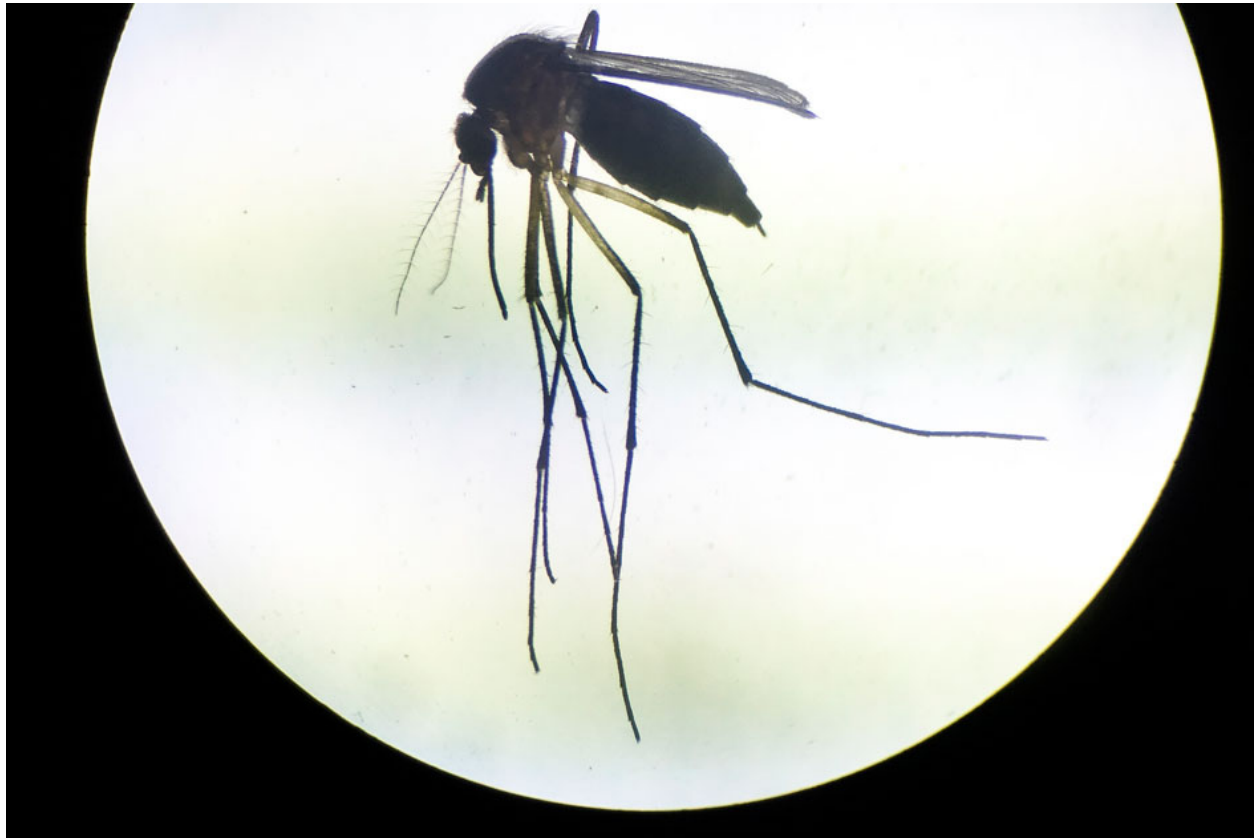


## Hillsborough County, Fla., Uses Real-Time GIS to Target Zika Virus

Theo Douglas | April 6, 2017



*Aedes Aegypti*, watch your back. Officials in one southwest Florida county say 2017 is the year they hope to home in on the Zika virus-carrying mosquito species using a streamlined workflow and a series of new apps and dashboards to stamp out the disease-bearing insect.

Earlier this year, Hillsborough County deployed a one-week operation called Outbreak Surveillance and Control Jumpstart (OSC Jumpstart) — subsequently modernizing how employees in its [mosquito control program](#) and in public works document their work and see their progress in eradicating the virus carrier.

Hillsborough County already uses GIS and has had an existing relationship with Redlands-based mapping technology company [Esri](#) for more than a decade. Its ongoing war on mosquitoes involves controlling their numbers with 75 traps and 20,000 larval inspections per year.

But the county, which covers nearly 1,300 square miles and is Florida's fourth most populous, had some work to do on integrating its mosquito control data to reflect results in real time.

OSC Jumpstart, which was conducted during one week in January, included a business process review aimed at simplifying the paper trail for county field crews and a rollout of ArcGIS solutions during which a solutions engineer from [GISinc](#), an Esri partner, huddled with two county analysts to configure and deploy an array of online apps and tools.

Much of the work centered on determining how paper forms could best be turned into Collector for ArcGIS maps, to more efficiently document everything from inspections to field testing to tracking materials used, according to Kevin Stewart, GISinc managing partner for state and local government.

“All of this fuels the dashboards used by administration, allowing for seamless integration of data, something that is next to impossible to achieve with just a paper-driven system,” Stewart told *Government Technology* via email.

The issue is urgent; in February 2016, Florida Gov. Rick Scott [declared](#) a public health emergency in four Florida counties including Hillsborough, where a total of nine travel-associated Zika cases had then emerged.

County Mosquito Control Operations Manager Ronald Montgomery said the county’s exact Zika case count is now believed to be between 50 and 100.

But because it affects newborns and because infected humans aren’t a “dead-end” as they are with West Nile virus — and can transmit Zika to a mosquito if they’re bitten, and from there it could get transmitted to another person — controlling the virus’s carrier is a priority for the agency.

The county’s previous work to control the dengue virus helped prepare it to focus on Zika, Montgomery said — but the transition to combatting Zika was “more of a challenge to organize and understand ... where these cases were” so officials could time and target their response.

One crucial way the county controls Zika’s spread is by controlling mosquitoes near the residences of people confirmed to have contracted the virus.

The *Aedes Aegypti* lives its life in a relatively small area — just 200 yards — but it’s very urbanized and “likes to live around people,” Montgomery said. With their existing toolbox, Hillsborough County sprayers and outreach weren’t as accurate as they could have been.

“Imagine you’ve got to canvas a neighborhood in a 200-yard radius of a house. How do you [accurately] display a 200-yard radius to an intern who’s working for the summer on a map?” Montgomery said. “We weren’t able to do that really, so we would end up treating a much larger area.”

Before OTC Jumpstart, when sprayers and canvassers treated an area, their progress had to be migrated from paper to GIS — which made updating maps and preparing them for internal or public presentations a continuous and time-consuming process.

“Last year when Zika was taking off ... it took us quite a while in my shop on the GIS side to tell the high-level story of what Ron’s guys were doing operationally on the

ground,” said Fredrick Hartless, the county’s GIS manager within Public Works. “... it wasn’t dynamically feeding GIS as it is now.”

OSC Jumpstart revealed those types of deficiencies, and when it did, the GISinc solutions engineer helped analysts create 20 apps supporting 10 solutions and workflows, as well as dashboards to help county staff stay current on their own progress.

Developers were able to create those solutions using existing apps, and tools including Collector for ArcGIS and Web AppBuilder, and the county’s only expense was to pay for 40 hours of GISinc’s time, Hartless said.

He praised the reliability of Esri’s cloud provider, Amazon Web Services, and said the new efficiencies created should let his staff bill the mosquito control program up to 80 percent fewer hours this year.

Now, with solutions in place, nearly all of Montgomery’s 23 staffers are connected via mobile devices and can see in real time how they’re doing.

On the back end, county employees are able to monitor progress in the field, assign work to crews out on the job, and through dashboards monitor insecticide usage and track the number of calls they’re getting from residents.

Among Hillsborough County’s next steps will be continuing to digitize and map larval production sites, the officials agreed. Currently the county has digitized around 1,000 sites, but virtualizing the more than 100,000 aquatic habitats that produce mosquitoes is expected to take around two years.

The county, which owns the data it has collected, will also likely make some of the data streams available to the public, though it’s not yet clear when. One popular feature might be a map showing areas that have been sprayed for mosquitoes.

“That was kind of a hard story for me to tell in GIS,” Hartless said. “But now ... we have an application internally that displays that information.”

<http://www.govtech.com/health/Hillsborough-County-Fla-Uses-Real-Time-GIS-to-Target-Zika-Virus.html>