

GIS Startup Challenges

New group sees big savings and additional opportunities for GPS-based system.

In 1854, in an effort to identify the source of the deadly cholera outbreak ravaging central London, Dr. John Snow gathered data from throughout the city, compiled it, and used it to create a map. Dotted with incidents, outbreaks, dates, and addresses, that map, which revealed a single hand-pump as the primary source of cholera-tainted water, might be seen as a precursor to what is today considered a geographic information system (GIS).

Fueled by the continued refinement of computers and peripheral equipment, the offshoot of that 19th century effort—the modern GIS environment—has grown exponentially. Today, aided by state-of-the-art GPS equipment, GIS is used to catalogue, track, inventory, and identify everything imaginable, including, as is the case with the Brownsville, TX, Public Utilities Board's (PUB) newly-established GIS Department, utility components throughout the city. Using GMS-2 handheld GPS receivers from Topcon

Positioning Systems (www.topconpositioning.com), the group sees a world of uses—both immediate and long-term—for the data it is collecting.

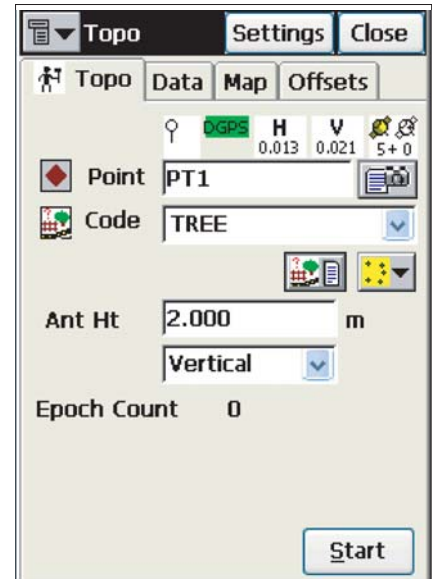
Dealing with Development

Brownsville is enjoying an unprecedented level of growth due mainly to its weather, location on the Gulf of Mexico, and attractive business climate. From 1990 to 2000, the Brownsville-Harlingen-San Benito corridor's population grew an amazing 29 percent and is projected to steadily increase over the next several decades. To meet the challenges that growth will bring, James McCann, Brownsville PUB's Director of Transmission and Distribution, says the city's GIS department has recently undertaken a project to update the field data on the city's utility system.

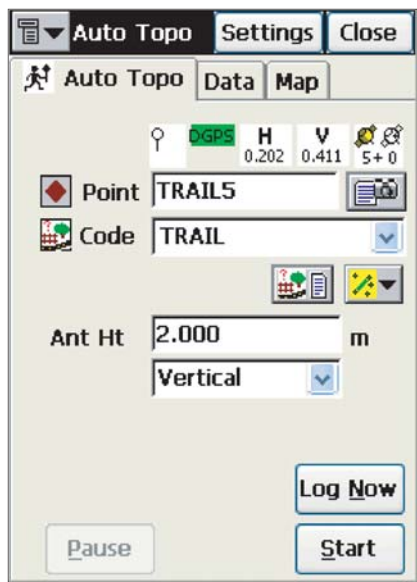
"This is something that was last done about seven years ago and some of that data was good and some wasn't, so it was sorely in need of updating," he says. "At the same time, we felt our existing GPS equipment had become outdated and was beginning to cause us a lot of maintenance-related concerns. To replace it, we chose equipment that we saw as the best solution for our own surveying tasks, then asked Sonia Gover, our GIS systems coordinator, to review those choices to ensure they also met her needs as well. Based on all those criteria, we purchased five Topcon GMS-2 receivers and the TopSURV software to support it. I really feel we are on a much better track now."

Real-Time Results

Brownsville PUB's "better track" includes making a switch from data that was previously collected and post-processed, to real-time data processing using the Topcon receivers. According to Gover, that change will afford them a



TopSURV tree collection screen.

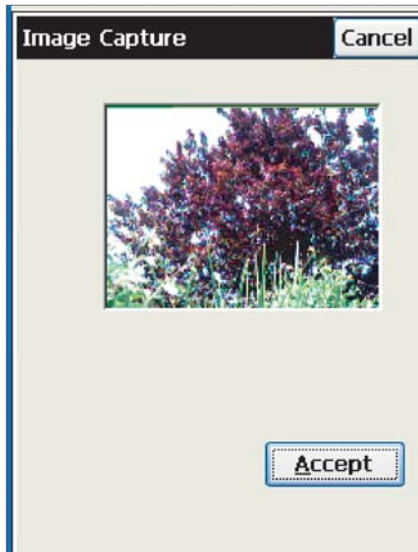


TopSURV trail collection screen.

number of benefits over the previous process.

"First of all, there are limited funds available for this project so, by streamlining the process, we will be maximizing our funding. What used to be a time-consuming process, now simply entails our people going out with the Topcon units, finding the item to be inventoried, entering their data—determining what work order covers the item; specifics, such as length of a pole, etc.—and it is immediately available for subsequent use."

Gover adds that the project is fairly massive in scale and has a two-year time frame, so Brownsville needed fast, reliable equipment to make it work. "We are inventorying better than 27,000 electric poles, thousands of meters, transformer banks, transformer pads for underground facilities, conductors for overhead and underground service drops, and more. Literally every electric device that PUB services—they're going to collect it."



TopSURV image capture screen.

Trickle-Down Savings

The time savings realized by the GIS effort will be significant not only in terms of engineering benefits, but will also impact other departments with which the PUB interfaces on a regular basis.

“For engineering, the benefits are obvious,” says Gover. “In the past, our engineers would have to pull out plans to locate a job or drive to the jobsite to see exactly how it was laid out. Then, they would have to come back to the office, draw it up, do the proposal, estimate the cost, and so on. Now, they have the technology to tell them exactly where it’s at, what’s there, what’s nearby, etc. They still go out to verify, but now they can actually design on the system with what we have here.”

Additional benefits and savings will be realized by PUB’s accounting department, which will have a better grasp of what material is out in the field. The department manages countless work orders, each of which has a cost associated with it. But according to Gover, there are often as many questions associated with each work order as there is info.

“Because the previous data is outdated and incomplete, accounting is sometimes never sure whether, say, a pole in question is 45 feet or 90 feet tall. They’re sometimes uncertain what equipment has been retired and what hasn’t. When complete, this new system will be able to tell them exactly what they need to

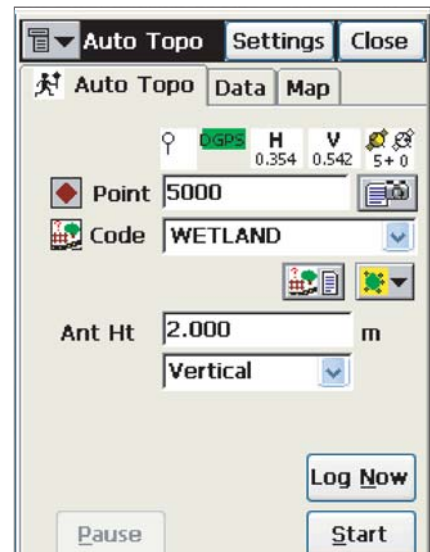
know. Customer service will benefit as well. For example, we have three utility companies that service this area and customers sometimes come in not knowing which company services their particular area. The new GIS tells them exactly who is certified to work that area. We are confident it will help everyone across the board.”

Long Range Uses

While Gover is enthusiastic about the immediate needs that will be served by their new GPS-driven inventory capability, she says the potential uses it brings to her department and others are quite literally endless.

“The demand for this type of approach is growing at an unbelievable pace,” she says. “Other groups like ours are using it for any number of special projects and special needs—everything from hurricane preparedness to tracking where chemicals are at any given time. For us on the Gulf, hurricanes are a reality, so a well-defined system can tell us what streets will be flooded, what are the best routes for our trucks to get to specific locations. It can define evacuation routes. It can show what transmission and distribution needs for our key accounts—hospitals, nursing homes, etc.—have been impacted. And, in a worst case scenario, if the city is devastated, we have a detailed, up-to-date record of what was in place before the event, making it easy for a response organization like FEMA to know what will be needed to get power restored to pre-storm levels.”

Gover adds that other departments within the city have already expressed an



TopSURV wetland collection screen.

interest in leasing the system from the PUB to enhance their own operations.

“In fact, the city itself is looking to get its own GIS up and running. They’d like to inventory all the trees and different tree types in the area, catalogue things like manhole covers, review drainage trends, and so on. This is an extremely powerful inventory and planning tool—I see no reason why it won’t be as beneficial to them as it is to us.”

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