

9.4 ANALYSIS

Like the national defense effort described in chapter 1, the emergency response to the attacks on 9/11 was necessarily improvised. In New York, the FDNY, NYPD, the Port Authority, WTC employees, and the building occupants themselves did their best to cope with the effects of an unimaginable catastrophe-unfolding furiously over a mere 102 minutes-for which they were unprepared in terms of both training and mindset. As a result of the efforts of first responders, assistance from each other, and their own good instincts and goodwill, the vast majority of civilians below the impact zone were able to evacuate the towers.

The National Institute of Standards and Technology has provided a preliminary estimation that between 16,400 and 18,800 civilians were in the WTC complex as of 8:46 A.M. on September 11. At most 2,152 individuals died at the WTC complex who were not (1) fire or police first responders, (2) security or fire safety personnel of the WTC or individual companies, (3) volunteer civilians who ran to the WTC after the planes' impact to help others, or (4) on the two planes that crashed into the Twin Towers. Out of this total number of fatalities, we can account for the workplace location of 2,052 individuals, or 95.35 percent. Of this number, 1,942 or 94.64 percent either worked or were supposed to attend a meeting at or above the respective impact zones of the Twin Towers; only 110, or 5.36 percent of those who died, worked below the impact zone. While a given person's office location at the WTC does not definitively indicate where that individual died that morning or whether he or she could have evacuated, these data strongly suggest that the evacuation was a success for civilians below the impact zone.²⁰⁰

Several factors influenced the evacuation on September 11. It was aided greatly by changes made by the Port Authority in response to the 1993 bombing and by the training of both Port Authority personnel and civilians after that time. Stairwells remained lit near unaffected floors; some tenants relied on procedures learned in fire drills to help them to safety; others were guided down the stairs by fire safety officials based in the lobby. Because of damage caused by the impact of the planes, the capability of the sophisticated building systems may have been impaired. Rudimentary improvements, however, such as the addition of glow strips to the handrails and stairs, were credited by some as the reason for their survival. The general evacuation time for the towers dropped from more than four hours in 1993 to under one hour on September 11 for most civilians who were not trapped or physically incapable of enduring a long descent.

First responders also played a significant role in the success of the evacuation. Some specific rescues are quantifiable, such as an FDNY company's rescue of civilians trapped on the 22d floor of the North Tower, or the success of FDNY, PAPD, and NYPD personnel in carrying nonambulatory civilians out of both the North and South Towers. In other instances, intangibles combined to reduce what could have been a much higher death total. It is impossible to measure how many more civilians who descended to the ground floors would have died but for the NYPD and PAPD personnel directing them-via safe exit routes that avoided jumpers and debris-to leave the complex urgently but calmly. It is impossible to measure how many more civilians would have died but for the determination of many members of the FDNY, PAPD, and NYPD to continue assisting civilians after the South Tower collapsed. It is impossible to measure the calming influence that ascending firefighters had on descending civilians or whether but for the firefighters' presence the poor behavior of a very few civilians could have caused a dangerous and panicked mob flight. But the positive impact of the first responders on the evacuation came at a tremendous cost of first responder lives lost.²⁰¹

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Civilian and Private-Sector Challenges

The "first" first responders on 9/11, as in most catastrophes, were private-sector civilians. Because 85 percent of our nation's critical infrastructure is controlled not by government but by the private sector, private-sector civilians are likely to be the first responders in any future catastrophes. For that reason, we have assessed the state of private sector and civilian preparedness in order to formulate recommendations to address this critical need. Our recommendations grow out of the experience of the civilians at the World Trade Center on 9/11.

Lack of Protocol for Rooftop Rescues. Civilians at or above the impact zone in the North Tower had the smallest hope of survival. Once the plane struck, they were prevented from descending because of damage to or impassable conditions in the building's three stairwells. The only hope for those on the upper floors of the North Tower would have been a swift and extensive air rescue. Several factors made this impossible. Doors leading to the roof were kept locked for security reasons, and damage to software in the security command station prevented a lock release order from taking effect. Even if the doors had not been locked, structural and radiation hazards made the rooftops unsuitable staging areas for a large number of civilians; and even if conditions permitted general helicopter evacuations—which was not the case—only several people could be lifted at a time.

The WTC lacked any plan for evacuation of civilians on upper floors of the WTC in the event that all stairwells were impassable below.

Lack of Comprehensive Evacuation of South Tower Immediately after the North Tower Impact. No decision has been criticized more than the decision of building personnel not to evacuate the South Tower immediately after the North Tower was hit. A firm and prompt evacuation order would likely have led many to safety. Even a strictly "advisory" announcement would not have dissuaded those who decided for themselves to evacuate. The advice to stay in place was understandable, however, when considered in its context. At that moment, no one appears to have thought a second plane could hit the South Tower. The evacuation of thousands of people was seen as inherently dangerous. Additionally, conditions were hazardous in some areas outside the towers.²⁰²

Less understandable, in our view, is the instruction given to some civilians who had reached the lobby to return to their offices. They could have been held in the lobby or perhaps directed through the underground concourse.

Despite the initial advice given over its public-address system, the South Tower was ordered to be evacuated by the FDNY and PAPD within 12 minutes of the North Tower's being hit. If not for a second, unanticipated attack, the evacuation presumably would have proceeded.

Impact of Fire Safety Plan and Fire Drills on Evacuation. Once the South Tower was hit, civilians on upper floors wasted time ascending the stairs instead of searching for a clear path down, when stairwell A was at least initially passable. Although rooftop rescues had not been conclusively ruled out, civilians were not informed in fire drills that roof doors were locked, that rooftop areas were hazardous, and that no helicopter evacuation plan existed.

In both towers, civilians who were able to reach the stairs and descend were also stymied by the deviations in the stairways and by smoke doors. This confusion delayed the evacuation of some and may have obstructed that of others. The Port Authority has acknowledged that in the future, tenants should be made aware of

what conditions they will encounter during descent.

Impact of 911 Calls on Evacuation. The NYPD's 911 operators and FDNY dispatch were not adequately integrated into the emergency response. In several ways, the 911 system was not ready to cope with a major disaster. These operators and dispatchers were one of the only sources of information for individuals at and above the impact zone of the towers. The FDNY ordered both towers fully evacuated by 8:57, but this guidance was not conveyed to 911 operators and FDNY dispatchers, who for the next hour often continued to advise civilians not to self-evacuate, regardless of whether they were above or below the impact zones. Nor were 911 operators or FDNY dispatchers advised that rooftop rescues had been ruled out. This failure may have been harmful to civilians on the upper floors of the South Tower who called 911 and were not told that their only evacuation hope was to attempt to descend, not to ascend. In planning for future disasters, it is important to integrate those taking 911 calls into the emergency response team and to involve them in providing up-to-date information and assistance to the public.

Preparedness of Individual Civilians. One clear lesson of September 11 is that individual civilians need to take responsibility for maximizing the probability that they will survive, should disaster strike. Clearly, many building occupants in the World Trade Center did not take preparedness seriously. Individuals should know the exact location of every stairwell in their workplace. In addition, they should have access at all times to flashlights, which were deemed invaluable by some civilians who managed to evacuate the WTC on September 11.

Challenges Experienced by First Responders The Challenge of Incident Command. As noted above, in July 2001, Mayor Giuliani updated a directive titled "Direction and Control of Emergencies in the City of New York." The directive designated, for different types of emergencies, an appropriate agency as "Incident Commander"; it would be "responsible for the management of the City's response to the emergency." The directive also provided that where incidents are "so multifaceted that no one agency immediately stands out as the Incident Commander, OEM will assign the role of Incident Commander to an agency as the situation demands."²⁰³

To some degree, the Mayor's directive for incident command was followed on 9/11. It was clear that the lead response agency was the FDNY, and that the other responding local, federal, bistate, and state agencies acted in a supporting role. There was a tacit understanding that FDNY personnel would have primary responsibility for evacuating civilians who were above the ground floors of the Twin Towers, while NYPD and PAPD personnel would be in charge of evacuating civilians from the WTC complex once they reached ground level. The NYPD also greatly assisted responding FDNY units by clearing emergency lanes to the WTC.²⁰⁴

In addition, coordination occurred at high levels of command. For example, the Mayor and Police Commissioner consulted with the Chief of the Department of the FDNY at approximately 9:20. There were other instances of coordination at operational levels, and information was shared on an ad hoc basis. For example, an NYPD ESU team passed the news of their evacuation order to firefighters in the North Tower.²⁰⁵

It is also clear, however, that the response operations lacked the kind of integrated communications and unified command contemplated in the directive. These problems existed both within and among individual responding agencies.

Command and Control within First Responder Agencies. For a unified incident

management system to succeed, each participant must have command and control of its own units and adequate internal communications. This was not always the case at the WTC on 9/11.

Understandably lacking experience in responding to events of the magnitude of the World Trade Center attacks, the FDNY as an institution proved incapable of coordinating the numbers of units dispatched to different points within the 16-acre complex. As a result, numerous units were congregating in the undamaged Marriott Hotel and at the overall command post on West Street by 9:30, while chiefs in charge of the South Tower still were in desperate need of units. With better understanding of the resources already available, additional units might not have been dispatched to the South Tower at 9:37.

The task of accounting for and coordinating the units was rendered difficult, if not impossible, by internal communications breakdowns resulting from the limited capabilities of radios in the high-rise environment of the WTC and from confusion over which personnel were assigned to which frequency. Furthermore, when the South Tower collapsed the overall FDNY command post ceased to operate, which compromised the FDNY's ability to understand the situation; an FDNY marine unit's immediate radio communication to FDNY dispatch that the South Tower had fully collapsed was not conveyed to chiefs at the scene. The FDNY's inability to coordinate and account for the different radio channels that would be used in an emergency of this scale contributed to the early lack of units in the South Tower, whose lobby chief initially could not communicate with anyone outside that tower.²⁰⁶

Though almost no one at 9:50 on September 11 was contemplating an imminent total collapse of the Twin Towers, many first responders and civilians were contemplating the possibility of imminent additional terrorist attacks throughout New York City. Had any such attacks occurred, the FDNY's response would have been severely compromised by the concentration of so many of its off-duty personnel, particularly its elite personnel, at the WTC.

The Port Authority's response was hampered by the lack of both standard operating procedures and radios capable of enabling multiple commands to respond in unified fashion to an incident at the WTC. Many officers reporting from the tunnel and airport commands could not hear instructions being issued over the WTC Command frequency. In addition, command and control was complicated by senior Port Authority Police officials becoming directly involved in frontline rescue operations.

The NYPD experienced comparatively fewer internal command and control and communications issues. Because the department has a history of mobilizing thousands of officers for major events requiring crowd control, its technical radio capability and major incident protocols were more easily adapted to an incident of the magnitude of 9/11. In addition, its mission that day lay largely outside the towers themselves. Although there were ESU teams and a few individual police officers climbing in the towers, the vast majority of NYPD personnel were staged outside, assisting with crowd control and evacuation and securing other sites in the city. The NYPD ESU division had firm command and control over its units, in part because there were so few of them (in comparison to the number of FDNY companies) and all reported to the same ESU command post. It is unclear, however, whether non-ESU NYPD officers operating on the ground floors, and in a few cases on upper floors, of the WTC were as well coordinated.

Significant shortcomings within the FDNY's command and control capabilities were painfully exposed on September 11. To its great credit, the department has made a substantial effort in the past three years to address these. While significant

problems in the command and control of the PAPD also were exposed on September 11, it is less clear that the Port Authority has adopted new training exercises or major incident protocols to address these shortcomings.²⁰⁷

Lack of Coordination among First Responder Agencies. Any attempt to establish a unified command on 9/11 would have been further frustrated by the lack of communication and coordination among responding agencies. Certainly, the FDNY was not "responsible for the management of the City's response to the emergency," as the Mayor's directive would have required. The command posts were in different locations, and OEM headquarters, which could have served as a focal point for information sharing, did not play an integrating role in ensuring that information was shared among agencies on 9/11, even prior to its evacuation. There was a lack of comprehensive coordination between FDNY, NYPD, and PAPD personnel climbing above the ground floors in the Twin Towers.

Information that was critical to informed decisionmaking was not shared among agencies. FDNY chiefs in leadership roles that morning have told us that their decision making capability was hampered by a lack of information from NYPD aviation. At 9:51 A.M., a helicopter pilot cautioned that "large pieces" of the South Tower appeared to be about to fall and could pose a danger to those below. Immediately after the tower's collapse, a helicopter pilot radioed that news. This transmission was followed by communications at 10:08, 10:15, and 10:22 that called into question the condition of the North Tower. The FDNY chiefs would have benefited greatly had they been able to communicate with personnel in a helicopter.

The consequence of the lack of real-time intelligence from NYPD aviation should not be overstated. Contrary to a widely held misperception, no NYPD helicopter predicted the fall of either tower before the South Tower collapsed, and no NYPD personnel began to evacuate the WTC complex prior to that time. Furthermore, the FDNY, as an institution, was in possession of the knowledge that the South Tower had collapsed as early as the NYPD, as its fall had been immediately reported by an FDNY boat on a dispatch channel. Because of internal breakdowns within the department, however, this information was not disseminated to FDNY personnel on the scene.

The FDNY, PAPD, and NYPD did not coordinate their units that were searching the WTC complex for civilians. In many cases, redundant searches of specific floors and areas were conducted. It is unclear whether fewer first responders in the aggregate would have been in the Twin Towers if there had been an integrated response, or what impact, if any, redundant searches had on the total number of first responder fatalities.

Whether the lack of coordination between the FDNY and NYPD on September 11 had a catastrophic effect has been the subject of controversy. We believe that there are too many variables for us to responsibly quantify those consequences. It is clear that the lack of coordination did not affect adversely the evacuation of civilians. It is equally clear, however, that the Incident Command System did not function to integrate awareness among agencies or to facilitate interagency response.²⁰⁸

If New York and other major cities are to be prepared for future terrorist attacks, different first responder agencies within each city must be fully coordinated, just as different branches of the U.S. military are. Coordination entails a unified command that comprehensively deploys all dispatched police, fire, and other first responder resources.

In May 2004, New York City adopted an emergency response plan that expressly

contemplates two or more agencies jointly being lead agency when responding to a terrorist attack but does not mandate a comprehensive and unified incident command that can deploy and monitor all first responder resources from one overall command post. In our judgment, this falls short of an optimal response plan, which requires clear command and control, common training, and the trust that such training creates. The experience of the military suggests that integrated into such a coordinated response should be a unified field intelligence unit, which should receive and combine information from all first responders-including 911 operators. Such a field intelligence unit could be valuable in large and complex incidents.

Radio Communication Challenges: The Effectiveness and Urgency of Evacuation Instructions. As discussed above, the location of the NYPD ESU command post was crucial in making possible an urgent evacuation order explaining the South Tower's full collapse. Firefighters most certainly would have benefited from that information.

A separate matter is the varied success at conveying evacuation instructions to personnel in the North Tower after the South Tower's collapse. The success of NYPD ESU instruction is attributable to a combination of (1) the strength of the radios, (2) the relatively small numbers of individuals using them, and (3) use of the correct channel by all.

The same three factors worked against successful communication among FDNY personnel. First, the radios' effectiveness was drastically reduced in the high-rise environment. Second, tactical channel 1 was simply overwhelmed by the number of units attempting to communicate on it at 10:00. Third, some firefighters were on the wrong channel or simply lacked radios altogether.

It is impossible to know what difference it made that units in the North Tower were not using the repeater channel after 10:00. While the repeater channel was at least partially operational before the South Tower collapsed, we do not know whether it continued to be operational after 9:59.

Even without the repeater channel, *at least* 24 of the *at most* 32 companies who were dispatched to and actually in the North Tower received the evacuation instruction-either via radio or directly from other first responders. Nevertheless, many of these firefighters died, either because they delayed their evacuation to assist civilians, attempted to regroup their units, lacked urgency, or some combination of these factors. In addition, many other firefighters not dispatched to the North Tower also died in its collapse. Some had their radios on the wrong channel. Others were off-duty and lacked radios. In view of these considerations, we conclude that the technical failure of FDNY radios, while a contributing factor, was not the primary cause of the many firefighter fatalities in the North Tower.²⁰⁹

The FDNY has worked hard in the past several years to address its radio deficiencies. To improve radio capability in high-rises, the FDNY has internally developed a "post radio" that is small enough for a battalion chief to carry to the upper floors and that greatly repeats and enhances radio signal strength.²¹⁰

The story with respect to Port Authority police officers in the North Tower is less complicated; most of them lacked access to the radio channel on which the Port Authority police evacuation order was given. Since September 11, the Port Authority has worked hard to integrate the radio systems of their different commands.

The lesson of 9/11 for civilians and first responders can be stated simply: in the new age of terror, they-we-are the primary targets. The losses America suffered that day demonstrated both the gravity of the terrorist threat and the commensurate need to prepare ourselves to meet it.

The first responders of today live in a world transformed by the attacks on 9/11. Because no one believes that every conceivable form of attack can be prevented, civilians and first responders will again find themselves on the front lines. We must plan for that eventuality. A rededication to preparedness is perhaps the best way to honor the memories of those we lost that day.

National Commission on Terrorist Attacks Upon the United States
The Commission closed on August 21, 2004. This site is archived.