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The Boston Marathon Bombing, One Year On: A Look Back to Look Forward
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I would like to thank Chairman McCaul and Ranking Member Thompson for inviting me to testify today, as well as Congressman Keating of Massachusetts for the tireless work he has done to advance understanding of the events surrounding the Boston Marathon bombing that took place during the week of April 15, 2013.

I would also like to say that it is an honor for me to appear on this panel today with three of the genuine heroes of that week -- Commissioner Ed Davis, Chief Ed Deveau, and Sgt. Jeff Pugliesi. One of the privileges of doing the research we have been carrying out is that we have regularly been in the presence of heroes -- as I am again, and indeed as we all are today.

My name is Herman Leonard, known to my friends as "Dutch." I am the Baker Professor of Public Management at the Kennedy School of Government at Harvard University, where I am also Faculty Co-Director of the Program on Crisis Leadership. I am also the Snider Family Professor of Business Administration and Faculty Co-Chair of the Social Enterprise Initiative at Harvard Business School.

Over the course of the last year, since the bombs exploded at the finish line of the Boston Marathon, I have been working together with Arnold Howitt, who is Executive Director of the Ash Center for Democratic Governance and Faculty Co-Director of the Program on Crisis Leadership, and Christine Cole, who is Executive Director of Harvard's Program on Criminal

Justice Policy and Management, both at the Kennedy School, and with Professor Phillip Heymann of Harvard Law School to understand the sources of the strengths and weaknesses of the response to the marathon bombing. Our work was supported in part by the International Centre for Sport Security. In providing this testimony today, I am appearing as a representative of our research team; the views I am presenting here are our own, and not those of Harvard University or any other organization. This was a team effort, and while I'm providing the testimony today this work is the product of many hands. (Any errors made here, however, are mine.)

Our work was presented in honor and memory of those who lost their lives or suffered grievous injuries in the Boston Marathon bombing. It is dedicated to all of those who helped.

Our work focused on the issues of command within and coordination among the agencies and organizations involved in the response. Events like the marathon bombing create a surge of demands and thereby create the need for sudden teams -- groups of individuals and organizations, thrown together by circumstance even though they may not have worked together before, who must, in order to produce the best possible overall response, work effectively in tandem under conditions of uncertainty and stress in a rapidly-evolving situation. Our work concerns the response that began when the bombs exploded. Since we are seeking to understand and explain the quality of that response, we also focus on the extensive efforts made in advance to create the conditions that enabled it. Another part of our research team is examining some of the issues about pre-event intelligence; that work is not yet complete, and lies beyond the scope of the report I'm describing today.

We conducted a series of extended interviews, mainly with senior command officials in the major organizations involved in the response to the bombing. We also drew extensively on public statements and media descriptions of the events. Three weeks ago, we convened an "expert dialogue," gathering about 100 people, including many of the principals we had interviewed and other participants in the events of that terrible week, together with senior emergency management officials and academics from around the US and from abroad. We spent an intensive day discussing the events and our proposed recommendations.

Our report, entitled "**WHY** was Boston Strong?," was released last week. Our title references the local description -- "Boston Strong" -- of the full spectrum phenomenon of response and resistance and resilience shown by first responders and by survivors and by the wider community during that week and since.

I appreciate this opportunity to discuss some of the findings of our research with you.

I have two simple messages for you today.

The first message is about the *first responder* part of Boston Strong that was on display last April.

That message is this: It works!   *Incident command* works!   When you build it in advance and use it in the moment, incident command is effective.   The *National Incident Management System* is starting to work.

It has been a long time in coming and it is long overdue -- but we've made a lot of progress nationally, and the events in Boston last year put that vividly on display.

For something like 50 years, starting in the 1960s and continuing with greater energy after a devastating fire in California in 1970, people of goodwill in emergency management sought to develop and promulgate an effective, unified, coherent doctrine of incident management so that agencies and organizations that find themselves having to work together on terrible and dark days can efficiently and smoothly combine their capabilities and resources. The central purpose of having a single, unified approach is to enable a sudden team to produce the best performance reasonably possible given the nature of the challenge and the capacities that they have available. Too many times we have watched while vitally needed and clearly existing capabilities were not marshaled or effectively deployed -- but instead were idled by a lack of ability to organize, coordinate, and execute across agencies, jurisdictional boundaries, and levels of government.

Finally, Congress – through the House Select Committee on Homeland Security, the original inception of this committee, in Part 5 of Section 502 of Public Law 107-296, the Homeland Security Act of 2002 – mandated that the Secretary of Homeland Security build "a comprehensive national incident management system with Federal, State, and local government personnel, agencies, and authorities, to respond to … attacks and disasters." In 2004, the Department of Homeland Security duly issued instructions to those it could command directly (and created incentives for those it could not) to organize themselves for emergency response purposes in compliance with the structures and precepts and procedures of that system. FEMA has since worked to develop the system further and to help federal and other agencies implement the structures, procedures, and training associated with making this doctrine a practical reality.

This mandate did not immediately succeed in enhancing performance in multi-agency response to crisis events. In 2006, I gave testimony before the Senate Homeland Security Committee about Hurricane Katrina; incident management in the crucial early days of that response had been only sporadically applied and while it had proved helpful in the areas where it was used effectively it was clear that we were still a long way from having a fully operational National

Incident Management System that worked smoothly across agencies of all types and all levels of government and all jurisdictions.

My first message to you today is that it is now working far better. Boston Strong is a good illustration of what can be – and, in Boston and in other communities where significant efforts have been made, has been – achieved. There is more to do, as I will suggest -- but the first and most important thing to note is that for those communities that make the effort, creating an integrated incident command process that will work in the moment is a goal that is demonstratedly within reach.

There were some quite remarkably effective elements of the response in the aftermath of the bombing in Boston. As an example, the bombs caused literally dozens of fatal injuries, but, mercifully, there were only three fatalities on that terrible day. All of the seriously injured people were removed from the scene within 22 minutes. Every person who left the scene alive is alive today. The scene was rapidly secured and swept for additional explosive devices. It was then secured as a crime scene, collaboratively, using FBI and local and state assets, and the investigation was launched. Video from private and public surveillance cameras was quickly collected, additional photographic evidence (mainly from media and bystanders who volunteered their photographs and videos) was obtained, and an exhausting search through the video and photographic evidence began. Meanwhile, the public was informed by individual agencies and through a series of organized press conferences.

Taken together, that seems like a very good performance. We can all point to elements where it could be further improved. But the standard can't be an unrealistic expectation of perfection. Our question has to be this: did the response accomplish what could reasonably have been expected, given the intrinsic nature of the event itself – the surprise, the physical and emotional shock, and the inevitable chaos of the immediate aftermath. *We believe that the response in Boston was as good as one could reasonably have hoped*. This then begs explanation, and forms the basic question of our research: **Why** were people and organizations able to provide as effective a response as this was? What were the strengths of that response, and what enabled them? And where were the weaknesses – and what can we do to further minimize them? These were the questions at the heart of our research.

I want to emphasize three elements of our research findings about where these features of the response "came from" – that is, what caused or created them:

> First, *the core underlying reason for the effectiveness of the response in the moment was the rapid formation of an effective command and coordination structure* that oversaw and directed all elements of the response. Senior officials from a wide range of agencies -- federal, state, local, and private -- felt an immediate need to find one another and join

into a concerted and unified command structure and were then able to do so reasonably quickly.

Second, *none of that was due to chance* -- it resulted from literally tens of thousands of hours of joint work, planning, exercises and operations combining numerous agencies over many years in the planning for and production of fixed events ranging from the Democratic National Convention in 2004 (an event that got particularly attentive focus because it was the first national political convention after 9/11) to the Boston Marathon to the July 4th concert and fireworks on the Esplanade to Patriots and Red Sox and Bruins and Celtics victory parades. Each of those events provided an opportunity -- and opportunity that was *taken* -- to practice the process of planning and doing things together. This built knowledge of one another's assumptions and priorities and procedures, fostering understanding and mutual respect of individual and organizational competence and capabilities across agencies. This was the infrastructure that enabled command and coordination to be established quickly and to function effectively after the bombs exploded.

Third, *others can do this, too*. To be sure, some of the features that contributed to the effectiveness of the response in Boston were unique to Boston. Boston has eight Level I trauma centers, for example, and by happenstance they are arrayed in every direction around the area where the bombs went off, so the injured could be transported in many different directions, reducing congestion among emergency vehicles. Some other elements were unique to the moment -- for example, the fact that the marathon takes place on a state holiday, when hospitals are open and fully staffed, but are not doing elective surgery, meant that dozens of operating rooms were immediately available. A shift change was underway at the time of the bombing, which increased availability of skilled hands when they were needed. So there were elements of good fortune that reduced the terrible consequences on that awful day. *But most of what made the response as effective as it was can be undertaken by other communities as readily and as well as it was by Boston.* Any community can engage in joint planning across its agencies for any major fixed event – from a high school football victory parade to a Fourth of July celebration. Any community can find opportunities to engage in joint planning with other jurisdictions, and with other levels of government – both federal and state.

On a good day, joint planning and practicing inter-agency coordination – and carrying that out through an incident command structure – is helpful in making events go more smoothly. Paying your dues on the good days by building the infrastructure of

interagency familiarity, respect, knowledge, and trust thus has an immediate payoff – and if a bad day ever comes, that infrastructure is literally a life-saver.

The single most important lesson of our research is that routine and constant practice and use of incident command is one of the best investments a community can make in its present well-being and against any future dark day that might arise.

That said, there are still some things about the command and coordination processes that need some additional work. Our research suggested three areas where further work needs to be done on the development and implementation of incident command:

(1) *Distinguishing between strategy/policy issues and tactical/operational issues*: In a crisis situation, some of the issues raise policy questions that should be answered by elected political leaders, while other issues are more tactical and operational. Incident management is largely silent on the establishment of processes and procedures for identifying and separating these issues and getting appropriate resolution of them. NIMS focuses almost exclusively on the resolution of tactical issues and on organizing processes for carrying out the indicated operations once the issues have been decided. More attention needs to be devoted in the doctrine to making this distinction, to developing training to help officials practice the distinction, and to building an appropriate structure for interaction between policy-makers and operational leaders. This interaction generally worked well in Boston, but not because of the doctrine. In fact, Boston's experience may provide some guidance about what the doctrine should say. For example, the decision to issue a shelter in place request was appropriately framed as a policy issue by operational commanders and was put to political leaders for resolution, and this may provide a good illustration of the kind of process of issue identification and resolution that needs to be addressed in the doctrine. It is imperative for NIMS to provide more guidance about the process by which tactical commanders should work in conjunction with an appropriate process for decision making by elected leaders. Both have important but different roles to play, and NIMS currently lacks systematic ways to help these two groups each to stay within their own designated "lane."

(2) *Helping senior operational commanders resist being pulled unduly toward tactical decision-making and away from advising political leaders on strategic issues*: Related to the challenge of distinguishing policy questions from tactical issues, the natural flow of work in incident management structures tends to exert a strong pull on the senior commanders of operational agencies toward being involved in tactical

decision-making – at precisely the moment when they are also needed to help frame and provide advice to political leaders about more strategic issues. Illustratively, during the Monday afternoon discussions at the unified command at the Westin Copley Hotel, the governor asked everyone to put their phones down. The phones represented the pull on the senior operational leaders (by their subordinates) toward engagement with the (many and important!) tactical issues; the governor wanted their attention to advise him on the (fewer, but even more important!) strategic issues. The attention of senior operational officials is a key resource for both tactical and strategic issues, so we need to develop better doctrine and associated training about how to focus and parse their concentration.

(3) *Developing more effective processes for quickly establishing "micro-command" at the tactical level*:   While coordination, cooperation, and command among the senior leadership of the agencies involved was very strong during the week of April 15 in Boston, better doctrine and training need to be developed to produce similar results when lower-level officials from different agencies encounter one another in the midst of tactical challenges – as occurred in Watertown in the early morning hours of April 19 and then again later that evening. By virtue of doctrine and years of joint planning and practice and work on multi-agency events, the *senior* leaders of the relevant organizations for the most part knew one another personally and had knowledge of and confidence in each other's capabilities – and they were able rapidly to form unified commands, both on Monday afternoon and again in Watertown in the early hours of Friday morning. Individual police officers arriving from other jurisdictions at the scene of the gunfight at Dexter and Laurel Streets Watertown had none of those advantages to help them form a coordinating structure. We need better doctrine, procedures, training, and practice to aid in the more rapid development of a command structure among people from different agencies arriving more or less independently and not under a pre-existing overarching command structure. We refer to this as the problem of establishing "micro-command," and dealing with this requires that the doctrine that is now working well to coordinate agencies at the senior level needs to be cascaded downward so that it functions at any level where the agencies may encounter one another.

The problem of micro-command needs a bit of further explanation. The issue is illustrated by the difference between what happened within the Watertown Police Department (including both officers and dispatchers), on the one hand, and what happened with arriving officers from other jurisdictions, on the other, at the scene of the gunfight at Dexter and Laurel streets. Watertown officers were first on the scene; they knew each other, knew their command structure, were in direct radio contact with one another, recognized each other's voices, and

had good situational awareness about where they were, where their assailants were, and what the street map around them looked like. As a result, they were able to coordinate their actions against their assailants and moved against them in a way that, considering the circumstances – they were being fired upon and having explosive devices thrown at them – seems to have been both coherent and largely effective. Their assailants arrived in Watertown armed with a semi-automatic handgun and enough ammunition to reload it at least once and with a collection of explosive devices; at the end of the confrontation with Watertown police, one was dead and though the other temporarily escaped and may still have been dangerous, he was no longer armed when he fled the scene. As a result of the "micro-command" structure they automatically brought with them to the scene by virtue of being from the same department, the Watertown Police Department officers engaged their assailants in an organized and effective way and coordinated well with the WPD dispatch team.

Arriving officers from other jurisdictions, by contrast, did not know one another, did not know the surrounding area, did not have their own command structure present to help organize or guide them, and did not find nor did they immediately form a command structure that could help deploy them effectively. They were, in effect, forced to act on more or less uncoordinated individual initiative. To some extent, this is inevitable in the early moments of an intense and confusing engagement when people from different jurisdictions show up to help. And, to the credit of those present, micro-command was eventually established at the various sites in Watertown where significant police actions took place (of which there were several). In general, however, it required the arrival of very senior officers before the others present were able to recognize and to accept command. Some of these events involved crossfire situations that endangered fellow officers and nearby residents, so the need to develop an approach that will minimize such circumstances in the future is urgent.

Let me now turn to my second message today, about the *community* part of resistance to terrorism that was on display last year in Boston and is on display this year as my daughter and Chief Deveau and thousands of others train to run in this year's marathon – and yet more thousands of others prepare to make the event both smooth and safe. It is about the community's part in "Boston Strong" -- the local description that encompasses what everyone from first responders to bystanders to community members did to stand tall and proud in the face of two murderous thugs with terrorist intent.

Boston Strong is not a form of hubris or arrogance or naïveté – but a form of pride and defiance and resilience.

Terrorists are, in the end, few and weak – which is, of course, why they choose the methods they use. We are many, and large, and strong. We could never be defeated by them – but we *could* voluntarily surrender to them … and we *must not*. If we cower in fear, if we abandon our commitment to a free and open society, then we do their work for them. We cannot defend the American way of life – which, importantly, includes our liberties – by surrendering that way of life.

In every generation since our predecessors stood on the Lexington Green and at Old North Bridge in my hometown of Concord, Massachusetts – indeed, since their predecessors came ashore at Jamestown and at Plymouth – men and women have fought and some have bled and some have died to defend the American way of life. In the last century and a half – until 9/11 – nearly all of that took place on foreign soil, and the Americans defending our way of life were mostly men and women in uniform. In an age where terrorism is an occasional fact of modern life, some of the battlefields are, unfortunately, now in the homeland and so the "soldiers" in that conflict now sometimes include ordinary Americans going about their daily lives. Resilience – psychological resilience by ordinary Americans in the face of the threat, and even in the face of casualties – therefore has to be seen as a core part of our defense strategy against terrorism.

Preserve, protect, uphold, and defend – Boston Strong affirms the oath of office. Boston Strong says that we will defend the American way of life by continuing to participate in it.

The community part of Boston Strong is a pretty good place to start in thinking about what resilience looks like – and perhaps about how to build it.

Our full report contains more detail about the events and further discussion of the key implications and lessons about the challenges of organizing and operating command and coordination in events like this. For purposes of my testimony here, let me now enumerate more completely the main recommendations from our research:

Strategic Command

- **Senior leaders should participate in a unified command at the strategic level and avoid being pulled back into making tactical decisions and directly overseeing basic operations.** While some engagement with rapidly evolving tactical matters is necessary, top commanders should concentrate on working with their peers in other organizations to establish an integrated, cross-agency, policy perspective that looks at the big picture context and a longer time frame.

- **The management of intra-organizational, tactical matters should be undertaken by the next tier of institutional leaders**, who should be carefully prepared *in advance* through training, exercises, and actual experience to assume these responsibilities during crises.
- **To help ensure leaders' strategic focus and opportunity for effective coordination with peers, contingency plans for fixed events like the Marathon should provide for well-equipped, secure facilities for top commanders to work together in the event of an emergency.** This command post should be close to but separate from the location of subordinates who manage tactical operations.
- **Organizations must develop sufficient depth of leadership so that they can rotate personnel regularly during extended events; otherwise, they will inevitably falter from fatigue.** By Friday evening, many of the people managing the overall event had been awake for 36 or more hours and, more generally, had been sleep deprived since Monday's bombing. Both they and their deputies had been more than fully deployed throughout the event, leaving no unused (rested) capacity in the system. Failure to provide for sufficient downtime for senior officials inevitably degrades their judgment, ability to comprehend information, and performance of even normal tasks. Allowing for regular rotation requires creating more personnel depth in these leadership positions.
- **Senior leaders should not to be unduly exposed to the enormous flow of raw information, lest their attention be diverted from strategic issues and problems.** In an event with 24/7 news and social media saturation, there is an enormous amount of information circulating at any given time, much of which is misleading or wrong. This stream of data needs to be filtered and organized for top level leaders so they can concentrate on interpretation and strategic issues.

Tactical/Local Command

- **Response organizations must develop procedures and practices to better control "self-deployment" by individual personnel to the scene of emergency action.** Dangerous situations that threatened both responders and bystanders developed at the scene of the Thursday night shootout and Friday apprehension of the second suspect in Watertown, in part because of an overload of individual public safety officers operating as individuals rather than in disciplined units.
- **Public safety organizations should develop improved doctrine, better training, and practice through exercises to ensure effective "micro-command" in crises.** While officers typically look for command authority when operating at a scene with groups from their own agencies, they are less likely to do so when they have deployed as individuals and arrive at an emergency site on their own. Except for situations when near-instantaneous action is required to preserve life, doctrine should be developed and

officers should be trained to look for authority at a scene of mass action, even if command is taken by someone from another organization.

- **Improved discipline and training is needed to control weapons fire when public safety officers from many organizations are present.** Control over fields of fire and authorization to fire is another critical micro-command issue in any rapidly-evolving, high-stress, emotion-laden event. It is dramatically more complicated when a "sudden team" of people from different agencies are thrown together under circumstances where there is no pre-determined command structure.

- **Improved protocols and control systems for parking emergency vehicles at an actual or potential emergency site must be developed and effectively communicated/emphasized to officers by dispatchers and on-scene commanders during an event to prevent obstruction of further movement that may be required.**

- **In complex, multi-agency events, teams of responders in the field should be structured to take advantage of both the local knowledge of conditions that the "home" organization possesses and the quantity and specialized resources that outside reinforcements can bring.**

Public Communication

- **Maintaining regular and open communication with the public – through traditional and social media – should be a high priority for senior officials, even when confidential investigations are ongoing.** When accurate, frequent, official communications were absent, news and social media filled the gap, sometimes with speculation and misinformation. Development of protocols for crisis communication, incorporating utilization of social media, should be part of the planning for fixed events. This should include improving practices for dispelling widely disseminated, inaccurate information or rumors.

- **Systems for coordinating and communicating information to families of individuals missing or injured in a crisis need to be improved**, perhaps including revision of HIPAA rules governing the release of personal information about patients receiving care during public safety emergencies.

Preparation for Future Crises

- **Robust development, practice, exercise, and application of incident management processes and skills (codified in the NIMS system) greatly enhance the ability of emergency responders to operate in complex, multi-organizational, cross-jurisdictional crises.** The great value of common systems and the understanding that these produce among responders who have never previously met or worked together

should not be under-estimated. They can literally be life savers for responders and others at a crisis scene.

- **"Fixed" or planned events can be effective platforms for practicing incident management skills even when no emergency occurs, and they are highly useful if emergency contingencies materialize at a fixed event as happened at and after the 2013 Boston Marathon.** Skills honed at such events can also prepare responders and response organizations to perform more effectively even in "no notice" emergencies that may occur at other times.

- **Because coordinating multiple agencies and disciplines will be particularly difficult in "no notice" events**, senior commanders should
    - Themselves form a unified command structure to make decisions and implement them,
    - Identify a separate staging area to which deploying individuals and organizations should report and await before undertaking field operations.
    - Establish protocols for the formation of "sudden" teams composed of individuals from different organizations that may not have previously worked together.

- **Community resilience should be systematically developed and celebrated.** In the face of the bombing, Boston showed strength, resilience, even defiance – and these were key drivers of the overall outcomes that is, of "Boston Strong." These qualities are latent in many communities in the United States and elsewhere. Celebrating examples of community resilience – both local examples and from farther afield – may help to cultivate a culture of confidence and self-reliance.

These are the central lessons that we have drawn from this difficult experience – from which we, with others emerge with a combination of sorrow and pride and resolve.

So let me close where I opened: I thank the Committee for the opportunity to present the findings of our report, I commend the committee for its historic role in mandating the platform from which the first responder's part of Boston Strong sprang, and I offer the community part of Boston Strong as a positive model of the psychological resilience that is an essential part of the successful defense of the American way of life in a sometimes-threatening modern world.

I look forward to your questions.