



# County Tracking Litter Cleanup with Survey123 for ArcGIS®

Officials and citizens of Prince George's County, Maryland, work together to protect and restore Chesapeake Bay by reducing litter. To help keep the local bay tributaries and communities clean and beautiful, the Prince George's County Department of the Environment launched its litter tracking tool, PGCLitterTRAK, a mobile application built with Survey123 for ArcGIS®.

County residents, community organizations, and businesses can use their smartphones and the PGCLitterTRAK app to quickly report on trash and debris collected by individuals or groups during cleanup activities. PGCLitterTRAK allows users to record such data as the number of bags of litter, the types of items collected, and litter pickup locations.

ArcGIS maps and analyses of litter data will be incorporated into the annual progress reports that the county makes to the Maryland Department of the Environment and the Environmental Protection Agency. PGCLitterTRAK facilitates reporting by providing an accurate account of real-time litter collection and a map of litter reduction activities. Staff may also use app-derived data and maps to evaluate the effectiveness of litter reduction efforts and to allocate resources.

"We were constantly asked the question, where is this litter coming from?" said Tiaa Rutherford, Prince George's County Litter Reduction Program manager. "As a county, we could not answer that question. Using Survey123, we developed a simple tool that empowers people doing cleanup work to report back to us on the quantity and location of litter."

## Setting Up Survey123

The county selected Survey123 as a solution for its form-centric design, ease of use, and ability to collect location information in the background and because it enables users to upload site photos. Survey123 also gave the county an easy way to deploy its litter tracking app to Android, iOS, and Windows devices in order to seamlessly facilitate use by volunteers, whether they are online or offline.

Survey123 allowed the Prince George's County app to include relative questions using conditional logic about the quantity and location of litter collected. For example, if a PGCLitterTRAK user selects "bags of litter," the question, "how many bags?" will appear. If the user instead selects "tires," the question, "how many tires?" will appear.

"PGCLitterTRAK and Survey123 enhance the user experience by only asking about what that person is doing at that specific location," said Catherine R. Escarpeta, senior GIS analyst with Prince George's County Department of the Environment.

"The survey is created using XLSForm format. We can import over 800 community groups into a drop-down list. The lists automatically populate as you start typing. We inform everyone during training that the app supports voice-to-text and other built-in functionality of smartphones and tablets."

Escarpeta used set-up hints within Survey123 to customize PGCLitterTRAK, validate the data, create relevant questions based on previous responses, and determine default values.

She enriched the data with hidden fields for details such as fiscal year, council and maintenance districts, and watersheds. This ensured precise location-based analyses and helped keep reporting requirements from taking up valuable screen space.

Survey123 is included in the county's subscription to ArcGIS<sup>SM</sup> Online and therefore available at no extra cost. The fact that the app was created in-house is a major benefit. The county used its own resources to enhance the litter reduction programs and avoided the expense of third-party app development.

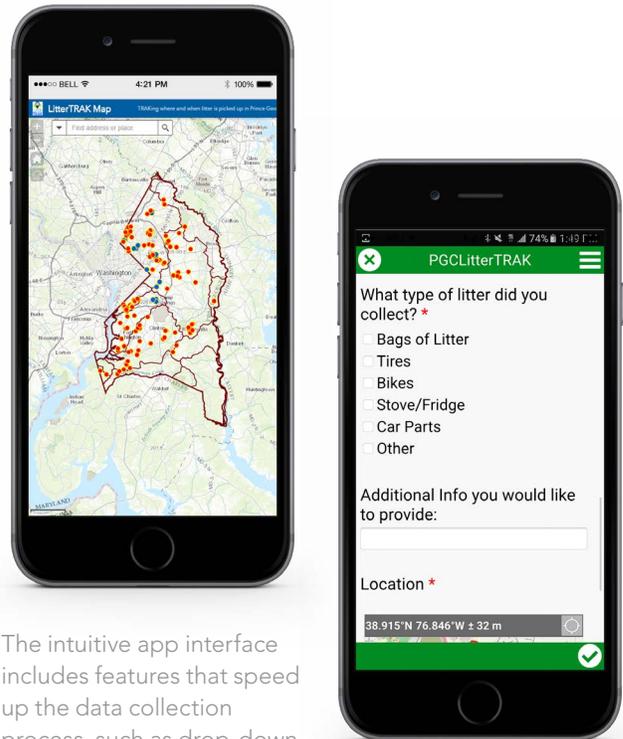
The PGCLitterTRAK map enables citizens to use their smart devices to easily participate in improving the community.

Learn more at [esri.com/survey123](http://esri.com/survey123).

## Online Litter Map

Litter collection data connects directly from the Survey123 app-based PGCLitterTRAK to ArcGIS Online, where people can access the PGCLitterTRAK map, created using Web AppBuilder for ArcGIS. Nondevelopers and developers alike can use Web AppBuilder for ArcGIS to create professional and informative web maps to share with the public.

The PGCLitterTRAK map enables non-GIS professionals to view and analyze the data. This opens information to the public, providing greater transparency to county residents. The county can also add other layers to the map: hot spots, community outlines for specific programs, council and maintenance districts, and other background data. The map's data is also being used to determine areas to focus outreach efforts, as well as where to place more trash receptacles, or even set up cameras for illegal dumping sites.



The intuitive app interface includes features that speed up the data collection process, such as drop-down menus of responses.

