrate that the product meets this specification to be awarded the bid.

2.0 – TRAINING AND DISTRIBUTION:

2.1 – Distribution of Equipment - The Vendor shall accept, store and distribute all equipment to the Division sites listed in Table 1-A. The Vendor shall also provide Delivery and Training Courses explained below. Training and distribution must be prepared for *eleven (11) separate sites* as explained in Table 1-A. The distribution will be accomplished in conjunction with the training required in subsection 2.2. The Vendor will deliver the complete system equipment packages (as shown in table 1-A) ready for operation with fully charged battery operation and all manuals. Coordination for the distribution and training will be provided by Engineering Division of the Highway Department upon award of contract.

2.2 – Training Courses - The Vendor shall establish training courses intended for instruction of Division personnel in the operation of supplied equipment. The Vendor shall provide such training as shown below and will NOT be permitted to combine sites or Districts. The courses shall be a minimum of two (2) 8-hour days of training for the total station/data collection system and a minimum of two (2) 8-hour days of training for the GPS equipment system and one (1) 8-hour day for the integration of the two systems for each site. The Vendor shall provide the total station/data collection training first. The GPS equipment system training shall follow no sooner than seven (7) calendar days after the first training. The integration training shall follow no sooner than seven (7) calendar days after the GPS system training class. The Vendor will have a maximum of 120 days from the date of purchase to complete all training and distribution.

The Vendor is requested to provide, with the bid, a training agenda and training manual. The agenda should list the different topics to be covered with assigned times and hands-on sessions. The proposal should include a statement of the minimum qualifications and credentials for instructors who will provide training and a proposed schedule of training dates. Two (2) training manuals must be supplied with each system. The training manual should be in addition to any equipment operation manuals.

2.3 – Support – The Vendor shall provide technical support for all supplied equipment and software at no cost to the Division for a period of 5 years. This support should be in the form of a toll free telephone number which should access a trained technical person who can aid or direct to aid for all aspects of troubleshooting the equipment/software. This technical support line should insure direct connection to a support technician or maximum four hour callback.

2.4 – Warranty and Maintenance: The Vendor shall provide a 2 year extended warranty. The standard product warranty conditions are to apply to this extended warranty.

The Vendor is to provide maintenance for the equipment throughout the warranty period, including the extended warranty period. Maintenance shall include without limitation:

- ❖ Scheduled calibrations

- ❖ Routine or requested adjustments
- ❖ Product updates

3.0 – TOTAL STATION/DATA COLLECTION SYSTEM –

The Vendor shall provide a complete total station and data collection system as shown in this specification. Any components essential to operate the Vendor's system not listed in this specification should be included and noted in the equipment list.

3.1 – Robotic Total Station – The Vendor shall provide a robotic total station which conforms to the requirements of this specification with reflectorless technology, a laserpointer, and radio. The total station shall be a one (1) second complete robotic unit. The unit must have a complete carrying case. Unit must include a 360 degree prism with carbon fiber pole. Each unit shall have minimum two (2) batteries and one (1) fiberglass tripod. The unit should meet the requirements of the following:

- ❖ Optional external data collector capability
- ❖ Measurement methods with or without a reflector
- ❖ Have a minimum accuracy of (3mm + 2ppm) in standard measurement mode and (10mm + 2ppm) in tracking measurement mode both in prism or reflectorless
- ❖ The angle accuracy equals 1" with the least count angle reading 1"
- ❖ The leveling system should have:
 - Tribrach
 - Circular Level
 - Built-in optical or laser plummet
- ❖ 30x magnification telescope
- ❖ The power supply for the instrument should be:
 - Internal battery – rechargeable Li-Ion battery
 - Robotic holder with one internal battery
- ❖ Minimum Robotic range of 500 meters
- ❖ The radio should not require a license
- ❖ Completely cable free, Instrument and robotic
- ❖ The robotic pole should be a adjustable carbon fiber construction
- ❖ The target should use a 360 degree prism setup
- ❖ The tripod should be of fiberglass construction with quick release locks
- ❖ Charging system

3.2 – Data Collection Unit – The Vendor shall provide a data collection unit able to be used with both GPS system and Total Station. This handheld instrument should include an industry-standard Microsoft® Windows® desktop shell with a low power Processor from Intel. The system should contain a minimum of 128 MB of SDRAM with a minimum of 512MB of non-volatile flash disk with a minimum 520 MHz processor. The system should meet Military Specification MIL-STD-810F for temperature, moisture and immersion, dust and sand, drop test, shock, vibration and altitude operating within the following environmental specifications:

The system must have a large color illuminated TFT touch screen reflective daylight readable display (QVGA) with a full alphanumeric keyboard. The touch screen should be sunlight readable, passive, and able to work with a finger or a stylus with the capability to lock the touch screen to clean or wipe moisture from the screen. The keyboard should provide direct access to activating the screen backlight for work in low or no light conditions. The unit must provide an integrated Bluetooth to provide communication with other Bluetooth ready devices. The unit should be able to be powered by a rechargeable battery with no risk of over charging the battery when in the handheld. The unit should not lose data if there is no power supplied (Battery or External) to the unit. The system should have Modem configuration for Remote Networking, capable of Local Area Network (LAN) configuration and enable support for e-mail communication.

3.2.1 – Data Collection Unit Software - The Vendor shall provide software for the data collection units described in section 3.2 with the following capabilities:

The data collector software should be capable of storing the following records:

- **Instrument / receiver parameters**
- **Measurement parameters**
- **Descriptive notes**
- **Point feature codes**
- **Point attributes**
- **Alphanumeric point ID's with at least 16 digits**
- **Height of instrument / antenna**
- **Height of target / antenna**
- **Slope distance**
- **Horizontal distance**
- **Horizontal angle**
- **Vertical angle**

The data collector software should be able to store raw GPS data for post-processing, download raw GPS data from a receiver, via a USB and/or RS-232 cable, for post-processing and have sound synthesis for warnings and confirmation of measurement. This software must be able to accept a list of feature codes that will be used to aid entry of codes in the field. The data collector software should be able to collect extensive GIS data information. It should be possible to define in the office the information to be collected in the field. The following should be able to be specified:

- **Numeric only values (With optional minimum and maximum values)**
- **Alphanumeric only values**
- **Lists (Only items in the predefined list may be entered)**
- **Date and times**

The data collector software must be capable of displaying data in a graphical job map, to identify gaps in the survey before leaving the site, or to see the current position plotted with respect to the other points in the database. The data collector software should support multiple AutoCAD DXF ASCII or Shape file background maps and to collect GPS data.

The following Coordinate Geometry (CoGo) functionality should be supported:

- **Inverse/Intersection calculations**
- **Calculate coordinates**
- **Area calculations**
- **Offsets**
- **Line and Arc Subdivisions**
- **Traverse Observation, Calculation and Adjustment**
- **Averaging**

The data collector software should support upload, and key in entry of the following road details:

- **Horizontal alignment (Including arcs and spirals)**
- **Vertical alignment (Including symmetric and asymmetric parabolas and circular curves)**
- **Superelevation and widening values**
- **Templates**

The data collector should support graphical road stakeout that includes the cross section; in-field editing of the road design; and double offsets left or right and in, or out from a baseline. This software should be able to export data, using a data transfer utility, to PC based Office software.

The data collector software should be capable of collecting the following GPS data:

- **Standard topo**
- **Continuous Kinematic topo**
- **Continuous topo**
- **Control points**

The data collector software should provide real time updates of all of the following functions:

- **Available satellites as viewed at the rover and at the rover from the base**
- **SNR on individual rover satellites**
- **RMS (Root Mean Square) of GPS signal**
- **Horizontal precisions (when needed)**

- **Vertical Precisions (when needed)**
- **Solutions type Fixed, Float, WAAS**
- **Percentage of available power from the power source**
- **PDOP**
- **Radio communication (when needed)**

It should be possible to feature code each run of points,

The data collector software should support the following Initializations:

- **On-the-Fly (OTF)**
- **Static Initialization (New Point)**
- **Known baseline/known point**
- **Projects may be opened and started either using a local projection and local datum or none (WGS84)**
- **The data collector software should be capable of recording the following Quality Control / Quality Assurance data for each RTK point recorded:**
- **Number of Satellites tracked during observation**
- **Observation Start and Stop times**
- **Number of Positions used to average point**
- **Maximum PDOP value during observation**
- **Horizontal and Vertical point accuracy (3 sigma)**
- **Vector Variance / Covariance Matrix**
- **Elements of the position error ellipse**
- **Antenna Height Used**

The data collector software should allow for the following types of GPS stakeout:

- **Point**
- **Arc and Arc offset**
- **Line and Line offset**
- **Road / Alignment**
- **Slope Staking**

The data collector software should allow point stake-out without:

- **any reference to North,**
- **to the direction of the base station**
- **other known point in order**

The data collector software, when staking out a road design, should allow reporting and a continuous update in real time the following information:

- **Current Station (Chainage) along alignment**
- **Current Offset from alignment**
- **Current Cut / Fill to design surface**

The data collector software should support Wide Area Augmented Solution (WAAS) display and multiple GPS base stations on one radio frequency with the capability to swap bases in real time during a survey and can change the radio frequency from internal or external radios providing the radio has more than one channel and the radio allows channels to be changed. As well as be able to scan the current radio frequency for available base station.

The software should support the capability to communicate and receive RTK messages via either:

- **GPRS(GSM)**
- **1XRTT (CDMA)**
- **Internet connection**

The data collector should connect to, operate and carry out surveying and stake out with optical and GPS instruments from all the following manufacturers:

- **Leica** **Sokkia**
- **Nikon** **Pentax**
- **Topcon** **Trimble**

The software should be capable of recording conventional topo shots, and check shots allowing for the following types of conventional stake out:

- **Point**

- Arc
- Line
- DTM
- Road

The collector software should be able to store the as-staked position of any point staked out and show/record the differences between the design point and the as-staked point. The data collector software should allow the download of the stakeout records to allow the generation of cut-sheet reports in office software capable of calculating the coordinates of an unknown point using observations to coordinated points (resection / stationing / free station).

The data collector shall support operation of robotic instruments remotely through radio communication. The collector should support measuring rounds of observations. The data collector software should enable a configurable search window for locating a prism when working with Robotic instruments which allow for search windows, it should be able to determine the location of a remote objects height, contain a library of common coordinate systems and allow user entry of projection and datum shift information.

The GPS site calibration should be capable of computing all of the following adjustments:

- Horizontal adjustment
- Vertical adjustment
- Plane projection

4.0 – GLOBAL POSITIONING SYSTEM

4.1 – Real-Time/Post-Processing GPS Receiver: The Vendor shall provide a real time and post processing global positioning system consisting of a dual frequency rover receiver with internal radio and two (2) batteries; a dual frequency base receiver with internal radio and two (2) internal batteries; a carbon fiber pole with bipod; a fiberglass tripod (2 each); and a tribrach with optical plummet and tribrach adapter with removable center.

The dual frequency (L1/L2) GPS/WAAS/EGNOS receiver with integrated radio modem must be Real-Time and Static. The GPS receiver should be a minimum 24 channel, dual-frequency GPS receiver, GPS antenna, and data link radio combined in one compact unit. The GPS base receiver should have an internal radio with transmitting capability, with a cable-free solution. The GPS base and rover must be completely interchangeable. The base must be able to be used as a rover if needed. The GPS internal radio's transmission range should be minimum 3 km with the ability to use external radio as an option. Included with the rover package is a carbon fiber 2 section rod. The GPS receiver should be capable of GSM (mobile phone) communication and two serial ports.

4.2 – Data Collection Unit – The Data collection unit for the GPS system shall conform to Section 3.2 of this specification. The Vendor shall provide a data collection unit for the base and for the rover kits.

4.3 – Office Software Package – The Vendor shall provide a Real-Time and Post Processing software package this office software must be a single integrated package for GPS (RTK and PostProcessed), conventional optical, data processing, network adjustment, topographic mapping and quality control. It shall include a PC diagnostic report to facilitate PC compatibility without need for a hardware security key to be operated, allowing for multiple site licenses.

Integrated Software Package capabilities should require:

- Project Management
- Import of raw GPS, optical and level data
- Import of survey data collected from RTK GPS and conventional optics
- Windows Explorer Drag and Drop of data files on to the Trimble Geomatics Office software map display
- RINEX 2.1 import and export
- GPS Baseline Processing
- Network Adjustment (GPS/Conventional Survey/Level Survey)
- Survey data reduction and processing for all leading manufacturer's instruments including but not limited to:
 - Topcon

- Leica
- Pentax
- Nikon
- Sokkia
- Trimble
- Text editing capability
- Feature code creation, editing and processing
- GIS attribute support and GIS export to leading GIS systems
- CSV import and export
- Viewing of data as survey observations or as plan features
- Tools that enable QA / QC of data
- Production of professional reports in html format
- A Database of published Coordinate systems, Datum Transformations and Geoid models
- The ability to create and save your own personal Coordinate Systems, Datum Transformations and Geoid Models
- The ability to create a sub-grid of a Geoid Model by graphical tools or numerical tools
- Import of road designs in over 20 native design software formats
- Import of Digital Terrain Models (Grid or TIN)
- Export of final survey drawings in at least 30 native CAD, Survey, Design and GIS formats

Integrated QA / QC GPS graphical data viewer for each satellite to view any combination of:

- Elevation Angle
- Azimuth
- L1 SNR
- L2 SNR
- Pseudo ranges
- Carrier Phases
- Doppler values

All processing software should be capable of post processing GPS data.

The office processing software should support the following coordinate system requirements:

- Coordinate systems list available for selection
- Ground coordinates
- Conversion from US State Plane to US State Plane Ground (US only)
- Configurable on a project by project basis
- Import and export different systems to the same project
- GPS site calibration
- Geoid models and sub grids of Geoid models
- Datum grids including NadCon (North American Users only)

The Office Processing Software should have the ability to hide selected observations types from the map to aid in QC and visualization should also have the ability to show observations as stub vectors to reduce the number of lines on the screen. This software shall enable the user to import NGS data sheets, downloaded from the Internet for USA users and allow Import of raw conventional total station data from at least six different manufacturers is required.

The office processing software should be able to import/process field data collected using:

- GPS surveying receivers
- Terrestrial survey instruments (electronic field books and digital levels)

The office processing software should be able to export data to major CAD, Design and GIS software packages including:

- AutoCAD DXF / DWG
- Autodesk Fieldbook files
- Microstation
- ArcView Shape files (point and line)
- MapInfo
- Terramodel

The office processing software should allow export formats to be edited and allow for the creation of custom Import, Export and Report formats as well as custom formats to be editable and deletable.

The office processing software should support the import and export of the following information to the field software on a handheld data collector:

- **Antenna details**
- **Data dictionary**
- **Datum GRID**
- **Digital Terrain Model(DTM)**
- **Feature and Attribute libraries**
- **Feature code lists**
- **GEOID files**
- **Road designs**
- **Point coordinates in WGS-84 and NEE**

The office processing software should automatically create a non editable backup of raw survey data downloaded via a serial port and allow for a database report to be created. This report should include details of either the whole of the database or a subset of the data. This software should allow for external import or export formats to be added and have the capability to import and export MicroStation DGN and AutoCAD DXF, DWG.

The office software should allow the import of cross section data for use as templates from:

- **Auodesk**
- **Inroads**
- **Terramodel**

The office software should allow the import of Road Designs formats including:

- **Autodesk Land Development Desktop**
- **Autodesk Civil Design/ Softdesk**
- **Inroads**
- **DXF**

The software should be able to import NGS data sheets for Control seeding and include a fully featured GPS baseline processor, allowing the GPS post processing for static data, fast static data and kinematic data should be supported for short and long baselines. This software should allow access to, and configure, advanced baseline controls for advanced users and save them as styles for later use and the graphical selection of baselines for independent, random or all baseline processing of baselines. Detailed processing report containing processing parameters and results for single and multiple baselines should be available with the viewing and printing of graphical Residual Plots for analysis of baseline processing results with the ability to perform automatic loop closures. The office software should allow for a Least squares network adjustment of GPS control networks to be supported and adjustment results to be displayed in a detailed and summary report. This software should allow the Network Adjustment to allow for various weighting strategies to balance combined data types of GPS, Conventional optical and Level data types and allow the user to view adjustment results, identify outliers, refer back to the GPS baseline processing report, remove raw GPS data, reprocess the baseline and re-adjust the network in a simple workflow and without the need to use more than one software package. Following an adjustment, the software, should be able to apply the derived adjustment parameters to observations not included in the adjustment such as RTK vectors, side shots and vectors without a full covariance matrix, in order to ensure consistency of all observations in the project with automatic scaling for network adjustment iterations.

The office processing software should allow for data to be stored in the database in its captured format:

- **For GPS data this is ECEF Dx,Dy,Dz**
- **For conventional data this is turned angle, vertical angle, slope distance**

The office processing software must allow Coordinates to be displayed in Grid, Local Latitude and Longitude, WGS-84 Latitude and Longitude, or XYZ. Also, should provide a measuring tool that allows for computation of areas by selecting locations on the screen. There should not be a requirement for an entity to exist at that location on the screen. The office processing software should support background maps using the following formats: BMP, TIF, & DXF and have the ability to create, display and hide

project layers in the map display, allowing for entities displayed to be selected using a mouse or from a number of defined menu selection methods. It should show the direction of Observation flow out for all vectors.

The office processing software should allow for the following:

- **Printed/plotted whole database or subsets**
- **Users to add points, lines, curves, arcs and text**
- **Annotation of points, line, arcs and curves**
- **Assignment of different point and line styles**
- **Creation of new point and line styles**
- **Creation of new text styles**
- **Data to be viewed and edited in a property window**
- **Symbols and line types to be added to the software**
- **Points to be moved by a simple click and drag operation**
- **Processing of feature codes with or without associated attributes**
- **Ability to make or edit existing feature and attribute libraries**
- **custom queries**
- **Feature and attribute libraries to define how points and lines are drawn**
- **a feature code to have an associated control code to determine how points and lines are displayed in the software.**
- **Features and attributes can be viewed and edited by double mouse clicking on the associated point or line**
- **display and printing of background grid tics/lines**

The processing software should allow for feature and attribute libraries to be able to be exported to a data collector and for features and attributes to be exported to the following formats:

- **Autocad DXF**
- **Mapinfo**
- **Microstation DGN**

This software should allow for the following:

- Generation/editing of a new/existing contour surface model.
- Contour model to have breaklines added and removed
- Addition and removal of include and exclude boundaries from a contour model
- Provide triangle editing to give users control over the contour model formation.
- Gridded terrain models to be created from a contour model for export to a data collector.
- Contour models to be used for Earthworks volumes calculations.
- Volume calculations to be repeated.

The software should use individual triangular prisms to compute volumes and support the following Earthworks Volume calculations:

- **Stockpile calculations**
- **Volumes of layers of materials**
- **Void volume calculation**

The processing software should allow for heights of instruments and targets to be stored in the database. It should be possible to edit the instrument height and have this change automatically update all points observed from that occupation. It should aid in error detection/recovery and allow for multiple points with the same name and different coordinates in the database. This software should allow the updating of the coordinate of the instrument station and automatically update all points observed from this instrument station. When there are multiple observations to a point, it should perform a weight average of these observations to produce the best coordinates for the point. The office processing software should allow for raw observations stored in the database to be editable.

Table 1-A

WVDOH DISTRICT	Number of System Packages to be delivered		CONTACT INFORMATION
	Total Station System Package	Global Positioning System Package	
D-1	2	1	1334 Smith Street Charleston, WV 25301-1492 Telephone: 558-3001
D-2	3	1	P.O. Box 880 801 Madison Avenue Huntington, WV 25712-0880 Telephone: (304) 528-5625
D-3	2	1	624 Depot Street Parkersburg, WV 26101-0308 Telephone: 420-4645
D-4	2	1	P.O. Box 2570 (I-79 & Meadowbrook Road, Bridgeport) Clarksburg, WV 26302-2570 Telephone: 842-1500
D-5	2	1	P.O. Box 99 (Rt. 50) Burlington, WV 26710-0099 Telephone: 289-3521
D-6	3	1	904 Third Street Moundsville, WV 26041-1605 Telephone: 843-4008
D-7	2	1	Drawer 1228 (Depot St.) Weston, WV 26452-1228 Telephone: 269-0414
D-8	2	1	P.O. Box 1516 (US 219 North) Elkins, WV 26241-1516 Telephone: 637-0215
D-9	2	1	103 1/2 Church Street Lewisburg, WV 24901 Telephone: 647-7450
D-10	2	1	270 Hardwood Lane Princeton, WV 24740-2737 Telephone: 487-5228
Central Office	7	2	1900 Kanawha Blvd E Building 5, Rm 430 Charleston, WV 25305 558-9681

WV DIVISION OF HIGHWAYS
'BID SHEET'

SURVEY BID SPECIFICATION ESTIMATE			
Training/Distribution/Support (Section 2.0)	UNIT PRICE	UNITS	COST*
Training		x 55 days for 11 sites	
Distribution		x 11 sites	
Support		lump sum	
Maintenance and Warranty		lump sum	
		2.0 – Subtotal	
Total Station/Data Collection System (Section 3.0)			
Robotic Instrument		x 29 units	
Instrument Onboard Software		x 29 units	
Tripod		x 29 units	
Tribrach		x 29 units	
Carry Case		x 29 units	
Carbon Fiber Pole		x 29 units	
3D Prism		x 29 units	
Batteries		x 58 units	
Manual(s)		x 29 units	
Charging System		x 29 units	
Data Collection Unit		x 53 units	
Software		x 29 units	
Memory Card(s)		x 29 units	
Holder		x 29 units	
Cable(s)		x 29 units	
Essential Accessory Items**		x 29 units	
		3.0 – Subtotal	
Global Positioning System (Section 4.0)			
Rover and Base Kits		x 24 units	
Antenna		x 24 units	
Case		x 24 units	
Carbon Fiber Pole		x 24 units	
Tripod		x 24 units	
Tribrach		x 24 units	
Cables		x 24 units	
Holder for Data Collector		x 24 units	
Batteries		x 48 units	
Charger		x 24 units	
Essential Accessory Items**		x 24 units	
		4.0 – Subtotal	
		TOTAL BID	

*Note: In accordance with WV State Law, payment will be made upon completion of work
 **Note: Whereas the Division recognizes that accessory items vary between manufacturers, this line item is intended for the essential items to facilitate the Vendor's system to meet or exceed the requirements of this specification

AFFIDAVIT

West Virginia Code §5A-3-10a states:

No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions.

"Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION:

The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

LICENSING:

The vendor must be licensed in accordance with any and all state requirements to do business with the state of West Virginia.

CONFIDENTIALITY:

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit www.state.wv.us/admin/purchase/privacy for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor's Name: _____

Authorized Signature: _____ Date: _____