Massive communications damage and a failure to adequately plan for alternatives impaired response efforts, command and control, and situational awareness

Summary

Massive inoperability—failed, destroyed, or incompatible communications systems—was the biggest communications problem in the response to Katrina. It was predicted and planned for by some, while others experienced problems with their operations or were caught relatively unprepared. The loss of power and the failure of multiple levels of government to take the initiative to adequately prepare for its effect on communications hindered the response effort by compromising situational awareness and command and control operations, particularly in New Orleans and along the Mississippi Gulf coast. The Federal Emergency Management Agency (FEMA) could have pre-positioned mobile communications in New Orleans but did not because it believed that it should first be *asked* to do so by local authorities. In turn, poor situational awareness, and its resulting effect on command and control, contributed to the negative effects of inaccurate or unsubstantiated media reports because public officials lacked the facts to address what the media reported. To deal with the loss of power, some state and local governments had redundant communications and other means to communicate, such as satellite phones, which were invaluable. But they also experienced certain problems due to technical difficulties, high winds, and exceptionally high demand that at times overtaxed their capacity.

Where communications were operable or soon were restored, long debated and unresolved issues with interoperability among federal, state, and local communications systems complicated the efforts of first responders and government officials to work together in managing the response to Katrina. In recent years, local and state governments in each of the affected states have received several million dollars in federal funding to address communication interoperability issues. Despite

claims of an "austere fiscal environment,"[1] at each level of government, internal debate, parochial interests, and a general lack of prioritization and coordination between affected jurisdictions regarding the formation and implementation of interoperable communications policies and plans severely hindered the rescue, response, and recovery efforts at all levels of government.

Finding: Massive inoperability had the biggest effect on communications, limiting command and control, situational awareness, and federal, state, and local officials' ability to address unsubstantiated and inaccurate media reports

Massive inoperability was the biggest communications problem in the response to Katrina. By all accounts, destruction to regional communications companies' facilities and the power systems on which they depend was extraordinary. For example:

A downed communications tower, Plaquemines Parish, LA.

■ More than three million customer telephone lines were knocked down in Louisiana, Mississippi, and Alabama.[2] As of September 28, 2005, over 260,000 customer lines remained out of service, including 238,000 in Louisiana and 22,000 in Mississippi.

- The entire communications infrastructure on the Mississippi Gulf coast was destroyed.
- Significant damage was inflicted both on the wire line switching centers that route calls and on the lines used to connect buildings and customers to the network.
- Thirty-eight 911 call centers went down. Thirty days after landfall, two call centers in Louisiana remained out of service.
- Two telephone company switches in New Orleans responsible for routing 911 calls for the surrounding parishes were knocked out by flooding, resulting in one of the most significant losses of capacity in and around New Orleans.
- Local wireless networks also sustained considerable damage, with up to 2,000 cell sites out of service.[3] A month after landfall, approximately 820 cell sites remained out of service, the majority within New Orleans and other areas of Louisiana.[4]
- Over 20 million telephone calls did not go through the day after the hurricane.
- 37 of 41 broadcast radio stations in New Orleans and surrounding areas were knocked off the air (2 AM and 2 FM stations continued to broadcast).

After surviving Hurricane Katrina's initial blow, the radio communications system for the New Orleans police and fire departments dissolved as its radio towers lost their backup power generators in the ensuing flood.[5] The New Orleans Police Department's communications system failed and was inoperative for three days following the hurricane. At one point, hundreds of New Orleans first responders were trying to communicate on only two radio channels on a backup system, forcing them to wait for an opening in the communications traffic to transmit or receive critical information. The New Orleans Police Department headquarters, and six of the eight police districts' buildings were out of commission due to flooding, limiting (or precluding) their ability to establish command and control by performing basic law enforcement functions because their communications were destroyed.

The Louisiana State Police reported the devastation caused by the storm "severely hampered the ability of emergency responders operating on the state system to communicate with other emergency services personnel." The State Police currently operate a statewide analog wireless communications system originally installed for

Six of the eight police districts' buildings were out of commission due to flooding, limiting (or precluding) their ability to establish command and control by performing basic law enforcement functions because their communications were destroyed.

voice communications and last upgraded in 1996. It is used by about 70 agencies with a total of over 10,000 subscribers. Its infrastructure consists of 46 tower sites and 28 dispatch consoles. In a report issued December 7, 2005, the State Police reported, in addition to the effect it had on the state's system, storm damage to communications systems the local governments maintained was "severe and debilitating," further restricting communications between emergency responders. The equipment at its 46 towers depends on electricity and, when that was lost, keeping them running was nearly impossible once it became necessary to refuel the generators operating them because debris and flood waters hampered their refueling efforts.[6]

Mississippi experienced problems similar to the other affected Gulf states. Most of its state and first responder communications capabilities were inoperable during and in the immediate aftermath of the storm, forcing the various responders to rely on satellite phones and radios (which experienced their own problems due to wind damage and interference). According to Mississippi Emergency Management Agency (MEMA) Director Robert Latham, the entire communications infrastructure of the state's Gulf coast was destroyed by Hurricane Katrina, systems elsewhere across the state were inoperable, and those systems that were working were overloaded, resulting in delays processing local governments' requests for assistance. As a result, often the only communications capability present in Mississippi — for both MEMA as well as the affected counties — was through satellite phones and radios, which operate by connecting to satellites rather than routing calls through land-line or cellular towers.[7] FEMA, for its part, deployed a Mobile

Emergency Response Support detachment (MERS)[8] to the state Emergency Operations Center (EOC) in Jackson, Mississippi, to provide satellite communications systems for its operations in the Gulf coast counties. However, despite the presence of MERS and hand-held satellite phones in all of the affected counties' EOCs, the Federal Coordinating Officer for Mississippi, Bill Carwile, testified that communications capabilities were far short of what was needed to be effective.[9]

The majority of site problems were due to lack of power. Some sites had T-1 (high speed data) telephone land-line problems, but the design of the system generally allows access to more than one site in the area, so the radio/telephone calls were routed from the secondary tower site. This created some delays in accessing the system, but was not a critical factor. Cellular telephone service was generally available throughout Alabama's affected areas, but several tower sites were overloaded or not fully operational after Katrina made landfall. This was not a major problem because the Alabama Emergency Management Agency (AEMA) does not consider cellular telephone service a primary source of communications during emergency response. Instead, AEMA has a cache of pre-programmed Southern LINC radios that are activated during disasters, programmed with specific groups for users (such as Mutual Aid, Logistics, Emergency Management Assistance Compact (EMAC), Staging, etc.) and have telephone capability. There were approximately 115 LINC portable units activated and delivered for use in the field for this disaster.

The importance of power, fuel, and communications to disaster response and situational awareness

The near total failure of regional communications degraded situational awareness and exacerbated problems with agency coordination, command and control, logistics, and search and rescue operations. Reliable communications are critical to the preparation for and response to a catastrophic event because of the effect they have on establishing command and control and maintaining situational awareness.[10] Without functioning communications systems, first responders and government officials cannot establish meaningful command and control, nor can they develop the situational awareness necessary to know how and where to direct their response

and recovery efforts. Similarly, without the ability to call for help, citizens cannot seek emergency assistance, alert responders or others to their whereabouts and needs, or receive updates or instructions from officials.

Katrina interoperability problems were masked to some degree by the larger and more serious breakdown of operability resulting from the destruction of facilities or power outages. Restoring phone service requires more than waiting for the flood waters to recede and restoring power. While many cables may be salvageable, the electronics that pass the signals across those lines will need to be replaced. As noted by Jim Gerace of Verizon Wireless: "It's essentially analogous to putting a PC in your bathtub. It's not going to work once it dries."[11]

In Louisiana, the winds and flooding degraded the quality of available communications, reducing most communications to the limited number of available satellite phones. Additionally, the communications infrastructure that remained intact was soon overwhelmed by the heavy communications traffic during the response.[12] FEMA officials reported "there were no status reports coming into the EOC Monday."[13] Deputy Federal Coordinating Officer Scott Wells stated that if the Coast Guard was doing flyovers of New Orleans, those reports did not get to the EOC on Monday.[14] Additionally, failed communications affected responders' ability to share information up and down the chain of command. According to Louisiana officials, "Two or three days after the storm, state police were running into division commanders in the New Orleans Police Department who reported that they had not talked to anyone above their rank since the storm."[15]

The Alabama communications infrastructure fared better than in Mississippi and Louisiana. The AEMA has various communications capabilities, with redundant backups, to ensure it maintains a high level of connectivity throughout the state. The EOC had equipment and trained personnel to communicate over all types of communications networks, including satellite, 800 MHz digital phone service, amateur radio, and others. AEMA staff viewed communications systems and capabilities during Katrina as strengths, although the goal of true interoperability within and among county emergency response and law enforcement agencies remains elusive to this day.[16] The state has little ability to mandate what types of communications technology each

county procures. AEMA makes recommendations, but with so many different counties all with communications equipment in various stages of their life cycle, the EOC must be able to process all types of communications. The AEMA integrates these systems with various bridging technologies. Several attempts have been made in the past to build a state-wide/state-owned system, but lack of funding has prevented construction of this system. Nevertheless, state and county emergency management officials concluded their communications capacity functioned reasonably well during their response to Hurricane Katrina.[17]

Power is the most dominant factor for any

FEMA

telecommunications system[18] and hurricanes virtually always knock out the power, even if only for a short period of time. Very often these power outages can last for several days or more following powerful storms. For Hurricane Katrina, the Department of Homeland Security (DHS) was aware the power outages caused by the storm could go on for weeks after the storm, possibly longer. On August 28, the DHS National Infrastructure Simulation and Analysis Center issued and provided to the White House (among others) a "Fast Analysis Report" predicting the storm's likely impact on the Gulf coast area based on conditions as of August 27 when Katrina was still a Category 5 storm. In the report, DHS made a number of predictions about the storm's impact on power supplies, including:

■ Electric power loss is likely to affect over 2.6 million customers;

■ Restoring power could take more than 2 weeks for most of the affected areas **excluding New Orleans and the coastal areas** and may be hampered by flooding or other obstacles;

■ The New Orleans region could have power outages lasting 16 weeks if excessive flooding occurs, disabling existing pumping stations up to 10 weeks and entailing power repairs that may take up to 6 weeks to complete**.**[19]

As predicted, the affected states all suffered severe damage to their power and communications infrastructures. During Hurricane Katrina, the City of New Orleans lost two primary tower sites and had to evacuate the police and fire communications centers because of flooding. Associated with the loss of the communications centers was the loss of all 911 capabilities and the federally funded New Orleans Maritime Interoperable Committee's (NOMIC) interoperable bridging capability. Colonel Terry Ebbert, the Homeland Security Director for New Orleans, testified "Over 2,000 police, fire, and Emergency Medical Services (EMS) personnel were forced to communicate in a single channel mode, between radios, utilizing only three mutual aid frequencies."[20]

The government's ability to communicate depends upon the viability of the commercial network's infrastructure. Ninety percent of communications assets are privately owned and operated.[21] Verizon Wireless serves the Gulf coast with two major switching stations in Baton Rouge and Covington, Louisiana. These serve as the links between cell phone antennae scattered throughout the region and the rest of the global network. While the stations themselves remained operational during and after landfall, the Covington facility lost connectivity with the cell towers due to two breaks in the connecting fiber-optic ring run by BellSouth.[22] Normally, a fiber-optic link provides redundancy: if one link is cut, information can still travel along the other route. Katrina, however, knocked out both sources because of physical damage to the fiber-optic cable. In one case, the fiber-optic cable that transported calls and internet traffic to and from New Orleans and ran along the Lake Pontchartrain Causeway was severed. Additionally, at least 20 cell towers went down due to either power loss or flooding. Verizon Wireless installed backup generators at many of the towers, but not at all, reportedly, due to local zoning restrictions.[23] Refueling remote generators also proved

difficult if not impossible. Verizon Wireless reported a number of its generators were stolen, one of Nextel's fuel trucks was stopped at gunpoint and its fuel taken for other purposes while en route to refuel cell tower generators, and the Mississippi State Police redirected a fuel truck carrying fuel designated for a cell tower generator to fuel generators at Gulfport Memorial Hospital.[24]

Other power and telecommunications companies

FEMA

reported similar problems due to exhausted fuel supplies, disruption of natural gas supply lines, or refueling difficulties due to flooding or security concerns. BellSouth reported that on September 1, 112 of its central offices were running on emergency generators, an additional 17 were completely down, and an additional 32 had no connectivity to the backbone network.[25] These central offices served as 911 tandems, and when they went down, they created outages of 911 service in as many as 13 Louisiana parishes.[26] In Gulfport, Mississippi, company officers at Alabama Power and Southern Nuclear's Watson Electric Generating Plant watched as a 30-foot storm surge rose 20 feet within the plant and flooded the 50-kilowatt backup generator that normally would have started when the power failed. The nerve center for the region's power company had no backup power to supply to the community.[27]

The loss of power — a common and altogether expected result of a hurricane — need not mean an affected area has no communications capability until the utility companies are able to restore normal electricity service. A well-planned and robust emergency communications system should be sustainable at reasonable levels of operation even after electrical power

is lost.[28] Resources to sustain operations include backup generators and fuel, redundant systems, self-healing networks, access to multiple technologies, common radio frequencies for wireless communications, sufficient spectrum bandwidth to support communications needs, and the proper equipment and infrastructure to make it all work.[29] Regular land-line telephone connections can function after local power is lost if central switches maintain power and lines are not damaged; telephone switches can usually operate until their backup generators run out of fuel or are knocked out by flooding. Similarly, cell towers carrying commercial phone service and public safety radio communications can continue to function with back-up power, usually batteries.

Destruction to communications capability hindered command and control and severely limited situational awareness

"It sounds like it can happen again. How many local governments have a communications plan when everything fails?"

REPRESENTATIVE TAMMY BALDWIN (D-WI),
query during hearing, U.S. House of Representatives,
Sept. 7, 2005

In myriad ways, the vast destruction to the communications infrastructures, particularly those in Mississippi and Louisiana, negatively affected first responders and local and state governments' attempts to establish command and control. It also limited — and sometimes precluded — them from achieving and maintaining situational awareness. In New Orleans and along the Gulf coast, the National Guard and first responders were forced to rely on paper relays or face-to-face communications to convey critical information between emergency operation centers and the field.[30] This drastically slowed the pace at which those in the EOCs became aware of situations throughout their respective areas of

AP PHOTO/RIC FRANCIS

With communications knocked out, police relied on two-way radios.

responsibility. It delayed the delivery of direct assistance where it was most needed, and it hindered the ability to forward requests to state or federal agencies that might have been able to help. In the Louisiana state EOC, the communications problems were so severe that state officers could not reliably communicate with local officials, others in the state government, or federal officials, exacerbating the already severe problems with situational awareness.

On Tuesday, August 30, FEMA Deputy Federal Coordinating Officer Phillip E. Parr traveled by helicopter to the New Orleans Superdome.[31] His mission there was threefold: (1) form a unified command with the state as represented by the Louisiana National Guard, and the City of New Orleans; (2) maintain visibility of commodities ordered; and (3) build out a base from which FEMA teams could be formed to locate and assist in the hardest hit parishes. But according to Parr his ability to accomplish those goals were hindered by the lack of appropriate communications as mentioned in his statement: "To accomplish these goals we were to meet a Mobile Emergency Operations and Communications Vehicle and use that as a base of operations and communication. Due to extensive flooding in the city our communications vehicle was unable to enter the Dome and this severely hampered our operations."[32]

First responders' ability throughout the Gulf coast to communicate across a broad range (or distance) and gain control of an incident was compromised when power was lost and many had only their mobile (cellular) phones available. Because these phones run on batteries, they lose power the longer first responders have to use them in lieu of other means and, as a result, have shorter and shorter ranges over which they can operate as their batteries run down.

In Mississippi, Major General Harold A. Cross, the state's Adjutant General, told Select Committee staff the National Guard forward operating units on the coast were unable to establish and maintain meaningful communications with MEMA or Governor Barbour for the first 48 hours following landfall.[33] As a result, their initial activities were based on executing pre-landfall assignments and reacting to events on the ground as they found them. They acted with initiative. Exacerbating the situation, and unknown to Cross, the company providing the satellite service to his phones (Mobile Venture Satellites) had not informed the Guard it had changed the contact numbers on two of the Guard's satellite phones. As a result, no one attempting to reach these phones — one with the Guard's Director of Military Assistance, Lieutenant Colonel Lee Smithson (the officer responsible for coordination of the Guard's materials and assets during the response and recovery effort), and another at the Stennis Space Center commodities distribution center — could get through. The Guard did not learn of the change until two days into the response when the state National Guard's Assistant Adjutant General, Gen. Playnt, finally spoke with Smithson to ask why he was not answering his satellite phone. Smithson contacted the satellite phone company, and was only then informed of the number change.[34] Because of this failure to notify the Guard of two number changes, those who needed to reach two of the most important people or places involved in the response did not have the correct numbers to do so. This contributed to the problems and delays experienced during commodity coordination and distribution efforts experienced in Mississippi.[35] These types of problems are further discussed in the COMMAND AND CONTROL chapter.

FEMA pre-positioned communications assets, but not in New Orleans, where the need became exceptionally critical

FEMA partially anticipated the communications infrastructure, particularly the parts dependent on electric power, would be needed in the Gulf coast and pre-positioned with each of the three states' EOCs a MERS detachment.[36] MERS detachments are designed to provide rapid multi-media communications, information processing, logistics, and operational support to federal,

state, and local agencies during catastrophic emergencies and disasters. They do so, in part, by providing mobile telecommunications, operational support, life support, and power generation for on-site disaster management; this includes satellite, telephone, and video hook-ups.[37]

Former FEMA Director Michael Brown testified, in hindsight, FEMA should have pre-positioned a MERS detachment in New Orleans. Brown stated:

> In terms of communications, one of the things that I didn't mention in the litany of things that we prepositioned is something called our MERS unit, our Mobile Emergency Response System [sic]. Those are vehicles that are command and control units that have satellite hook-ups, telephone hook-ups, video hook-ups; enable us to do communications. I prepositioned those in all three states so that we would have communications wherever we needed it. I eventually sent one of those command units — in fact, it's one of the largest ones we have, called Red October — I eventually sent one of those into New Orleans for Mayor Nagin to use.
>
> In retrospect, I wish I'd done that four days earlier. Had I done it four days earlier, though, guess what? It probably wouldn't have gotten there. So I'm now second-guessing myself, and perhaps I should have prepositioned it there before Katrina made landfall. But again, that's not the role of the federal government; that's Mike Brown Monday morning quarterbacking, having seen everything that took place and trying to figure out, okay, now seeing everything that did not work in Louisiana, if I had known that beforehand, what could I have done?[38]

As a result, one of the federal assets that might have allowed FEMA and the local and state governments to work around the damage to the communications systems and sooner gain situational awareness about conditions in New Orleans was not present. Arguably, this instance of a failure of initiative — leaving a MERS detachment outside of the city — exacerbated the degree to which the massive damage to the local communications infrastructure delayed the ability of FEMA to learn of or confirm events on the ground in New Orleans and act accordingly.

Poor situational awareness and its resulting effect on command and control contributed to the negative effects of inaccurate media reports because public officials lacked access to the facts to address media reports. Throughout the early days of the response, media reports from New Orleans featured rampant looting, gunfire, crime, and lawlessness, including murders and alleged sexual assaults at the Superdome and Convention Center. Few of these reports were substantiated, and those that were—such as the gunfire—were later understood to be actually coming from individuals trapped and trying to attract the attention of rescuers in helicopters.

Officials on the ground in New Orleans interviewed by Select Committee staff stated the media greatly exaggerated reports of crime and lawlessness and that the reports from the Convention Center and Superdome were generally unsubstantiated. Of the six deaths in the Superdome, none were crime-related (five were due to medical reasons and one was a suicide).[39] In some cases, the media's coverage of its own performance - well after the fact - showed many of these reports from the early days after Katrina were false. In December, *ReasonOnline* reported that:

> On September 1, 72 hours after Hurricane Katrina ripped through New Orleans, the Associated Press news wire flashed a nightmare of a story: "Katrina Evacuation Halted Amid Gunfire…Shots Are Fired at Military Helicopter."
>
> The article flew across the globe via at least 150 news outlets, from India to Turkey to Spain. Within 24 hours commentators on every major American television news network had helped turn the helicopter sniper image into the disaster's enduring symbol of dysfunctional urbanites too depraved to be saved.
>
> Like many early horror stories about ultra-violent New Orleans natives, whether in their home city or in far-flung temporary shelters, the A.P. article turned out to be false. Evacuation from the city of New Orleans was never "halted,"

according to officials from the Coast Guard, FEMA, and the Louisiana National Guard. The only helicopter airlifts stopped were those by a single private company, Acadian Ambulance, from a single location: the Superdome. And Acadian officials, who had one of the only functional communications systems in all of New Orleans during those first days, were taking every opportunity to lobby for a massive military response.

More important, there has been no official confirmation that a single military helicopter over New Orleans—let alone a National Guard Chinook in the pre-dawn hours of September 1—was fired upon.

The Air Force, to which the Air National Guard reports, also has no record of helicopter sniping. "We investigated one incident and it turned out to have been shooting on the ground, not at the helicopter," Air Force Maj. Mike Young told The New York Times on September 29.

Aside from the local National Guard, the other government agency with scores of helicopters over New Orleans was the U.S. Coast Guard, which rescued more than 33,000 people. "Coast Guard helicopters," says spokeswoman Jolie Shifflet, "were not fired on during Hurricane Katrina rescue operations."

[But] the basic premise of the article that introduced the New Orleans helicopter sniper to a global audience was dead wrong, just like so many other widely disseminated Katrina nightmares. No 7-year-old rape victim with a slit throat was ever found, even though the atrocity was reported in scores of newspapers. The Convention Center freezer was not stacked with 30 or 40 dead bodies, nor was the Superdome a live-in morgue.[40]

Media reporting made the crowds in the Superdome anxious and scared away truck drivers carrying critical commodities.

"[The] National Guard have landed in the city of New Orleans. These troops are fresh back from Iraq, well trained, experienced, battle-tested and under my orders to restore order in the streets. They have M-16s and they are locked and loaded. These troops know how to shoot and kill and they are more than willing to do so if necessary and I expect they will."

GOVERNOR KATHLEEN B. BLANCO

According to officials on the ground in New Orleans interviewed by Select Committee staff, and subsequent media reports, erroneous or exaggerated reporting of conditions in New Orleans created anxiety and fear among those sheltering at the Superdome and Convention Center, delayed some critical elements of the response effort, and discouraged some residents in dry neighborhoods from evacuating the city. Media reports described how BellSouth evacuated its personnel from their Emergency Operations Center near the Superdome under armed escort due to security concerns. Reportedly, company officials worried about the center being targeted by unruly individuals.

Gary Ludgood, vice president for integrated network planning and implementation for BellSouth, stated, "[W]e chose to evacuate our employees before anything happened."[41] Officials interviewed by Select Committee staff said some of the media reporting made the crowds in the Superdome anxious and scared away truck drivers carrying critical commodities;

AP PHOTO/ERIC GAY

these same officials indicated some residents of the city in areas not flooded were reluctant to evacuate because of these reports, choosing instead to stay behind to protect their belongings. *ReasonOnline* reported on the effect of radio broadcasts containing erroneous reports:[42]

The information vacuum in the Superdome was especially dangerous. Cell phones didn't work, the arena's public address system wouldn't run on generator power, and the law enforcement on hand was reduced to talking to the 20,000 evacuees using bullhorns and a lot of legwork. "A lot of them had AM radios, and they would listen to news

reports that talked about the dead bodies at the Superdome, and the murders in the bathrooms of the Superdome, and the babies being raped at the Superdome," Bush [Maj. Ed Bush, public affairs officer for the Louisiana Air National Guard] says, "and it would create terrible panic. I would have to try and convince them that no, it wasn't happening."

The reports of rampant lawlessness, especially the persistent urban legend of shooting at helicopters, definitely delayed some emergency and law enforcement responses. Reports abounded, from places like Andover, Massachusetts, of localities refusing to send their firefighters because of "people shooting at helicopters." The National Guard refused to approach the Convention Center until September 2, 100 hours after the hurricane, because "we waited until we had enough force in place to do an overwhelming force," Lieutenant General H Steven Blum, Chief of the National Guard Bureau, told reporters on September 3.

"One of my good friends, Col. Jacques Thibodeaux, led that security effort," [Maj.] Bush says. "They said, 'Jacques, you gotta get down here and sweep this thing.' He said he was braced for anything. And he encountered nothing—other than a whole lot of people clapping and cheering and so glad that they were here."

"I certainly saw fights, but I saw worse fights at a Cubs game. The people never turned into these animals. They are been cheated out of being thought of as these tough people who looked out for each other. We had more babies born [in the Superdome] than we had deaths."

MAJOR ED BUSH, LA National Guard

Mississippi government officials echoed these concerns: "Even drivers coming in to Mississippi were dissuaded by the media reports in New Orleans. A lot of them ended up demanding military escorts. They'd call and say 'we've been hijacked or we ran out of gas on Highway 49 or 59. When help arrived they'd admit that wasn't the case, that they just wanted an escort. Obviously this situation impeded 'just in time' logistics,'"[43] Ebbert said.

"We were going to protect the lives of our residents. It's impossible to know what happened unless you were here. At the time, you don't know what to believe, but you don't want to be in a place to find out if what you heard is true."

RONNIE HARRIS, Mayor, Gretna, LA

Without sufficient working communications capability to get better situational awareness, the local, state, and federal officials directing the response in New Orleans had too little factual information to address — and, if need be, rebut — what the media were reporting. This allowed terrible situations — the evacuees' fear and anxiety in the Superdome and Convention Center — to continue longer than they should have and, as noted, delayed response efforts by, for example, causing the National Guard to wait to assemble enough force to deal with security problems at the Convention Center that turned out to be overstated. For further discussions of exaggerated media reports, see the LAW ENFORCEMENT chapter.

Finding: Some local and state responders prepared for communications losses but still experienced problems, while others were caught unprepared

Though the loss of power and damages to the Gulf coast area's communications infrastructure were massive, some of the local and state responders had taken the steps necessary to ensure that they had some communications capability in the immediate aftermath of Hurricane Katrina. The AEMA had various communications capabilities, all with redundant backups, to ensure that it maintained a high level of connectivity throughout the

state. AEMA officials considered their communications redundancy to be one area that worked well in their response to Katrina.[44] Southern LINC, the company whose network Alabama uses as its primary radio system, had a representative on site at the state EOC during this period that provided outage updates (as noted earlier, the AEMA has a cache of pre-programmed LINC radios that it activates during disasters and which also provide telephone capability).

In Mississippi, Gulf coast county governments had taken steps (including using DHS preparedness grant funds) to ensure some communications capability would likely survive a disaster. For example, despite the catastrophic damage suffered by the Gulf coast, Harrison County's Enhanced Digital Access Communication Systems (EDACS)[45] remained operational at nearly 100 percent capacity during and after Katrina's landfall. One interoperability success story from Mississippi was that although the Harrison County EDACS was not capable of linking to FEMA or to the MEMA EOC in Jackson, Mississippi, it was capable of linking with similar systems utilized by the Florida State Police and the Florida Fish & Wildlife Agency who arrived in Mississippi shortly after Katrina's landfall. These Florida state agencies were able to quickly reprogram their EDACS radios to communicate over the county's network. Within two weeks of landfall, the Harrison County EDACS system was able to expand to allow first responder communications within the adjoining Jackson and Hancock counties.[46]

MEMA Director Latham testified that Mississippi had satellite radios permanently mounted in the three coastal counties (Harrison, Hancock, and Jackson) and that 30 other counties also had these radios.[47] All MEMA personnel had access to a mobile satellite radio for communications throughout the state. This proved fortunate because often the only communications capability in Mississippi after the storm—for both MEMA and the affected counties—was through satellite phones and radios, which operate by connecting to satellites rather than routing calls through land-based lines or cellular towers.[48] The Harrison County EOC was only able to use its cellular communications system for approximately 12 hours until the battery on the cell tower died. They were unable to use the satellite system at the Harrison County EOC because it was damaged during the storm. Additionally, and currently, MEMA has a mobile operations unit, which it can deploy to disaster areas

and allows communication across all bands.[49] Despite problems the satellite systems experienced (discussed below), Latham noted they did allow the state to learn vital information it needed about conditions in the counties and their assistance needs.[50]

Unlike the three coastal counties, Pearl River County fared better at maintaining communications capability during and after the storm. Pearl River County had two satellite phones in its emergency operations center. According to its Emergency Management Director, Bobby Strahan, these worked throughout the response but did prove problematic early on because it took a long time for any calls to go through.[51] In addition, Strahan reported the county has four high band repeater systems strategically placed throughout the county which allow all of its first responders (including police, fire, and EMS) as well as its schools to communicate. All of these systems' locations had generator backup systems which functioned properly during Katrina. In addition, Pearl River County was able to sustain communications within the county and, to a limited extent, with portions of adjacent Hancock County because it had used DHS grant funds to buy a mobile communications center (trailer) that allowed it to communicate with agencies throughout the county as well as with MEMA's mobile operations unit.[52]

In Louisiana, most of the parishes did not have satellite phones because they chose to discontinue the service after the state stopped paying the monthly fees for the phones.

Others were caught relatively unprepared to deal with the communications problems that resulted from the hurricane's damage or found their existing capabilities were insufficient. In Louisiana, most of the parishes did not have satellite phones (as their counterparts in Mississippi did) because they chose to discontinue the service after the state stopped paying the monthly fees for the phones. In 1999, the state began using federal funding to provide each parish emergency management office with a satellite telephone and paid the $65.00 monthly fee, but

it discontinued doing so for the parishes in August 2004. As a result, all but three parishes—Orleans, Plaquemines, and Jefferson—discontinued their satellite phone service.[53] Larry Ingargiola, Director, Office of Homeland Security and Emergency Management, St. Bernard Parish, told Select Committee staff the parish returned the satellite phones when the state stopped paying the monthly service fee. After Katrina hit, the state sent the phones back to St. Bernard because there was no other means of communication available to the parish.[54]

The failure of 911 call centers in New Orleans also illustrates how others were unprepared to deal with communications problems. Identifying where calls to a 911 call center will be routed if it is rendered inoperable is a basic preparation for Public Safety Answering Points (PSAPs) such as 911 call centers.[55] Although the technology to switch calls to 911 to an alternative location exists,[56] many 911 call centers in Louisiana did not have protocols in place to identify where their calls should go and had not arranged for any rerouting. As a result, numerous calls to 911 in the immediate aftermath — especially as the floodwaters in New Orleans were rising — simply dropped.[57]

In Mississippi, MEMA Director Latham testified the state found it did not have enough satellite radios when only its satellite systems were operable.[58] As a result, during its response to Katrina, MEMA purchased additional portable satellite phones for its State Emergency Response Team (in the future, Mississippi indicated these additional phones can be issued to local authorities as a redundant system in disasters).[59] Some Mississippi responders also found their satellite communications capabilities were not sufficiently capable of withstanding high winds. Specifically, though they generally remained operable and the state relied on them during its response to Katrina, Mississippi's satellite communications capabilities suffered because the hurricane force winds—at times sustained over 130 miles per hour— shifted the antennas in each of the coastal counties, causing satellite communications there to fail because the antennas were no longer properly targeted. As a result, for several days, these counties lost their ability to communicate with the state EOC in Jackson or FEMA about their needs for assistance or the status of any commodities requests they had made before the storm.[60] Because of the lessons it learned from the damage to its satellite systems in Katrina, Mississippi is investigating for future use in its counties' EOCs the omni-directional antennas it has in place on all

of its state EMA and Department of Wildlife, Fisheries, and Parks vehicles. According to Latham, these antennas would not be affected by strong winds and would allow constant communications.[61]

Responders in Louisiana similarly experienced certain problems that can plague satellite-based communications. Specifically, satellite phones are technically capable of transmitting calls virtually anywhere on earth, but they may have trouble doing so when the user is inside a building or when the weather is cloudy. According to the Louisiana State Police report, "heavy cloud coverage and system inundation" limited the effectiveness of the portable satellite phones delivered to several troop headquarters in the affected areas.[62] Even when weather conditions permit smooth transmissions of signals for satellite communications, this is meaningless if the caller does not know how to use the satellite phone, or the phone does not work at all. As Mayor Nagin noted during Congressional testimony, "I have a huge box of satellite phones that did not work."[63]

For the systems that were functioning after the storm as well as those that were eventually restored, problems with interoperability further exacerbated rescue efforts. As Colonel Ebbert testified, "[T]here was no voice radio contact with surrounding parishes or state and federal agencies. Lives were put at risk and it created a direct operational impact on their ability to maintain control of the rapidly deteriorating situation within the city, carry out rescue efforts and control the evacuation of those people who had failed to heed the call for evacuation."[64]

Despite hundreds of millions in federal funding for technology and communications, the absence of true communication interoperability within and between affected jurisdictions severely hindered rescue and response efforts at all levels of government

Many in the industry, media, and government have long focused on the problem of "interoperability." FEMA officials claimed they did not know for days about the thousands of people at the New Orleans Convention Center, first responders in helicopters could not talk to crews patrolling in boats, and National Guard Commanders in Louisiana and Mississippi had to use runners to relay orders.

Interoperability for public safety communication is defined as the ability to share information via voice, data, on-demand, in real-time, when needed and as authorized. The public safety community expects this level of interoperability will be available using equipment from multiple manufacturers, be transparent to the user, require little or no special knowledge of the system, and not be dependent on common frequency assignments.[65] A Conference of Mayors 2004 survey of 192 cities showed 44 percent reported an accident within the preceding year in which the lack of interoperable communications made response difficult; 49 percent of cities are not interoperable with state police; 60 percent are not interoperable with their state emergency operation centers; and 83 percent are not interoperable with the federal law enforcement agencies.[66]

Communications — particularly wireless communications — enable all other functions in any disaster relief operation along with the sensors to inform officials and first responders what is happening and share the information and the ability to command and control those functions and information. These are all mission-critical functions. Hurricane Katrina was no exception. Without effective communications, every operation will suffer debilitating inefficiencies, some leading to ineffectiveness.[67] Too many public safety personnel cannot communicate by radio because their equipment is still incompatible or the frequencies they're assigned are different. They operate on 10 different frequency bands and run communication systems that are often proprietary and too often 30 or more years old. Over 90 percent of the nation's public safety wireless infrastructure is financed, owned, operated, and maintained by the more than 60,000 individual local jurisdictions, police, fire and emergency medical services that serve the public.[68]

Louisiana government officials have long been cognizant of the interoperability problem among the state and parish first responders.[69] Despite longstanding and sizable federal interoperability grants to multiple Louisiana jurisdictions, coordinated planning had barely progressed when Katrina hit.[70] Although some New Orleans and Louisiana state officials attribute the lack of true interoperability for first responders in the region to financial limitations,[71] this explanation flies in the face of the massive amounts of federal grants to Louisiana.[72] State and local governments were responsible for designing and coordinating their efforts, and they failed to make meaningful progress despite knowledge of the problem for years and the expenditure of millions in federal funds.

Since 2001, the federal government has given $8.6 billion to states for equipment, first responder training, and disaster exercises. In 2005, DHS gave the states $2.1 billion, of which $925 million was allocated for communications upgrades.[73] In Louisiana alone, since fiscal year 1999, the federal government allocated over $135 million for preparedness, of which more than $108 million was awarded to local governments, and nearly $27 million to the state. Of these funds, nearly $107 million was dedicated to equipment purchases and the remaining $28 million was allocated for planning, training, exercises and administrative costs. Since 1999, approximately $16 million has been spent on interoperability.[74] In addition to these funds, Alabama, Mississippi, and Louisiana are also the recipients of federal grants for law enforcement agencies via the Justice Department's Community Oriented Policing Services (COPS) Office.[75]

■ Alabama received $24,770,274 from FY2003 to FY2005 under the COPS Interoperability Communications, Law Enforcement Technology, Universal Hiring Program (UHP), COPS in Schools (CIS), and Homeland Security Overtime (HSOP) grant programs;
■ Louisiana received $23,495,114 from FY2003 to FY2005 under the COPS Interoperability Communications,

There was no voice radio contact with surrounding parishes or state and federal agencies. Lives were put at risk.

Col. Terry Ebbert, New Orleans Director of Homeland Security and Public Safety

Law Enforcement Technology, UHP, CIS, Regional Community Policing Institute (RCPI) and Homeland Security Overtime (HSOP) grant programs; and,

- Mississippi received $7,003,688 from FY2003 to FY2005 under the COPS Law Enforcement Technology, UHP, CIS, and HSOP grant programs.[76]

More specifically, the COPS Interoperable Communications Grant Program provides funding to local communities to help them develop effective interoperable communications systems for public safety and emergency service providers. The grant program funds projects that explore the use of equipment and technology to increase interoperability and data sharing amongst law enforcement, fire departments, and emergency medical services. From 2003-2005, the COPS program awarded over $242 million to 63 agencies across the nation to address the need to ensure interoperable communications. In 2003, for example, the City of New Orleans received a COPS grant for interoperable communications technology in the amount of $5,510,412; in 2004, the City of Shreveport and the Birmingham, Alabama Police Department received COPS grants for interoperable communications technology in the amounts of $2,998,901 and $5,625,000, respectively; and in 2005, the City of Baton Rouge Police Department and the Police Department in Mobile, Alabama received COPS grants for interoperable communications technology in the amounts of $5,999,184, and $3,000,000, respectively.[77]

The $5,510,412 COPS interoperability grant awarded to the City of New Orleans in September 2003 initially was approved for one project. A year and a half later, however, the city requested approval to modify its original plan, and in May 2005, the COPS program office approved a new plan to build upon the Jefferson Parish 800 MHz

radio system, and link four parishes (Orleans, Jefferson, St. Bernard and Plaquemines) together. As of September 2005, the City had spent only $275,428 of the $5,510,412 originally awarded in 2003.[78]

"Technology is at the center of this, but most of the components required to achieve interoperability in the near-term already exist. However, it requires agreements, planning, and governance arrangements across jurisdictions."

DAVID BOYD, Deputy Director, Office Systems Engineering & Development, DHS Testimony before U.S. Senate Sept. 29, 2005

Despite these awards (and other federal grants described in detail in Appendix 4 of this report), officials in Louisiana claim "austere financial circumstances" prevented the completion of the interoperability modifications of its communications system. New Orleans designed and purchased its M/A-Com 800 MHz radio communications system in 1992. The Louisiana State Police updated a different Motorola 800 MHz radio communications system in 1996, and while the two systems are capable of communicating, this requires special integration modifications to each system, and only is attempted, typically, for large events such as the 2002 Super Bowl held in New Orleans.[79] Under normal circumstances, the City's system is linked to the state's system via a traditional T1 landline. As Greg Meffert, the New Orleans Chief Information Officer told Select Committee staff, the two systems' interoperable capabilities are based on faulty assumptions. If the T1 lines are damaged, this destroys the connection between the systems.[80] This is exactly what happened during Katrina. The city's system went down after the system's generators were flooded or damaged by flying debris. As noted by Ebbert in his testimony before the Select Committee, "there was no voice radio contact with surrounding parishes or state and federal agencies. Lives were put at risk and it created a direct operational impact on their ability to maintain control of the rapidly deteriorating situation within the city, carry out rescue efforts and control the evacuation of those people who had failed to heed the call for evacuation."[81]

Finding: The National Communications System met many of the challenges posed by Hurricane Katrina, enabling critical communication during the response, but gaps in the system did result in delayed response and inadequate delivery of relief supplies

The federal government's use of the National Communications System (NCS) prior to, during, and after Katrina's landfall to coordinate assets and personnel proved effective, but like the efforts of the Gulf states, it too was overwhelmed by the magnitude of the damage left in Katrina's wake.

Following the Cuban Missile Crisis, President Kennedy established the National Communications System by a Presidential Memorandum on August 21, 1963.[82] On April 3, 1984, President Ronald Reagan signed Executive Order 12472, which broadened the NCS' national security and emergency preparedness capabilities and superseded President Kennedy's original 1963 memorandum. The NCS expanded from its original six members to an interagency group of 23 federal departments and agencies, and began coordinating and planning NS/EP telecommunications for the federal government under all circumstances, including crisis or emergency, attack, recovery, and reconstruction. As mandated by

the Executive Order, the NCS also includes an industry component called the National Coordinating Center for Telecommunications (NCC), a joint industry-government body within the NCS. The operational mission of the NCC is coordination of restoring and reinstituting national security and emergency preparedness communications in an emergency situation. During Hurricane Katrina, the NCC operated a 24-hour watch center and conducted daily analysis and situational monitoring of ongoing events, and coordination of government and industry response capabilities.[83]

In addition to the Executive Order, the NCS has a specific communications role in the National Response Plan (NRP). Specifically, the NCS is the lead agency responsible for the communications component of Emergency Support Function 2 (ESF 2), which "ensures the provision of Federal communications to Federal, State, local, tribal and private-sector response efforts during an Incident of National Significance." In support of ESF 2, the NCC is tasked to function as a central point of coordination and information sharing among communications infrastructure operators.

To facilitate coordination of industry and government operations during an emergency, the NCS maintains and operates several priority service programs, which help ensure critical calls are completed in the event of congestion damage to the national commercial communications infrastructure. They include the Government Emergency Telecommunications Service (GETS), which provides authorized users a higher rate of call completion during periods of outages or congestion resulting from disasters. During and after Hurricane Katrina, the NCS issued 1,000 new GETS access code numbers to first responders and emergency recovery officials in the affected states. Between August 28 and September 9, the GETS system was utilized to make over 35,000 calls.[84] The NCS also operates a wireless counterpart to GETS, the Wireless Priority Service (WPS) program. It provides priority treatment for calls made during periods of wireless network congestion by emergency response personnel with national security and emergency preparedness responsibilities. During Katrina, the NCS enabled and distributed over 4,000 WPS cellular phones.[85]

FEMA

In Gulfport, MS., video conferencing was used to coordinate disaster aid.

The NCS operates the Telecommunications Service Priority (TSP) program, which establishes a regulatory, administrative and operational framework for restoring and provisioning priority communications services. Through this program, service vendors are authorized to give priority to restoration and provision of service to those with TSP assignments. Following Hurricane Katrina, the NCS completed more than 1,500 TSP assignments helping to restore emergency response capabilities in the Gulf states.[86]

The NCS also maintains the Shared Resources High Frequency Radio Program (SHARES), which provides a single, interagency, voluntary message handling system using over 250 High Frequency (HF) radio frequencies when other communications are unavailable. A network of government, military, and Military Affiliate Radio Service (MARS) radio stations (an organized network of Amateur Radio stations affiliated with the different branches of the armed services to provide volunteer communications), and more than 90 federal, state, and private industry organizations participate in the SHARES program. Within days following Katrina's landfall, the NCS coordinated participation by 431 SHARES stations across the nation and assisted first responders conducting search and rescue missions by relaying information to appropriate government agencies; relayed logistical and operational information between FEMA's EOCs in Georgia, Mississippi, and Louisiana; relayed health and welfare messages between volunteer agencies in Georgia and the national headquarters of the American Red Cross in Washington, DC; established radio contact with deployed U.S. Navy ships detailed to New Orleans; and provided frequency coordination between federal agencies, Louisiana and Mississippi's EOCs, and the Civil Air Patrol.[87]

Additionally, the NCS coordinated the frequencies used by the nearly 1,000 Amateur Radio Emergency Services (ARES) volunteers across the nation who served in the Katrina stricken area providing communications for government agencies, the Red Cross and the Salvation Army. Emergency communications were conducted not only by voice, but also by high-speed data transmissions using state-of-the art digital communications software known as WinLink. In Mississippi, FEMA dispatched Amateur Radio operators to hospitals, evacuation centers, and county EOCs to send emergency messaging 24 hours

FEMA dispatched Amateur Radio operators to hospitals, evacuation centers, and county Emergency Operations Centers to send emergency messaging 24 hours per day.

per day. According to Bay St. Louis Mayor Edward A. "Eddie" Favre, amateur radio operators were especially helpful in maintaining situational awareness and relaying Red Cross messages to and from the Hancock County EOC.[88] At airports in Texas and Louisiana, radio amateurs tracked evacuees and notified families of their whereabouts. The Red Cross deployed amateur radio volunteers at its 250 shelter and feeding stations, principally in Mississippi, Alabama, and Florida.[89] The Salvation Army operates its own Amateur Radio communications system using Amateur radio volunteers, known as SATERN. During the Hurricane Katrina response and recovery effort, SATERN joined forces with the SHARES program and received over 48,000 requests for emergency communications assistance utilizing federal frequencies made available via the SHARES program.[90]

Following landfall, the NCS activated the SHARES network on August 29, and worked with The U.S. Northern Command (NORTHCOM) to identify and deploy communications assets, and by September 2, all NCS ESF 2 systems were in place to receive communications requests from the affected region. The NCS dispatched satellite communications vans to various locations, including New Orleans City Hall, the Louisiana State Police headquarters in Baton Rouge, the New Orleans Airport, and the Louisiana National Guard in Jefferson Parish; dispatched AT&T and MCI cellular communication vans to the state EOCs in Mississippi and Louisiana; and identified and delivered satellite handsets to first responders in all three affected states. Additionally, the NCS designed and installed a new E-911 system in Plaquemines Parish, and provided an interim digital Land Mobile Radio system to the eight parishes surrounding New Orleans.[91]

Like all levels of government, the NCS was not able to address all aspects of the damage to the communications

infrastructure of the Gulf states. Although the NCS performed several important functions prior to and during the response efforts, the "historical magnitude of Hurricane Katrina stressed the processes and procedures of the NCS and required ESF 2 to perform functions . . . which it [had] never done before."[92]

Conclusion

The extent of destruction and damage to the communications infrastructure and services caused by Katrina exceeded that of any other natural disaster experienced by the Gulf coast states. Simply put, Katrina's devastation overwhelmed government resources at all levels. The loss of power and the failure of various levels of government to adequately prepare for the ensuing and inevitable loss of communications hindered the response effort by compromising situational awareness and command and control operations.

Despite the devastation left by Katrina, this needn't have been the case. Catastrophic disasters may have some unpredictable consequences, but losing power and the dependent communications systems after a hurricane should not be one of them. The parish officials in Louisiana who declined to spend $65 per month for satellite phones showed a failure of initiative when they gave up those assets. Why such a "penny wise-pound foolish" decision was allowed to stand defies explanation. The same satellite phones that were given up by some of the parishes eventually were returned to them after Katrina's landfall because they had no other means of communicating with those bringing help to people in need. Similarly, those in the 911 call centers who could not reroute calls for help showed a failure of initiative by not taking the steps necessary to ensure calls to them were not in vain, simply because predictable things — power losses and flooding — happened after a hurricane.

Catastrophic disasters may have some unpredictable consequences, but losing power and the dependent communications systems after a hurricane should not be one of them.

Issues with interoperability have existed for years. Government officials and emergency service agencies are well aware of the need to establish and maintain robust emergency communications systems. Modern day National Guard units should not have to rely upon runners to relay messages. Governors should be able to communicate with their generals. Police commanders should be able to communicate with their officers in the street. Despite knowledge of interoperability problems and the seriousness of the consequences of failure to address them, and because of often parochial desires for duplicative, expensive, and diverse stand alone communications systems, officials responsible for providing for public safety spent millions on other priorities.

Disasters start and end at the local level. If first responders want interoperability with their counterparts in the future, their leaders need to communicate. Federal authorities need to establish standards. State and local officials need to take the initiative to make responsible use of federal, state and local funding to develop communications systems that can grow with their communities. These officials need to fulfill the public trust given to them. They need to lead. ∎

1 *Hearing on Hurricane Katrina: Preparedness and Response by the State of Louisiana Before Select Comm.*, 109th Cong. (Dec. 14, 2005) at 3 (written statement of Col. Terry Ebbert, USMC (ret), Director of Homeland Security & Public Safety, City of New Orleans) [hereinafter *Dec. 14, 2005 Select Comm. Hearing*].

2 *Hearing on Ensuring Operability During Catastrophic Events Before the Comm. on Homeland Security Subcomm. on Emergency Preparedness, Science, and Technology,* 109th Cong. (Oct. 26, 2005) at 1 (written statement of Dr. Peter M. Fonash, Deputy Manager, National Communications System, DHS) [hereinafter *Oct. 26, 2005 Comm. on Homeland Security Hearing*].

3 *Id.* at 6.

4 *Hearing on Public Safety Communications from 9/11 to Katrina: Critical Public Policy Lessons Before the Comm. on Energy and Commerce, Subcomm. on Telecommunications and the Internet,* 109th Cong. (Sept. 29, 2005) at 3 (written statement of Kevin J. Martin, Chairman, Federal Communications Commission) [hereinafter *Sept. 29, 2005 Energy & Commerce Comm. Hearing*].

5 Matthew Fordahl, *Communication Breakdown: From 9/11 to Katrina*, ASSOC. PRESS, Sept. 13, 2005.

6 LA State Police, *Louisiana Totally Interoperable Environment* at 2-3 (Dec. 7, 2005).

7 *Hearing on Hurricane Katrina: Preparedness and Response by the State of Mississippi Before Select Comm.*, 109th Cong. (Dec. 7, 2005) at 3-4 (statement of Robert R. Latham, Jr., Executive Director, Mississippi Emergency Management Agency) [hereinafter *Dec. 7, 2005 Select Comm. Hearing*].

8 *See* http://www.fema.gov/rrr/mers01.shtm (last visited Jan. 26, 2006).

9 *Dec. 7, 2005 Select Comm. Hearing* at 7 (statement of William L. Carwile, III, former Federal Coordinating Officer, Hurricane Katrina Response and Initial Recovery Operations: Mississippi).

10 Command and control are two key aspects of emergency management involving unity of command and effort among local, state, and federal authorities as well as an accepted chain of command. (*See* DHS *National Response Plan*, (Dec. 2004) at 1 [hereinafter *NRP*].) Situational awareness simply refers to the extent to which the various responders—local, state, or federal officials, for example—have accurate, reasonably reliable information about conditions in the affected area and can use that information to guide their response efforts.

11 Stephen Lawson, *Cell carriers tackle Katrina damage*, IDG NEWS, (San Fran.), Sept. 1, 2005.

12 Interviews by Select Comm. Staff with FEMA, Louisiana state and local officials in New Orleans, LA (Nov. 3-10, 2005).

13 Interviews by Select Comm. Staff with FEMA officials, New Orleans, LA (Nov. 9-10, 2005).

14 Interviews by Select Comm. Staff with Scott Wells, FEMA, in New Orleans, LA (Nov. 9, 2005).

15 Interview by Select Comm. Staff with Gordon Mitchell and Ralph "Joey" Booth, Louisiana State Police in Baton Rouge, LA (Nov. 9, 2005).

16 Interviews by Select Comm. Staff with Jerry McRay, Branch Chief, Information Technology Systems, Alabama Emergency Management Agency EOC officials in Clanton, AL (Oct. 11, 2005).

17 Interviews by Select Comm. Staff with Alabama Emergency management Agency EOC officials in Clanton, AL (Oct. 11, 2005).

18 *Hearing on Communications in a Disaster Before the Senate Comm. on Commerce, Science & Transportation,* 109th Cong. (Sept. 22, 2005) (statement of Hossein Eslambolchi, President, AT&T Global Networking Technology Services and AT&T Labs) [hereinafter *Sept. 22, 2005 Senate Commerce Comm. Hearing*].

19 DHS National Infrastructure Simulation and Analysis Center, *Fast Analysis Report (Update to Reflect Category 5 Status) to DHS IP on Hurricane Katrina, Gulf coast* at 1-2 (Aug. 28, 2005) (emphasis supplied).

20 *Dec. 14, 2005 Select Comm. Hearing* at 3 (written statement of Col. Terry Ebbert).

21 *Hearing on Hurricane Katrina Before the Comm. on Energy & Commerce*, 109th Cong. (Sept. 7, 2005) (statement of Kenneth P. Moran, Acting Director, Office of Homeland Security Enforcement Bureau, Federal Communications Commission).

22 Joab Jackson, *Telecom infrastructure was no match for Katrina*, WASH. TECH., Nov. 7, 2005 [hereinafter *Telecom Infrastructure Article*].

23 *Id.*

24 Interview (telephone) by Select Comm. Staff with Anthony Melone, Vice President of Network Operations Support, Verizon Wireless (Jan. 27, 2006); *See also*, E-mail correspondence from Hans Leutenegger to Anthony Melone and Select Comm. Staff (Jan. 30, 2006) (9:45 a.m.).

25 BellSouth *Press Release* (Sept. 2, 2005). Prior to Katrina, BellSouth Corporation served 1.9 million lines in Louisiana. Approximately 1.03 million lines (54.2%) were initially affected. In Mississippi, approximately 438,000 (39.8%) were affected, and in Alabama 93,000 (5.5%) of the state's 1.7 million lines were effected. By Sept. 2, approximately 144,000 remained out of services in New Orleans due to long term displacement. BellSouth News Release, Sept. 2, 2005.

26 *Hearing on Communications Interoperability Before the Senate Comm. on Commerce, Science & Transportation*, 109th Cong. (Sept. 29, 2005) at 5-6 (written statement of Chief Willis Carter, First Vice President of the Assoc. of Public Safety Communications Officials-Int' and Chief of Communications, Shreveport Fire Department, Shreveport, LA) [hereinafter *Sept. 29, 2005 Senate Commerce Comm. Hearing*].

27 Julia Harwell Segars, *Katrina's Wrath*, OPTIMIZE, Oct. 2005.

28 Congressional Research Service Report RL32594, *Public Safety Communications Policy*, by Linda K. Moore (Updated Jan. 5, 2006).

29 *Id.*

30 Interview by Select Comm. Staff with Major General Harold A. Cross, Adjutant General, Mississippi National Guard in Jackson, MS (Oct. 13, 2005).

31 *Hearing on Hurricane Katrina: Perspectives of FEMA's Operations Professionals Before the Senate Comm. on Homeland Security and Governmental Affairs*, 109th Cong. (Dec. 8, 2005) at 3 (statement of Phillip E. Parr, Deputy Federal Coordinating Officer, FEMA Joint Field Office, Austin, TX) [hereinafter *Dec. 8, 2005 Senate Homeland Security and Governmental Affairs Comm. Hearing*].

32 *Id.*

33 Interview by Select Comm. Staff with Maj. Gen. Harold A. Cross, Adjutant Gen., Mississippi National Guard at Jackson, MS (Oct. 13, 2005).

34 Interview by Select Comm. Staff with Lt. Col. Lee Smithson, Mississippi National Guard, in Gulfport, MS (Jan. 19, 2006).

35 *Id.*

36 *See* http://www.fema.gov/rrr/mers01.shtm (last visited Jan. 26, 2006).

37 *Id.*

38 *Hearing on Hurricane Katrina: The Role of the Federal Emergency Management Agency Before Select Comm.*, 109th Cong. (Sept. 27, 2005) at 32-33 (statement of Michael D. Brown, former Dir., FEMA) [hereinafter *Sept. 27, 2005 Select Comm. Hearing*].

39 Interview by Select Comm. Staff with Colonel Mark Mouton and Lieutenant General Jacques Thibideaux, Louisiana National Guard, in New Orleans, LA (Nov. 3, 2005).

40 Matt Welch, T*hey Shoot Helicopters, Don't They? How journalists spread rumors during Katrina*, REASON ONLINE, Dec. 2005, *available at* http://www.reason.com/0512/co.mw.they.shtml, (last visited Jan. 25, 2006) [hereinafter *Media Rumors Article*].

41 *Telecom Infrastructure Article.*

42 *Media Rumors Article.*

43 Briefing for Select Comm. Members and Staff by Mayor Favre, Bay St. Louis, MS, in Hancock County, MS (Jan. 20, 2006).

44 Interview by Select Comm. Staff with Bruce Baughman, Dir., State of Alabama Emergency Management Agency, in Clanton, AL (Oct. 11, 2005).

45 This simulcast trunked radio system consisting of three 20 channel sites and two 10 channel sites was installed in 2003 to serve law enforcement, fire, emergency medical, emergency management, and public utility services in Harrison County, which includes the cities Gulfport and Biloxi, MS.

46 E-mail correspondence from Benjamin J. Spraggins, Dir., Harrison County Emergency Management Agency, to Select Comm. Staff (Feb. 1, 2006) (2:53 p.m.).

47 *Dec. 7, 2005 Select Comm. Hearing* at 56 (statement of Robert R. Latham, Jr.).

48 *Id.* at 3-4.

49 *Id.* at 7 (statement of Bobby Strahan, MCEM, Director, Pearl River County Emergency Management Agency).

50 *Id.* at 97 (statement of Robert R. Latham, Jr.).

51 Interview (telephone) by Select Comm. Staff with Bobby Strahan, MCEM, Director, Pearl River County Emergency Management Agency (Nov. 29, 2005).

52 *Id.; Dec. 7, 2005 Select Comm. Hearing* at 2, 7-8 (statement of Bobby Strahan).

53 Interview by Select Comm. Staff with Matt Farlow, Information Technology Divisions Chief, LA Office of Homeland Security and Emergency Preparedness (Nov. 4, 2005).

54 Briefing for Select Comm. Staff by Larry Ingargiola, Director, Office of Homeland Security and Emergency Management, St. Bernard Parish, in St. Bernard Parish, LA (Nov. 3, 2005).

55 *Sept. 22, 2005 Senate Commerce Comm. Hearing* (written statement of Kevin J. Martin).

56 *Id.*

57 *Id.*

58 *Dec. 7, 2005 Select Comm. Hearing* at 35 (written statement of Robert R. Latham, Jr.).

59 *Id.*

60 *Id.* at 1 (written statement of Benjamin J. Spraggins; *Id.* at 4 (written statement of Robert R. Latham, Jr)

61 *Id.* at 4 (written statement of Robert R. Latham, Jr)

62 LA State Police Report, *Louisiana Totally Interoperable Environment* at 3 (Dec. 7, 2005).

63 *Hearing on Hurricane Katrina: Hurricane Katrina Evacuations Before the Senate Comm. on Homeland Security and Gov't Affairs,* 109th Cong. (Feb. 1, 2006) (testimony of C. Ray Nagin, Mayor of New Orleans, LA).

64 *Dec. 14, 2005 Select Comm. Hearing* (written statement of Col. Terry Ebbert).

65 *Sept. 29, 2005 Senate Commerce Comm. Hearing* at 1 (written statement of Dereck Orr, Program Manager of Public Safety Communications, Nat'l Institute of Standards and Technology).

66 *Sept. 22, 2005 Senate Commerce Comm. Hearing* at 5 (statement of Sen. Rockefeller).

67 *Oct. 26, 2005 Comm. on Homeland Security Hearing* (written testimony of Dr. Linton Wells II, Acting Ass't Sec'y of Defense, Networks and Information Integration, and DOD Chief Information Officer).

68 *Sept. 29, 2005 Senate Commerce Comm. Hearing* at 2 (written statement of David Boyd, Deputy Director, Office Systems Engineering & Development, DHS).

69 Correspondence from Colonel Henry L. Whitehorn, Superintendent, LA State Police, to Select Comm. (Dec. 29, 2005) [hereinafter Col. Whitehorn correspondence].

70 *Dec. 14, 2005 Select Comm. Hearing* at 3 (written statement of Col. Terry Ebbert).

71 Louisiana State officials claim for "Louisiana to achieve true interoperability, the initial acquisition cost infrastructure and equipment is $552,680, 423" thus rendering "the achievement of true interoperability at the state level virtually impossible." *See also* Col. Whitehorn correspondence.

72 *Dec. 14, 2005 Select Comm. Hearing* at 3-4 (written statement of Col. Terry Ebbert); Col. Whitehorn correspondence.

73 Matthew Fordahl, *U.S. Lacks Unified Emergency Radio System,* ASSOC. PRESS, Sept. 13, 2005 [hereinafter *Radio System Article*].

74 Col. Whitehorn correspondence.

75 The COPS Office was created by Title I of the Violent Crime Control and Law Enforcement Act of 1994 (P.L. 103-322). The mission of the COPS Office is to advance community policing in all jurisdictions across the United States. The COPS Office awards grants to state, local and tribal law enforcement agencies throughout the United States so they can hire and train law enforcement officers to participate in community policing, purchase and deploy new crime-fighting technologies, and develop and test new and innovative policing strategies.

76 Congressional Research Service Memo, FEMA Hazard Mitigation, *COPS and ODP Grants Awarded in Alabama, Louisiana and Mississippi in Fiscal Years 2003-2005* (Dec. 21, 2005).

77 *Id.*

78 Interview (telephone) by Select Comm. Staff with Gilbert Moore, COPS Program External Affairs Office (Sept. 27, 2005).

79 *Radio System Article.*

80 Interview by Select Comm. Staff with Gregg Meffert, Chief Information Officer, City of New Orleans, in Wash., DC (Oct. 18, 2005).

[81] *Dec. 14, 2005 Select Comm. Hearing* at 3 (written statement of Col. Terry Ebbert).

[82] The NCS began in 1962 after the Cuban missile crisis when communications problems among the United States, the Union of Soviet Socialist Republics, the North Atlantic Treaty Organization, and foreign heads of state threatened to complicate the crisis further. After the crisis, President John F. Kennedy ordered an investigation of national security communications, and the National Security Council (NSC) formed an interdepartmental committee to examine the communications networks and institute changes. This interdepartmental committee recommended the formation of a single unified communications system to serve the President, Department of Defense, diplomatic and intelligence activities, and civilian leaders in order to provide better communications support to critical government functions during emergencies. The NCS mandate included linking, improving, and extending the communications facilities and components of various federal agencies, focusing on interconnectivity and survivability. *See* NCS website: http://www.ncs.gov/faq.html (last visited Jan. 31, 2006).

[83] *Oct. 26, 2005 Homeland Security Comm. Hearing* at 3 (written statement of Dr. Peter M. Fonash).

[84] Interview by Select Comm. Staff with Dr. Peter M. Fonash, in Wash., DC (Jan. 27, 2006).

[85] *Oct. 26, 2005 Homeland Security Comm. Hearing* at 3 (written statement of Dr. Peter M. Fonash).

[86] *Id.*

[87] *Id.* at 4.

[88] Briefing for Select Comm. Staff by Edward A. Favre, Mayor, Bay St. Louis, MS, in Bay St. Louis, MS (Oct. 13, 2005).

[89] *Hearing on Back to the Drawing Board: A First Look at Lessons Learned from Katrina Before the Government Reform Comm.*, 109th Cong. (Sept. 15, 2005), at 257-58 (written statement of Jim Haynie, President, National Association for Amateur Radio).

[90] *Sept. 29, 2005 Energy & Commerce Comm. Hearing* (written statement of Harold Kramer, Chief Operating Officer, American Radio Relay League).

[91] *Oct. 26, 2005 Comm. on Homeland Security Hearing* at 9 (written statement of Dr. Peter M. Fonash).

[92] *Id.* at 7.

"Natural disasters will always be chaotic situations. But with proper planning and preparation, it is possible to respond quickly to restore order and begin recovery efforts."

Bob Riley
Governor, State of Alabama
Select Committee hearing, November 9, 2005