

technicians cease their work splicing a key telecommunications cable and exit the area in order to enforce a curfew.⁷⁵ Although such practices may have been necessary from a security standpoint, they did interrupt and hamper the recovery process.

The problems with access were not all one-sided. Law enforcement personnel also expressed frustration with the access situation, particularly with respect to the different credentials issued and not knowing what to ask for or what to honor. It was also reported that credentialed communications infrastructure repair personnel sometimes allowed non-credentialed individuals to ride in their vehicles through checkpoints, which compromised the security of the area. It also caused law enforcement personnel at the perimeter to be wary of persons seeking to access the affected area and the credentials they presented, potentially further slowing the access process.

2. Fuel. Problems with maintaining and restoring power for communications infrastructure significantly affected the recovery process. As described in Section I.B.2 above, many facilities could have been up and operating much more quickly if communications providers had access to sufficient fuel. The commercial power upon which the vast majority of communications networks depended for day-to-day operations was knocked out over a huge geographic area. Back-up generators and batteries were not present at all facilities. Where they were deployed, most provided only enough power to operate particular communications facilities for 24-48 hours – generally a sufficient period of time to permit the restoration of commercial power in most situations, but not enough for a catastrophe like Hurricane Katrina.

Access to fuel reserves or priority power restoration appeared extremely limited for the communications industry.⁷⁶ Only a few communications providers had stockpiles of fuel or special supplier arrangements. However, if the fuel was not located fairly near to the perimeter, it was difficult and expensive to get it where it was needed in a timely fashion. Perimeter access issues also impeded the ability to bring reserve fuel into the region. Moreover, many roads and traditional means of accessing certain facilities could not be used due to the extensive flooding that followed Hurricane Katrina. And many communications providers did not anticipate the need for alternative means of reaching their facilities. In addition, some providers reported having their limited fuel reserves confiscated by law enforcement personnel for other pressing needs.⁷⁷ Although electric and other utilities maintain priority lists for commercial power restoration, it does not appear that commercial communications providers were on or eligible for such lists. Indeed, one wireless provider speaking at the Katrina Panel's January 2006 meeting – more than 4 months after Katrina's landfall – reported that it had 23 cell sites in the impacted

⁷⁵ Smith-BellSouth Jan. 30 Oral Testimony, Tr. at 191; *see also* Jacot-Cingular Jan. 30 Oral Testimony, Tr. at 125.

⁷⁶ *See, e.g.*, Comments of Mississippi Assn. of Broadcasters at 1–2 (Jan. 27, 2006).

⁷⁷ *See, e.g., id.*; House Report at 167 (“[O]ne 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.”).

area still running on backup generators.⁷⁸ Most communications providers also did not appear to be able to access any government fuel reserves.

On a positive note, several companies apparently shared their reserve fuel with other communications providers who needed it, even their competitors.⁷⁹ This sharing occurred on a purely *ad hoc* basis.⁸⁰ There did not appear to be any forum or coordination area for fostering industry sharing of fuel or other equipment.

3. Security. Limited security for key communications facilities and communications infrastructure repair crews also hampered the recovery effort.⁸¹ Security concerns, both actual and perceived, led to delays in the restoration of communications networks.⁸² Communications providers reported generators being stolen from key facilities, even if they were bolted down. Lack of security for communications infrastructure repair workers at times delayed their access to certain facilities to make repairs.⁸³ Some providers employed their own security crews.⁸⁴ However, obtaining credentials to allow these individuals to access the affected area was sometimes a problem. Further, communications infrastructure repair crews generally did not receive security details from law enforcement. Clearly, law enforcement had other very significant responsibilities in the wake of Katrina. In addition, communications providers are apparently not considered “emergency responders” under the Robert T. Stafford Disaster Relief and Emergency Assistance Act⁸⁵ and the National Response Plan and thus are not eligible to receive non-monetary Federal assistance, like security protection for critical facilities and repair personnel.⁸⁶ In one instance, however, a major communications provider successfully sought governmental security for its Poydras St. office in New Orleans, which serves as a regional hub for multiple telecommunications carriers. Both the Louisiana

⁷⁸ See Jacot-Cingular Jan. 30 Oral Testimony, Tr. at 123.

⁷⁹ See, e.g., Vincent-WLOX-TV Mar. 6 Oral Testimony, Tr. at 312 (describing how the radio station shared fuel with a nearby news organization).

⁸⁰ See, e.g., Oral Testimony of Steve Davis, Senior Vice President of Engineering, Clear Channel Radio, Before the FCC’s Independent Panel Reviewing the Impact of Hurricane Katrina, Tr. at 81-82 (Jan. 30, 2006) [hereinafter “Steve Davis-Clear Channel Jan. 30 Oral Testimony”].

⁸¹ See, e.g., Senate Report on Katrina at 18-4.

⁸² The Federal Response To Hurricane Katrina Lessons Learned, February 2006, at 40, *available at* <http://www.whitehouse.gov/reports/katrina-lessons-learned/>.

⁸³ Jan. 31 NSTAC Report at 5.

⁸⁴ See, e.g., Senate Report on Katrina at 18-4 (when government security proved unavailable, many telecommunications providers hired private security to protect their workers and supplies); Written Statement of Dave Flessas, Vice President for Network Operations, Sprint Nextel Corp., Before the FCC’s Independent Panel Reviewing the Impact of Hurricane Katrina, at 2 (Jan. 30, 2006) (security issues forced Sprint to hire armored guards to protect its employees and contractors); Jan. 31 NSTAC Report at 5.

⁸⁵ Pub. L. No. 93-288, as amended [hereinafter “Stafford Act”].

⁸⁶ See, e.g., Smith-BellSouth Jan. 30 Written Statement at 9; Jacot-Cingular Jan. 30 Oral Testimony, Tr. at 125; *see also* Oral Testimony of Captain Thomas Wetherald, Deputy Operations Director, National Communications System, Before the FCC’s Independent Panel Reviewing the Impact of Hurricane Katrina, Tr. at 24 (Apr. 18, 2006) [hereinafter “Capt. Wetherald Apr. 18 Oral Testimony”].

State Police and the FBI provided security so that BellSouth workers could return to the office and keep it in service.⁸⁷

Apparently, several companies that had their own security forces shared them with other communications providers by forming a convoy to go to a particular area.⁸⁸ Such arrangements seemed to occur on a purely informal basis. There did not appear to be any forum or staging area for fostering industry sharing of security forces or other resources.

4. *Pre-positioning of Equipment.* Limited pre-positioning of communications equipment may have slowed the recovery process. While some individual companies and organizations had some backup communications technologies on-hand for use after a disaster, most did not appear to locate strategic stockpiles of communications equipment that could be rapidly deployed and immediately used by persons in the impacted area.

B. Coordination Between Industry and Government.

1. *Industry – Federal Government Coordination.* Despite problems related above at the scene of the disaster, at the federal level, industry and government recovery coordination for the communications sector appeared to function as intended. Under the National Response Plan, the lead federal agency for emergency support functions regarding communications is the National Communications System (“NCS”). NCS manages the National Coordination Center for Telecommunications (“NCC”) in Washington, DC, which is a joint industry-federal government endeavor with 36 member companies.⁸⁹ The NCC meets on a regular basis during non-emergency situations; during and immediately after Katrina, it met daily and conducted analysis and situational monitoring of ongoing events and response capabilities.⁹⁰ The Katrina Panel heard that this group played an important and effective role in coordinating communications network recovery and allowing for information sharing among affected industry members.⁹¹ Yet, NCC membership is limited to only certain providers and does not represent a broad cross-section of the communications industry (for example, no broadcasters, WISPs, or cable providers are members).⁹² Accordingly, certain industry sectors or companies that might have been helpful were not a part of this coordination effort. State and local government are also not a part of this coordination effort.

⁸⁷ Smith-BellSouth Jan. 30 Written Statement at 8-9.

⁸⁸ See, e.g., Comments of Xspedius at 3.

⁸⁹ The NSTAC Report on the National Coordinating Center (4/27/06 Draft), The President’s National Security Telecommunications Advisory Committee, May 10, 2006, at 9-10 [hereinafter “May 10 NSTAC Report”].

⁹⁰ See Written Statement of Dr. Peter M. Fonash, Director, National Communications System, U.S. Department of Homeland Security, Ensuring Operability During Catastrophic Events, Before the Subcommittee on Emergency Preparedness, Committee on Homeland Security, United States House of Representatives, at 2, 6 (Oct. 26, 2005), available at <http://hsc.house.gov/files/TestimonyFonash.pdf>.

⁹¹ See, e.g., Capt. Wetherald Apr. 18 Oral Testimony, Tr. at 17 -18.

⁹² See May 10 NSTAC Report at 4.

The FCC was widely praised as playing a critical role in helping to restore communications connectivity in the wake of Hurricane Katrina.⁹³ During and immediately after Katrina, the Commission stayed open 24 hours a day, seven days a week to respond to the disaster.⁹⁴ Within hours of Katrina's landfall in the Gulf Coast region, the Commission established an internal Task Force to coordinate its response efforts,⁹⁵ focusing on providing regulatory relief where necessary, coordinating efforts with other federal agencies, and providing information and assistance to evacuees. To assist communications providers in their recovery, the Commission established emergency procedures to streamline various waiver and special temporary authority processes to speed needed relief,⁹⁶ reached out to various providers to determine their needs, and assisted communications providers in obtaining access to necessary resources.⁹⁷

These actions by the Commission appeared substantially to assist the industry in the recovery effort. The emergency, 24/7 contacts the Commission made available and the new streamlined processes clearly accelerated the time frame for receiving necessary regulatory approvals. However, the extensive communications outages made accessing this new information about who to contact and how to comply with the new processes difficult. Similarly, repair crews often did not know what repairs they needed to make until they reached the site.

In addition, while it was generally clear to communications providers that the Commission was the right agency to contact for regulatory relief after the disaster, the roles of other federal agencies in the recovery effort were not as clear to a large portion of the industry.⁹⁸ Communications providers who needed federal assistance (such as obtaining fuel authorizations or access to the impacted area), often did not know whom to contact. Industry participants also appeared generally unclear about which federal agency was responsible for implementing important recovery programs or distributing resources to communications companies operating in the impacted area. Competing requests for outage information from government entities at the federal, state and local level added to the confusion about agency roles. And responding to duplicative, repeated inquiries in the aftermath of Hurricane Katrina was cited by some as a distraction to communications providers' restoration efforts.

⁹³ See, e.g., The Federal Response to Hurricane Katrina: Lessons Learned at 142-43 (February 2006).

⁹⁴ See, e.g., Martin Sept. 29 Written Statement at 3.

⁹⁵ Moran Sept. 7 Written Statement at 4.

⁹⁶ See, e.g., International Bureau Announces Procedures to Provide Emergency Communications in Areas Impacted by Hurricane Katrina, FCC Public Notice (rel. Sept. 1, 2005), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-260835A1.pdf.

⁹⁷ See Steve Davis-Clear Channel Jan. 30 Oral Testimony, Tr. at 83 (describing how the Audio Division of the FCC's Media Bureau helped radio licensees secure access to fuel).

⁹⁸ See, e.g., Written Statement of C. Patrick Roberts, President of the Florida Association of Broadcasters, Before the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina, at 3 (Mar. 7, 2006) (observing that American must have a more cohesive and comprehensive program among federal, state, and local governments to prepare for disasters); see also Sprint-Nextel Jan. 30 Written Testimony at 4-5 (recognizing that there is a need to clarify the roles and responsibilities of the government agencies that are involved telecommunications restoration).

2. Industry – State and Local Government Coordination. In general, coordination between communications providers and state and local government officials in the affected region for communications network recovery purposes did not appear to exist except on an *ad hoc* basis. For the most part, there did not appear to be in existence any organized mechanism for communications providers to share information with local officials or to seek their assistance with respect to specific recovery issues, like access and fuel. Following Katrina, the Panel heard that state and local government representatives were exchanging business cards with communications providers in their area for the first time. Local government officials noted that they sometimes did not know where to turn to figure out why communications to and from key government locations did not work and how to express their priorities for communications service restoration. In addition, coordinating credentialing, access, fuel sharing, security and other key recovery efforts was difficult because there were no identified staging areas or coordination points for the communications industry.

3. Federal Government – State and Local Government Coordination. The Panel is not aware of pre-established mechanisms through which the federal government coordinated with state and local governments concerning communications network restoration issues in the wake of Katrina. For example, the Panel heard that civilian public safety officials were often unable to communicate with military officials brought in to assist local law enforcement. In addition, state and local governments are not a part of the NCC⁹⁹ and, therefore, were not able to directly coordinate with that industry-federal government group. As noted above, and due in part to a lack of pre-arranged recovery procedures, state and local government officials did not seem to be part of communications network recovery efforts. This meant that their restoration priorities may not have been effectively conveyed to communications providers and that communications providers did not have an identified place to turn for assistance with access and other recovery issues.

C. Emergency Communications Services and Programs.

The federal government, through the NCS, has established several programs for priority communications services during and following an emergency.¹⁰⁰ These are the Government Emergency Telecommunications Service (“GETS”), which enables an eligible user to get priority call completion for wireline telephone calls; the Wireless Priority Service (“WPS”), which enables an eligible user to get access to the next free channel when making a wireless call; and Telecommunications Service Priority (“TSP”), which enables a qualifying user to get priority restoration and provisioning of telecommunications services.¹⁰¹ During and after Katrina, these priority services seemed to work well for those who subscribed to them. However, only a small percentage of those eligible for the services appeared to do so. This is particularly true of public safety users – many eligible public safety entities have not signed up for these services. It also appears to be true for some communications providers, including

⁹⁹ See May 10 NSTAC Report at 3.

¹⁰⁰ See, e.g., Capt. Wetherald Apr. 18 Oral Testimony, Tr. at 18.

¹⁰¹ See, e.g., Written Statement of Dr. Peter Fonash, Deputy Manager, National Communications System, S. Comm. on Homeland Security and Gov’t Affairs, Hearing on Managing Law Enforcement and Communications in a Catastrophe at 3-4 (Feb. 6, 2006), available at http://hsgac.senate.gov/_files/020606Fonash.pdf.

broadcast, WISP, and cable companies. These priority services could be an extremely useful tool in network restoration efforts. Yet, they are tools that appear not fully utilized. Like other emergency tools, they require training and practice. In some cases, users who had access to these services did not fully understand how to use them (*e.g.*, that a WPS call requires inputting a GETS code so the call would get priority treatment when it reached the landline network).

III. First Responder Communications

In the days following Hurricane Katrina, the ability of public safety and emergency first responders to communicate varied greatly across the affected region. The areas in and around New Orleans were seriously impacted.¹⁰² New Orleans EMS was forced to cease 911 operations in anticipation of Katrina's landfall and, after the levees were breached, a total loss of EMS and fire communications ensued.¹⁰³ The communications infrastructure in coastal areas was heavily damaged due to winds or flooding.¹⁰⁴ As a result, more than 2000 police, fire and EMS personnel were forced to communicate in single channel mode, radio-to-radio, utilizing only three mutual aid frequencies.¹⁰⁵ Some mutual-aid channels required each speaker to wait his or her turn before speaking, sometimes up to twenty minutes.¹⁰⁶ This level of destruction did not extend to inland areas affected by the hurricane so, in contrast to New Orleans, neither Baton Rouge nor Jackson County, Mississippi, completely lost their communications capabilities and were soon operating at pre-Katrina capabilities.¹⁰⁷ In the hardest hit areas, however, the disruption of public safety communications operability, as well as a lack of interoperability, frustrated the response effort and caused tremendous confusion among official personnel¹⁰⁸ and the general public.

State and local first responders are required to act and communicate within minutes after disasters have occurred and not hours or days later when Federal or other resources from outside the affected area become available. As further described below, the lack of effective emergency communications after the storm revealed inadequate planning, coordination and training on the use of technologies that can help to restore emergency communications. Hurricane Katrina also highlighted the long-standing problem of interoperability among public safety communications

¹⁰² *See, e.g.*, Saussy Mar. 6 Oral Testimony, Tr. at 43.

¹⁰³ *Id.*

¹⁰⁴ Jeff Smith Written Statement at 12.

¹⁰⁵ Presentation of Major Mike Sauter, Office of Technology and Communications, New Orleans Police Department, Before the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina, at 1 (Feb. 1, 2006) [hereinafter "Sauter Written Statement"].

¹⁰⁶ *See, e.g.*, Senate Report on Katrina at 21-6 (NOFD and NOPD were forced to use a mutual aid channel, rather than the 800 MHz trunk system they were supposed to operate on; transmission over the mutual aid channel was limited and could not reach certain parts of the city).

¹⁰⁷ *See* Oral Testimony of George W. Sholl, Director, Jackson County Emergency Communications District, Before the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina, at Tr. at 58-59 (Mar. 6, 2006) [hereinafter "Scholl Mar. 6 Oral Testimony"].

¹⁰⁸ Saussy Mar. 6 Oral Testimony, Tr. at 43-44.

systems operating in different frequency bands and with different technical standards.¹⁰⁹ One advantage that New Orleans had was the fact that no broadcasters were using the 700 MHz spectrum set aside for public safety, thus freeing it up immediately for first responder use.¹¹⁰ As a result of this availability, communications providers were able to provide emergency trucks and hundreds of radios that operated on this spectrum as soon as first responders needed them.¹¹¹ Finally, 911 emergency call handling suffered from a lack of preprogrammed routing of calls to PSAPs not incapacitated by the hurricane.

A. Lack of Advanced Planning for Massive System Failures.

It was described to the Panel that public safety officials plan for disasters but that Hurricane Katrina was a catastrophe.¹¹² This left many state and local agencies – those who are required to respond first to such emergencies – ill-prepared to restore communications essential to their ability to do their jobs.¹¹³ Very few public safety agencies had stockpiles of key equipment on hand to implement rapid repairs or patches to their systems. Had they been available, spare radios, batteries and chargers as well as portable repeaters or self-sufficient communications vehicles (also known as “communications on wheels”) would have enabled greater local communications capabilities.¹¹⁴ Further, when the primary communications system failed, many public safety entities did not have plans for an alternative, redundant system to take its place.¹¹⁵ Similarly, public safety entities, including state and local government offices, did not appear to have plans in place for call forwarding or number portability to route their calls to alternative locations when they relocated. The apparent absence of contingency plans to address massive system failures, including widespread power outages,¹¹⁶ was a major impediment to the rapid restoration of first responder communications.

Public safety agencies rely heavily on their equipment vendors to support them during such disasters by providing replacement parts and spare radios. Motorola stated that 72 hours prior to Katrina’s landfall, it had mobilized more than 100,000 pieces of equipment and more than 300

¹⁰⁹ See, e.g., Written Statement of Colonel (ret.) Terry J. Ebbert, Director, Homeland Security for New Orleans, Hurricane Katrina: Preparedness and Response by the State of Louisiana, Before the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, United States House of Representatives, at 3-4 (Dec. 14, 2005), available at http://katrina.house.gov/hearings/12_14_05/ebbert_121405.doc.

¹¹⁰ See Written Statement of Kelly Kirwin, Vice President, Motorola Comm. & Electronics, Before the FCC’s Independent Panel Reviewing the Impact of Hurricane Katrina, at 5 (Jan. 30, 2006) [hereinafter “Kirwin Jan. 30 Written Statement”] (in some major cities (e.g., New York, Los Angeles, San Francisco), the 700 MHz spectrum would not be available to first responders).

¹¹¹ See *id.*

¹¹² Written Statement of Sheriff Kevin Beary, Major County Sheriffs Assn. at 1 (Jan. 30, 2006) [hereinafter “Beary Jan. 30 Written Statement”].

¹¹³ Saussy Mar. 6 Oral Testimony, Tr. at 43-44.

¹¹⁴ Beary Jan. 30 Written Statement at 1.

¹¹⁵ Presentation of Sheriff Ted Sexton, Sr. National Sheriffs Assn at 5 (Jan. 30, 2006); McEwen Mar. 6 Oral Testimony, Tr. at 35-36.

¹¹⁶ McEwen Mar. 6 Written Statement at 5-6.

employees to support their customers.¹¹⁷ Similarly, M/A-Com supported the restoration and maintenance of the New Orleans 800 MHz system as well as the systems for Mobile, Biloxi, Gulfport, and St. Tammany Parish.¹¹⁸ Reports indicate that these efforts with established vendors were generally well-executed, except for problems with access into New Orleans.

However, the Panel was made aware of a variety of non-traditional, alternative technologies that could have served as effective, back-up communications for public safety until their primary systems were repaired. As noted in Section I, satellite infrastructure was generally unaffected by the storm and could have provided a viable back-up system. Two-way paging operations remained generally operational during the storm and did provide communications capabilities for some police, fire emergency medical personnel, but could have been more widely utilized.¹¹⁹ Other types of non-traditional technology that can be deployed quickly, such as WiFi and WiMax, or self-contained communications vehicles, could also have been effectively utilized. These all appear deserving of exploration as back-up communications options to primary public safety systems.

First responders' lack of training on alternative, back-up communications equipment was also an impediment in the recovery effort.¹²⁰ This lack of training may have accounted for a sizeable number of communications failures during the first 48 hours after Katrina.¹²¹ Public safety officials noted that there was little time after Katrina to investigate the capabilities of new technologies for which none of their personnel had been adequately trained. This highlights the need for public safety entities to have contingency communications plans with training as a key component. The lack of training issue evidenced itself in particular with the distribution of satellite phones. These phones proved to be a beneficial resource to some, while others described the service as spotty and capacity strained. In many cases, it appears that complaints about spotty coverage really resulted from the user's lack of understanding about how to use the phone (*e.g.*, some satellite phones have a unique dialing pattern and they generally do not work indoors).¹²² However, the uncontrolled distribution of satellite phones could also have triggered capacity issues in certain areas.¹²³ Additionally, public safety officials reminded the Panel that users must be properly trained before they can be expected to competently use technologies during high stress events.¹²⁴

¹¹⁷ Kirwin Jan. 30 Written Statement at 2.

¹¹⁸ Comments of M/A-Com at 7 (Jan. 30, 2006).

¹¹⁹ Vincent Kelly-USA Mobility Mar. 6 Written Testimony at 7-9; Deer Mar. 6 Oral Testimony, Tr. at 122-23.

¹²⁰ *See, e.g.*, Written Statement of James Monroe III, Chief Executive Officer, Globalstar LLC, Before the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina at 4 (Mar. 6, 2006) [hereinafter "Monroe-Globalstar Written Statement"] (some first responders failed to keep handset batteries charged, others did not realize that satellite phones require a clear line of sight between the handset and the satellite).

¹²¹ *Id.*

¹²² Cavossa-SIA Written Testimony at 4-5.

¹²³ *See* Report of Ed Smith, Chief, Baton Rouge Fire Department, Hurricane Katrina Independent Panel Meeting, at 1 (Jan. 30, 2006) [hereinafter "Written Report of Ed Smith"].

¹²⁴ *See, e.g.*, Scholl Oral Testimony, Tr. at 57-58, 61-62.

Finally, it seems that communications assets that were available and could have been used by first responders were not requested or deployed. There have been reports that federal government communications assets operated and maintained by FEMA and USDA were available, but not utilized, for state and local public safety operations.¹²⁵ This underutilization may have been due to the fact that FEMA's pre-staged communications vehicles apparently were located 250-350 miles away from the devastated areas,¹²⁶ and that FEMA did not request deployment of these vehicles until twenty-four hours after landfall.¹²⁷ Further, first responders were not made aware of these assets and/or did not know how to request them.¹²⁸ As noted above, many public safety officials failed to subscribe to the GETS, TSP and WPS priority programs, despite their eligibility.¹²⁹ Communications assets made available by the private sector also appear to have been underutilized by first responders. The Panel heard that manufacturers of alternative public safety communications systems were unable to gain the attention of key public safety officials to effectuate their proposed donation of equipment and services. Some offered equipment or access to their network in Katrina's aftermath but "found no takers".¹³⁰ These and other outlets could have provided some measure of communications capabilities, while repairs to primary systems were completed.

B. Lack of Interoperability.

Because of its scope and severity, Hurricane Katrina demanded a coordinated response from federal and affected state and local agencies, as well as volunteers from states both neighboring and distant. The Panel heard evidence that, in many cases, responders in different agencies were unable to communicate due to incompatible frequency assignments.¹³¹ When the existing infrastructure for the New Orleans system was incapacitated by flooding, communications were almost completely thwarted as too many users attempted to use the three mutual aid channels in the 800 MHz band.¹³² In addition, communications between the military and first responders

¹²⁵ The Federal Response To Hurricane Katrina Lessons Learned, February 2006, at 55.

¹²⁶ Senate Report on Katrina at 12-19 (citing Committee staff interview of James Attaway, Telecommunications Specialist, Region VI, FEMA, conducted on Jan. 13, 2006).

¹²⁷ Senate Report on Katrina at 12-19 (citing Committee staff interview of William Milani, Chief Mobile Operations Section, FEMA, conducted on Jan. 13, 2006).

¹²⁸ See, e.g., Monroe-Globalstar Written Statement at 5 (first responders generally did not have pre-emergency deployment plans that they could invoke in advance of the actual emergency).

¹²⁹ During and after Katrina, the NCS issued 1,000 new GETS access code numbers to first responders, and the GETS system was used to make more than 35,000 calls between August 28 and September 9. House Report at 176. During Katrina, the NCS enabled and distributed more than 4,000 new WPS phones. *Id.* The NCS also completed more than 1,500 TSP assignments following Hurricane Katrina. *Id.* at 177. It would have been helpful if these assets had been in place before the disaster and first responders were fully trained in how to use them.

¹³⁰ Statement of Jerry Knobloch, Chairman & CEO, Space Data Corporation, Before the Federal Communications Commission's Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, at 6 (Mar. 7, 2006).

¹³¹ A Failure to Communicate: A Stocktake of Government Inaction to Address Communications Interoperability Failures Following Hurricane Katrina, First Response Coalition, December 2005.

¹³² Sauter Written Statement at 1; Written Report of Ed Smith at 1.

also appeared to suffer from lack of interoperability.¹³³ In some cases, the military was reduced to using human runners to physically carry messages between deployed units and first responders.¹³⁴ In another case, a military helicopter had to drop a message in a bottle to warn first responders about a dangerous gas leak.¹³⁵

While most observers characterized “operability” as the primary communications failure following Katrina,¹³⁶ increased ability to interoperate with other agencies would have provided greater redundant communications paths and a more coordinated response. While technological solutions, such as IP gateways to integrate frequencies across multiple bands,¹³⁷ are a critical tool for improving interoperability, the Panel was reminded that technology is not the sole driver of an optimal solution.¹³⁸ Training, agreement on standard operating procedures, governance or leadership and proper usage are all critical elements of the interoperability continuum.¹³⁹ However, the Panel heard testimony that Project SAFECOM, which is intended to provide a solution for interoperability among Federal, state and local officials, will take years to achieve its objectives.¹⁴⁰ However, the Panel is also aware of more expedient proposals, such as the M/A-COM, Inc. proposal to mandate construction of all Federal and non-Federal mutual aid channels to provide baseline interoperability to all emergency responders that operate across multiple frequency bands using disparate technologies.¹⁴¹

¹³³ See Written Statement of Dr. William W. Pinsky on behalf of the American Hospital Association, The State of Interoperable Communications: Perspectives from the Field, Before the Subcommittee on Emergency Preparedness, Science, and Technology, Committee on Homeland Security, United States House of Representatives, at 5 (Feb. 15, 2006), available at <http://hsc.house.gov/files/TestimonyPinsky.pdf>.

¹³⁴ See, e.g., Written Statement of The Honorable Timothy J. Roemer, Director, Center for National Policy, Public Safety Communications From 9/11 to Katrina: Critical Public Policy Lessons, Before the Subcommittee on Telecommunications and the Internet, Committee on Energy and Commerce, United States House of Representatives, at 5 (Sept. 29, 2005), available at <http://energycommerce.house.gov/108/hearings/09292005Hearing1648/Roemer.pdf> (describing the use of human couriers by the National Guard).

¹³⁵ Heather Greenfield, *Katrina Revealed Gaps In Emergency Response System*, THE WASH. TIMES, Dec. 28, 2005, at B1, available at <http://washingtontimes.com/metro/20051227-095134-3753r.htm>.

¹³⁶ The Federal Response To Hurricane Katrina Lessons Learned, February 2006, at 55; Saussy Mar. 6 Oral Testimony, Tr. at 44.

¹³⁷ See, e.g., Presentation to the Meeting of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, Dr. John Vaughan, Vice President TYCO Electronics: M/A-COM, March 6, 2006; see also Presentation to the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, Wesley D. Smith, Technical Director, ARINC (Mar. 7, 2006).

¹³⁸ See Interoperability Continuum Brochure, Project Safecom, Dept. of Homeland Security (April 5, 2005), available at <http://www.safecomprogram.gov/NR/rdonlyres/5C103F66-A36E-4DD1-A00A-54C477B47AFC/0/ContinuumBrochure40505.pdf>.

¹³⁹ *Id.* at 4.

¹⁴⁰ Oral Testimony of Dr. David G. Boyd, Director of SAFECOM, Dept. of Homeland Security, Tr. at 29-30 (Apr. 18, 2006); see also Stephen Losey, *Defense re-examines homeland role, tactics*, Federal Times.com (Oct. 18, 2005), available at <http://www.federaltimes.com/index.php?S=1174164>.

¹⁴¹ See Further Comments of M/A-Com, Inc. (May 30, 2006).

C. PSAP Rerouting.

When a PSAP becomes disabled, 911 emergency calls from the public are typically diverted to a secondary neighboring PSAP using preconfigured traffic routes. In many cases, Katrina disabled both the primary and secondary PSAPs, which resulted in many unanswered emergency calls. Additionally, many PSAPs in Louisiana did not have protocols in place to identify where 911 calls should go and had not arranged for any rerouting, resulting in dropped emergency calls.¹⁴² The Panel heard testimony that Katrina has highlighted a need to identify additional back-up PSAPs at remote locations. However, FCC regulations may currently restrict the ability of local phone companies to establish pre-configured routes across LATA boundaries.¹⁴³ In addition, the routing of calls to more distant PSAPs would require specific planning to ensure appropriate and timely response to emergency calls.

D. Emergency Medical Communications.

There are indications that the emergency medical community was lacking in contingency communications planning and information about technologies and services that might address their critical communications needs.¹⁴⁴ In particular, this group of first responders did not seem to avail itself of existing priority communications services, such as GETS, WPS and TSP. It also appeared that emergency medical personnel were not always integrated into a locality's public safety communications planning.

IV. Emergency Communications to the Public.

The communications infrastructure, in all of its forms, is a key asset in delivering information to the American public. In emergencies and disaster situations, ensuring public safety is the first priority. The use of communications networks to disseminate reliable and relevant information to the public is critical – before, during and after such events. Moreover, to the extent a more well-informed citizenry is better able to prepare for and respond to disasters, there should be less strain on already taxed resources, thereby benefiting recovery efforts.

The Emergency Alert System (“EAS”) and its predecessor systems have long made use of broadcast radio and television stations as the principal tools for communicating with the public about emergencies and disaster situations. The Panel heard stories of heroic efforts by broadcasters and cable operators to provide members of the public impacted by Katrina with important storm-related information. However, there were also reports of missed opportunities to utilize the EAS and limitations in existing efforts to deliver emergency information to all members of the public. New technologies may address some of these limitations by facilitating the provision of both macro- and micro-level information about impending disasters and recovery efforts.

¹⁴² House Report at 173.

¹⁴³ Bailey Jan. 30 Written Testimony at 3.

¹⁴⁴ See House Report at 269.

A. Lack of Activation.

The EAS can be activated by the federal government as well as by state and local officials to disseminate official news and information to the public in the event of an emergency. The Panel understands that the National Weather Service used the EAS to provide severe weather warnings to citizens in the Gulf States in advance of Katrina making landfall.¹⁴⁵ However, the Panel also heard that the EAS was not utilized by state and local officials to provide localized emergency evacuation and other important information.¹⁴⁶ That means that an existing and effective means of distributing timely information to our citizens was not fully utilized.

B. Limitations in Coverage.

The primary source of emergency information about Katrina came through broadcast (including satellite broadcast) and cable infrastructure, whether through the EAS or local or national news programming. Citizens who were not watching TV or listening to the radio at the time of the broadcast missed this emergency information. Damage to communications infrastructure made it difficult for news and emergency information to reach the public, as did power outages.¹⁴⁷ As a result, a fairly large percentage of the public likely were uninformed. The Panel heard about notification technologies that may permit emergency messages to be sent to wireline and wireless telephones as well as personal digital assistants and other mobile devices.¹⁴⁸ For example, the Association of Public Television Stations has developed a means for utilizing the digital transmissions of public television stations to datacast emergency information to computers or wireless devices.¹⁴⁹ In addition, the St. Charles Parish Public School District used a telephone-based, time-sensitive notification technology to send out recorded evacuation messages to over 21,000 phone numbers in advance of Katrina's landfall.¹⁵⁰ The District continued to utilize this technology to provide members of the public with specific information regarding conditions in the community in the storm's aftermath. While the use of phone-based technologies for post-disaster communications is necessarily dependent on the state of the telephone network, such technologies – which are less subject to disruption from power outages – offer the potential for complementing the traditional broadcast-based EAS.

The Panel also understands that the FCC is considering extending the reach of the existing emergency alert system to other technologies, such as wireless and the Internet.¹⁵¹ The Panel

¹⁴⁵ The Federal Response To Hurricane Katrina Lessons Learned, February 2006, at 28.

¹⁴⁶ Comments of Hilary Styron of the National Organization on Disability Emergency Preparedness Initiative at 2 (Mar. 6, 2006) [hereinafter "Styron Mar. 6 Written Testimony"].

¹⁴⁷ Martin Sept. 29 Written Statement at 2.

¹⁴⁸ Comments of Notification Technologies, Inc., EB Docket No. 04-296 (Jan. 24, 2006).

¹⁴⁹ Written Testimony of John M. Lawson, President and CEO, Association of Public Television Stations, Before the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks (April 18, 2006).

¹⁵⁰ *Id.* at 12.

¹⁵¹ *Review of the Emergency Alert System*, First Report and Order and Further Notice of Proposed Rulemaking, 20 FCC Rcd 18,625, 18,653 (¶ 69) (2005).

understands that there are ongoing collaborative industry-government efforts to overcome the hurdles to extending alerts to other technologies.

C. Reaching Persons with Disabilities and Non-English-Speaking Americans.

Ensuring emergency communications reach all Americans, even those with hearing and visual disabilities or who do not speak English, remains a major challenge. Unfortunately, accessibility to suitable communications devices for the deaf and hard of hearing was difficult during and after Hurricane Katrina.¹⁵² This problem was intensified by the fact that Katrina brought humidity, rain, flooding, and high temperatures (which translate into perspiration), all of which reduce the effectiveness of hearing aids and cochlear implants.¹⁵³ For persons with visual impairments, telephone and broadcast outages made information very hard to obtain, and many people with vision loss were unable to evacuate.¹⁵⁴

The broadcast industry has taken significant steps to provide on-screen sign language interpreters and close captioning. Broadcasters also sometimes broadcast critical information in a second language where there are a significant number of non-English speaking residents in the community. For example, a Spanish-language radio station in the New Orleans area provided warnings, and information about family members and disaster relief assistance.¹⁵⁵

However, the Panel also heard that written or captioned information was at times inadequate and that station logos or captions sometimes covered up the sign-language interpreter or close-captioning.¹⁵⁶ Additionally, personnel who provided these critical services often evacuated, leaving the station with no ability to deliver these services. Further, specialized radios relied upon by the hearing-impaired, because they can display text messages, are not currently designed to be battery-operated and thus became useless when power goes out.¹⁵⁷ The distribution of emergency weather information in languages other than English appeared limited, based primarily on the willingness and ability of local weather forecasting offices and the availability

¹⁵² See, e.g., Styron Mar. 6 Written Testimony at 2 (over 80% of shelters did not have access to communications devices for the deaf; over 60% of shelters did not have captioning capabilities utilized on the televisions screens and several broadcasters did not caption their emergency information, even though it is required by the FCC); Oral Testimony of Cheryl Heppner, Vice Chair, Deaf and Hard of Hearing Consumer Advocacy Network, FCC Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, Tr. at 283 (Mar. 6, 2006) [hereinafter “Heppner Mar. 6 Oral Testimony”] (many television stations did not provide visual information).

¹⁵³ Heppner Mar. 6 Oral Testimony, Tr. at 282.

¹⁵⁴ Comment of the American Council of the Blind and American Foundation for the Blind, at 2 (May 3, 2006).

¹⁵⁵ See, e.g., Comments by the National Council of La Raza, In the Eye of the Storm: How the Gov’t and Private Response to Hurricane Katrina Failed Latinos at 5 (Apr. 24, 2006) [hereinafter “La Raza Comments”].

¹⁵⁶ Heppner Mar. 6 Oral Testimony, Tr. at 283-84; Remarks by Cheryl Heppner, Deaf and Hard of Hearing Consumer Advocacy Network, at 2 (Mar. 6, 2006).

¹⁵⁷ Heppner Mar. 6. Oral Testimony at 283-85.

of ethnic media outlets.¹⁵⁸ Innovative notification technologies, such as those described above, may provide a partial answer to the emergency communications needs of persons with disabilities and non-English-speaking members of the public as such technologies can be used to deliver targeted messages in a specified format.

Relatedly, individuals with disabilities often had a difficult time using communications capabilities at shelters or other recovery areas.¹⁵⁹ Phone and computer banks provided at these locations generally did not have capabilities to assist the hearing or speech-impaired.¹⁶⁰

D. Inconsistent or Incorrect Emergency Information.

One of the benefits of the EAS is that it facilitates the communication of a uniform message to the public by an authoritative or credible spokesperson, thereby minimizing confusion and contributing to an orderly public response. However, as noted above, the EAS was not activated in several jurisdictions. Moreover, while broadcasters, cable operators and satellite providers went to considerable lengths to provide the public with information regarding Katrina and its impact, the Panel understands that inconsistent or erroneous information about critical emergency issues was sometimes provided within the affected region. For example, information regarding conditions in one portion of New Orleans did not necessarily accurately depict conditions in other areas of the city. The dissemination of targeted information from an authoritative source through the EAS or other notification technologies might have assisted with this problem.

¹⁵⁸ See, e.g., La Raza Comments at 5 (citing Interview with official at the National Weather Service, Jan. 6, 2006).

¹⁵⁹ *Id.*; Styron Mar. 6 Written Testimony at 2.

¹⁶⁰ See, e.g., *id.*; Comments of the Consortium for Citizens With Disabilities at 1-2 (April 13, 2006); Styron Mar. 6 Oral Testimony, Tr. at 291.

RECOMMENDATIONS

Based upon its observations regarding the impact of Hurricane Katrina on communications networks and the sufficiency and effectiveness of the recovery effort, the Panel has developed a number of recommendations to the FCC for improving disaster preparedness, network reliability and communications among first responders. As with its observations, these recommendations are grouped into four sections. The first contains recommendations for steps to better pre-position the communications industry and the government for disasters in order to achieve greater network reliability and resiliency. The second section presents suggestions for improving recovery coordination to address existing shortcomings and to maximize the use of existing resources. The third section focuses on first responder communications issues, recommending essential steps for improving the operability and interoperability of public safety and 911 communications in times of crisis. And finally, the last group of recommendations presents the Panel's suggestions for improving emergency communications to the public. All of our citizens deserve to be sufficiently informed should a major disaster strike in the future.

Pre-positioning for Disasters – A Proactive, Rather than Reactive Program for Network Reliability and Resiliency

1. ***Pre-positioning for the Communications Industry – A Readiness Checklist*** – The FCC should work with and encourage each industry sector, through their organizations or associations, to develop and publicize sector-specific readiness recommendations. Such a checklist should be based upon relevant industry best practices as set forth by groups such as the Media Security and Reliability Council (“MSRC”) and the Network Reliability and Interoperability Council (“NRIC”). Any such checklist should include the following elements:
 - a. Developing and implementing business continuity plans, which would at a minimum address:
 - i. power reserves,
 - ii. cache of essential replacement equipment,
 - iii. adequate sparing levels,
 - iv. credentialing,
 - v. Emergency Operations Center (“EOC”) coordination,
 - vi. training/disaster drills, and
 - vii. appropriate disaster preparedness checklists;
 - b. conducting exercises to evaluate these plans and train personnel;
 - c. developing and practicing a communications plan to identify “key players” and multiple means of contacting them (including alternate communications channels, such as alpha pagers, Internet, satellite phones, VOIP, private lines, BlackBerry-type devices, etc.);
 - d. routinely archiving critical system backups and providing for their storage in a “secure off-site” facilities.

2. ***Pre-positioning for Public Safety – An Awareness Program for Non-Traditional Emergency Alternatives*** – The FCC should take steps to educate the public safety community about the availability and capabilities of non-traditional technologies that might provide effective back-up solutions for existing public safety communications systems. Examples of these technologies would be pagers, satellite technology and phones, portable towers and repeaters, point-to-point microwave links, license-exempt WISP systems, other systems less reliant on the PSTN, and bridging technologies/gateways that would facilitate interoperability. One means for the FCC to do this would be to organize an exhibit area or demonstration of these technologies in conjunction with one or more large public safety conferences, such as:
- a. APCO International Annual Conference and Exposition
August 6-10, 2006; Orlando, FL
 - b. IAFC Fire Rescue International
September 14-16, 2006; Dallas, TX
 - c. International Association of Chiefs of Police Conference
October 14-18, 2006; Boston, MA
 - d. NENA Annual Conference and Trade Show
June 9-14, 2007; Fort Worth, TX
 - e. National Sheriff's Association Annual Conference
June 23-27, 2007; Salt Lake City, UT
 - f. National Fraternal Order of Police
August 13-16, 2007; Louisville, KY

The FCC should also consider organizing a similar exhibit/demonstration for other industry sectors that might benefit from this information

3. ***Pre-positioning for FCC Regulatory Requirements – An A Priori Program for Disaster Areas*** – The FCC should explore amending its rules to permit automatic grants of certain types of waivers or special temporary authority (STA) in a particular geographic area if the President declares that area to be a "disaster area". As a condition of the waiver or STA, the FCC could require verbal or written notification to the Commission staff contemporaneously with activation or promptly after the fact. Further, the FCC should examine expanding the on-line filing opportunities for STA requests, including STA requests for AM broadcast stations. Examples of possible rule waivers and STAs to study for this treatment include:
- a. *Wireline.*
 - i. Waiver of certain carrier change requirements to allow customers whose long distance service was disrupted to be connected to an operational long distance provider.
 - ii. Waiver of aging residential numbers rules for customers in the affected area. This allows carriers to disconnect temporarily customers' telephone service, upon request, and reinstate the same number when the service is reconnected.

- iii. Waiver of number portability requirements to allow rerouting of traffic to switches unaffected by the crisis.
 - iv. Waiver of reporting filings, such as Form 477 on local competition and broadband data, during the crisis.
- b. *Wireless.*
- i. Waiver of amateur radio and license exempt rules permitting transmissions necessary to meet essential communications needs.
 - ii. Waiver of application filing deadlines (*e.g.*, renewals, construction notifications, discontinuance notices, *etc.*), construction requirements, and discontinuance of service requirements.
 - iii. Streamlined STA process, such that parties in the affected area may simply notify the FCC in writing or verbally of a need to operate in order to restore service.
- c. *Broadcast and Cable.*
- i. Waiver of non-commercial educational (“NCE”) rules to permit NCE television and radio stations in the affected area to simulcast and rebroadcast commercial station programming during a crisis.
 - ii. Waiver of requirements for notifying the FCC of use of emergency antennas within 24 hours.
 - iii. Waiver of limits on AM nighttime operations, so long as operation is conducted on a noncommercial basis.
 - iv. Waiver of rules on limited and discontinued operations.
 - v. Tolling of broadcast station construction deadlines.
 - vi. Automatic STAs, or STAs granted through written or oral notification, for broadcast stations to go silent.
 - vii. Waiver of restrictions on simulcast programming of commonly owned stations within the same band.
 - viii. Waiver of location and staffing requirements of a main studio within the community.
 - ix. Waiver of activation and post-event Section 73.1250 reporting requirements related to transmission of point-to-point communications during a declared emergency.
- d. *Satellite.*
- i. Waiver of requirements for notifying the FCC of use of emergency antenna equipment within 24 hours.
 - ii. Streamlined STA process for satellite operators responding to a declared emergency.
4. ***Pre-positioning for Government Outage Monitoring – A Single Repository and Contact with Consistent Data Collection*** – The FCC should coordinate with other federal and state agencies to identify a single repository/point of contact for communications outage information in the wake of an emergency. The Panel suggests that the FCC is the federal agency best situated to perform this function. The FCC should work with affected
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industry members and their trade associations to establish a consolidated data set and geographic area for data collection. Once broad agreement is reached on the appropriate outage information to be collected, it should be consistently applied and not subject to routine changes. To the extent practical, the frequency of voluntary reporting and duration of reporting requirements should be specified as part of any emergency outage reporting plan. The Panel suggests that reporting no more than once a day would strike the right balance between supplying important outage information and not distracting resources from critical recovery efforts. Additionally, any proprietary information that is gathered through voluntary outage reporting must be kept confidential, with only aggregated information provided to appropriate government entities, such as the local EOC, during a crisis situation. Any carrier-specific data should be disclosed to other agencies only with appropriate confidentiality safeguards (such as non-disclosure agreements) in place.

Recovery Coordination – Critical Steps for Addressing Existing Shortcomings and Maximizing Use of Existing Resources

1. ***Remedying Existing Shortcomings – National Credentialing Guidelines for Communications Infrastructure Providers*** – The Panel generally supports the National Security Telecommunications Advisory Committee’s (“NSTAC’s”) recommendation for a national standard for credentialing telecommunications repair workers, but believes this should be broadened to include repair workers of all communications infrastructure providers (including wireline, wireless, WISP, satellite, cable and broadcasting infrastructure providers). Specifically, the Panel recommends that the FCC work with other appropriate federal departments and agencies and the communications industry to promptly develop national credentialing requirements and process guidelines for enabling communications infrastructure providers and their contracted workers access to the affected area post-disaster. The FCC should encourage states to develop and implement a credentialing program consistent with these guidelines as promptly as possible and encourage appropriate communications industry members to secure any necessary credentialing. Under this program, credentials should be available to be issued to communications infrastructure providers at any time during the year, including before, during and after a disaster situation. The credentials should be issued directly to communications infrastructure providers, which will then be responsible for distributing these credentials to their employees and contracted workers. These credentials, together with company-issued employee or contractor identification should be sufficient to permit access. As a condition of credentialing, the program should require that communications infrastructure providers receiving credentials ensure that their employees and contracted workers receiving credentials complete basic National Incident Management System (“NIMS”) training (*i.e.*, “Introduction to NIMS”). The FCC should work with the communications industry to develop an appropriate basic NIMS training course (no more than one hour) for communications repair workers that can be completed online. Once developed, this communications-specific training course should replace “Introduction to NIMS” as the requirement for credentialing. The FCC should also encourage states to recognize and accept credentials issued by other states.

2. ***Remedying Existing Shortcomings – Emergency Responder Status for Communications Infrastructure Providers*** – The Panel supports the NSTAC’s recommendation that telecommunications infrastructure providers and their contracted workers be afforded emergency responder status under the Stafford Act and that this designation be incorporated into the National Response Plan, as well as state and local emergency response plans. However, the Panel suggests that this recommendation be broadened to include all communications infrastructure providers (including wireline, wireless, WISP, satellite, cable and broadcasting infrastructure providers) and their contracted workers. The FCC should work with Congress and the other appropriate federal departments and agencies to implement this broadened recommendation.

3. ***Remedying Existing Shortcomings – Utilization of State/Regional Coordination Bodies*** – The FCC should work with state and local government and the communications industry (including wireline, wireless, WISP, satellite, cable and broadcasting) to better utilize the coordinating capabilities at regional, state and local EOCs, as well as the Joint Field Office (“JFO”). The FCC should encourage, but not require, each regional, state and local EOC and the JFO to engage in the following activities:
 - a. Facilitate coordination between communications infrastructure providers (including wireline, wireless, WISP, satellite, cable and broadcasting providers, where appropriate) and state and local emergency preparedness officials (such as the state emergency operations center) in the state or region at the EOC or JFO. The parties should meet on a periodic basis to develop channels of communications (both pre-and post-disaster), to construct joint preparedness and response plans, and to conduct joint exercises.
 - b. Develop credentialing requirements and procedures for purposes of allowing communications infrastructure providers, their contracted workers and private security teams, if any, access to the affected area post-disaster. These requirements and procedures should be consistent with any nationally-developed credentialing guidelines. Where possible, web-based applications should be created to pre-clear or expedite movement of communications infrastructure providers into a disaster area.
 - c. Develop and facilitate inclusion in the state’s Emergency Preparedness Plan, where appropriate, one or more clearly identified post-disaster coordination areas for communications infrastructure providers, their contracted workers, and private security teams, if any, to gather post-disaster where credentialing, security, escorts and further coordination can be achieved. The state’s Emergency Preparedness Plan should describe the process for informing communications infrastructure providers where these coordination area(s) will be located.
 - d. Post-disaster, share information and coordinate resources to facilitate repair of key communications infrastructure. Specifically, this would include identifying key damaged infrastructure; if necessary, assigning priorities for access and scarce resources (fuel, security, etc.) to repair this infrastructure. Additionally, the coordination body and staging area can provide a means for industry to share

and maximize scarce resources (share surplus equipment, double and triple up on security escorts to a particular area, *etc.*).

- e. Facilitate electric and other utilities' maintenance of priority lists for commercial power restoration. Include commercial communications providers on this priority list and coordinate power restoration activities with communications restoration.

The Panel would also support communications infrastructure providers in a state or region forming an industry-only group for disaster planning, coordinating recovery efforts and other purposes. Nevertheless, the Panel believes that coordinating capabilities and staffing of regional, state and local EOCs, as well as the JFO, need to be better utilized for the purposes described above.

- 4. ***Maximizing Existing Resources – Expanding and Publicizing Emergency Communications Programs (GETS, WPS and TSP)*** – To facilitate the use of existing emergency communications services and programs, the FCC should:
 - a. Work with the National Communications System (“NCS”) to actively and aggressively promote GETS, WPS and TSP to all eligible government, public safety, and critical industry groups. As part of this outreach effort, the Commission should target groups that have relatively low levels of participation. For example, the Panel recommends that the Commission reach out to the emergency medical community and major trauma centers to make them aware of the availability of these services.
 - b. Work with the NCS to clarify whether broadcast, WISP, satellite, and cable company repair crews are eligible for GETS and WPS under the Commission’s existing rules. If so, the Commission should promote the availability of these programs to those entities and urge their subscribership. If the Commission determines that these entities are not eligible, the Panel recommends that the Commission revise its rules so that these entities can subscribe to WPS and GETS.
 - c. Work with the NCS to explore whether it is technically and financially feasible for WPS calls to automatically receive GETS treatment when they reach landline facilities (thus avoiding the need for a WPS caller to also enter GETS information). The Commission may desire to set up an industry task force to explore this issue.
 - d. Work with the NCS and the communications sector to establish and promote best practices to ensure that all WPS, GETS, and TSP subscribers are properly trained in how to use these services.
- 5. ***Maximizing Existing Resources – Broadening NCC to Include All Communications Infrastructure Sectors*** – The FCC should work with the NCS to broaden the membership of the National Coordination Center for Telecommunications (“NCC”) to include adequate representation of all types of communications systems, including broadcast, cable, satellite and other new technologies, as appropriate.

6. ***Maximizing Existing Resources – FCC Website for Emergency Coordination Information*** – The FCC should create a password-protected website, accessible by credentialed entities (under recovery coordination recommendation #1), listing the key state emergency management contacts (especially the contacts for communications coordinating bodies), as well as post-disaster coordination areas for communications providers. During an emergency, this website should be updated on a 24/7 basis.
7. ***Maximizing Existing Resources – FCC Website for Emergency Response Team Information*** – The FCC should create a website to publicize the agency’s emergency response team’s contact information and procedures for facilitating disaster response and outage recovery.

First Responder Communications – Essential Steps for Addressing Lessons Learned from Hurricane Katrina

1. ***Essential Steps in Pre-positioning Equipment, Supplies and Personnel – An Emergency Restoration Supply Cache and Alternatives Inventory*** – To facilitate the restoration of public safety communications capabilities, the FCC should:
 - a. Encourage state and local jurisdictions to retain and maintain, including through arrangements with the private sector, a cache of equipment components that would be needed to immediately restore existing public safety communications within hours of a disaster. At a minimum, the cache should include the necessary equipment to quickly restore communications capabilities on all relevant mutual aid channels. Such a cache would consist of:
 - i. RF gear, such as 800 MHz, UHF, VHF, Mutual Aid, IP Gateway, and dispatch consoles;
 - ii. trailer and equipment housing;
 - iii. tower system components (antenna system, hydraulic mast);
 - iv. power system components (generator, UPS, batteries, distribution panel); and
 - v. fuel.

The cache should be maintained as a regional or state-wide resource and located in areas protected from disaster impacts. The cache should be included as an element of the National Response Plan.
 - b. Encourage state and local jurisdictions to utilize the cache through training exercises on a regular basis.
 - c. Support the ongoing efforts of the NCC to develop and maintain a database of state and local public safety system information, including frequency usage, to allow for more efficient spectrum sharing, rapid on-site frequency coordination, and emergency provision of supplemental equipment in the event of system failures.

- d. Urge public safety licensees to familiarize themselves with alternative communications technologies to provide communications when normal public safety networks are down. Such technologies include satellite telephones, two-way paging devices, and other technologies less reliant on the PSTN. Most importantly, public safety agencies should be reminded/encouraged to train and use such devices prior to emergencies.
- e. Support the efforts of the NCC to develop an inventory of available communications assets (including local, state, federal civilian and military) that can be rapidly deployed in the event of a catastrophic event. The list should include land mobile radios, portable infrastructure equipment, bridging technologies/gateways, and backup power system components. This information should include the steps necessary for requesting the deployment of these assets. The FCC should work with the NCC and the appropriate agencies to educate key state and local emergency response personnel on the availability of these assets and how to request them.
- f. Coordinate with the NCS/NCC to assure that, immediately following any large disaster, there is an efficient means by which federal, state and local officials can identify and locate private sector communications assets that can be made rapidly available to first responders and relief organizations. One such means to be considered would be a website maintained by either the FCC or NCC through which the private sector could register available assets along with product information. The website should be designed with a special area for registering available equipment to assist persons with disabilities in their communications needs.

2. *Essential Steps in Enabling Emergency Communications Capabilities – Facilitating First Responder Interoperability* – To facilitate interoperability among first responder communications, the FCC should:

- a. Consistent with recent legislation, maintain the schedule for commencing commercial spectrum auctions before January 28, 2008 to fully fund the \$1 billion public safety interoperability program.
- b. Work with National Telecommunications and Information Administration (“NTIA”) and the Department of Homeland Security (“DHS”) to establish appropriate criteria for the distribution of the \$1 billion in a manner that best promotes interoperability with the 700 MHz band. Among other things, such criteria should mandate that any radios purchased with grant monies must be capable of operating on 700 MHz and 800 MHz channels established for mutual aid and interoperability voice communications.
- c. Encourage the expeditious development of regional plans for the use of 700 MHz systems and move promptly to review and approve such plans.
- d. Expeditiously approve any requests by broadcasters to terminate analog service in the 700 MHz band before the end of the digital television transition in 2009 in order to allow public safety users immediate access to this spectrum.

- e. Work with the NTIA and DHS to develop strategies and policies to expedite allowing Federal (including the military), state and local agencies to share spectrum for emergency response purposes, particularly the Federal incident response channels and channels established for mutual aid and interoperability.
- f. Publicize interoperability successes and/or best practices by public safety entities to serve as models to further interoperability.

3. *Essential Steps in Addressing E-911 Lessons Learned – A Plan for Resiliency and Restoration of E-911 Infrastructure and PSAPs* – In order to ensure a more robust E-911 service, the FCC should encourage the implementation of these best practice recommendations issued by Focus Group 1C of the FCC-chartered NRIC VII:

- a. Service providers and network operators should consider placing and maintaining 911 circuits over diverse interoffice transport facilities (e.g., geographically diverse facility routes, automatically invoked standby routing, diverse digital cross-connect system services, self-healing fiber ring topologies, or any combination thereof). *See NRIC VII Recommendation 7-7-0566.*
- b. Service providers, network operators and property managers should ensure availability of emergency/backup power (e.g., batteries, generators, fuel cells) to maintain critical communications services during times of commercial power failures, including natural and manmade occurrences (e.g., earthquakes, floods, fires, power brown/blackouts, terrorism). The emergency/backup power generators should be located onsite, when appropriate. *See NRIC VII Recommendation 7-7-5204.*
- c. Network operators should consider deploying dual active 911 selective router architectures to enable circuits from the caller's serving end office to be split between two selective routers in order to eliminate single points of failure. Diversity should also be considered on interoffice transport facilities connecting each 911 selective router to the PSAP serving end office. *See NRIC VII Recommendations 7-7-0571.*
- d. Network operators, service providers, equipment suppliers and public safety authorities should establish alternative methods of communication for critical personnel. *See NRIC VII Recommendation 7-7-1011.*

In addition, the FCC should:

- a. Recommend the designation of a secondary back-up PSAP that is more than 200 miles away to answer calls when the primary and secondary PSAPs are disabled. This requires the FCC to eliminate any regulatory prohibition against the transport of 911 across LATA boundaries. The Panel recommends that the FCC expeditiously initiate such a rulemaking. This rulemaking should also consider permitting a backup E-911 tandem across a LATA boundary.
- b. Recommend that the FCC urge the DHS, Fire Grant Act, and other applicable federal programs to permit state or local 911 commissions or emergency communications districts, which provide 911 or public safety communications

services, to be eligible to apply for 911 enhancement and communications enhancement/interoperability grants.

4. ***Essential Steps in Addressing Lessons Learned Concerning Emergency Medical and Hospital Communications Needs – An Outreach Program to Educate and Include the Emergency Medical Community in Emergency Communications Preparedness*** – The FCC should work to assist the emergency medical community to facilitate the resiliency and effectiveness of their emergency communications systems. Among other things, the FCC should:
- a. Educate the emergency medical community about emergency communications and help to coordinate this sector’s emergency communications efforts;
 - b. Educate the emergency medical community about the various priority communications services (*i.e.*, GETS, WPS and TSP) and urge them to subscribe;
 - c. Work with Congress and the other appropriate federal departments and agencies to ensure emergency medical personnel are treated as public safety personnel under the Stafford Act; and
 - d. Support DHS efforts to make emergency medical providers eligible for funding for emergency communications equipment under the State Homeland Security Grant Program.

Emergency Communications to the Public – Actions to Alert and Inform

1. ***Actions to Alert and Inform – Revitalize and Publicize the Underutilized Emergency Alert System*** – To facilitate and complement the use of the existing Emergency Alert System (“EAS”), the FCC should:
- a. Educate state and local officials about the existing EAS, its benefits, and how it can be best utilized.
 - b. Develop a program for educating the public about the EAS and promote community awareness of potential mechanisms for accessing those alerts sent during power outages or broadcast transmission failures.
 - c. Move expeditiously to complete its proceeding to explore the technical and financial viability of expanding the EAS to other technologies, such as wireless services and the Internet, recognizing that changes to communications networks and equipment take time to implement.
 - d. Consistent with proposed legislation, work with Congress and other appropriate federal departments and agencies to explore the technical and financial viability of establishing a comprehensive national warning system that complements existing systems and allows local officials to increase the penetration of warnings to the public as well as target, when necessary, alerts to a particular area.

- e. Work with the DHS and other appropriate federal agencies on pilot programs that would allow more immediate evaluation and testing of new notification technologies.
- f. Work with the Department of Commerce to expand the distribution of certain critical non-weather emergency warnings over NOAA weather radios to supplement the EAS.

2. *Actions to Alert and Inform – Commence Efforts to Ensure that Persons with Disabilities and Non-English-Speaking Americans Receive Meaningful Alerts* – To help to ensure that all Americans, including those with hearing or visual disabilities or who do not speak English, can receive emergency communications, the FCC should:

- a. Promptly find a mechanism to resolve any technical and financial hurdles in the current EAS to ensure that non-English speaking people or persons with disabilities have access to public warnings, if readily achievable.
- b. Work with the various industry trade associations and the disabled community to create and publicize best practices for serving persons with disabilities and non-English-speaking Americans.
- c. Encourage state and local government agencies who provide emergency information (through video or audio broadcasts or websites) to take steps to make critical emergency information accessible to persons with disabilities and non-English-speaking Americans.

3. *Actions to Alert and Inform – Ensure Consistent and Reliable Emergency Information Through a Consolidated and Coordinated Public Information Program* – Public information functions should be coordinated and integrated across jurisdictions and across functional agencies, among federal, state, local and tribal partners, and with private sector and non-governmental organizations. The FCC should work with all involved parties to help facilitate the following:

- a. Integration of media representatives into the development of disaster communications plans (ESF #2). These plans should establish systems and protocols for communicating timely and accurate information to the public during crisis or emergency situations.
- b. Designation of a public information officer at each EOC. This individual should be accessible to the media to handle media and public inquiries, emergency public information and warnings, rumor monitoring and response, and other functions required to coordinate, clear with appropriate authorities, and disseminate accurate and timely information related to the incident, particularly regarding information on public health, safety and protection.
- c. During large scale disasters, the formation of a Joint Information Center (“JIC”) for the collocation of representatives from federal, regional, state, local and/or tribal EOCs tasked with primary incident coordination responsibilities. The JIC would provide the mechanism for integrating public information activities across

jurisdictions and with private sector and non-governmental organizations. Media operations should be an integral part of the JIC.

CONCLUSION

The Katrina Panel commends Chairman Martin and the Commission for their actions to assist industry and first responders before, during and after Hurricane Katrina and for forming this Panel to identify steps to be taken to enhance readiness and recovery in the future. The Panel thanks the Commission for the opportunity to address the important issues associated with this devastating hurricane's effect on our nation's communications networks. In this effort, the Panel members have brought to bear a broad background of public safety and industry experiences, including (for many) first-hand knowledge of the devastation wrought by Katrina. The Panel has also benefited from information provided in the many comments and expert presentations. The Panel hopes that its resulting observations and recommendations prove useful to the Commission in helping to ensure that the communications industry, first responders, and government at all levels are better prepared for future hurricanes and any other disasters that might lie ahead for us.

APPENDIX A

Members of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks

Chair: *Nancy J. Victory*, Partner, Wiley Rein & Fielding LLP

Carson Agnew, Executive Vice President, Mobile Satellite Ventures, LP

Michael R. Anderson, Chairman, PART-15.ORG

Robert G. (Gil) Bailey, ENP, Telecommunications Manager, Harrison County, MS Emergency Communications Commission

Kevin Beary, Sheriff, Orange County, FL

Greg Bicket, Vice President/Regional Manager, Cox Communications

Lt. Colonel Joseph Booth, Deputy Superintendent, Louisiana State Police

Steve Davis, Senior Vice President - Engineering, Clear Channel Radio

Robert G. Dawson, President & CEO, SouthernLINC Wireless

Stephen A. Dean, Fire Chief, City of Mobile, AL

Steve Delahousey, Vice President - Operations, American Medical Response

Dave Flessas, Vice President - Network Operations, Sprint Nextel Corp.

Martin D. Hadfield, Vice President - Engineering, Entercom Communications Corp.

Jim O. Jacot, Vice President, Cingular Network Group

Tony Kent, Vice President - Engineering & Network Operations, Cellular South

Kelly Kirwan, Vice President - State and Local Government and Commercial Markets Division, The Americas Group, Government, Enterprise, and Mobility Solutions, Motorola

Communications and Electronics, Inc

Jonathan D. Linkous, Executive Director, American Telemedicine Association

Adora Obi Nweze, Director, Hurricane Relief Efforts, NAACP; President, Florida State

Conference, NAACP; Member, National Board of Directors, NAACP

Eduardo Peña, Board Member, League of United Latin American Citizens

Billy Pitts, President of Government Affairs, The NTI Group

Major Michael Sauter, Commander, Office of Technology and Communications, New Orleans Police Department

Marion Scott, Vice President - Operations, CenturyTel

Kay Sears, Senior Vice President of Sales and Marketing, G2 Satellite Solutions, PanAmSat Corporation

Edmund M. "Ted" Sexton, Sr., President, National Sheriffs Association

Edwin D. Smith, Chief, Baton Rouge Fire Department

William L. Smith, Chief Technology Officer, BellSouth Corporation

Patrick Yoes, President, Louisiana Fraternal Order of Police, National Secretary, Fraternal Order of Police
