Using GPS/GIS to Improve Water/ Wastewater Management

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Water and Wastewater management in South Dakota faces challenges from harsh winters to miles of rural pipelines. This makes precise information about the location, size and type of water pipes, pressure-reducing valves, booster stations, lift stations, facilities and hydrants crucially important.

In the field, especially when there's snow on the ground, knowing exactly where the work needs to be done is a matter of safety as much as convenience.

With a solid GPS/GIS program of field data collection, you can:

- Conduct a detailed inventory of every linear mile of water and sewer transmission main in your system.
- Track and analyze your water/ wastewater system data collected directly into your enterprise database.
- Monitor the system's condition and security, and assign work orders for repair or routine maintenance.

A few years ago, Anchorage, Alaska, instituted a program to collect water utility asset information into their GIS database. Until then, their personnel were using hardcopy 500-scale maps, and the location of water / sewer assets were off by as much as 100 feet in some places. Considering that their water and sewer infrastructure was buried in snow for most of the winter, finding and turning off water main valves in the middle of January, without accuracy as to where those valves were, was a nightmare.

Over the summers of 2006-7, Anchorage sent crews out with Trimble GPS handhelds and utility-specific software to collect information in the field and coordinate that data with their Esri mapping database.

Once the field data was collected, they overlaid the water and wastewater features on a digital Esri map. Now their assets are readily visible on a digital map and easy for crews to find.

In another example, a large rural county near Melbourne, Australia, that was primarily served through more than 4,000 private septic systems, incorporated a public awareness program through a complete GPS/GIS inventory of the their community. Previously, they relied on information recorded and stored on index cards, listing each property address along with a hand-drawn sketch of the septic system and its components. Over decades, many cards had been lost or misplaced.

They used Trimble handhelds, loaded with Esri maps of the area, and precisely mapped each septic system and its multiple components to note the location of tanks, sand filters, treatment plants, effluent disposal areas, and even the offsite point of discharge and details about maintenance and inspection of the systems. Today, instead of mailing residents or potential home buyers a photocopy of a card with a non-scale drawing of their septic system, they email an accurate electronic map that documents the complete system.

CompassTools serves as South Dakota's Trimble dealer and is providing training as well as complete hardware and software solutions for local utility clients' field data collection needs. CompassTools has been in the forefront of the GIS/GPS industry since 1994, and its staff has real-world, personal knowledge of the equipment and its functionality. For more information, visit *www.CompassToolsInc.com*.