

City of Leoti, Kansas Gets Serious About Asset Management / Utility Mapping

Leoti, Kansas is the county seat of Wichita County, located in extreme western Kansas in the High Plains region of the state, and about 15 minutes from the Mountain Time Zone. The city's population is about 1,600 which is slightly more than the 2010 Census count of 1,534. In my previous article (November 2020) I wrote about the city of Bazine and how their operator of 30 years, with a vast knowledge of the city's utilities, wanted the community to have accurate maps of the water system before retiring. Leoti was on the opposite end of the spectrum regarding tenure of city utility workers. Leoti saw the need to develop an updated mapping system to improve efficiency for the utility crew and the clerk's office. Taking on a mapping project without longer-tenured staff members is more difficult, but there has to be a starting point, and the rewards of an accurate Geographical Information System (GIS) far outweigh the growing pains of putting it together.

My usual routine when collecting water system data in a small city is to log the locations of all the water meters first, then collect the rest of the system at the same time. Collection of the meters usually goes smoothly as they are easy to find and customer data is readily available. That wasn't the case however at Leoti. Many of the water meters in Leoti are at the intersections of streets. It is difficult to know which meter serves which customer(s). I assume this method of installation was to save time for meter readers when meters were being read manually. Leoti has used an automated meter reading system for years and present staff are only familiar with that meter reading method. It was a challenge to correctly identify which property is being served when there



Being a small town, we don't have a lot of the same capabilities and resources available to bigger cities.

We don't have much opportunity for new and improved technology.

Working in partnership with Kansas Rural Water Association to bring our mapping into the digital era gives us access to the new technology we need at an affordable price. Mark Thomas at KRWA has been tremendous to work with!

*– Cendy Morcillo
Deputy City Clerk*



This image is of 4th & A Street. The two valves in the street marked "NA" are not active. These are examples of valves not removed during a system improvement project years ago.

are three or four meters side by side often at the corner of the block. The question also was whether the meter is tied to a property that no longer had water service. In order to correctly log the service required popping the lid from the meter pits and verifying the account information. That slowed the collection rate down quite a bit, as there were more than a few times that Travis Seaton, the City Supervisor, and I searched a yard midway down the block for a meter that wasn't there. Having this meter location and service information readily available for the future will be very beneficial, especially for Travis, who has been working for the city for less than a year.

Collection of the rest of the system went smoothly for the most part. Travis was able to send two operators ahead of us locating and marking the valves, as well as sewer manholes before we began collecting those locations. Locating meters, valves, manholes, etc. in advance is a good practice to reduce the time required to collect these points. Time equals costs as KRWA charges \$50 per hour for mapping services, so the less time I'm searching with a metal detector for the valve riser or manhole lid is the less it will cost the system.

At the end of the data collection phase, I typically borrow however many maps from the system that I think will help replicate the configuration of the water lines with the GPS data. Some of the maps I borrowed from the city were a set



The orange dots on this image indicate the locations of water meters in Leoti, Kan. The problem is determining which property each serves.

of as-built plans from a system improvement project years ago. That project included replacing roughly a third of the water lines in town. In certain areas where new pipelines were tied into existing lines, the plans had construction notes to “remove existing valve or valves”. For the most part, that instruction was followed, but sporadically all over town, we found – and collected – numerous old valves that the contractor did not remove. For someone like Travis who is a new operator and who hasn’t gone through the boxes of old plans that most small cities possess, this only makes utility operations more complicated.

A GIS is unlimited concerning the amount of information that it can contain. All of the information in the existing maps accumulated over the years is brought together for a uniform GIS. All city or RWD personnel must be utilizing the same paper maps or digital data. The issue with the abandoned valves still being in place comes to mind. When Travis and I were going through town collecting valves and other water system features, for all we knew, those abandoned valves were active, as the map we were using for collection didn’t show otherwise. Better to find this information out in the process of GIS building than an emergency line break. It is also beneficial for a GIS to contain abandoned meters and valves or whatever else the utility still has, as it is important to document all the facilities and their locations – and have that information easily accessible.

Travis Seaton’s situation in being the new City Supervisor and being unfamiliar with system infrastructure locations is

not an uncommon occurrence in small cities or RWDs throughout the state. Personnel in many utilities move on or eventually retire, with city councils and RWD boards having to rehire and get the new operator trained. What often gets overlooked in these situations is how the new operator won’t instinctively know where all the facilities are in the system without training, or a drive around tutorial. There are two ways that I am aware of to gain this locational knowledge. First, just gaining experience over a lot of time; or, 2) have an up-to-date GIS.

I commend the city of Leoti for taking on a GPS mapping project with everyone in the city office and the operators

being new. The city has also taken their GIS a step further than most with an investment in SimpleCity software from gWorks out of Lincoln, Neb. KRWA was hired for data collection and map development; the data KRWA develops will easily import into any asset management software such as SimpleCity.

The work of developing a GIS is never complete, as there will always

be new infrastructure installed and old being replaced. By having a GIS in place, future workers will have up-to-date maps available immediately without needing to refer to construction drawings from a particular project 20 or more years ago. If any city or RWD is interested in seeing the advantages of GIS mapping, I encourage you to give KRWA at call at 785-336-3760 or email me at mark@krwa.net.

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Mark Thomas has been a GIS Mapping Tech since September 2006. Mark has a bachelors degree in geography from Kansas State University and has specialized studies in ESRI's ArcView and ArcPad software.

