Planning for Telecom Infrastructure Security in New York City

By Sarah Kaufman
Staff writer

Terrorist attacks may aim to wreak havoc and kill many people, but they also severely damage infrastructure, including buildings, buses and trains. New York City’s density makes it particularly vulnerable to infrastructure attacks of all types. Oft-overlooked elements of New York’s infrastructure are communications-enabling structures, including telephony centers, telecom hubs and transportation tunnels carrying physical lines. These resources are necessarily close to densely populated areas, putting them at greater risk for damage. Contingency plans for these infrastructure elements are necessary for telecommunications planning.

In lower Manhattan on 9/11, the fall of the World Trade Center towers brought with it the fall of cellular-phone antenna sites - and thus much of southern Manhattan’s communicability. The destruction caused airway congestion on remaining antenna sites due to the record-high number of incoming and outgoing calls; the situation worsened when government and emergency service workers had trouble gaining enough airwave space. As a result of this communication failure, the federal government created GETS (Government Emergency Telecommunications Service), which allows systems to prioritize calls during large-scale events.

What mobile-phone towers and all communications infrastructure need most is electricity. During the August 2003 blackout, phones stopped working as cell-phone towers lost power, and every signal, regardless of its priority level, was disabled. This experience shows the need for battery power backup for cell-phone towers. A common misconception about mobile phones is that the signal travels from tower to tower; typically, it travels through a landline between towers. The landlines are usually underground, presenting vulnerability of both mobile and land-based phones. These lines would be most effectively protected by a stronger surrounding physical structure, perhaps concrete. Water- and damage-proof casing for wires, augmented battery backup power, and emergency access points for fast repair are all worthwhile investments for a telephone hub.

Like phone lines, the Internet needs physical protection and power backup. The Internet was mostly in working order in lower Manhattan on 9/11 until late afternoon, when the WTC area lost backup battery power to more than 21,000 broadband lines. By that time, new equipment had already been deployed keeping the Internet functioning relatively well. During the blackout, the Internet functioned due to its inherent design for rerouting to servers. This double success is promising, stressing the importance of battery power.

Telecom stands apart from other forms of infrastructure in that it rarely

(Continued on page 5)
Profile: Stacey Sutton

Stacey Sutton, is a Marnold Fellow and Visiting Lecturer at NYU Wagner. She is a doctoral candidate at Rutgers University earning a joint PhD in Urban Planning and Sociology. Stacey also holds an MBA from New York University, where she specialized in economics and organizational behavior.

By Jordan Anderson
Staff writer

JA: Tell us about your current research.

SS: In my dissertation work I look at neighborhood change in Fort Greene, Brooklyn over the past 50 years. Unlike many neighborhood revitalization or gentrification studies that focus on residents and housing markets, I examine the role of the neighborhood entrepreneurs in the change process. I’m interested in their role in neighborhood revitalization, as well as ways that they are affected by the change. Fort Greene is a good example of how a predominantly black neighborhood with predominantly black entrepreneurs was able to move from a stigmatized place described as a “ghetto” into a cultural enclave and destination location. I argue that these local entrepreneurs were instrumental in that process.

JA: Do you take a more pragmatic approach in your work at the Aspen Institute?

SS: I work with the Roundtable on Community Change at the Aspen Institute. I primarily work on the racial equity and community-building project. At the Aspen Roundtable, we tend to balance conceptual work and on-the-ground practice. For instance, I recently worked on a project in St. Louis. They were interested in reducing racial disparity in education outcomes. First we relied on conceptual framework to unpack the problems associated with education disparity. Then we developed an approach, a “racial equity theory of change” to help folks in St. Louis move toward a more equitable education outcomes. By matching our theory with their local needs, we were able to give them tools to help them think about the policies, institutional practices, and cultural representations that perpetuate the problems and help them develop a strategy for reducing racialized achievement disparities.

JA: You’ll be teaching the History & Theory of Urban Planning course in the spring. What would you tell a practice-oriented Masters student to persuade them that the history and theory of planning are important to them?

SS: I encourage students to think big! Granted, as a practicing planner you may have little power to change the environment and you may get caught up in your organizations institutional culture; which is not necessarily bad, but it can cause you to lose sight of the implications of broader ideals. In grad school, I think it’s important to be reflective, to consider the historical underpinnings of current planning practice. It may come in handy later, even if you can’t change the direction of decisions, you will have a better understanding about the context in which decisions are often made; history tends to repeat. So, my approach is to facilitate critical thinking about planning processes and urban life.

JA: Do you have any unusual hobbies we should know about?

SS: Recently, I have been involved in competitive kickboxing. I came to it after playing Capoeira - an African-Brazilian martial art form - for many years.
Gentrification—more than any other urban planning concept—incites passions among residents, planners, and politicians alike. To many neighborhood advocates, its meaning is synonymous with expulsion, yuppies, and class warfare. To many planners and urban economists, it is a means by which to revitalize distressed communities and desegregate urban areas. Planners shy away from using the term, politicians avoid discussing it, and community leaders emphasize it. But what are the true effects of gentrification and where does it fit in the history of urban residential change? More importantly, how do local residents feel about the gentrification process within their communities? Planners and neighborhood leaders can mistakenly lump all residents into the same advocacy pool. In reality residents have competing interests and opinions about gentrification.

The term gentrification is relatively new to the English language, but the process it describes is not a modern novelty. Cities have historically been subject to the ebb and flow processes reflecting the entry and exit of certain demographic groups within neighborhoods. Research examining gentrification’s effect on residential displacement has been inconclusive. Professor Lance Freeman at Columbia University indicates gentrification may actually be causing a decrease in low-income residential mobility. In contrast to many assumptions that gentrifying neighborhoods drive low-income residents out in droves, the effect may be much less pronounced.

The Lower East Side has seen a period of rapidly increasing real estate valuation. The 1990s saw steadily increasing neighborhood improvements in the form of decreasing crime, increasing business viability, and growing mixed-income residents. Ironically, this is helping to increase land-values and thus push rents further upward. Gentrification opponents argue that neighborhood improvements in themselves are not the culprit; rather the rental hikes leading to displacement are to blame.

Residents in the LES have differing impressions of the change within their neighborhoods. Depending on their position and occupation, not all residents see gentrification as equally damaging. Rosa, who works at a coin-operated laundry on Ludlow Street, believes that neighborhood change is occurring for the best: “Ten years ago when I first came to New York, nobody did their laundry here. People would wash their clothes at home then come in to use the dyers. We can’t afford people using only the dyer, you got to wash here to dry here. Now people come in to drop off their laundry.”

Residents are affected differently than business owners and what may benefit a business could hurt a household. Residents that own either co-ops or condominiums interpret gentrification with varying degrees of acceptance depending on their long-term plans. For instance Ricardo, a resident homeowner originally from Brazil, welcomes the upward momentum associated with gentrification in spite of his increasing property tax. “I don’t plan to stay here forever. Getting more money for it means I can get a better place outside the city when I retire.”

Changing neighborhood demographics have historically been associated with periods of increasing animosity to outsiders. This may not be the case with current gentrification trends in the LES. Tony, a resident of the LES for twenty-years, welcomes the socio-economic diversification occurring within the neighborhood: “Man, I’ve been living here twenty years and this neighborhood has changed a lot. It was out of control. I remember when there were gangs shooting at each other on the street. You were freaked about going out.”

Tony is a beneficiary of a rent control apartment and thus insulated from real estate valuation. If his friends also inhabit rent controlled apartments or live in public housing, gentrification affects the price of the products they buy more than the price they pay for housing.

Many of the apartments that have been renovated and rented to affluent consumers were formerly under rent control. Most of these units are converted to market rate after the previous tenant voluntary vacates or dies. The demographic transition underway in the LES could be a product of an aging population or departure due to medical reasons. As the population ages and leaves, their rent controlled apartments are subject to renovation and market-rate conversion. The aging population’s departure may not be the result of gentrification at all but rather the stimulus.

Planners and community advocates continue to examine the ways gentrification impacts neighborhoods as they search for programs to protect those most endangered by economic isolation.
Hudson-Bergen Light Rail: New Jersey’s Transit System Grows Up

By Susan Willetts
Staff writer

When I moved to Jersey City four years ago, I wasn’t much of a fan of the city’s light-rail system. For starters, it didn’t seem to go anywhere I needed to go; only a limited number of stations opened at its April 2000 launch. Even when the light rail and I were headed in the same direction, it seemed to creep along so slowly that I often felt I could beat it by walking to work. And the system didn’t even have a catchy name or acronym -- Hudson-Bergen Light Rail doesn’t exactly roll off the tongue. Other residents must have felt similarly, because the poor NJ Transit officials were constantly giving out free tickets; my roommate kept a stash for days she was too lazy to walk to the PATH station.

But in my time here, I have come to appreciate the light rail and even found plenty of occasions to use it. The system runs 12.6 miles through 20 stops ranging from as far south as Bayonne and north to Weehawken, with stations along the way on both the waterfronts and the western sides of Jersey City and Hoboken. The light rail is ideal when you need to make a quick trip to Hoboken and don’t want deal with parking, if you have to go to Bayonne and the roads are icy or if you must go to a grocery store in Jersey City and don’t have a car. And unlike with many other forms of mass transit, riding the light rail is nearly always a pleasant experience. There are plenty of seats, the stations have unique public art and the scenery - whether it’s the grassy expanses between Bayonne and Jersey City or the views of the New York skyline looking across the Hudson - never disappoints.

But what’s best about the light rail is how it has connected the communities of Hudson county to each other and to Manhattan. Senior citizens, people without cars, and those who live in neighborhoods previously underserved by public transit now have access to new areas. This sense of connectedness was especially evident after the September 11 attacks, when both the World Trade Center PATH station in New York and the Exchange Place station in downtown Jersey City were temporarily shut down, cutting off a vital link for New Jersey residents to lower Manhattan. For months after the attacks, the light rail was free from the Jersey City financial district to a PATH station about a mile away with direct access to New York.

But the light rail doesn’t just simplify commutes. Development often comes with public transit, and that is true on the west bank of the Hudson. The economic revitalization of downtown Jersey City and Hoboken has brought scores of new high-rise offices and residential buildings. But some neighborhoods and communities haven’t shared in this rebirth - notably Bayonne and the western edges of Hoboken and Jersey City. Light rail is slowly changing that disparity. During planning for the system, there was debate about whether to build the light rail through the eastern or western edge of Hoboken, but local officials insisted that residents in the city’s long-neglected west side should participate in the opportunity, and development has followed.

Results can be seen in Jersey City’s West Side and in Bayonne, where multimillion-dollar condos now overlook the Hudson and Staten Island.

One of the most interesting facets of the light rail is the amount of investment - both financial and technical - that has gone into the system. Future plans call for the $2.2 billion project to have another 10 stops throughout Hudson County and into Bergen County -- perhaps as far north as suburban Tenafly -- with a proposed extension to the massive, unfinished Xanadu sports and entertainment complex at the Meadowlands. By 2010, according to plans, the light rail will run 20.6 miles and serve an expected 100,000+ customers daily, up from between 14,000 and 17,000 now. With the expansion come engineering feats like the elevator that scales the Palisades in western Hoboken so residents of the Jersey City Heights above can access the light-rail station below.

Workers are carving an underground station out of a 121-year-old freight-rail tunnel in Union City, drilling through more than 100 feet of solid rock. These projects are hugely expensive, and they show the commitment of local and state officials in overcoming logistical hurdles to bring public transit to these underserved communities.

Of course, the light-rail expansion hasn’t come without growing pains. Detractors question the huge costs for a system that many residents still don’t use. Financing for the final phase of the project, which will take the system into Bergen County, doesn’t yet exist, and plans to expand to the Meadowlands complex are sketchy. Pedestrians and drivers in the areas currently served by the system are still getting used to sharing their space with the light rail, resulting in inevitable mishaps. And with increased development come higher property taxes and rents, along with more traffic.

But the benefits the light-rail system has brought to these communities far outweigh such problems. The outlook for the Hudson-Bergen Light Rail appears positive, and the next few years will see more stations opening in overlooked areas, connecting their with each other and at last giving them access to the region’s economic rebirth.
A Ferry Tale of New York: Tides Turn on New York’s Water Transit

By Nick Molinari
Staff writer

Immediately following the events of 9/11, ferry service in New York’s harbors saw its largest surge ever in ridership levels. One of the leading regional waterborne transportation providers, New York Waterway, more than doubled its previous capacity to peak at approximately 65,000 riders per day. The destruction of the World Trade Center PATH station on 9/11 caused commuters to find other means of transportation. To meet the increased and urgent demand, a great deal of money was invested in improving and expanding ferry service.

Over the past two years, however, ferry ridership has steadily dwindled as PATH service has slowly been restored. Today, despite fleet improvement, ridership has returned to just about their pre 9/11 levels of approximately 32,000 riders per day and New York Waterway is in serious financial trouble. The company is millions of dollars in the red this year and has already laid off one third of its employees. In mid-November New York Waterway issued an advisory notice to the remaining employees and to the public that the company could be shutting down within the next few months, leaving tens of thousands of commuters stranded.

Waterborne transportation is often considered secondary to trains and busses, but it is equally as important as other means of mass transit, and is less environmentally taxing. Ferry service helps to alleviate overcrowding on busses, trains and subways and to get cars off the road, relieving congestion and decreasing air pollution. Additionally, it is one of the most flexible means of transportation, and has become essential during times of crisis like the 9/11 attacks and the blackout in August 2003.

Most other major means of mass transit in the metropolitan region are managed by regional authorities. The MTA manages the New York City subway, the Long Island Rail Road and Metro-North train systems, and the Port of New York Authority manages the PATH trains. Ferry service, however, lacks such a governing authority. Waterborne transportation needs to be looked at provincially, and a regional authority needs to be put in place to mange the system.

All other major forms of mass transit in the metropolitan region are publicly subsidized in some way. PATH service costs riders $1.50 or less per ride, compared to $4 to $5 for a ride on a New York Waterways ferry because sixty percent of the price of each PATH train ride is paid by government subsidy. Ferries must charge enough to maintain their service and keep the operation running, but at the prices that they are forced to charge, ferries cannot possibly attract enough riders to sustain service and staff.

In order to be competitive, and keep themselves in business, it is imperative that ferry service begin to receive public subsidy to they can lower their per-ride prices. At three times the price of a PATH ticket, it is no wonder New York Waterway is struggling to stay afloat.

(TELECOM continued from page 1)

stands alone; telecom lines are often carried over transportation modes like subway tunnels. The Holland Tunnel is NYC’s telecom Achilles’ heel: if it were attacked, New York’s telecommunication would mostly be cut off from the rest of the country due to the sheer number of telephone and Internet connections going through the tunnel. Major infrastructure repairs in the tunnel, which sits some 90 feet below the Hudson, would be difficult and time-consuming.

Telecom infrastructure is essential to detecting and calming bioterror outbreaks, mostly through secure networks between hospitals and government health bureaus. Simultaneously, systems track patterns in pharmacy prescriptions and over-the-counter medicines to detect more subtle situations. If a true emergency arises, a Centers for Disease Control network can reach physicians, hospitals and politicians through mobile phones and most other communications. Having this information is the first and most productive step to an epidemic’s control, making infrastructure for health-related data essential for physical safety, backup power and redundancy.

What may be more important to consider are the hypothetical situations: What if the attacks had evoked longer-lasting physical damage, or if there had been more attacks? Extended electrical outages would cut off more telecom infrastructure and likely destroy a larger number of cellular and wireless antennae atop tall buildings and even many telecom lines kept in hubs. The result would be greater congestion of wireless telephone and two-way radio airwaves and less landline-based telecommunications due to a drop in the number of operable lines. Meanwhile, Internet access would be slow, if even working, since many hubs would likely be destroyed due to their proximity to potential targets.

“The Holland Tunnel is NYC’s telecom Achilles’ heel: if it were attacked, New York’s telecommunications would mostly be cut off from the rest of the country.”

Planning for telecom infrastructure security is vital. We must consider every hypothetical situation imaginable and plan ahead. Most importantly, every communications system must have a backup, whether a generator for the existing system or an ability to switch to a different incoming phone or data line. 9/11 showed that any single mode of communications isn’t wholly reliable, and protection, power and redundancy must be considered when planning telecom infrastructure.
Alumni Profile: Carolyn Clevenger

By Nicole J. Dooskin
Staff writer

ND: What is your current position?
CC: I’m a Senior Project Manager at the NYC Economic Development Corporation (EDC) in the infrastructure division. I work with Kate Asher, the head of the division. The infrastructure division works with the airports, cruise terminals, maritime industrial uses.

ND: What was your background before attending Wagner?
CC: I studied history and sociology at Georgia Tech and graduated Wagner in 2003. At Wagner, I worked at the Institute for Civil Infrastructure Systems (ICIS) and at the University Transportation Research Center under Buzz (Robert) Paaswell.

ND: How did you end up at EDC?
CC: Mitchell Moss passed my resume to EDC and it found its way to Kate Asher. I think the NYU network helped me land this job.

ND: What activities at Wagner did you find most helpful in starting your career?
CC: Wagner events, like the career panels and brown bag lunches, were very useful. These tie you into the New York planning world and let you know who the players are. Also, bonding with your classmates is great for future connections.

ND: What attracted you to a public sector job?
CC: In the public sector there is more control in setting policy. Also, you get to do jobs that benefit the city. I like how EDC is modeled on the private sector with less bureaucracy than other city agencies.

ND: Which of your Wagner classes have proven to have the most real-world relevance?
CC: My independent thesis taught me how to take a project from start to finish and how to take initiative. Urban Economics and Transforming the Urban Economy both help you think of how projects and sectors influence the local and city economy. Financial Management made me more familiar with spreadsheets and analyzing budgets.

ND: Where do you want to go professionally in the future?
CC: I would like to stay in the public sector in New York City. Infrastructure is my broad interest so city agencies that manage the city’s infrastructure like the Department of Transportation, Department of Environmental Protection, New York City Transit, and the Port Authority.

ND: Any advice for current students at Wagner?
CC: Experience is important. Work in a variety of jobs while in school.

Editorial: The Case for “Grown in New York” Agricultural Branding

By John Richardson
Staff writer

Whole Foods is opening a new store in Union Square. Balducci’s, Dean & Deluca, and Fairways are all expanding. The demand for high quality, “gourmet” foods is fast moving beyond a niche market as the number of players jockeying for market position in New York City can attest. Modern transportation can fly heirloom tomatoes and endive from California almost as fast as it can drive them down from a farm in Upstate NY. Increased production to meet this demand should coincide with protecting regional open space. Ensuring that the farming community in New York State, along with the other states in the metropolitan area, receives its share of this growing market has the dual benefit of reducing environmental transportation costs and preserving open space in the immediate area around New York City.

I propose that the State of New York promote local agricultural products either in cooperation with other states or on its own. I envision an “Organic, Grown in NY” brand similar to the Washington State apple branding program. The program should move beyond produce to classify locally made cheeses and dairy products, meat, poultry, and seafood. The Europeans have been marking food’s origin for centuries. Their designation and protection of regional appellations continues to be an important concern within the European Union. In addition to a New York State brand that would inform and promote local consumption, the project would provide the necessary infrastructure and education to facilitate local production of the quality, type and quantity of products demanded by this new market.

New York State used to be one of the top producers of agricultural products in the country, yet the number of farms has dramatically decreased. The number of acres being farmed in New York State has dropped by over half in the last 50 years, from almost 16 million acres in 1950 to a little under 7.5 million acres today. Depressed local economies in western and upstate New York would benefit, and politicians across the state could attach themselves to the project.

Politicians and supporters could advocate the program upstate as a means of economic development and downstate as a part of a pro-environmental, anti-sprawl agenda. Locally grown produce should move beyond the farmer’s market and into the mainstream food markets. California and other large agricultural production states would love to supply New York’s market. A New York State or regional brand could give local farmers a better chance to capture the new demand for high quality, organic produce and maintain open space and our agricultural heritage.
Urban Planning Students at Work and Play

Photos (clockwise from top left) by Brigit Pinnell, Blaise Backer, Rodney Washington, Douglas Adams, Lindsay Robbins, and Nick Molinari

Planners party on Halloween

Super Planners save the day

Breaking and entering in waterfront capstone

The Mighty Pucks storm East River Park

Planners in Connecticut for Eminent Domain

Planners in Pennsylvania for Kerry
Ask the Urban Planner

By Dina Rybak
Staff writer

Question: What is that towering, hulking, behemoth of a building lurking on the Red Hook waterfront?

Answer: You are looking at The Port of New York Grain Elevator Terminal. Built in Red Hook in 1922, it was a center for processing the grains that had been shipped east via the Erie Canal system. The terminal also provided temporary grain storage for the various Brooklyn breweries active in the first part of the century.

The grain terminal was abandoned when the shipping industry shifted to New Jersey from the Brooklyn waterfront in the 1950s. It remained a site for drug activity and prostitution until Gowanus Industrial Park, Inc. bought the site to develop it commercially. For now it remains a home for pigeons and a mecca for urban explorers.