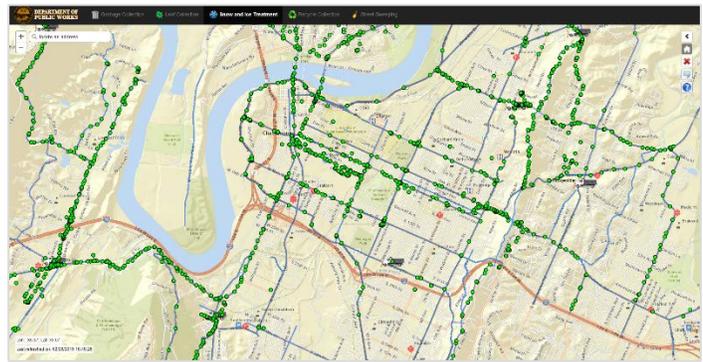
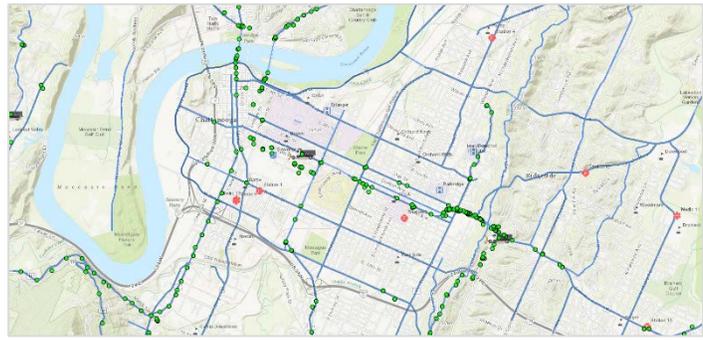


Technology Provides the Public with Real-Time Tracking of Services

The City of Chattanooga's Department of Public Works provides several curbside residential services such as garbage, recycling, brush, bulky trash, and leaf collections, as well as services to maintain streets, such as street sweeping and wintry mix road clearing. Nothing has changed with the way these operations work, but now residents can see what crews are doing currently, what crews have already done, as well as when and where crews have worked, not from their kitchen window or front porch as the truck drives by, but from their office or mobile device, anywhere in the world, and anytime.



The department started by installing and implementing an automated vehicle location technology to track the location and utilization of the department's fleet. This began as a method to analyze vehicle utilization, resolve a few operational and accountability problems, and track the department's assets in real-time and historically. After the successful installation and implementation of the basic fleet tracking system, the department's GIS division recognized additional potential to host their own real time solution for continuous public outreach, transparency, and accountability. Recognizing the value in providing this information to the public, the department set out to demonstrate the services that citizens receive in a real-time solution with access over the web and availability by smart phones and tablets.

This system has developed into more than just a solution for supervisors and dispatchers to view vehicle utilization, but also a system that now records and reports the information for residents through a website application. This public website, located from the department's home page under a tab titled "Interactive Services Maps," displays many of the services that residents routinely receive. From this site, residents can view live displays of the operation's vehicles as they work and view historical data from garbage, recycling, leaf collection and snow plows by selecting a service they want to view, zooming to a specific location and viewing breadcrumb trails of selected vehicles.

The Vehicle chassis and body mounted sensors are used to record various peripheral elements of each truck such as: when the mechanical refuse collection arms are used to lift a container; when the leaf collection vacuum is turned on; and most recently which roads receive treatment by salt, sand, or plow during a snow event. The department is looking at expanding the service to brush collection, bulky trash collection, street sweeping, and right of way mowing in an effort to be more transparent and accountable. The department's leadership feels that this type of accountability will not only reduce costs, but will increase efficiency in nearly every operation over

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The system design wasn't easy and the GIS division had to overcome several obstacles such as continuously updated vehicle locations, storing large datasets, ease of use, user interfaces, and site navigation. Some of the implementation obstacles included retrieving large off-site datasets in real-time, storing the data for extended periods of time, and designing the mapping application in such a way that it worked on all browsers, tablets and smart phones for everyone to utilize.

The department subscribes to ActSoft as the platform for fleet tracking powered by Verizon Wireless for data transmission. The GIS division, with help from NuOrigin, developed and implemented the web mapping solution with industry standard Microsoft Service Oriented Architecture Design and ESRI ArcGIS Server mapping technologies and used Microsoft SQL Server 2012, ESRI ArcGIS Server 10.3, JavaScript API, Microsoft SQL server, MVC, WCF, and Bootstrap framework with adaptive rendering techniques.

The City of Chattanooga's Department of Public Works homepage can be found at:

<http://www.chattanooga.gov/public-works>.