

A WAY AHEAD FOR NATIONAL EMERGENCY COMMUNICATIONS

BY

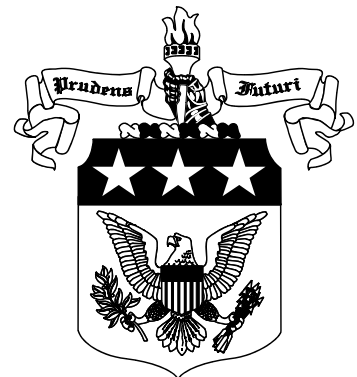
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USAWC STRATEGY RESEARCH PROJECT

A WAY AHEAD FOR NATIONAL EMERGENCY COMMUNICATIONS

by

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ABSTRACT

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Effective communications are essential to the success of any large scale military operation. The shared situational awareness enabled by effective communication is as critical to successful emergency response operations as it is to victory in combat. Important decisions made by government leaders in times of federal disaster are dependent upon acquiring and maintaining effective emergency communications. Like many other government policy issues, however, this area is a complex challenge complicated by competing authorities, jurisdictions, and priorities. A variety of factors make sustained progress in this area difficult. The lack of a comprehensive national communications strategy to address information sharing and exchange is the biggest shortfall. The incredible scope of the problem requires solutions spanning federal, state, tribal, county, and local levels. Commerce and politics complicate the way ahead as industry pressures government to establish standards that ensure fair-share market distribution. The lack of an aggregated band of spectrum to enable all responders to interoperate is also a stumbling block to progress. Solving the emergency communications challenge will require wide ranging solutions. Partnership with

commercial and private sector organizations is a key component of our national strategy and will be critical to the success of any effort in the communications arena.

A WAY AHEAD FOR NATIONAL EMERGENCY COMMUNICATIONS

Nearly five years after September 11, our emergency communications systems are still unprepared for the realities of a crisis.

—Senator Hillary Rodham Clinton¹

Effective communications are essential to the success of any large scale operation. Military leaders often identify combat communications capabilities and strategic communication success as centers of gravity.² The information sharing and common operational awareness enabled by effective communication are as critical to successful emergency response operations as they are to victory in combat. Important decisions made by government leaders in times of federal disaster are often dependent upon acquiring and maintaining accurate situational awareness. Our emergency communications plans and policies and their resulting information systems and processes are the building blocks of that situational awareness. Emergency communications, like many other government policy issues, are a complex challenge complicated by competing authorities, jurisdictions, and priorities.

In the wake of an unprecedented 2005 hurricane season, public safety and security leaders across the country became reacquainted with the difficult challenge of ensuring effective command and control of response forces following natural and man-made disasters.³ Unfortunately, our experiences in 2005 were not our first introduction to the issue. The communication difficulties encountered during the emergency response following the 1993 attack on the World Trade Center was one of the first real indications that the nation was facing a difficult and important problem in this area. The 1995 bombing of the Federal Building in Oklahoma City, the 1999 attack at Columbine High School, and the terrorist attacks on the World Trade Center in September of 2001

all further highlighted the difficulty of solving this challenge.⁴ Most recently, the widespread devastation in the Gulf Coast following Hurricane Katrina and the subsequent flooding of New Orleans presented unprecedented communications challenges for government leaders and public safety personnel at all levels.⁵

A variety of factors have made it difficult for the United States (U.S.) to make significant and sustained progress in this area. The first and perhaps most challenging factor is the incredible scope of the problem. Political leaders and public safety officers are faced with establishing operable and interoperable communications and making significant change not only at the federal and state levels, but at the tribal, county, and local levels as well. This amalgamation of uncoordinated efforts results in literally thousands of public safety departments and agencies with responsibility and oversight of communications and related issues.⁶ With each of these departments and agencies come different policies, practices, procedures, and budgets. The conflicting views of stakeholders at federal, state, and local levels exacerbate the difficult task of implementing interoperable capabilities.

Cultural, political, and commercial aspects of the challenge also make it difficult to build consensus to enable actionable solutions with capability-based results. Many in the public safety and emergency response communities have made up their minds about how to solve the problem in their specific areas of responsibility and are quite resistant to alternative proposals. In the late 1990's and early 2000's, leaders and public safety officers faced with establishing reliable communications made significant progress upgrading antiquated equipment and systems within their own jurisdictions. This progress, however, often came at the expense of interoperability. Those

responsible did not view interoperability as a force multiplier but rather an increased drain on limited budgets paid for at the expense of system footprints, number of radios, or desired features. Cultural conflict near the boundaries of departments, agencies, and governments, as well as political differences between adjacent communities also played a role in the development of independent “closed system” solutions.

Department, agency, state, county, and local governments all have intentionally autonomous authorities within their jurisdictions. These independent authorities create political and culture differences that lead to significant roadblocks to cooperation. Stakeholders develop firm positions on their approach to the problem, often with the intention of protecting resources and maintaining control of independent organizational capabilities. Increasing the challenge is the fact that public safety leaders at all levels have separate fiscal resources allocated to address the problem and are free to expend them on their own individual and independent requirements.

Another complicating factor is the fact that a very large commercial market exists in the arena of interoperability and will continue to develop and evolve as we attempt to set and enforce national standards in this area. As was mentioned earlier, significant investment has already been made at numerous governmental levels in communications architectures, systems, and devices. As a result of these investments, federal, state, and local stakeholders are often resistant to additional expenditures on what are perceived as redundant or competing solutions. Many have also developed long-standing commercial vendor relationships that they are reluctant to sever. Commerce and politics complicate the way ahead as industry leaders pressure

politicians and the public safety community to establish standards and practices that ensure their “fair-share” of the pie.

From an operational and logistical standpoint, large disasters present an environment in which first responders and government officials must deal with challenges that simply overwhelm the capabilities at the local and state level. The loss of communications infrastructure and other commercial utilities over a wide spread geographical area presents a challenge that requires resources beyond the ability of an individual local or state government to address independently.⁷ As a result, the federal government is often called upon to assist by providing coordination, augmentation, and logistical support. The addition of these federal resources further complicates the challenge and demands a more fully integrated interagency effort with improved planning, coordination, and preparation.⁸

The time sensitive nature of life saving and public safety operations immediately following major disasters makes the challenge of delivering timely federal support all the more difficult. Without critical communications capabilities, lifesaving operations experience unnecessary delays and government leaders receive inadequate situational awareness to make important decision and provide effective command and control. As a result, additional and needless loss of life, limb, and property occurs.⁹ The urgent need to conduct these operations necessitates the swift restoration, replacement, and augmentation of public safety communications infrastructure.¹⁰

On a technical level, separate and distinct spectrum resource allocations prevent interoperability and complimentary infrastructure deployment by stakeholders in public safety. The lack of a common aggregated band of spectrum to enable Department of

Defense (DoD), federal, state, and local first responders to interoperate is a stumbling block to the development of a comprehensive strategy for public safety radio operations. Current U.S. spectrum allocations force DoD, Federal, and Civil organizations to install, maintain and operate independent infrastructures instead of developing complimentary capabilities among mission partners.¹¹ Without standardization of public safety spectrum or temporary agreements authorizing shared use of this critical resource, radio interoperability with first responders remains a holy grail.

The central factor that has hindered significant progress in the area of disaster relief communications, however, is the lack of a comprehensive national communications strategy to address information sharing, interoperability, and the creation and utilization of the information exchange environment during a major disaster response effort.¹² While there are numerous interoperability efforts underway at all levels of government, the lack an overarching and unifying concept to tie efforts together into a comprehensive national strategy results in competition for resources, “turf-battles,” and fielding of independent capabilities and systems. More importantly, the search for the next great technical solution takes the focus off of inadequate planning and poor decision making.

While the National Response Framework does guide the federal response for disaster relief operations, it does not provide a comprehensive communications strategy, information support plan, knowledge management, or architecture to enable effective information sharing and interoperability among responding forces at an incident scene. The focus on technical solutions dismisses the management aspect of the communications problem. Interoperability without effective management produces

nothing more than communications chaos. Relying solely on interoperability turns out not to be enough. “That’s because the real problem isn’t making the connections, it’s making the decisions. The choices of who to connect with whom and when won’t be made by new radios and additional channels. They’re a matter of pre-event planning and on-scene judgment.”¹³

It is not enough then for communicators to provide the voice, video, and data capabilities. We must relinquish our obsession with technical solutions and focus on the management of the information to enable “communications” among mission partners, decision making by incident scene commanders, and situational awareness for state and national level leaders. These problems at the human and organizational level are generally not susceptible to technological solutions. As a result, we must focus on the totality of the problem and not the technical and equipment fixes. Only through effective strategies, plans, and exercises will we develop the degree of standardization and improved incident scene management required for success in these major endeavors.¹⁴

The Challenge of the Department of Defense Contribution

In order to improve preparation for and execution of defense support to civil authority missions, military leaders at DoD headquarters and U.S. Northern Command (USNORTHCOM) took a hard look at the lessons learned in the wake of Hurricanes Katrina and the military’s participation in the relief efforts. Among the many challenges encountered during the hurricane relief efforts was the difficulty of providing command, control, and communications capabilities to forces deployed in an area where the public utilities (e.g. communication infrastructure, power, water, and roads) had been severely damaged.¹⁵ This challenge not only made it difficult for DoD forces to communicate with

each other, but also made the task of communicating with state and local leaders as well as first responders all the more difficult.

Not only must DoD and USNORTHCOM address the national level communications challenges experienced by all response forces following Hurricane Katrina, but they must also take a look at internal challenges of standing up and operating a Joint Task Force (JTF) Headquarters to provide defense support to civil authorities. During relief efforts for Hurricane Katrina, USNORTHCOM faced initial difficulties in providing organic communications support to the JTF established in the operations area. Central to this challenge was the lack of a dedicated theater signal unit assigned under USNORTHCOM control. Without a pre-designated unit capable of providing theater level communications coordination, USNORTHCOM was forced to build its theater communications capabilities on the fly. In order to address this challenge, USNORTHCOM must identify, through its service components, those communications units capable of providing theater level communications coordination and support. Crucial to the success of the JTF headquarters is the identification of prepackaged deployable communications capabilities scaled to provide services to a JTF headquarters. In order to effectively address this issue, USNORTHCOM needs to pre-identify candidate units to source future communications request for forces (RFF).

For follow-on communications requirements, USNORTHCOM planners must also develop improved visibility of service component communications capabilities. With improved situational awareness of available communications capabilities, USNORTHCOM will be able to more effectively requisition the forces required to support operations within the disaster relief area.¹⁶ Without this visibility, planners in the

USNORTHCOM headquarters struggled with the command's RFF requirements. This challenge combined with a cumbersome RFF process led to inefficiencies in the acquisition of required capabilities. In order to more effectively plan for and deliver time sensitive communications capabilities to the field, USNORTHCOM planners must streamline and master a request for forces process that enables rapid identification and deployment of the required units.

The task of providing command, control, and communications capabilities for a joint task force deployed on a defense support to civil authority mission is complicated by the fact that such missions could come on the heels of any number of natural or man-made disasters. Among the most likely scenarios resulting in the deployment of DoD assets to support civil authorities are: hurricanes, earthquakes, improvised explosive device bombing, chemical, biological, radiological, nuclear, or high-yield explosive attack, biological attack– aerosol or food contamination, or an outbreak of pandemic influenza. Each one of these scenarios presents its own special set of circumstances, and with the exception of perhaps a major hurricane, none afford DoD or first responders the opportunity to stage forces and equipment in anticipation of the mission. As a result, USNORTHCOM and its interagency partners must conduct significant advanced contingency planning in order to maximize DoD's effectiveness in providing assistance, preventing loss of life, and speeding the recovery effort.¹⁷

The complex interagency nature of defense support to civil authority missions, combined with the fact that in most cases DoD will not be the lead federal agency, further complicates the challenge of command, control, and communications.¹⁸ As a result of these circumstances, DoD forces face the unique challenge of establishing

communications capabilities that not only facilitate command, control, and support of DoD forces but also enable coordination, liaison, information sharing, and common situational awareness, with federal, state, and local governments and agencies.¹⁹ These unique circumstances create an environment where it becomes necessary to set common equipment and information exchange standards that will enable homeland defenders to cooperatively deploy communications capabilities to improve information sharing across the operations area. The development of a comprehensive and unifying communications strategy shared among all homeland security stakeholders will prove critical to the success of future disaster relief operations.²⁰ The development of such a unifying concept will require an unprecedented national level partnership among federal, state, and local homeland security partners and fundamental changes in processes and culture to deliver support for effective decision making.²¹ Key players in such a partnership will include the Department of Homeland Security (DHS), the DoD, the Department of Justice (DOJ), the Federal Emergency Management Agency (FEMA), the Federal Communications Commission (FCC), the National Telecommunications and Information Administration (NTIA), the National Communications System (NCS), the National Guard Bureau (NGB), city, county, tribal, and state governments as well as commercial providers in the telecommunication sector.

A National Partnership with the Telecommunications Sector

Solving the communications challenge of major disaster response will require a number of solutions and approaches. Partnership with commercial and private sector organizations is a key component of our national strategy and will be critical to the success of any effort in the communications arena. In the short term, it may not be

feasible to develop and build a new and separate network to support the homeland security and homeland defense communities. In order to conserve resources and leverage the nation's investment in its communications infrastructure, we must find a way to maximize use of our existing communications capabilities. This of course cannot be done without close coordination and cooperation with those in the telecommunications industry.²²

From an implementation standpoint, in order to maximize the effectiveness and speed of employment of emergency response communications, we must find a way to enable responders at all levels to use the same processes, procedures, and equipment during contingency operations that they use on a daily basis. In other words, we must train and operate in the same manner in which we will respond to contingencies. We must not introduce new equipment, processes, or procedures during recovery operations, doing so introduces complicating variables when responding forces should be concentrating on communicating rather than the communications system. This requirement, however beneficial, becomes troublesome when coupled with the need for interoperability between responders at the federal, state, and local level and the fact that many scenarios will involve loss of existing communications utilities, sometimes on a wide scale.

Information sharing and interoperability require tactics, techniques, and procedures that are enabled through technology. In order to deliver interoperability, we must therefore choose the practices, procedures, and technologies that are common to responders at all levels. This choice must also take into account the probability that existing systems and infrastructure may be inoperable due to physical damage, loss of

public utilities, reduction in footprint/coverage, or saturation of existing capacity. It is, therefore, imperative that federal, state, local, and commercial stakeholders possess complimentary and cooperative capabilities to augment the public communications utilities that are temporarily unavailable following a catastrophic incident.²³

Given the criteria outline above, cellular telephone technology emerges as the strongest candidate to meet the need for an interoperable communications medium. Whether at the federal, state, or local level, all homeland security stakeholders use cellular technologies in some facet of their operations. Cellular technology is not only ubiquitous in its penetration of the user community, but it also provides the means to enable voice, video, and data communications to all levels of governments and agencies. The widespread use of wireless cellular devices (voice, video, and data) also eliminates any special training requirement since all responders would be familiar with their use as a result of the daily operations.

A significant challenge to overcome with the proposal of cellular technology is the likelihood that existing cellular infrastructure could be inoperable as a result of damage or loss of supporting utilities.²⁴ This problem is solvable in the short term with the use of rapidly deployable cellular base stations (sometimes referred to as cell on wheels or COWs) designed to augment the surviving cellular infrastructure. In conjunction with cellular vendors, USNORTHCOM successfully used this technique to augment the cellular coverage footprint and increase cellular capacity in the New Orleans area following Hurricane Katrina.²⁵ This approach enabled commercial service providers to ensure availability of cellular services for DoD, FEMA, and local government use. In preparation for future disaster response scenarios, these deployable cellular base

stations could be pre-positioned with regionally focused response capabilities (federal, state, or local) for immediate deployment when needed.²⁶ Standardization on existing commercial cellular technology would allow a hastily formed network to coalesce through cooperative deployment of assets among DoD, federal, state, local, and commercial mission partners, thereby providing coverage and capacity necessary to fulfill mission requirements. Use of these base stations in multiple configurations (transit case, vehicle, aircraft, aerostat, or hastily established towers) would enable rapid delivery of communications capability to responding forces allowing seamless transmission from the intact infrastructure outside of an affected area into and around the incident site.

To minimize the expenditure of government resources on cellular capabilities, a national level telecommunications industry equivalent to the Civil Reserve Air Fleet (CRAF) should be established. Under this “CRAF-like” model, the commercial cellular providers would maintain the capability and capacity to rapidly deploy cellular base station emergency equipment at the direction of the NCS.²⁷ In times of national emergency or disaster, NCS would activate this Civil Reserve Communications Fleet (CRCF) arrangement and commercial carriers would deploy their COWs (perhaps enough regional capability to cover an area of 200 square miles) and enable priority access to first responders, government emergency response personnel, and operations centers at the local, state, and national level. Provisioning of priority access to government and emergency workers could be modeled after the NCS’s existing Government Emergency Telecommunications Service (GETS) capability.²⁸

Pursuing a CRCF arrangement with telecommunications industry partners could provide not only voice capabilities, but also data and video services crucial for the establishment and maintenance of common operating pictures and shared situational awareness. These added capabilities would not require any additional investment in technical solutions as existing cellular infrastructure already supports these applications. The CRCF could also be utilized as a means to grant government forces temporary and rapid access to industry controlled spectrum resources required to operate government owned cellular equipment. This arrangement would be especially important in the event of biological or radiological attack scenarios where the deployment of civil sector assets would not be feasible. The CRCF would then enable the quick return of the cellular spectrum to civil control with government owned COWs terminating operations as the private sector capabilities are brought back on line.²⁹

A CRCF arrangement would have a number of other benefits as well. This strategy would enable governments to leverage the expertise, infrastructure, upgrade paths, research dollars, and operations and maintenance capabilities of commercial providers. Giving responsibility for the operation of communications infrastructure during disaster response to the civil sector enables government and emergency response personnel to concentrate on communicating through the development of incident coordination, information sharing, and knowledge management procedures that facilitate critical decision making. Thru use of existing and emerging push-to-talk cellular capabilities, it would also free local and state government first responders from their significant reliance on expensive and inherently non-interoperable Land Mobile Radio

(LMR) networks. At the same time, however, it would not necessitate discontinuing use of LMR systems by those who prefer to own and operate them.

The proposal for cellular technology as the interoperability communications medium of choice does not completely eliminate other communications problems and certainly does not eliminate the need for other means of communication. There will still be a need to bridge the frequency gap between incompatible civilian radio networks as well as to link those networks to military radio capabilities. The CRCF also does not address the challenge on the radio spectrum front to consolidate enough dedicated frequencies to support an overarching strategy for public safety radio standards at the local, state, and national level. These and other problems must be addressed as part of an overall national emergency communications plan.

Recommendations for a Way Ahead

The proposal to use cellular technology as the interoperability communications medium of choice is one of many solutions to the emergency communications challenge that must be addressed at the national level as part of an overarching communications strategy to support the National Response Framework. The development of a comprehensive national-level communications strategy, a plan to ensure implementation of that strategy, and supporting national emergency communications architecture are all critical to the success of future disaster relief efforts.

DoD and USNORTHCOM must advocate for the development of such a strategy and diligently work toward achieving it. Through involvement in the NCS's Committee of Principals, the Industry Executive Subcommittee of the National Security Telecommunications Advisory Committee (NSTAC), and through membership in other

national-level communications and information technology working groups, DoD must engage its local, state, and commercial partners to advocate for action.

Under the umbrella of the DHS, the NCS and the Office of Emergency Communications (OEC) will lead the charge in addressing these complex issues.³⁰ Using its experience during recent relief efforts, DoD is in a position to make a significant contribution to improving national emergency response communications and will likely have a strong voice at national level forums. At each opportunity, DoD should be prepared to present and advocate for the following:

1) The creation of a comprehensive national strategy to address interoperable emergency communications and the publication of an associated implementation plan. Engage DHS, NCS, FEMA, FCC, and NTIA to coordinate an actions-based implementation plan that delivers rapid and interoperable communications. Allocation of future federal dollars must be tied to compliance with the action plans developed and the resulting national standards and practices for public safety and emergency response.³¹

2) Use of commercial off-the-shelf cellular technology as the interoperable communications medium of choice. Cellular is the national defacto interoperability communications standard. The ubiquitous penetration of cellular technology (voice, video, and data) reduces future training, equipment, and infrastructure requirements. The rapidly deployable cellular capabilities that are available today to restore communications in disaster areas can bridge the gap until the restoration of damaged systems enables the leveraging of commercial infrastructure. Use of this everyday technology would enable a “train as you fight” approach to emergency communications.

Existing and emerging “push to talk” capabilities in the cellular telephone industry will also enable radio-like talk groups critical to first responder and incident scene communications.

3) The standardization and acquisition of rapidly deployable standby communications capabilities for major metropolitan areas. Emergency response planning must account for the probability that first responders and local government will be forced to initially operate without the benefit of existing commercial and government communication systems or commercial utilities. Federal, state, and first responders from neighboring areas will often arrive well after the initial incident and with inadequate or non-interoperable resources to bridge the gap until commercial services are restored. In order to facilitate immediate response, minimize damage to critical facilities and infrastructure, and conduct successful life saving operations, rapidly deployable and interoperable communications must be located within major metropolitan areas as well as at regional crisis response facilities. Both FEMA and NCS would play key roles in the development of standards and procedures. Integration of state and local level public safety stakeholders will be essential to successful implementation.

4) The development of a CRCF modeled after the CRAF arrangement in the airline industry. Governments and agencies do not have adequate resources, expertise, or manpower to own and operate significant standby deployable communications capabilities. Under a CRCF arrangement, the federal government could coordinate for industry to maintain regionally based, rapidly deployable cellular and communications capabilities. In times of emergency, the NCS would direct deployment of this capability with priority access to first responders, local government officials, and state/federal

emergency support personnel. A component of the program should enable temporary use of commercially controlled frequency and spectrum resources for government owned emergency communications gear.

5) Harmonization of existing spectrum allocations at the national level to allow DoD, Federal, State, and local responders to operate in the same bands to enable interoperability and complimentary system roll outs. Widespread use of land mobile radio systems requires that in the short term we develop interoperable solutions with LMR technology. Implementation of standards and common practices across the public safety community will require some consolidation of spectrum resources.

6) Integration of interoperability with first responder and commercial communications into DoD equipment during development and acquisition. Doing so would enable DoD forces to deploy and use their standard communications gear to conduct disaster relief operations and interoperate with first responders. The upgrade path for the Joint Tactical Radio System should include the cellular and land mobile radio wave forms, perhaps even at an increased priority level.

7) In order to ensure responsive and effective federal assistance for our state governors, we must also make changes within the DoD. We must make the force requirements of USNORTHCOM a priority and assign dedicated forces to the command with the capability to deliver theater level communications and management. Those forces and their associated communications systems must be able to interoperate with civilian and National Guard response forces in order to deliver a common operational picture across the various response and recovery sectors. The DoD must also ensure the requirements for interoperability with civilian law enforcement and emergency

management personnel are integrated into the development of our future communications equipment and systems.

Conclusion

While communications interoperability has been on first responder agendas for many years, it took the near perfect storm of Hurricane Katrina and the ensuing destruction of the greater New Orleans area to elevate the issue to national level debate. The struggles of first responders and emergency coordinators to communicate among themselves and with state and federal level officials in the disaster area hampered both the rescue of personnel and the recovery efforts that followed. The widespread destruction of communication and power utilities combined with the incompatible equipment and processes of response forces made it nearly impossible for state and national leaders to gain and maintain the situational awareness required to make responsible and responsive decisions to support those in peril. The resulting political fallout required elected officials and emergency response coordinators alike to take a new and hard look at the challenge.

Over the past two and a half years there has been a near constant political and security dialogue directed at the communications and interoperability challenges faced by our emergency management organizations. As a result of this dialog, political leaders have managed to articulate the vision and capabilities required to move the country in unison toward a solution. The appropriate national and state level strategy and policy documents now clearly define the mission. Through federal, state, local, and private sector partnerships, communications and emergency management personnel have a clear mission to deliver common operational pictures, shared situational awareness,

consistent processes and procedures, integrated planning and exercise scenarios, and coherent data sets.

Despite the clear guidance outlined in numerous government publications, progress at all levels has been hampered by our failure to develop and deliver consensus on a national communications strategy and associated architecture. Until we are able to bring all levels of government and the private sector into agreement on a coherent and overarching strategy and the architecture to accompany it, we will continue to struggle with the challenge of communications interoperability and shared situational awareness. The DHS must make the development of a national level communications strategy and architecture an urgent priority and immediately embark on an aggressive campaign to build consensus across local, state, federal, and private sector lines to deliver the required documents.

In the short term, we must also take care to leverage our significant investment in the private sector capabilities existing across the country. While it is important that we design, build, and purchase interoperable equipment and systems for future use, the requirement for interoperability and shared situational awareness cannot wait until those capabilities are operational. As a nation, we would be foolish to think that the next catastrophic natural or manmade disaster will not occur until we have placed those future systems into operation. Accordingly, we must develop plans and agreements like the CRCF that enable us to utilize commercial off the shelf communications capabilities to deliver interoperability for our emergency management personnel and shared situational awareness for our state and national level decision makers.

There is no question that accomplishing these important objectives will be difficult. Each is a complex task in and of itself. In the current context of challenging mortgage and housing crises and the ongoing wars in Iraq and Afghanistan, dedicating precious resources and time to emergency response and preparedness issues will be difficult for both political and military leaders. With the memory of Hurricane Katrina and the resulting pain and suffering fading from the minds of the American public, the time to act is now. The notoriously short attention span of the nation is beginning to close the window for action opened by Hurricane Katrina. It will be difficult for local, state, and national leaders to address this challenge in light of the many competing priorities before them. It will be far more difficult to answer to the American people should we fail to act and as a result have to re-learn the painful communications and interoperability lessons of Columbine, 9/11, and Hurricane Katrina.

Endnotes

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¹⁵ Townsend, 55.

¹⁶ Ibid., 43-44.

¹⁷ Bush, *The National Security Strategy of the United States of America*, 45.

¹⁸ Gordon England, *Strategy for Homeland Defense and Civil Support* (Washington, D.C.: Department of Defense, June 2005), 32-33.

¹⁹ Bush, *National Strategy for Homeland Security*, 2002, 55-58.

²⁰ Richard B. Meyers, *National Military Strategy of the United States of America 2004 A Strategy for Today; A Vision for Tomorrow* (Washington, D.C.: Department of Defense, 2004), 5-6.

²¹ Donald H. Rumsfeld, *The National Defense Strategy of the United States of America* (Washington, D.C.: Department of Defense, March 2005), 14.

²² George W. Bush, *National Strategy for Homeland Security* (Washington, D.C.: The White House, October 2007), 4.

²³ Peter Pace, *National Military Strategy to Combat Weapons of Mass Destruction* (Washington, D.C.: Department of Defense, 13 February 2006), 6.

²⁴ Townsend, 55.

²⁵ General Timothy J. Keating, Commander United States Northern Command, written statement for a hearing on Combatant Commanders' Defense Budget Request For Fiscal Year 2007 and the Future Years Defense Program, on March 14, 2006, Senate Armed Services Committee, 109th Congress, 2nd session, 14.

²⁶ General Timothy J. Keating, Commander United States Northern Command, testimony before a hearing on Combatant Commanders' Defense Budget Request For Fiscal Year 2007

and the Future Years Defense Program, on March 14, 2006, Senate Armed Services Committee, 109th Congress, 2nd session.

²⁷ Air Force Link, "Civil Reserve Air Fleet," July 2007; available from <http://www.af.mil/factsheets/factsheet.asp?id=173>; Internet; accessed on 6 April 2008.

²⁸ National Communications System, "When the going gets tough, GETS keeps you going," 14 September 2007; available from <http://gets.ncs.gov/>; Internet; accessed on 6 April 2008.

²⁹ Initial concept development for the use of cellular technology in support of DoD disaster relief operations took place in the J6 at USNORTHCOM during March to August of 2005. Initial implementation was exercised during Hurricane Katrina relief operations from September to December of 2005. Principal action officers involved in the effort were Mr. James Rizzo, Department of the Air Force civilian, Mr. Norman Michaels, a Federally Funded Research and Development Corporation employee of MITRE Corp., and LTC Burt Biebuyck, USA. This work was completed under the direction of COL Larry Klooster, USA, and later COL James Kohlmann, USA.

³⁰ Moore, 6-7.

³¹ England, 38.