

The Benefits of GIS Mapping



by Steven Winkley,
Water Resources Planning Specialist

New York Rural Water Association (NYRWA) is now pleased to offer reduced rate mapping services to our member systems and communities. These services will assist our members to afford accurate, up-to-date maps of their water distribution system, sewer system, storm sewer system, or other infrastructure. NYRWA produces these maps using Geographic Information System (GIS) software. The locations of system features such as main valves, hydrants, man holes, catch basins, etc. can be collected using highly accurate Global Positioning System (GPS) equipment or can be digitized from existing paper maps.

GIS is a method of storing, analyzing, and managing data that are linked to locations. Although GIS software can be used to make printed maps, it is much, much more. Operators and managers of water, wastewater, and stormwater systems can interact with GIS maps. GIS has analytical tools that allow the user to both manage existing infrastructure and plan for the future needs of that infrastructure.

Utilities of all sizes are learning that they must efficiently run their system in order to meet complex regulations, satisfy consumer demands, and of course save costs. GIS can help them do this in many ways. Systems must be able to quickly and accurately locate system features. Using GIS, very accurate maps can be seamlessly printed at various scales and are customizable. Second, GIS can allow system personnel to readily check the age, size, material, etc. of various facilities and determine what needs to be replaced with what type of products, etc. Third, GIS enables the system to maintain a visual history of leaks, repairs, inspections, and/or customer complaints in order to readily identify system deficiencies and plan for future maintenance or replacement of equipment.

Water, sewer, and storm sewer systems must also make sure that they get the most value from their system assets and have the means to rehabilitate and/or replace them if necessary. This planning process is known as asset management. The first step in asset management is taking an inventory of your system in order to know what your system has, what the conditions of the assets are, what the value of the assets is, and what the true cost of deferred maintenance is. This type of reporting

is required for a good credit rating under governmental accounting and financial reporting standards (GASB 34). A higher rating is often required for loans, favorable interest rates, or issuing bonds.

After producing maps of the local utility, NYRWA also produces a GIS that we are able to give to the system for its use. This free GIS software, ArcExplorer, has all of the data that went into producing the maps. After training on ArcExplorer is provided by NYRWA, utility personnel can then point and click on a given map feature and find out all of its properties (size, age, material, manufacturer, etc.), create custom GIS maps based upon different map features, pan and zoom to pinpoint the location of a chosen feature, and print out as many copies as they need before they go into the field.

If you would like more information about system mapping or would like a detailed quotation, please contact me at 1-888-NYRURAL ext. 17 or email me at winkley@nyruralwater.org. 💧

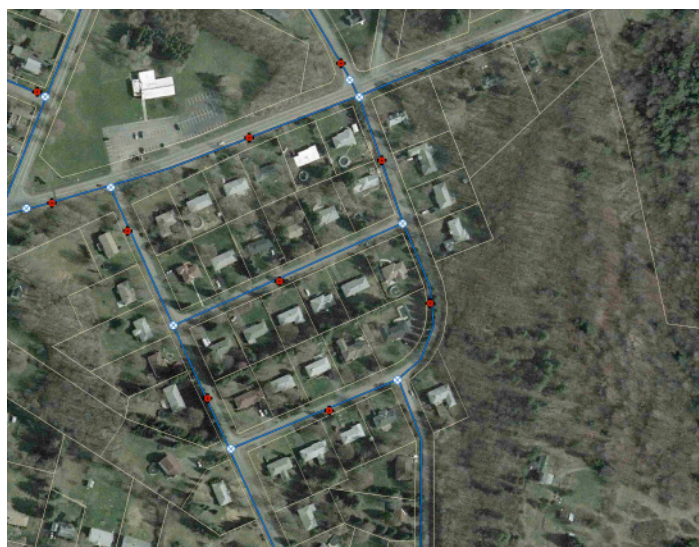


Figure 1. Example Water System Distribution Map (showing main valves, mains, hydrants, and parcel boundaries).

