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Hurricane Katrina: A Nation Still Unprepared

A note to readers from the Chairman and the Ranking Member of the Committee

Fellow Citizens:

In the late summer of 2005, millions of us watched the satellite images of Hurricane Katrina as it moved through the Gulf of Mexico and drove menacing swells of water toward the American coastline.

We watched in sympathy as hundreds of thousands of lives were upended when the hurricane struck the coasts of Louisiana, Mississippi, and Alabama. We watched in horror as hundreds died in collapsed or flooded houses and nursing homes.

We were heartened by acts of initiative, perseverance, and heroism by local responders and the U.S. Coast Guard but, to add bewilderment and outrage to our sense of tragedy, we were horrified when the response to the Katrina catastrophe revealed – all too often, and for far too long – confusion, delay, misdirection, inactivity, poor coordination, and lack of leadership at all levels of government.

Meanwhile, thousands languished in heat and squalor on islands of concrete highway, in darkened stadiums, in nursing homes, or on rooftops, waiting for rescue, sometimes dying before help arrived.

All of this unfolded nearly four years after the terror attacks of September 11, 2001; after a massive reorganization of federal plans and organizations for disaster response and billions of dollars of expenditures; and after a closely observed hurricane struck when and where forecasters said it would.

We knew Katrina was coming. How much worse would the nightmare have been if the disaster had been unannounced – an earthquake in San Francisco, a burst levee near St. Louis or Sacramento, a biological weapon smuggled into Boston Harbor, or a chemical-weapon terror attack in Chicago?

Hurricane Katrina found us – still – a nation unprepared for catastrophe.

The United States Senate Committee on Homeland Security and Governmental Affairs has prepared this bipartisan report to acknowledge what was done well, to identify what was done poorly or not at all, and to recommend changes in our national system for emergency response that will put local, state, federal, and private responders in a better position to provide prompt and effective relief when disaster strikes again. The Committee conducted a long and thorough investigation of these issues, and is grateful for the work of its staff of investigators, writers, researchers, and other professionals that made this report possible.

We hope you find it informative and, above all, useful.

(s) Susan M. Collins
Chairman

(s) Joseph I. Lieberman
Ranking Member

HURRICANE KATRINA:

A NATION STILL UNPREPARED

EXECUTIVE SUMMARY

REPORT OF THE SENATE COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS

MAY 2006

EXECUTIVE SUMMARY

Hurricane Katrina was an extraordinary act of nature that spawned a human tragedy. It was the most destructive natural disaster in American history, laying waste to 90,000 square miles of land, an area the size of the United Kingdom. In Mississippi, the storm surge obliterated coastal communities and left thousands destitute. New Orleans was overwhelmed by flooding. All told, more than 1,500 people died. Along the Gulf Coast, tens of thousands suffered without basic essentials for almost a week.

But the suffering that continued in the days and weeks after the storm passed did not happen in a vacuum; instead, it continued longer than it should have because of – and was in some cases exacerbated by – the failure of government at all levels to plan, prepare for and respond aggressively to the storm. These failures were not just conspicuous; they were pervasive. Among the many factors that contributed to these failures, the Committee found that there were four overarching ones: (1) long-term warnings went unheeded and government officials neglected their duties to prepare for a forewarned catastrophe; (2) government officials took insufficient actions or made poor decisions in the days immediately before and after landfall; (3) systems on which officials relied on to support their response efforts failed; and (4) government officials at all levels failed to provide effective leadership. These individual failures, moreover, occurred against a backdrop of failure, over time, to develop the capacity for a coordinated, national response to a truly catastrophic event, whether caused by nature or man-made.

The results were tragic loss of life and human suffering on a massive scale, and an undermining of confidence in our governments' ability to plan, prepare for, and respond to national catastrophes.

Effective response to mass emergencies is a critical role of every level of government. It is a role that requires an unusual level of planning, coordination and dispatch among governments' diverse units. Following the terrorist attacks of 9/11, this country went through one of the most sweeping reorganizations of federal government in history. While driven primarily by concerns of terrorism, the reorganization was designed to strengthen our nation's ability to address the consequences of both natural and man-made disasters. In its first major test, this reorganized system failed. Katrina revealed that much remains to be done.

The Committee began this investigation of the preparations for and response to Hurricane Katrina within two weeks of the hurricane's landfall on the Gulf Coast. The tragic loss of life and human suffering in Katrina's wake would have been sufficient in themselves to compel the Committee's attention. But the conspicuous failures in governments' emergency preparedness and response added a sense of urgency to the investigation – not only because our heightened national awareness of the dangers of both terrorist acts and natural disasters, but because so much effort had been directed towards improvement.

The Committee's investigation has been bipartisan, and has examined in detail the actions of officials of local, state and federal government departments and agencies. Though suffering was pervasive across the Gulf Coast, the Committee focused most of its efforts on the response in New Orleans, where massive flooding presented extraordinary challenges to responders and victims alike. In addition, the investigation centered largely on the initial response to the hurricane in the critical week or so after the storm hit. We have conducted formal interviews of more than 325 witnesses, reviewed over 838,000 pages of documentation, and conducted 22 public hearings with 85 witnesses in the course of our information gathering efforts.

Most of the hearings focused on what went wrong in Katrina.

Two of the hearings, however, examined the successes: the effective and heroic search and rescue efforts by the U.S. Coast Guard; and the outstanding performance of certain members of the private sector in restoring essential services to the devastated communities and providing relief to the victims.

These successes shared some important traits. The Coast Guard and certain private sector businesses both conducted extensive planning and training for disasters, and they put that preparation into use when disaster struck. Both moved material assets and personnel out of harm's way as the storm approached, but kept them close enough to the front lines for quick response after it passed. Perhaps most important, both had empowered front-line leaders who were able to make decisions when they needed to be made.

The Roles of the Different Levels of Government in Disaster Response

Assessing the government's response to Katrina requires at the outset an understanding of the roles of government entities and their leaders and the framework within which they operate. Every level of government, and many components within each level, play important roles. At every level of government, the chief executive has the ultimate responsibility to manage an emergency response.

It has long been standard practice that emergency response begins at the lowest possible jurisdictional level – typically the local government, with state government becoming involved at the local government's request when the resources of local government are (or are expected to be) overwhelmed. Similarly, while the federal government provides ongoing financial support to state and local governments for emergency preparedness, ordinarily it becomes involved in responding to a disaster at a state's request when resources of state and local governments are (or are expected to be) overwhelmed. Louisiana's Emergency Operations Plan explicitly lays out this hierarchy of response.

During a catastrophe, which by definition almost immediately exceeds state and local resources and significantly disrupts governmental operations and emergency services, the role of the federal government is particularly vital, and it would reasonably be expected to play a more substantial role in response than in an "ordinary" disaster.

Long-Term and Short-Term Warnings Went Unheeded

The Committee has worked to identify and understand the sources of government's inadequate response and recovery efforts. And while this report does not purport to have identified every such source, it is clear that there was no lack of information about the devasting potential of Katrina, or the uncertain strength of the levees and floodwalls protecting New Orleans, or the likely needs of survivors. Nonetheless, top officials at every level of government – despite strongly worded advisories from the National Hurricane Center (NHC) and personal warnings from NHC Director Max Mayfield – did not appear to truly grasp the magnitude of the storm's potential for destruction before it made landfall.

The potentially devastating threat of a catastrophic hurricane to the Gulf Coast has been known for 40 years: New Orleans experienced flooding in some areas of remarkably similar proportions from Hurricane Betsy in 1965, and Hurricane Camille devastated the Gulf Coast in 1969. More recently, numerous experts and governmental officials had been anticipating an increase in violent hurricanes, and New Orleans' special and growing vulnerability to catastrophic flooding due to changing geological and other conditions was widely described in both technical and popular media.

Hurricane Georges hit the Gulf Coast in 1998, spurring the state of Louisiana to ask Federal Emergency Management Agency (FEMA) for assistance with catastrophic hurricane planning. Little was accomplished for the next six years. Between 2000 and 2003, state authorities, an emergency-preparedness contractor, and FEMA's own regional staff repeatedly advised FEMA headquarters in Washington that planning for evacuation and shelter for the "New Orleans scenario" was incomplete and inadequate, but FEMA failed to approach other federal agencies for help with transportation and shelter or to ensure that the city and state had the matters in hand.

Then, in 2004, after a White House aide received a briefing on the catastrophic consequences of a Category 3 hurricane hitting New Orleans, the federal government sponsored a planning exercise, with participation from federal, state, and local officials, based on a scenario whose characteristics foreshadowed most of Katrina's impacts. While this hypothetical "Hurricane Pam" exercise resulted in draft plans beginning in early 2005, they were incomplete when Katrina hit. Nonetheless, some officials took the initiative to use concepts developed in the drafts, with mixed success in the critical aspects of the Katrina response. However, many of its admonitory lessons were either ignored or inadequately applied.

During the Hurricane Pam exercise, officials determined that massive flooding from a catastrophic storm in New Orleans could threaten the lives of 60,000 people and trap hundreds of thousands more, while incapacitating local resources for weeks to months. The Pam exercise gave all levels of government a reminder that the "New Orleans scenario" required more forethought, preparation, and investment than a "typical" storm. Also, it reinforced the importance of coordination both within and among federal, state, and local governments for an effective response.

The specific danger that Katrina posed to the Gulf Coast became clear on the afternoon of Friday, August 26, when forecasters at NHC and the National Weather Service (NWS) saw that the storm was turning west. First in phone calls to Louisiana emergency management officials and then in their 5 p.m. ET Katrina forecast and accompanying briefings, they alerted both Louisiana and Mississippi that the track of the storm was now expected to shift significantly to the west of its original track to the Florida panhandle. NHC warned that Katrina could be a Category 4 or even a 5 by landfall. By the next morning, NWS officials directly confirmed to the Governor of Louisiana and other state and local officials that New Orleans was squarely at risk.

Over the weekend, there was a drumbeat of warnings: FEMA held video-teleconferences on both days, where the danger of Katrina and the particular risks to New Orleans were discussed; NHC's Max Mayfield called the governors of the affected states, something he had only done once before in his 33 year career; President Bush took the unusual step of declaring in advance an emergency for the states in the impact zone; numerous media reports noted that New Orleans was a "bowl" and could be left submerged by the storm; the Department of Homeland Security's Simulation and Analysis group generated a report stating that the levees protecting New Orleans were at risk of breaching and overtopping; internal FEMA slides stated that the projected impacts of Katrina could be worse than those in the Hurricane Pam exercise. The warnings were as widespread as they were dire.

Preparation Proved Insufficient

Katrina was not a "typical" hurricane as it approached landfall; it was much larger, more powerful, and was capable of producing catastrophic damage.

In some respects, officials did prepare for Katrina with the understanding that it could be a catastrophe. Some coastal towns in Mississippi went to extraordinary lengths to get citizens to evacuate, including sending people door-to-door to convince and cajole people to move out of harm's way. The State of Louisiana activated more than twice the number of National Guard troops called to duty in any prior hurricane, and achieved the largest evacuation of a threatened population ever to occur. The City of New Orleans issued its first ever mandatory evacuation order. The Coast Guard readied its personnel, pre-positioned its equipment, and stood by to begin search and rescue operations as quickly as humanly possible. Departing from usual practice, the governors of the three affected states requested, and President Bush issued, emergency declarations before the storm made landfall.

But however vigorous these preparations, ineffective leadership, poor advance planning and an unwillingness to devote sufficient resources to emergency management over the long term doomed them to fail when Katrina struck. Despite the understanding of the Gulf Coast's particular vulnerability to hurricane devastation, officials braced for Katrina with full awareness of critical deficiencies in their plans and gaping holes in their

resources. While Katrina's destructive force could not be denied, state and local officials did not marshal enough of the resources at their disposal.

In addition, years of short-changing federal, state, and local emergency functions left them incapable of fully carrying out their missions to protect the public and care for victims. For example, the lack of survivable, interoperable communications, which Governor Haley Barbour said was the most critical problem in his state, occurred because of an accumulation of decisions by federal, state, and local officials that left this long standing problem unsolved.

The Committee believes that leadership failures needlessly compounded these losses. Mayor Ray Nagin and Governor Kathleen Blanco – who knew the limitations of their resources to address a catastrophe – did not specify those needs adequately to the federal government before landfall. For example, while Governor Blanco stated in a letter to President Bush two days before landfall that she anticipated the resources of the state would be overwhelmed, she made no specific request for assistance in evacuating the known tens of thousands of people without means of transportation, and a senior state official identified no unmet needs in response to a federal offer of assistance the following day. The state's transportation secretary also ignored his responsibilities under the state's emergency operations plan, leaving no arm of the state government prepared to obtain and deliver additional transportation to those in New Orleans who lacked it, when Katrina struck. In view of the long-standing role of requests as a trigger for action by higher levels of government, the state bears responsibility for not signaling its needs to the federal government more clearly.

Compounded by leadership failures of its own, the federal government bears responsibility for not preparing effectively for its role in the post storm response.

FEMA was unprepared for a catastrophic event of the scale of Katrina. Well before Katrina, FEMA's relationships with state and local officials, once a strength, had been eroded in part because certain preparedness grant programs were transferred elsewhere in the Department of Homeland Security (DHS), not as important to state and local preparedness activities, FEMA's effectiveness was diminished. In addition, at no time in its history, including in the years before it became part of DHS, had FEMA developed – nor had it been designed to develop – response capabilities sufficient for a catastrophe nor had it developed the capacity to mobilize sufficient resources from other federal agencies, and the private and nonprofit sectors.

Moreover, FEMA's former Director, Michael Brown, lacked the leadership skills that were needed. Before landfall, Brown did not direct the adequate pre-positioning of critical personnel and equipment, and willfully failed to communicate with DHS Secretary, Michael Chertoff, to whom he was supposed to report. Earlier in the hurricane season, FEMA had pre-positioned an unprecedented amount of relief supplies in the region. But the supplies were not enough. Similarly, while both FEMA and the Department of Health and Human Services (HHS) made efforts to activate the federal emergency health capabilities of the National Disaster Medical System (NDMS) and the

U.S. Public Health Service (PHS), only a limited number of federal medical teams were actually in position prior to landfall to deploy into the affected area. Only one such team was in a position to provide immediate medical care in the aftermath of the storm.

More broadly, DHS – as the Department charged with preparing for and responding to domestic incidents, whether terrorist attacks or natural disasters – failed to effectively lead the federal response to Hurricane Katrina. DHS leadership failed to bring a sense of urgency to the federal government's preparation for Hurricane Katrina, and Secretary Chertoff himself should have been more engaged in preparations over the weekend before landfall. Secretary Chertoff made only top-level inquiries into the state of preparations, and accepted uncritically the reassurances he received. He did not appear to reach out to the other Cabinet Secretaries to make sure that they were readying their departments to provide whatever assistance DHS – and the people of the Gulf Coast – might need.

Similarly, had he invoked the Catastrophic Incident Annex (CIA) of the National Response Plan (NRP), Secretary Chertoff could have helped remove uncertainty about the federal government's need and authority to take initiative before landfall and signaled that all federal government agencies were expected to think – and act – proactively in preparing for and responding to Katrina. The Secretary's activation of the NRP CIA could have increased the urgency of the federal response and led the federal government to respond more proactively rather than waiting for formal requests from overwhelmed state and local officials. Understanding that delay may preclude meaningful assistance and that state and local resources could be quickly overwhelmed and incapacitated, the NRP CIA directs federal agencies to pre-position resources without awaiting requests from the state and local governments. Even then, the NRP CIA holds these resources at mobilization sites until requested by state and local officials, except in certain prescribed circumstances.

The military also had a role to play, and ultimately, the National Guard and active duty military troops and assets deployed during Katrina constituted the largest domestic deployment of military forces since the Civil War. And while the Department of Defense (DOD) took additional steps to prepare for Katrina beyond those it had taken for prior civil support missions, its preparations were not sufficient for a storm of Katrina's magnitude. Individual commanders took actions that later helped improve the response, but these actions were not coordinated by the Department. The Department's preparations were consistent with how DOD interpreted its role under the NRP, which was to provide support in response to requests for assistance from FEMA. However, additional preparations in advance of specific requests for support could have enabled a more rapid response.

In addition, the White House shares responsibility for the inadequate pre-landfall preparations. To be sure, President Bush, at the request of Brown, did take the initiative to personally call Governor Blanco to urge a mandatory evacuation. As noted earlier, he also took the unusual step of declaring an emergency in the Gulf States prior to Katrina making landfall. On the other hand, the President did not leave his Texas ranch to return

to Washington until two days after landfall, and only then convened his Cabinet as well as a White House task force to oversee federal response efforts.

Response at all Levels of Government was Unacceptable

The effect of the long-term failures at every level of government to plan and prepare adequately for a catastrophic hurricane in the Gulf of Mexico was evident in the inadequate preparations before Katrina's landfall and then again in the initial response to the storm.

Search and Rescue

Flooding in New Orleans drove thousands of survivors to attics and rooftops to await rescue. Some people were trapped in attics and nursing homes and drowned as the dirty waters rose around them. Others escaped only by chopping their way through roofs. Infrastructure damage complicated the organization and conduct of search-and-rescue missions in New Orleans and elsewhere. Destruction of communications towers and equipment in particular limited the ability of crews to communicate with one another, undermining coordination and efficiency. Rescuers also had to contend with weapons fire, debris, and polluted water. The skill and dedication of Louisiana Department of Wildlife and Fisheries (W&F) officials and others working in these adverse conditions stand out as a singular success story of the hurricane response.

Applying a model developed in the Hurricane Pam exercise, rescue teams in Louisiana brought hurricane victims to high ground, where they were supposed to receive food, water, medical attention, and transport to shelters. Here, too, there were problems. Poor communications delayed state and federal officials learning about where rescuees had been dropped, in turn slowing shipments of food and water to those areas. The City of New Orleans was unprepared to help people evacuate, as many buses from the city's own fleet were submerged, while at the same time officials had not arranged in advance for drivers for those buses that were available.

The storm also laid waste to much of the city's police, whose headquarters and several district offices, along with hundreds of vehicles, rounds of ammunition, and uniforms were all destroyed within the first two days of landfall.

Planning for search and rescue was also insufficient. FEMA, for instance, failed to provide boats for its search and rescue teams even though flooding had been confirmed by Tuesday. Moreover, interagency coordination was inadequate at both the state and federal levels. While the Louisiana W&F and FEMA are responsible for interagency search and rescue coordination at the state and federal levels respectively, neither developed adequate plans for this mission. Staggeringly, the City of New Orleans Fire Department (NOFD) owned no boats, and the New Orleans Police Department (NOPD) owned five. Meanwhile, widespread communications failures in Louisiana and Mississippi were so bad that many officers reverted to either physically running messages

from one person to another, or passing messages along a daisy chain of officers using radios with limited range.

Situational Awareness

While authorities recognized the need to begin search-and-rescue missions even before the hurricane winds fully subsided, other aspects of the response were hindered by a failure to quickly recognize the dimensions of the disaster. These problems were particularly acute at the federal level. The Homeland Security Operations Center (HSOC) – charged with providing reliable information to decision makers including the Secretary and the President – failed to create a system to identify and acquire all available, relevant information, and as a result situational awareness was deeply flawed. With local and state resources immediately overwhelmed, rapid federal mobilization of resources was critical. Yet reliable information on such vital developments as the levee failures, the extent of flooding, and the presence of thousands of people in need of life-sustaining assistance at the New Orleans Convention Center did not reach the White House, Secretary Chertoff, or other key officials for hours, and in some cases more than a day. Brown, then in Louisiana, contributed to the problem by refusing to communicate with Secretary Chertoff opting instead to pass information directly to White House staff. Moreover, even though senior DHS officials did receive on the day of landfall numerous reports that should have led to an understanding of the increasingly dire situation in New Orleans, many indicated they were not aware of the crisis until sometime Tuesday morning.

DHS was slow to recognize the scope of the disaster or that FEMA had become overwhelmed. On the day after landfall, DHS officials were still struggling to determine the "ground truth" about the extent of the flooding despite the many reports it had received about the catastrophe; key officials did not grasp the need to act on the less-than-complete information that is to be expected in a disaster. DHS leaders did not become fully engaged in recovery efforts until Thursday, when in Deputy Secretary Michael Jackson's words, they "tried to kick it up a notch"; after that, they did provide significant leadership within DHS (and FEMA) as well as coordination across the federal government. But this effort should have begun sooner.

DOD also was slow to acquire information regarding the extent of the storm's devastation. DOD officials relied primarily on media reports for their information. Many senior DOD officials did not learn that the levees had breached until Tuesday; some did not learn until Wednesday. As DOD waited for DHS to provide information about the scope of the damage, it also waited for the lead federal agency, FEMA, to identify the support needed from DOD. The lack of situational awareness during this phase appears to have been a major reason for DOD's belated adoption of the forward-looking posture necessary in a catastrophic incident.

Post-Storm Evacuation

Overwhelmed by Katrina, the city and state turned to FEMA for help. On Monday, Governor Blanco asked Brown for buses, and Brown assured the state the same day that

500 buses were en route to assist in the evacuation of New Orleans and would arrive within hours. In spite of Brown's assurances and the state's continued requests over the course of the next two days, FEMA did not direct the U.S. Department of Transportation to send buses until very early on Wednesday, two days after landfall, and the buses did not begin to arrive at all until Wednesday evening and not in significant numbers until Thursday. Concerned over FEMA's delay in providing buses – and handicapped by the Louisiana Department of Transportation and Development's utter failure to make any preparation to carry out its lead role for evacuation under the state's emergency plan – Governor Blanco directed members of her office to begin locating buses on Tuesday and approved an effort to commandeer school buses for evacuation on Wednesday. But these efforts were too little, too late. Tens of thousands of people were forced to wait in unspeakably horrible conditions until as late as Saturday to be evacuated.

Logistics and Military Support

Problems with obtaining, communicating and managing information plagued many other aspects of the response as well. FEMA lacked the tools to track the status of shipments, interfering with the management of supplying food, water, ice and other vital commodities to those in need across the Gulf Coast. So too did the incompatibility of the electronic systems used by federal and state authorities to manage requests for assistance, which made it necessary to transfer requests from the state system to the federal system manually.

Supplies of commodities were especially problematic. Federal shipments to Mississippi did not reach adequate levels until 10 days after landfall. The reasons for this are unclear, but FEMA's inadequate "surge capacity" – the ability to quickly ramp up the volume of shipments – is a likely cause. In both Mississippi and Louisiana, there were additional problems in getting the supplies the "last mile" to individuals in need. Both states planned to make supplies available for pickup at designated distribution points, but neither anticipated the problems people would face in reaching those points, due to impassable roads or other issues. And in Louisiana, the National Guard was not equipped to assume this task. One of Louisiana's greatest shortages was portable toilets, which were requested for the Superdome but never arrived there, as more than 20,000 people were forced to reside inside the Superdome without working plumbing for nearly a week.

For their part, Louisiana and Mississippi relied heavily on support from other states to supplement their own emergency resources. Both states were parties to an interstate agreement known as the Emergency Management Assistance Compact (EMAC), which provides a system for sharing National Guard troops and other resources in natural disasters. As in many other areas of Katrina response, however, the magnitude of the demands strained the EMAC process and revealed limitations in the system. Paperwork burdens proved overwhelming. Louisiana experienced difficulties processing the volume of incoming resources. On Wednesday, August 31, the federal National Guard Bureau, which ordinarily serves a coordinating function within DOD, relieved Louisiana and Mississippi of many of the bureaucratic responsibilities by making direct requests for available troops to state adjutants general.

This process quickly resulted in the largest National Guard deployment in U.S. history, with 50,000 troops and supporting equipment arriving from 49 states and four territories within two weeks. These forces participated in every aspect of emergency response, from medical care to law enforcement and debris removal, and were considered invaluable by Louisiana and Mississippi officials.

Although this process successfully deployed a large number of National Guard troops, it did not proceed efficiently, or according to any pre-existing plan or process. There is, in fact, no established process for the large-scale, nation-wide deployment of National Guard troops for civil support. In addition, the deployments of National Guard troops were not coordinated with the federal Northern Command, which was overseeing the large-scale deployments and operations of the active-duty military.

While the NRP has specific procedures for active-duty involvement in natural disasters, their deployment raised unforeseen issues and was initially a source of frustration to Governor Blanco. The governor directed her adjutant general to secure additional troops on the day after landfall, but federal and state officials did not coordinate her requests well, and ground troops didn't arrive in significant numbers for several days. DOD chose to rely primarily on the deployment of National Guard troops (versus federal active duty troops) pursuant to its declared strategy and because it believed they were best suited to the required tasks, including performing law enforcement. In addition, the need to resolve command issues between National Guard and active duty forces – an issue taken up (but not resolved) in a face-to-face meeting between President Bush and the governor on Air Force One on the Friday after landfall, may have played a role in the timing of active duty troop deployments. The issue became moot as the two forces stayed under their separate commands, an arrangement that turned out to work well in this case thanks to the cooperation of the respective commanders.

While the large numbers of active-duty troops did not arrive until the end of the first week following landfall, National Guard troops did, and DOD contributed in other important ways during that period. Early in the week, DOD ordered its military commanders to push available assets to the Gulf Coast. They also streamlined their ordinarily bureaucratic processes for handling FEMA requests for assistance and emphasized movement based on vocal commands with the paperwork to follow, though some FEMA officials believe that DOD's approval process continued to take too long. They provided significant support to search-and-rescue missions, evacuee airlifts, logistics management of buses arriving in the state for evacuation, and other matters.

Toward the end of the week, with its own resources stretched thin, FEMA turned to DOD to take over logistics for all commodity movements. DOD acceded to the request, and provided some logistics assistance to FEMA. However, it did not undertake the complete logistical take-over initially requested by FEMA because that was not needed.

By Tuesday afternoon, the New Orleans Superdome had become overcrowded, leading officials to turn additional refugees away. Mayor Nagin then decided to open the Morial

Convention Center as a second refuge of last resort inside the city, but did not supply it with food or water. Moreover, he communicated his decision to open the Convention Center to state and federal officials poorly, if at all. That failure, in addition to the delay of shipments due to security concerns and DHS's own independent lack of awareness of the situation, contributed to the paucity of food, water, security, or medical care at the Convention Center, as a population of approximately 19,000 gathered there. Those vital commodities and services did not arrive until Friday, when the Louisiana National Guard, assisted by National Guard units from five other states, brought in relief supplies provided by FEMA, established law and order, and then evacuated the Convention Center on Saturday within eight hours.

Law Enforcement

Law enforcement outside the Superdome and the Convention Center was a problem, and was fueled by several contributing factors, including erroneous statements by top city officials inflaming the public's perception of the lawlessness in New Orleans.

Without effective law enforcement, real or imagined safety threats interrupted virtually every aspect of the response. Fearing for their personal safety, medical and search and rescue teams withdrew from their missions. FEMA and commercial vendors of critical supplies often refused to make deliveries until military escorts could be arranged. In fact, there was some lawlessness, yet for every actual act there were rumors of dozens more, leading to widespread and inaccurate reporting that severely complicated a desperate situation. Unfortunately, local, state, and federal officials did little to stanch this rumor flow. Police presence on the streets was inadequate, in part because in a matter of hours Katrina turned the NOPD from protectors of the public to victims of the storm. Nonetheless, most New Orleans police officers appear to have reported for duty, many setting aside fears about the safety of their families or the status of their homes.

Even so, the ability of the officers who remained to perform their duties was significantly hampered by the lack of basic supplies. While supplies such as weapons and ammunition were lost to flooding, the NOPD leadership did not provide its officers with basic necessities such as food; nor did the Department have logistics in place to handle supplies. Members of the NOPD also identified the lack of a unified command for this incident as a major problem; eight members of the Command Staff were extremely critical of the lack of leadership from the City's Office of Emergency Preparedness (OEP). The Department's rank and file were unfamiliar with both the department's and the city's emergency-operations manuals and other hurricane emergency procedures. Deficiencies in the NOPD's manual, lack of training on this manual, lack of familiarity with it, or a combination of the three resulted in inadequate protection of department resources.

Federal law-enforcement assistance was too slow in coming, in large part because the two federal Departments charged under the NRP with providing such assistance – DHS and the Department of Justice (DOJ) – had done almost no pre-storm planning. In fact, they failed to determine even well into the post-landfall period which of the two departments

would assume the lead for federal law enforcement under the NRP. As a result, later in the week, as federal law-enforcement officers did arrive, some were distracted by a pointless "turf war" between DHS and DOJ over which agency was in the lead. In the end, federal assistance was crucial, but should have arrived much sooner.

Health Care

Safety concerns were only one of numerous challenges faced by health-care providers. There were numerous other challenges, including the following.

- Medical teams had to triage more than 70,000 rescuees and evacuees and provide acute care to the sick and wounded. While officials used plans developed in Hurricane Pam as a helpful framework for managing this process, existing emergency-room facilities were overwhelmed by the volume of patients. Local and state officials quickly set up temporary field hospitals at a sports arena and a K-Mart in Baton Rouge to supplement hospital capacity.

- New Orleans had a large population of "special needs patients," individuals living at home who required ongoing medical assistance. Before Katrina struck, the City Health Department activated a plan to establish a care facility for this population within the Superdome and provided transportation to evacuate several hundred patients and their caregivers to Baton Rouge. While Superdome facilities proved useful in treating special needs patients who remained behind, they had to contend with shortages of supplies, physical damage to the facility necessitating a post-landfall relocation of patients and equipment to an area adjacent to the Superdome, and a population of more than 20,000 people using the Superdome as a refuge of last resort. Also, FEMA's Disaster Medical Assistance Teams (DMATs) which provide the invaluable resources of pharmacies and hospital equipment, arrived at the Superdome on the night following landfall, but left temporarily on Thursday, before the evacuation of the Superdome's special needs population was completed, because of security concerns.

- In Louisiana, hospitals had to evacuate after landfall on short notice principally due to loss of electrical power. While hospitals had evacuated some of their patients before landfall, they had retained others thought to be too frail for transport, and believed by staying open they would be available to serve hurricane victims. Their strategy became untenable after landfall when power was lost, and their backup generators were rendered inoperable by flooding and fuel shortages. The Louisiana Department of Health and Hospitals (DHH) stepped in to arrange for their evacuation; while successful, it had to compete with search and rescue teams for helicopters and other needed resources.

- Many nursing homes in and around New Orleans lacked adequate evacuation plans. While they were required to have plans on file with local government, there was no process to ensure that there were sufficient resources to evacuate all the nursing homes at once, and dozens of patients who were not evacuated died.

When evacuation became necessary, some sent their patients to the Superdome, where officials struggling to handle the volume of patients already there were obliged to accept still more.

Long Terms Factors Contributed to the Poor Response

Actions taken – and failures to act – well before Katrina struck compounded the problems resulting from the ineffective leadership that characterized the immediate preparations for the hurricane and the post-landfall response. A common theme of these earlier actions is underfunding emergency preparedness. While the Committee did not examine the conflicting political or budget priorities that may have played a role, in many cases the shortsightedness associated with the underfunding is glaring. Among notable examples are the following:

- The Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP), the state counterpart to FEMA, suffered chronic staffing problems and employee turnover due to underfunding. LOHSEP's Planning Chief also testified that lack of resources prevented the agency from meeting its schedule for periodic review and updates of state emergency plans.

- The Office of Emergency Preparedness for New Orleans, long known to be among the nation's cities most vulnerable to a catastrophic hurricane, had a staff of only three. Its police and fire departments, responsible for search and rescue activities, had five and no boats, respectively. In 2004, the city turned down a request by the NOFD to fund the purchase of six additional boats.

- The Hurricane Pam exercise faced repeated delays due to funding constraints. It took nearly five years for the federal government to approve the state's initial funding request, and the limited funding finally granted necessitated last-minute cutbacks in the scope of the exercise. Follow-up workshops were delayed by funding shortfalls – some as small as the $15,000 needed for participants' travel expenses – shortfalls that either the state or federal government should have remedied.

- Numerous witnesses testified that FEMA's budget was far short of what was needed to accomplish its mission, and that this contributed to FEMA's failure to be prepared for a catastrophe. FEMA witnesses also universally pointed out that the agency has suffered for the last few years from a vacancy rate of 15 to 20 percent (*i.e.*, between 375 to 500 vacant positions in a 2,500-person agency), including several at key supervisory levels. FEMA sought additional funding but did not receive it. The Committee found that FEMA's budget shortages hindered its preparedness.

The Committee also found inadequate training in the details of the recently promulgated NRP was a contributing factor in shortcomings in the government's performance.

Louisiana Emergency Management Officials and National Guardsmen were receiving basic NRP and Incident Command System (ICS) training two days after the storm hit. Certain FEMA officials, also, were inadequately trained on the NRP and ICS. Only one large-scale federal exercise of the NRP took place before Katrina, the DHS's Top Officials 3 (TOPOFF 3) exercise in April 2005, approximately three months after the NRP was issued. TOPOFF 3, sponsored by DHS, involved responders from all levels of government. A November 2005 report by the DHS Inspector General, echoing the findings of an earlier report by DHS itself in May 2005, found that the exercise, which involved federal, state and local responders, "highlighted – at all levels of government – a fundamental lack of understanding for the principles and protocols set forth in the NRP and [National Incident Management System]." The lack of familiarity with emergency-management principles and plans hampered the Katrina response.

The Committee also identified significant planning failures that predated Katrina. One of the most remarkable stories from this investigation is the history of planning for the 100,000 people in New Orleans believed to lack the means to evacuate themselves. Dating back to at least 1994, local and state officials have known about the need to address this problem. For its part, the federal government, which knew about this problem for some time, neither monitored their planning nor offered assistance. This evacuation problem was not included in the Hurricane Pam exercise and, during follow up meetings in the summer of 2005, New Orleans officials informed counterparts from FEMA, other federal agencies, and the state preparedness agency that the city was not able to provide for the necessary pre-storm evacuation, but nothing was done to resolve the issue.

- The City of New Orleans, with primary responsibility for evacuation of its citizens, had language in its plan stating the city's intent to assist those who needed transportation for pre-storm evacuation, but had no actual plan provisions to implement that intent. In late 2004 and 2005, city officials negotiated contracts with Amtrak, riverboat owners and others to pre-arrange transportation alternatives, but received inadequate support from the City's Director of Homeland Security and Emergency Preparedness, and contracts were not in place when Katrina struck. As Katrina approached, notwithstanding the city's evacuation plans on paper, the best solution New Orleans had for people without transportation was a private-citizen volunteer carpool initiative called Operation Brothers' Keepers and transit buses taking people – not out of the city, but to the Superdome. While the Superdome provided shelter from the devastating winds and water, conditions there deteriorated quickly. Katrina's "near miss" ripped the covering off the roof, caused leaking, and knocked out the power, rendering the plumbing, air conditioning, and public announcement system totally useless.

- The Louisiana Department of Transportation and Development, whose Secretary had personally accepted departmental responsibility under the state's emergency operations plan to arrange for transportation for

evacuation in emergencies, had done nothing to prepare for that responsibility prior to Katrina. While the Secretary attempted to defend his inaction in a personal appearance before the Committee, the Committee found his explanations rang hollow, and his account of uncommunicated doubts and objections to state policy disturbing. Had his Department identified available buses or other means of transport for evacuation within the state in the months before the hurricane, at a minimum the state would have been prepared to evacuate people stranded in New Orleans after landfall more quickly than it did.

- FEMA and the U.S. Department of Transportation (DOT), charged under the National Response Plan with supporting state and local government transportation needs (including evacuation) in emergencies, did little to plan for the possibility that they would be called on to assist with post-landfall evacuation needs, despite being on notice for over a month before Katrina hit that the state and local governments needed more buses and drivers – and being on notice for years that tens of thousands of people would have no means to evacuate.

- Though much attention had been paid to addressing communications shortfalls, efforts to address interoperability – as well as simply operability – were inadequate. There was little advance preparation regarding how responders would operate in an area with no power and where virtually all forms of pre-existing communications were destroyed. And while satellite phones were available to some, they either did not function properly or officials were not trained on how to use these relatively complex devices. Moreover, the National Communications System, the agency within DHS that is primarily responsible under the NRP for providing communications support to first responders during disasters, had no plans to do so.

These planning failures would have been of far less consequence had the system of levees built to protect New Orleans from flooding stayed intact, as they had in most prior hurricanes. But they did not, and the resulting inundation was catastrophic. The levee failures themselves turned out to have roots long pre-dating Katrina as well. While several engineering analyses continue, the Committee found deeply disturbing evidence of flaws in the design and construction of the levees. For instance, two major drainage canals – the 17th Street and London Avenue Canals – failed at their foundations, prior to their flood walls being met with the water heights for which they were designed to protect central New Orleans. Moreover, the greater metropolitan New Orleans area was literally riddled with levee breaches caused by massive overtopping and scouring of levees that were not "armored," or properly designed, to guard against the inevitable cascading waters that were sure to accompany a storm of the magnitude of Hurricane Katrina. The Committee also discovered that the inspection and maintenance regime in place to ensure that the levees, flood walls and other structures existing to protect the residents of the greater New Orleans area was in no way commensurate with the risk posed to these persons and their property.

Equally troubling was the revelation of serious disagreement – still unresolved months after Katrina – among officials of several government entities over who had responsibility, and when, for key levee issues including emergency response and levee repair. Such conflicts prevented any meaningful emergency plans from being put in place and, at the time of Katrina, none of the relevant government agencies had a plan for responding to a levee breach. While the deadly waters continued to pour into the heart of the city after the hurricane had passed, the very government agencies that were supposed to work together to protect the city from such a catastrophe not only initially disagreed about whose responsibility it was to repair the levee breaches, but disagreed as to how the repairs should be conducted. Sadly, due to the lack of foresight and overall coordination prior to the storm, such conflicts existed as the waters of Lake Pontchartrain continued to fill central New Orleans.

Waste, Fraud, and Abuse

Besides overwhelming many government emergency-response capabilities, Katrina severely affected the government's ability to properly track and verify its costs when it contracted for disaster relief goods and services. While the Committee did not specifically include this issue in its investigation, the Committee was aware of wasteful, and sometimes fraudulent and abusive spending practices, and held two hearings on the subject.

It takes money to prepare, respond, and recover from a disaster, and typically the bigger the disaster, the more money it takes. As of March 8, 2006, the federal government had committed $88 billion to the response, recovery and rebuilding efforts. Unfortunately, not all of this money has been wisely spent. Precious taxpayer dollars have been lost due to waste, fraud, and abuse.

Among the problems that have come to the Committee's attention are FEMA's lack of financial controls, failures to ensure eligibility of individuals receiving disaster-related assistance, and poor contracting practices, including use of no bid contracts. A notable example of the resulting wastefulness was FEMA's purchase of 25,000 manufactured homes that are virtually useless because FEMA's own regulations prohibit them being installed in a flood plain. In a similar vein, FEMA's lack of controls in dealing with hotels providing temporary housing for evacuees resulted in instances where hotels charged for empty rooms; individuals held multiple rooms; hotel rooms were used as storage units for personal goods; individuals stayed at resorts; and hotels charged rates as high as $400 per night.

RECOMMENDATIONS: A NEW NATIONAL EMERGENCY MANAGEMENT SYSTEM FOR THE 21ST CENTURY

The Committee's Report sets out seven foundational recommendations together with a series of supporting "building blocks," or tactical recommendations, all designed to make

the nation's emergency preparedness and response system strong, agile, effective, and robust.

Hurricane Katrina exposed flaws in the structure of FEMA and DHS that are too substantial to mend. **Our first foundational recommendation is to abolish FEMA and replace it with a stronger, more capable structure, to be known as the National Preparedness and Response Authority (NPRA)**. To take full advantage of the substantial range of resources DHS has at its disposal, NPRA will remain within DHS. Its Director would be assured of having sufficient access and clout by having the rank of Deputy Secretary, and having a direct line of communication to the President during catastrophes. The Director would also serve as the Advisor to the President for national emergency management, in a manner akin to the Chairman of the Joint Chiefs of Staff. To ensure capable and qualified leadership, senior NPRA officials would be selected from the ranks of professionals with experience in crisis management, in addition to substantial management and leadership experience, whether in the public, private, or non-profit sector.

Our second foundational recommendation is to endow the new organization with the full range of responsibilities that are core to preparing for and responding to disasters. These include the four central functions of comprehensive emergency management – mitigation, preparedness, response and recovery – which need to be integrated. In addition, NPRA would adopt an "all-hazards plus" strategy for preparedness. In preparing our nation to respond to terrorist attacks and natural disasters, NPRA must focus on building those common capabilities – for example survivable, interoperable communications and evacuation plans – that are necessary regardless of the incident. At the same time, it must not neglect to build those unique capabilities – like mass decontamination in the case of a radiological attack or water search and rescue in the case of flooding - that will be needed for particular types of incidents. NPRA's mandate should also include overseeing protection of critical infrastructure, such as energy facilities and telecommunications systems, both to protect such infrastructure from harm and to ensure that such infrastructure is restored as quickly as possible after a natural disaster or terrorist attack.

Our third foundational recommendation is to enhance regional operations to provide better coordination between federal agencies and the states and establish regional strike teams. Regional offices should be adequately staffed, with representation from federal agencies outside DHS that are likely to be called on to respond to a significant disaster in the region. They should provide coordination and assist in planning, training, and exercising of emergency preparedness and response activities; work with states to ensure that grant funds are spent most effectively; coordinate and develop inter-state agreements; enhance coordination with NGOs and the private sector; and provide personnel and assets, in the form of Strike Teams, to be the federal government's first line of response to a disaster.

The Strike Teams would consist of, at a minimum, a designated Federal Coordinating Officer (FCO); personnel trained in incident management, public affairs, relief and

recovery, and communications support; a Defense Coordinating Officer (DCO); and liaisons to other federal agencies. These regional Strike Teams should coordinate their training and exercises with the state and local officials and the private sector entities they will support when disasters occur.

Our fourth foundational recommendation is to build a true, government-wide operations center to provide enhanced situational awareness and manage interagency coordination in a disaster. Currently, there is a multiplicity of interagency coordinating structures, with overlapping missions, that attempt to facilitate an integrated federal response. Three of these structures – the Homeland Security Operations Center (HSOC), the National Response Coordination Center (NRCC), and the Interagency Incident Management Group (IIMG) – should be consolidated into a single, integrated entity – a new National Operations Center (NOC). The NOC would include representatives of all relevant federal agencies, and should provide for one clearly defined emergency management line of communication from the states to the federal government and from the federal government to the states. It would also include a strong analytic team capable of sorting through and assessing information and determining which pieces would become part of the common operating picture.

To improve its performance in future disasters, the NOC should establish clear protocols and procedures to ensure that reports are received and reviewed, at appropriate levels, in a timely manner. When there is notice of a potential major disaster, the NOC should implement plans, including one for securing information from DOD, for obtaining post-disaster situational awareness, including identifying sources of information and data particular to the region in which the disaster may occur and, where appropriate, bringing in individuals with particular knowledge or expertise about that region.

Our fifth foundational recommendation is to renew and sustain commitments at all levels of government to the nation's emergency management system. FEMA emergency response teams have been reduced substantially in size, are inadequately equipped, and training for these teams has been all but eliminated. If the federal government is to improve its performance and be prepared to respond effectively to the next disaster, we must give NPRA – and the other federal agencies with central responsibilities under the NRP – the necessary resources to accomplish this. We must fund NPRA commensurate with the significance of its mission and ensure that those funds are well-spent. To be full partners in the national preparedness effort, states and localities will need additional resources as well.

The Administration and DHS must also ensure that federal leaders of all agencies with an emergency support role understand their key responsibilities under the NRP and the resources they need to effectively carry out the comprehensive planning required, while also training and exercising on NIMS, NRP and other operational plans. To fully integrate state and local officials into the system, there should be established an advisory council to NPRA made up of state and local officials and first responders. The advisory council should play an integral role in ensuring that the full range of activities of the new organization – including developing response plans, conducting training and exercises,

formulating preparedness goals, effectively managing grants and other resources – are done in full consultation and coordination with, and take into account the needs and priorities of, states and localities.

DHS and the NPRA should more fully integrate the private and nonprofit sectors into their planning and preparedness initiatives. Among other things, they should designate specific individuals at the national and regional levels to work directly with private sector organizations. Where appropriate, private sector representatives should also be included in planning, training and exercises.

Our sixth foundational recommendation is to strengthen the underpinning of the nation's response to disasters and catastrophes. Despite their shortcomings and imperfections, the NRP and National Incident Management System (NIMS), including the Emergency Support Function (ESF) structure currently represent the best approach available to respond to multi-agency, multi-jurisdictional emergencies. Federal, state, and local officials and other responders must commit to supporting the NRP and NIMS and working together to improve the performance of the national emergency management system. We must undertake further refinements of the NRP and NIMS, develop operational plans, and engage in training and exercises to ensure that everyone involved in disaster response understands them and is prepared to carry them out. In particular, the NRP should be strengthened to make the unity of effort concept very clear, so that everyone understands the concept and their roles in establishing unity, and there should be clarification of the importance of integrating agencies with ESF responsibilities into the ICS, rather than their operating in "stovepipes."

The roles and responsibilities of the PFO and FCO are overlapping and were a source of confusion during Hurricane Katrina. The Stafford Act should be amended to clarify the roles and responsibilities of the FCO, and the NRP should be revised to eliminate the PFO position for Stafford Act-declared emergencies and disasters. It should also be amended to ensure that the Act addresses response to all disasters and catastrophes, whether natural or man-made.

Our seventh foundational recommendation is to improve the nation's capacity to respond to catastrophic events. DHS should ensure that the Catastrophic Incident Annex (CIA) is fully understood by the federal departments and agencies with responsibilities associated with it. The Catastrophic Incident Supplement should be completed and published, and the supporting operational plans for departments and agencies with responsibilities under the CIA should be completed. These plans should be reviewed and coordinated with the states, and on a regional basis, to ensure they are understood, trained and exercised prior to an emergency.

DHS must also develop the national capabilities – especially surge capacity – it needs to respond to catastrophic disasters, ensuring it has sufficient full time staff, response teams, contracting personnel, and adequately trained and sufficiently staffed reserve corps to ramp up capabilities, as needed. These capabilities must be scalable so that NPRA can

draw on the appropriate resources from supporting ESF agencies to respond to a disaster irrespective of cause, size, or complexity.

CONCLUSION

The Committee's Report can do justice neither to the human suffering endured during and after Katrina nor to the dimensions of the response. As to the latter, we have identified many successes and many failures; no doubt there are others in both categories we have missed. The Committee shares the view expressed by President Bush shortly after Katrina that our nation can do better.

Avoiding past mistakes will not suffice. Our leadership and systems must be prepared for catastrophes we know will be unlike Katrina, whether due to natural causes or terrorism. The Committee hopes to help meet that goal through the recommendations in this Report, because almost exactly four years after 9/11, Katrina showed that the nation is still unprepared.

Chapter 18
COMMUNICATION VOIDS

The inability of government officials and first responders to communicate during a response to an emergency, results in the loss of lives during terrorist attacks, natural disasters, and every-day operations. The problems of operability and interoperability of communications were a central part of the failures in the governments' response to Hurricane Katrina. Operability refers to the basic functionality of any device (i.e., "Is it working?"). Interoperability refers to the device's ability to connect with other devices and share voice or data communications (e.g., "Can the police talk to firemen?" or "Can hospitals electronically share patient medical records with emergency health care providers?")

While there can be no interoperable communications where no communications exists at all, which was the case in Louisiana and across the Gulf Coast immediately after Katrina for many first responders, an interoperable communications system may be more resilient than "stove-piped" systems. For example, systems can be built with tower sites that have overlapping coverage so that if a single tower goes down, total coverage is not lost in a particular area.[1]

Katrina inflicted widespread destruction on communications and electrical infrastructure. With cellular towers down, land lines submerged, and no power, telephone and wireless communications were largely impossible in the areas most heavily affected by the hurricane.

Mississippi Governor Haley Barbour summed up the lack of communications by saying, "My head of the National Guard might as well have been a Civil War general for the first two or three days because he could only find out what is going on by sending somebody. He did have helicopters instead of horses, so it was a little faster, but [it was the] same sort of thing."[2] Emergency personnel from across the Gulf Coast have described how the communications breakdown complicated the coordination of federal, state, and local response. For example:

- In New Orleans, Mayor Nagin's command center at the Hyatt Regency Hotel lost all communications.[3] Before the flooding, but after landfall, Mayor Nagin had to walk across the street to City Hall in order to speak to city emergency managers.[4] One phone line in the Mayor's room in the Hyatt would sometimes connect a call out but could not receive incoming calls.[5] It was not until Thursday, September 1, three days after landfall, that the Mayor's command center began to receive e-mails. On Friday, September 2, the White House provided the Mayor with a mobile phone but he had to lean out of storm-damaged rooms at the hotel in hopes of getting a signal on it.[6]

- Larry Ingargiola, Director of the Office of Emergency Preparedness for St. Bernard Parish Louisiana, lost phone and cellular communications on Monday afternoon following landfall. Later that night, the emergency radio system went down, and he was left without any communications until August 31. Ingargiola, who went up to the roof of his building with his family when the water started to rise, received word of the levees breaching from Louisiana Wildlife and Fisheries officials who rode by in boats.[7]

- The Louisiana officials in charge of evacuating the Tulane Medical Center received oral authorization from the State Emergency Operations Center (EOC) to use buses in the possession of the National Guard to evacuate the patients. When the National Guard asked for proof of authorization, the head of the rescue team could not get through to the State EOC on his cell phone. Without the use of the buses, the rescue team resorted to evacuating the patients in the back of pick-up trucks, with wheelchairs, stretchers, and other equipment loaded into boats pulled behind the trucks.[8]

- Phil Parr, who was part of the Federal Emergency Management Agency (FEMA) Advance Emergency Response Team at the Superdome, estimated that the lack of effective communications at the Superdome reduced FEMA's effectiveness by 90 percent.[9]

- With the loss of phone and computer capabilities, the only way FEMA officials in Harrison County, Mississippi could track water, food, and other requested relief supplies was to send a police car to the distribution center at Stennis Space Center, located in Hancock County, near Louisiana, so that they could communicate using the police car's radio.[10]

- Scott Wells, the Federal Coordinating Officer at the State EOC in Baton Rouge, described being in a "black hole," unable to communicate with either New Orleans or the FEMA regional office in Denton, Texas after landfall.[11]

- Health-care providers' inability to share data complicated the task of caring for thousands of patients and others injured during the storm. Injured citizens from the Gulf Coast were being treated at many different locations, often far from their homes, sometimes in other states. The lack of an interoperable data system often prevented medical personnel from obtaining information about patients, even if their facility had suffered no hurricane damage. To complicate matters further, no continuous records were kept to identify and track patients, or the treatment they received. Often the identification-and-tracking system consisted of paper stapled to victims' bed sheets or taped to their bodies.[12] One hospital official found that the only reliable way to confirm that planeloads of new evacuee patients were en route was to check with local air-traffic controllers.[13]

Some private sector entities, however, were much more successful in dealing with communications problems. The Senate Homeland Security and Governmental Affairs Committee's private sector hearing heard testimony from companies about the communications challenges they faced, how they overcame them, and how any success they achieved after landfall depended on successful communications, including those communications between the field and the company's headquarters, within headquarters, and with state and local emergency operations centers.

In its testimony before the Committee, the Starwood hotel company discussed how it managed events on the ground in New Orleans, backed up by its corporate headquarters, which enabled the company to help approximately 2,100 guests, employees and their families weather the storm

at two hotels in safety.[14] Through effective planning and pre-positioning of phones, Starwood never lost contact with areas outside the affected region. Satellite phones were deployed to the hotels, and Starwood maintained its Internet connection, which permitted employees and guests to communicate with the outside world.[15] One of its New Orleans hotels had two IT employees onsite and battery back-ups for their computer systems, which enabled the Internet connection. Through media reports received via the Internet, managers on the ground knew what was going on around them when all other forms of communications had failed. Local responders and journalists sometimes relied on Starwood's communications capabilities since the city's communications system was largely lost.

Wal-Mart stressed the importance of "efficient" communication, and described it as "absolutely the key to success at a higher level."[16] Flowing timely, accurate information is another essential element for success. Wal-mart developed situational awareness at the local level and passed quickly to its emergency operations center, which compiled a big picture for the company. The business unit representatives in the emergency operations center made decisions on tactics and strategies based upon the "big picture" information and then moved aggressively to disseminate objectives back to company response teams and field teams for further dissemination.[17] Wal-Mart determined that the "face-to-face communication at the Emergency Operations Center level, where the decision-makers congregate, is the most efficient method of communication."[18]

Mississippi Power recognized the criticality of communications to an effective response, and especially, the ability to communicate with thousands of additional workers brought in from outside the region to help with restoration and repairs. Mississippi Power relied on its only viable form of communication – its internal system – Southern Linc Wireless.[19] This system was designed with considerable redundancy and proved reliable despite suffering catastrophic damage. Within three days, the system was functioning at nearly 100 percent. Mississippi Power told the Committee that it "also installed its own microwave capability to 12 remote staging areas in order to transmit material inventory data into our automated procurement process."[20] When communication circuits of another company were down, our information technology group would find a way to bypass those circuits and restore critical communications."[21]

The storm and flooding severely damaged both the commercial and public safety communications infrastructure.[22] This created chaos for every aspect of the governments' response – search and rescue, medical care, law enforcement, and the provision of commodities. This section addresses each type of infrastructure and then considers the local, state, and federal governments' efforts to provide emergency and interoperable communications capabilities.

Commercial Communications Infrastructure

BellSouth, the largest local phone company in the region, lost service at 33 of the central offices that route calls.[23] This was the first time that water damage had put switching centers out of service on their network.[24] Almost 3 million customers were without phone service in the days after landfall and over 20 million calls attempted on Tuesday, August 30, the day after landfall, could not be completed.[25] Of the 545 central offices that remained in service, over 180 had to

run on generators due to the loss of commercial power.[26]

Commercial wireless communications also suffered. Over 1,000 of some 7,000 cellular towers in the affected area were knocked out of service.[27] Some of the switching centers that connected to cellular towers were flooded, while others were damaged by high winds.[28] To restore cellular coverage, cellular providers brought in over 100 portable cellular towers, called cellular on wheels or cellular on light truck, to the Gulf Coast. Each portable tower provided cellular coverage over a limited area on a temporary basis.[29]

The generators supplying power to the central offices had limited fuel supply,[30] and needed to be replenished about every three days. BellSouth obtained fuel trucks to top off its generators, proceeding into New Orleans with an armed convoy.[31] Other companies had problems obtaining fuel for their generators. For example, Cox Louisiana Telecom LLC, which serves 85,000 customers, had fuel trucks that were destined for switch facilities intercepted by FEMA and turned away. FEMA also took fuel away from technicians with service trucks in the field.[32] In addition, FEMA commandeered a fuel tanker from BellSouth in order to refuel helicopters.[33]

The commercial sector also had to negotiate security concerns. At BellSouth's main central office on Poydras St. in New Orleans, which serves as a regional hub for multiple telecommunications carriers, reports of violence and looting caused the New Orleans Police Department (NOPD) and Louisiana State Police to advise employees to evacuate the building.[34] Two days after the evacuation, the FBI and the U.S. Marshal's Service provided security so that BellSouth workers could return to the Poydras St. building and bring fuel to the generators in the building, which were running low but never went out of service.[35] In an effort to obtain security for all telecommunications providers, the National Communications System (NCS), the federal government's lead agency for the response to communications problems, sought assistance from the Department of Defense (DOD), which forwarded the request to the Louisiana National Guard.[36] In the end, however, security arrangements with the Louisiana National Guard fell through.[37] Ultimately, telecommunications providers hired private security to protect their workers and supplies.[38]

Repair workers also had difficulty gaining access to their equipment and facilities in the field because police and National Guard in some cases refused to let them enter the disaster area. MCI sought a letter from Governor Blanco to access parts of New Orleans based on a requirement from the Louisiana State Police, and Verizon Wireless wanted access and security for technicians restoring cellular service in New Orleans.[39] Industry representatives said that their technicians would benefit from having uniform credentialing that is recognized by the multiple law-enforcement agencies operating in a disaster area.[40]

Damage to First Responders Communications Infrastructure

Along with the destruction of commercial lines, Katrina decimated the towers and electronic equipment that support land mobile radio systems, the primary means of communication for first responders. This made it difficult for officials at all levels of government to communicate. Indeed, officials from NOPD, the Louisiana Department of Wildlife & Fisheries, and the

Louisiana National Guard testified that their law enforcement and search-and-rescue efforts were hindered by lack of communications.[41]

Government officials at the Louisiana State EOC in Baton Rouge had trouble communicating with those in the disaster area.[42] State and local emergency operations centers were left in a "communications void," often unable to communicate with first responders or to relay requests for assistance up the chain of command.[43] Part of the problem was serious call congestion on surviving land lines.[44] BellSouth said that it tried to reroute calls around damaged infrastructure, and the State EOC eventually had more lines installed to provide additional capacity.

In New Orleans, only one tower that was at the airport remained operational: one tower was inundated by the storm surge, while two others had equipment damaged or lost power because of flood waters.[45] Many police, fire, and EMS dispatch centers, and 911 centers were rendered unusable by flood waters.[46] The ACU-1000 interoperability devices, which provide limited interoperability by patching together different radio systems and were located within the Rosedale Fire Station, had to be abandoned because of flood waters, eliminating even that limited interoperable capability.[47] Katrina's devastating impact on communications infrastructure around New Orleans forced first responders to rely on five or fewer mutual-aid channels – recognized by multiple agencies as channels to use when the coordinating electronics of the radio system fails – for voice radio communications.[48] But around 4,000 people were competing to use that constricted capacity.[49] The heavy congestion resulted in delays before communications could be established.[50]

In St. Bernard Parish, extreme winds damaged communications towers and antennas, while flood waters inundated the 911 call center and forced the evacuation of buildings housing communications for the Fire and Sheriff's Departments. All voice radio communications were lost except for very limited radio-to-radio communications.[51] Plaquemines Parish lost the parish government communications tower and communications center. The Plaquemines Sheriff lost the 911 communications and dispatch center, and all towers. It would be three weeks before Plaquemines Parish had any means of communications. The Jefferson Parish Sheriff's Office lost the main tower supporting its communications system. As a result of this destruction, antennas supporting its communications center were located on the boom of a 400 foot crane for months.[52]

The Louisiana State Police Department worked with FEMA to provide support to local departments whose communications capacity had been devastated by the storm. FEMA agreed to pay $15.9 million to Motorola to repair and augment the regional system and to purchase 600 portable radios. The contract for these repairs was signed approximately two weeks after landfall.[53]

911 Communications

Along with first responder communications, Katrina wreaked havoc on the 911 systems on which the public relies to contact first responders in the first place. During the Katrina crisis,

911 was unavailable for untold numbers of victims. At least 38 of the 911 centers in the region lost their ability to function during Katrina.[54]

When 911 systems go down, some call centers still reroute calls to other centers. However, telecommunicators on the receiving end did not have access to maps, data, and other information necessary to direct first responders to callers in need of help.[55] Also, only the voice is rerouted, while critical data (e.g., electronic information about a call's point of origin) is not rerouted. Although in many cases, due to the widespread destruction in Louisiana, even voice signals could not be rerouted. The result: when citizens dialed 911, they got a busy signal. [56]

Meanwhile, the influx of thousands of first responders into the region greatly increased the workload for 911 call center operators who were themselves victims of the storm. Some left when their families evacuated. Those remaining operated under tremendous stress.[57] A North Carolina 911 official helping the response effort in St. Tammany Parish, Louisiana, observed that no plan existed to bring additional, credentialed telecommunicators into the region, and that early Emergency Management Assistance Compact (EMAC) requests for inter-state assistance did not include 911 operators.[58]

Role of the National Communications System

Under the National Response Plan (NRP), Emergency Support Function-2 (ESF-2, Communications) ensures the provision of federal communications support to federal, state, local, tribal, and private-sector response efforts during an Incident of National Significance. The coordinator for ESF-2 activities is the National Communications System (NCS), an interagency consortium managed within the Department of Homeland Security (DHS).[59] The Deputy Manager and Director of NCS is Dr. Peter Fonash. [60]

Before Hurricane Katrina, NCS never had to repair the land mobile radio (LMR) systems that are operated by local governments and used by first responders.[61] In fact, the organization did not have an operational plan to systematically assess an incident's impact on the LMR systems and respond to local governments' communications needs for operability, or interoperability, during emergencies.[62] Fonash did not know what communications assets were even available across the federal government, nor what communications assets DHS, DOD, or other agencies may have been deploying. "Even the federal agencies themselves, DOD, for example … didn't even have the control within DOD of all the assets being deployed by DOD because different parts of DOD were deploying assets and there was no central control," he said.[63] Without knowledge of what communications assets federal agencies were bringing into the area, NCS could not effectively prioritize the use of those assets.[64]

Fonash acknowledged that NCS had inadequate information about the communication situation in the New Orleans area. According to NCS protocol, its headquarters receives such information only when its personnel on the ground have run into "problems [they] can't fix."[65] The magnitude of the damage in Louisiana proved this system to be inadequate. Fonash said that NCS staff was "so busy handling the crisis that they were probably not giving us the situational awareness that we should have been getting…. We just didn't have enough people down

there."[66] Eventually, Fonash sent additional staff to the region and placed a contact at the Louisiana state EOC.

There were several communications assets were not deployed at all, or could have been deployed sooner:

- The U.S. Forest Service maintains over 5,000 radios, the largest civilian cache of radios in the United States, but many remained unused.[67]
- FEMA Mobile Emergency Response Support (MERS) units, which include trucks with satellite capabilities, were at Barksdale Air Force Base in Shreveport, Louisiana outside the disaster area during landfall, and did not travel to the State EOC in Baton Rouge until the day after landfall.[68]
- DOD had communications assets, including radio systems, which could have been deployed sooner.[69]
- DHS's Prepositioned Equipment Program (PEP) pods that contained communications equipment did not start deploying until a week after landfall.[70]

The NCS did identify and provide satellite communications vans to the New Orleans City Hall, Louisiana State Police in Baton Rouge, Mobile Army Surgical Hospital at the New Orleans Airport, and to the National Guard in Jefferson Parish.[71] NCS also provided a cellular unit on a truck to the Louisiana state EOC.[72] In addition, NCS identified the need to provide a temporary LMR communications solution to the eight-parish area around New Orleans, working with FEMA to initiate the contract.[73] But most of these NCS assets were not provided until days after the storm struck or were only provided to select locations. Indeed, satellite vans were not en route to the Louisiana State Police in Baton Rouge until September 1, and high water kept one satellite van from reaching New Orleans City Hall until three days after landfall.[74]

It appears that some requests for the NCS to provide communications capabilities to local governments were not made until a few days after landfall. For example, Colonel Jeff Smith, Louisiana's Acting Deputy Director for Emergency Preparedness, did not submit a form requesting "communications with the affected parish EOCs" until 5 p.m. on September 1 – more than three days after landfall.[75] In fact, Dr. Fonash said that he wasn't aware that the State EOC had communications problems until the state made its request on September 1.[76] An e-mail indicates that Governor Blanco did not ask for assistance with communications until the evening of August 31, two days after landfall; in that case, the federal ESF-2 representative in Baton Rouge met with a state official the next day.[77] Under the NRP, though, the NCS could have offered assistance even before the state made an official request for help.

Mobile Emergency Response Systems

FEMA's Mobile Emergency Response Support (MERS) division maintains roughly 300 mobile vehicles, most of which provide logistics support to FEMA. MERS units are dispersed throughout the country at five MERS stations. The MERS vehicles range from small sport utility vehicles to large tractor trailers with expandable conference room space. The deployments are self-sustaining and include fuel, water, and power.[78]

The primary responsibility of MERS is to provide communications capabilities to FEMA, including the Joint Field Office (JFO), the Emergency Response Team A, and the Rapid Needs Assessment team. During a disaster, MERS units may provide some communications support to the state EOC, if requested by the state.[79] However, MERS does not view this type of assistance to first responders as within its mission.[80]

The MERS Thomasville, Georgia detachment (serving FEMA Region IV) and Denton, Texas detachment (serving FEMA Region VI) deployed the weekend before landfall.[81] Recognizing the power of the storm, over the weekend, MERS sent personnel, vehicles, and assets from its other detachments across the country as well as from the MERS National Capital Region team, to the disaster area.[82] After landfall, MERS equipment also was used to support National Disaster Medical System (NDMS) and Urban Search and Rescue efforts and, approximately one week after landfall, helped to build the office for Admiral Thad Allen's command center.[83]

Despite the level of MERS equipment deployed to the Gulf Coast, MERS was overwhelmed by the extent of communications needs and experienced difficulties in supporting FEMA personnel.

The MERS team assigned to the JFO in Baton Rouge on Saturday, August 27 was in place on Sunday, August 28, although not at the level needed to support the JFO, which eventually grew to more than 2,000 people. After landfall, MERS had to provide additional communications support, including the provision of a high-capacity T-1 cable capable of providing hundreds of phone lines.[84] FEMA employees experienced difficulties calling out of the JFO because MERS relies largely on local landlines and cellular systems that failed or experienced heavy congestion.[85] One MERS technician estimated that 8 out of every 10 calls failed, noting that FEMA employees relying on landlines, "have no higher priority than anybody else, [such as] the guy using the payphone down at the corner of the street [who is] trying to make an outgoing call and most of the facilities are dead or down or under water...."[86] MERS therefore had to bring in satellite capabilities to provide a reliable means of getting calls in and out.[87]

Before landfall, FEMA Region IV requested that MERS deploy a detachment to the state Emergency Operations Center in Jackson, Mississippi.[88] In FEMA Region IV, the MERS unit from Denton, Texas sent support to Baton Rouge pre-landfall for FEMA's Rapid Needs Assessment teams and the FEMA JFO, but otherwise staged its vehicles and equipment at Barksdale Air Force Base in Louisiana.[89] These vehicles included the so-called "Red October," a large tractor-trailer vehicle.[90]

Post-landfall, the vehicles staged at Barksdale could not move until the high winds had subsided along the coast. On Tuesday, August 30, the day after landfall, the Barksdale equipment mobilized. A communications vehicle was sent to the Louisiana State EOC.[91] Red October started out for New Orleans but had to be held in Lafayette, Louisiana on the night of the August 30 due to difficulties navigating around debris.[92] In the end, Red October did not go to New Orleans because flood levels were too high for it to reach the Superdome.[93] It eventually went to Baton Rouge, where it served as FEMA Director Michael Brown's command center.[94]

No MERS vehicles ever reached the Superdome because of flooding, and this exacerbated the problems there. Sandy Coachman, who was part of the FEMA team at the Superdome, said that at one point she could see a MERS vehicle on an overpass on I-10. She could see the driver, and they waved their phones in the air to signal each other, but that was the extent of their ability to communicate.[95] The failure of a MERS communications vehicle to reach the Superdome cut off any meaningful communications with the EOC in Baton Rouge. Coachman said her satellite phone, cell phone, and Blackberry all failed to work.[96] The only way the FEMA team could communicate was by using National Guard phones, which often could not get through to the EOC because of congestion on the system.[97] It is unclear why FEMA did not instruct MERS to deploy a smaller communications vehicle to the Superdome when the Red October experienced difficulties moving there, or why FEMA did not attempt to airlift smaller MERS equipment (satellite phones in particular) into the Superdome once New Orleans flooded.

The response to Katrina stretched MERS' resources and exposed the difficulty that MERS would encounter in responding to simultaneous catastrophes in different parts of the country. When Hurricane Rita hit, MERS Chief William Milani had to negotiate with the Federal Coordinating Officers directing the federal response in the Katrina region to get MERS assets released from Katrina devastated areas to be used in the wake of Rita's destruction, and he also had to contract out for additional assets. Given that the response to Katrina essentially stripped bare all five of MERS' detachments, Chief Milani was uncertain how MERS could have responded if another major disaster occurred during the response to Katrina.[98]

Satellite Communications

Satellite phones don't rely on the terrestrial (ground-based) infrastructure that is necessary for land mobile radio, land-line, and cellular communications. But there is anecdotal evidence that satellite communications experienced their own problems: New Orleans Mayor Ray Nagin said that he had "a huge box of satellite phones that did not work."[99] In Mississippi, a FEMA employee, Mike Beeman, said that satellite phone connections were "sporadic."[100] And while wireless Blackberry devices worked, batteries were hard to recharge because of the lack of commercial electricity.[101]

The problems with satellite phones do not appear to have been caused by the phones themselves or the satellite networks; rather, a combination of user error and buildings or other objects obstructing satellite signals are the more likely culprits. In fact, NCS was not aware of any problems with the satellite phone networks.[102] And Walt Gorman, a vice-president at Globalstar, which supplied many satellite phones to the federal government, Louisiana, and Mississippi, said that users with difficulty operating satellite phones probably did not know how to use them properly because they had not received training. Therefore, users may have had problems putting them in the correct mode, directing the antennae, or dialing the correct numbers.[103]

Louisiana supplied satellite phones to New Orleans parishes a few years ago, but after the state stopped paying for the satellite monthly service fee, all but three parishes discontinued the service and returned the phones to the state.[104] These satellite phones might have been useful if still deployed during Katrina. To fill the communications gap, Louisiana tried to bring in

communications trailers that have transmitters to restore cellular communications, but those efforts were hampered by the flooding.[105]

In Mississippi, all Mississippi Emergency Management Agency (MEMA) personnel had mobile satellite radios for communications; satellite radios permanently mounted in the three coastal counties were available as well. After Katrina struck, this was often the only functional form of communications in the state.[106] Satellite worked so well that MEMA purchased additional portable satellite phones for state emergency response teams.[107] Even though coastal county EOCs had satellite capability, the strong winds of Katrina shifted their antennas and this resulted in failed communications.[108] In addition, MEMA deployed a mobile communications unit, and Pearl River County had a mobile communications trailer that it purchased with DHS grants, which allowed it to communicate after Katrina.[109]

Pre-Landfall Attempts to Improve Louisiana's Public Safety Communications Infrastructure

The problem of interoperable communications was brought to the nation's attention on September 11, 2001, when police and firefighters at the World Trade Center had difficulty communicating with each other. However, it is a long-standing problem. According to David Boyd, head of project SAFECOM, an "umbrella" DHS program designed to coordinate federal efforts to promote interoperability, the inability to communicate effectively across jurisdictions and disciplines was a problem in the Air Florida crash in Washington D.C. in 1982; in New York City when the World Trade Center were first attacked in 1993 and again during 9/11; and when the Murrah Federal Building was destroyed in Okalahoma City in 1995. Sixty thousand individual local jurisdictions – including police, fire and emergency medical services – finance, own, operate, and maintain over 90 percent of the nation's public safety wireless infrastructure.[110]

Like most states, the parishes in the New Orleans area and state agencies maintain different communication systems, which make it difficult for public safety agencies to communicate during everyday emergencies, let alone disasters on the scale of Katrina.

The State of Louisiana operates on a statewide analog wireless system installed in 1996. It supports voice communication only. This system is presently used by approximately 70 agencies with 10,000 subscribers. This system consists of 46 tower sites and 28 dispatch consoles. The Louisiana State Police operate an aging data network that cannot support additional users. The Louisiana Totally Interoperable Environmental (LATIE) Strategic Plan says that while "This system was quite sophisticated for its time, advances in technology have rendered it virtually obsolete."[111]

Much of the communications in southeastern Louisiana is outdated and has been at various stages of disrepair for several years. In Orleans Parish the communications system is an 800 MHz system**,** which supports police, fire, EMS and the Office of Emergency Preparedness. (MHz (Megahertz) denotes the frequency on which the equipment operates and public safety radio equipment often can only operate on a specific frequency.) The age of the equipment

created problems in getting technical support.[112]

In St. Bernard Parish, the communications system – 400 MHz – is so old that it must be maintained by purchasing repair parts through the eBay auction site on the Internet.[113] Various volunteer fire departments have other types of communications systems. Jefferson Parish has an 800MHz "Motorola Digital Smart Zone System" for the Sheriff's Office, but the rest of the parish agencies use an analog system, which makes it nearly impossible to communicate with the Sheriff's Office. In Plaquemines Parish, the Sheriff's Department uses an 800 MHz analog system, which cannot talk to digital systems.[114]

According to Colonel. F.G. Dowden, who works on interoperable communications and other issues for the New Orleans Office of Homeland Security, the only interoperable system in use in southeastern Louisiana prior to the storm was between the NOPD and the Jefferson Parish Sheriff's Office; it used "console patches" to connect their 800MHz controllers, which provided a degree of interoperability.[115]

ACU-1000 units also provided limited interoperability. The ACU-1000, which is manufactured by JPS Raytheon, acts as a converter between radios from each system. But it can support only a limited number of channels for communications, and it requires a person to manually configure the connections with the radios.[116]

Well before Katrina struck, Louisiana agencies encountered funding problems as they sought to enhance communications interoperability. In 2004 and again in January 2005, the Louisiana State Police attempted to secure $105 million to upgrade its communications infrastructure from an outdated, 800 MHz analog system which is no longer supported by the vendor to a modern 700 MHz digital interoperable network. That amount was considered an "inexpensive" way to connect existing operating systems in the state to a common, statewide network. The State Police sought funding from Congress, via earmark requests to Louisiana's Congressional delegation, through Louisiana's state budget process, and explored grant opportunities with the Office of Domestic Preparedness within DHS but was not successful.[117]

The greater New Orleans area analyzed options for creating a region-wide, modern 800 MHz system, also well before Katrina struck. However, estimates ranged as high at $45 million, which local officials considered "cost prohibitive."[118] Just buying compatible radios for New Orleans Parish alone would cost almost $20 million.[119] Therefore, the region developed a plan for a region-wide system involving all four parishes in the region, which would be phased in over time.[120]

According to Col. Dowden, New Orleans applied for and received a grant through the Community Oriented Policing (COPs) program at the Department of Justice, that would have provided interoperability for the four-parish region by upgrading St. Bernard Parish and Plaquemines Parish to 800MHz trunk radio systems, and the grant would have provided bridging technology between two or more of the 800 MHz systems (which Orleans and Jefferson Parishes already had).[121] This grant also would have allowed some of the systems to have P-25 compliant technology (an interoperability standard designed by the government and private industry).

However, the project was 18 months from completion when Katrina struck:[122] If the project had been completed by the initial time table, the loss of communication towers might not have been quite as significant because there probably would have been at least two towers fully operational from the new system.[123]

New Orleans has a "tactical interoperability plan" developed pursuant DHS grant guidance, but this plan was developed around an improvised-explosive-device scenario, not for an event of widespread destruction like that caused by a hurricane. According to Col. Dowden, a catastrophic hurricane plan "takes into account all of the assets within the region, and then pre-scripts what you would do in the event you lose specific towers or capabilities."[124] Even though the risk of major hurricanes striking New Orleans was well known, that kind of communications plan had never been developed.

In addition to funding, interoperability also always raises technical and policy issues. As Colonel Joseph Booth of the Louisiana State Police put it, "there's always issues about who's going to control it, who's making decisions, what technology to go with, what capabilities, what kind of local control there is."[125]

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[1] Committee staff interview of Col. FG Dowden, Regional Liason, New Orleans Department of Homeland Security and Public Safety, Louisiana, conducted on Nov. 11, 2005, transcript p. 50.
[2] Testimony of Gov. Haley Barbour, Louisiana, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *The Role of the Governors in Managing the Catastrophe*, Feb. 2, 2006, transcript p. 85.
[3] Committee staff interview of Sally Forman, Communications Director, City of New Orleans, conducted on Jan. 10, 2006, transcript pp.120-121.
[4] Forman interview, Jan. 10, 2006, p. 68.
[5] Forman interview, Jan. 10, 2006, p.101.
[6] Forman interview, Jan. 10, 2006, p.121.
[7] Committee staff interview of Larry Ingargiola, Director of Homeland Security and Emergency Preparedness, St. Bernard Parish, Oct. 26, 2005, transcript pp. 91-93, 103-104.
[8] Testimony of Lt. Col. Keith LaCaze, Assistant Administrator, Law Enforcement Division Administrator, Louisiana Department of Wildlife and Fisheries, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs Committee, hearing on *Hurricane Katrina: Urban Search and Rescue in a Catastrophe*, Jan. 30, 2006, transcript pp. 70-74.
[9] Committee staff interview of Phil Parr, Federal Coordinating Officer, FEMA, conducted on Nov. 15, 2005, transcript p. 28.
[10] Committee staff interview of Michael Beeman, Director of Preparedness, FEMA, conducted on Jan. 20, 2006, transcript p. 71.
[11] Committee staff interview of Scott Wells, Federal Coordinating Officer, FEMA, conducted on Nov. 14, 2005, transcript p. 116.
[12] Committee staff interview of Knox Andress, RN, Christus Schumpert Health System, Shreveport, conducted on, Mar. 10, 2006 (untranscribed).
[13] Andress interview, Mar. 10, 2006.
[14] Prepared Statement of Kevin T. Regan, Regional Vice President of Operations, Southeastern United States and Caribbean, Starwood hotels & Resorts Worldwide, Inc., before the Committee on Homeland Security and Governmental Affairs, U.S. Senate, Nov. 16, 2005, p. 5, publication pending.
[15] Prepared Statement of Kevin Regan, Regional Vice President of Operations, Starwood Hotels 7 Resorts Worldwie, Inc, before the U.S. Senate Committee on Homeland Security and Governmental Affairs, Nov. 16, 2006, p. 6.
[16] Prepared Statement of Jason Jackson, Wal-Mart Stores, Inc., before the Committee on Homeland Security and

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[17] Prepared Statement of Jason Jackson, Wal-Mart Stores, Inc., before the Committee on Homeland Security and Governmental Affairs, U.S. Senate, Nov. 16, 2005, publication pending
[18] Prepared Statement of David Ratcliffe, Southern Company, before the Committee on Homeland Security and Governmental Affairs, U.S. Senate, Nov. 16, 2005, publication pending.
[19] Prepared Statement of David Radcliffe, Southern Company, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, Nov. 16, 2005, pp. 4-5.
[20] Prepared Statement of David Radcliffe, Southern Company, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, Nov. 16, 2005, p 5.
[21] Prepared Statement of David Radcliffe, Southern Company, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, Nov. 16, 2005, p 5.
[22] The White House report on Katrina aptly concluded, "The complete devastation of the communications infrastructure left emergency responders and citizens without a reliable network across which they could coordinate." U.S. Assistant to the President for Homeland Security and Counterterrorism, *The Federal Response to Hurricane Katrina Lessons Learned*. Washington: Government Printing Office, Feb. 2006, p. 55.
[23] Written statement of William Smith, Chief Technology Officer, BellSouth, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Managing Law Enforcement and Communications in a Catastrophe*, Feb. 6, 2006, transcript p. 4.
[24] Written statement of Dr. Fonash, PhD, Senate Committee on Homeland Security and Governmental Affairs, hearing on *Managing Law Enforcement and Communications in a Catastrophe*, Feb. 6, 2006, transcript p. 6.
[25] Written statement of Fonash, PhD, Senate Committee hearing, Feb. 6, 2006, p.1; Federal Communications Commission report, *Consumers Out of Service*, provided to Committee.
[26] Written statement of Fonash, PhD, Senate Committee hearing, Feb. 6, 2006, p.1; Written statement of Smith Senate Committee hearing, Feb. 6, 2006, p. 4.
[27] Committee staff interview of Christopher Guttman-McCabe, Vice President, Regulatory Affairs, CTIA, conducted on Jan 24, 2006, transcript p. 20.
[28] Guttman-McCabe interview, Jan 24, 2006, p. 21.
[29] Guttman-McCabe interview, Jan 24, 2006, p. 11-12.
[30] Committee staff interview of William Smith, Chief Technology Officer, BellSouth, conducted on Jan. 25, 2006 (untranscribed).
[31] Smith interview, Jan. 25, 2006.
[32] Kay Jackson, email to La Public Service Commission, Sept. 20, 2005, 6:08 p.m. Provided to Committee.
[33] Smith interview, Jan. 25, 2006.
[34] Written statement of Smith, Senate Committee hearing, Feb. 6, 2006, p. 8.
[35] Written statement of Smith, Senate Committee hearing, Feb. 6, 2006, p. 8; Written statement of Dr. Fonash, PhD, Senate Committee hearing, Feb. 6, 2006, p. 7.
[36] Tom Wetherald, email to Peter Fonash, Sept. 3, 2005, 9:37 p.m. Provided to Committee; filed as Bates no. DHS-INFP-0002-0000737 through 0000738. See also: Committee staff interview of Jeffrey Glick, Chief of Critical Infrastructure Protection, National Communications System, conducted on Feb. 3, 2006, transcript p. 60 (explaining NCS's efforts to work through the NRCC and ESF-13 process as well as with the National Guard).
[37] Glick interview, Feb. 3, 2006, p. 60
[38] Guttman-McCabe interview, Jan. 24, 2006, p. 25.
[39] Kim Hunter Reed, email to Jeanne Wright et al., Aug. 30, 2005, 1:57 p.m. Provided to Committee; Brian Eddington, email to LA Public Service Commission, Sept. 2, 2005, 7:20 p.m. Provided to Committee; Michael Vitenas, email to LA Public Service Commission, Sept. 2, 2005, 5:10 p.m. Provided to Committee.
[40] Guttman-McCabe interview, Jan 24, 2006, p. 28.
[41] Testimony of Warren Riley, Superintendent, New Orleans Police Department, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Managing Law Enforcement and Communications in a Catastrophe*, Feb. 6, 2006, transcript pp. 59-60; Testimony of Capt. Timothy Bayard, Commander of the Vice and Narcotics Squad, New Orleans Police Department, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Managing Law Enforcement and Communications in a Catastrophe*, Feb. 6, 2006, transcript p. 92; Lt. Col. LaCaze, Senate Committee hearing, Feb. 6, 2006, p. 93; Testimony of Brig. Gen. Brod Veillon, Assistant Adjutant General, Louisiana National Guard, before the U.S. Senate, Committee on Homeland

Security and Governmental Affairs, hearing on *Managing Law Enforcement and Communications in a Catastrophe*, Feb. 6, 2006, transcript p. 94.
[42] FEMA's Federal Coordinating Officer for Louisiana, William Lokey, said there were problems making calls in and out of the state EOC. Committee staff interview of William Lokey, Federal Coordinating Officer, FEMA, conducted on Jan. 20, 2006, transcript p. 6.
[43] Wells interview, Nov. 14, 2006, p. 116
[44] Glick interview, Feb. 3, 2006, pp. 29-20.
[45] Testimony of Col. FG Dowden, Regional Liason, New Orleans Department of Homeland Security and Public Safety, Louisiana, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Managing Law Enforcement and Communications in a Catastrophe*, Feb. 6, 2006, transcript p. 104; Committee staff interview of Col. FG Dowden, Regional Liason, New Orleans Department of Homeland Security and Public Safety, Louisiana, conducted on Jan. 26, 2006 (untranscribed).
[46] Col. Dowden, Senate Committee hearing, Feb. 6, 2006, pp. 103-104.
[47] Col. Dowden, Senate Committee hearing, Feb. 6, 2006, pp. 103-104; Dowden interview, Nov. 11, 2005, pp. 33-34.
[48] Col. Dowden, Senate Committee hearing, Feb. 6, 2006, p. 104.
[49] Col. Dowden interview, Jan. 26, 2006.
[50] Col. Dowden interview, Nov. 11, 2005, pp. 33-34.
[51] Col. Dowden Senate Committee hearing, Feb. 6, 2006, p. 103.
[52] Col. Dowden, Senate Committee hearing, Feb. 6, 2006, p. 104.
[53] Committee staff interview of Lt. Col. Mark Oxley, Chief of Staff, Louisiana State Police, and Lt. Colonel Joseph Booth, Louisiana State Police, conducted on Dec. 9, 2005, transcript pp. 78-79.
[54] Written statement of Kevin J. Martin, Chairman, Federal Communications Commission, before the U.S. House, Committee on Energy and Commerce, Subcommittee on Telecommunications and the Internet, hearing on *Public Safety Communications from 9/11 to Katrina: Critical Public Policy Lessons* Sept. 29, 2005, transcript p. 2.
[55] Committee staff interview of Craig Whittington, 911 Coordinator for Guilford Metro 911 in Greensboro, North Carolina, March 13, 2006 (untranscribed).
[56] Whittington interview, March 13, 2006.
[57] Whittington interview, March 13, 2006.
[58] Whittington interview, March 13, 2006.
[59] U.S. Department of Homeland Security, *National Response Plan*. Washington: Government Printing Office, Dec. 2004, pp. ESF #2-1 through 2-3.
[60] Fonash interview, Jan. 27, 2006, p. 4.
[61] Fonash interview, Jan. 27, 2006, p. 37.
[62] Fonash interview, Jan. 27, 2006, pp. 50-51.
[63] Fonash interview, Jan. 27, 2006, p. 60.
[64] Fonash interview, Jan. 27, 2006, p. 62.
[65] Fonash interview, Jan. 27, 2006, p. 116.
[66] Fonash interview, Jan. 27, 2006, pp. 118-120.
[67] Written statement of Mark Rey, Under Secretary for Natural Resources and Environment, U.S. Department of Agriculture, before the U.S. House, Committee on Homeland Security, Subcommittee on Emergency Preparedness, Science, and Technology, hearing on *Ensuring Operability During Catastrophic Events*, Oct. 26, 2005, transcript p. 3.
[68] Committee staff interview of William Milani, Chief, Mobile Operations Section, Logistics Branch, FEMA, conducted on Jan 12, 2006, transcript p. 59.
[69] DOD Support to Hurricane Katrina, Executive Summary, "DOD provided 1500 mobile radios . . . ; radios arrived September 6 and given to the 82nd Airborne at the New Orleans Airport." Office of Vice President document filed as Bates no. 000614. When the DOD troops returned to their home stations, they provided 1500 their radios to the National Guard troops. Committee staff interview of Col. James Kohlman, U.S. Northern Command, U.S. Department of Defense, conducted on Dec. 6, 2005, transcript pp. 20, 39.
[70] Marc Short, email to Matt Mayer, Sept. 5, 2005, 10:51 a.m., Provided to Committee, filed as Bates no. DHS-FRNT-0010-0000386.
[71] Written statement of Dr. Fonash, PhD, Senate Committee hearing, Feb. 6, 2006, p. 6.

[72] Written statement of Dr. Fonash, PhD, Senate Committee hearing, Feb. 6, 2006, p. 6.
[73] Written statement of Dr. Fonash, PhD, Senate Committee hearing, Feb. 6, 2006, p. 7.
[74] National Communications System timeline. Provided to Committee; filed as Bates no. DHS-INFP-0001-0000672.
[75] FEMA, Action Request Form, Sept. 1, 2005. Provided to Committee.
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[78] Milani interview, Jan. 12, 2006, pp. 7-9, 23-25.
[79] Milani interview, Jan. 12, 2006, pp. 19-23.
[80] Milani interview, Jan. 12, 2006, pp. 28, 129.
[81] Milani interview, Jan. 12, 2006, pp. 49.
[82] Milani interview, Jan. 12, 2006, pp. 24, 53-54.
[83] Milani interview, Jan. 12, 2006, pp. 96, 99, 103-04.
[84] Committee staff interview of James Attaway, Telecommunications Specialist, MERS, Region VI, FEMA, conducted on Jan. 13, 2006, transcript p. 27; Milani interview, Jan. 12, 2006, pp. 56-57.
[85] Attaway interview, Jan. 13, 2006, pp. 9, 12-13; Milani interview, Jan. 12, 2006, p. 60.
[86] Attaway interview, Jan. 13, 2006, p. 29.
[87] Attaway interview, Jan. 13, 2006, pp. 28-29.
[88] Milani interview, Jan. 12, 2006, pp. 52-53.
[89] Attaway interview, Jan. 13, 2006, pp. 19, 79; Milani interview, Jan. 12, 2006, pp. 53-54.
[90] Milani interview, Jan. 12, 2006, p. 59.
[91] Milani interview, Jan. 12, 2006, p. 59.
[92] Milani interview, Jan. 12, 2006, pp. 59, 70.
[93] Milani interview, Jan. 12, 2006, p. 70.
[94] Milani interview, Jan. 12, 2006, pp. 95-96.
[95] Committee staff interview of Sandy Coachman, Federal Coordinating Officer, Region VI, FEMA, conducted on, Nov. 16, 2005, transcript pp. 16-18.
[96] Coachman interview, Nov. 16, 2005, pp. 16-18.
[97] Coachman interview, Nov. 16, 2005, p. 18.
[98] Milani interview, Jan. 12, 2006, pp. 78-79.
[99] Testimony of Mayor Ray Nagin, New Orleans, before the U.S. Senate, Committee on Homeland Security and Governmental Affairs, hearing on *Managing the Crisis and Evacuating New Orleans*, Feb. 1, 2006, transcript p. 37.
[100] Beeman interview, Jan. 20, 2006, p. 85.
[101] Col. Dowden interview, Nov. 11, 2005, p. 194.
[102] Fonash interview, Jan. 27, 2006, p. 152.
[103] Walt Gorman, Vice President, Globalstar, email to Rob Strayer, Mar. 8, 2006, 1:23 p.m.
[104] U.S. House, Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, *A Failure of Initiative*, Washington, Government Printing Office, 2006 p. 172-173.
[105] Col. Dowden Interview, Nov. 11, 2005, p. 195.
[106] U.S. House, Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, *A Failure of Initiative*, Washington, Government Printing Office, 2006 p. 172; Testimony of Robert R. Latham, Jr,. Executive Director, MEMA, before the U.S. House, Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, hearing on *Hurricane Katrina: Preparedness and Response by the State of Mississippi*, Dec. 7, 2005, pp. 36, 57.
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[112] Col. Dowden interview, Nov. 11, 2005, pp. 11-12.
[113] Col. Dowden interview, Nov. 11, 2005, p. 15.
[114] Col. Dowden interview, November 11, 2005, pp. 12-13.
[115] Col. Dowden interview, Nov. 11, 2005, p. 13
[116] Col. Dowden interview, Nov. 11, 2005, pp. 32-34.
[117] Committee staff interview of Lt. Col. Mark Oxley, Chief of Staff, Louisiana State Police, and Lt. Colonel Joseph Booth, Special Projects Deputy Superintendent, State Police, Public Safety Services, Louisiana, conducted on December 9, 2005, transcript pp. 48, 51, 54.
[118] Written statement of Col. Dowden, Senate Committee hearing, Feb. 6, 2006, p. 3.
[119] Col. Dowden interview, Nov. 11, 2005, p. 41.
[120] Written statement of Col. Dowden, Senate Committee hearing, Feb. 6, 2006, p. 3.
[121] Written statement of Col. Dowden, Senate Committee hearing, Feb. 6, 2006, p. 2.
[122] Col. Dowden interview, Nov. 11, 2005, p. 211.
[123] Col. Dowden interview, Nov. 11, 2005, p. 49.
[124] Col. Dowden interview, Nov. 11, 2005, p. 201.
[125] Booth interview, Dec. 9, 2005, p. 68.

Conclusions and Findings

1. Four overarching factors contributed to the failures of Katrina: (1) long-term warnings went unheeded and government officials neglected their duties to prepare for a forewarned catastrophe; (2) government officials took insufficient actions or made poor decisions in the days immediately before and after landfall; (3) systems on which officials relied to support their response efforts failed, and (4) government officials at all levels failed to provide effective leadership. These individual failures, moreover, occurred against a backdrop of failure, over time, to develop the capacity for a coordinated, national response to a truly catastrophic event, whether caused by nature or man-made.

2. During a catastrophe, which by definition almost immediately exceeds state and local resources and significantly disrupts governmental operations and emergency services, the role of the federal government is particularly important.

3. It has long been standard practice that emergency response begins at the lowest possible jurisdictional level – typically the local government, with state government becoming involved at the local government's request when the resources of local government are (or are expected to be) overwhelmed. Similarly, while the federal government provides ongoing financial support to state and local governments for emergency preparedness, ordinarily it becomes involved in responding to a disaster at a state's request when resources of state and local governments are (or are expected to be) overwhelmed. Louisiana's Emergency Operations Plan explicitly lays out this hierarchy of response.

4. While several engineering analyses continue, the Committee found deeply disturbing evidence of flaws in the design and construction of the levees protecting New Orleans. For instance, two major drainage canals – the 17th Street and London Avenue Canals – failed at their foundations. Equally troubling was the revelation of serious disagreement – still unresolved months after Katrina – among officials of several government entities over who had responsibility, and when, for key levee issues including emergency response and levee repair. Such conflicts prevented any meaningful emergency plans from being put in place and, at the time of Katrina, none of the relevant government agencies had a plan for responding to a levee breach.

5. Top officials at every level of government – despite strongly worded advisories – did not appear to truly grasp the magnitude of the storm's potential for destruction before it made landfall. Over the weekend, there was a drumbeat of warnings: FEMA held video-teleconferences on both days, where the danger of Katrina and the particular risks to New Orleans were discussed; Max Mayfield of the National Hurricane Center called the governors of the affected states, something he had only done once before in his 33-year career; President Bush took the unusual step of declaring in advance an emergency for the states in the impact zone; numerous media reports noted that New Orleans was a "bowl" and could be left submerged

by the storm; the Department of Homeland Security's Simulation and Analysis Group generated a report stating that the levees protecting New Orleans were at risk of breaching and overtopping; and internal FEMA slides stated that the projected impacts of Katrina could be worse than those in the "Hurricane Pam" exercise.

6. Beginning in 2004, the federal government sponsored a planning exercise with participation from federal, state and local officials, based on a scenario whose characteristics foreshadowed most of Katrina's impacts. While this hypothetical "Hurricane Pam" exercise resulted in draft plans beginning in early 2005, they were incomplete when Katrina hit. Nonetheless, some officials took the initiative to use concepts developed in the drafts, with some success in the critical aspects of the Katrina response. However, many of its admonitory lessons were either ignored or inadequately applied.

7. The City of New Orleans, with primary responsibility for evacuation of its citizens, had language in its plan stating the city's intent to assist those who needed transportation for pre-storm evacuation, but had no actual plan provisions to implement that intent.

8. The Louisiana Department of Transportation and Development, whose secretary had personally accepted departmental responsibility under the state's emergency operations plan to arrange for transportation for evacuation in emergencies, had done nothing to prepare for that responsibility prior to Katrina.

9. Some coastal towns in Mississippi went to extraordinary lengths to get citizens to evacuate, including sending people door-to-door to convince residents to move out of harm's way. The State of Louisiana activated more than twice the number of National Guard troops called to duty in any prior hurricane, and achieved the largest evacuation of a threatened population ever to occur. The City of New Orleans issued its first-ever mandatory evacuation order.

10. The U.S. Coast Guard conducted extensive planning and training for disasters, and they put that preparation into use when disaster struck, leading to the successful and heroic search and rescue efforts, which saved more than 33,000 people.

11. FEMA was unprepared for a catastrophic event of the scale of Katrina. Well before Katrina, FEMA's relationships with state and local officials, once a strength, had been eroded in part because certain preparedness grant programs were transferred elsewhere in the Department of Homeland Security; not as important to state and local preparedness activities, FEMA's effectiveness was diminished.

12. FEMA's Director, Michael Brown, lacked the leadership skills that were needed for his critical position. Before landfall, Brown did not direct the adequate pre-

positioning of critical personnel and equipment, and willfully failed to communicate with Secretary Chertoff, to whom he was supposed to report.

13. The Department of Homeland Security (DHS) leadership failed to bring a sense of urgency to the federal government's preparation for Hurricane Katrina, and Secretary Chertoff himself should have been more engaged in preparations over the weekend before landfall. Secretary Chertoff made only top-level inquiries into the state of preparations, and accepted uncritically the reassurances he received. He did not appear to reach out to the other Cabinet Secretaries to make sure that they were readying their departments to provide whatever assistance DHS – and the people of the Gulf – might need.

14. Had Secretary Chertoff invoked the Catastrophic Incident Annex (CIA) of the National Response Plan, he could have helped remove uncertainty about the federal government's need and authority to take initiative before landfall and signaled that all federal government agencies were expected to think – and act – proactively in preparing for and responding to Katrina.

15. DHS was slow to recognize the scope of the disaster or that FEMA had become overwhelmed. On the day after landfall, DHS officials were still struggling to determine the "ground truth" about the extent of the flooding despite the many reports it had received about the catastrophe; key officials did not grasp the need to act on the less-than-complete information that is to be expected in a disaster. DHS leaders did not become fully engaged in recovery efforts until Thursday, when in Deputy Secretary Michael Jackson's words, they "tried to kick it up a notch"; after that, they did provide significant leadership within DHS (and FEMA) as well as coordination across the federal government. But this effort should have begun sooner.

16. Problems with obtaining, communicating and managing information plagued many other aspects of the response as well. FEMA lacked the tools to track the status of shipments, interfering with the management of supplying food, water, ice and other vital commodities to those in need across the Gulf Coast. So, too, did the incompatibility of the electronic systems used by federal and state authorities to manage requests for assistance, which made it necessary to transfer requests from the state system to the federal system manually.

17. Katrina resulted in the largest National Guard deployment in U.S. history, with 50,000 troops and supporting equipment arriving from 49 states and four territories within two weeks. These forces participated in every aspect of emergency response, from medical care to law enforcement and debris removal, and were considered invaluable by Louisiana and Mississippi officials. However, the deployments of National Guard troops were not coordinated with the federal Northern Command, which was overseeing the large-scale deployments and operations of the active-duty military.

18. While the large numbers of active-duty troops did not arrive until the end of the first week following landfall – although National Guard troops did – the Department of Defense contributed in other important ways during that period. Early in the week, DOD ordered its military commanders to push available assets to the Gulf Coast. They also streamlined their ordinarily bureaucratic processes for handling FEMA requests for assistance and emphasized movement based on vocal commands with the paperwork to follow, though some FEMA officials believe that DOD's approval process continued to take too long. They provided significant support to search-and-rescue missions, evacuee airlifts, logistics management of buses arriving in the State for evacuation, and other matters.

19. Pervasive and widespread communications failures substantially hampered rescue and response efforts.

20. Law enforcement was a problem, and was fueled by several contributing factors, including erroneous statements by top city officials inflaming the public's perception of the lawlessness in New Orleans. Without effective law enforcement, real or imagined safety threats interrupted virtually every aspect of the response.

21. Federal law-enforcement assistance was too slow in coming, in large part because the two federal departments charged under the NRP with providing such assistance – DHS and the Department of Justice (DOJ) – had done almost no pre-storm planning. In fact, they failed to determine even well into the post-landfall period which of the two departments would assume the lead for federal law enforcement under the NRP. As a result, later in the week, as federal law-enforcement officers did arrive, some were distracted by a pointless "turf war" between DHS and DOJ over which agency was in the lead. In the end, federal assistance was crucial, but should have arrived much sooner.

22. While both FEMA and the Department of Health and Human Services made efforts to activate the federal emergency health capabilities of the National Disaster Medical System (NDMS) and the U.S. Public Health Service, only a limited number of federal medical teams were actually in position prior to landfall to deploy into the affected area. Only one such team was in a position to provide immediate medical care in the aftermath of the storm.

23. The Committee also identified significant planning failures that predated Katrina. One of the most remarkable stories from this investigation is the history of planning for the 100,000 people in New Orleans believed to lack the means to evacuate themselves.

24. Almost exactly four years after 9/11, Katrina showed that the nation is still unprepared to respond to a catastrophe.

FINDINGS

"HURRICANE KATRINA: A NATION STILL UNPREPARED"

EMERGENCY MANAGEMENT ALONG THE GULF COAST: FEDERAL, STATE AND LOCAL – LOUISIANA

1. First responders in Louisiana played an indispensable role in the response to Katrina.

2. The Louisiana state government failed to provide sufficient resources to the Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP). Its planning, preparedness and response to Katrina suffered as a result.

3. The Louisiana Office of Homeland Security and Emergency Preparedness failed to ensure that state agencies adequately understood their emergency-response obligations.

EMERGENCY MANAGEMENT ON THE GULF COAST: STATE AND LOCAL – MISSISSIPPI

4. First responders in Mississippi played an indispensable role in the response to Katrina.

5. Mississippi's use of the EMAC interstate mutual-aid arrangement was vital to its response to Hurricane Katrina.

6. Many residents found shelter conditions quite difficult because of shortages of food and water and sanitation problems. Though their challenges regarding mass care were formidable, state and local governments and the American Red Cross could have prepared better for a catastrophic disaster on the scale of Hurricane Katrina. In addition, state and local governments in Mississippi could have been better prepared to shelter the special needs population on the Mississippi Gulf Coast.

HURRICANE PAM: KATRINA IS PREDICTED

7. Hurricane Pam was an elaborate planning exercise that anticipated many of the challenges of responding to Katrina.

8. Hurricane Pam and other planning exercises put federal, state and local officials on notice of the potential consequences of a hurricane of the magnitude of Katrina.

9. Louisiana should have given greater consideration to filling gaps in federal funding of the Pam exercise.

LEGACY EFFECTS OF ENVIRONMENTAL, ENGINEERING CHANGES

10. Changes in Louisiana's coastal landscape, including wetlands loss and subsidence, have made New Orleans and coastal Louisiana more vulnerable to hurricanes and may have contributed to damage from Hurricane Katrina. These changes are in large part an unintended consequence of human activities that have altered the natural flow of the Mississippi River and other coastal processes.

11. Until addressed, the continued subsidence, loss of wetlands, and other changes to the coastal landscape will make New Orleans and other regions of the Louisiana deltaic plain increasingly vulnerable to hurricanes.

12. The building of the Mississippi River Gulf Outlet (MRGO) and the combined Gulf Intracoastal Waterway (GIWW)/MRGO channel resulted in substantial environmental damage, including a significant loss of wetlands which had once formed a natural barrier against hurricanes threatening New Orleans from the east.

13. MRGO and the combined GIWW/MRGO provided a connection between Lake Borgne and Lake Pontchartrain that allowed the much greater surge from Lake Borgne to flow into both New Orleans and Lake Pontchartrain. These channels further increased the speed and flow of the Katrina surge into New Orleans East and the Ninth Ward/St. Bernard Parish, increasing the destructive force against adjacent levees and contributing to their failure. As a result, MRGO and the combined GIWW/MRGO resulted in increased flooding and greater damage from hurricane Katrina.

LEVEES

14. Confusion, ambiguity and uncertainty characterized the perception of the Army Corps of Engineers, the local levee boards, and other agencies with jurisdiction over the levee system of their respective responsibilities, leading to failures to carry out comprehensive inspections, rigorously monitor system integrity, or undertake needed repairs.

15. Louisiana law imposes on local levee boards the responsibility to protect their respective jurisdictions from flooding and gives them extraordinary taxing authority to carry out that duty.

16. Congress tasked the Army Corps of Engineers with designing and constructing a levee system in and around New Orleans, but that responsibility does not diminish the Orleans Levee District’s statutory duty to protect its jurisdiction from flooding.

17. The Orleans Levee District performed modest maintenance of the levees – such as mowing the grass. Nevertheless, ambiguities, confusion, and disputes between the Orleans Levee District and Army Corps of Engineers over responsibility led to inadequate maintenance of the levee system and to a lack of effective emergency plans and preparations.

18. Local levee districts, including the Orleans Levee District, did not have the engineering

expertise or diagnostic equipment to ensure that the hurricane-protection systems within provided the level of protection for which they were designed.

19. The Louisiana Department of Transportation and Development failed to fully carry out its responsibilities under state statutes such as the need to: (a) train levee-board members and their appointed inspectors or watchmen on how to care for and inspect levees; and (b) review the emergency plans of local levee districts to ensure that the levee districts could adequately respond to emergency situations.

20. The Orleans Levee District focused time, attention and resources on business interests unrelated to levees, such as casinos, restaurants, a karate club and a beautician school, to the detriment of flood protection.

21. Inspections of the Lake Pontchartrain Project administered jointly by the Army Corps and the Orleans Levee District failed to ensure that the project provided the level of protection for which it was designed and constructed.

22. The forensic teams investigating the flooding have concluded that: (a) the flood walls along the 17th Street and London Avenue Canals failed in that they did not withstand the forces for which they were supposedly designed or constructed; and (b) flooding was exacerbated as many levees and floodwalls were breached because of design and construction deficiencies, including not having protection against the scour and erosion caused by overtopping.

23. In designing, constructing and maintaining the hurricane-protection system, the Corps did not adequately address: (a) the effects of local and regional subsidence of land upon which the protection system was built; and (b) then-current information about the threat posed by storm surges and hurricanes in the region.

24. For several years, the Corps has inaccurately represented to state and local officials and to the public the level of protection that the hurricane system provided. The Corps claimed the system protected against a fast-moving Category 3 storm even though: (a) there was no adequate study or documentation to support this claim; and (b) information known to or provided to the Corps demonstrated that the claim was not accurate.

PREPARING FOR THE STORM: STATE AND LOCAL GOVERNMENTS

25. Governor Blanco and Mayor Nagin failed to meet expectations set forth in the National Response Plan to coordinate state and local resources “to address the full spectrum of actions” needed to prepare for and respond to Hurricane Katrina. Funding shortages and inadequacies in long-term planning doomed Louisiana’s preparations for Katrina.

26. Governor Blanco submitted an inadequate and erroneous request for assistance to the

President and generally failed to ask the federal government for sufficient assistance before the storm.

27. The Louisiana National Guard prepositioned too many resources at Jackson Barracks in the lower Ninth Ward, where many of them were lost to flooding.

PREPARING FOR THE STORM: FEDERAL GOVERNMENT

28. DHS, the agency charged with preparing for and responding to domestic incidents, whether terrorist attacks or natural disasters, failed to effectively lead the federal response to Hurricane Katrina.

29. In advance of landfall, Secretary Chertoff failed to make ready the full range of federal assets pursuant to DHS's responsibilities under the National Response Plan (NRP).

30. DHS leaders failed to bring a sense of urgency to the federal government's preparation for Hurricane Katrina.

31. Secretary Chertoff failed to appoint a Principal Federal Official (PFO), the official charged with overseeing the federal response under the NRP, until 36 hours after landfall.

32. The Interagency Incident Management Group (IIMG), intended to coordinate the federal response to a catastrophe, was not activated until the day after landfall, and then added little value to the federal response effort, leaving federal agencies without an intermediate inter-agency dispute resolution mechanism.

33. Secretary Chertoff failed to activate the Catastrophic Incident Annex of the NRP, which could have led to a more proactive federal response.

34. Secretary Chertoff appointed a field commander, Michael Brown, who was hostile to the federal government's agreed-upon response plan and therefore was unlikely to perform effectively in accordance with its principles. Some of Secretary Chertoff's top advisors were aware of these issues but Secretary Chertoff has indicated that he was not. Secretary Chertoff should have known of these problems and, as a result, should have appointed someone other than Brown as Principal Federal Official.

35. Although the Hurricane Pam exercise, among other things, put FEMA on notice that a storm of Katrina's magnitude could have catastrophic impact on New Orleans, Michael Brown and FEMA leadership failed to do the necessary planning and preparations

    a) to train or equip agency personnel for the likely needed operations;
    b) to adequately prearrange contracts to transport necessary commodities;
    c) to preposition appropriate communications assets; or
    d) to consult with DOD regarding back-up capability in the event a catastrophe materialized, among other deficiencies.

36. National Hurricane Center and National Weather Service warnings–including a video conference appearance by NHC Director Max Mayfield– put FEMA on notice as of August 26 for Katrina's catastrophic potential as the hurricane moved toward the Gulf Coast. DHS notified the White House of that potential.

37. FEMA did not adequately preposition critical personnel and equipment before landfall.

38. Despite prepositioning unprecedented amounts of relief supplies, FEMA's efforts were inadequate.

39. FEMA's inadequate preparations for Katrina were in part a consequence of insufficient long-term catastrophic planning.

40. Before landfall, it does not appear that FEMA asked the Department of Defense to employ its assets.

DHS'S ROLES AND RESPONSIBILITIES

41. Statutory authorities and presidential directives establish the Department of Homeland Security (DHS) as the central federal entity for preparedness for and response to disasters.

42. The Secretary of Homeland Security has a clear duty to lead and manage the federal response to disasters such as Katrina.

43. When effective response is beyond the capabilities of the state and the affected local governments, the Stafford Act provides for federal assistance upon the request of the state and local governments.

44. Under our system of federalism, state and local governments bear the primary responsibility for responding to emergencies. As such, they generally manage the response to an incident in the first instance.

45. Following a catastrophic disaster, the traditional mode of operation may not work if state and local governments are so overwhelmed that they can't effectively make specific requests for assistance. In such circumstances the National Response Plan's Catastrophic Incident Annex provides for a more proactive federal response.

46. The United States Coast Guard distinguished itself during the Hurricane Katrina emergency by protecting its vessels and aircraft from the initial attack of the storm, by anticipating the critical missions it would need to conduct, by immediately moving in as soon as conditions allowed, and by heroically sustaining a massive effort that rescued more than 33,000 people from danger of death.

FEDERAL EMERGENCY MANAGEMENT AGENCY

47. FEMA was unprepared–and has never been prepared–for a catastrophic event of the scale of Katrina.

48. FEMA had been operating at a more than 15 percent staff-vacancy rate for over a year before Katrina struck.

49. FEMA's senior political appointees, including Director Michael Brown and Deputy Director Patrick Rhode, had little or no prior relevant emergency-management experience before joining FEMA.

50. FEMA's emergency-response teams were inadequately trained, exercised and equipped.

51. FEMA failed to adequately develop emergency-response capabilities assigned to it under the National Response Plan.

52. FEMA had budget shortages that hindered its preparedness.

53. Michael Brown, FEMA's director, was insubordinate, unqualified and counterproductive, in that he:

    a) sent a single employee, without operational expertise or equipment and from the New England region to New Orleans before landfall;
    b) circumvented his chain of command and failed to communicate critical information to the Secretary;
    c) failed to deliver on commitments made to Louisiana's leaders for buses;
    d) traveled to Baton Rouge with FEMA public affairs and congressional relations employees and a personal aide and no operational experts;
    e) failed to organize FEMA's or other federal efforts in any meaningful way; and
    f) failed to adequately carry out responsibilities as FEMA's lead official in the Gulf before landfall and when he was appointed as the Principal Federal Official after landfall.

GOVERNMENT RESPONSE: THE ROLE OF THE WHITE HOUSE

54. The White House knew or should have known that Katrina could turn into the long-feared "New Orleans Scenario," and could wreak devastation throughout the Gulf Region. The White House also may have been aware that FEMA was not prepared for such a catastrophe.

55. The President did take extraordinary steps to prepare for the storm – such as issuing an emergency declaration in advance of landfall – but could have done more to marshal federal resources.

56. Despite receiving information from multiple sources on the extent of the damage in New Orleans, the White House does not appear to have been aware that levees had broken and the city was flooding on the day of the storm and, indeed, appears to have been under the misimpression, for some time, that the levees did not break until the day after Katrina made landfall.

57. The initial response to Katrina was halting and inadequate, in part due to poor situational awareness. Ultimately, the President and his team brought the full resources of the federal government to bear on the catastrophe.

EVACUATIONS: PRE-STORM

58. Before landfall, Louisiana successfully evacuated people with vehicles who wanted to leave.

59. Prior to Katrina, New Orleans officials did not fulfill a commitment in their emergency plan to provide transportation for people without vehicles.

60. Mayor Nagin wasted time in waiting to order a mandatory evacuation until Sunday morning, while his staff worked out details of the order that should have been settled long before the crisis.

61. The City of New Orleans, the state of Louisiana, and the federal government failed to retain drivers for the pre-landfall evacuation, even though city officials informed state and federal officials of this need over a month before landfall.

62. Governor Blanco missed opportunities to ask the federal government to help evacuate New Orleans before landfall. For example, she failed to ask for transportation assistance in her request for an emergency declaration, which was promptly granted by the President.

63. The State's lead agency for transportation, the Louisiana Department of Transportation and Development, failed to meet its responsibility under the State's emergency operations plan as lead agency for identifying, mobilizing, and coordinating transportation to assist with a pre-landfall evacuation.

64. The Louisiana Office of Homeland Security and Emergency Preparedness did not exercise sufficient oversight to ensure that the Louisiana Department of Transportation and Development would fulfill its responsibilities under the State's April 2005 plan.

65. The federal government did not engage state or local authorities about transportation alternatives for those lacking means for pre-landfall evacuation.

66. The federal government could have offered assistance with pre-landfall evacuation without waiting for requests from state and local government.

67. Hurricane Katrina revealed that consideration of the needs of those with pets should be a factor in emergency planning for evacuations and sheltering.

COMMUNICATIONS VOIDS

68. Hurricane Katrina resulted in a pervasive and widespread breakdown in communications significantly affecting the ability of first responders and government officials in their rescue and response efforts.

69. The National Communications System failed to develop plans to support first responder communications, assess the damage to the communications systems, and maintain awareness of the federal government's available communications assets. Local governments either had inadequate plans or were unable to rapidly repair damage to their first responder communications systems.

70. The response to Katrina was also hampered by the lack of data interoperability – that is responders' inability to electronically share data – including patient medical records, information needed to track missing children and adults – coordinate search and rescue operations, and verify eligibility for benefits.

71. During Katrina, many of the 9-1-1 systems citizens call first during emergencies failed. Because of widespread destruction of call centers, many calls could not be rerouted; when they were rerouted, there were no systems in place to share critical data, for example, about the call's point of origin. Officials also had no plans to provide additional 9-1-1 operators needed to field thousands of calls for help.

72. When terrestrial-based communications networks were damaged or destroyed, some responders were able to use satellite phones for limited communications capabilities. For example, the Mississippi Emergency Management Agency provided satellite phones to all of its employees in the field; it also had a mobile communications unit with satellite capability.

73. The private sector deployed massive resources to restore their communications infrastructure, but their efforts were hampered because (1) government did not provide repair workers with uniform credentials to gain access to devastated areas; (2) government sometimes diverted fuel resources needed for generators; and, (3) industry was justifiably reluctant to go into some areas without security, a principal responsibility of the government.

LACK OF SITUATIONAL AWARENESS

74. Michael Brown willfully failed to report key information directly to DHS leadership, instead reporting straight to White House officials.

75. The Homeland Security Operations Center (HSOC) failed to take timely steps to create a system to identify and acquire all available, relevant information.

76. The HSOC failed in its responsibility under the National Response Plan to provide "general situational awareness" and a "common operational picture," particularly concerning the failure of the levees, the flooding of New Orleans, and the crowds at the Convention Center.

77. On the day of landfall, senior DHS officials received numerous reports that should have led to an understanding of the increasingly dire situation in New Orleans, yet they were not aware of the crisis until Tuesday morning.

78. Louisiana was not equipped to process the volume of information received by its emergency operations center after landfall.

79. Lack of situational awareness regarding the status of deliveries created difficulties in managing the provision of needed commodities in Louisiana and Mississippi.

CRITICAL INFRASTRUCTURE; ESF 15 PUBLIC AFFAIRS

80. Hurricane Katrina demonstrated that it is an enormous and complex task for government to assess damage to critical infrastructure and work with the private sector to coordinate its restoration. At the time Katrina struck, the Department of Homeland Security had not completed its planning and assessment work to prioritize the protection of critical infrastructure; this plan might have been helpful in coordinating the restoration of critical infrastructure.

81. Federal and state officials failed to fulfill their responsibilities under federal and state plans to disseminate timely and accurate information to the public.

SEARCH AND RESCUE

82. Federal, state and local agencies rescued approximately 60,000 people in the aftermath of Katrina. Of this 60,000, the Coast Guard missions alone accounted for 33,000 rescues. The Louisiana Department of Wildlife & Fisheries (W&F), along with the out-of-state agencies that assisted the department through the EMAC process, accounted for 21,000 rescues. The Coast Guard, Department of Defense and the National Guard conducted an extensive helicopter search and rescue mission.

83. The National Response Plan (NRP) does not adequately address the organizational structure and the assets needed for search and rescue in a large-scale, multi-environment

catastrophe. Under the NRP, Emergency Support Function 9 (Urban Search and Rescue) is focused on missions to rescue people in collapsed structures. Emergency Support Function 9 gives the U.S. Coast Guard a support role for water rescue. However, the NRP does not provide a comprehensive structure for water and air rescues, which constituted a significant portion of the necessary search and rescue missions in the Katrina response.

84. The lack of a strategic intergovernmental plan to address search and rescue in a disaster environment that required tactical planning and organization, communications, air traffic control, and the reception of victims, led to inefficient employment of resources, hazardous flight conditions, and protracted waits by victims in need of rescue.

85. The City of New Orleans left the New Orleans Fire Department (NOFD) and the New Orleans Police Department (NOPD) unprepared to conduct water search and rescue missions by repeatedly denying budget requests by those departments for watercraft. Consequently, the NOFD entered Katrina with no boats, and the NOPD entered Katrina with five boats.

86. The Louisiana National Guard stationed many boats and high water vehicles at Jackson Barracks, one of the lowest points in the city. Jackson Barracks flooded during Katrina and rendered many of these assets unavailable for search and rescue missions.

87. The individuals working on behalf of federal, state and local agencies to rescue victims worked in chaotic situations often at great risk to themselves. Yet search-and-rescue resources, including boats and helicopters, were insufficient despite their accelerated deployment through the first week of landfall.

88. Despite the large number of helicopters in the Gulf by the end of the first week, the number of helicopters capable of performing search and rescue—the most critical of all missions—was still inadequate for the number of victims in immediate need of rescue.

89. Regarding the need for additional boats, the state asked for rubber rafts but FEMA did not provide them because FEMA decided rubber rafts would not be sturdy enough to maneuver in debris laden water. However, state officials disagree and believe these rafts would have been valuable for such things as towing groups of rescued victims behind regular boats.

90. Planning and coordination by the designated lead federal and state agencies, FEMA and the Louisiana Department of Wildlife & Fisheries, were inadequate and impaired the overall effectiveness of the search and rescue mission.

91. The Hurricane Pam exercise predicted flooding in New Orleans and called for boat-and helicopter-based rescues, but emergency planners at all levels of government did not anticipate before landfall the need for large scale rescue operations.

92. FEMA did not equip or train its SAR teams for water search and rescue. FEMA SAR teams did not begin search and rescue missions until Tuesday morning.

93. Communications failures abounded at the local, state and federal level exacerbating the ability of agencies and their rescuers to coordinate their work.

94. The Emergency Management Assistance Compact proved to be a valuable resource for Louisiana to obtain necessary equipment and teams. However, bureaucracy related to and confusion over the approval process delayed its utility to the State of Louisiana.

95. Concerns about lawlessness forced some FEMA and NOFD search and rescue teams to pull back their operations temporarily because they lacked security.

96. The Department of Homeland Security was slow to deploy equipment that could have assisted in the response to Katrina. For example, the Department did not deploy, until nearly a week after the storm, pre-positioned equipment "pods," each of which was capable of providing lifesaving equipment to 150 first responders. DHS waited until at least two days after landfall to advise either Louisiana or Mississippi of their availability.

Search and Rescue for Mississippi

97. The number of communities and the geographic area affected by Katrina created manpower and logistical difficulties for search and rescue operations, especially given the time-sensitive nature of the work.

98. The amount of debris hindered search and rescue operations. Mississippi National Guard engineering unit and others often had to clear debris before rescuers could access areas to conduct operations.

99. The collapse of communications along the Gulf Coast made coordination difficult from the start and presented challenges for the duration of search and rescue missions.

100. Despite the many challenges, search and rescue operations proceeded successfully along the Mississippi Gulf Coast, with operations beginning even before the flood waters had receded. Search and rescue responders and assets were effectively marshaled from the ranks of Mississippi communities, FEMA, EMAC states, the Coast Guard, Mississippi National Guard, and other sources.

POST-LANDFALL EVACUATION

101. The failure to effect a complete pre-landfall evacuation amplified the challenges of the post-landfall evacuation.

102. While the need for post-landfall evacuation of New Orleans was foreseeable, no level of government took the steps necessary to prepare for it.

103. FEMA Director Michael Brown failed to follow through on his promise to Louisiana officials to arrange for speedy delivery of buses to evacuate New Orleans.

104. Lack of communication among city officials resulted in the missed opportunity to use as many as 200 safely positioned city buses to begin the evacuation of New Orleans shortly after Katrina passed.

105. The Louisiana Department of Transportation and Development's lack of preparedness contributed to the delay in locating in-state buses to evacuate New Orleans.

106. Delays in arranging transportation to evacuate New Orleans led to unnecessary suffering of people stranded there.

107. Provisions for sheltering were inadequate, and the state of Louisiana was at least partially responsible.

108. Concerns about security slowed the post-landfall evacuation.

109. No level of government addressed the evacuation of the Convention Center until Friday, two days after large numbers of people began congregating there.

LOGISTICS

110. DHS leaders knew or should have known that FEMA's logistics system suffered from significant and long standing problems, yet, they did not take sufficient steps to fix the system.

111. Prior to landfall, FEMA failed to pre stage enough commodities in either Mississippi or Louisiana.

112. FEMA's logistics system failed out of the box, but with revisions and assistance from DOD logistics specialists, the FEMA system began to improve in the second week after landfall.

113. Louisiana's failure to adequately prioritize its requests to FEMA wasted FEMA's time and limited resources.

114. Louisiana Office of Homeland Security and Emergency Preparedness failed to effectively coordinate the distribution of commodities.

115. The ARF and E Team methods by which response resources were requested were incompatible and ill equipped to handle a disaster of this magnitude.

116. FEMA lacked the ability to track the shipment of commodities. The lack of visibility disrupted the ability to respond effectively to the aftermath of Katrina.

117. Fuel is a crucial commodity during the response to any disaster. In Katrina's immediate aftermath, a shortfall in the fuel supply hindered the response as early attempts to mitigate the disruptions appear to have been inadequate.

118. The Louisiana National Guard (LANG) failed to anticipate and adequately plan for the large scale commodity distribution necessitated by Katrina. LANG did not have enough manpower and equipment available to complete its distribution mission.

119. During approximately the first ten days following the storm, the federal logistics system was unable to provide the requested level of Meals Ready to Eat (MRE) rations, water, and ice in Mississippi.

120. The commodity pipeline Florida set up to bring supplies into south Mississippi was crucial to alleviating additional suffering in that area.

121. Early in the response, Mississippi recognized how severely Katrina had disrupted the state's infrastructure and the resulting inability of many residents of south Mississippi to travel to the Points of Distribution to acquire life-saving supplies. The resulting "push" of supplies by the National Guard to residents was crucial to preventing additional hardship in south Mississippi.

MEDICAL ASSISTANCE

Federal

122. The federal government's medical response suffered from a lack of planning, coordination, and cooperation, particularly between the U.S. Health and Human Services and the Department of Homeland Security.

123. Despite its lead role as the primary agency in charge of coordinating the federal medical response, the Department of Health and Human Services did not deploy its on scene response-coordination teams as rapidly as it should have, and lacked adequate emergency-coordination staff and resources.

124. The federal agencies involved in providing medical assistance did not have adequate resources or the right type or mix of medical capabilities to fully meet the medical needs arising from Katrina, such as meeting the needs of large evacuee populations, and were forced to use improvised and unproven techniques to meet those needs.

125. Unlike Disaster Medical Assistance Teams, the U.S. Public Health Service is not organized or equipped to serve as medical first responders and have no pre established, readily deployable teams, personnel practices, transportation and other logistical difficulties.

126. Although FEMA eventually deployed virtually all of its National Disaster Medical System resources – having started with only a single team – there was a greater need for such teams than could be filled, and those teams that did deploy experienced difficulties in obtaining necessary logistical, communications, security, and management support.

127. Despite efforts by both FEMA and HHS to activate federal emergency-health capabilities of the National Disaster Medical System (NDMS) and the U.S. Public Health Service as Katrina approached the Gulf Coast, only a limited number of federal medical teams were actually in position prior to landfall to deploy into the affected area, of which only one (the Oklahoma – 1 Disaster Medical Assistance Team) was in a position to provide immediate medical care in the aftermath of the storm.

128. Although a shipment of medical supplies was dispatched from the Strategic National Stockpile to Louisiana late on Sunday, August 28, in response to a last-minute request from the City of New Orleans, it was not possible to get it to Louisiana before landfall, and no other federal medical supplies were pre-positioned in the Gulf region.

Louisiana

129. The State of Louisiana failed to ensure that nursing homes and hospitals were incorporated into the State's emergency-planning process, and as a result failed to ensure that they had effective evacuation plans or were genuinely prepared to shelter their critical care patients in place, causing loss of life and avoidable suffering.

130. Louisiana failed to plan for known emergency medical-response needs, such as post storm evacuation of patients from hospitals or moving large numbers of patients to medical treatment facilities.

131. Louisiana State University failed to carry out its responsibilities under the state emergency-operations plan to ensure adequate emergency preparedness for health-care

facilities, and the Louisiana Office of Homeland Security and Emergency Preparedness failed to ensure that its functions were implemented.

PUBLIC SAFETY AND SECURITY

132. Actual and perceived lawlessness hampered the emergency response during Katrina.

133. In statements to the media, New Orleans officials perpetuated unsubstantiated rumors about violent crimes that had not occurred.

134. The NOPD was overwhelmed by Katrina. Under extraordinarily difficult circumstances, most of its officers performed their duties.

135. The NOPD failed to adequately provision personnel or coordinate fully the pre-staging and pre-positioning of its assets, which reduced its effectiveness.

136. DHS and DOJ's failure to understand, plan for and implement their ESF-13 responsibilities in natural disasters prior to Katrina led to delays in providing law enforcement assistance.

137. Neither DHS nor DOJ planned for or coordinated their joint ESF-13 roles and responsibilities relating to a natural disaster.

138. The lack of advanced planning by DHS and DOJ delayed the deployment of Federal law enforcement into the Gulf region and New Orleans, in particular.

139. Inadequate planning by local officials for the evacuation of detention facilities and the identification of back-up facilities for new arrests contributed to the public safety problems in New Orleans.

140. There was insufficient coordination of the processes that procured and deployed National Guard and civilian law enforcement assistance.

MILITARY OPERATIONS

Overall

141. The National Guard and active-duty military troops and assets deployed during Katrina constituted the largest domestic deployment of military forces since the Civil War. The National Guard and active-duty military response saved lives; provided urgent food, water, shelter, and medical care to many hurricane victims; and helped restore law and order, re-establish communications, and rebuild damaged roads.

142. Although the Department of Defense's preparations for Katrina were consistent with its procedures and prior practices in civil-support missions, they were not sufficient for a storm of Katrina's magnitude. Additional preparations in advance of specific requests for support could have enabled a more rapid response.

143. The deployments of National Guard and active-duty forces were not well coordinated. A major cause of this was that there was no pre existing plan or process for the large scale deployment of National Guard forces from multiple states in response to a catastrophic disaster. NORTHCOM did not have full and timely information on the capabilities of National Guard troops deploying to the Gulf Coast.

144. In part because of the lack of a pre existing plan for large scale deployments, some National Guard units arrived before there was established an adequate command-and-control structure for the number of forces deployed, resulting in a failure to efficiently employ all available troops.

145. While some active-duty and National Guard units are designed and structured to deploy rapidly as part of their military missions, the Department of Defense is not organized, funded or structured to act as a first-responder for all domestic catastrophic disasters.

146. The dual military-command structure in Katrina exposed a fundamental tension – inherent in our system of government – between the principles of unity of command and federalism.

147. DOD has unique resources and capabilities to provide humanitarian relief in a catastrophe. FEMA's failure to request these assets sooner delayed the Department's delivery of these critical assets.

148. On the whole, the performance of the individual sailors, soldiers, and airmen—active, guard, and reserve—was in keeping with the high professional standards of the United States Military and these men and women are proud of their service to help the victims of this natural disaster.

Pre-Landfall Preparation

148. The Department of Defense prepared for Hurricane Katrina in a manner consistent with its interpretation of DOD's role under the National Response Plan, which is to respond to requests for assistance from FEMA. However, this approach was inadequate to prepare for a catastrophe of the magnitude of Katrina.

149. The Department of Defense's preparations prior to landfall largely consisted of deploying Defense Coordinating Officers and Defense Coordinating Elements, identifying staging bases, identifying some assets and units for potential disaster support, participating in

conference calls and meetings led by FEMA, monitoring the progress of the storm, and identifying available commodities.

150. Based on their previous experience in hurricanes, prior to landfall a number of commanders took additional actions to prepare assets for deployment in advance of any specific request or order for those assets.

151. Northern Command and First Army commanders requested that certain DOD assets be identified before landfall in anticipation of requirements, but the Joint Directorate of Military Support failed to respond in a timely manner.

152. Because the Department has denied the Committee access to Northern Command's plans for its preparation for and response to domestic catastrophes, even though they are not classified, the Committee is unable to assess their status and adequacy. The Committee has received directly contradictory testimony as to whether these plans are complete, so it is unclear to what extent the Department, especially Northern Command, had planned its response to Katrina or whether the plans would have addressed the problems of coordination identified by this investigation.

Initial Response after Landfall

153. During the initial 24 hours after landfall, the Department of Defense lacked timely and accurate information about the immediate impact of Hurricane Katrina. DOD and DHS did not coordinate adequately for the use of DOD assets to make such assessments during this period.

154. During this initial period after landfall, a number of military commanders within the services were proactive, identifying, alerting, and positioning assets for potential response, prior to receiving requests from FEMA or specific orders. Many of these preparations proved essential to the overall response; however, they reflected the individual initiative of various commanders rather than a pre-planned, coordinated response as is necessary for a disaster of this magnitude.

155. During this initial period after landfall, the office of the Joint Director of Military Support took the position that DOD should provide support or mobilize assets only after DOD had received, evaluated, and approved a specific request for assistance from FEMA. As a result, DOD did not act quickly to process and approve the first request it received from FEMA for two helicopters for rapid needs assessment.

156. On Tuesday, August 30, as DOD officials became concerned about the extent of the damage, DOD prepared and mobilized many assets to be able to respond quickly to requests for assistance and provide military support to the hurricane response. The Acting Deputy Secretary of Defense gave direction that eliminated much of the internal review and approval process, and encouraged the deployment of assets that commanders

deemed potentially necessary prior to receiving requests for such assets. The Chairman of the Joint Chiefs of Staff provided guidance to the Service Chiefs on Tuesday to exercise their own judgment in pushing assets forward. The services followed this guidance. Some commanders moved quickly to mobilize and position assets for potential deployments in advance of formal requests or approvals.

157. Not all deployments were fully coordinated among the services, NORTHCOM, and the Joint Task Force. NORTHCOM did not have a complete picture of the movement of troops and resources within its area of responsibility.

Responses to FEMA's Requests for Assistance

158. DOD's normal, "21 step" process for accepting assignments from FEMA to assist in responding to a disaster is cumbersome and unlike the processes followed by all other federal agencies. It also caused tension between DOD and FEMA and slowed certain of DOD's initial efforts in the response.

159. On Tuesday, August 30, in an effort to speed DOD's response, the Acting Deputy Secretary of Defense suspended the regular approval process, including the requirement that formal written approval by the Secretary of Defense precede the actual execution of a mission. Following this decision, DOD appears to have responded quickly to FEMA requests for assistance.

160. Despite the assignment of numerous DOD liaison officers, some FEMA officials still did not have a good understanding of the assets and resources that DOD could provide. Similarly, some FEMA officials did not have a good understanding of the DOD's processes for responding to FEMA requests for assistance.

161. In many instances, discussions between FEMA or DHS officials and DOD officials were necessary to clarify requests for assistance or to ensure that DOD would be providing the most effective resources in response to the request. Some FEMA officials believed that these discussions and DOD's approval process took too long.

National Guard Troop Deployments

162. There is no established process for the large scale, nationwide deployment of National Guard troops in response to a governor's request for large scale deployment of troops for civil support.

163. During Katrina, neither the state of Louisiana, the state of Mississippi, nor the Emergency Management Assistance Compact was able to manage the large scale deployments of National Guard troops from all 50 states and 4 other jurisdictions.

164. The National Guard Bureau solicited the rapid deployment of National Guard troops from all 50 states and four other jurisdictions. Although this process successfully deployed a large number of National Guard troops, it did not proceed efficiently, or according to any pre existing plan or process.

Federal Troop Deployments

165. Some active-duty units, including elements of the 82nd Airborne Division and the Second Marine Expeditionary Force, are maintained on alert for rapid deployment, and were placed on higher alert on Wednesday, August 31. These forces could have deployed sooner into Louisiana had the President or the Defense Department made a decision to deploy them.

166. Due to the restrictions placed by the White House and DOD on the Committee's ability to interview White House and senior civilian and military officials within DOD about deployment decisions, the Committee has been unable to conclude why the President ordered the deployment of federal active-duty troops on Saturday, September 3, including reasons why the President did not order the deployment of federal active-duty troops sooner. However, the Committee has been able to make findings about DOD officials' views on these topics.

167. The deployment of National Guard forces before active-duty troops was consistent with the DOD Strategy for Homeland Defense and Civil Support, which relies on the National Guard in the first instance for civil support.

168. The large numbers of National Guard troops that were deploying into Louisiana were a major factor in the Department of Defense's decision not to deploy additional active-duty troops prior to Saturday, September 3. DOD officials said that the choice to deploy National Guard troops first was correct because the Guard is designated as the first military responder under the DOD Strategy for Homeland Defense and Civil Support, and because National Guard forces, unlike active duty troops, are not restricted from performing law-enforcement duties under the federal Posse Comitatus Act.

169. Federal and state officials did not coordinate well the requests and consideration of requests for National Guard and active-duty troop deployments. The Governor of Louisiana asked for 40,000 troops, but federal officials did not interpret this as a specific request for active-duty troops.

170. Local, state, and federal officials had differing perceptions of the numbers of federal troops that would be arriving and the appropriate command structure for all troops, causing confusion and diverting attention from response activities. In Louisiana, a stronger unified command might have avoided this confusion and diversion of attention.

POOR CONTROLS AND DECISIONS IN FEMA SPENDING

171. Taxpayer dollars meant for relief and recovery were lost to waste and fraud.

172. Wasteful practices and program control weaknesses that FEMA indicated it had identified and was addressing after the 2004 Florida hurricanes were not remedied prior to Katrina.

173. Due to a lack of planning and preparation, much of FEMA's initial spending was reactionary and rushed, resulting in costly purchase decisions and utilization of no-bid, sole source contracts that put the government at increased risk of not getting the best price for goods and services.

FAILURES IN DESIGN, IMPLEMENTATION, AND EXECUTION OF THE NATIONAL RESPONSE PLAN

174. DHS did not effectively implement the National Response Plan, although it was released in January 2005 and required to be implemented in April 2005.

175. The NRP lacked clarity on a number of points, including the role and authorities of the Principal Federal Official and the allocation of responsibilities among multiple agencies under the Emergency Support Functions, which led to confusion in the response to Katrina. Plan ambiguities were not resolved or clarified in the months after the NRP was issued, either through additional operational planning or through training and exercises.

176. Although DHS was charged with administering the plan and leading the response under it, DHS officials made decisions that appear to be at odds with the NRP, failed to fulfill certain responsibilities under the NRP on a timely basis, and failed to make effective use of certain authorities under the NRP.

177. By not implementing the NRP's Catastrophic Incident Annex (NRP CIA) in response to Hurricane Katrina, the Secretary of DHS did not utilize a tool that may have alleviated some of the difficulties with the federal response. The Secretary's activation of the NRP CIA could have increased the urgency of the federal response and led the federal government to respond more proactively rather than waiting for formal requests from overwhelmed state and local governments.

178. DHS had not completed the Catastrophic Incident Supplement referred to in the NRP CIA, had not engaged in adequate catastrophic planning, and had not developed regional or situation specific plans that could have improved the usefulness of the NRP in a catastrophe.

179. In the absence of additional operational planning and without adequate implementation, the NRP was insufficient to address this catastrophic event.

180. The Incident Command System doctrine includes the concept of Unified Command, which is designed to allow all agencies with responsibility for an incident to work together effectively. It establishes a process through which strategies and objectives are determined collectively so that agencies under different jurisdictional control can work under a single incident action plan toward common objectives.

181. FEMA, as well as other federal agencies, did not have an adequate number of personnel familiar with and trained in the Incident Command System and the principles of unified command to be able to respond to a catastrophe of the magnitude of Katrina.

182. The Louisiana Office of Homeland Security and Emergency Preparedness suffered problems such as inadequate funding; not enough staff; insufficient training, (demonstrated by the need of Louisiana officials to hire consultants to train EOC participants and National Guard members in basic NIMS ICS courses two days after Katrina made landfall); widespread lack of understanding of NIMS ICS and unified command; an overall lack of preparation, and a lack of emergency-management capacity to respond effectively to Katrina. Together, these were the primary reason for the failure to establish unified command and establish an incident command structure in Louisiana.

183. Mississippi established a unified command with FEMA, conducted joint planning prior to landfall, and was able to broaden the unified command and establish an incident command structure after a short period of chaos following Katrina.

184. Senior leaders and individuals in Mississippi with responsibilities for emergency management had been given extensive prior training on NIMS ICS, and FEMA's senior personnel in Mississippi possessed a very high level of knowledge and understanding of NIMS ICS.

185. Where and when personnel with experience and training on NIMS ICS were in control with an adequate number of trained support personnel, coupled with the discipline to adhere to the doctrine of NIMS ICS, it made a positive difference in the quality and success of implementing an incident command structure, establishing a unified command, and the response.

RECOMMENDATIONS

In the recommendations that follow, we set out seven foundational recommendations meant to help establish a sturdy underpinning for the nation's emergency management structure. Based on the weaknesses and challenges we uncovered in our investigation, we believe the foundational recommendations are the essential first steps in the successful construction of an effective system.

These recommendations are then followed by what will be the building blocks for the structure, the more tactical actions that must be taken – by federal, state, and local governments, non-governmental organizations, the private sector, and individual citizens – to make the system strong, agile, effective, and robust. The foundation is crucial, and every building block we can add will make the system stronger. We believe these measures, if implemented, will significantly improve the nation's ability to prepare for and respond to disasters and catastrophes, providing better safety and security for our citizens.

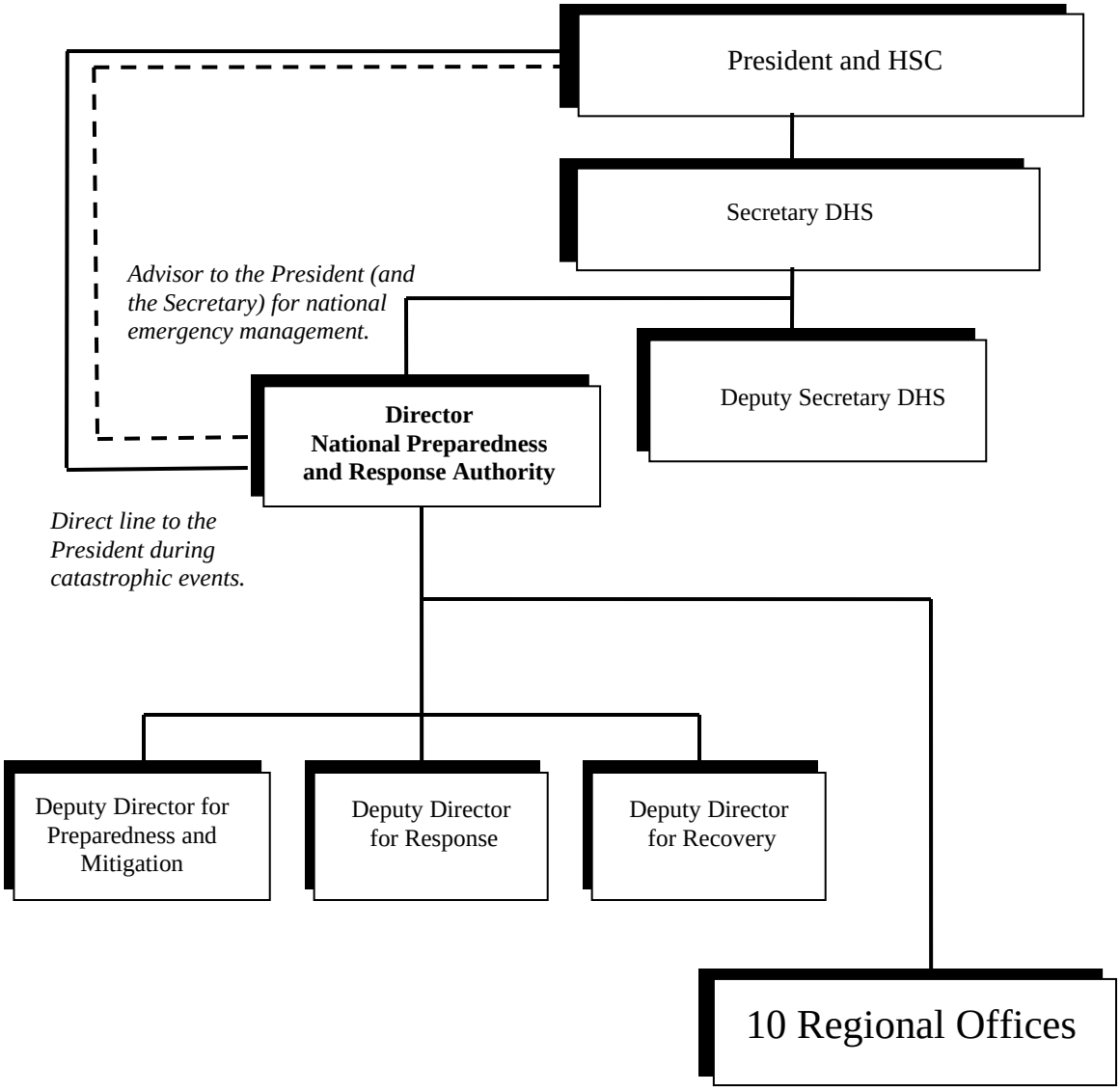
Foundational Recommendations

Foundational Recommendation #1- Create a New, Comprehensive Emergency Management Organization within DHS to Prepare for and Respond to All Disasters and Catastrophes.

Hurricane Katrina exposed flaws in the structure of FEMA and DHS that are too substantial to mend. We propose to abolish FEMA and build a stronger, more capable structure within DHS. The structure will form the foundation of the nation's emergency management system. It will be an independent entity within DHS, but will draw on the resources of the Department and will be led and staffed by capable, committed individuals.

We must create a robust National Preparedness and Response Authority (NPRA) within the Department of Homeland Security. The NPRA would fuse the Department's emergency management, preparedness and critical infrastructure assets into a powerful new organization that can confront the challenges of natural or man-made catastrophes. It will provide critical leadership for preparedness and response by combining key federal personnel and assets, as well as federal partnerships with state and local officials and the private sector to prepare for and respond to terror attacks or natural disasters.

National Preparedness and Response Authority



The NPRA will have the following characteristics[1]:

Distinct Entity within DHS, with Access to the Full Resources of the Department. It is essential that NPRA be located within DHS, but it should be situated as a "distinct entity" – the same status accorded the U.S. Coast Guard and the U.S. Secret Service. The organization's mission and components should also be protected from internal reorganizations or diminution by the Department.

DHS is the central agency in the federal government for protecting the nation from the effects of terrorist attacks and natural disasters, and NPRA's mission is a necessary part of that. Maintaining NPRA within DHS allows the new organization to take full advantage of the substantial range of resources DHS has at its disposal – the Coast Guard, the National Communications System, SAFECOM (which provides research and support for interoperable communications), and one of the largest bodies of federal law enforcement agents in any federal agency. DHS's prevention and intelligence resources also represent potentially valuable assets, as more effective identification of risks and vulnerabilities can lead to better and more targeted preparedness. In short, DHS has a substantially greater and wider range of resources that can be brought to bear on the challenge of natural or man-made catastrophes in a disaster than was or would be the case with an independent FEMA; what was formerly the responsibility of a small 2500-person independent agency is now the responsibility of a 180,000 person, Cabinet-level department.

Removing NPRA (or FEMA as it currently exists) from the Department, moreover, would do nothing to solve the key problems that Katrina has revealed, including a lack of resources and weak and ineffective leadership. Separating NPRA from DHS would, in fact, potentially cause new difficulties, including the need to replicate a number of key functions, such as facilities to maintain situational awareness, in two different agencies. It would also place a hardship on states that would have to coordinate their preparedness and response efforts through two separate federal agencies. Katrina has made it clear that we need more integration in federal preparedness and response, not less, and that we need to effectively integrate, not bifurcate, prevention, preparedness, protection and response initiatives with state, local, and non-governmental and private sector partners.

It is important to draw a distinction between preventing a terrorist attack and preventing damage from a terrorist attack or natural disaster. Prevention activities related directly to preventing a terrorist incident from occurring, largely a law enforcement and intelligence function, are not included in the NPRA. Neither would be the grants that support this function.

Director with Sufficient Access and Clout. The Director of National Preparedness and Response should be a Level II official – that is, of the same rank as the Deputy Secretary – and would report directly to the Secretary of DHS. The Director would also serve as the Advisor to

[1] While the entirety of DHS' Preparedness Directorate would become part of NPRA, we continue to review the appropriate placement of individual offices (e.g., Infrastructure Protection, the Chief Medical Officer, and Cyber and Telecommunications).

the President for national emergency management, in a manner akin to the Chairman of the Joint Chiefs of Staff. The Director would have a direct line of communication to the President during catastrophes.

The Director should also have the political authority to direct appropriate personnel within DHS and in other departments and agencies of the federal government to carry out their assigned emergency management responsibilities under the Stafford Act, the National Response Plan (NRP), Emergency Support Functions (ESFs), and other appropriate emergency management doctrine.

Capable and Qualified Leadership. Those leading NPRA should have skills commensurate with the organization's critically important mission of protecting American lives and property in the event of a terrorist attack or natural disaster. The three Deputy Directors – for Preparedness and Mitigation, Response, and Recovery – would serve under the Director and would be Level III, Senate-confirmed appointees. Each of ten regional offices would be headed by an Senior Executive Service-level Regional Director qualified to act as a senior Federal Coordinating Officer to provide strategic oversight of incident management when needed.

The Director and each of the three Deputy Directors should have significant experience in crisis management, in addition to substantial management and leadership experience, whether in the public, private or nonprofit sector. For example, appropriate experience could include a military career with broad leadership experience; emergency management experience and a proven track record of leading complex preparedness and response efforts; or private sector experience successfully leading a company or organization through a crisis.

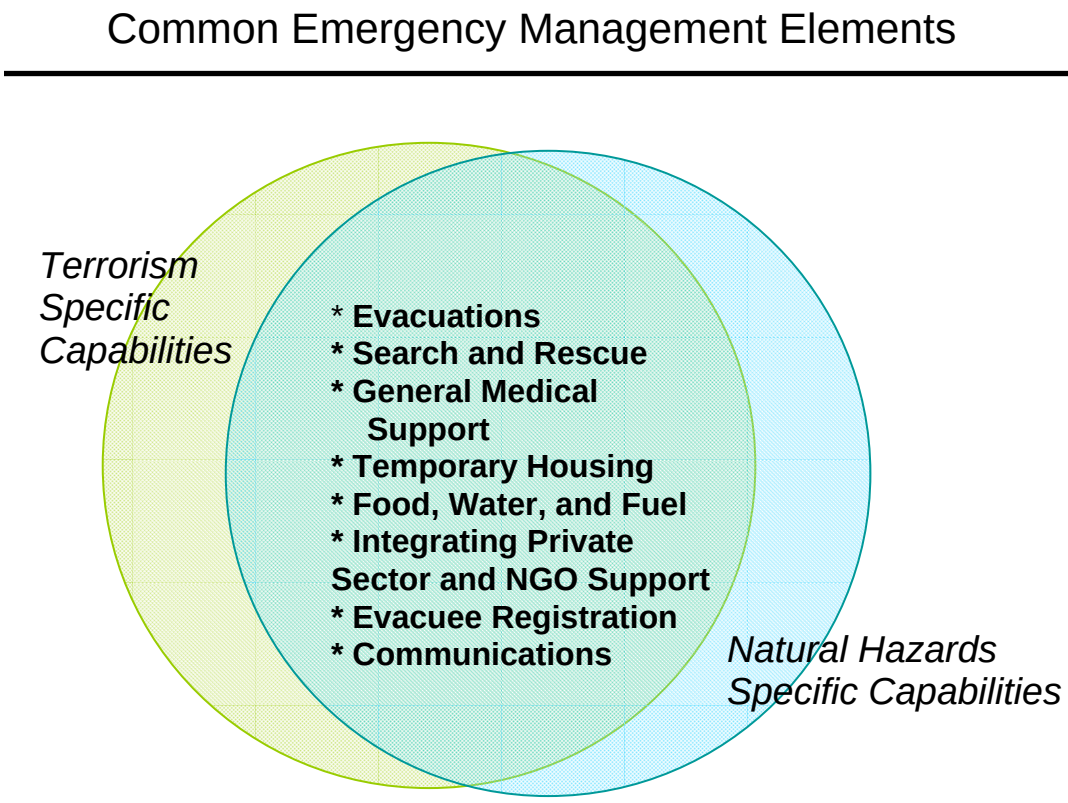
Those with direct technical and operational responsibilities during disasters should be individuals with emergency or crisis management knowledge, training, and experience. The nation's preparedness and response agency requires a cadre of seasoned professionals with knowledge of crisis management and government operations, who have exhibited leadership and commitment and will build trusted relationships with other federal agencies, state and local governments, non-governmental organizations (NGOs), volunteer organizations, and the private sector.

Foundational Recommendation #2 - From the Federal Level Down, Take a Comprehensive All-Hazards *Plus* Approach to Emergency Management.

The new organization should bring together the full range of responsibilities that are core to preparing for and responding to disasters. These include the four central functions of comprehensive emergency management – preparedness, response, recovery and mitigation – which need to be integrated. Actions in recent years that removed preparedness grants from FEMA and separated preparedness from response weakened FEMA's relationship with state officials and undermined its ability to utilize "the power of the purse," in the form of grant funding, to encourage states to improve their preparedness and response functions. A more comprehensive approach should be restored. If NPRA is going to effectively respond to major events, for example, it needs to have been involved in the preparations for such events. The

Director, moreover, must be responsible for the administration and distribution of preparedness grants to state and local governments and for national preparedness training, as these are key tools for ensuring a consistent and coordinated national response system.

All-Hazards Plus. NPRA would adopt an "all-hazards plus" strategy for preparedness. In preparing our nation to respond to terrorist attacks and natural disasters, NPRA must focus on building those common capabilities – for example survivable, interoperable communications and evacuation plans – that are necessary regardless of the incident. At the same time, it must not neglect to build those unique capabilities – like mass decontamination in the case of a radiological attack or water search and rescue in the case of flooding - that will be needed for particular types of incidents.



Protect Critical Infrastructure. NPRA's mandate would also include overseeing protection of critical infrastructure, such as energy facilities and telecommunications systems, both to protect such infrastructure from harm and to ensure that such infrastructure is restored as quickly as possible after a natural disaster or terrorist attack – an essential part of an effective response. The critical infrastructure programs would work with the Department's intelligence arm and other Department assets to help prevent terror attacks, and should establish priorities for the protection and restoration during an emergency of critical infrastructure and should help support restorative efforts.

Foundational Recommendation #3 – Establish Regional Strike Teams and Enhance

Regional Operations to Provide Better Coordination between Federal Agencies and the States.

Most of the essential work of emergency management does not happen in Washington, D.C. but on the front lines, with state and local officials and first responders having lead responsibility in a disaster. Regional offices – building on FEMA's 10 existing regional offices – should play a key role in coordinating with and assisting states and localities in preparing for and responding to disasters. Regional offices can facilitate planning tailored to the specific risks and needs of a particular geographic area: for example, the risks faced, and the types of preparedness necessary, in Gulf Coast states may differ markedly from that of cities along the Northeast Corridor that were attacked on 9/11 or those areas that lie along the New Madrid fault.

Federal Strike Teams. The regional offices should provide the federal government's first-line response to a disaster when assistance is requested by a state. A critical feature of the regional structure should be a robust, deployable, multi-agency Strike Team at each of the regional offices that consists of, at a minimum, a designated Federal Coordinating Officer (FCO); personnel trained in incident management, public affairs, response and recovery, and communications support; a Defense Coordinating Officer (DCO); and liaisons to other federal agencies. These regional Strike Teams should coordinate their training and exercises with the state and local officials and the private sector entities they will support when disasters occur.

Coordination and Assistance to States. The regional offices should provide coordination and assist in planning, training, and exercising of emergency preparedness and response activities; work with states to ensure that grant funds are spent most effectively, based on the specific risks and weaknesses identified at the regional level; coordinate and develop inter-state agreements; enhance coordination with NGOs and the private sector; and provide personnel and assets, in the form of Strike Teams, to be the federal government's first line of response to a disaster.

Adequate Regional Staffing. Regional offices would be staffed based on the needs in that region but would likely include any or all of the following: a regional Strike Team; a dedicated staff and FCO for each state in the region; regional grants administration and oversight coordinator(s); regional and interstate planning; training, and exercise support and coordination officer(s); a federal interagency liaison; an interstate cooperation coordinator, designated state DCOs and National Guard liaisons; a private sector, NGO, and volunteer organization coordinator; mitigation specialist(s); and response and recovery specialist(s).

Multi-Agency Regional Efforts. The regional offices should coordinate with personnel from other components of DHS as well as from federal agencies outside DHS who are likely to be called upon to respond to a significant disaster in the region, including the Coast Guard, and the Departments of Health and Human Services (HHS), Defense (DOD), Transportation (DOT), Justice (DOJ) and others.

Foundational Recommendation #4 - Build a True, Government-Wide Operations Center to Provide Enhanced Situational Awareness and Manage Interagency Coordination in a Disaster.

During Katrina, the Homeland Security Operations Center (HSOC) had difficulty maintaining accurate situational awareness and failed to ensure that those in DHS's leadership had an accurate picture of the situation on the Gulf Coast, particularly about the failing levee system in New Orleans. Currently, there is a multiplicity of interagency coordinating structures with overlapping missions, that attempt to facilitate an integrated federal response. Three of these structures – the Homeland Security Operations Center (HSOC), the National Response Coordination Center (NRCC), and the Interagency Incident Management Group (IIMG) – should be consolidated into a single, integrated entity – a new National Operations Center (NOC).

Common Operating Picture. The NOC, housed within DHS, should include representatives from all relevant federal agencies. In an actual or potential disaster, the operations center should supply government-wide situational awareness, facilitate information sharing, and provide overall operational coordination through agency mission assignments and the NRP's Emergency Support Function (ESF) process. All federal and relevant state and local command centers would feed relevant information to the NOC, which would develop a common operating picture not just for DHS, but for the entire federal government, as well as states and local jurisdictions involved in an incident. The NOC should provide for one clearly defined emergency management line of communication from the states to the federal government and from the federal government to the states. DHS should work with the NOC to develop protocols for disseminating information on the status of relief efforts to decisionmakers, responders, the private sector, and affected individuals.

Replace the IIMG. The IIMG would be disbanded and replaced by a permanent policy staff comprised of detailees from relevant federal agencies who would conduct planning for emergencies and would help resolve conflicts among different federal entities. Conflicts that could not be resolved at this level would be forwarded to higher-level agency officials or the HSC for resolution. The NOC would include a strong analytic team capable of sorting through and assessing information and determining which pieces would become part of the common operating picture.

Improved Performance. To improve its performance in future disasters, the NOC should establish clear protocols and procedures to ensure that reports are received and reviewed, at appropriate levels, in a timely manner. When there is notice of a potential major disaster, the NOC should implement plans, including one for securing information from DOD, for obtaining post-disaster situational awareness, including identifying sources of information and data particular to the region in which the disaster may occur and, where appropriate, bringing in individuals with particular knowledge or expertise about that region.

Foundational Recommendation #5 - Renew and Sustain Commitments at All Levels of Government to the Nation's Emergency Management System

Commitment from State and Local Government. Although the federal government should play a more proactive role in responding to catastrophic events, when state and local officials may be overwhelmed, states and localities will continue to provide the backbone of response – the first

response – for all disasters, catastrophic or not. State and local officials must take responsibility for their citizens' welfare and conduct the planning, training and exercising that will prepare them to meet this obligation.

Commitment Commensurate with the Mission. The importance of providing for the safety of our citizens in the event of a natural disaster or terrorist attack can hardly be overstated. Yet our investigation showed that FEMA did not have the resources to fulfill the mission and respond effectively in a catastrophic event. Resources are needed for additional planning, more frequent and ambitious training and exercises, the enhancement of regional offices, staffing and preparation of regional Strike Teams, better development of a trained cadre of reservists, and the development of new logistics capabilities. If the federal government is to improve its performance and be prepared to respond effectively to the next disaster, we must give NPRA – and the other federal agencies with central responsibilities under the National Response Plan – the necessary resources to accomplish this. We must fund NPRA commensurate with the significance of its mission and ensure that those funds are well-spent.

To be full partners in the national preparedness effort, states and localities will need additional resources as well. The pattern over the last three years of steadily declining funds for state and local preparedness needs to be reversed. NPRA should be given sufficient funds for homeland security and emergency management grants to assist state and local governments in developing and exercising emergency plans, providing training, and attaining and maintaining essential capabilities, such as survivable, interoperable communications. But the states and localities must do their part, as well. Every homeland security dollar, whether provided by the federal government or through state and local resources, must be spent only on those things that truly support the homeland security mission. The new NPRA regional offices should be tasked with working with states to ensure that homeland security dollar expenditures are based on the risks and needs identified for that state or locality.

Federal Commitment. The President, DHS, and Congress must ensure that the NPRA is funded, staffed and equipped consistent with the range of risks facing American citizens. The federal government must provide protection no less robustly for all domestic hazards than it does for the defense from threats abroad.

The Administration and DHS must ensure that federal leaders understand their key responsibilities under the National Response Plan and the resources they need to effectively carry out the comprehensive planning required, while also training and exercising on the National Incident Management System (NIMS), NRP and other operational plans. Each agency that has a role under an ESF, whether primary, coordinating, or supporting, should have a sufficient number of full-time staff whose primary responsibilities are to prepare for executing the agency's responsibilities under the ESF. Such preparedness activities should include training people who will be deployed to DHS's operational center for disaster response or to the disaster scene. These individuals must have sufficient authority and experience to be able to efficiently and effectively execute the agency's responsibilities under the ESFs.

State and Local Advisory Council. Any attempt to develop a full-fledged national system of

preparedness and response must fully integrate state and local officials into the system. There should be established an advisory council to NPRA made up of state and local officials and first responders. The advisory council should play an integral role in ensuring that the full range of activities of the new organization – including developing response plans, conducting training and exercises, formulating preparedness goals, and effectively managing grants and other resources – are done in full consultation and coordination with and take into account the needs and priorities of, states and localities.

Better Integrate NGOs and the Private Sector. After Katrina struck, private companies and their employees provided important, and even life-saving, relief to citizens across the Gulf Coast region; many other companies sought to offer assistance. Yet there was no system in place to effectively incorporate many private sector resources into the response effort. Nor was there a system to efficiently incorporate important contributions from faith-based and other charitable and community organizations that sought to offer assistance.

DHS and NPRA should more fully integrate the private and nonprofit sectors into their planning and preparedness initiatives. Among other things, they should designate specific individuals at the national and regional levels to work directly with private sector organizations. Where appropriate, private sector representatives should also be included in planning, training and exercises. In all cases, advance planning for how to most effectively utilize these nongovernmental resources is essential.

Foundational Recommendation #6 – Strengthen the Plans and Systems for the Nation's Response to Disasters and Catastrophes.

Despite their shortcomings and imperfections, the National Response Plan (NRP) and National Incident Management System (NIMS), including the ESF structure that has taken years to develop, currently represent the best approach available to respond to multi-agency, multi-jurisdictional emergencies of any kind, and should be retained and improved. Federal, state and local officials and other responders must commit to supporting the NRP and NIMS and working together to improve the performance of the national emergency management system. We must undertake further refinements of the NRP and NIMS, develop operational plans, and engage in training and exercises to ensure that everyone involved in disaster response understands them and is prepared to carry them out.

The NRP should be amended to add an Emergency Support Function (ESF) responsible for assessing the damage to critical infrastructure, taking measures to mitigate the impact on the economy and national security, and restoring critical infrastructure. DHS should be responsible for leading this ESF, but it should have the involvement of the private sector, other federal agencies, and state and local governments, as appropriate.

Successfully implementing the NIMS during a disaster or catastrophe requires a true unity of effort. We saw in Katrina that a unity of effort generates much better outcomes than the lack thereof. The NRP should be strengthened to make the unity of effort concept very clear, so that everyone understands the concept and their roles in establishing unity. The NRP should clearly

demonstrate the importance of establishing a unified command in which the principal incident management organizations – the Federal Joint Field Office (JFO), the DOD Joint Task Force (JTF), and the state Emergency Operations Center (EOC) – are co-located where the Incident Command System (ICS) and ESF staffs can be fully integrated. The NRP should also be revised to further clarify the importance of integrating agencies with ESF responsibilities into the ICS, rather than their operating in "stovepipes." Agencies should not function as independent "cells," but should be represented by functional areas throughout the ICS. For example, agency representatives working on transportation issues should be sitting together, whether they are from DOT, NPRA, or DOD. Likewise, agencies supporting ESF-13 (Public Safety and Security), which may include the DOJ, NPRA, the Coast Guard, and the State Police, should all be physically located and working together in a unity of effort.

The roles and responsibilities of the Principal Federal Official (PFO) and the Federal Coordinating Officer (FCO) are overlapping and were a source of confusion during Hurricane Katrina. The Stafford Act should be amended to clarify the roles and responsibilities of the FCO, and the NRP should be revised to eliminate the PFO position for Stafford Act-declared emergencies and disasters.

DHS should work with state and local governments to clarify expectations for such governments within the NRP. For the federal response to be effective, all levels of government must follow the same game plan. This did not always occur in Katrina.

The Stafford Act should be amended to address responses to all disasters and catastrophes, whether natural or man-made.

Foundational Recommendation #7 – Improve the Nation's Capacity to Respond to Catastrophic Events.

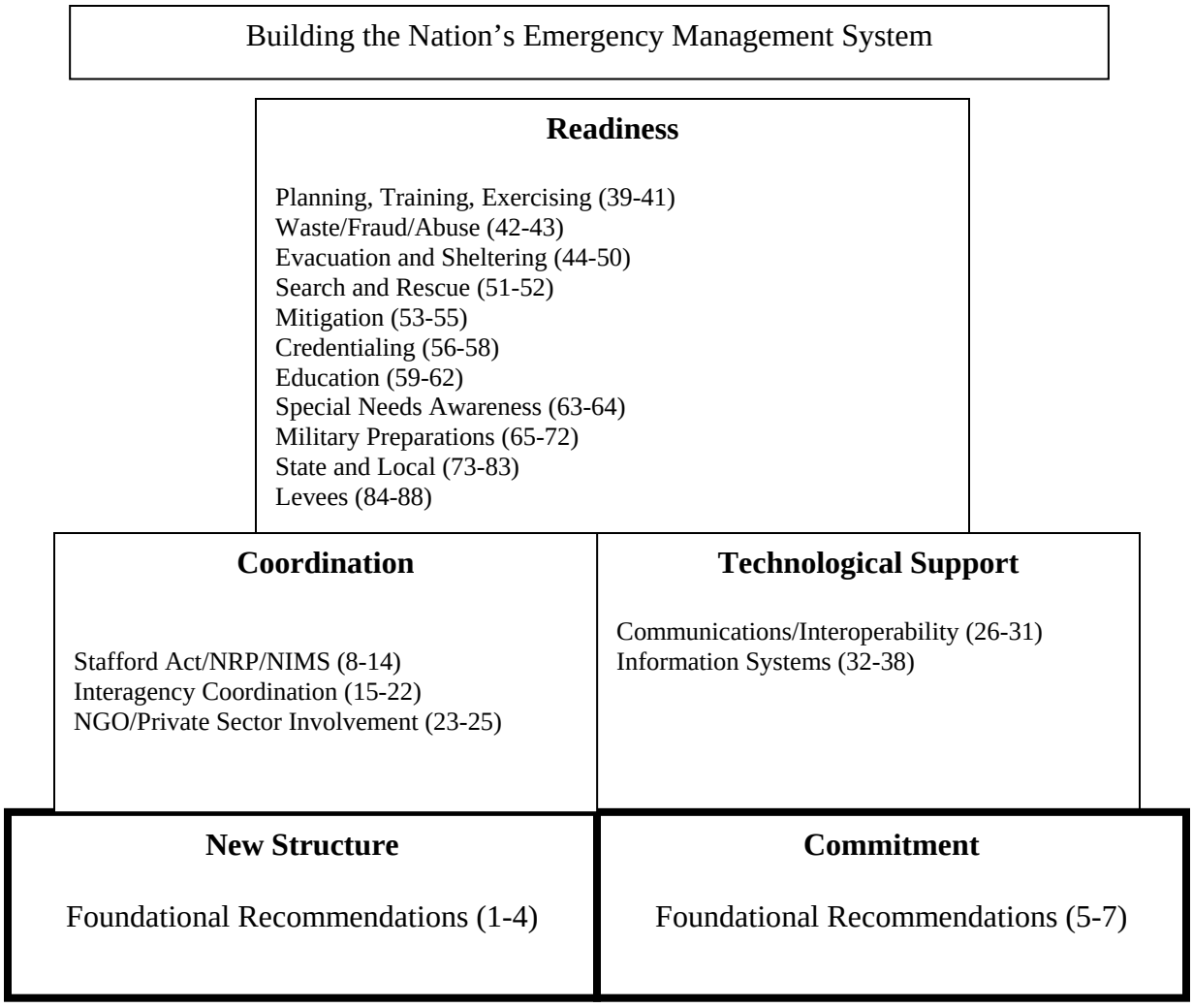
As documented in this report, FEMA does not have the capacity to respond to large-scale disasters and catastrophes. The United States was, and is, ill-prepared to respond to a catastrophic event of the magnitude of Hurricane Katrina. Catastrophic events are, by their nature, difficult to imagine and to adequately plan for, and the existing plans and training proved inadequate in Katrina. Yet it is precisely events of such magnitude – where local responders may be rendered victims, where hundreds of thousands of citizens are rendered homeless and thousands may need medical attention, where normal communications systems may fail, and where the usual coordination mechanisms may not be available, that most require advance planning. As stated previously, preparation for domestic incidents must be done as robustly as that for foreign threats. We would not tolerate a DOD that was not prepared for a worst-case catastrophic attack, nor should we tolerate a NPRA that is unprepared for domestic catastrophes.

Catastrophic Incident Annex and Supplement. DHS should ensure that the Catastrophic Incident Annex (NRP-CIA) is fully understood by the federal departments and agencies with associated responsibilities. The Catastrophic Incident Supplement (NRP-CIS) should be clarified and published, and the supporting operational plans for departments and agencies with responsibilities under the NRP-CIA should be completed. These plans should be reviewed and

coordinated with the states, and on a regional basis, to ensure they are understood, trained, and exercised prior to an emergency. In addition, ambiguities in the plans – such as whether commodities are to be pre-positioned to mobilization centers or directly to incident sites absent a state request – must be clarified. The NRP-CIS itself should also be continuously reviewed and revised based upon the lessons of Katrina and future catastrophes.

DHS should define the circumstances under which the Catastrophic Incident Annex and Supplement may be invoked, both for known and no-notice events. Finally, the Stafford Act should be amended to more clearly reflect the proactive responsibility of the federal government for catastrophic events represented in the NRP-CIA, including authorizing funding for federal agencies to pre-deploy necessary assets before a disaster when the NRP-CIA is activated by the Secretary or NPRA Director.

Surge Capacity. DHS must develop the national capabilities – especially surge capacity – it needs to respond to catastrophic disasters, ensuring it has sufficient fulltime staff, response teams, contracting personnel, and adequately trained and sufficiently staffed reserve corps to ramp up capabilities, as needed. These capabilities must be scalable so that NPRA can draw on the appropriate resources from supporting ESF agencies to respond to a disaster regardless of cause, size, or complexity. The Disaster Assistance Employee (DAE) corps should be modified/revamped so that it more closely resembles a reserve corps that can quickly and reliably respond with trained personnel in the case of a large-scale catastrophic event. Funds should be made available to ensure that these reservists receive appropriate and regular training, as well as adequate compensation for their time when called upon. DHS should investigate cross-training some of its 180,000 employees to become part of this reserve cadre.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BUILDING BLOCKS

COORDINATION

Reviewing, Aligning and Improving the Stafford Act, the National Response Plan, and the National Incident Management System

Recommendation 8: The NRP should be reviewed and revised to provide clear guidance to federal agencies and clear information to state, local and tribal officials, private sector organizations and nongovernmental organizations, eliminating ambiguities. The NRP should be a clear and accessible document that can be readily understood by those preparing for or participating in the response to a disaster. DHS should build commitment to the National Incident Management System (NIMS) from federal, state, and local, officials and other responders.

Recommendation 9: The Stafford Act and the NRP should be updated to better address and provide guidance for short- and long-term recovery activities, so that DHS, the Executive Branch, and Congress are not forced to react, but will already have plans and a structure in place to guide short- and long-term recovery efforts. Within the Recovery Branch of the new organization, there should be a long-term recovery office, able to ramp up and coordinate the federal government's long-term recovery assistance, as needed.

Recommendation 10: The Stafford Act should be reviewed, and if, appropriate, amended, to provide statutory authority for committing resources and technical assistance to enable state and local governments and eligible non-profits to conduct short-term assessments and long-term recovery activities to meet the environmental mitigation needs of affected communities.

Recommendation 11: The scope of ESF-8 (Public Health and Medical Services), as defined in the NRP, should be expanded to clearly include the public health and medical needs not only of victims of an emergency, but also those of evacuees, special-needs populations, and the general population who may be impacted by the event or may need to be evacuated or sheltered-in-place. The NRP should also clarify that responsibility for all mortuary activities, including collection of victims, resides with ESF-8, and appropriate mass fatality plans and capabilities should be developed.

Recommendation 12: The NRP should be revised to include language assigning a single federal maritime salvage coordinator who will be responsible for responses to maritime salvage during times of national disasters (man-made or natural) and clarify federal agency responsibilities (NPRA, U.S. Coast Guard, U.S. Navy, U.S. Army Corps of Engineers).

Recommendation 13: DHS should amend the NRP to designate which agency should have primary responsibility for ESF-13 (Public Safety and Security) in which circumstances, and

clarify relationships between the Senior Federal Law Enforcement Official (SFLEO) designation and ESF-13 functions described in the annex.

Recommendation 14: The NRP should be revised to reflect the broad range of search and rescue requirements that may arise in a disaster or catastrophe. ESF-9 (currently Urban Search and Rescue) should be expanded to encompass the multiple environments and requirements that may arise in a disaster or catastrophe, and should designate the appropriate lead agency and supporting agencies, as determined by the nature of the disaster.

Interagency Coordination

Recommendation 15: DOD and DHS should improve their coordination.

- DOD should continue to provide experienced officers to assist DHS officials in the execution of their responsibilities during an incident or disaster;
- DHS and NPRA officials should receive better training as to the capabilities and authorities of DOD during an emergency;
- DOD should streamline its existing, cumbersome process for Mission Assignments (MAs), particularly as applied in the event of a catastrophe;
- Key DOD personnel who may be called to participate in DOD's response efforts should receive training on the National Response Plan, the National Incident Management System, and the Incident Command System;
- DOD should coordinate with the Secretary of DHS to develop a plan for commodities distribution in the event that DOD is called upon to augment DHS's commodities distribution in a catastrophic event.
- DOD and DHS should coordinate to expand the presence of DHS officials at U.S. Northern Command (NORTHCOM) and, as appropriate, U.S. Pacific Command (PACOM), and integrate DHS officials into NORTHCOM and PACOM's planning, training, exercising, and responding to an incident or disaster.
- DOD and DHS should develop an inventory of assets under DOD's control that are most likely to be needed in response to a disaster in order to enable expeditious deployment should they be required. Such assets may include, for example, utility and heavy-lift helicopters, medium-lift helicopters capable of performing search-and-rescue, shallow-draft boats, communications equipment, medical equipment and personnel, and engineering equipment.

Recommendation 16: DHS and HHS should improve their coordination.

- The Secretary of HHS should strengthen the Department's emergency preparedness and response organization (Office of Public Health Emergency Preparedness) by giving it greater authority to coordinate and integrate programs across HHS that relate to emergency, bioterrorism and public health preparedness. In addition, the Secretary of HHS should increase the capabilities of the regional emergency coordination officers in the field and direct them to coordinate efforts with the regional NPRA offices.
- The Secretary of DHS and the Secretary of HHS should enter into a formal memorandum

of understanding between the two agencies specifically describing how the departments will coordinate ESF-8 (Public Health and Medical Services) resources on all aspects of preparedness and deployment, as well as clearly defining responsibility for logistical, security, and other support, including mortuary activities, required by health care facilities and organizations providing emergency medical care in a disaster or catastrophe.

- DHS, in conjunction with HHS, should develop and implement a system to identify, deploy and track federal public health and medical assets (human, fixed, and materiel) used in preparation for or response to national disasters and catastrophes.
- The National Disaster Medical System (NDMS) is a critical medical response asset whose capabilities must be increased. In particular, the Secretary of DHS should develop a strategic plan and a management structure that recognizes the unique nature of NDMS teams (e.g., highly skilled all volunteer staff and outside sponsor relationships). This should include providing adequate resources to equip, staff, and train NDMS teams; improving transportation, logistics and communications capabilities; and developing more effective management support team capability. NDMS should remain in DHS – possibly reporting to the Chief Medical Officer (CMO) – but should coordinate closely with HHS in preparing for disaster response.

Recommendation 17: DOJ and DHS should inventory their law-enforcement assets and identify other available assets, including units with particular skill sets, in advance of a domestic incident. Planning for the deployment of law-enforcement personnel should include how to transport officers to the affected region, which may require coordination with the Department of Defense and the Department of Transportation. Planning also should include arrangements to provide personnel with food, sheltering, supplies, and vehicles once they arrive. Federal law enforcement units should be self-sustaining so that they do not impose any additional burden on state and local responders.

Recommendation 18: Federal agencies and departments, including DOD, HHS, and DOJ, should work with DHS to create an inventory of physical and support assets within the agencies and departments that can be used in responding to disasters. For assets most likely to be used in responding to future disasters, DHS should develop pre-scripted Mission Assignments/Requests for Assistance (MAs/RFAs). The purpose of the pre-scripted MAs/RFAs should be to expedite the submission and approval of MAs/RFAs and the provision of commonly requested assets and support in the event of a disaster. These MAs/RFAs should include provisions to pre-position assets and personnel.

Recommendation 19: The NPRA, through the National Communications System (NCS), should develop a database for monitoring the inventory of all federal, including DOD, and, where appropriate, private-sector communications equipment that can be deployed following a catastrophic incident to assist first responders and restore commercial communications services. In addition, DHS should maintain an inventory of what federal resources are necessary to support the deployment and operation of such assets.

Recommendation 20: DHS should work with all federal departments and agencies with

responsibilities under the NRP, including the ESFs, to pre-identify areas in policy, doctrine and guidance that can be streamlined, or that provide an opportunity for regulatory flexibility, where appropriate/necessary during a disaster or catastrophe. DHS should ensure that policies and procedures provide emergency management experts sufficient regulatory and policy flexibility so that they are empowered to make decisions that are critical to a quick and effective response during a catastrophic event. For example, during a catastrophe, it may be appropriate to waive certain training requirements.

Recommendation 21: NPRA should develop data sharing arrangements with other federal agencies and other appropriate organizations, prior to the next disaster, to more effectively respond to disasters, while protecting privacy, and to protect against waste, fraud and abuse. For example:

- a data sharing agreement between NPRA, HHS, DOJ, and other appropriate organizations (such as the National Center for Missing and Exploited Children) could facilitate tracking missing children and adults and reunifying families separated during evacuation. These data sharing arrangements should have protections in place to address privacy concerns and to comply with child custody agreements.
- a data sharing agreement between NPRA and the Social Security Administration would allow NPRA to ensure that a disaster victim registering for assistance is using a valid social security number, helping to prevent fraudulent registrations.

Recommendation 22: The lack of easily understandable, policy-based, field operations guides available to responders at all levels contributed to misunderstandings and inefficiencies, and degraded overall operations. DHS should develop and publish a comprehensive Federal Disaster Field Operations Guide and make the guide available to all federal, state and local response officials, so that all responders are better informed of what to expect from federal agency operations.

NGO and Private Sector Involvement

Recommendation 23: DHS should coordinate with the private sector and NGOs at the state, regional, and national level to incorporate those entities, where appropriate, into their planning, training, and exercises, to the greatest extent possible.

Recommendation 24: There needs to be a balance, even in a time of disaster, between procuring essential goods and services and maintaining fairness and reasonableness in the procurement process to the extent possible.

- The federal government should establish pre-negotiated contracts for priority resources prior to disasters, especially in the areas of food, water, ice, fuel distribution, and housing. DHS should include provisions in pre-negotiated contracts to provide the surge capacity needed to respond to catastrophic disasters.
- The federal government, working with the private sector, should develop standard-form agreements tailored for various needs to facilitate faster procurement for disaster relief

operations.

- The federal government should consider expanding the cooperative purchasing authority of state and local governments to use all of the General Services Administration (GSA) Schedules (not just IT Schedule 70), for the purchase of goods and services that are designed to facilitate response to and recovery from a presidentially-declared disaster or catastrophe. Under the expanded authority, state and local governments would use the same procedures as GSA already has adopted for Schedule 70 cooperative purchasing.

Recommendation 25: DHS should develop a policy for accepting and directing corporate in-kind donations. The U.S. Department of State, in coordination with DHS, should develop a policy for accepting and directing foreign donations.

TECHNOLOGICAL SUPPORT

Communications and Interoperability

Recommendation 26: DHS should develop a national strategy, including timeframes, for implementing a survivable, resilient, national interoperable communications network. DHS should establish a plan to migrate to the use of 1) interoperable platforms for communications networks; 2) equipment that permits sharing of resources in times of crisis; and 3) systems to promote high-precedence data communications and interoperability during disasters so that data (such as medical, victim registration, and Geographic Information Systems (GIS) data) can be electronically shared among responders, as needed, at all levels of government. This process of developing a national strategy should recognize existing state plans and provide a mechanism for states to collaborate on interoperability and the ability to provide emergency assistance to other states through shared communications resources. DHS should condition the award of grants for public safety communications equipment on their being used to purchase interoperable communications systems that operate under open architecture standards developed by the SAFECOM unit within DHS.

Recommendation 27: The NPRA, through the regional Strike Teams, should coordinate with NCS, state-level ESF-2 (Communications) agencies, and private-sector partners to be prepared to deploy in an emergency to facilitate reestablishment of public and private communications systems that work across jurisdictions. This should be done with the recognition that maintaining and/or reestablishing communications capabilities is critical to an effective emergency response. Although most of the physical damage to telecommunications equipment may occur in a central area, it may adversely affect large portions of the surrounding areas. DHS should take a lead role to facilitate and encourage cooperation among local jurisdictions to address mutual restoration and redundant routing that will help create a more resilient network to aid public safety first responders.

Recommendation 28: DHS should strengthen its mobile emergency response teams' (now incorporated into the regional Strike Teams) ability to provide communications support during disasters. DHS should acquire and position at regional offices mobile communications suites or caches of secure, interoperable emergency communications equipment and systems that can be

deployed when normal land line, mobile, and radio systems are disrupted or destroyed, as does the National Interagency Fire Center.

Recommendation 29: The NPRA, through NCS, should work with all communications providers to encourage development of and adherence to best practices to ensure reliability in the event of a disaster or quick restoration of services and facilities in the event service is disrupted. These best practices should address, among other things, (1) maintaining service during extended commercial power outages through the use of back-up generators and equipment; (2) building communications towers, transmitters, and repeaters to withstand a severe storm; and (3) implementing regional interoperable communications networks that would increase the survivability of communications by allowing first responders' radios to operate off of towers in a neighboring jurisdiction that survived the disaster. DHS and state and local governments should develop plans for better direct redundant lines of communications between the emergency operations centers used by all levels of government.

Recommendation 30: States should be encouraged to purchase communications systems – such as satellite phones – that can operate when land-based infrastructures are damaged or destroyed.

Recommendation 31: DHS should work with state and local officials to encourage 9-1-1 call centers to develop plans to route calls to other centers in case the center is not functional and should encourage the inclusion of 9-1-1 communicators in Emergency Management Assistance Compacts (EMACs).

Information Systems

Recommendation 32: DHS should adopt a common computer software standard for use by all Federal and state entities involved in incident management that will serve as the information architecture for shared situational and operational awareness. Based on this standard, the Homeland Security Information Network (HSIN) may be improved, or a new system may need to be developed. The system might include a GIS capability to support functions such as tracking commodities, Search and Rescue (SAR), and status of evacuation shelters, among others.

Recommendation 33: DHS should refine and streamline the Action Request Form system (the system through which state and local governments request disaster-related assistance from the federal government) and work with state and local governments to ensure that federal and state systems are compatible and provide for seamless interfacing.

Recommendation 34: DHS should complete and/or adopt technology and information management systems to effectively manage disaster-related activities. DHS should develop an efficient ordering system that minimizes delays and provides order status visibility and accurate, timely commodity tracking, and a transportation protocol that moves commodities and resources directly from the supplier to the usage area.

Recommendation 35: The states, in coordination with DHS, DOJ, HHS and other appropriate agencies and organizations, should establish evacuee registration systems to facilitate

reunification of family members separated as a result of a disaster or catastrophe. DHS should work with the states to encourage development of systems that can share data across states, including the use of a model intake form with standard information to be collected.

Recommendation 36: Given the importance of providing as much warning as possible to coastal populations in the event of a major hurricane, the National Oceanographic and Atmospheric Administration (NOAA) and the National Hurricane Center (NHC) should review their protocols for issuing hurricane advisories and related forecast products to ensure that critical information is made available to the public as soon as possible, in a form that is as complete and understandable as possible. Further, NOAA and the NHC should identify any technical or resource constraints that limit their ability to do so.

Recommendation 37: Because storm surge is historically the most deadly element in major hurricanes, NOAA and the NHC should examine the use of additional forecasting models, such as the Advanced Circulation Model (ADCIRC) sponsored by the U.S. Army Corps of Engineers (the Corps), to provide additional confidence and perspective to their periodic modeling and publication of storm surge projections and pre-landfall storm surge forecasts, as is currently done for forecasting hurricane intensity and track. As part of this review, the NHC should also reexamine its practice of making pre-landfall storm surge forecasts for major hurricanes no earlier than 24 hours before landfall.

Recommendation 38: NOAA, utilizing expertise within the National Weather Service, the NHC, and the National Geodetic Survey, should routinely revise its models and published impacts of hurricane storm surge projections to take into account changes in modeling and forecasting technology and regional conditions, such as regional subsidence, loss of coastal wetlands, and sea level rise. Changes in projected impacts as a result of such revisions should be clearly documented and published.

READINESS

Planning, Training, and Exercising

Recommendation 39: DHS should ensure that the NRP becomes more than just words on paper – it must be operationalized if it is to be effectively executed in response to disasters and catastrophes. In doing so, DHS should direct all federal departments and agencies with responsibilities in the NRP, including DOD, in the completion of a coordinated, operational, federal disaster response plan that is then exercised, with lessons learned incorporated into a revised plan. DHS should simultaneously coordinate with the states to ensure that the states' emergency response plans are aligned with the NRP, including ESF responsibilities, to the highest degree possible and exercised, with lessons learned incorporated into a revised plan, and should provide necessary support for any additional planning required to achieve this level of preparedness. DHS should lead an effort, coordinated with the states, to develop response plans for specific geographic regions and for specific types of high-risk events that will augment the NRP and provide additional operational detail.

Recommendation 40: Federal departments and agencies with responsibilities under the NRP should be required to conduct exercises to ensure that their plans are continually revised and updated. The exercises should include broad all-encompassing federal disaster and catastrophic exercises. DHS, in conjunction with DOD, other federal agencies, and state and local participants should stage exercises simulating a large-scale catastrophe to improve the training for all personnel, familiarize responding agencies with one another's personnel and capabilities, address issues of command and control, and improve the working relationships between DHS and other response agencies.

Recommendation 41: Emergency agencies at the federal, state, and local levels of government, as well as first responder groups outside of government, should receive regular training on NRP and NIMS, integrating the ESF structure, including statutorily required exercises and simulations to expose unaddressed challenges, provide feedback about progress, and maintain pressure to improve. These exercises and simulations should be objectively assessed by an independent evaluator. DHS should consider tying future cost-share requirements for preparedness grant funds to performance and results of these exercises.

Protecting Against Waste, Fraud, and Abuse

Recommendation 42: Fraud related to disaster assistance and contracting is not tolerable. DHS should work with DOJ and other federal agencies to ensure that a cooperative effort is made to investigate and prosecute fraud. DHS should also strengthen controls on the Individuals and Households Program (IHP), and other programs where appropriate, to reduce fraud and abuse, while continuing to offer speedy assistance and relief to the true victims of a disaster.

Recommendation 43: In a disaster where the government is entering into contracts and other procurement vehicles (grants, cooperative agreements, direct purchase orders, etc.) quickly and with expedited procedures and oversight, it is all the more important that the agencies making these procurements be thoroughly committed to full transparency. This transparency must occur from the outset so that waste, fraud, abuse or simple mismanagement or inefficiency can be identified before additional financial liability is incurred by the taxpayers. There is no Federal dollar that is spent on disaster relief and recovery for which the government is not accountable to taxpayers. DHS should:

- Ensure that NPRA has sufficient contracting staff to handle the flow of disaster assistance and should identify and train procurement staff from other agencies who can provide additional surge capacity.
- Develop procurement plans, based on past experience, for a variety of disaster scenarios and use those plans as a guide in future disasters so that spending is not reactionary.
- Engage in more rigorous procurement planning and execution to ensure that there are always one or more competitively-awarded technical assistance contracts in place.
- Improve acquisition process accountability post-disaster, discouraging and strictly reviewing sole-source and no-bid contracts (where necessary), as well as reviewing purchase decisions by the government that appear excessive, unwise, or poorly managed.
- Make non-proprietary information related to disaster-related procurements available to

the general public in an easily accessible format.

Evacuation and Sheltering

Recommendation 44: As the primary federal agency under ESF-1 (Transportation), the Department of Transportation, in coordination with DHS, should:

- Develop plans to assist in conducting mass evacuations when an effective evacuation is beyond the capabilities, or is likely to be beyond the capabilities, of the state and affected local governments. DOT should develop plans to quickly deploy transportation assets to an area in need of mass evacuation. DHS should, in coordination with DOT, assist state and affected local governments in evacuating populations when requested.
- In coordination with the states, plan, train, and exercise for evacuations including medical patients and others with special needs, in coordination with other relevant federal agencies, the American Red Cross, and state and local partners. DOT should consider using a variety of transportation modes, including air medical services.
- Work with state and local emergency planners – in particular, state and local agencies charged with ESF-1 responsibilities – to help them assess the resources needed to assist with evacuations, those that are locally available, and what shortfalls exist; determine unique geographical/demographic obstacles to evacuation in particular areas; and develop catalogues of regionally available evacuation-related assets, including transit agencies from various municipalities.
- Establish liaisons with ESF-6 (Mass Care, Housing, and Human Services) to coordinate sheltering destinations for evacuees from various areas, and work with ESF-13 (Public Safety and Security) to ensure that air, bus, and other transportation providers have appropriate security escorts to ensure safety during evacuation activities.

Recommendation 45: All evacuation plans must provide for populations that do not have the means to evacuate. DHS and DOT should make available assistance to state and local governments for the development of these plans to ensure that the nation's most vulnerable citizens are not left behind in a disaster.

Recommendation 46: DHS should support state and local governments in planning, training and exercising evacuation plans and ensure that these plans address the challenges posed by evacuating hospitals, nursing homes, and individuals with special needs.

Recommendation 47: DHS, in conjunction with HHS, DOD, the U.S. Department of Veterans Affairs (VA) and state and local partners in the patient movement system, should develop a specific concept of operations (CONOP), training and outreach programs, and patient triage and tracking capabilities to execute domestic patient movement/evacuations utilizing the NDMS patient movement capability. Non-governmental emergency response and emergency management entities, including private air medical services, should be integrated into the planning and response process.

Recommendation 48: DHS and DOT should support state and local governments in developing

evacuation plans that prevent, to the extent practicable, families being separated from one another during an evacuation and that facilitate rapid reunification in the event that families are separated.

Recommendation 49: DHS should coordinate with DOT to annually evaluate state evacuation plans, as well as evacuation plans for large urban areas.

Recommendation 50: DHS should encourage individuals, and state and local governments to plan for the evacuation and sheltering of pets.

- Due to various health, safety, and other concerns, pets may be separated from their owners during transportation or sheltering. State and local agencies should work with animal welfare organizations to develop procedures for animal identification and processing to facilitate the return of the pets to their owners.
- State and local agencies should establish memorandums of understanding with animal welfare organizations to ensure their assistance with the transport, sheltering, and rescue of pets.
- State and local evacuation plans should include consideration of transportation and sheltering of pets owned by residents in need of transportation or shelter themselves.

Search and Rescue

Recommendation 51: Signatory agencies to the National Search and Rescue Plan should develop a comprehensive plan for search and rescue in a multi-environment disaster. The plan should provide for a unified coordination structure, with subordinate coordination of air, land, and water-borne assets, and should establish the means for obtaining the necessary assets and personnel. The plan should also provide for a unified communications network, a common grid reference system, and standardized procedures and methods for utilizing and sharing local situational awareness acquired by search and rescue operational units.

Recommendation 52: Policies, plans, and procedures, as defined by the National Search and Rescue Plan, need to be incorporated into personnel recovery training at the operational and strategic levels of NORTHCOM so that DOD can more effectively participate in future domestic mass rescue operations.

Mitigation

Recommendation 53: In order to protect coastal areas from becoming increasingly vulnerable to damage from hurricanes, ecological restoration efforts must be integrated into hurricane protection in a comprehensive manner that addresses the root causes of ongoing ecological and geological processes, such as the loss of coastal wetlands and regional subsidence.

Recommendation 54: Future decision making regarding Mississippi River-Gulf Outlet (MRGO) and other navigation channels should recognize, account for, and mitigate not only the direct role that navigation channels can play in increasing, speeding, or transferring storm

surges, but also the impact of the channels on wetland loss and the coastal environment and the resulting long-term implications for hurricane vulnerability.

Recommendation 55: DHS, with the participation of the Corps, the U.S. Department of the Interior, NOAA, and other relevant agencies, should establish an interagency review board, including state and local officials, to examine the level of vulnerability of communities located in floodplains and coastal regions, to hurricanes and floods, and specifically examine the adequacy of existing and planned flood and hurricane protection levees and flood control structures, the contribution of environmental and ecological conditions, and the impact of non-structural programs, such as the federal flood insurance program and pre- and post-disaster mitigation programs.

Credentialing

Recommendation 56: DHS should ensure that all federal emergency response personnel from federal departments and agencies with responsibilities under the NRP have a standard credential that details the emergency management positions the person is qualified for based on measurable criteria, performance, objectives and standards so that they may easily integrate into emergency response operations (Red Card System). DHS should coordinate with state governments to ensure that all state emergency response personnel from departments and agencies with responsibilities under the state emergency response plan, and volunteers, also have a standard credential, based on the same credentialing system.

Recommendation 57: HHS, in conjunction with DHS, should lead a Federal, state and local initiative to roster and credential, in a centralized or linked manner, medical personnel and volunteers (National Disaster Medical System, Medical Reserve Corps, U.S. Public Health Service, etc.) to ensure that, in the case of national emergencies, properly qualified medical providers are quickly identified and able to gain appropriate access to the affected area.

Recommendation 58: Private sector telecommunications, utility, critical infrastructure, and other private entities should be included in emergency response planning and be assured appropriate access to disaster areas to repair critical infrastructure and restore essential services. DHS should coordinate with federal, state, local, and other emergency management officials to develop a standardized national credential that would allow emergency management professionals, first responders, and other response personnel from the private sector access to disaster areas, as appropriate.

Professional and Public Education

Recommendation 59: DHS should, during the transition to the NPRA organizational structure, conduct an agency-wide training assessment (inventory) to assess the current state of capabilities to meet the FEMA/NPRA mission. Based on this assessment, DHS should develop and implement strategies, including appropriate incentives and rewards, to recruit, retain, and build a cadre of trained, practiced, and experienced professional emergency response professionals; develop career paths that reward and promote individuals who have served in multiple state and

federal agencies with emergency management responsibilities; and, as part of the NPRA career track, require all personnel to engage in continuous learning and education.

Recommendation 60: DHS should establish and maintain a Homeland Security Academy to:

- develop and provide a course of instruction on Homeland Security matters, including the nation's emergency preparedness and response system, to meet the specific needs of political officials (cabinet officials, agency heads, governors, mayors, and other federal, state and local officials) who must provide leadership during emergency response operations; and

- develop, provide a course of instruction, and maintain a web-based "lessons recognized-lessons learned" and best practices program that can be accessed by emergency management professionals at the federal, state, and local levels.

Recommendation 61: DHS should strengthen and expand the Emergency Management Institute's (EMI) courses for emergency management personnel. In order to reach the widest audience, EMI should develop "train the trainer" courses to expedite building a cadre of emergency management experts around the country. Course schedules should be designed around the heaviest emergency "seasons," so that experienced instructors are available to teach the courses.

Recommendation 62: DHS should develop and implement a comprehensive strategy to develop a culture of preparedness in America. DHS should coordinate with state and local officials to ensure that emergency plans are community-based and include outreach and education to the public, through community and faith-based organizations and other institutions to promote individual preparedness based on the risks in their communities. This information should be widely distributed in languages appropriate to the relevant constituencies.

Special Needs Awareness

Recommendation 63: DHS should ensure and direct that all federal departments and agencies with responsibilities under the NRP, including the ESFs, take into consideration the special needs of persons with physical, mental, and other disabilities, the most vulnerable and those least able to help themselves, in their response and recovery plans. DHS should coordinate with state and local governments to ensure that their response and recovery plans also address persons with special needs.

Recommendation 64: DHS should coordinate with the private sector and NGOs, including the American Red Cross, to ensure that the response and recovery plans of those participating in emergency preparedness and response operations, take into consideration the special needs of persons with physical, mental, and other disabilities.

Military Preparations

Recommendation 65: DOD should continue to provide the Commander, U.S. Northern Command (NORTHCOM), and, as appropriate, the Commander, U.S. Pacific Command (PACOM), with authority to assign DCOs and Defense Coordinating Elements, and identify staging bases as necessary and prudent, to provide anticipated support for a domestic emergency or catastrophe. DOD should expand this authority to include the ability to deploy pre-packaged or pre-identified basic response assets (such as helicopters, boats, medical supplies and personnel, food and water, and communications equipment). DOD should develop procedures and guidelines for pre-positioning assets.

Recommendation 66: DOD should make the position of DCO in NPRA regional offices a full-time assignment for senior officers. The DCO should receive training and education on DOD's role under the NRP, and should coordinate closely with DHS, NORTHCOM, and PACOM, as appropriate, and state officials in plans, training, and exercises.

Recommendation 67: NPRA should work with DOD and the state governors to assist them in developing an integrated plan for the deployment of National Guard units and personnel in state status when large-scale military support is requested by a state to respond to a catastrophic incident or disaster. The plan should include a process for identification of National Guard units with the capabilities required to respond to the incident or disaster, and should take into account the availability of National Guard units for mobilization for national defense missions. The plan should include expedited procedures for requesting and approving federal funding under Title 32, United States Code, for National Guard forces employed in accordance with the plan, and procedures for DOD and the Governors, during a catastrophe, to coordinate the process of matching units and capabilities of National Guard forces with the requirements of the Governors. The integrated plan should ensure that there is sufficient command and control and reception, staging and onward integration capability for any such large-scale National Guard deployment.

Recommendation 68: In developing a federal catastrophic disaster response plan, DHS should work with DOD to develop a plan for the employment of active duty units and personnel when wide-scale military support is requested by a state or ordered by the President to respond to a catastrophic incident or disaster. The plan should include a process for identification of active duty units with the capabilities required to respond to the incident or disaster, include planning for reception, staging and onward integration of the active duty forces and commodities distribution, and should, via the National Guard Bureau, take into account the availability and capability of National Guard units.

Recommendation 69: DHS, DOD, and the states should develop detailed operational plans for Defense Support to Civil Authorities (DSCA) missions, including specific plans for response to hurricanes, wildfires, earthquakes, pandemics, and other natural disasters.

Recommendation 70: DOD and the States should develop the systems and processes of communication, coordination, and command and control, to ensure unity of effort when National Guard and Title 10 forces are deployed in integrated disaster response missions.

Recommendation 71: NORTHCOM and the National Guard Bureau should coordinate to

expand the presence of the National Guard Bureau at NORTHCOM and integrate National Guard Bureau officials into NORTHCOM's planning, training, exercising, and responding to an incident or disaster.

Recommendation 72: DOD should require that officers selected for general officer or flag rank are trained on the NRP, NIMS, ICS, and DOD's Defense Support to Civil Authorities (DSCA) mission.

State and Local Preparations

Recommendation 73: At least annually, state emergency preparedness offices should audit plans of agencies with ESF responsibilities under the state's emergency operations plan to ensure they: 1) take an all-hazards approach to emergency management; 2) comprehensively address the agency's ESF responsibilities; 3) are up-to-date; and 4) include provisions for regular training and exercising. Governors should require their state emergency preparedness offices to then report to them the state of the emergency preparedness office, all supporting agencies, and the state emergency operations plan. The audit should review, at a minimum:

- realistic, comprehensive evacuation plans to provide for the safety of the state's population in a disaster, especially those who lack their own transportation or have physical, mental, or other disabilities;
- the staffing needs of agencies with emergency operations responsibilities and long range plans to attract and maintain qualified staff;
- laws/regulations/plans to ensure clear responsibilities for ordering evacuations and to address liability issues that may be impediments to evacuation orders;
- laws/regulations/plans that clarify the Governor's authority to assume control of emergency response where local governments' response capabilities are significantly damaged;
- pre-contracting for emergency supplies to address needs of shelters in disaster stricken areas; plans for sheltering and then evacuating people who have remained in an area struck by a disaster; and evaluations of the capacity, suitability, and structural strength of shelters in the state;
- plans for alternative means of distributing commodities in situations where distribution through central distribution points may not be possible;
- plans that outline resource needs, such as volunteers for emergency support functions, transportation providers, and medical supplies, and where they will be obtained when disaster strikes;
- plans, under ESF-9 (Urban Search and Rescue) of the state emergency operations plan, to ensure there is the appropriate equipment and resources, based on the state's terrain and risks, to effectively carry out this function; and
- plans for ensuring the protection of vital records, whether paper or electronic, such as property titles, court case files, and driver's license and voter information.

Recommendation 74: States should coordinate with the NPRA to assess or upgrade their logistics management capabilities and address any asset tracking deficiencies.

Recommendation 75: States should coordinate through the NPRA regional offices to develop plans adequate to address shelter needs in a catastrophe or when needs exceeds a state's capacity.

Recommendation 76: State and local governments should review and resolve, to the extent possible, legal and operational issues incident to the issuance of evacuation orders and should be prepared to issue a mandatory evacuation order quickly in the event of a disaster.

Recommendation 77: States with high-risk urban areas should develop multi-phased evacuation plans that provide for the speediest evacuation of residents most at risk, particularly those who lack the means to evacuate on their own. States with high risk urban areas should consider whether a contra-flow plan is advisable, and if so, should develop agreements with bordering states to secure their participation in the contra-flow plan. Neighboring political entities should work together to coordinate evacuation plans in advance, and state and local governments should publicize their evacuation plans and ensure that citizens are familiar with one or more evacuation options. States whose location puts them at high risk of recurring hurricanes and tropical storms should use updated storm surge estimates to establish evacuation zones and evacuation clearance times. States whose locations put them at risk of other types of natural disasters should evaluate those risks and consider evacuation zones and clearance times in line with them.

Recommendation 78: States should develop estimates of populations that will require short-term sheltering in the event of a catastrophic event. This estimate should particularly focus on special needs populations. In consultation with NPRA, states should then develop plans for providing shelter for these estimated populations. Such plans should include a way to create a voluntary database of people in the shelters so victims can be accounted for. States should develop a catastrophic medical response plan that is integrated with its evacuation and shelter plan and documents the availability of nurses and health care professionals with emergency medical and trauma training in the state.

Recommendation 79: States should establish neighborhood prer and post-disaster information centers at schools, shopping centers, places of worship, and other community institutions, to provide information on evacuations and the location of disaster assistance sites.

Recommendation 80: States should ensure that effective communications lines and information sharing systems exist between the state emergency operations centers and all facilities or mobile units that provide medical care or other assistance to victims of a catastrophic event.

Recommendation 81: State agencies responsible for licensing of hospitals and nursing homes should ensure those facilities have evacuation plans and audit them annually, including evaluation of availability of transportation resources, to verify that they are viable.

Recommendation 82: State agencies responsible for special needs shelters, working with local counterparts and emergency support organizations, should consider developing and maintaining a voluntary database of special needs persons residing in the area.

Recommendation 83: The EMAC system should (1) be refined to pre-certify qualified out-of-state first responders, such as those with specialized skills like search and rescue or medical services, in order to shorten the response time; (2) develop National Guard civil affairs support teams trained in continuity of government operations (these could be the same teams that are already constituted for a weapons of mass destruction (WMD) event); (3) streamline the required paperwork process; and (4) streamline the deputization process with regard to various law enforcement agencies that may assist during the disaster response.

Levees

Recommendation 84: The Interagency Performance Evaluation Taskforce (IPET), along with the American Society of Civil Engineers (ASCE) External Review Panel (ERP), should be continued beyond the scope of the current task and should have the ongoing responsibility to evaluate and review the design, construction, operation, reconstruction, and improvements to the hurricane protection levee system in Southeast Louisiana. Formal charters for the IPET and the ASCE ERP should be created for this purpose and should ensure that the IPET process is independent from the U.S. Army Corps of Engineers' (the Corps) operational organizations. The independent review task forces should be extended to other levee systems that protect significant population centers throughout the country.

Recommendation 85: The Corps, in conjunction with the State of Louisiana, the local levee districts, and other relevant federal, state, and local agencies, should assume responsibility for development of a comprehensive emergency plan for the hurricane protection and Mississippi River levees systems, including high-water accidents, breaches, and floods. Current plans, including, but not limited to, the New Orleans Unwatering Plan, must be re-examined and brought into conformance with this comprehensive plan. The emergency plan must address incident command, interoperable communications, repair and flood fighting resources, monitoring of levee conditions, the acquisition of assets or alternative arrangements that allow the Corps to have real-time (or close to real-time) situational awareness of levee and flood conditions in the New Orleans area, and reporting and exercise procedures.

Recommendation 86: The Corps and local levee sponsors should immediately clarify and memorialize responsibilities and procedures for the turn-over of projects to local sponsors, and for operations and maintenance, including, but not limited to, procedures for the repair or correction of levee conditions that reduce the level of protection below the original design level (due to subsidence or other factors) and also emergency response. It must always be clear – to all parties involved – which entity is ultimately in charge of each stage of each project. The Corps should also provide real-time information to the public on the level of protection afforded by the levee system. A mechanism should be included for the public to report potential problems and provide general feedback to the Corps.

Recommendation 87: In states where applicable, governors should ensure that the equivalent of ESF-3 (Public Works and Engineering) of the state emergency plan is clarified to ensure that hurricane protection levee systems and other flood control infrastructures within the state are included within the definition of critical infrastructure, that a designated state agency is responsible for ensuring that state and local agencies and levee districts prepare for, and are able to respond to, emergencies involving these structures, whether they are directly owned by the state or not, and that the designated state agency executes this responsibility.

Recommendation 88: State statutes governing the operation of levee districts, such as preparation of emergency plans and training for levee board members and staff, must be re-examined and revised to ensure that levee districts exercise state-of-the art care and inspection of levees and are prepared to meet their primary obligation of flood protection and respond to emergencies. The inspection regime should include the use of advanced inspection techniques that are commensurate with the potential threat to life and property posed by the failure of a flood control project.