Food Recall Operations: Guilford County, North Carolina, Department of Public Health’s Utilization of Geographic Information Systems Technology

PRACTICE
The Guilford County, North Carolina, Department of Public Health utilizes geographic information systems (GIS) technology during food recall operations. The department uploads inspection maps, driving routes, and recall forms onto inspectors’ handheld devices, which improves the efficiency of operations.

DESCRIPTION
A food recall incident may require the Guilford County Department of Public Health to conduct hundreds of inspections. The department recognized that it could improve the efficiency of inspection operations by incorporating GIS technology into its recall effort. The department now utilizes GIS technology to upload inspection maps, driving routes, and recall forms onto inspectors’ handheld devices.

During a recall, the department accesses the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) Multi-Hazard Threat Database and county tax records to identify retailers that may sell contaminated products. The Guilford County Department of Public Health then assigns geocodes to create points on a digital map. The department arranges the retail locations into clusters and assigns inspectors based upon their knowledge of the area and their relationships with the vendors (see Figure 1). In addition, the department uses the GIS routing feature to develop the most efficient driving routes for the inspectors. This enables a more rapid response to a recall effort.

The Guilford County Department of Public Health utilizes the GIS mapping feature to help develop its strategy during a recall. The mapping feature allows department personnel to calculate inspectors’ driving times based upon their assigned driving routes and to estimate how long it takes to conduct an inspection. These estimates enable the department to project the number of locations an inspector can visit in a single day. In addition, the department can use the predetermined inspector routes to anticipate mileage, fuel, and number of man hours for the total cost of the recall. This helps with planning and reimbursement procedures.

The Guilford County Department of Public Health partners with the NCDA&CS, Emergency Programs Division, to improve its ability to collect inspection data and to send the data to the statewide recall database. The Guilford County Department of Public Health replicated the NCDA&CS’s database schema and developed a corresponding digital recall form to
upload onto inspectors’ handheld devices (see Figure 2). Inspectors record data about the inspection, including the location, date, products offered for sale at time of visit, number of cans removed, and other pertinent data. This process reduces paperwork and allows inspectors to submit all inspection data into the recall effectiveness database at the end of the day. Once the department collects the recall data from all the inspectors, it can easily send all the county recall data to state health agencies for further analysis.

The benefits of GIS technology were demonstrated during the Castleberry Foods recall in August 2007. In 4 days, over 900 establishments were inspected, and 1,200 potentially contaminated products were removed.

CITATION

DISCLAIMER
Lesson Learned Information Sharing (LLIS.gov) is the US Department of Homeland Security/Federal Emergency Management Agency’s national online network of lessons learned, best practices, and innovative ideas for the emergency response and homeland security communities. The Web site and its contents are provided for informational purposes only, without warranty or guarantee of any kind, and do not represent the official positions of the US Department of Homeland Security. For more information on LLIS.gov, please email feedback@llis.dhs.gov or visit www.llis.gov
Figure 1: Retail Location Geocodes on a Digital Map
Figure 2: Handheld Recall Form