

**NOTICE TO BIDDERS**  
**SURVEY GRADE GPS SYSTEM**

Notice is hereby given that the Board of County Commissioners of Santa Rosa County, Florida, will receive sealed bids for a **Survey Grade GPS System**. System shall include two (2) receivers, one (1) data collector and software per specifications provided.

All bids must be original and delivered by hand, Fed Ex, or mail to the Santa Rosa County Procurement Department, 6495 Caroline Street Suite G, Milton, Florida, 32570; and must be received by 10:00 a.m., December 22, 2015, at which time bids will be opened and read aloud. Bids received after the time set for the bid opening will be rejected and returned unopened to the bidder. Bids are to be sealed and plainly labeled "**BID – SURVEY GRADE GPS SYSTEM**". All interested parties are invited to attend

Questions concerning this request should be directed to the Santa Rosa County Assistant County Engineer, Michael Schmidt P.E., or Ricky Sears PLS, at (850) 981-7100.

Specifications and bid form may be secured from the Santa Rosa County Website ([www.santarosa.fl.gov/bids](http://www.santarosa.fl.gov/bids)) or at the Santa Rosa County Procurement Department at the above address. Telephone (850) 983-1870

The Board of County Commissioners reserves the right to waive irregularities in bids, to reject any or all bids with or without cause, and to award the bid that it determines to be in the best interest of Santa Rosa County.

Santa Rosa County Board of County Commissioners encourages all segments of the business community to participate in its procurement opportunities, including small businesses, minority/women owned businesses, and disadvantaged business enterprises. The Board does not discriminate on the basis of race, color, religion, national origin, disability, sex, or age in the administration of contracts.

By order of the Board of County Commissioners of Santa Rosa County, Florida

**LEGAL NOTICE**

One issue –Press Gazette – November 21, 2015, Navarre Press – November 26, 2015, Gulf Breeze News – November 26, 2015; and November 26, 2015 – South Santa Rosa News

# GPS SPECIFICATIONS

## 1. Receiver.

- a. Shall have Real-Time Kinematic (RTK) and Post Processed GNSS Survey capability, which allows individual the capability to track multiple base stations during RTK operations, with the ability to distinguish which base station, is being tracked simultaneously.
- b. Shall have the ability to record measurements from multiple base stations in a single survey job file, the ability to distinguish which base station is being tracked, and the ability to receive base station warnings and battery updates while in RTK mode.
- c. Shall have Post Processing Kinematic (PPK) GNSS Survey capability.
- d. Shall have the capability to switch between PPK and RTK modes without the need to return to the base station during times of intermittent radio contact or jamming.
- e. Shall have Static logging capability.
- f. Shall be capable of configuring the receiver to perform automatic Static logging surveys upon power on, log raw GNSS data for a predetermined amount of time based on the number of satellite vehicles being tracked, without the need to connect the data collector to begin the survey.
- g. Shall have imbedded technology which encompasses next-generation constellations in advance of modernized GPS satellite launches to include, but not limited to: Galileo, BeiDou (COMPASS), and Japan's augmentation system Quasi-Zenith Satellite System (QZSS), increasing reliability in GPS challenged environments, such as limited sky visibility
- h. Shall have imbedded technology which encompasses next-generation augmentations in advance of modernized GPS satellite launches to include, but not limited to: U.S. Wide Area Augmentation System (WAAS), European Geostationary Navigation Overlay Service (EGNOS), Japanese Multi-functional Satellite Augmentation System (MSAS) and QZSS, Indian GPS-Aided Geo Augmented Navigation (GAGAN) and the System of Differential Correction and Monitoring (SDCM), increasing reliability in GPS challenged environments.
- i. Receiver shall have the ability to perform on-the-fly, or known station point initialization, saving the individual time when performing an RTK survey if initialization is lost.
- j. Shall have a built-in Ultra High Frequency (UHF) with 0.5W transmit and receive radio, providing Soldier the ability to utilize receiver as a base or rover interchangeably
- k. GNSS Receiver shall process multi-bit analog-to-digital conversion and Surface Acoustic Wave (SAW) filter at both Radio Frequency (RF) and Intermediate Frequency (IF) frequencies to provide anti-spoofing performance
- l. GNSS Receiver shall have the time from power on of GNSS-S System to acquisition of all L1/L2 signals to be less than 30 seconds
- m. The GNSS Receiver shall, after the loss of satellite, provide re-acquisition of both L1 and L2 signals within 15 seconds
- n. The size of the receiver shall not exceed 19.0 cm (7.5 inches) wide by 10.4 cm (4.1 inches) deep, including connectors
- o. The receiver shall not exceed 3.35 lbs. to include internal radio modem, internal battery, and UHF antenna
- p. Shall pass military specifications described by MIL-STD-810F Fig.514.5C-1 for vibration
- q. Electronics shall be 100% fully sealed from sand, dust, and moisture
- r. Must withstand a 2 m (6.6 ft.) non-operating pole drop onto concrete and operate to 40 G, 10 msec, saw tooth
- s. Shall be able to operate to measurement specification in temperatures between -40 degrees F to +149 degrees F.
- t. Shall be not less than 100% condensing humidity proof

- u. Shall be able to be submerged to a depth of 3.28ft without water affecting the equipment
- v. Shall be waterproof tested to International Protection Marking (IP) IP67 protection classifications according to German Standard (DIN) 40 050 / International Electrotechnical Commission (IEC) 529; definition of indexes
- w. Shall be dust-proof tested to IP67 protection classification
- x. Shall be able to be transported or stored in the following temperature range without sustaining damage to the equipment; -40 degrees F to +167 degrees F
- y. Connectors shall fully-seal the receiver or when a like-connector is attached
- z. Shall have nominal power consumption of <3.2 W at 7.4 V while powering the dual-frequency RTK, GNSS antenna, and the internal radio modem
- aa. Power requirements shall be in the range of 11 V DC -28V DC external power input with over-voltage protection on Port 1 (7-pin Lemo).
- bb. The GNSS Receiver signal tracking shall support
  - i. GPS: L1, L2, L5, GLONASS L1/L2, Galileo GIOVE-A and GIOVE-B
  - ii. GPS: L1C/A, L2C, L2E, L5
  - iii. GLONASS: L1C/A, L5
  - iv. SBAS: L1C/A, L5
  - v. Galileo GIOVE-A and GIOVE-B (simultaneous L1 CBOC, E5A, E5B and E5 AltBOC)
- cc. When Anti-Spoofing (A/S) (P-code) is activated, the GNSS Receiver shall measure L1 C/A pseudo ranges, L2 and L5 range measurements, and the full cycle L1, L2 and L5 carrier phases
- dd. Shall include a Progeny RF Application-Specific Integrated Circuit (ASIC) and Dual 6th Generation Maxwell Digital ASIC chip to produce the highest precision measurements in all noise/operational environments
- ee. The GNSS receiver shall contain a high-precision multiple correlator for L1, L2 and L5 pseudo-range measurements
- ff. Performance of receiver shall not be lower during times when anti-spoofing is activated, compared to during times when anti-spoofing is not activated
- gg. The GNSS receiver shall employ multipath mitigation techniques
- hh. The GNSS Receiver must be able to track L1 and L2, L2C, L5 and GLONASS L1/L2 on 26 satellites simultaneously.
  - ii. GNSS Receiver shall have no less than 440 channels
- jj. The 7.4 V, 2.4 Ah Lithium-ion battery must be rechargeable and removable from receiver
- kk. Receiver battery compartment shall be fully sealed
- ll. Receiver shall encompass a GNSS dual Maxwell 6 chip set, consisting of 440 channels, with the added ability to converge both fixed and floating solutions.

## 2. Data Collector

- a. Data Collector shall have the ability to integrate GNSS and Automated Integrated Survey Instrument (AISI) total station measurements within a single survey job file.
- b. Shall record RTK data as a vector from the base and include quality control data.
- c. Shall have built in 5MP camera, giving individual seamless ability to overlay mission critical geo-referenced picture data and information into existing mission survey
- d. Shall display and log all necessary base station information within the RTK job file
- e. Shall have full onboard QWERTY or ABC keypad
- f. Shall have 256MB RAM and 8GB non-volatile Negated AND (NAND) Flash Onboard Storage
- g. The data collector shall be capable of modifying and recording distance corrective data, including temperature, pressure, and prism offset.
- h. The data collector software shall be capable of producing field expedient road and site designs, without the need for office software. Field expedient road designs shall include the capability of inputting a horizontal alignment, vertical alignments, cross section templates, and super

elevations

- i. Shall include a user friendly, easily understood compass rule traverse routine.
- j. Shall operate Microsoft Windows Mobile software operating system
- k. The data collector shall not integrate the GNSS receiver internally, preventing a single point of failure situation.
- l. Shall be able to withstand environmental rating of IP67 for dust and water penetration in accordance to MIL-STD-810F
- m. Shall operate in vibration environments in accordance with MIL-STD-810F, Method 514.5, Procedure I, Fig. 17 & 18
- n. Shall operate in an altitude in accordance with MIL-STD-810F, Method 500.4, Procedures I, II and III – 15,000ft at +73 degrees F
- o. Shall operate in extreme temperatures of -22 degrees F to +140 degrees F
- p. Shall withstand a pole drop of 4.0 feet onto a hard surface
- q. Shall operate from power utilizing ultra-long-life lithium-ion battery that gives up to 30 hours of power depending on weather conditions
- r. Shall have capability to perform Integrated Surveying from both GNSS and optical total stations
- s. Shall interface seamlessly with office software
- t. Shall have internal compass to give the individual direction cues even when you are stationary or moving backwards.
- u. Shall have integrated GNSS so the individual can navigate and find control points and other assets of quickly.
- v. Shall have wireless internet connectivity through and integrated Global System for Modem (GSM)/General Packet Radio Service (GPRS)/Code Division Multiple Access (CDMA) modem
- w. Shall include an internal L1 GPS receiver capable of positioning without the need for an external receiver to be connected.

### 3. Software

- a. Shall fully load vector based RTK data and quality control information from downloaded survey jobs.
- b. Shall analyze, process, and edit AISI measurements
- c. Shall analyze, process, and edit digital level measurements
- d. Shall perform GNSS baseline processing and GNSS loop closure.
- e. Shall be capable of updating base station coordinates in existing survey projects with Online Positioning User Service (OPUS) solutions, and cascade the updated base position to the remaining topographic points within a project.
- f. Shall adjust networks that combine post-processed, RTK, total station, digital level measurements.
- g. Shall be capable of utilizing pole tilt measurements to correct point positions.
- h. Shall create alignments to stake in the field
- i. Shall create corridor models (roads and airfield) to stake in the field
- j. Shall create, edit, import, and export surfaces and contours.
- k. Shall be capable of drafting 2D and 3D lines, polygons, breaklines, and circles.
- l. Shall be capable of automated feature code processing.
- m. Shall have an approved Certificate of Networthiness
- n. Shall be capable of exporting designs for Grade Control System (GCS) construction operations.
- o. Shall be capable of exporting surfaces and AutoCAD dxf files
- p. Shall be capable of exporting road and site designs
- q. Office software shall include a quick sketch mode, or a separate program shall be included for quick sketch operations. If a separate program is included with the office software, then it shall be capable of importing and exporting to the primary GNSS processing software.

**BID FORM  
GPS SURVEYING EQUIPMENT**

Santa Rosa County Procurement Department  
6495 Caroline Street, Suite G  
Milton, Florida 32570

Date: \_\_\_\_\_

Dear Sir:

The undersigned agrees to furnish the item as requested by you for Santa Rosa County in your invitation to bid and certifies that the equipment bid meets or exceeds the specifications called for, except as set out in "Exceptions to Bid Conditions" and attached to this form.

Make and Model of Equipment \_\_\_\_\_

Name & Address of Bidder: \_\_\_\_\_  
\_\_\_\_\_

Cash Bid Price FOB Milton, Florida:

**GPS SURVEYING EQUIPMENT**      \$ \_\_\_\_\_

Delivery Date Must Be Specified \_\_\_\_\_

\_\_\_\_\_  
Company Representative Signature

\_\_\_\_\_  
Telephone

NOTE: Please return this bid form to the above address. NO OTHER BID FORM WILL BE ACCEPTED.

COMMENTS: \_\_\_\_\_  
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\_\_\_\_\_  
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