

# GIS the Meat and Potatoes of a GPS Map

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Many of you know that GPS (Global Positioning System) is the backbone to putting locations of your valves, hydrants, manholes, etc. onto a utility map. GPS technology is what makes maps more accurate and reliable than traditional maps. So, how do you integrate important information about your system into a map? GIS (Geographic Information System) incorporates information about your system's features. GIS, as I put it, is the meat and potatoes of your GPS maps.

The mapping process begins when the Nebraska Rural Water Association comes to your community to record the location of valves, hydrants, shutoffs, manholes and so on using GPS. At that same time we also enter some data about these points. What type of information does NeRWA collect? The type and amount of information is up to the community, but here are a few examples of information we can attach to map points.

For fire hydrants, you can attach the make, the cast date, and flow rate if it is known at that time. If some information is unknown at the time the point is collected, like flow rate or static pressure, these items can be added later.

For manholes we can include flow direction, material of the manhole, and number of inlets to the manhole. Flow and inlet information can be useful, for example, when a sewer back-up happens so that you know which upstream customers to alert of a potential back-up problem and encourage them to cut down their water use until the problem is resolved.

For water mains you can attach the year of installation and how the main was installed. Having better information on main location can help the planning process of future projects. Having better knowledge of underground utilities can help with placement of new utilities and lessen the chance for change orders during construction. With fewer change orders crews will be able to stay on target for finishing the project and save money. This in turn will speed up the construction which lessens the inconveniences that your customers experience with a construction project.

A GPS map will show you where valves are located and with this you can make better decisions to isolate a main when needed. Valves can have several types of information attached. For example, the number of turns it takes to shut off, when the valve was installed, date the valve was last exercised, and if the valve works or not. Functionality of your valves is most important and does take some time to figure out. But it could be useful to have this information on your map. During a main break, for example, you may need four valves and you know that three of the valves work, but one does not; and you have to determine which valves upstream you could use to help in isolating the main break. This information could be attached to a map that you view on the computer as well. Also, if you would add service line connection information to your map you could alert your customers of the break and the service interruption during the repair process.

These are just a few ways that GPS and GIS can be used to give you better information about your system. The information you want to include is up to you and depends upon how it will help you in your

project planning and day to day tasks. Remember, the more information you can attach about your points the better your map will be.

The possibilities with GIS/GPS mapping are nearly endless. There are many attributes that will help make any given system's maps more useful. GPS maps give you accurate locations of your valves, etc. but GIS incorporates information about each point to help you with your day to day tasks. As always, if you have any questions about GIS/GPS mapping feel free to contact me. Large system or small, all systems deserve good maps of their utility.