

KRWA expands mapping and technical support services

The Kansas Rural Water Association is pleased to announce that it is expanding its Geographic Information Systems (GIS) & Global Positioning Systems (GPS) data collection, mapping and analysis services. I am very pleased to be associated with KRWA, which has an outstanding record of providing quality services to virtually every city and RWD in Kansas. KRWA is anxious to help your utility or agency with GPS data collection services for water system infrastructure mapping and other utility mapping applications as well as training and technical support.

Steve Thompson
Manager, GIS/GPS



I'm a 1972, K-State graduate with a Bachelor of Science degree in civil engineering and 18 credit hours of graduate study in civil engineering. I was a design and project engineer with a consulting engineering firm for 10 years after graduation and have been a licensed professional engineer in Kansas since 1976.

In May of 2004, I retired from a 22-year career as a professor at KSU-Salina. During this time I taught math, computer science, surveying, civil engineering, global positioning systems and geographic information systems technologies. While at KSU-Salina, my students and I conducted several GIS/GPS applied research projects and class projects with local, state, and federal government and the private sector. I was always fortunate to

have wonderful students. I encouraged them to become involved in their chosen profession and take advantage of any GIS/GPS work/study

the nation at KSU-Salina. From 1991 to 1998 I served as a grant reviewer for the NSF, helping determine which GIS/GPS grant proposals to fund nationally.



A color aerial photograph of a cul-de-sac in Valley Center, Kan. shows data features in color overlays in the final product of the GIS software. In the white circles at the bottom of the image, the left points out a line valve in light blue and the right, a fire hydrant in red. In the upper white circle, a home water meter is shown as a black square. Water lines are seen as blue lines, running parallel to the streets. Measurements can easily be made on the maps because of the high resolution of the photography.

internships available to them. I was section head for K-State's civil engineering technology department from 1991 to 1994. I have served as a member of the Kansas GIS Technical Advisory Committee from 1988 to present. In 1990 I established the first GPS Base Station for the State of Kansas at KSU-Salina. That same year, with a grant from the National Science Foundation (NSF), I developed the first GIS/GPS associate and undergraduate degree options in

I have had the privilege to make numerous GIS/GPS presentations at local, state, national, and international conferences, meeting many wonderful, dedicated people.

Most recently I have been a GIS/GPS consultant working with Kansas government and commercial entities.

Where to begin?

What does the new KRWA service provide? First, it involves helping the local city or water



Lowell Lamer, KRWA Coordinator of GIS/GPS Mapping Tech Services, inspects a color Valley Center, Kan. utilities map as it comes off the color plotter.

district understand what is involved in mapping.

1. Marking of or ensuring that all the features such as meters, hydrants, valves and other appurtenances can be located and GPS'd easily. Pipelines can be easily logged by simply walking new

installations, where the trench is still visible, and collecting a point with an interval of time or distance.

2. KRWA will work with the utility to collect the data, ensuring the accuracy and integrity of the files. A KRWA staff member accompanies the

local employee or board members to each feature. The GPS data collection produces a coordinate for each feature such as a valve or hydrant.

3. That data is then downloaded into the mapping and analysis software that allows these "points" to be overlaid onto an aerial photograph of the city or water district. This photo is "scale correct", meaning that it has all the distortion of the curvature of the earth removed and accurate measurements can be made directly on the photo.

The coordinates for the valves, meters, and hydrants are added to the mapping database as additional 'layers' on the digital photo. The symbols for the valves, meters, and hydrants will appear on the photo in the proper location on separate layers.

4. Next we draw in the older, existing water lines. In



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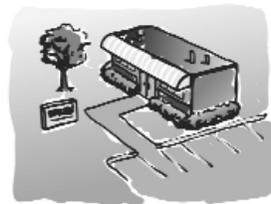
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order to determine where those existing water lines should be drawn we examine existing engineering plans and previous maps of the system, and utilize the GPS coordinates of the



Steve Thompson sets up a survey and engineering grade GPS receiver, which allows centimeter level measurements and locations. This same GPS receiver with radio equipment, not pictured, is also capable of centimeter level navigation used in construction staking.

valves, meters, and hydrants, and the knowledge of local system operators and officials. Thus we have created a digital map database of the water system with the aerial photo in the background.

5. Now it is finally time to generate a "map book" for the utility. In addition to the "map book", the same information is provided to the utility in a digital format so it can be viewed on a computer screen, or a small handheld computer, or Personal Data Assistant (PDA.) Local officials can see an entire utility system or can zoom in on a city block or intersection. Desired areas, such as a street intersection or city block can be printed on an ink/jet printer or laser printer to take to the field

and mark with changes that have been made, for example, in an improvement project.

Another option KRWA offers is to provide the information on a PDA loaded with the mapping software (ArcPad) and map data for that utility. This allows the utility to be able to view the entire mapping database while walking or driving the system. The PDA and mapping software will probably not cost anymore than the traditional map book but will be much more versatile and easy to update. As new photographs of the county or city become available, those can be loaded in with no effect on all the system feature files that are already stored in the software. The newest

technology in the PDA allows for vast storage of data that certainly should be attractive to cities and RWDs. An alternative to the PDA is to use a notebook computer and the mapping software in the vehicle.

Training and technical support

KRWA also intends to dramatically expand its GIS/GPS advice, training and support services.

Many cities and water districts attended training seminars sponsored by KRWA this past summer. More sessions are planned to help introduce this topic to as many utilities as are interested. A few larger systems have purchased their own equipment. KRWA is interested in providing technical

advice and assistance to the local systems prior to purchasing GIS/GPS technologies and in implementing them. KRWA is qualified to provide the training on the software and provide ongoing support as well.

KRWA also is going to provide GIS/GPS consulting services including appraisal, zoning, tax unit, and voter district mapping. Counties are required to create and maintain maps showing the boundaries of properties for appraisal and taxation, including data about the owner, the parcel's area, and appraised value. They also create and maintain zoning, taxing unit, and voter district maps. Cities create and maintain zoning and infrastructure maps.

Other services KRWA is going to provide include the following:

- E911 mapping and GPS applications
- Homeland defense mapping, analysis, and GPS applications
- Section & township corner location and mapping
- GIS/GPS data maintenance and support services
- Assistance with implementation of the GIS/GPS technologies in small communities and counties
- Grant application assistance

KRWA Mapping intends to offer the aforementioned services to:

- Rural water districts and cities
- Local government entities
- State and federal government entities
- Certain private sector groups
- Public and private postsecondary educational institutions

Here's an important point that KRWA wants to convey. First, KRWA is a non-profit organization. There is no self



Steve and Lowell look over the color print from Valley Center with a grayscale print hanging on the wall above. Aerial photography is available in both.

proprietary gain by Association staff in developing this new program. The program is being developed because many cities, water districts, counties and others have asked for and want help. People want and need training with this technology. Many local units of government

want technical support. KRWA will provide advice, training, and technical support through staff who are well-versed in the newest techniques, hardware, and software.

The second point that KRWA wishes to make is that when KRWA is involved with your

utility, agency or local governmental entity, "you" are in charge of your data. It is "your" product. It is not merchandise that goes to anyone else. Your data is held in secure storage to ensure that there are backups. Your data is not provided to any other organization or agency.

KRWA has worked with many communities in completing upgrades of their mapping products. KRWA looks forward to establishing relationships with hundreds of utilities, counties, agencies and other institutions through its expanded GIS/GPS Mapping and Technical Support Services program.

Give KRWA a call at our Salina office, toll free, at 877/820-5792 or the office in Seneca at 785/336-3760 if you are interested in having a presentation at your city, county or RWD meeting. We're here to help, efficiently and effectively — now and in the future.

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