

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
)
Recommendations of the Independent Panel) EB Docket 06-119
Reviewing the Impact of Hurricane Katrina)
on Communications Networks)

COMMENTS OF NENA

The National Emergency Number Association (“NENA”) is pleased to respond to the invitation to comment¹ on the Report and Recommendations of the above-captioned Independent Panel, dated June 12, 2006. A later Public Notice expanded the scope of the inquiry beyond future preparation for and response to hurricanes, asking commenters to address

the applicability of the Panel’s recommendations to all types of natural disasters (*e.g.*, earthquakes, tornados, hurricanes, forest fires) as well as other types of incidents (*e.g.*, terrorist attacks, flu pandemic, industrial accidents, *etc.*). Parties should also discuss whether the Panel’s recommendations are broad enough to take into account the diverse topography of our Nation, the susceptibility of a region to a particular type of disaster, and the multitude of communications capabilities a region may possess.²

While acknowledging that some unique technical and operational solutions may need to be considered to deal with certain types of disasters, in general NENA strongly believes that as much as possible our nation’s 9-1-1 and emergency communications systems must be designed so that they are flexible and reliable enough to handle all types of emergencies without creating unique systems for different emergencies. The same 9-1-1 and emergency communications system that is capable of withstanding an earthquake should also be able to withstand a tornado,

¹ Notice of Proposed Rulemaking, FCC 06-83, released June 19, 2006, 71 Federal Register 38564, July 7, 2006.

² DA 06-1524, July 26, 2006.

and systems used to respond to a pandemic flu outbreak should be the same systems used to respond to a terrorist attack.

Many individual NENA members and their organizations, both public and private, experienced directly the devastation caused by Hurricane Katrina and its aftermath. Other members in unaffected areas formed emergency response teams to assist in handling call-taking and restoration activities at Public Safety Answering Points (“PSAPs”) in the storm-ravaged locations.

Introduction. NENA worked closely with FCC staff before and during hurricanes Katrina and Wilma to provide FCC staff with PSAP contact information for affected areas so that the agency could communicate with 9-1-1 authorities.³ NENA also collaborated, through the North American Numbering Council (“NANC”) with telecommunications groups on 9-1-1 service restoration.⁴

The Commission is to be commended for establishing the Independent Panel which provided significant focus on 9-1-1 and emergency communications issues and for seeking public comment on the recommendations of the Panel. NENA was pleased that a representative of the 9-1-1 community was included on the Panel, Gil Bailey, Telecommunications Manager of the Harrison County, Mississippi Emergency Communications Commission.

The emergency communications working group was specifically tasked with reviewing Hurricane Katrina's impact on (1) the Gulf Coast region's 9-1-1 and E9-1-1 systems; (2) PSAPs

³ Two upcoming meetings of the NENA Next Generation E9-1-1 Program will focus on disaster planning and interoperability. Some of the topics raised in this NPRM will be discussed in detail during those meetings

⁴ Two of the groups consulted with were the LNPA-WG (Local Number Portability Administration Working Group) and its special committee assigned to review disaster planning and recovery issues related to number portability and pooling and the FON (Future of Numbering) committee. While various numbering changes and relaxation of existing FCC rules can be extremely helpful towards quick restoration of modified customer service, it is vital that 9-1-1 service not be negatively impacted by such actions.

and the procedures used to re-route emergency calls. The working group was charged with (3) examining whether and how the communications networks could have provided greater 9-1-1 connectivity for private citizens; and (4) reviewing the adequacy of emergency communications to the public before, during and after the hurricane, and the best ways to alert and inform the public about emergencies in the future.

The Katrina catastrophe opened the eyes of many in the 9-1-1 community on technical issues, staffing during disasters and mutual aid, among other topics. The storms underlined many of the issues NENA has raised for years on redundancy/resiliency and the need for 9-1-1 network flexibility and migration to a robust next-generation system.

Recommendations

Redundancy and resiliency. NENA fully supports the need for redundancy and resiliency in the network to ensure all 9-1-1 calls reach the appropriate PSAP or designated back-up PSAP(s) when necessary. Careful consideration should be given to how greater redundancy and resiliency are achieved, taking into consideration near-term and longer-term issues. In general, NENA fully advocates moving our 9-1-1 infrastructure to an IP-enabled Next Generation (“NG”) 9-1-1 system which by design is more redundant and flexible than the tandem switches and CAMA trunking⁵ making up much of our existing 9-1-1 system.

The NRIC VII Focus Group 1C December 2005 Final Report readopted the dual active 9-1-1 selective router (SR) as an effective best practice, but also noted that the “Emergence of IP based E9-1-1” is a factor to consider, with such consideration involving:

- Timing of local conversion to IP-based E9- 1-1 calling and data networks, and
- Design engineering of IP based network (i.e., is engineering standard equal to current level of network redundancy/diversity)

⁵ Central Automated Message Accounting (“CAMA”) trunks are limited to transmitting voice and eight digits of a telephone number, typically a single digit standing for an area code and the other seven for a local calling number.

They also said:

It is therefore imperative to analyze the cause of problems before deploying a solution. Outages are not necessarily prevented by adding more network elements and/or diversity, as this might not mitigate the root cause of the outages.”⁶

NENA would have serious concern over requirements that force ILECs to invest significant sums toward diverse tandem switches based on yesterday’s technology, rather than spending the money on IP-based switches that will enable and accelerate the transition to a fully IP-enabled NG 9-1-1 system. At the same time, given the near-term need for redundancy, we understand that it may be necessary today in some areas to establish diverse routers using technology that has already been deployed in the network. In determining solutions for the near and longer terms, risk could be assessed based on the location of a provider. Whereas one solution may be desirable in a coastal area prone to hurricanes, a different solution may be more appropriate for an inland area. Decisions should be made with input from both the communications provider and the emergency communications governing authority. NENA is aware of estimates of nearly \$1 million⁷ at tariff rates to adapt two standalone SR switches and related networks for dual mode SR operation. In the face of movement toward more effective NG 9-1-1 design, this type of cost for older solutions should be undertaken only where absolutely necessary, and where it is clear that such a solution will be effective.

⁶ Focus Group 1C, Final Report at page 47 or 74.

⁷ The above figures cover physical network changes, translations, and inter-SR network additions, but do not include rearrangement of certain database aspects, such as ensuring consistency of emergency service number (ESNs) between the SRs.

NENA recommends that the FCC require all 9-1-1 System Service Providers (SSPs) (typically ILECs) to analyze the redundancy, resiliency and dependability⁸ of the 9-1-1 network in their coverage area and to provide detailed information to the FCC on areas where these issues are treated in the network and areas where there are gaps. Where possible, 9-1-1 SSPs should work with 9-1-1 governing entities, local, regional or state, to analyze the 9-1-1 network. Where applicable, all wireline LECs, VoIP Emergency Service Gateway (ESGW) providers and wireless Mobile Switching Center (MSC) providers should be involved. 9-1-1 trunking for all originating service providers should follow physically diverse paths unless it is cost-prohibitive and there are no technically achievable options. SR to PSAP connections should also utilize physically diverse trunking paths. Best practice is to enter PSAPs from at least two physically separate points, where not prohibitively expensive. All 9-1-1 SSPs should be required to submit a plan to the Commission outlining this information and steps they intend to take to ensure diversity and dependability in the network, including any plans they have to migrate their network to an IP-based platform that will enable the migration from the existing 9-1-1 system to NG 9-1-1 architecture. Plans should be submitted promptly to the FCC and made available to leading public safety organizations.

Back-up power. NENA endorses Recommendation 7-7-5204 of Focus Group 1-C of the NRIC VII advisory panel. NENA recommends that the FCC or the state commissions, as appropriate, require all telephone central offices to have an emergency back-up power source. In areas prone to flooding, such back-up power sources should be located to ensure that high water

⁸ Diversity for diversity's sake is insufficient treatment. The methods used are an issue as well. For example, adding a diverse path that physically runs across along the side of a low lying bridge in a flood-prone coastal area is false security.

does not cause any damage. It also is important that infrastructure from central offices all the way through to PSAPs have multiple lightning protection measures in place.

Back-up PSAP call routing. NENA concurs that, at minimum, there should be pre-programmed alternate call routing in the event of various emergency situations of a more localized nature, which should generally help for larger scale emergencies. The Independent Panel recommends pre-programming of alternative call routing in advance of emergencies. There are trade-offs to be considered in the remoteness of the back-up PSAPs and their lesser knowledge of stricken areas. Existing LATA boundaries should in no way prohibit providing effective 9-1-1 service during any emergency, regardless of the scale of the emergency. The FCC should provide flexibility for local phone companies to establish pre-configured routes cross LATA boundaries for large scale emergencies.

It is important to note that some states have requirements that primary PSAPs have a back-up, but many states do not. It is the practice of most counties to have agreements with neighboring counties. More remote back-up PSAPs are needed for areas that are likely candidates for a Katrina-size disaster. The NENA 9-1-1 Center Operations Committee will be considering these issues and will consider developing PSAP back-up operational standards. This committee's resources can also be of service in assisting the FCC and other federal government entities in developing the appropriate operational items within the Readiness Checklist suggestion made by the Independent Panel both for this back-up PSAP topic and for the much broader topic of disaster pre-planning in general.

The suggestion for 200 miles' separation of the back-up is an arbitrary distance too far away to be effective in most instances. Call-takers will have limited or no knowledge of local geography and landmarks and, even if they do receive the calls, there will be limited or no ability

to dispatch local emergency responders, at least in the short term. NENA agrees that all PSAPs should have back-ups in case local service goes down, but the back-ups should be located closer than 200 miles if they are to be effective within the existing traditional 9-1-1 and communications systems' infrastructure. Decisions as to where to locate the back-up should be made based on the knowledge and input of local 9-1-1 leaders, taking all technical, legal and geographic issues into consideration.

This recommendation points out the need to migrate to an IP-enabled NG 9-1-1 system nationally, and particularly in areas prone to major disasters. With the envisioned NG 9-1-1 system, the problems associated with being 200 miles away or more from the local emergency scene become diminished as data of all kinds on the local area affected by the emergency will be more readily available to distant back-up PSAPs. Local maps, information on local resources including the location of local emergency response vehicles and the status of local hospitals, and other local data sources could easily be made available to non-local call-takers. Also, IP-based radio communications would more easily and affordably allow for long-distance dispatching to occur. There will still be operational issues to overcome in this scenario, but in an NG environment the operational problems can be significantly eased.

Disaster training. NENA believes that, at a minimum, all PSAP managers should have training in disaster management and PSAP re-routing issues, as well as a minimum of introduction to the National Incident Management System ("NIMS") of the Federal Emergency Management Agency ("FEMA"). An increasing number of PSAP managers and other personnel are beginning to have all communications personnel take, at minimum, IS-100 and IS-700 appropriate courses. The FCC could provide assistance to FEMA/DHS in reaching out and

educating the appropriate PSAP managerial leaders as to which courses should be taken and which others are recommended for 9-1-1 communications personnel and supervisors.

Funding for interoperability. NENA could not agree more with the Independent Panel's recommendation (at 39-40) that "the FCC should urge the DHS, Fire Grant Act, and other applicable federal programs to permit state or local 9-1-1 commissions or emergency communications districts, which provide 9-1-1 or public safety communications services, to be eligible for 9-1-1 enhancement and communications enhancement/interoperability grants."

Congress recently allocated \$1 billion toward a new grant program for interoperability (Public Law 109-171), administered by NTIA. From NENA's perspective, it is critical that in distributing these funds, and funds from other interoperability grant programs, interoperability is broadly defined to cover a wide range of emergency communications systems, including 9-1-1 systems.

To think of interoperability as limited to ensuring reliable radio communications among responders in the field is a mistake. Radio interoperability is a vitally important issue, but it must be more broadly defined to include voice and data "agency-to-agency" communications between and among the broader emergency response community, including those agencies' E9-1-1 systems. As hurricane Katrina showed, until an area has a properly functioning 9-1-1 system able to locate all 9-1-1 calls and the ability to share that information with responding agencies, that area cannot be said to have an interoperable emergency communications system.

The FCC, NTIA, DHS, DOJ, DHHS, DOT and other federal agencies should take into consideration the need for interoperable, inter-organizational data communications among all emergency providers and emergency support service providers. This will allow information gathered by 9-1-1 telecommunicators and other emergency response organizations to be

provided in real-time to mobile responders. Moreover, some portion of interoperability funds should be made available to provide planning, services, equipment and training to upgrade capabilities and provide interoperability among all such agencies. Preference should be given to plans adopted by states or regions that cost-effectively provide shared applications, services, and other capabilities that help modernize and make interoperable the full range of emergency response and support organizations.

Alerting and communicating with persons with disabilities. NENA concurs with the recommendation to make sure alerts can be received by all persons with hearing and vision disabilities. The community of the deaf and hard-of-hearing, more than any other, relies on text devices, as well as IP relay and video relay services. One of the main drivers for migrating to a fully IP-enabled NG 9-1-1 system is to better accommodate those with hearing and speech disabilities. An IP-based 9-1-1 and emergency communications system will not only allow the deaf and hard-of-hearing to access 9-1-1 directly via text devices and IP relay/video relay services, but should also improve the ability for local/state government to directly notify them of emergencies as well. It is becoming increasingly apparent that there is an immediate need to establish a better method, or methods, for those involved in the growing use of 2-way text pagers to both report emergency incidences and to receive information and warnings of an emergency nature on a timely basis.

It is also increasingly important that IP Relay and Video Relay Centers be considered as part of the needed infrastructure to ensure access to 9-1-1 and emergency responders since many deaf and hard-of-hearing now have devices which can access such centers but not PSAPs directly. With the escalating diversity of languages in various locales, it is also important that

connections between language interpretation services and PSAPs also be considered as important components of the 9-1-1 system.

Quality assurance in emergency telecommunications disaster relief. When there is a problem with the telephone system (line-cuts, power outages, etc.) there is a problem with the 9-1-1 system. Because PSAPs rely on the repair crews of telephone companies to repair switches and other 9-1-1 system components, NENA fully supports a credentialing system that will ensure appropriate and qualified communications personnel are allowed entry into disaster areas to repair their networks. It is also important that the Wireless Emergency Response Teams (WERT) have such access as they can provide assistance in quickly bringing up alternate methods and routes of communication for both the public and government (including PSAPs and others in public safety/emergency services).

Not only did communications professionals have difficulty entering the disaster area, so did 9-1-1 professionals from out of state who were deployed to relieve PSAPs in Louisiana. The North Carolina Telecommunicator Emergency Response Team (“TERT”) was deployed at the request of St. Tammany Parish but was unable to enter Louisiana for days because TERT was not recognized by the Emergency Management Assistance Compact (EMAC)⁹. It was not so much a lack of credentials, but a lack of understanding of TERT and the specific need for 9-1-1 trained professionals to enter the disaster area in addition to out of state police, fire and EMS personnel. NENA has since launched a National Joint TERT Initiative, along with APCO, to educate 9-1-1 and emergency management officials on TERT so this does not happen in the

⁹ EMAC, the Emergency Management Assistance Compact, is a congressionally ratified organization that provides form and structure to interstate mutual aid. Through EMAC, a disaster impacted state can request and receive assistance from other member states quickly and efficiently, resolving two key issues upfront: liability and reimbursement.

future. We are developing TERT training and education courses and are also working with FEMA to ensure TERT and the 9-1-1 profession generally is included in their National Emergency Responder Credentialing System. The TERT effort has four main objectives:

- To include 9-1-1 professionals in the credentialing process being developed by FEMA
- To ensure 9-1-1 is involved in the EMAC resource typing within the National Emergency Management Association (NEMA)
- To establish a Standardized Training Curricula that NIMS will institutionalize for 9-1-1 telecommunicators
- To raise awareness of TERT as a disaster management resource with emergency managers nationwide through partnerships with NEMA and the International Association of Emergency Managers (IAEM)

The FCC should be aware of these efforts and encourage FEMA to ensure 9-1-1 professionals are included as part of their credentialing system.

Coordination across jurisdictions. DHS is making significant efforts to support cross-jurisdictional coordination, and NENA supports these efforts. However, the FCC is also well-suited to assist on issues of spectrum and problems specific to 9-1-1. We believe, as well, that the national 9-1-1 Implementation and Coordination Office (ICO) has a role to play in this area as well.¹⁰

NENA notes that section 3(b) of the Wireless Communications and Public Safety Act of 1999 (PL 106-81) states:

The Federal Communications Commission shall encourage and support efforts by States to deploy comprehensive end-to-end emergency communications infrastructure and programs, based on coordinated statewide plans, including seamless, ubiquitous, reliable wireless telecommunications networks and enhanced wireless 9-1-1 service. In encouraging and supporting that deployment, the Commission shall consult and cooperate with State and local officials responsible for emergency services and public safety...The Commission shall encourage each State to develop and implement coordinated statewide deployment plans, through an entity designated by the governor, and to include

¹⁰ PL 108-494, ENHANCE 911 Services, establishes a national E9-1-1 Implementation and Coordination Office (ICO)

representatives of the foregoing organizations and entities in development and implementation of such plans.

NENA believes the FCC can and should play more of a leadership role to ensure ubiquitous 9-1-1 is available in all areas and that states are indeed developing statewide emergency communications plans.

Telecommunications Service Priority (“TSP”). NENA understands from speaking with PSAP representatives in affected area that those who were participating in the TSP program were able to successfully use this service (assuming the telephone network was operable). There were not so much problems with the performance of the service as there is a general disinclination of PSAPs and other public safety agencies to register for the TSP program. NENA understands that well under 40% of public safety agencies are currently participating in the TSP program. We believe a major reason for PSAPs not signing up is the variably high cost per line for TSP. There is a lack of uniformity of cost for TSP service among carriers (and perhaps within service areas of a single carrier), ranging from \$14 to as much as \$345 per circuit to establish TSP, and \$0-8 per month per circuit ongoing.¹¹ NENA suggests that it may be a good idea to make TSP service free for PSAPs and other public safety agencies, as priority restoration used to be.

In addition, we continue to be willing to work in support of the FCC and others in encouraging PSAPs and other emergency services entities to register for the Government Emergency Telecommunications Service (GETS) and Wireless Priority Service (WPS). We concur with the Independent Panel in its pointing out of the importance of these and other communications alternatives. We also believe that where possible emergency response agencies should have access to satellite phone(s), IP-enabled voice services, text messaging and other data

communications capabilities. Multiple recent disaster situations have clearly demonstrated the need for diverse communications access and the importance of data systems in addition to voice communications.

Key contacts. NENA agrees with much of the Independent Panel's recommendation, although we are not sure if a listing of key state emergency management contacts should be compiled by and listed at the FCC. This seems to be a function best suited for FEMA/DHS and should take into consideration the non-federal role of the National Emergency Management Association (NEMA). NENA suggests that while it is important to know who the key emergency management personnel in a state/county are, it is also important for PSAPs to know who the appropriate contact people are within telecommunications companies responsible for maintaining the 9-1-1 system. NENA suggests that a more appropriate role for the FCC is to host a password-protected website of key telecommunications provider personnel and other resources valuable to PSAPs/PSAP governing authorities during disasters in a state/region. It should be noted that NENA is capable of forming technical 9-1-1 access teams with representation across all carriers to generally address issues of 9-1-1 emergency restoration. There are a limited number of individuals within the major telecommunications companies who understand all the intricacies of the 9-1-1 system, and NENA is capable of bringing them together to address regional disasters. NENA, or perhaps the FCC, could create a database of these individuals in all regions indicating their skill sets which would be useful for future disasters.

In general, NENA encourages the expansion and availability of web-based services for appropriate emergency services personnel providing accurate and useful information in the event

¹¹ Costing information comes from recent inquiries by FCC staff.

of disasters. In a password-protected environment with appropriate security measures, the amount and diversity of timely information can be quite helpful (e.g. information on PSAP outages, back-up PSAPs, hospital status/diversion, critical infrastructure, personnel with unique skill sets such as urban search and rescue). Rather than have multiple lists and information, it is important to consider using web services to consolidate such information as much as possible in a password-controlled and protected environment with multiple methods of access to ensure dependability.

Also, proper design and planning may also be of assistance to many other entities which are in the midst of such disasters, such as customer emergency calls to private call centers and the need to know where/how to continue to route such requests, transfer or information relay of emergency calls between 9-1-1 and other various N-1-1 entities and 800-type services, including 2-1-1, 5-1-1, 7-1-1 and 8-1-1, along with poison control centers, suicide hotlines and other services. Web services in a protected environment, on a pre-planned basis, could provide such entities with appropriate alternative contact methods as they become available, rather than having to manually check with a very large volume of PSAPs/9-1-1 governing entities on an ongoing basis.

Pre-positioning for disasters. 9-1-1 is a critically important emergency response and homeland security asset. It should be represented at the table when any emergency response and communications pre-planning is being done. The 9-1-1 function is sometimes left out of key planning processes because it is not considered on the same level as law enforcement, fire services, EMS or emergency management. To the contrary, it is the first link in a chain that must have no weak links.

Infrastructure outage reporting. NENA suggests that the FCC analyze all of the 9-1-1 system outage reports it receives, not just during emergencies. NENA is aware that 9-1-1 SSPs have provided 9-1-1 system outage data to the FCC; however we are not aware that any significant analysis has been done on that data to determine any trends in location or cause of outages. The FCC should do analysis of this data and work with appropriate entities to mitigate these conditions where appropriate. This analysis is critical to determining what can be done to improve the 9-1-1 infrastructure across the nation and is related to the discussion on the need for increased redundancy, resiliency and dependability of the 9-1-1 infrastructure. In late July and early August of this year, 9-1-1 outages and storm-related problems have been reported by the news media in Louisiana, Wyoming, North Carolina, Florida, and Connecticut.

Conclusion.

NENA applauds the efforts of the members of the Hurricane Katrina Independent panel and the FCC for establishing the panel and putting the recommendations out for public comment. We appreciate the need for immediate solutions to problems that were identified by the Panel but also emphasize that technical solutions should also be forward looking as much as possible.

Respectfully submitted,

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August 7, 2006

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