Asheboro

Home of the **North Carolina Zoo**

John Ogburn
City Manager
City of Asheboro
PO Box 1106
Asheboro, NC 27204-1106
Phone: 336-626-1201
Fax: 336-626-1218
E-mail: jogburn@ci.asheboro.nc.us

Overview of the Project:

The City of Asheboro's Mobile 311 program is a GIS-based tool used to get field data into the office. Using touch-screen mobile phones with cameras as data collectors, a wide range of City employees are able to submit information on utility issues, sanitation routes, maintenance projects, graffiti and more. The phones can also be set to leave "breadcrumbs" allowing constant GPS tracking to monitor routes and equipment. Data is collected in a customized GIS application allowing supervisors and staff the ability to track projects, maintain records of service, explore trends and monitor the efficiency of operations.

About Asheboro:

The City of Asheboro is located in the center of North Carolina. The City was founded in 1796 and serves as the seat for Randolph County. The population of Asheboro broke the 25,000 line in 2009 with an estimated population of 25, 146. As the economic hub for the county, Asheboro is home to a diverse commercial base including traditional manufacturing, medical, banking, real estate, retail and legal.

History of the Situation:

In late 2008 Asheboro, like many cities across the nation, was exploring ways to reduce expenses – especially fuel expense. Sanitation staff members began looking at ways to improve sanitation collection in order to reduce fuel costs, vehicle maintenance and man hours while providing quality service to citizens and improving efficiency. At that time, sanitation trucks were visiting every household in the City twice weekly for household garbage and recycling collection. In addition, two bulk trash trucks and two brush trucks would complete routes in the City by driving every street looking for items to collect. Depending on the quantity of items placed curbside, these routes could take anywhere from one to three weeks.

Managers tried improving bulk collection by using a few methods to collect data on households that needed service. They tried asking sanitation workers to either write down the address for a home with a bulk item or brush pile, and then tried using voice recorders. Neither of these methods proved to be reliable or efficient. At that time, the sanitation division staff approached the City's Information Technology Department to begin discussing their options.

A Solution Emerges:

The City of Asheboro consulted with Withers & Ravenel, a North Carolina firm with 18 years of experience in providing GIS solutions to private and government clients. City staff knew that they wanted to use a mobile device to collect information, and began researching which device would work best for their purpose. Withers & Ravenel began developing software that would tie in to the mobile devices selected by the city. From the beginning, city IT staff emphasized the need for a scalable product because they foresaw how valuable this tool would be for a variety of departments.

The mobile devices were selected because they allowed for instant connectivity and provided the additional benefits of serving as mobile phones and cameras. With the simple touch-screen interface, employees with a wide range of educational background were able to use the devices.

Once the Mobile 311 tool had been tested and implemented in the Sanitation Department, IT staff held a meeting with other departments. This led to an expansion of the product into other Public Works departments as well as to the Police Department and Code Enforcement.

How It Works:

The Mobile 311 program allows users to input data in a variety of ways. A device can be set to transmit a periodic "breadcrumb," allowing supervisors to monitor sanitation routes or track police officers in the field – whether in or out of their vehicle. In addition, staff can submit their coordinates under a specific heading, allowing them to document a wide range of issues including:

- Marking sites that have bulk items or brush piles in need of collection (Sanitation Department)
- Street light outages
- Pot holes (Street Maintenance)
- Water and sewer lines, meters, line breaks
- Graffiti and gang markers
- Code Enforcement issues
- Using "breadcrumb" feature – see where trucks have been

For example, as sanitation truck travels its route in the City, the driver or operators now simply push a button on their mobile device to mark where a bulk item or brush pile is located. This information is collected using the GPS system, and the following morning the bulk or brush truck operator is able to collect bulk trash and/or brush on a point-to-point basis rather than a complete route.
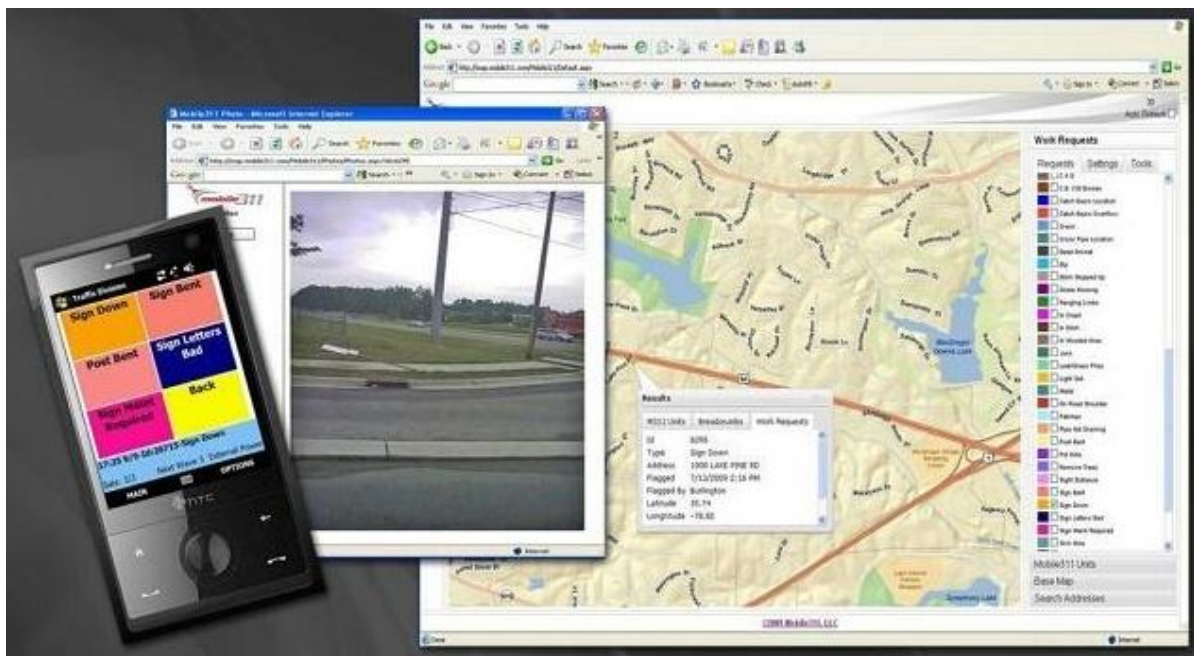
Using the phones, employees can also document and geographically tag site conditions. A water maintenance employee can use the camera to take a photo of what a private driveway looked like before a water line construction project. Relating this type of data to a physical location using the GIS software makes it much easier to store and recall than placing it in standard computer files.

In addition, supervisors can review site information from a variety of projects without leaving the office. This eliminates the need to have a supervisor making multiple trips across town.

The Cost & Benefits:

The cost for the development of the software (including internet-based vehicle location map service, cell phone application, setup and training) was $21,400. Hardware costs were $200 per unit for HTC Touch Diamond phones.   In addition, the City pays a monthly hosting fee of $30 per unit for the software and $30 per unit monthly for the Sprint data plan.

Because the software is web based, the City was able to use existing computer hardware and did not have to purchase any new computers or servers.

The initial concern – finding ways to make sanitation collection more efficient – has been a tremendous success. The department has seen a 64% operations deduction. The department has not laid-off any personnel, but has reduced staffing by one due to attrition. Additional savings results from the fact that the department rarely needs to use part-time help. Sanitation staff also has more time now to work on other department projects.

Sanitation Collection Before Mobile 311	Sanitation Collection After Mobile 311
2 bulk Item trucks	1 bulk item truck
2-3 brush trucks	1-2 brush trucks
8 hours/day x 5 days/week = 40 hours	6 hours/day x 4 days/week = 24 hours

By comparing 2008 and 2009 vehicle maintenance costs, the Sanitation Department found that they saved $13,401.71 in 2009. This can be largely attributed to the more efficient sanitation routes and the lessened "wear and tear" on vehicles. In addition, the department used 553.09 gallons of fuel less in 2009 compared to 2008.

Summary:

What began as a discussion about reducing fuel costs and improving sanitation service resulted in a new software system that is helping multiple departments find more efficient ways to work. Expending the funds to create a new product is always a risk, especially in tight budget years. Fortunately, employees have embraced the product and continue to suggest ways to expand and improve the Mobile 311 program. Other governments who may wish to undertake this type of project are encouraged to start slowly with a scalable project that they can continue to develop, and to listen to the employees who will be using the product. No matter what technical experience they had, the actual users of the Mobile 311 program were the ones able to provide the most valuable input.

The City of Asheboro may be a relatively small community, but that did not stop staff from seeking a big solution. IT staff are now exploring the potential to utilize this technology for emergency management, hoping to develop tools to track resources in time of a disaster.