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INSIDE THE BATTLE TO BRING BROADBAND TO NEW YORK'S PROJECTS



Shameya Muniz (left) and April Andrews knock on doors and brave forgotten basements to bring broadband to their community. CAIT OPPERMANN

THE SECOND WEEK of August isn't ordinarily a time given over to novelty and ambition in New York. The air is a jellied vapor of sweat and refuse, and anybody who can afford to be elsewhere is. But the vast Queensbridge housing complex was an unlikely scene of neon-vested hustle.

The six-story brown-brick apartment blocks along 41st Avenue had been encased in green scaffolding and draped with long, heavy bolts of cream burlap, which gave the blunt rectilinear forms a veil of anticipation. Queensbridge had been recently named the beneficiary of millions of municipal dollars for neighborhood development, and the attitude, a young press secretary from the New York City Housing Authority told me, was one of "all hands on deck." Workers mended the leaky roofs and repointed the brick facades. Permanent LEDs had been ordered to replace the broken

sulfur fixtures; in the meantime, mobile arrays of large klieg lights had been set up in the courtyards and along the thoroughfares. CCTV cameras were going to be ensconced along the perimeters and above the entryways, and layered-access doors, like shuttle airlocks, were to be introduced along with key-fob admittance. Perhaps the most consequential upgrade, however, was invisible: the introduction of free, grounds-wide wireless broadband.

The city chose Queensbridge as its pilot site in part because it's the largest public housing development in North America. It's also the most visible, a planned city in miniature just across the Queensboro Bridge from the towers of Midtown. The development, spread out on 50 acres of Long Island City waterfront between the bridge and the Ravenswood power plant, opened in 1940; it houses around 6,600 residents in 3,147 units among 26 buildings.

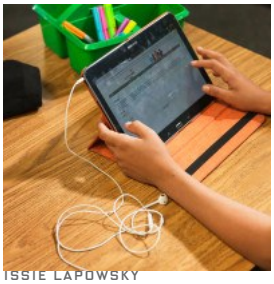
The buildings were known at the time for their novel design—a Y-shape, instead of a simple cross, to provide for more sunlight—and for the clever cost-cutting measures taken in their construction. The elevators, for example, originally stopped only at every other floor. That infrastructure was haltingly modernized over the decades, but it had been a long time since the precinct had seen major coordinated capital improvements, and if the outside world had paid any attention to Queensbridge at all, it was because of the houses' towering hip hop emissaries of the '80s and '90s: Marley Marl, Mobb Deep, and Nas. Now many of the residents were skeptical. The neighborhood, only two subway stops from Midtown, had seen swift gentrification, and the worry was widespread that such remedial alacrity could only be for someone else's benefit. The rumor on the block was that the development was being prettified to be sold.

These rumors were one of the more considerable impediments to the rollout of the municipal broadband project, which had been tendered to a New Haven, Connecticut, managed-wireless contractor called Spot On. For the network to provide even coverage throughout the buildings, small access points—the size of a dessert plate—had to be installed in the hall closets of roughly every third unit. Technically, the buildings were the property of the Housing Authority, and it was not clear that tenant consent was explicitly required. But the city wanted the effort to be seen and understood as a gesture of major goodwill for the benefit of the community, not as something imposed by fiat from "downtown." To that end, Spot On had hired a 29-year-old Queensbridge resident, Shameya Muniz, to canvass for authorization.

Muniz is half Puerto Rican and half black Trinidadian, with almond-shaped eyes, calligraphed brows, long lashes, and a tattoo under her left ear of the Eiffel Tower aswirl with musical notation. She has lived in Queensbridge her entire life, in four different units. She seems to know every last resident, from the little boys hawking homemade empanadas ($1, surprisingly light and flaky) and

"A lot of people won't even open the door. This is a tough community. They're tough cookies. People think we're trying to sell them something."

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the little girls selling lemonade ($1, generously sweetened) to the grounds crew and young guys playing dice and the old men playing cards.

Despite her familiarity with her neighbors, she wasn't having the easiest time. "A lot of people won't even open the door," she told me. "This is a tough community. They're tough cookies. People right away think we're trying to sell them something." When she first started she wore her Spot On T-shirt—she was proud that she'd been hired to serve her neighbors—but she soon realized it made her look like a salesperson. She'd taken to putting on, over a tank top, her old NYCHA shirt, from when she worked as a seasonal auxiliary. The residents didn't always have the warmest feelings toward the Housing Authority, but one of the things the city had going for it was that its historical sins were those of neglect rather than predation.

The younger people, for the most part, understood what was on offer. The older folks were harder to convince. She, along with her colleague, April Andrews, had knocked on the door of a 90-year-old man. "He didn't have anything smart," Andrews said. "No computer, no tablet, no smartphone."

Muniz laughed. "He said, 'You think that if you just send some pretty young faces to my door I'm going to say yes to whatever you're asking?' We turned to each other and said, 'Yeah, you're right.'" She admired the old man's savvy. "It was dead-on."

Andrews continued, "We have to say to them, 'You know your neighbor, you watched him grow up since he was a little boy, now he's 18 and he only gets an hour at a computer at the library to do his term paper.' You have to make people like him feel like they're doing something bigger for the community."

"People keep coming up to me saying, 'When is it coming? How can I get off my cable?' We gotta show something. People want to make sure it's real."

Resident hesitation might have been an unanticipated difficulty, at least for the vendor's management in New Haven, but the preparatory phases of the project turned up pleasant surprises, as well. As it happened, getting the signal to the individual access units was going to be a lot easier than it might have been. Years ago, the buildings had been comprehensively wired with cables suitable for Internet and video networks. Everything was installed and then, apart from a basic intercom system, never connected; the racks and cabinets of switching equipment were sitting, untouched and perfectly operable, in basement warrens.

To the vendor and the city, this was a stroke of good fortune. But many of the residents, Muniz told me, took a dimmer view. It was just one more example of a lavish municipal program left to its own idle devices.

"That stuff in the basement," she said with resignation, "was supposed to be for us, and we never got it. People now keep coming up to me saying, 'When is it coming? When are you starting? How can I get off my cable?' We gotta show something, prove this. People want to make sure it's real."



40%

For the first three years, New York City will pay for the Queensbridge broadband itself. CAIT OPPERMANN

IT IS, OF course, in the commercial interests of the tech industry, and probably in the general interests of the world's people, to make sure that everybody is provisioned with Internet. The solutions on offer can seem fanciful: Facebook, for example, aims to deliver Internet access to the world's far-flung places via drone-mounted lasers, and Google wants to do so with giant balloons.

While those plans, however, trade in glamorous tech for the exotic periphery, many domestic communities still do without Internet access—and not just rural towns and tribal lands but housing complexes with views of the United Nations. Last year, the Center for Economic Opportunity reported that more than one in five New York City households lack home Internet service; among households below the poverty line, the number is more than one in three. Nationally, almost 20 percent of smartphone owners rely on that device to access the Internet. For low-income households, the connection is often tenuous, especially once introductory rates expire. Research by Pew suggests that half of all people without home Internet and who have otherwise limited access have had to suspend or cancel their mobile service because of financial fragility. According to a report commissioned by the Roosevelt Institute, the average household spends more per year on communications services than it does on electricity or gas, and almost as much as it spends on groceries; most of that is spent on wireless and broadband. And yet almost everybody agrees that broadband is a necessity.

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The "digital divide" has become an urgent civil rights concern, but the way it is entangled with so many other issues—income inequality, urban bureaucracy, the quasi-monopolistic economics of telecommunication, a bricolage of federal, state, and municipal regulatory statutes—makes it resistant to straightforward technological solutions. (No balloons over Queensbridge.) The problem is also largely invisible and unevenly distributed. At Queensbridge, for instance, no one appeared to have a clear sense

opened the door only an

inch and spoke through the chain.

of what the community's needs really *were*. The example of the kid in the library was ubiquitous, but nobody seemed to know how many residents already had broadband through Time Warner, for example, or what percentage of people even had computers at home.

I spent an afternoon with Muniz on her rounds, which she approached with sensitivity and unfailing good cheer. Some residents didn't answer the door at all, even though we could hear people inside; others opened the door only an inch and spoke through the chain; others invited us in and treated us like expected company. People who knew what Internet was—perhaps two-thirds of those we spoke to, and certainly everyone under 50—and didn't already have it seemed pleased, on the whole, that they would no longer have to depend on their phones, which barely got service inside the complex.

Maybe half of the people we met already had Time Warner service, though there was no consistency there either: Some of them were relieved to know they could keep their present service, while others couldn't wait to get rid of it, and still others wanted to know details of how Spot On's 25-Mbps connection would handle upload versus download speeds. One person told us he paid $14.99 per month because he knew how to read the fine print and demand it; another told us she paid $39.99 a month; a third was furious that, after a series of annual unexplained rate hikes, she paid almost $80. Despite pervasive initial skepticism, everyone who answered the door signed the consent form.

One guy came to the door in workout clothes. He said, into his Bluetooth headset, "Hold on, Momma, there's someone selling something."

50%

Muniz said, "I'm here from Housing and from Spot On about the new free wireless that starts next month."

"Fios!" he bellowed, referring to the Verizon fiber-optic service that, contrary to its agreement with the city, Verizon had yet to make available in many residential neighborhoods. Muniz laughed and said this wasn't Fios. The man frowned, told his mother he'd call her back, and took off his headset. He told us he paid more than $200 for a Time Warner package that included cable but that it went out all the time. Muniz explained that with any luck this new service would be a lot better. He listened carefully and, surrendering his initial skepticism, signed the consent form. We began to walk away, but before he closed the door he yelled, once again, "Fios!"

As we walked out, I turned to Muniz. "But why would he want Fios? Does he think Verizon will be cheaper and more responsive?"

"He doesn't know what the difference would even be," she said. "It's just that between the slow speed, the outages, the interruptions, and the expense"—and the total unresponsiveness of Time Warner—"all he wants, all any of us want, is just another option. Any other option."

Such colossal telecom companies as Time Warner and Comcast tend to enjoy the privileges of natural monopoly in local markets. They are, unsurprisingly, among the least popular firms in the US. Still, in debates over how to expand Internet access, they argue that only they are in a position to do a satisfactory job—because only they have the experience, the expertise, the resources, and the scale to build, maintain, and update broadband networks. In their view, the current system basically works: In a typical scenario, cities award these firms the right of way to connect users to privately owned high-capacity trunk lines; the companies then assume the necessary capital expenses in exchange for control of the "last-mile" physical infrastructure. Lobbyists for these large companies contend that if they are unable to provide fast and reliable universal coverage, regulatory interventions are to blame.

On the other side of the debate are those who argue that broadband is a public utility; they think that the digital divide will never be closed by rent-seeking corporations but by ambitious governmental experimentation. "Everybody knows their service is too slow and too expensive, but people don't know why," Joshua Breitbart, the mayor's attaché for broadband services, told me. "And it's not something they can fix on their own."

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Last year, Mayor de Blasio announced a $10 million program, administered in partnership with the federal government, to guarantee broadband access in underserved communities. Under the program's model, the city owns the underlying broadband infrastructure (in this case, the honeycomb of fiber rings that underlie the Queensbridge buildings), and private vendors bid for contracts to manage the local networks. As city representatives like to point out, there are obvious technical advantages to networks that operate more like central air than an unsightly grid of dripping window units. Distributed access points on an integrated network create much less interference than an ad hoc dispersal of individual routers behind bookshelves. They also provide for continuous building-wide service without random disruption. (Businesses that own their own buildings usually opt for these systems.)

More important, cities also claim that some degree of public ownership and administration is necessary to protect consumers from monopolistic predatory pricing. According to the Roosevelt Institute's report, overcharging—that is, revenue over and above what a provider would make in a competitive market—represents nearly 25 percent of household communications bills. The institute estimates that the margin on broadband provision is around 90 percent. Telecoms claim that these markets really are competitive, but this would be news to most New Yorkers; there is, in actuality, very little "overbuilding" among the major telecoms—attempts on the part of one provider to invest in a building or neighborhood already wired by a competitor. The strategy has been to divide and conquer, like mob families did with sanitation routes. If a city hall can break the link between infrastructural ownership and monopolistic power, the telecoms will no longer be able to act with impunity.

60%

To which the telecoms have essentially argued: Good luck. They would point to all the cabling and equipment in Queensbridge's basements, installed but unactivated, as evidence that the public sector just doesn't have the expertise or capital to make it work. Early experiments have shown that municipal-owned networks are rarely operated, maintained, or upgraded properly.

"*Project* makes it sounds like we're somebody's science project. We're a *development*. And if that's what we are, then you gotta work with us."

Telecoms point to the failures, at great public expense, of such projects in Groton, Connecticut; Provo, Utah; and Burlington, Vermont, as case studies in municipal mismanagement. But one reason these programs have foundered is because they've lacked the subscriber base to balance the budget. Queensbridge won't have this problem, because the contracts don't depend on subscription rates. For the first three years, the city itself will pay for the service with just under a million dollars of municipal funding. After that, the city expects a federal subsidy program to kick in, which will pay $9.25 a month per household for broadband service—a guaranteed continuous stream of income for the vendor. A success at Queensbridge would thus support the entry of entrepreneurial newcomers like Spot On into an otherwise protected market. More broadly, it would demonstrate the basic viability of the model. Similar public-private agreements could then be negotiated for other areas, and over time the challenges of capital provision and maintenance might ease up.

Those objectives are clearly admirable in theory, but such noble experimentation can come across differently in practice. Muniz told me there's a reason she describes her home as a development

rather than a project. "*Project* makes it sounds like we're somebody's science project. We're a *development*. And if that's what we are, then you gotta work with us."



In New York City, one in three households below the poverty line lacks home Internet service. CAIT OPPERMANN

SPOT ON EMPHASIZES that it's putting a lot of energy into working with the community; it's not just deploying wireless, the company says, but creating local jobs to help maintain the service. April Andrews, 40, is short, with an open, expressive face, and on the first day I met her she wore long, loose curls under a batik bandanna, bright fuchsia eyeliner, and dragonfly earrings. Unlike Muniz, she grew up in a middle-class community in the Bronx and has lived at Queensbridge for only a year. She and her three younger children—the oldest is in college—spent five years in a shelter for victims of domestic abuse. About a year ago, she filed a 150-word complaint, about how long she'd waited for proper housing, at 311 online, New York City's source for non-emergency services. A week and a half later she and her children moved into Queensbridge. Then her cousin posted a link on Facebook about a new initiative of the mayor's called the Tech Talent Pipeline. She applied to one of its programs, the Tech Jobs Academy, and was one of the 25 people selected, from a field of hundreds, to be part of the inaugural class. (She was one of five women.) She describes the program, which ran every weekday for five months from 9 in the morning until 5 at night, as "boot camp to the 25th power." She shook her head with solemnity just thinking about it. She'd always been interested in the sort of thing they studied—server administration and cloud computing—but it was only in that program, she told me, that it clicked. "I finally became a geek!"

"It's monumental to give people free Wi-Fi, to bring my own passion to a community. This movement, I was a part of this."

Andrews was proud of herself for having buttonholed Spot On's CEO at a community meeting and essentially demanded a job. She'd had more remunerative offers in the private sector, but she felt so grateful to the city—she calls herself "walking proof of the mayor's vision"—that she wanted to give something back to her new community. "It's monumental to give people free Wi-Fi, to bring my own passion to a community. This movement, I was a part of this."

When I went back a few weeks later to spend the day with Andrews, she was dressed down, in leggings and a T-shirt, her hair tied back. She had been working, she told me, on a series of reports to be used by the subcontractors doing the actual installation. The reports compiled directions, including photographs, to the locations of the unused racks and cabinets of switching equipment in the building basements. Some of them were located in rooms, she told me, that even the long-term maintenance people didn't know existed. "It's a labyrinth down there."

We had arranged in advance for me to spend a few hours accompanying Andrews on her rounds, but when we met at Queensbridge she told me she'd been unable to get permission from the supervisor of the complex's north side to let me come along. We went to talk to the manager and I explained that City Hall had made all the arrangements; she said she couldn't give permission without hearing from an NYCHA representative downtown. We gave her a phone number and went to sit and wait in the small office lobby, where it felt as though we'd been sent to the principal. We debated walking around while we waited for a call, but Andrews told me that she didn't really get cell reception anywhere except the park by the river.

When we finally secured permission, Andrews and I went to find a guy who could open the right basement door; he passed us on to someone who passed us on to someone else, who finally pointed us toward a door that was already hanging open. We went inside and Andrews showed me the cabinet, an unmarked black box next to the trash compactor. The room, a choked effluvial depot, smelled intolerable, and Andrews said we could go. I mentioned that I thought she was supposed to take a picture, and she said she hadn't gotten permission for that, so she was going to have to find someone to bring her back the next day—though she then realized that person was going to be on vacation, so maybe it wouldn't happen right away.

As we walked out, I told Andrews it seemed to me that perhaps she was being underutilized in her role; after all, she'd told me that she had certificates in networking and cloud administration. She agreed that maybe spending days waiting for official permission to take a photograph of a black box by the door of a compactor room wasn't what she'd been trained to do, but she was trying to stay positive, to remind herself that she had to pay her dues and work her way up.

"This is my community. I want all the other little girls to see, wow, you can make it in the boys' club."

Because she really liked and cared about Queensbridge. She liked knocking on doors and getting to know her neighbors. "This is my community," she said. "I want all the other little girls to see, wow, you can make it in the boys' club." One of the things she'd come to quickly love about the complex was that, unlike most NYCHA properties, there's little in the way of a buffer between the projects and the surrounding city. More than once she listed for me all the nearby subway lines: the F, and the 7, and the N and the Q, with the E, the M, and the R only one stop away. One time she walked home from Manhattan with her kids across the bridge. But she knew that Internet wasn't like the subway; it wasn't something you just put in and left people to use. There had to be more to it than that if the real divides were to be breached.

She only hoped that, after the broadband was installed, there would be some follow-through—maybe training like she'd had. "I'd like to see classes," she said. "Programs that bring people in."

Gideon Lewis-Kraus wrote about the world's first robot hotel in issue 24.03. He is a fellow at New America.

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