

Jefferson County demonstrates cooperation in GPS mapping/GIS

The KRWA Spring GPS season has been underway since March and without much weather delay we've been able to move pretty efficiently through our project list. So far my work has been concentrated in Jefferson County, where I've been collecting GPS data for eight cities in the county. These eight cities have joined for what I believe will be an incredibly beneficial joint venture with the county and their GIS Department.

Jefferson County's GIS Department is comprised of GIS Director Dr. Chris Schmeisner and GIS Project Manager Kristen Jordan. This new project that Kristen, Chris and the county are spearheading includes hiring

KRWA to facilitate GPS data collection and data post-processing. The next step in the process is the data transfer to Chris and Kristen for interpretation and map prep for printing. The cities are responsible for paying only KRWA time and travel. I

believe the project's cost-sharing relationship shows Jefferson County to be very forward thinking in recognizing how costs associated with a project like this, when completed, will never be any lower. Plus, the accomplishment will benefit everyone for years to come. With both the city utility departments and a county GIS department being able to use GPS data, why not make it affordable to both parties by sharing the costs?

Data has a purpose

Whether collecting data for cities and rural water districts or discussing GIS/GPS mapping with city councils or rural water

district can afford a GPS unit with the capabilities needed to do adequate locates. I explain to system personnel that GPS units are just like any technology; as

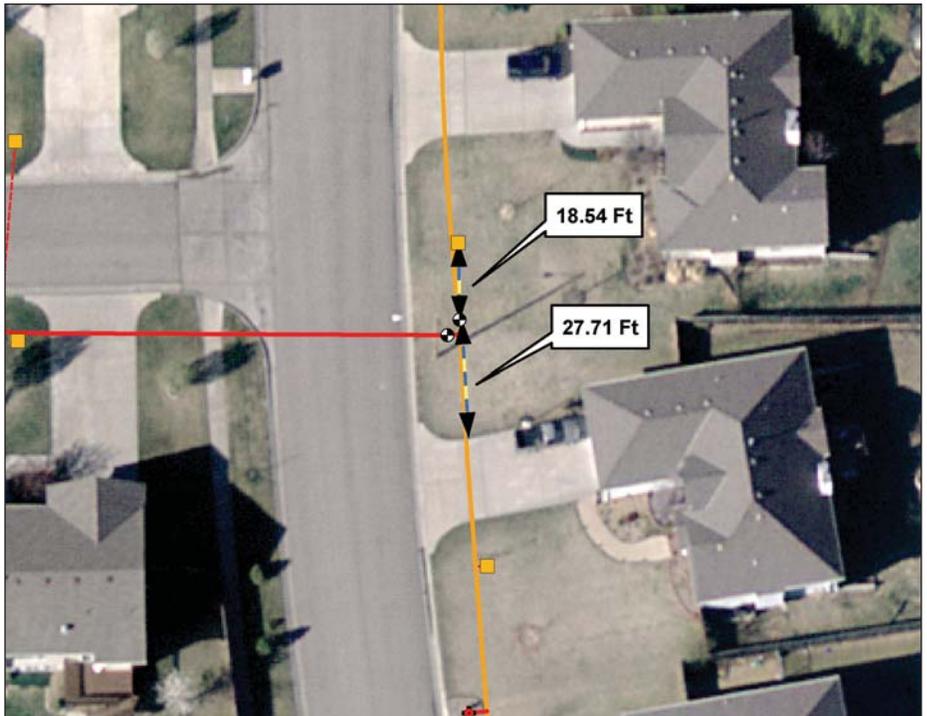
While having a GPS unit would be a convenience and great tool for locating system infrastructure, not every city utility or rural water district can afford a GPS unit with the capabilities needed to do adequate locates.

boards, the question always comes up, "What can we do with this data without our own GPS unit?" While having a GPS unit would be a convenience and great tool for locating system infrastructure, not every city utility or rural water

time goes on technology advances. Today's mapping grade GPS units will be three or four models behind in five years time and consequently, prices will go down. But that unit is still more than adequate to do what is necessary and even then, does



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This graphic demonstrates the measurement tool in ArcView software. For example it is 18.54 feet from the valve to the first meter. It is 27.71 feet from the valve to the edge of the drive way.

every utility operator have the time to go out and collect GPS data for their entire system? Those that don't have the time might lean toward having their system data collected by an outside source and when current mapping grade GPS units become more affordable, purchase one and use it for system updates. Jefferson County and the eight project cities opted to have KRWA perform data collection based on efficiency and cost effectiveness. Jefferson County wanted data to incorporate into their GIS and to make new maps for the city utilities.

GIS technology today is still fairly new and is still somewhat unfamiliar to many people. People understand what I'm talking about when I say, "I am collecting GPS for a city's water and wastewater system." Although many times I've noticed that when talking about GIS some people don't understand, or they don't differentiate between GPS and GIS. GPS technology is the tool KRWA uses to take accurate

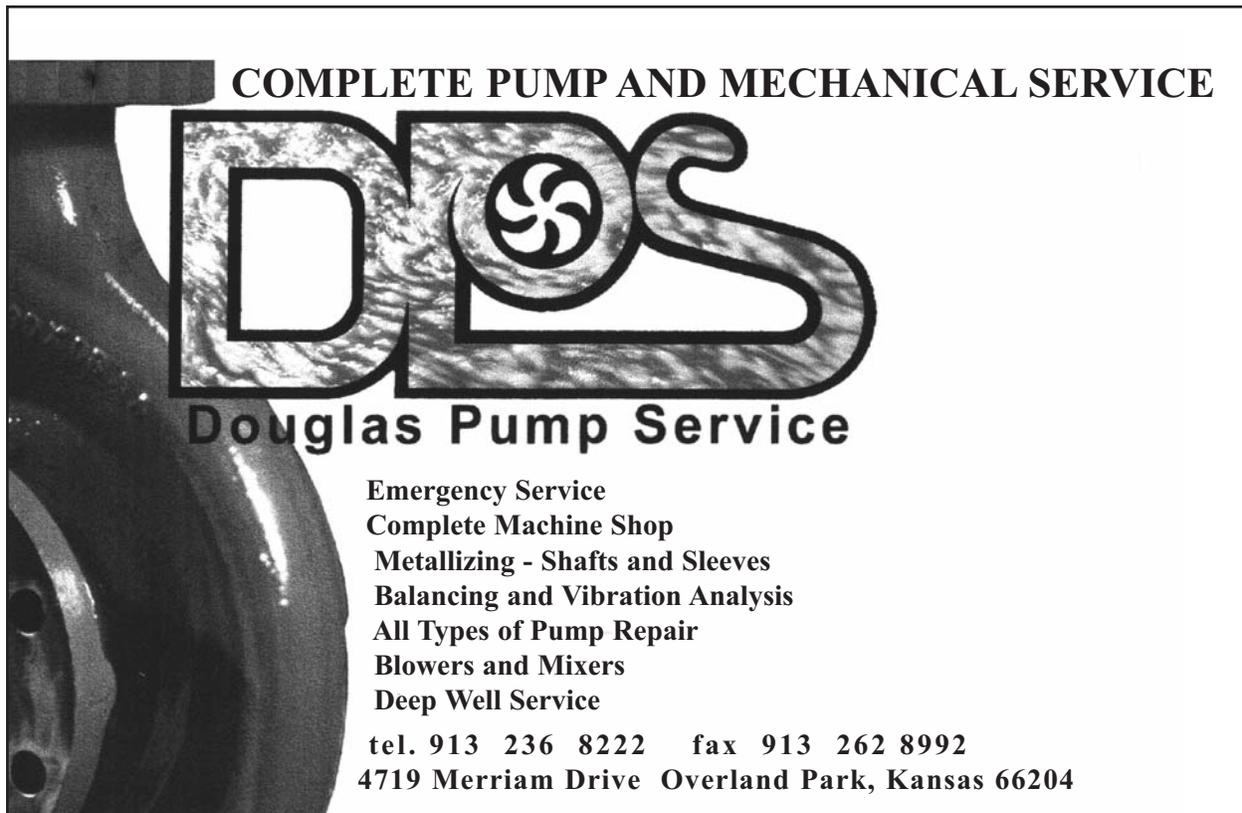
locations of system features such as valves, manholes, or any other utility infrastructure. This is the second point made to system personnel when asked about how to use GPS data without a GPS

now lie on top of the photograph and line up as it should to make a very accurate map. This also is a very important point; roads, sections, parcels and other surface features can also be layered on the

This also is a very important point; roads, sections, parcels and other surface features can also be layered on the map to make locating system items much easier.

unit. When finished with the process of making a system's maps, we will print whatever map products the system managers would like to have printed. In most cases the system's infrastructure will be layered on top of a high-resolution aerial photography, or whatever aerial photography is available. This photograph has been put through a process known as georectification. This is the term for making the photograph line up with 'real world' coordinates. GPS data can

map to make locating system items much easier. KRWA then burns all this data to a DVD and provides it to the system. We set up free viewing software on a system computer so the GPS information can be used by the city or RWD. Although free viewing software does not allow the city or RWD to edit data (an operator cannot redraw changed lines or delete old valves or manipulate other features) but the city or RWD does have a functioning GIS system to house



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all of the utility's infrastructure information. The GIS software KRWA and most mapping agencies or GIS departments use to create maps and edit data is called ArcView, and is produced by ESRI GIS Mapping and Software. To get ArcView installed and operating, a water utility will need to invest approximately \$2,000 and an abundance of time and even more money for the training needed to become efficient at working with the complete software package.

Incorporating GPS data into GIS software is where the data can truly start to be utilized. The free viewing software we provide to systems is either the TatumGIS or ArcExplorer packages. The one used depends on the format of aerial photography available to the system's region or county. Both software packages allow users to measure in order to find lost valves; perform queries to quickly find customer locations and it has many other useful capabilities. Utility systems can provide

KRWA with a meter billing spreadsheet created in Microsoft Excel and we can link the data with GPS data in a matter of minutes. The same can be done with other system features, such as manhole depth, valve brand, and the date installed. This allows users to have filing cabinets worth of information all readily accessible with the click of a mouse.

The Jefferson County GIS Department is at the forefront of utilizing the capabilities of GIS applications in rural Kansas. By having GPS data collected and imported into a GIS, the county staff and city personnel will be able to access and archive the data that is necessary to operate a water, wastewater or gas utility. As new technology is developed, data that has been collected and the practices that have been implemented will utilize the benefits of any new applications that may be developed in the future.



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