A Cascade of Emergencies (A):
Responding to Superstorm Sandy in New York City

In late October 2012, after churning across the Caribbean, Hurricane Sandy began moving northward as a massive tropical storm system. At first, there was little consensus as to what path the storm would take. American forecasting models had generated a number of different scenarios, with some pointing to landfall along the Atlantic coast and others indicating that Sandy would instead move out to sea, sparing the mainland. A European model, meanwhile, predicted early on that the storm would hit the Northeastern US by making a sharp left turn and slamming into New Jersey, just slightly south of New York City. Such a trajectory was highly unusual – but due to a unique combination of meteorological conditions, that was exactly the route Sandy took, with the storm smashing into the Jersey Shore, near Atlantic City, at around 7:30 pm on Monday, October 29. (See Exhibit 1 for a map depicting Sandy’s track.)

As it became increasingly apparent that Sandy’s path would closely adhere to the European model, concern grew over the storm’s potential effects on the New York City metropolitan region — the country’s most populous and home to about 19.5 million people. Accordingly, federal, state, and local governments began taking a number of measures to protect the area’s many residents from the possible effects of the storm. At the federal level, President Barack Obama – who was up for reelection in just a matter of days — issued pre-storm emergency declarations for multiple states, including New York and New Jersey, which in turn enabled the Federal Emergency Management Agency (FEMA) and other federal entities to start readying their own response efforts. At the same time, mirroring actions in hundreds of other jurisdictions across the Northeast, New York State and New York City also mobilized. In the days leading up to Sandy, the New York City Fire Department (FDNY), the New York City Police Department (NYPD), the New York City Office of Emergency Management (NYC OEM), the Metropolitan Transportation Authority (MTA), the New York National Guard, and the New York State Office of Emergency Management

---

4 After the events described in this case, NYC OEM subsequently changed its name to NYC Emergency Management.

This case was written by David W. Giles, Associate Director, Program on Crisis Leadership, for Dr. Arnold M. Howitt, Faculty Co-Director, Program on Crisis Leadership, and Senior Adviser, Ash Center for Democratic Governance and Innovation, John F. Kennedy School of Government, Harvard University. Funds for case development were provided by the National Guard Bureau, United States Department of Defense, through the Homeland Security Institute, an initiative of the Chief, National Guard Bureau, in support of Harvard Kennedy School’s General and Flag Officer Homeland Security Executive Seminar and the Leadership in Homeland Security executive education program. HKS cases are developed solely as the basis for class discussion and are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

Copyright © 2017 Program on Crisis Leadership, Harvard Kennedy School, Cambridge, MA.
Management (NYS OEM), among others, scrambled to sound the alarm, evacuate residents of flood-prone neighborhoods, ensure the safety of hospital patients, stage and distribute supplies and equipment, and shore up critical infrastructure.

Despite no longer being classified as a hurricane by the time it made landfall on the 29th, Sandy still inflicted serious damage in and around New York. In fact, as Mayor Bloomberg stated in stark terms in the storm’s aftermath, “Hurricane Sandy was the worst natural disaster ever to hit New York City.” With $19 billion in damages in the city alone, Sandy ranked as the second most costly disaster in US history, after only Hurricane Katrina, which devastated the Gulf Coast in 2005. Moreover – due in large part to an unprecedented storm surge – Sandy caused the deaths of 43 city residents and resulted in injuries to or the dislocation of tens of thousands more New Yorkers.

Despite the many measures taken in advance of Sandy, responding to the storm proved particularly challenging. In a cascading series of events – some that were to be expected but a number that were difficult to fully anticipate – Sandy seriously tested the capacity of the country’s largest municipality and its skilled and well-resourced public safety agencies. Most of the storm’s casualties occurred on Staten Island, which bore the brunt of the storm’s wrath – but severe, life-threatening emergencies plagued the city’s other four boroughs, too. At the height of the storm, for instance, flames engulfed the Breezy Point neighborhood in Queens, forcing firefighters to combat the worst residential conflagration in the city’s modern history. In mid-town Manhattan, a partial collapse of a huge construction crane threatened buildings, residents, and passersby on several busy streets. And flooding led to extensive power failures in many locations throughout the city, including at several hospitals that then had to evacuate hundreds of patients in dangerous conditions. Sandy’s floodwaters also overtook some of the city’s most important transportation routes, swamping FDR Drive, which runs parallel to the East River on Manhattan, while also pouring into the Brooklyn/Battery, Queens/Midtown, and Holland tunnels, and causing considerable damage to the city’s subway system.

In the storm’s wake, several other factors added urgency to the response. Cold weather followed on the heels of Sandy, threatening the safety of residents lacking heat and power. At the same time, a serious fuel shortage affected drivers – including first responders – for days on end. And the 2012 presidential election, scheduled for November 6, loomed on the calendar, adding an unusually intense political dimension to the event.

It was in this context that New York City officials and their state and federal counterparts raced to combat the effects of the storm and return the city to normalcy. In doing so, they employed a number of innovative strategies,

including decentralized response operations, the creation of multi-agency task forces to address some of the most pressing challenges, and the utilization of federal military assets to augment resources from the New York State National Guard and other traditional sources of emergency aid.

While many of these efforts proved effective, they brought with them their own challenges, forcing public officials to grapple with some difficult questions in the days and weeks following Sandy. Among them: Were there better ways to maximize situational awareness and surge capacity in the face of the many emergencies unfolding simultaneously across different parts of the city? How would politics affect the response – and if conflicts arose, how could they most effectively and speedily be managed? In a place like New York City, home to some of the nation’s largest public safety agencies, were federal resources – especially military assets – all that necessary? If so, how well would the mechanisms put in place to bridge state and federal stakeholders function? And finally, to what extent did Sandy represent the “complex catastrophe” to which the country’s homeland security leaders had increasingly paid attention?

Before the Storm: Preparing for Sandy

As Sandy headed north in late October 2012, the storm converged with a Nor’easter that was approaching the Atlantic from the west. Meteorologists and the media dubbed this combined weather system (which at one point featured tropical force winds measuring more than 1,000 miles wide) “Superstorm Sandy.” Eventually, a separate high pressure system blocked the storm from moving further north and instead pushed Sandy westward toward New Jersey – a rare trajectory for tropical storms traveling up the United States’ Atlantic coast.  

Preparations at the State and Federal Levels

With each passing day before the storm struck, prospects worsened for the greater New York City region; and by Friday, October 26, most forecasters were warning that Sandy would likely strike the northeastern U.S. late that coming Monday or early Tuesday. In response, New York Governor Andrew Cuomo declared a State of Emergency on the 26th and also began taking steps to arrange for the possible use of both state (Title 32) and federal (Title 10) military assets, should they be needed to support the response to Sandy. At the state level, this meant mobilizing the New York National Guard, a routine course of action, given that the Guard frequently

---


participated in emergency responses across the state. As Brigadier General Raymond Shields, Director of the Joint Staff of the New York Guard, noted, “We’ve gone from everything from floods to winter storms to ice storms to all sorts of [other] activities – so responding to natural disasters at the call of the state is not anything new that we haven’t done in New York.”

Involving the federal military in domestic response operations was an altogether different matter, however. In fact, states did not typically pursue this course of action, given the challenges of coordinating active military components with local and state entities — as well as political concerns regarding the control of response operations within a state’s borders. But the states and the federal government had recently settled on a mechanism that, they hoped, would allow them to overcome some of these hurdles: in the event of an emergency, an affected state and the federal government could jointly designate a dual status commander (DSC), who would have the authority to direct both state and federal forces. Throughout the duration of his or her (temporary) appointment to this position, the DSC — typically a general officer from the Guard — served simultaneously as both a state and federal commanding officer, reporting through two separate chains of commands: to the state’s adjutant general and governor for missions involving Title 32 resources — and to the President, through the commander of Northern Command and the Secretary of Defense, for missions involving title 10 resources.

With Sandy still several days away from striking the Northeast, it was not entirely clear whether it would inflict serious enough damage to prompt New York State to request federal military assets in support of the response. But by Friday, state and federal authorities believed that the most recent weather forecasts were sufficiently alarming to merit, at the very least, the proactive designation of DSCs. And so Governor Cuomo nominated and Secretary of Defense Leon Panetta then appointed Brigadier General Mike Swezey of the New York National Guard the DSC for Sandy-related response efforts in New York. (Five other northeastern governors made similar requests for their own states.) As a senior officer in the New York Guard, Swezey reported to the state’s Adjutant General (TAG-NY), Major General Patrick Murphy, who had overall command of Guard forces in New York. But in the event that federal military capabilities and personnel were made available for the response to Sandy, Swezey would also work with General Charles Jacoby, the commander of Northern Command (NORTHCOM), the U.S. military district

11 Interview with Raymond Shields, Brigadier General, New York National Guard, August 29, 2013, Latham, New York. Unless noted, all subsequent quotations by and attributions to Shields are from this interview.


for the 48 continental states, to direct the use of those assets. (See Exhibit 2 for a diagram of the DSC chain of command.)

Thus, Gen. Swezey proceeded to coordinate with both his Guard colleagues and his partners at the Department of Defense (DOD) over the course of the weekend, as the different components of the military readied their responses to Sandy. In New York City, the National Guard initially relied, in part, on a standing force of about 200 Guardsmen who were already providing day-to-day support to the NYPD’s counterterrorism division through Joint Task Force Empire Shield. The Guard’s multi-year involvement in Empire Shield had not only integrated participating troops with the NYPD, but had also brought them into close contact with the city’s other key public safety agencies, including FDNY and NYC OEM. This had built familiarity and fostered relationships with the city agencies most involved in disaster response, providing the Guard, in the words of Brig. Gen. Shields, a “warm start” as it began ramping up its support to the city in advance of Sandy’s landfall.

By Sunday, October 28, the Guard’s presence in the city had reached about 400 troops. Among them was a liaison officer (LNO) assigned to NYC OEM, whose job it was to facilitate and provide advance notice of requests for support from the city to the Guard. This arrangement was based on the Guard’s realization that given the city and state governments’ complexity, it might take some time for requests for assistance to work their way through the homeland security bureaucracies. The LNO, the Guard hoped, would give its leadership a quicker sense of needs on the ground along with advance notice of mission assignments that would likely come the Guard’s way. As Shields explained, “We always [had] planned to have LNOs working out of the NYC OEM, so that we [could] immediately get a feel for what the city is asking for military-wise ... [and] have a heads up about what’s coming.”

In his role as Director of the New York Guard’s Joint Staff, Shields remained at Joint Forces Headquarters in Latham, NY (located outside of the state capital, Albany). From there he centrally managed Guard operations and resource allocations during Sandy. Major General Murphy (TAG-NY) and General Swezey, however, positioned themselves closer to the action in the city. This allowed them to be in direct contact with the forces under their command, as well as with state and municipal leaders, as Sandy bore down on the region.

As DSC, Swezey also spent the weekend working with his federal counterparts at NORTHCOM to prepare for the possible use of Title 10 assets. He was joined in this effort by Air Force Colonel Paula Gregory, whom NORTHCOM had pre-designated as Deputy Dual Status Commander for New York State (whenever a DSC was appointed, DOD also assigned a deputy commander, usually a colonel from the active component military). As deputy commander, Col. Gregory oversaw a package of additional military personnel, including a lawyer and operations staff, who were to support Swezey in his role as DSC and provide him the expertise to navigate DOD

14 In total, 1,175 Guard members were put on state active duty in advance of Sandy across the state; in addition to New York City, they were stationed on Long Island, along the Pennsylvania border, and at Joint Forces Headquarters in Latham, NY. Ultimately, more than 5,000 troops – including 3,605 New York Guard members, 789 Guardsmen provided through the multi-state Emergency Management Assistance Compact (EMAC), and 786 federal Title 10 forces – would be involved in the response to Sandy across the state (Shields interview and personal communication with Michael Swezey, August 23, 2017).

15 Shields interview.
and other parts of the federal bureaucracy. Among other efforts in advance of Sandy’s landfall, Swezey and Gregory’s team worked with NORTHCOM to pre-position some critical Title 10 assets in the region. This included staging hospital units and truck companies at Joint Base McGuire-Dix, which was located a safe distance away from the coast, in central New Jersey. Although he wasn’t sure what federal equipment and personnel – if any – would be needed in the aftermath of the storm, Swezey felt better knowing that he had some resources available to him. “Within six hours, I could have had them in New York, and that eased my mind a little bit,” he said.

New York City Prepares for Sandy’s Arrival

Friday’s forecast also sparked a flurry of activity at the local level. That day, NYC OEM activated its Emergency Operations Center (EOC). Located at OEM’s headquarters near downtown Brooklyn, this EOC served as the hub of the city’s response to Sandy, with senior city, state, and federal officials and their deputies gathering there to coordinate with one another throughout the storm and in its aftermath.

A number of other city agencies also began formally taking action on Friday. Among them was FDNY, which would come to play a leading role in many aspects of the response. At 6:00 Friday evening, the department launched “Phase A” of its preparations, announcing to field units that a major storm was anticipated to arrive in about 72 hours. This announcement prompted the units to begin working through their various checklists, assessing the needs and vulnerabilities of healthcare facilities and infrastructure located in flood-prone areas, and deploying equipment such as pumps, chainsaws, and generators.

The following day, on Saturday, October 27, FDNY activated its Incident Management Team (IMT) to coordinate the department’s response. The IMT consisted of about 50 highly trained FDNY members who specialized in IMS principles, practices, and functions – including operations, planning, logistics, and finance – “to manage large-scale, complex incidents.” The team, which worked out of FDNY’s headquarters in downtown Brooklyn, located not far from OEM, had responsibility for an array of emergency management tasks on behalf of the department, including organizing daily conference calls with borough and division commanders; developing Incident Action Plans; overseeing the overall allocation of FDNY resources; and coordinating evacuations with local, state, federal, and private sector partners.

---

Meanwhile, on Sunday, October 28, with forecasters now warning that Sandy’s storm surge could reach as high as 11 feet in the city, preparedness efforts intensified significantly. At the federal level, President Obama took the unusual step of issuing pre-landfall emergency declarations for several northeastern states, including New York. These declarations made available a wide array of federal assets for protecting lives, property, and public health in areas threatened by the looming storm.  

For its part, the city announced plans to implement several sweeping emergency measures, including shutting down the public transit system later on Sunday and canceling classes at public schools scheduled for the following day. Mayor Bloomberg also declared a mandatory evacuation for Zone A of the city, which encompassed New York’s most flood-prone areas. Triggering what was only the second general evacuation ever organized in the city’s history, the order affected about 375,000 city residents and 26 public housing developments.

In support of this effort, the New York City Housing Authority (NYCHA) and NYPD provided about 200 busses to move residents requiring transportation assistance to shelters located in safer neighborhoods. Both agencies also undertook an intensive campaign to spread word of the evacuation, with NYCHA making 33,000 calls and distributing flyers and NYPD broadcasting the evacuation order over bullhorns from police cars patrolling the evacuation zone. The city announced the evacuation via the Commercial Mobile Alert System (CMAS) as well. In doing so, New York became the first jurisdiction ever to utilize this service, which disseminated text messages to cell phones in a specific geographic area.

At around 7:00 Sunday evening, city and regional transportation officials began taking a number of the city’s major transit systems and routes offline. This included the Long Island Rail Road and Metro North commuter lines, major bridges and tunnels, and the subway system. City busses and the Staten Island Ferry stopped service two

---


21 Farley, Testimony; and Uppal et al, “In Search of the Silver Lining.”

22 As the city’s after action report on Sandy notes, the storm ultimately inflicted flooding across an area far greater than Zone A (Linda Gibbs and Caswell Holloway, “Hurricane Sandy After Action: Report and Recommendations to Mayor Michael R. Bloomberg,” May 2013, available at www.nyc.gov/html/recovery/downloads/pdf/sandy_aar_5.2.13.pdf [accessed October 6, 2016].


hours later. By no means was it an easy decision to shut down mass transit. On the one hand, halting bus and subway service meant upending the routines of the more than 5 million people who used the MTA – the country’s largest transit system – on a daily basis. On the other hand, keeping the system running ran the risk of exposing too many people to a potentially life-threatening storm. Officials ultimately decided to err on the side of caution – even if it meant having to take such a disruptive action well in advance of landfall. MTA Chairman and Executive Officer Joseph Lhota explained the rationale of beginning the process a full 24 hours before Sandy’s expected arrival. “It takes about 12 hours to completely shut down the New York City subway system,” he said. “We did not want to bring everybody into New York City on Monday and strand them here, so that’s why we proposed the beginning of a shutdown on the subway system on Sunday night.”

For their part, city and state health authorities also weighed timing and risk as they debated whether to call for the evacuation of hospitals and other healthcare facilities over the course of the weekend. At first, it had appeared that the costs were far greater than the benefits, with New York City Health Commissioner Dr. Thomas Farley and New York State Health Commissioner Dr. Nirav Shah remembering all too well their experience with Hurricane Irene a year earlier. With that storm expected to strike the city as a Category 1 or Category 2 hurricane, they had ordered an evacuation for Zone A healthcare facilities, which involved the relocation of about 7,000 patients. But Irene had largely spared New York, raising questions about whether the evacuation had unnecessarily endangered physically fragile individuals. Farley recognized this concern, later observing,

People in hospitals can die from an interruption in care during transport. ... Therefore, in determining the best course of action before a tropical storm hits the area, City and State officials have to weigh the risks of evacuating these facilities against the risks of not evacuating.

Thus, on Friday, when forecasts had indicated that Sandy’s surge would likely measure less than four feet, Farley and Shah had concluded that the risks associated with organizing a mandatory evacuation outweighed the threat posed by the storm. But a day later, with predictions of the height of Sandy’s surge having doubled, they began calling on hospitals to cancel elective surgeries and to discharge patients who were able to leave.Officials,

27 According to the transportation authority, “MTA customers travel on America’s largest bus fleet and on more subway and rail cars than all the rest of the country’s subways and commuter railroads combined. This mobility helps ensure New York’s place as a world center of finance, commerce, culture, and entertainment” (Metropolitan Transportation Authority, “The MTA Network: Transportation for the New York Region,” available at http://web.mta.info/mta/network.htm [accessed October 27, 2016].
30 Farley, Testimony, page 3.
however, continued to express faith in the institutions’ ability to withstand the effects of the storm. During a Saturday evening press conference, Mayor Bloomberg assured reporters,

> A lot of [healthcare facilities] do have backup generators and any outages are not expected to be more than hours or at most a day or so, so they’ll be fine, they think. Every one of them has said that they’re comfortable in going for a reasonable period of time dealing with a power outage if that should occur.  

Sunday’s more foreboding forecast led some to question whether this approach still made sense. Farley argued, however, that there was no longer any point in debating the issue, with just a day to go before Sandy’s expected landfall. In order to safely execute a full-scale evacuation of a hospital, he explained, authorities had to decide whether to do so about three days before the projected “zero hour” [the point at which it was no longer safe to move people]. Thus, by Sunday, he said, “it was safer for the health care facilities to shelter in place than to try to accomplish an evacuation of a large number of facilities in the short time before the Zero Hour [for Sandy].” Institutions that had not already evacuated would have to prepare to ride out the storm and provide care to the patients who remained within their walls.

**Final Preparations**

On Monday, Sandy’s winds and rain began to lash the greater New York City area. Having overseen preparedness efforts over the previous several days, city officials — along with their state and federal counterparts — now took their positions in operations centers and command posts scattered across the city.

Among those congregating at the city’s OEM headquarters in Brooklyn was Michael Byrne, FEMA’s Federal Coordinating Officer (FCO) for New York State during Sandy. (That night, Byrne also set up his incident management team at a hotel close to the OEM EOC.) Having previously served as a New York City firefighter, Byrne well understood both the advantages and challenges of managing a response to a major emergency in the city. He knew it was an extremely well-prepared municipality with a talented cadre of public safety leaders -- but he also realized it could be a difficult environment in which to operate.

“I’ve worked in a lot of complicated places in the country,” he said, “but nobody holds a candle to New York.” Referring to the number of stakeholders involved in events affecting the city, he added, “You’ve got so many centers of power and centers of influence.” This included a number of high-ranking city officials, each with their own “concerns and authority and the access to get things done.” Among them: the mayor and several deputy

---


32 After learning that utility Con Edison planned to shut down Lower Manhattan’s power supply as a precautionary measure, Dr. Shah did order New York Downtown Hospital to evacuate on Sunday. “We felt it was not wise for a hospital to enter a storm without grid power, even if it had an emergency generator,” Farley explained (Farley, Testimony, page 5).

mayors (including the deputy mayor for operations, who oversaw police, fire, and emergency management, each a major enterprise unto itself), as well as five independently elected borough presidents and dozens of city council members.

Yet despite this complicated network of political and bureaucratic interests, Byrne believed that the city was well-positioned to take on the storm. Many of the key players – a good number of whom enjoyed long-standing ties with each other, and many of whom Byrne held in high regard – were gathered together at NYC OEM or were in close contact, monitoring developments closely. Having already overseen extensive preparedness efforts within each of their respective departments and agencies, they now waited to find out just how bad the storm would be – and whether they had indeed done enough to protect the millions of people hunkered down across greater New York.
Exhibit 1:

Track of Hurricane Sandy, October 22-29, 2012

Exhibit 2:

Dual-Status Command Structure
