

911 IN THE DIGITAL AGE

By ADAM JANOS

On March 13, 2011, a suspect under arrest for domestic violence shoved New York City Police Officer Alain Schaberger over a stoop in Brooklyn. Tumbling nine feet, Schaberger broke his neck and died.

The perpetrator of the crime, George Villanueva, already had a record of 28 arrests. He had been to prison twice. Yet Schaberger had not been privy to any of that information while detaining Villanueva—all he had were the bare-bones basics of a 911 call. According to Charles Dowd, the commanding officer of NYPD's Communications Division, having that knowledge handy could have saved his life.

Making targeted information more readily available to public safety officers in the field is a central component behind FirstNet, a nationwide broadband network for first responders. The network is a project of the National Telecommunications & Information Administration (NTIA), which was set up as a part of the Middle Class Tax Relief and Job Creation Act of 2012.

Speaking at the New York State Wireless Association's conference on June 14 in Manhattan, Dowd, a FirstNet board member, outlined the planned program, which he is helping bring to life.

Wireless services will allow police officers to download and listen to the 911 calls to which they are responding, as well as to receive access to information about protection orders and previous incidents. Officers will be able to take pictures of perpetrators on the scene, and then use facial recognition software to identify matches in a database. Working with other first responders, the police will also be able to use basic medical technology and transmit vital signs to paramedics, thereby allowing trained staff to gather information about the degree of emergency in order to efficiently allocate ambulances and medical personnel to the scene.

In New York City, the architecture for broadband wireless is already in place, thanks to the New York City Wireless Network, or NYCWiN. NYCWiN is a wireless extension of CityNet, a public official cyberinfrastructure system used for wireless meter readings of water and electric, license plate recognition and mobile data transfer.

NYCWiN operates on a 2.5 gigahertz spectrum; FirstNet will be on 700 megahertz, a cleaner band that wasn't around in 2007 when NYCWiN was first assembled.

Steven Harte, the associate commissioner of wireless technologies at the New York City Department of Information Technology & Telecommunications, said that the two systems should work hand in hand to give the five boroughs' public safety officers cutting edge broadband capability.

"The great thing about the spectrums is they complement each other," Harte told *City & State* in a telephone interview. "We built a network that would provide greater than 95 percent coverage on the street ... and the 2.5 spectrum, while it's a great spectrum and offers the capacity we need, 700 MHz has different characteristics, including greater in-building coverage. We envision having a device that can roam on and off between FirstNet and NYCWiN."

Both FirstNet and NYCWiN are built around the idea of "mission critical" levels of consistency. The goal is having a signal that never drops, because the stakes with clean

communication in emergency response are so high. With commercial broadband, the stakes are considerably lower.

Another central component of FirstNet's mission is to establish the interoperability among all public safety units in the country, possibly by latching onto advancing commercial technology to help advance emergency coordination.

FirstNet has eight pilot programs in locations ranging from Adams County, Colo., to the New Jersey Department of Treasury to Los Angeles. The NTIA hopes to have a nationwide system live in five years, a timeline Harte describes as "very aggressive."

For upstate New York, nothing like the NYCWiN infrastructure exists on the municipal level for the federal government to piggyback on, except in Albany. For great swaths of the upstate region even commercial broadband remains scarce, with up to a million New Yorkers still lacking coverage and some Democratic state senators pushing for state-subsidized broadband infrastructure through the area.

According to John Facella, a RCC telecommunications consultant, FirstNet would be valuable in rural areas in addressing the large distances between hospitals and other public service buildings.

Without infrastructure already in place, though, the investment will be more costly not just in New York but also across the country. Morgan O'Brien, a former chairman of Cyren Call Communications and co-founder of Nextel, said he believes that funding for the nationwide broadband emergency response system remains woefully short. With Cyren Call, O'Brien pitched Congress in 2006 on setting aside a 30 megahertz spectrum in the 700 megahertz

band for something equivalent to FirstNet.

By Cyren Call's estimates, the system would cost upward of \$20 billion and take 10 years to complete. Though the idea didn't come together then, the 2012 legislation that established FirstNet provides up to \$7 billion for its infrastructure, a hefty sum that nonetheless leaves the project short on cash.

According to O'Brien, the capital funds to build the network remain scant, though he estimates that partnerships between the federal government and private wireless carriers on existing infrastructure would help lower costs. For operational expenses, however, O'Brien envisions NTIA selling off extra data from FirstNet's 700 megahertz spectrum to private carriers. With laptop computers occupying a rapidly increasing slice of the telecommunications marketplace amid an ever-growing demand for wireless data, the 700 megahertz band could prove to be an ideal spectrum for the hundreds of millions of cell phones, tablets and other wireless devices on the market. As a result, O'Brien said he believes that the government's share of the spectrum will only grow more valuable in time.

"You can relatively easily project demand," O'Brien told *City & State*. "If you build the right network, if you use the right operating systems, you'll build enough revenue."



AS NEW YORK WIRELESS GROWS, UPSTATE REMAINS UNDERSERVED

New York City has a growing tech sector and New Yorkers are as tech-savvy as anyone—but taking the state as a whole, there are still a million residents without broadband access.

Ken Adams, the president and CEO of Empire State Development, pointed to the upstate region as the state's most underserved area during a New York State Wireless Association conference in Manhattan last month.

Adams noted the challenges of bringing broadband to places like Adirondack Park, a six-million acre expanse stretching across 12 counties. That lack of broadband is a major impediment to advances in telemedicine and education. With increased connectivity, medical personnel and educators would be able to serve, through online services, more sparsely populated areas like the Adirondacks' Saint Lawrence County.

With \$40 million of investment in infrastructure planned this fiscal year (\$31 million from the Regional Economic Development Councils and \$9 million from matching private investment), Adams claimed that New York's commitment to broadband is the largest of any state in the country.

That money will go toward adding 6,000 square miles of broadband coverage and—by Adams' estimates—will create 8,000 new businesses and 1,400 permanent new jobs. Those seeking information on block-by-block, mile-by-mile broadband coverage in New York can check a map at broadbandmap.ny.gov.

"Increasingly [New York] is an economy dependent on technology-driven companies, dependent on innovation," Adams said. "We deploy loans, grants, and tax credits, and other economic incentives to attract economic investment to the state, and we're not looking for another steel mill."

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