SOLE SOURCE DETERMINATION

The Purchasing Division has been requested to approve a sole source purchase for the commodity or service described below. Pursuant to West Virginia Code 5A-3-10c, the Purchasing Division is attempting to determine whether the commodity or service is a sole source procurement. If you believe your company meets the required experience and qualification criteria stated below, please e-mail the Purchasing Division Buyer at sheri.d.slone@wv.gov with a copy to w.michael.sheets@wv.gov to express your interest in the project. Please forward any and all information that will support your company's compliance with required qualification and eligibility criteria along with any other pertinent information relative to this project to the Purchasing Division no later than 1:30 PM on 04/12/2011

Requisition Number: **60-11-00004**

Department/Agency: **WVDOH/Engineering**

Detailed Description of Project: **Purchasing of Survey Data Processing Software (Trimble Business Center) for DOH Surveyors**

Proposed Sole Source Vendor: **Precision Laser & Instrument, Inc. Cross Lanes WV**

Specific Eligibility Criteria: **Precision Laser & Instrument is the only Authorized Dealer for Trimble Surveying Software in the State of WV**

Specific Qualification Criteria:

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, conventional level and laser rangefinder data transfer, data processing, network adjustment, topographic mapping and quality control. Multiple software packages to process GPS and conventional optical survey data are not acceptable. It shall allow for multiple site licenses with integrated communication with Trimble Survey Controller Software and Trimble Access Software operating on a platform conducive with MicroSoft Windows version 7 or higher. The vender must be an authorized dealer of Trimble Software and Licenses.

Integrated Software Package capabilities shall require:

- **Project Management**
- **Import of raw GPS, GNSS, 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 3.2 import and export**
- **GPS/GNSS Baseline Processing**
- **Network Adjustment (GPS/Conventional Survey/Level Survey)**
- **Optical survey data reduction and processing for all leading manufacturer's instruments including but not limited to:**
- **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**
- **Display of scaleable background grid lines**
- **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**
- **Stationary range values**

Projects created in the processing software must be based on a template. A template contains project settings and may contain other data, control points for example, it must allow for new templates to be made and existing templates to be modified the database structure shall be based on Microsoft Access MDB files. Queries on projects must be able to be done using Microsoft Access. All processing software must be capable of post processing GPS data.

The office processing software shall 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 must have the ability to hide selected observations types from the map to aid in QC and visualization must 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 must be able to import/process field data collected using:

- **GPS surveying receivers**
- **Terrestrial survey instruments (electronic field books and digital levels)**
- **Laser range-finders**

The office software shall have the ability to check and edit level data from a digital level before the file is imported into the project it must allow the export of the whole database for a job as well as user specified subsets of data. Must also, allow for the export of Datum grids and Geoid files to the field data collector for use in the field.

The office processing software must be able to export data to over 30 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 must 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 must 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 co-ordinates in WGS-84 and NEE**

The office processing software must 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 must include details of either the whole of the database or a subset of the data. This software must 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 must allow the import of cross section data for use as templates from:

- **Auotdesk**
- **Inroads**
- **Terramodel**

The office software must allow the import of Road Designs in over 20 formats including:

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

The software must 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 must be supported for short and long baselines. The office software must allow the user to achieve the highest accuracy on long baselines (from >50 km to several thousand km) and include default processing values for simple usage by new users. This software must 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 must 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 must 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 must 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, must 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 must 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 ECEF XYZ and provide a measure tool that allows for computation of areas by selecting locations on the screen. There must not be a requirement for an entity to exist at that location on the screen. The office processing software must 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 must show the direction of Observation flow out for all vectors.

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