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- **Emergency Preparedness Response and Communications**
 - **Cybersecurity, Infrastructure Protection and Security Technologies**
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“First Responder Technology: Ensuring a Prioritized Approach for Homeland Security Research and Development”

Testimony of Chief of Department Edward Kilduff New York City Fire Department

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Good morning, Chairmen Bilirakis and Lungren, Ranking Members Richardson and Clarke, and Members of the Subcommittees. My name is Edward Kilduff and I am Chief of Department for the New York City Fire Department.

Thank you for the opportunity to speak with you today about the New York City Fire Department’s homeland security technology efforts, innovations and initiatives.

New York City remains a primary target for terrorists due to its size, economic importance, complex infrastructure and symbolic status. During the more than ten and a half years since 9/11, the Fire Department has made significant progress in preparing for future terrorist threats by increasing our capabilities and expanding our capacity to surge for any significant event that threatens the lives of New Yorkers. The most critical partner in supporting these initiatives – which I will discuss in more detail – is the Federal Department of Homeland Security (DHS), with the support of Congress.

Department of Homeland Security Funding

Since its inception almost a decade ago, DHS has recognized the FDNY’s unique role in protecting New York City, and has awarded the Department more than \$400 million to enhance our capacity to respond to terrorism.

This funding has enabled the FDNY to provide specialized training and resources for our HazMat and Rescue teams, to improve interoperable communications and to provide commanders with better on-scene information and situational awareness. We also use DHS grants to fund many of the drills and exercises that provide all field units with practical training for real-life incidents such as bus bombings, subway attacks, incidents in the harbor and all-hazards events.

Looking forward, we understand that DHS’s focus will be on providing sufficient funding so that we can sustain current capabilities, maintain the equipment and resources that we have, and support us as we continue to develop new-generation resources to protect the region’s critical infrastructure.

Initiatives and Enhancements

In preparation for this hearing, we reviewed our homeland security initiatives and hoped to highlight in this testimony those that involved some technological component. Technology is an integral part of all of our initiatives -- from our state-of-the-art new fireboats to all methods of field communications to our drills and training. So, with that in mind, allow me to briefly describe some of our highest priority preparedness accomplishments.

Special Operations Command

The FDNY has rebuilt and significantly enhanced our Special Operations Command (SOC) capabilities, so that we are more prepared than ever to deal with incidents involving biological, chemical or radioactive releases and other major incidents with mass-casualty potential.

The underpinning of these enhancements is the “tiered response” system that we established to ensure the optimal availability and distribution of response resources. This tiered-response framework entails training FDNY units in a variety of response capabilities at incremental proficiency levels and strategically locating those units across the City. In addition to Hazardous Materials (HazMat) capabilities, this matrix maximizes the FDNY’s capabilities to respond to any large-scale incident in a manner that is highly effective, economically efficient and sustainable over the long term.

SOC includes five Rescue Companies, seven Squad Companies, our highly specialized HazMat Unit and the Marine Division consisting of three year-round and three seasonal Marine Companies. Rescue and Squad Company members receive the highest levels of training the Department offers in technical rescue and victim-removal -- more than 280 hours of specialized rescue training in collapse response and rescue operations. All five Rescue Companies are SCUBA-qualified. All Rescue and Squad Companies have advanced hydraulic and search equipment for operating at building collapses and are trained and equipped for high-angle rescues.

All Fire and EMS personnel have received training to the HazMat Operations level.

To augment and support our SOC response, we can deploy:

- 25 SOC Support Ladder Companies, which are capable of providing personnel and equipment to support search and rescue operations;
- Four HazTech Engine Companies, whose members receive 80 hours of HazMat training;
- 35 HazTac Ambulance Units, whose vehicles are equipped to provide medical care in a HazMat environment;
- Two new state-of-the-art 140-foot fireboats, specially equipped with radiological detection capability, that can respond to chemical, biological, radiological and nuclear (CBRN) incidents anywhere on or near the water;
- One new 65-foot state-of-the-art fast-response boat (with one on the way) with CBRN protection and radiological detection capability, three 33-foot fast-response rescue boats (with seven more on order), and one 31-foot medical response boat (with two more on order);
- One Decon, one SCUBA and two Tactical Support Units and one De-watering Unit;
- A Re-breather Unit that allows us to operate for prolonged periods in hazardous environments;
- 29 Chemical Protection Clothing units; and
- Ten Rescue Medic Ambulances.

Organizational and Communications Infrastructure

Of course, enhanced capabilities are only one component of our preparedness goals. The FDNY has also taken steps to improve our organizational and communications infrastructures as well. The FDNY has:

- Expanded training in the Incident Command System for all Fire and EMS personnel;
- Developed a fully-staffed Incident Management Team (IMT), which was dispatched to New Orleans after Hurricanes Katrina and Gustav, and to Broome County, New York this past fall after Hurricane Irene;
- Launched an automated recall program that can target off-duty members to ensure resources are available to maintain coverage throughout the City during any emergency;
- Implemented a communications channel between on-scene firefighters and the EMS command;
- Implemented a second EMS citywide channel for Multiple Casualty Incidents;
- Established links to the MTA repeater systems to facilitate communications in the subways and tunnels;
- Designed and purchased two state-of-the-art Mobile Command Vehicles and an IMT/Planning Vehicle to assist in response coordination and communications;
- Finalized all-hazards emergency response plans for responding to terrorist threats and natural disasters;
- Developed an internal risk assessment website for priority locations;
- Assigned a fire officer, beginning in July 2012, to the National Counter Terrorism Center in McLean, Virginia;
- Established a connection to the U.S. intelligence community via the Homeland Security Data Network and Intelink, secret-level networks that link to finished intelligence to aid our overall readiness to meet the consequences of a terrorist attack;
- Enhanced our Bureau of Fire Investigation intelligence capabilities, including the assignment of Fire Marshals to the Joint Terrorism Task Force, the acquisition of top-secret clearance for national intelligence, the creation of a 24-hour hotline for FDNY members to report suspicious activity, and target hardening and protection of FDNY's critical infrastructure; and
- Established the Center for Terrorism and Disaster Preparedness to coordinate our counterterrorism planning and strategy.

The FDNY has also successfully deployed a three-part field communication system that represents a critical step in improved fireground communications. The system – designed and built in-house -- consists of 13 vehicle-based, cross-band repeaters, which allow radio signals to be transmitted into dense building environments; 75 high-powered portable command post radios; and handie-talkie radios with several customized features that have improved on-scene tactical and command communications and firefighter safety. These radios also provide us with full interoperability -- the ability to speak with other City agencies and our mutual aid partners -- helping to protect all first responders.

The FDNY has made important strides in strengthening EMS communications by adding a second citywide radio channel. This additional EMS channel eliminates the overlapping frequencies between our command and citywide channels, enhances the capability of EMS command at the scene of multiple incidents and allows for better utilization of frequency allocations for EMS Chiefs.

Technology and Network Command

As circumstances evolve at a disaster, a critical challenge is to ensure situational awareness for optimal incident management. This would include forming networks of voice, video and data among multiple groups of emergency responders, government agencies and non-government organizations -- at the incident scene and at emergency operations centers away from the scene. The FDNY has leveraged our technology to create a common operational picture and interoperable networks for coordination and unified command.

To that end, we have implemented many long-term technology initiatives, which include:

- Building a state-of-the-art Fire Department Operations Center (FDOC), an operational nerve center at our 9 MetroTech headquarters that is fully activated for use by senior Chiefs in the event of serious fires and other large-scale incidents;
- Developing an enhanced real-time deployment and siting model for the Department; and
- Piloting wireless Electronic Command Boards for better on-scene command, control and tracking of resources.

The FDNY also supports the efforts of the DHS Science & Technology Directorate to develop an integrated situational awareness platform for first responders called the Next-Generation Incident Command System” or NICS. NICS is a geospatial tool that can integrate data from diverse agencies and allow first responders to have a common operating picture.

We understand that DHS is working with MIT’s Lincoln Laboratory to pilot NICS and that NICS is currently supporting the integrated operations of California first responders, led by the California Department of Forestry and Fire Protection, or Cal Fire. The FDNY recently tested NICS in a simulated hurricane exercise that we designed for West Point Cadets involving the management of National Guard resources.

Virtual Training

Over the past year, with help from DHS, the FDNY created and introduced its kiosk e-learning platform in all FDNY firehouses and EMS stations. The computer-based training enables us to deliver training and situational awareness information to the field faster and more efficiently than ever before. Keeping our 15,000 firefighters and EMTs trained and refreshed is a crucial – and costly – part of our mandate as we address the complexities of the post-9/11 environment. Using real-time, video-rich content captures the attention of our members and encourages ongoing learning. Among its benefits are:

- Company officers use kiosk content to structure drills and education in the firehouse; and
- Our FDOC can push out situational awareness to members about in-progress events where they might be called to respond.

FDNY has the most comprehensive Firefighter training program in the country, consisting of classroom learning, hands-on skills development and training in state-of-the-art simulated environments including a high-rise building, subway cars and tunnels. We know that e-learning will never fully replace classroom or practical skills training, but it has become an important component of the training cycle we provide for our members. Fire departments from

around the country are interested in leveraging our e-training content. This information sharing is a core value of the FDNY, and we are evaluating the feasibility of offering our kiosk training to other departments.

The Center for Terrorism and Disaster Preparedness

Making consistent progress on the wide array of initiatives I have just described requires careful planning. We created the Center for Terrorism and Disaster Preparedness (CTDP) in 2004 to be the focal point for the Department's strategic preparedness, providing the Department with the necessary intelligence to make critical decisions in dangerous environments beyond more routine responses.

The Center's activities bring together our own members' varied expertise to create a dynamic and practical approach to counterterrorism, disaster response and consequence management. CTDP bridges the divide between the established intelligence community and non-traditional intelligence consumers and producers, such as the fire service.

CTDP has also helped develop new technologies such as the Electronic Command Board (ECB), which I mentioned earlier. The Department piloted the ECB and its handheld, tablet-style Command Pad this past spring. ECB is used to account for deployed units and will be connected to FDOC to send digital blueprints and other building information to the fireground. It can also be used in subway emergencies to provide Incident Commanders with information on tunnels and emergency exits. It will also receive mayday signals from Electronic Fireground Accountability System.

One of the functions of CTDP is to develop tabletop and full-scale exercises to test procedures and core capabilities of the Department. Continual training exercises better prepares our first responders to use technology at routine and major events.

Future Preparedness Enhancements

Building on the achievements I have just listed, we set an ambitious agenda for future preparedness enhancements.

One significant development is the implementation of the Electronic Fireground Accountability System (EFAS), just mentioned. The EFAS pilot was launched in December 2010 to improve the on-scene accountability of members at fires and other emergencies, including large-scale high-rise or subway incidents. With EFAS, an officer's laptop identifies and assigns a position for all fire company members. Now fully integrated, EFAS will monitor handie-talkie transmissions and mayday alerts and allow the Incident Commander to perform an Electronic Roll Call.

Grants

In the area of Federal grants in general, we do have some concerns going forward. We know that FEMA plans sweeping changes for the FY 2013 Homeland Security grant cycle. First and foremost, the Urban Areas Security Initiative needs to be preserved as a stand-alone program that is well funded and targets assistance to those areas identified as most at-risk for terrorism.

With funding expected to decrease nationwide, it is more imperative than ever that FEMA direct funds based on where intelligence and threat analysis tell us they are most needed. Now is not the time to cut funding to New York City, which remains the number one high-value target for terrorists.

We are also concerned about the compressed timelines being instituted for homeland security grants. The proposed 24-month grant cycle, with very limited exceptions, is short-sighted. Some of the FDNY's most successful and powerful DHS-funded assets, such as our fireboats and our FDOC, took years to build and implement. We need flexibility so that we can continue to develop the complex systems and assets that, although they may have relatively long timelines for implementation, have equally far-reaching and impactful results.

Our goal is not to spend funds quickly, but to use federal resources efficiently and well to advance preparedness for New York City and the nation. We will continue to encourage DHS to be flexible and work with us to achieve that mission.

Significant Responses

Lastly, I would like to mention two key incidents from the last few years where many of the technological advancements I have just described came into play, with great outcomes: Flight 1549's emergency landing in the Hudson River in January 2009, and the May 2010 terrorist incident in Times Square.

Flight 1549's landing is a noteworthy example of networked command in action: the FDNY Fire and EMS Operations, the NYPD and the U.S. Coast Guard all worked together, connecting at the scene through a unified command structure under the National Incident Management (NIMS) protocol. We were able to connect back to the FDOC at headquarters while the Fire Marshals connected with LaGuardia Operations to obtain the flight manifest. EMS connected with the broader EMS system -- including hospitals in New Jersey -- to track all of the transported patients. Ultimately, the FDNY was able to confirm that all the passengers were accounted for. We then posted this information on the Homeland Security Information Network, which was shared with our partner agencies, and ultimately that good news made its way to the Situation Room at the White House. In sum, we had to hastily form an effective, new-generation network where human and technological networks played a key role in instant information-sharing and analysis.

In May 2010, Faisal Shazad attempted to detonate a car bomb in Times Square. Engine 54 and Ladder 4 -- companies that lost their entire crews on 9/11 -- were called to the scene for a car fire. Before 9/11, a fire officer's first instinct may have been to get up close to the car and use water to extinguish the fire. But these first responders recognized that this was no ordinary car fire. And, because of their increased situational awareness and dedicated training, they immediately realized that they had a potential terrorist threat on their hands. They knew exactly what to do: they started clearing the area and called the NYPD bomb squad. They also knew what NOT to do: they did not disrupt the vehicle and did not attempt to put out the fire. Their actions kept bystanders safe and also preserved crucial evidence that led to a quick capture of the suspect.

I am proud of our members' critical role in these two incidents, but the truth is we respond to incidents on a daily basis that require a "new-generation" response. While our rebuilding is never finished, I can say without equivocation that this Department is better prepared, equipped and trained and more capable than ever before.

Conclusion

In conclusion, to quote New York City's Fire Commissioner, Salvatore Cassano, "the greatest way to honor those we lost on 9/11 is to make sure that we are prepared for the next event." We *are* prepared for the next event, and the process of continuing these preparedness

efforts carries on. Our partnership with DHS and the support of the Members of Congress have been absolutely critical to these efforts. Importantly, all of the technological advancements I have described can potentially become part of a nationwide, integrated system of response information that benefits first responders in every jurisdiction in the country.

I would be happy to answer any questions you may have.