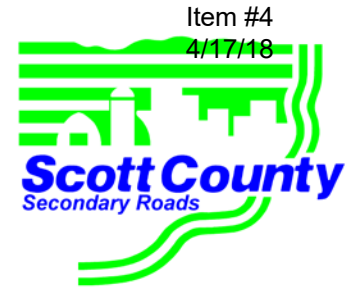


**SCOTT COUNTY ENGINEER'S OFFICE**

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Administrative Assistant

MEMO

TO: Mahesh Sharma  
County Administrator

FROM: Jon Burgstrum, P.E.  
County Engineer

SUBJ: Survey Grade Global Positioning System (GPS)

DATE: April 10, 2018

Scott County's survey grade GPS receiver is in need of replacement. The existing Trimble unit was purchased in March, 2010 at a cost of \$26,150 and it stopped working this February after 8 years of service. The unit was sent to the vendor for diagnostics and it was determined that the mainboard was damaged beyond economical repair. The unit's software is also no longer supported.

The ability to collect survey grade GPS data is crucial for Secondary Roads and is used for drainage analysis, bridge/road design, reconstruction and maintenance, construction staking, boundary surveys, etc. The GIS division also uses survey grade GPS for aerial control, boundary surveys, and in support of other county projects (e.g., West Lake restoration and sewage lagoon capacity planning.)

A team of Secondary Roads and GIS personnel contacted three GPS vendors and acquired information on five different survey grade Global Navigation Satellite System (GNSS) receivers, field data controllers, supporting equipment and software packages. While each product reviewed met the basic specifications, they varied in quality, performance and therefore cost.

A&D Technical Supply submitted quotes for two different units. The Leica GS18T model for \$23,970 and the Leica GS16 model for \$21,480. Precision Midwest submitted quotes for the Spectra SP80 model at \$17,848.50 and the Trimble R8 model at \$20,013. Iowa Transit submitted a quote for the TopCon HiPer HR model at \$16,298.

Although the Leica GS18T unit is the most costly unit, it differentiated itself in its unique tilt capability, immunity to magnetic disturbances, calibration-free technology, durability and data collection speed. The unit has an inertial measurement unit built in that compensates for rod tilt and corrects the location back to the bottom of the rod. The ability to measure a point while the unit is not held plumb will allow the collection of data at difficult locations such as

bridge abutments, steel structures and building corners with a significant increase in data collection speed. These advantages provide users with the ability to focus on their surroundings while capturing points more efficiently, quickly and safely. A majority of survey work is completed under traffic and although our engineering technicians erect warning signs and wear safety apparel, traffic doesn't always slow down and obey the warning signs. This unit would allow the technicians to focus on traffic and their surroundings while capturing data instead of focusing on a leveling bubble on the unit. The Iowa Department of Transportation also uses Leica equipment for the statewide Iowa Real-time Network (IARTN), which provides essential correction information to local GNSS receivers. Lastly, Leica is offering a trade-in discount of \$8,500 which makes their higher end unit more competitively priced. This discount has been applied and is reflected in the quoted price of \$23,970 for the Leica GS18T unit.

After careful review, staff respectfully recommends purchase of the Leica GS18T survey grade GPS receiver and supporting equipment per the quote from A&D Technical Supply in the amount of \$23,970. If approved, \$13,020 will be paid from FY18 Secondary Roads Engineering Equipment and Supplies Funds and \$10,950 from FY18 GIS CIP funds.

THE COUNTY AUDITOR'S SIGNATURE CERTIFIES  
THAT THIS RESOLUTION HAS BEEN FORMALLY  
APPROVED BY THE BOARD OF SUPERVISORS ON  
\_\_\_\_\_  
DATE  
\_\_\_\_\_  
SCOTT COUNTY AUDITOR

R E S O L U T I O N

SCOTT COUNTY BOARD OF SUPERVISORS

April 19, 2018

APPROVAL OF SURVEY GRADE EQUIPMENT PURCHASE FROM A&D TECHNICAL  
SUPPLY.

BE IT RESOLVED BY the Scott County Board of Supervisors as follows:

- Section 1. That the purchase of Leica survey grade GPS model GS18T and supporting equipment from A&D Technical Supply in the amount of \$23,970 is hereby approved.
- Section 2. That a purchase order shall be issued for the Leica survey grade GPS model GS18T and supporting equipment in the amount of \$23,970 (further described in A&D Technical Supply quote dated 3/21/2018, option #1).
- Section 3. This resolution shall take effect immediately.