PUBLIC SAFETY

PSWN

PROGRAM

WIRELESS NETWORK

Saving Lives and Property Through Improved Interoperability

Answering The Call:
Communications Lessons Learned From The Pentagon Attack

Final

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1. INTRODUCTION

September 11, 2001—Arlington County

On the morning of September 11, 2001, the staff of the Arlington County, Virginia, Emergency Communications Center (ECC) watched on a large screen television as the destruction of the World Trade Center towers unfolded in New York City. Moments later, as the Pentagon was struck, the dispatchers could see, through the window that was next to the television, a huge plume of smoke rise up, and they knew that they had gone from being observers from afar to active participants in the worst terrorist attack on American soil in history. The dispatchers shifted their attention to the disaster unfolding in their own, local jurisdiction as the telephone lines started recording incoming calls and numerous response units raced to the scene. In accordance with established agreements, the ECC director initiated contact with surrounding jurisdictions to request mutual-aid response and simultaneously notified area hospitals. Area fire and rescue departments responded by each assembling a standard alarm response, which generally consists of multiple fire and emergency medical service (EMS) vehicles. The ECC director instructed these units to head toward Arlington County and stage operations near the county line, in close proximity to the Pentagon. Meanwhile, Arlington County Fire Department (ACFD) personnel saw the incident as it occurred and provided immediate response to the crash site. While the initial ACFD units verified the characteristics of the incident (e.g., rescue requirements, exposure risks, and confinement), Arlington County Police units attempted to stop and redirect traffic to allow incoming fire apparatus access to the crash site. In a very short time, numerous responders arrived at the Pentagon, attempting to control the scene and effect fire suppression.

All told, 50 public safety agencies responded to the incident resulting in approximately 900 radio users attempting communications with various mission requirements and priorities to consider. In a situation such as this one, a high level of wireless interoperability would greatly facilitate operations. In this report, the Public Safety Wireless Network (PSWN) Program summarizes the state of interoperable communications among emergency incident responders at the Pentagon crash site, highlights lessons learned, and renders recommendations for others in implementing improved interoperable communications systems.

1.1 Background

When Air Florida Flight 90 crashed into Washington, DC's 14th Street Bridge on January 13, 1982, the tragedy called attention to the need for a new plan for improved interoperable land mobile radio (LMR) communications in the city's greater metropolitan area. The emergency response to this crash, along with simultaneous responses to a crippling snowstorm in the region and a serious Metrorail subway accident, pushed the private and public communications systems of the region to their operational limits. The sheer volume of calls exceeded system capacities, and there was no provision for communications interoperability between the existing systems.

During the years prior to the Air Florida crash, public safety agencies in the region built and maintained "stovepipe" communications systems (i.e., systems serving only their respective jurisdictions), with little regard for interoperability opportunities. At the time of the Air Florida crash, regional interoperability assets included only two mutual-aid radio channels—one for fire and one for police—allocated only for dispatcher-to-dispatcher transmissions. Because of incompatible LMR systems, access to even these inadequate resources was not available to the majority of emergency incident responders. Direct communication between responders from different agencies was extremely limited, except for those few who carried radios from neighboring jurisdictions. Numerous after-action reports detailed the shortcomings of existing LMR systems and the limited solutions in place to support interoperability. These reports, however, also noted specific measures required to support efficient communications and operations for future multi-agency responses.

By late 1983, the Metropolitan Washington, DC, Council of Governments (COG) coordinated with the region's public safety agencies and adopted regional mutual-aid agreements. These agreements specifically addressed the shortcomings identified in area interoperable communications; however, in general, the agreements only established patches between a respective agency's radio system and the regional mutual-aid channels. The agencies involved pledged to work toward interoperable communication systems as they began to plan the next generation of systems.

By the mid-1990s, several jurisdictions in the northern Virginia region had implemented or had begun implementing compatible trunked radio systems. Public safety executives seized this opportunity to improve communications across the region. Many public safety agencies entered into interagency operational agreements that allowed responders from one jurisdiction to operate on other area public safety radio systems. To further support interoperability, regional participants developed plans to accommodate agencies transitioning to compatible LMR technology in the future, resulting in a scalable, regional agreement. These efforts culminated in the Northern Virginia Trunked Mutual Aid Agreement (NVTMA), which, for the first time, provided reliable interoperable communications for the region's public safety providers. Although the results of these agreements were used on a daily basis by the region's public safety agencies on various incidents for several years, the acts of September 11, 2001, quickly showed the tremendous value of regional cooperation and preplanning for the unthinkable.

1.2 Document Organization

The PSWN Program developed this report to provide an overview of the wireless communications component of the public safety response to the Pentagon. The report is organized in the following sections:

- Section 1—This section highlights the Arlington County ECC view of the initial response to the Pentagon, provides insight into the early planning and coordination efforts of the region's public safety leaders, and details the document organization.

- Section 2—This section describes the methodology used to develop the report.

- Section 3—This section features technical and operational perspectives associated with wireless communications at the Pentagon.

- Section 4—Presented in this section are the findings derived from an analysis of the data collected from both technical and operational perspectives.

- Section 5—Building on the findings, this section presents recommendations for improving interoperability for the region's public safety community.

2. METHODOLOGY

To determine the state of wireless communications at the Pentagon during the first 12 hours after the attack, the PSWN Program completed a data collection process in which it tapped several sources with first-hand, on-site knowledge. The data collection team conducted 32 interviews with first responders, technical representatives, and public information officers from the numerous public safety agencies that provided immediate emergency response. When combined, these interviews provide a candid and broad vision of a critical operational component—communications. Using a targeted questionnaire (i.e., 17 directed inquiries) as a guide, data collection efforts focused on the various responders and their perspectives on the effectiveness of the technical and operational solutions used on scene. Emergency responders relied on these solutions to relay mission-critical and time-sensitive information. In addition, to provide a broader perspective than that of the first field responders, the data collection team accomplished the following activities:

- Attended Police and Fire COG subcommittee meetings

- Observed panel discussions on the response to the terrorist attacks held at The George Washington University

- Reviewed congressional testimony given by numerous public safety officials pertaining to response requirements to terrorism for fire and EMS.

Figure 1 illustrates the process used to analyze the data and provide a framework for assessing the findings. When compiled and analyzed, the findings provide a comprehensive view of wireless communications, along with the successes and limitations of interoperability solutions, at one of the worst emergency response incidents in the Nation's history. The recommendations generated from this analysis are derived directly from the examination of these important findings. Appendix A contains the materials used and collected during the data collection effort, including the questionnaire, COG meeting notes, and panel discussion agenda.
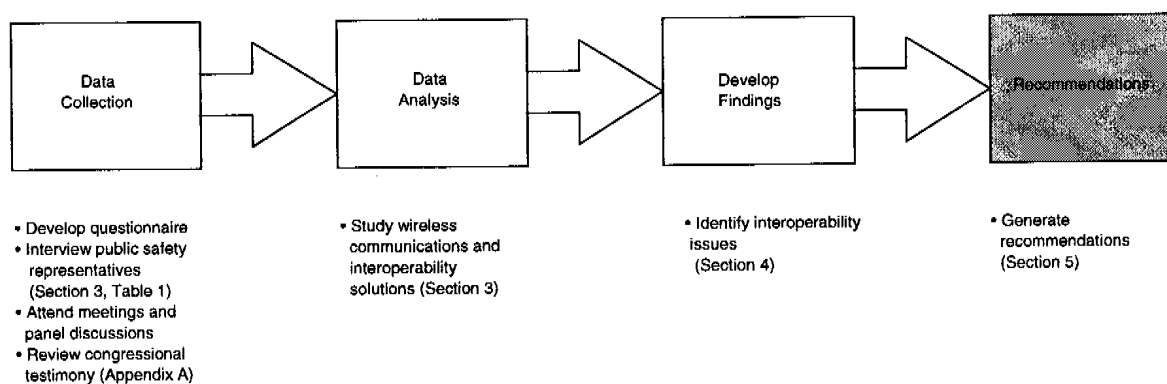

| Data Collection | → | Data Analysis | → | Develop Findings | → | Recommendations |

- Develop questionnaire
- Interview public safety representatives (Section 3, Table 1)
- Attend meetings and panel discussions
- Review congressional testimony (Appendix A)

- Study wireless communications and interoperability solutions (Section 3)

- Identify interoperability issues (Section 4)

- Generate recommendations (Section 5)

Figure 1
**Special Events/Crisis Monitoring Process Methodology**

3. TECHNICAL AND OPERATIONAL PERSPECTIVE

The tragic events of September 11 occurred in quick succession with little or no warning of the impending danger. Within moments of the crash, incident responders from public safety organizations in the Washington, DC, metropolitan area, and, in the later stages, others from far beyond the metropolitan area borders, arrived on scene to support a variety of services including fire suppression, emergency medical treatment, traffic control, search and rescue, and crime scene investigation. So readers can better understand the complexity of the response, Table 1 lists the mission type of the responding public safety agencies, and the radio frequencies used by each respective agency.

Table 1
Pentagon Response Agency List

Function	Agency	Frequency Band (Megahertz, MHz)
Fire	Arlington County, Virginia, Fire Department	800
	City of Alexandria, Virginia, Fire Department	800
	City of Fairfax, Virginia, Fire & Rescue Services	800
	City of Falls Church, Virginia, Volunteer Fire Dept.	800
	District of Columbia Fire and Emergency Medical Services Department	800
	Fairfax County, Virginia, Fire & Rescue Department	800
	Ft. Belvoir, Virginia, Fire Department	On Post 406–420 Mutual Aid 800
	Ft. Myer, Virginia, Fire Department (Provides service to the Pentagon)	On Post 406–420 Mutual Aid 800
	Loudoun County, Virginia, Fire & Rescue Services	30–50
	Montgomery County, Maryland, Fire & Rescue Services	138–174
	Prince George's County, Maryland, Fire Department	490–512
	Prince William County, Virginia, Fire & Rescue Services	138–174
Police	Arlington County, Virginia, Police Department	800
	Arlington County, Virginia, Sheriffs Department	800
	City of Alexandria, Virginia, Police Department	800
	City of Fairfax, Virginia, Police Department	800
	City of Falls Church, Virginia, Police Department	800
	Fairfax County, Virginia, Police Department	800
	Fairfax County, Virginia, Sheriff's Department	800
	George Mason University Police Department	800
	Greenbelt, Maryland, Police Department	450
	Loudoun County, Virginia, Sheriff's Office	30–50
	Virginia State Police	138–174
Federal Law Enforcement Agencies	Bureau of Alcohol Tobacco and Firearms	138–174
	Defense Protective Service	406–420
	Federal Bureau of Investigation	138–174
	United States Capitol Police	138–174
	United States Marshals Service	138–174
	United States Park Police	138–174
	United States Secret Service	138–174
	United States Park Police/Aviation Division	VHF/UHF
Other	Federal Emergency Management Agency (FEMA)	406–420
	FEMA Urban Search and Rescue Teams	406–420
	Metropolitan Washington Airports Authority Fire Department	800
	Virginia Department of Transportation	138–174

The following map presents the Washington Metropolitan region and a majority of the responding agencies that were active at the Pentagon site within the first 12 hours. Jurisdictions with compatible radio systems established interoperability immediately and maintained effective and reliable communications for the duration of the event.
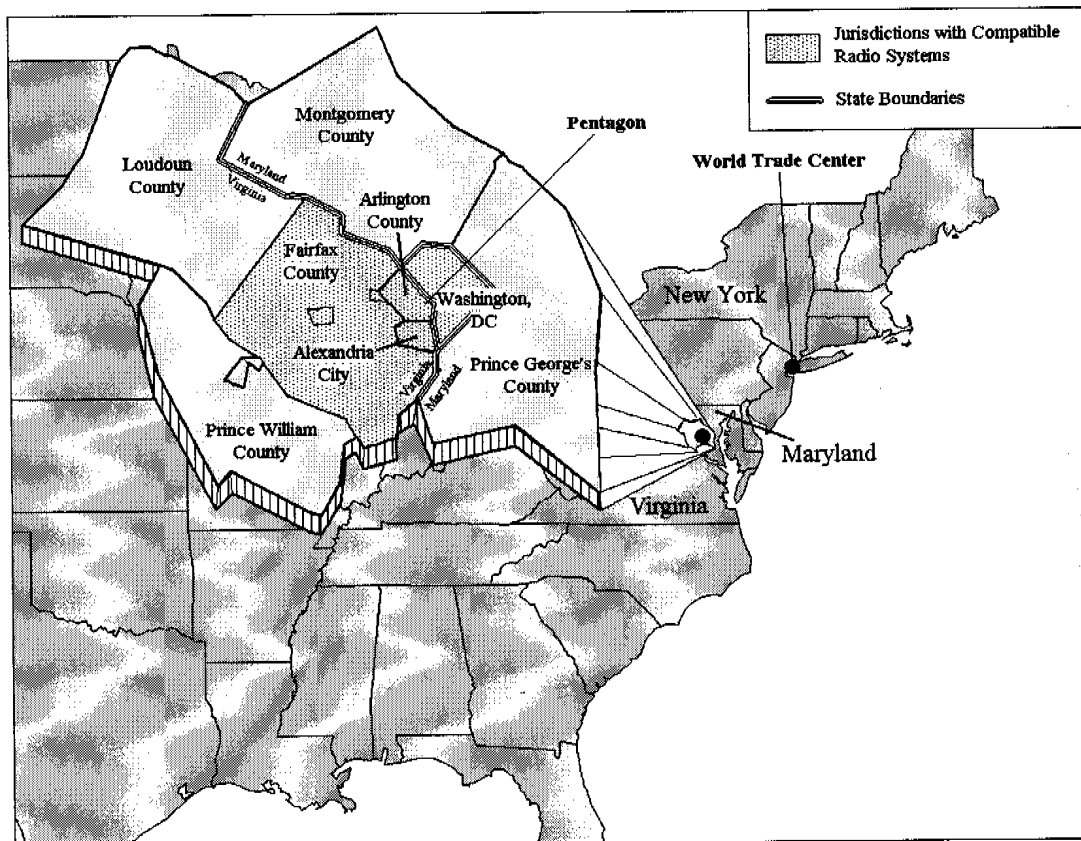
Map 1
Compatible Radio Systems in the Washington, DC, Metropolitan Region

Using information obtained from the data collection effort, this report describes wireless communications at the Pentagon attack site from both technical and operational perspectives. The technical perspective focuses on the use and performance of various LMR interoperability solutions and supplemental commercial service arrangements implemented at the Pentagon. The operational perspective focuses on the impact of the Northern Virginia Mutual Aid Agreement (NOVA Agreement) and the Northern Virginia Trunked Mutual Aid Agreement (NVTMA), the Incident Command System (ICS), and the Command Post formations.

3.1 Technical Perspective

The Pentagon site became a "proving ground" for many of the approaches advocated for fostering interoperable communications. The Arlington County 800 megahertz (MHz) radio system provided radio communications for a majority of the first responders. From the straightforward use of preprogrammed radio zones and talk groups on 800 MHz systems, to the

deployment of the Transportable Public Safety Radio Interoperability Unit (TPSRIU), a variety of methods provided interoperable communications. Commercial services played an important support role as an alternate approach to LMR.

3.1.1 Compatible 800 MHz Systems

Communications were seamless when using Arlington preprogrammed channels.
Captain Blaine Corle
Alexandria Police Department

Arlington County's Radio System

Arlington County operates an 800 MHz Motorola trunked radio system for police, fire, EMS, and local government communications functions. The radio system supports approximately 1,750 mobile and portable radios. The normal day-to-day operations load is approximately 45 percent, or 500 radios. Based on interview data, it is estimated that the communications system loading was approximately 80 percent, or 900 radios on the day of the attacks. Multiple out-of-jurisdiction agencies were operating on the Arlington system during the first 8 hours of the incident. Interviews with key agencies revealed that no system busy signals were experienced during the Pentagon response. The Arlington County radio manager noted that priority levels for all emergency services (e.g., fire, police, EMS) had been established in advance. Consequently, no unusual system optimization measures were necessary on the day of the incident.

The region's public safety leaders have worked with the Washington Metropolitan COG to develop effective responses to emergency calls for service and to develop interoperable public safety communications systems. The implementation of compatible technology 800 MHz trunked radio systems provided a readily available interoperability solution. Arlington County and the City of Alexandria have been using Motorola trunking systems for several years. In 1999, the Metropolitan Washington Airports Authority implemented a Project 25 (P25) compliant digital Motorola trunking system; Fairfax County and the District of Columbia Fire and Emergency Medical Services Department activated P25 digital Motorola systems in 2000. The leaders of the region also put in motion a process to allow for units of each jurisdiction to access each other's systems. These efforts (i.e., Greater Metropolitan Washington Area Police and Fire/Rescue Services Mutual Aid Plan [COG Mutual Aid Plan], the NOVA Agreement, and the NVTMA) are described in detail later in this section, and copies of related agreements are provided for reference in Appendix B. For the first time in the region, true interoperability was a reality for a great number of public safety agencies.

On September 11th, with so many agencies responding to the Pentagon, we had to provide firefighters from surrounding jurisdictions handheld radios that allowed them to communicate with us and with each other.
Edward P. Plaugher
Fire Chief, Arlington County Fire Department

Because of existing mutual-aid agreements, the majority of the first responders to the Pentagon had Arlington County's radio frequencies preprogrammed into their portable radio equipment. They were able to switch to the designated frequency and communicate directly with

the Arlington County dispatchers and the on-scene Incident Commander. Having repeatedly used the capability for mutual-aid responses, the responders had become familiar with Arlington frequency assignments. This interoperability solution was available and used successfully by a majority of the initial fire and rescue units. Those agencies unable to communicate because of incompatible equipment presented new challenges. Arlington County representatives quickly distributed the limited supply of extra radio resources, but like most agencies, Arlington County does not maintain a significant cache of extra equipment. To augment communications, the Incident Commander requested an additional 150 compatible radios be delivered to the scene as soon as possible. The system vendor, Motorola, was contacted immediately. Motorola offered Arlington County the use of portable radios that had been warehoused in the area for delivery to Montgomery County, Maryland. (Montgomery County, located in the Washington metropolitan region, was in the final stages of implementing its own P25 digital trunking system.) These radios were quickly transported to the Pentagon, programmed to operate on the Arlington County system, and distributed to on-scene personnel.

Local law enforcement agencies also responded to the Pentagon to assist with traffic control, crowd control, and crime scene management. Again, the responding units from the Northern Virginia jurisdictions were able to switch directly to the Arlington County radio system and benefit from full interoperability with the lead local agency, the Arlington County Police Department. Because Virginia State Police personnel do not have compatible radio equipment, they relied on information relays by telephone or from dispatch center to dispatch center. Law enforcement agencies responding from outlying areas in the latter days of the event also had incompatible equipment and had to rely on other means to communicate with other agencies.

3.1.2 Other Interoperability Solutions

In addition to the compatible trunking systems, several other technical options were available to the responders at the Pentagon attack. This section describes these technologies, as well as the effect, if any, these options had on operations.

3.1.2.1 Transportable Public Safety Radio Interoperability Unit (TPSRIU). To support interoperable communications at the Joint Operations Center (JOC), the Federal Bureau of Investigation (FBI) deployed the TPSRIU from the FBI Laboratory, Technical Services Branch, in Quantico, Virginia. Developed as a pilot project sponsored by the PSWN Program, the TPSRIU integrates several commercial off-the-shelf products into a wireless interoperability solution appropriate for an incident response where the infrastructure does not provide needed coverage or required interoperability. The TPSRIU uses a JPS Communications ACU-1000 audio cross-connect switch with radio logic control.

The Washington Field Office of the FBI requested the deployment of the TPSRIU. Personnel from the FBI Laboratory delivered the TPSRIU to the JOC at Ft. Myer on September 11. It was transported to the Pentagon on September 12. Interviews with FBI technical personnel revealed that on-scene personnel had to be persuaded to implement the TPSRIU. Interviewees indicated that the unit linked the Urban Search and Rescue (USAR) teams, the FBI, medical personnel from the National Medical Response Teams, and personnel from the Federal Emergency Management Agency (FEMA) Integrated Support Team (IST). Although the

TPSRIU was deployed to the Pentagon site, its exact function and performance remains unclear. Most interviewees, including the Incident Commander, had no knowledge of the unit or its function.

3.1.2.2 Fixed Site ACU-1000—City of Alexandria. The City of Alexandria, in conjunction with the National Institute of Justice, had installed an ACU-1000 switch as an interoperability demonstration at Alexandria Police Department (APD) Headquarters. Located near the Pentagon, the switch provides radio coverage to the area. Within an hour of the attack, the APD offered the use of the switch to Arlington County to cross connect any radio systems requiring interoperability. At the time of the offer, a majority of the responding agencies were using the Arlington County radio system; thus the ACU-1000 was not needed. The Washington Field Office of the FBI requested that its tactical frequencies be programmed into the ACU-1000 switch by APD in the event FBI personnel required interoperability with other responders. Lacking standard operating procedures (SOP), area responders expressed a reluctance to implement this solution; thus the ACU-1000 was not deployed.

3.1.2.3 Police Mutual-Aid Radio System. The Washington Metropolitan COG has long operated a regional radio system, the Police Mutual-Aid Radio System (PMARS). PMARS consists of an 800 MHz conventional channel repeated throughout the COG service area. The majority of local, state, and federal law enforcement agencies in the COG service area participate in this system and have control stations at primary dispatch centers. Effective as a notification vehicle, the system is designed for dispatch center to dispatch center communications. According to several interview subjects, PMARS was used extensively during the incident to coordinate the various law enforcement agencies responding.

3.1.3 Commercial Services

Cellular communications failed for the Virginia State Police.

Rick Keevil
First Sergeant, Virginia State Police

Call volume to its networks in New York City and Washington doubled from their usual volumes of 115 million and 35 million calls, respectively, according to Verizon.

USA Today

Public safety organizations, like traditional private entities, rely on commercial services for a variety of administrative and operational purposes. During the height of the Pentagon response, cellular communications in the metropolitan region were ineffective and unresponsive. Verizon Wireless, one of the Nation's largest wireless communications carriers, experienced 50 percent to 100 percent more traffic than normal, nationwide, on its wireless network. The second-largest wireless communications carrier, Cingular Wireless, experienced a 400 percent increase in the number of attempted calls in the DC metropolitan region. Adding to the problem was an overwhelming demand on the Public Switched Telephone Network (PSTN), which serves as the backbone connectivity for the cellular networks. Communications networks are not designed for a usage demand of this magnitude. As a result of the numerous service demands, users, including those in public safety positions, experienced call delays and interrupts, and

system busy tones. However, the communications services volunteered by commercial service providers played a significant role in establishing communications interoperability in the later stages of the incident. Nextel Communications, Cingular Wireless, and Verizon Wireless deployed Cellular on Wheels (COW) to the Pentagon. These emergency preparedness systems, as shown in Figure 2, consist of cellular base stations, emergency power, and a tower or pneumatic mast.

Figure 2
Cellular-On-Wheels (COW) System

- **Cingular Wireless.** Cingular Wireless deployed 2,100 telephones to public safety personnel and 3 COWs to the site. The first COW was installed within the first 2 hours of the crash, and the remaining equipment was operational by midnight. To support the telephone and COW deployment, Cingular Wireless maintained a 24-hour on-site help desk to replace defective equipment, recharge batteries, and provide supplemental training.

- **Verizon.** The local telephone company, Verizon, provided the infrastructure for Cingular users. Through the use of Emergency Response Units (ERU), Verizon supported landline and backbone data requirements for all agencies at the scene.

- **Nextel.** To improve and support the capabilities of their users, Nextel Communications established a mobile cell site at the Pentagon and distributed approximately 1,950 handsets. The mobile cell site was operational the morning of September 13. Many interviewees noted that Nextel's Direct Connect® feature and two-way text messaging services worked, while its cellular service did not during the initial response to the incident. In fact, the Incident Commander used the Direct Connect feature as the primary means for communication with FBI personnel. Direct Connect is a digital two-way radio service between phone users. Neither Direct

Connect nor two-way text messaging services are dependent on the PSTN, which greatly aided the reliability and availability of Nextel services.

- **Verizon Wireless.** Verizon Wireless provided communications capabilities to agencies under the Office of the Secretary of Defense through the provision of 500 cellular telephones and a COW.

- **Commercial Paging Services.** Many public safety agencies use commercial paging services to notify personnel of events and relay administrative information. Several agencies noted that the performance of a commercial paging service was dependent on access to the PSTN or an Internet service provider. Systems demands may have slowed the providers' network performance.

- **Commercial Two-Way Paging.** This service was not used by any of the initial responding agencies to the incident.

3.2 Operational Perspective

Fort Myer Fire Department

The Fort Myer Fire Department, which has a station located at the Pentagon, serves its occupants and the building structure. Two firefighters from the Fort Myer Fire Department were outside the Pentagon working when American Airlines Flight 77 crashed into the side of the building. As the firefighters headed for cover, the subsequent explosion and fireball swept into the open apparatus bay door at the fire station. The force blew out windows and pulled down ceilings and ventilation equipment from the plenum areas. Although both firefighters suffered lacerations, abrasions, and second-degree burns from the blast, each remained focused on the fire. They put on structural firefighting suits and attempted to use the CFR (foam) truck to begin fire suppression efforts. The truck had been badly damaged by burning jet fuel, shrapnel, and debris. However, the radio survived, and the firefighters called for help and began rescuing Pentagon employees, pulling 10–12 people out immediately.

The crash of American Airlines Flight 77 into the Pentagon was witnessed by several ACFD units returning from an assignment near the Pentagon. These units immediately notified the Arlington County ECC of the event and responded directly to the incident. The ECC activated the COG Mutual Aid Plan.

The fireground operations at the Pentagon were under command of the ACFD. Although the Pentagon was technically a FBI crime scene, ACFD maintained command and control of the site until the fire was extinguished and the area was deemed safe to enter without protective clothing. To organize and conduct the extensive fireground operations of the regional mutual-aid response, the Incident Command System (ICS) was instituted.

3.2.1 Mutual-Aid Agreements

The success of the initial response can, in part, be credited to the planning efforts of the region's public safety officials. As a result of the response and communications problems after

the Air Florida crash in 1982, members of the Metropolitan Washington COG developed the COG Mutual Aid Plan. The operational components of the plan include—

- **Criteria and Procedures for Requesting Assistance**—Defines the criteria for an emergency and the level of committed resources necessary to qualify for assistance. Outlines the procedures for requesting assistance in a formal and verifiable manner

- **Use and Deployment of Personnel**—Establishes accountability for issuing and obeying orders. Provides a guideline for limiting liability for out-of-jurisdiction responders

- **Command and Control**—Identifies the roles of first responders and establishes a system for incident management

- **Aerial Resource Command and Control**—Defines roles of aerial units. Establishes a means for coordinating air traffic for search and rescue, and medical evacuation operations

- **Communications**—Establishes interagency communications methods by eliminating the use of signals and codes in favor of plain language. Identifies the means for instituting disaster communications and mutual aid channels

- **Identification of Functional Areas and Key Personnel**—Establishes a uniform method for locating functional aspects (i.e., command posts, staging areas, triage areas, and public information areas), and a method for identifying key staff s (i.e., incident commander, staging officer, triage officer, command physician, and public information officer)

- **Withdrawal of Assistance**—Provides for an orderly means of disbanding an assistance effort with (and without) the agreement of the assisted jurisdiction

- **Special Provisions**—Establishes a means for altering the COG Mutual Aid Plan.

To further build on the COG Mutual Aid Plan and tailor procedures to unique situations, officials from the City of Alexandria and the Counties of Arlington and Fairfax developed and adopted the NOVA Agreement. Based on the COG Mutual Aid Plan, the NOVA Agreement established a common policy for fire and emergency medical responses in these three northern Virginia jurisdictions. A common position was established to provide for the dispatch of the closest emergency resources, regardless of location or jurisdiction. The agreement also specified a common radio frequency for interagency communications and a common means of operating on firegrounds. These two agreements are the direct result of a high level of regional cooperation and coordination.

3.2.2 The Northern Virginia Trunked Mutual Aid Agreement

A majority of agencies in the northern Virginia region use compatible trunking technologies. Capitalizing on this compatibility, regional public safety leaders instituted policies and processes to allow for greater interagency system usage. Communications between these agencies are defined in policies and processes contained in the NVTMA. Table 2 lists the participants in the development of the NVTMA.

Table 2
Northern Virginia Trunked Mutual Aid Participants

JURISDICTION	AGENCIES
Arlington County, VA	EMS, Fire, Police, Sheriff
City of Alexandria, VA	EMS, Fire, Police, Sheriff
City of Fairfax, VA ***	EMS, Fire, Police
City of Falls Church, VA **	Police, Sheriff
City of Manassas, VA	EMS, Fire, Police
City of Manassas Park, VA	Police
Fairfax County, VA	EMS, Fire, Police, Sheriff
Loudoun County, VA	EMS, Fire, Sheriff
Montgomery County, MD*	EMS, Fire, Police
Prince William County, VA	EMS, Fire, Police
Town of Herndon, VA ***	Police
Town of Vienna, VA ***	Police
Washington, District of Columbia*	EMS, Fire
Washington Metropolitan Airports Authority	EMS, Fire, Police

*Invited to participate due to their importance to regional responses
**On Arlington County system
***On Fairfax County system

The agreement developed by these participants is based on the existing COG Mutual Aid Plan and NOVA Agreement. In this agreement, area jurisdictions agree to adhere to numerous procedures including—

- Share access to radio system "keys", which allows cross system operations

- Identify critical talkgroups that will be programmed in all participating agency radios

- Develop a common system of radio identification by using a zone configuration, as shown in Figure 3

- Develop protocols for directing and using out-of-jurisdiction units

- Establish common SOPs for radio operations.

An oversight group composed of agency representatives addresses operational issues and complaints of abuse of privileges. The members of this group generally meet on an ad-hoc basis, and have already met since the Pentagon incident to discuss issues associated with the Pentagon response.
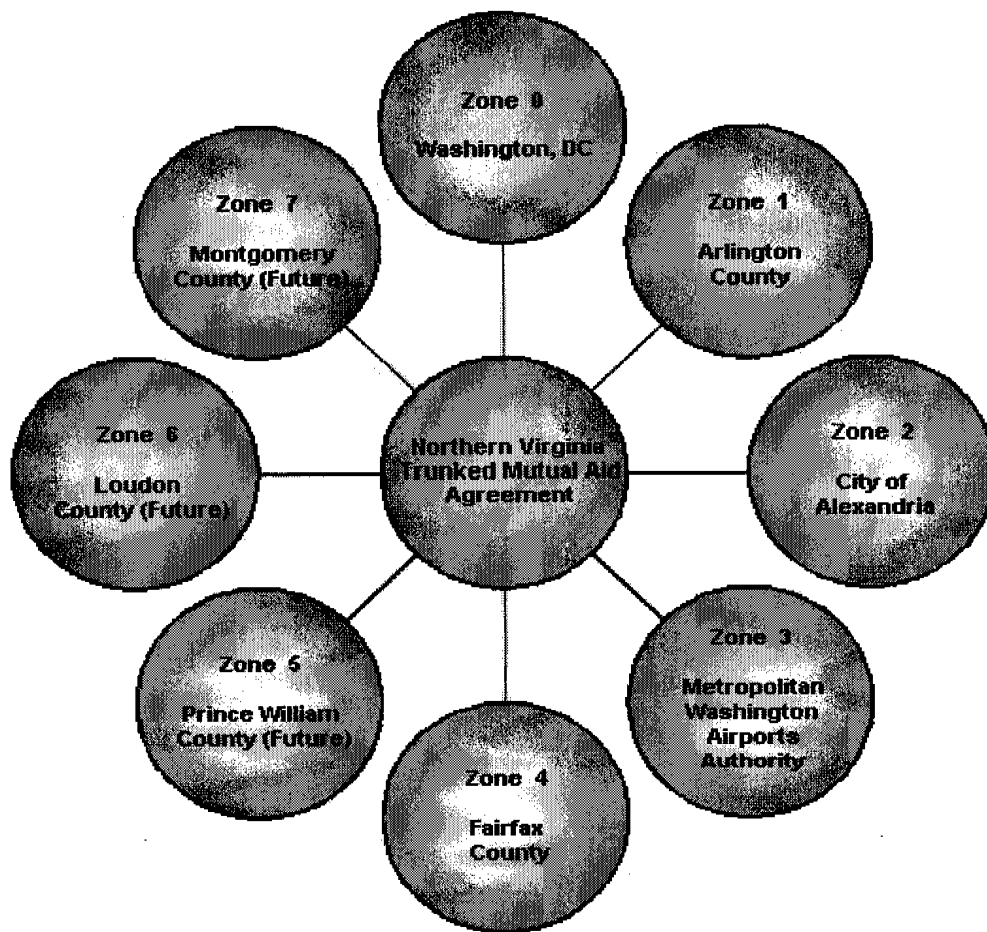
Figure 3
NVTMA Zone Configuration

3.2.3 Incident Command System

As part of the original COG Mutual Aid Plan, regional public safety officials recognized the need for, and adopted a common ICS. Developed in response to the frequent, large-scale wildfires in the western United States during the 1970s and 1980s, ICS is a tool for controlling the response and actions at an incident scene. To manage the information exchange and resource requests, ICS provides a common performance role for all police officers, firefighters, and emergency medical technicians. While ICS is regularly used in day-to-day fire and rescue operations, the law enforcement community at large does not commonly use this system.

At the Pentagon, the Incident Commander, who was the ACFD Assistant Fire Chief, immediately recognized that communications at the Pentagon would not be confined to fire suppression and EMS efforts. Because they had established the ICS as well as communications interoperability, a significant number of the first responders received operational assignments at the time of arrival by radio. However, as more agencies responded, interoperability became more of a challenge as agencies that did not normally work together found themselves working side-by-side. The Incident Commander effectively segmented the local, state, and federal law enforcement as well as the medical response into supporting branches of the incident's overall communications structure through the ICS by establishing a UC System as shown in Figure 4. In the UC System, high-level officials from the lead agency of each discipline at the scene interact at an equal status under the command of the overall incident commander. At the Pentagon, the UC was present at the UC Post at all times to relay information between the groups. Additionally, the UC group met every 4 hours to update information and resolve any issues that had arisen. It was noted in several interviews that responders felt very strongly that stringent adherence to the ICS at the Pentagon was key to successful interoperable communications.
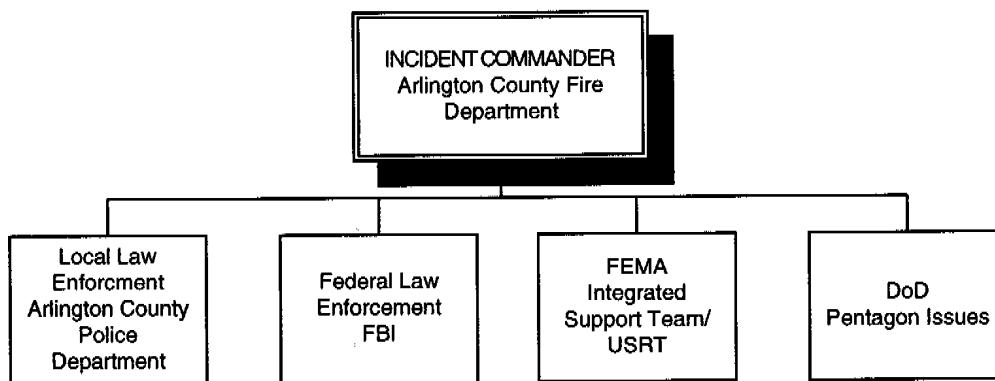
Figure 4
Pentagon Unified Command System

3.2.4 Command Posts

The availability and role of mobile command posts is not specifically addressed in any prior regional planning efforts. In fact, there is no regional inventory of mobile command vehicles and their respective capabilities. Given the scope of this incident—an act of war that drew response from local, state, regional, and federal agencies in the public safety and military sectors—the need for joint command and control was significant. Multiple command posts supported the diverse communications and operational requirements for local, state, federal, and military agencies.

The UC Post was located on the heli-port at the Pentagon and housed three operational centers. The ACFD led the UC System, headquartered within the Fairfax County, Virginia, Police Incident Command Bus. FBI representatives actively supported the UC System by maintaining a liaison in the bus. In addition, at the Pentagon site, the Bureau of Alcohol, Tobacco, and Firearms (ATF), and the Department of Defense (DoD), each maintained separate functioning operations centers as part of the UC System. In addition, the IST, a component of FEMA that supports the USAR teams, also kept an operational post near the UC Post site. The FBI established a JOC at Ft. Myer, less than a mile away from the site. The JOC supported law enforcement and investigative functions as well as other federal agencies. The UC maintained a liaison within the JOC to ensure a quick and efficient flow of information to the UC Post. Routine briefings were held in the various command posts to inform incident leaders of current conditions, developing needs, and potential problems. Leaders supporting the secondary missions attended briefings depending on operational topic. The Virginia State Police stationed its mobile command post assigned to northern Virginia at the nearby state police dispatch center to assist with local law enforcement activities.

4. FINDINGS

Resource identification needs to be in advance...not at the time of the disaster.
Dr. Joseph Barbera
The George Washington University

Based on the data collected and analysis performed, the PSWN Program identified the following significant considerations associated with interoperable communications at the site of the Pentagon attack:

- **Regional Planning and Coordination Effort.** Because of the unique geographical and political environment of the Washington, DC, metropolitan area, its public safety leaders realized many years ago that any response to a major incident in the area would be a regional response. With COG providing a proactive forum for planning and coordination, local jurisdictions instituted plans and procedures for mutual-aid interoperability. In fact, these plans are used on a daily basis by most local agencies, greatly reducing confusion for responding agencies.

- **Training.** Washington, DC, metropolitan area agencies regularly conducts mass casualty and incident drills that bring together the various local agencies to effect a large-scale response. Through these drills, agencies rehearse the necessary operational and communications procedures. Additionally, interoperability training takes form as a daily occurrence for public safety personnel when responding to routine incidents in other jurisdictions and using alternate radio systems to support these operations.

- **Incident Command System.** The early establishment and strict adherence to a formal ICS was a key factor supporting successful communications at the Pentagon attack. The ICS was flexible and scalable, and allowed the Incident Commander to track and oversee all facets of the operations.

- **Commercial Services Usage.** Major incidents, regardless of location, have shown that commercial service networks are not designed to handle the immense volume of calls generated at or near an incident scene. Responders found that the only reliable form of communications were their own, private LMR systems. The Nextel Direct Connect feature was an exception. The Incident Commander used this feature to communicate with responding federal agencies and coordinate shared activities. Again, this method's success was the result of informal agreements between the different agencies, each using Nextel equipment, and sharing Nextel identification numbers.

- **Lack of Interoperability Among State and Federal Responders.** During the initial response, the majority of local public safety responders experienced no difficulty establishing interoperable communications on the scene. This was because of the high-level of regional coordination and agreements previously established. However, as the number of state and federal agencies (secondary responders) increased at the Pentagon site, interoperability presented new challenges. No means of direct interoperability was immediately available to these secondary response agencies.

- **Interoperability Assets Inventory.** An inventory list of interoperability assets (i.e., mobile command vehicles, switches, and extra radios) available in the Washington, DC, metropolitan region does not exist.

- **"Total Interoperability" Requirement.** First responders require seamless communications. However, the level of interoperability necessary to support the operations for secondary, or support responders, has not been documented. The level of interoperability necessary to support effective public safety operations after the first few critical hours is also currently undefined.

5. RECOMMENDATIONS

As a result of the interviews, data collection, analysis, and identification of findings, the PSWN Program developed specific recommendations that could be implemented by public safety agencies at the local, state, or federal level to enhance communications interoperability for routine and major incidents. Other recommendations would require the enactment of specific legislation or the setting of standards by the appropriate organization. These recommendations are based solely on the experiences of the public safety personnel who responded to the terrorist attack at the Pentagon on September 11, 2001.

- **Planning and Coordination at All Levels of Government.** The proactive efforts of the Washington Metropolitan COG, along with the cooperation and vision of the jurisdictions in the geographic area, have produced agreements and procedures that were instrumental in ensuring an adequate level of interoperability at the Pentagon. To facilitate improved interoperability, agreement must be established among state and federal public safety agencies. Through its Washington, DC, LMR Pilot Project, the PSWN Program is working with the public safety leaders of COG to develop SOPs for improved interoperability in the region.

- **Mass Casualty and Disaster Response Drills.** The value of regular training conducted in the Washington, DC, metropolitan region was evident during the response to the Pentagon attack. These drills allow public safety officials to practice and fine tune operational and communications procedures. To identify existing capabilities and potential shortfalls, public safety agencies nationwide should conduct training drills. By conducting drills on a regular basis and practicing interoperability procedures as part of normal operations, responders gain the experience and confidence necessary to act in a disaster situation.

- **Incident Command System.** Adherence to the ICS was critical to successful public safety operations at the Pentagon site. The PSWN Program encourages the use of the ICS in emergency response situations as a means to enhance interoperability efforts.

- **Priority Access to Commercial Services.** Commercial services offer public safety flexible, convenient communications used for both daily and disaster operations. In times of crisis, commercial networks are often overloaded, likely blocking public safety agencies from using this mechanism to communicate. Through the efforts of the National Communications System (NCS), the government is currently evaluating plans to phase in a Priority Access System (PAS) for cellular networks. By deploying PAS, authorized public safety personnel will have priority access to wireless networks during crisis situations.

- **Development of Regional/Statewide Communications Systems.** Compatible radio systems, because of their inherent simplicity and user friendliness, are regarded as the optimal method of interoperability for first responders. During the Pentagon incident, nearly twice the normal number of radios were operating on the Arlington County radio system. The system could accommodate extra units from the neighboring local jurisdictions; however, the addition of a significant number of state or federal users might hamper communications. By promoting the development of large regional and statewide systems, the potential influx of additional units could be addressed in the system design.

- **Interoperability Asset Inventory.** It became evident at the Pentagon that specific assets (i.e., TPSRIU, City of Alexandria ACU-1000, and mobile command vehicles) were available for use, but due to many factors, were not implemented. These factors included ignorance of the assets' existence and applicability to the situation, lack of SOPs for the activation and use of the asset, and political or "turf battles" between agencies. Accurate inventories of these interoperability assets must be undertaken to identify them, their capabilities, and appropriate point-of-contact information. Inventories of local, state, and federal assets should be established and disseminated to the public safety community.

- **Adherence to Common Technology Standards.** Common standards and technologies should be considered integral to the design, procurement, and implementation of future public safety communications systems. The public safety community at large has actively participated in the development of the ANSI/TIA/EIA-102 standard (P25 suite of standards) for digital radio, along with other standards. Public safety officials must recognize the critical importance of participating in the standards development process and then leverage these common standards to maximize opportunities for interoperability. The PSWN Program has long supported active participation in the standards development process as a means to enhancing interoperability.

APPENDIX A—DATA COLLECTION MATERIALS

Pentagon Case Study
Initial Interview Guide

I. Demographic Information

1. Please provide the following personal information

Name	Position/Division	Agency Name & Mailing Address

Phone & Fax Numbers	E-mail & Web Address	May we contact you in the future? (If yes, indicate any restrictions)
(P)		☐ Yes _____ _____
(F)		☐ No

2. What category best describes the agency that you represent, and the level of government your agency represents?

Category	Local	State	Federal	Commercial	Non-Profit	N/A
Armed Forces	☐	☐	☐	☐	☐	☐
Fire Department	☐	☐	☐	☐	☐	☐
Emergency Medical Svc	☐	☐	☐	☐	☐	☐
Law Enforcement	☐	☐	☐	☐	☐	☐
Search and Rescue	☐	☐	☐	☐	☐	☐
Hazardous Materials	☐	☐	☐	☐	☐	☐
Transportation	☐	☐	☐	☐	☐	☐
Public Works	☐	☐	☐	☐	☐	☐
Information Technology	☐	☐	☐	☐	☐	☐
Other:	☐	☐	☐	☐	☐	☐

3. How did your agency become involved in response to the Pentagon attack?

Response Requested		Response Self-initiated	
By Fort Myer Fire Department	☐	Observed attack & reacted	☐
By Pentagon Police	☐	Citizen report to field forces	☐
By Arlington County ECC	☐	Citizen report to station	☐
By Virginia State Police	☐	Anticipated activation of plans	☐
By Virginia EOC	☐	Anticipated special needs	☐
By Armed Forces	☐	Anticipated staff needs	☐
Unknown source, dispatched	☐	Unknown reason, other	☐
Notes:		Notes:	

4. Please list all resources your agency deployed to the Pentagon attack

5. What was your agency's primary operational assignment? (i.e., fire suppression, perimeter security)

6. Were your responding personnel able to establish interoperable communications prior to their arrival?

Yes ☐ No ☐

If yes, what was the method used?

In-person communications	☐
Relayed information through dispatchers	☐
Used pre-programmed Arlington radio channel	☐
Interoperability solution (describe solution)	☐

7. How did your responders receive their operational assignment once they arrived on scene?

In-person communications	☐
Relayed information through dispatchers	☐
Used pre-programmed Arlington radio channel	☐
Interoperability solution (describe solution)	☐

8. If your agency used Arlington County's radio system, were you able to communicate effectively?

Yes ☐ No ☐

If no, why? (i.e., system busy, coverage)

9. Did you use your agency's radio equipment at the incident scene?

Yes ☐ No ☐

If no, why?

If no, what equipment did you use?

10. Did your agency lose or experience diminishing radio system functionality as a result of the response to the attacks?

Yes ☐   No ☐

If yes, what functionality was compromised (i.e., lost talk group)?

_____
_____
_____
_____

11. Did your agency use commercial services (cell phone, PCS, or ESMR) at the incident scene?

Yes ☐   No ☐

If yes, who was the service provider?

Verizon	☐
Cingular	☐
AT&T	☐
Nextel	☐
Other:	☐

12. Does your agency have priority access agreements with your service provider?

Yes ☐   No ☐

13. How would you rate your service provider's performance on the day of the attacks?

Poor	☐
Fair	☐
Good	☐
Very Good	☐
Excellent	☐

14. Did your agency use a paging service to pass information to you at the incident scene?

Yes ☐   No ☐

If yes, how would you rate your service provider's performance on the day of the attacks?

Poor	☐
Fair	☐
Good	☐
Very Good	☐
Excellent	☐

15. Did your agency use mobile data applications to pass information to you at the incident scene?

Yes ☐   No ☐

If yes, was the use of mobile data beneficial?

Yes ☐   No ☐

16. What is your overall rating of interoperable communications at the incident scene?

Poor	☐
Fair	☐
Good	☐
Very Good	☐
Excellent	☐

17. Did your agency adhere to the Incident Command System while at the incident scene?

Yes ☐   No ☐

Home

Past Events

ICDRM

The Second GW/SAIC 2001-2002 Forum will be on Nov. 13th 2001.

GW Institute for Crisis, Disaster, and Risk Management
Second Forum of the 2001-2002 Series:

Tuesday, November 13th 2001, from 4:00 to 6:00 PM.

"Information requirements for managing bio-terrorism: perspectives from recent events."

A Panel Discussion:

Anthony Macintyre, M.D., The George Washington University Department of
Emergency Medicine
Joseph Barbera, M.D., Co-Director, GW Institute for Crisis, Disaster, and
Risk Management and Chairman of the Washington Hospital Association's
Emergency Preparedness Committee
John Harrald, Ph.D., Director, GW Institute for Crisis, Disaster, and
Risk Management

Dr. Anthony MacIntyre will discuss the information requirements of
hospitals and acute care practitioners, and Dr. Joseph Barbera will
discuss the lessons learned in coordinating and managing information in
the emergency management, public health, and acute medical care
communities during the current Anthrax attack. Dr. John Harrald will
discuss the role of accurate, consistent information in enabling the
public to react to the attacks. The panelists will provide brief
presentations but will encourage the audience to engage in a dialogue on
these critical issues.

Refreshments and socializing start at 4:00 PM; and the speakers will begin
at 4:30 PM.

*LOCATION:
The Jack Morton Auditorium, GW Media and Public Affairs Building, First
Floor 805 21st St. (Next to Tower Records, across the street from the GW
Marvin Center)

Biography:
Anthony Macintyre, MD is a Board Certified Emergency Physician and
Assistant Professor with The Department of Emergency Medicine at The
George Washington University. His academic career has focused on medical
emergency preparedness at various levels. In particular, he has assisted
in developing a mass decontamination capability for The George Washington
University Hospital (key concepts recently published in JAMA) and has
served as a medical advisor and coordinator for the federally sponsored

Bio-terrorism exercise, TOPOFF 2000 held in Denver, Colorado last year.
Dr. Macintyre has served as the medical director for Fairfax County's
Urban Search and Rescue team since 1995. His work with the team has
involved deployments to the bombing of the Murrah building in Oklahoma
City (1995), the bombing of the US Embassy in Nairobi (1998), the recent
Pentagon incident, and to several international earthquakes.

CONTACT: Ms Irmak Renda Tanali at rendatan@seas.gwu.edu or (202)
994-7528 if you have any questions.

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TESTIMONY OF

KENNETH BURRIS, ACTING ADMINISTRATOR

UNITED STATES FIRE ADMINISTRATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

BEFORE THE

SUBCOMMITTEE ON SCIENCE, TECHNOLOGY AND SPACE

OF THE

SENATE COMMITEEE ON COMMERCE, SCIENCE AND
TRANSPORTATION

October 11, 2001

Good afternoon, Mr. Chairman and Members of the Committee. My name is Ken Burris, and I am the Chief Operating Officer, and currently Acting Administrator, of the U.S. Fire Administration (USFA). I appreciate the opportunity to appear before you today on behalf of the Director of the Federal Emergency Management Agency (FEMA), Joe Allbaugh. We are gathered here today to discuss how to improve the preparedness and effectiveness and safety of our first responders. And also to explore how we can work together for the good of the fire service and the public they serve.

But before I begin, I want to commend to the efforts of those firefighters who responded to this tragedy. While it is right that we pay tribute to those who were lost, there is no doubt that the toll would have been much higher were it not for the heroic efforts of our firefighters. Thousands of lives were lost but thousands of others, indeed tens of thousands, were saved through preparedness, and quick response by these firefighters.

The events of September 11th have shown our Nation the importance of its fire services. A service that was once taken for granted is now being viewed as an essential component of the public safety equation. The fire departments of the City of New York, the City of Arlington, VA and Shanksville, PA has proven that our first responders will be called to respond across urban, suburban and rural communities of our country. Fire departments of every type: career, volunteer and combination across our nation must be vigilant to heed the call to service at a moments notice.

This is a familiar state of readiness for the fire service. The same state of readiness that is required to respond to a community's normal threat risk, with the difference being the magnitude of the event and the subsequent operational requirements. My experience in New York paralleled my experiences in other operational conditions that overwhelm a local jurisdictions ability to respond.

I have read the after action reports on previous larger scale emergency operations; hurricanes, earthquakes, floods, fires. The very challenges that were faced in the response to the events of September 11th are the same challenges the fire service and emergency management community face in response to all hazards.

The fire services suffered a terrible blow that day and we all mourn for those lost. We also saw the best of the fire services that day and in the weeks that have followed. Perhaps for the first time, the nation has witnessed live and on television an example of heroism that is practiced by the fire services of this nation in countless smaller incidents every day.

Last year I participated in a hearing with Noreen Lucey, the sister on one of our fallen heroes from the tragic Worcester, Massachusetts fire. She talked a bit about the selfless response of the six firefighter who gave their life to that blaze and summed up their reasons for doing so.

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She said quite simply: "That's just what they do."

I also want to thank the committee for your concern, your support and your understanding of the need to recognize the fire services contribution to public safety and their future needs. At the United States Fire Administration, we have been working to develop and deliver training and educational programs to the fire services on terrorism awareness and response. Many fire departments across the nation are asking themselves, "are we prepared for this" or "how on earth are we ever going to handle something like this". Both of these are good questions, but many other departments are saying just the opposite; they think, "it will never happen here". Make no mistake that the message every fire department in America should have gotten is that we are all vulnerable to the effects of another terrorist attack.

TRAINING

The United States Fire Administration's National Fire Academy has terrorism programs that range from self-study courses you can take in your home as well as university programs for government leaders.

A very popular introductory course is available both in paper format and as a file downloadable from the USFA Web Site. *Emergency Response to Terrorism: Self-Study (ERT:SS) (Q534)* is a self-paced, paper-based document and is designed to provide the basic awareness training to prepare first responders to respond to incidents of terrorism safely and effectively. Students who successfully complete the exam will be eligible for a FEMA/BJA certificate of training. The course is designed for fire, emergency medical, HAZMAT, incident command and law enforcement responders. The *ERT:SS* course may be downloaded in portable document format (PDF). You may also request a copy of the ERT:SS through the USFA Publications Center at (800) 238-3358, ext. 1189 or order it online.

Thousands of emergency responders across the country have taken *Emergency Response to Terrorism: Basic Concepts,* a two-day course designed to prepare them to take the appropriate course of action at the scene of a potential terrorist incident. The course provides students with a general understanding and recognition of terrorism, defensive considerations (biological, nuclear, incendiary, chemical, and explosive), as well as command and control issues associated with criminal incidents. When an incident occurs, the student will be able to recognize and implement self-protective measures, secure the scene, complete appropriate notifications to local, State, and Federal authorities, and assist in completing a smooth transition from emergency to recovery and termination operations.

The primary target audience for this training includes hazardous materials, fire, and emergency medical services first responder personnel. The secondary audience includes law enforcement personnel, emergency communications personnel, jurisdiction emergency coordinators, public works managers, and public health providers. The USFA provides grants to State fire service training systems so this training can be available to you locally, at little or no cost. Often, in small communities, fire, EMS and law enforcement responders sit in the same class and can

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become familiar with each other's responsibilities and procedures.

Emergency Response to Terrorism: Tactical Considerations – Company Officer (ERT:TC-CO), is a two-day course designed to build upon the existing skills of the initial first-responding supervisor from the *Emergency Response to Terrorism: Basic Concepts* course or *Emergency Response to Terrorism: Self-Study* guide. The students will be trained in security considerations, identifying signs of terrorism, anticipating unusual response circumstances, assessing information, and initiating self-protection actions.

Anyone who could serve as the first on-the-scene officer in a hazardous material or emergency medical services incident would benefit from this course. You must have a working knowledge of the Incident Command System (ICS). Students will not be taught ICS but will be expected to use ICS during class activities.

Emergency Response to Terrorism: Tactical Consideration – Emergency Medical Service (ERT:TC-EMS) is a two-day course is designed for the first on-the-scene responding EMS personnel with the responsibility to render patient care to victims of terrorist incidents. The students will be trained in security considerations, identifying signs of terrorism, anticipating unusual response circumstances, assessing information, and initiating self-protection actions. The students also will apply their knowledge about responding to a terrorist event, providing patient care, identifying and preserving evidence, managing site safety, documenting the event, and debriefing personnel.

The target audience for *ERT:TC-EMS* is first on-the-scene emergency medical services personnel, who could be career and/or volunteer firefighters, EMS, industrial contractors, allied health personnel, and members of the military or other Government agencies. Note: The medical protocols for rendering patient care are at the Advanced Life Support (ALS) level.

Another two-day course is designed for the first on-the-scene responding hazardous materials technician or persons who have the responsibility of developing initial hazardous materials tactical considerations. In *Emergency Response to Terrorism: Tactical Considerations – Hazardous Materials (ERT:TC-HM)* the students will be trained in security considerations, identifying signs of terrorism, anticipating unusual response circumstances, assessing information, and initiating self-protection actions. The students also will apply their knowledge about responding to a terrorist event, managing site safety, documenting the event, and debriefing personnel.

ERT:TC-HM is targeted at first on-the-scene hazardous materials technician-level personnel, who could be career and/or volunteer firefighters, EMS, industrial contractors, allied health personnel, and members of the military or other Government agencies with hazardous materials responsibility.

It is important to remember that all of the above courses are two days in length and are part of

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the National Fire Academy's Direct Delivery Program. That means that they can be delivered in or near any community. Moreover, they can be funded either through the Terrorism Training Grants or State Fire Training Grants, so the cost to departments should be minimal.

Another "plus" in this training is that the ERT series of courses have been evaluated by the American Council on Education and have been recommended for one semester hour credit each in AAS - Fire Science or EMS Technologies. If you are enrolled in a degree program, your institution may allow you credit for these courses. The entire National Fire Academy course catalog is available on line and can be found at www.usfa.fema.gov/nfa.

These courses address what we are doing now. Where we need to go in the future is the question. As we see it, all levels of government and the fire services community have several issues to address, both internally and externally. First let me address some of these needs and trends.

COORDINATION AT THE FEDERAL LEVEL

The FEMA mission is to reduce the loss of life and property and protect our nation's critical infrastructure from all types of hazards. As staffing goes, we are a small agency. Our success depends on our ability to organize and lead a community of local, State, and Federal agencies and volunteer organizations. We know who to bring to the table and what questions to ask when it comes to the business of managing emergencies. We provide an operation framework and a funding source.

The Federal Response Plan (FRP) is the heart of that framework. It reflects the labors of interagency groups that meet as required in Washington, D.C. and all 10 FEMA Regions to develop our capabilities to respond as a team. This team is made up of 2 Federal departments and Agencies and the American Red Cross, and organized into interagency functions based on the authorities and expertise of the members and the needs of our counterparts at the state and local level.

While USFA has seen the effectiveness among and within the Federal family, we must acknowledge that the fire services at the local level have had limited training to respond to terrorist incidents. The primary focus of the federal effort to date in delivering this training needs to be better coordinated. USFA, working with the FEMA Office of National Preparedness, should include senior fire services leadership in the coordination of fire and emergency services response planning effort to these catastrophic events.

The fire departments across the nation need to be an integral part of the planning, training and policy development for terrorism preparedness. While there is a general acknowledgement that the law enforcement community has a significant deterrence and investigatory role, it is also true that the fire services are the first on the scene, and therefore the first at risk. Any future considerations on training and funding for equipment must take this into account.

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ASSISTANCE TO FIREFIGHTERS GRANT PROGRAM

Since the attacks, the Senate has passed the Defense Authorization bill with a three-year authorization of $600 million, $800 million and $1 billion over the three years and the bill is currently in the conference committee. It is important that if this program were taken to it full authorized amount and continue, USFA will need authorization for salaries and expenses to administer and staff the program effectively. It is also important that the agency be given the authority to develop the program with greater flexibility.

As FEMA Director Allbaugh has stated, "firefighters are the first in line for budget cuts and the last in line for recognition. This must stop." This program should not however replace the primary responsibility for funding and support, which lies with the local and state governments. Federal assistance should be supplemental and should be directed to the areas and programs in greatest need.

State and local support of the fire services must be increased and the federal role should be to foster that participation. Incentives to local governments need to be developed and enacted.

STRONGER PARTNERSHIPS WITH EMERGENCY MANAGEMENT

It is increasingly clear that the cooperation between the emergency management community and the fire services needs to be strengthened and encouraged. While at the local level emergency managers are at many times the local fire chief, at higher levels there is a disconnect. Improved cooperation should include joint training development and delivery, cooperative agreements and the development of a statewide and perhaps nationwide mutual aid system. Resources directed for terrorism preparation should have a strong fire services component.

Quality, robust and consistent communications capabilities should be developed and implemented for the fire services. As a nation we need to strive to provide the communications infrastructure necessary for multiple agency communications. Currently there is no secure means to provide first responders with important, un-compromised information. Obviously, this void could severely hamper effective fire service operations in a terrorist environment.

Another communications need involves incident management and coordination. We have to communicate with all response and supporting agencies at every level of the Federal Response Plan, which is the framework for the federal support that they will need in terrorist events. It is important that all local fire and public safety agencies and their staffs are aware of the plan and how it meshes with their state, county and local planning. There should also be training and exercises to ensure understanding and ability to work within this structure.

We cannot manage incidents with entities that have unique or different incident command or incident management systems (ICS/IMS) or with those entities not operationally conversant with the standard incident management system. We need to work toward an institutionalized operating, common ICS/IMS throughout the country.

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Incident management must address coordination issues with the Federal Response Plan. Self-deployment of agencies and assets outside the plan and the IMS request creates difficulty in coordination and strains the time and attention of legitimate responders. Standardized state and regional mutual/automatic aid plans would be helpful. Also, attention and training must include focus on the problems with maintenance of long-term "campaign" emergency operations that will go on for extended periods of time.

We need to address the area of scene security and safety. The WTC incident clearly demonstrated the need to explore a national credentialing system for first responders. Such a system could provide identification of the responder, the responder's qualifications, and any operations limitations and expiration dates. State and local agencies and educational/training institutions should serve as the certifying authorities for qualifications. The certification "card" could then serve as a passport for admission to secured work sites. This should cut down on the "free lancing" we saw on scene in New York and result in improved security.

We need to consider additional training in vehicle/logistics/staging security, personnel security, scene security, control and accountability of teams and resources as well as issues of deployment, sustainability, and recall.

USFA and the States provide appropriate and adequate first responder training but we need to train more students. Training efforts should do more to "push" materials and skills towards the end user. This will necessitate the use of additional and non-traditional methods including technology oriented deliveries and more partnering with state and other training authorities.

We also need to consider delivering more leadership and strategic skills classes and deliver more training in integrated/area IMS operations. The issue of holistic community participation and benefit requires broad-spectrum participation among the attendees' communities.

We also need to look toward research and development to provide community assistance to match threat level with resources available or obtainable in terms of protective gear. It is important to be able to quickly assess the threat environment that the fire services faces at an incident and be able to quickly provide the appropriate protection to them.

Building construction practices and code development must take a new look at the concept of "trade-offs" in buildings and evaluate the value of redundancies in building design and construction. It is important that we guard against "under designing" buildings with automatic fire suppression sprinkler systems by allowing "trade-offs" in other areas to include egress systems or fire rated construction.

We also need to provide a tool for the collection of asset/resource data to provide the region with accurate and timely data regarding resources available for deployment in the event of an

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emergency. USFA is undertaking just such an effort with the first ever Fire Department Census. This will enable us, for the first time, to be able to quantify the amount of emergency equipment, apparatus and personnel that exist in the nation.

Working closely with FEMA and the Forest Service, USFA should explore the development of an enhanced National Overhead IMS response team as part of the Emergency Support Function 4 for the urban environment.

It will also be important for USFA to develop and promulgate courses/training dealing with large incident response "etiquette." Included in that training should be the issues of jurisdiction, self-dispatch, scene control, and inter-agency and inter-discipline relations.

USFA should also develop and increase the promulgation of Incident Management Systems through on-site courses, literature, multiple media off-site, and other means. While much effort has been made, more work is necessary. We will also be looking closely at the Executive Fire Officer curriculum to include attention to the issues particular to the loss of major portions of a fire departments senior command structure as well as issues specific to terrorism and weapons of mass destruction.

Another WTC example is the threat of "secondary devices" which relates to scene security and safety. The second aircraft was unimaginable, yet it was also a secondary device on a greater scale. Part of the ongoing development of IMS training should include "ascension or succession" planning to deal with the possibility of loss of senior staff /command structure immediately prior to or during a disaster event.

As we all learn lessons from the tragedies in New York, Virginia and Pennsylvania, lets not lose sight of the fact that as the community's first response organization, the fire service needs to work closely with police and other local officials. We need to determine what areas of our cities and towns could be targets, but we also need to plan for the unexpected event that goes beyond our ability to respond with just one community's resources. This type of planning and cooperation is critical to responding to and recovering from terrorist events.

As September 11 has demonstrated, the fire services are the first line of homeland defense and we owe it to the people we serve to be as prepared as possible.

On behalf of the entire staff of the United State Fire Administration and the fire services community and all of the leadership and staff at FEMA, I want to again thank the Committee for the opportunity to testify today. I will be happy to address any questions you might have.

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News Release . . .

U.S. Senator Ron Wyden

Hearing of the Senate Commerce Subcommittee on Science, Technology and Space
"Needs of Fire Services in Responding to Terrorism"
Remarks of U.S. Senator Ron Wyden, Chair

"The Subcommittee on Science, Technology and Space is acutely aware that information technology and scientific information are critical to combating terrorism.

"The subcommittee has already begun efforts to improve scientific research into fighting terror, targeting key fields, such as aviation technology, that have been suggested by Senator Allen. This subcommittee will hold hearings shortly to consider the creation of NET Guard -- a technology equivalent of the National Guard that I proposed after the September 11 attacks, to enable volunteer specialists from the nation's leading technology companies to quickly recreate and repair compromised communications and technology infrastructures.

"In each of these areas, this Subcommittee will work closely with the Bush Administration and in a thoroughly bipartisan way.

"However, I am of the view that no matter how good your technology and your science are, it always comes down to people. That is why our hearing today is so important.

"Our country has more than a million firefighters, and the Federal government must be a better partner in working to ensure that these dedicated, courageous Americans have the tools they need to do their jobs. Today the Science, Technology and Space Subcommittee, having jurisdiction over the United States Fire Administration, will hear first-hand from firefighters about what is needed to afford them the human and the technological resources to confront future events effectively and safely as possible.

"On September 11th, the firefighters of New York and Arlington, Virginia were the first responders to a disaster of unimaginable proportions. They more than met the task that faced them, despite immediate infrastructure challenges. In New York, the collapse of the World Trade Centers destroyed $47 million in equipment in just seconds, from pumper trucks to satellite units. At the Pentagon, I understand that responders faced daunting communication problems between responders across varying radio frequencies. And again in New York, firefighters were stricken with mass casualties among their own -- a huge loss of personnel.

"Now, as we hear that further acts of terrorism are possible and even likely, we also hear the call from our first responders for our support and our help. We will hear today that two-thirds of all fire departments nationwide operate with inadequate staffing. That 75 percent of our nation's firefighters are volunteers. That most fire departments can't afford the technologies that could make their work safer and more effective.

"And as we hear today's testimony, we must listen for opportunities to act -- to guarantee that as America asks these public servants to put themselves in harm's way for our protection, all that can be done *is* done to ensure their success and safety. There are three opportunities I'd like to note briefly.

"First, while the Federal government has aided local police departments, spending more than $11 Billion annually, Congress offers just $100 Million in direct aid to local fire departments through the Firefighter Investment and Response Enhancement Act, or FIRE Act.

"To illustrate very clearly the limits of that Federal grant money, let me share some startling numbers. With $100 Million available, last year fire companies across this nation applied for $3 Billion in assistance.

"The testimony I have read makes it clear that additional resources are needed and needed now. There is neither the time, nor a need, to wait for a tortuous legislative process to begin equipping fire companies now.

"Congress has already appropriated $40 billion in emergency supplemental funding to respond to the events of September 11. Today, I am sending a letter to the Office of Management and Budget requesting that $600 million of that money be allocated immediately for additional FIRE grants. I want to see this funding help local departments on two fronts: giving them both the training and the equipment they need.

"Secondly, this Subcommittee wants to make sure that the Federal resources that are available are appropriate and wisely used. To that end, we are looking at the coordination among training programs. Currently, Weapons of Mass Destruction response training is offered by the Department of Justice and by the Federal Emergency Management Agency.

"The General Accounting Office has repeatedly criticized the lack of coordination and communication between these programs. It's my understanding that, despite improvements, these programs still can be confusing and duplicative. Here is my bottom line: I want to either consolidate these programs or clearly differentiate them so that doubled-up efforts do not waste the time of our first responders or the resources of our government.

"We will hear pleas today for a single point of government contact and training for first responders, instead multiple contacts at DOJ and FEMA. I hope that Governor Tom Ridge's Office of Homeland Security can take a look at this idea and eliminate some of the current confusion and duplication, and commit this Subcommittee's efforts to help that come about.

"Third, and finally, I intend to ask today how information technology specialists, through a NET Guard or similar approach, could back up our firefighters as they respond to emergencies. There may be ways that our nation's best and brightest technology professionals could assist with communication and monitoring systems to help keep firefighters on top of a developing situation, hearing from each other and from experts independently assessing situations such as compromised buildings and threats posed at disaster sites.

"But the main point of the hearing today is to get to hear from those who were on the scene on September 11 and those who represent the fire fighters across this nation. The best way to honor the brave fire fighters who fell doing their job in New York is to support their colleagues still in service."

# # #

New York City Fire Department Response to Terrorism Testimony to the U.S. Senate Committee on Commerce, Science and Transportation

Good Afternoon,

My name is Robert Ingram. I am a Battalion Chief in the New York City Fire Department and Executive Officer of Hazardous Material Operations. I was recently asked to chair a National Fire Protection Association Sub-Committee on Terrorism. I appreciate the opportunity to speak to you today on the needs of the fire service in its efforts to respond to terrorism.

Sadly, the discussion on this topic has moved from the theoretical to the practical. Before September 11th, we never conceived of the possibility of such a horrific act or such a tragic consequence. The New York City Fire Department is now faced with not only a tragic personal toll (the devastating loss of 343 members) and the trauma for our families (more than 1000 children left fatherless) but also the loss of a knowledgeable, experienced group of leaders.

We lost some of our most experienced Chiefs as well as some of our most seasoned firefighters in this event. More than 90 members of our Special Operations Command, including our elite rescue and haz mat units were lost. Chief Ray Downey, the premiere collapse expert in the country was taken. My dear friend and colleague, Chief Jack Fanning, a noted expert who has testified on the very issue we are discussing today is among the missing.

We will have to rebuild the department and will have to make adjustments both in the short and long term to replicate their expertise. We have pledged to do so with our fallen comrades in mind. We owe it to them to do it in a way that preserves the legacy of professionalism and dedication they established. It is a debt we gladly pay.

The attack that occurred on September 11ᵗʰ is almost impossible to understand. The response is not. Hundreds of firefighters, police officers, and emergency medical professionals rushed to the World Trade Center with one thing in mind…to save lives. These were men and women who dedicated themselves to the service of others and wound up paying the ultimate price. They were the best trained, best equipped and most competent response force ever dispatched and before the day was over they effected the most successful rescue in history, safely evacuating more than 25,000 people from the World Trade complex prior to the collapse of the towers.

In the wake the World Trade Center attack, the FDNY will continue to expand training efforts and the use of new strategies and technologies to not only help us recover from the tragic events of that day but to further protect firefighters, EMS personnel and citizens.

I am thankful for the opportunity to appear before you today to ask for any assistance you can give us in reaching these goals. The FDNY has both short-term and long-term needs we are working to address.

One immediate need is to train a new group of firefighters to operate engines, ladder trucks and other emergency vehicles. Nearly 150 of these trained drivers were lost on September 11ᵗʰ.

While we are more than adequately fulfilling our day-to-day responsibilities, we must expedite the training of replacement drivers to bolster our ranks. To do so, the Department is seeking to purchase specially designed driving simulators that recreate the experience of operating these powerful and complicated vehicles.

A second short-term priority is to enhance our response to terrorism with additional training for firefighters in the handling of hazardous materials and other emergency procedures. Municipal fire

departments can find the instructors to teach these skills but often struggle to find the funds to enroll fire fighters and officers in such programs or to replace them so their daily duties can be covered while they are away from the job.

A related and equally important initiative is to provide protective clothing, respirators and equipment used to detect hazardous materials not only to our specially trained HAZMAT teams -- as we do now -- but also to other emergency units who are likely to arrive at the scene first.

A somewhat longer-term yet no less important project for the FDNY and other emergency services is employing technology to improve the safety of their members and the public.

We must continue to explore technological solutions that maximize our ability to protect our members regardless of the situations they face. Much like our successful experience broadening the use of thermal imaging cameras, we should explore communications solutions that are applicable in a variety of settings. Building in additional redundancy, diverse routing and flexibility within our communications and IT solutions is just one example.

We need to look at every phase of our operation and be ready to take advantage of new technology whether it's in the training, fire suppression, rescue or recovery phase of our operations. Examples run the gamut from the use of satellite phones for communications to vehicle or personal tracking systems to monitor the movements of equipment and personnel.

Finally, we'd urge stepped up efforts to monitor and analyze the nature of emergency medical calls on a regional basis. The FDNY and New York City Department of Health work closely to track the types of calls our EMTs and Paramedics respond to in hopes of spotting health trends. With better coordination of these efforts

between towns and cities in the same region, we might strengthen our national early warning system to spot potential health emergencies.

In addition to the issues I have brought to you today, implore you to revisit the testimony that Chief Fanning gave in May on behalf of the FDNY and the International Association of Fire Chiefs that also addresses first responder needs. I would be happy to make this testimony available to you

In closing, I am reminded of the words of our Chief of Department Peter Ganci who lost his life commanding the incident at the Trade Center. At a memorial service two years ago Chief Ganci said, "In our Department, at all ranks we contribute and at all ranks we're vulnerable."

Both our contributions and vulnerabilities were on display on September 11th.

We lost members from every rank, but at the same time witnessed heroism and courage that knew no bounds. As the nature of our world changes, we must insure that the latest training, equipment and other resources are available for any eventuality.

Thank you for your time.
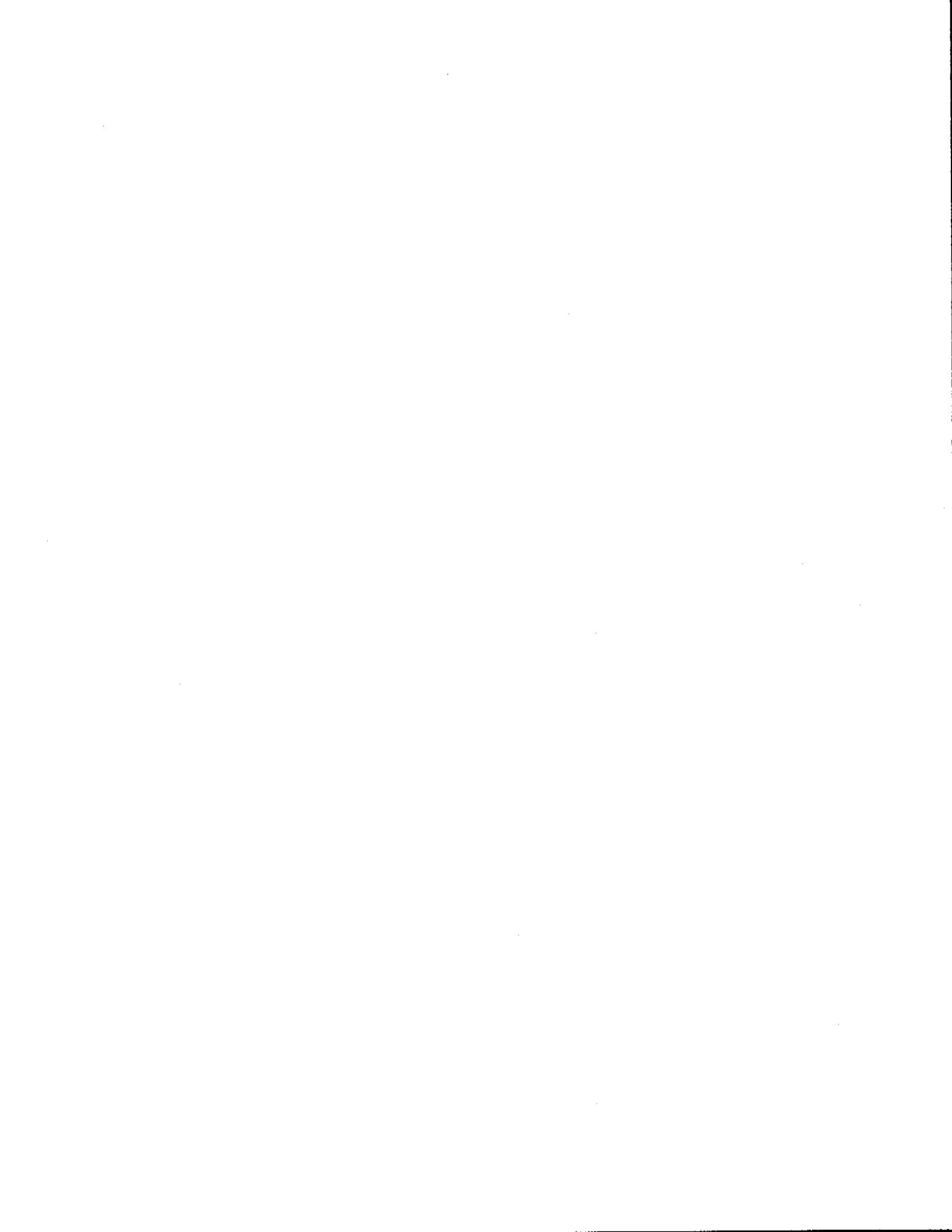
APPENDIX B—MUTUAL-AID AGREEMENTS

NORTHERN VIRGINIA
EMERGENCY SERVICES MUTUAL RESPONSE

MEMORANDUM OF AGREEMENT

I. Purpose:
This Memorandum of Agreement, hereafter known as the NOVA Agreement, is intended to update and reaffirm the provisions of the original emergency services Memorandum of Understanding, which was agreed to and signed by the parties on December 12, 1975.

II. Background:
For more than 20 years, the Fire and Rescue Departments of the Northern Virginia region have displayed an unprecedented level of cooperation in providing emergency services to the citizens of our collective Northern Virginia community. The provisions of the original Memorandum of Understanding created a framework that has allowed our citizens to enjoy the benefits of a regional approach to the delivery of emergency services, using response procedures that are unencumbered by the boundaries of our respective political subdivisions. This system of automatic mutual response has proven to be invaluable, and this update is intended to perpetuate and strengthen this method of emergency service delivery within the region.

III. Parties To This Agreement:
This NOVA Agreement is made for the purpose of continuing the mutual exchange of emergency services between the Fire, Rescue, and Emergency Medical Service agencies of the following Northern Virginia jurisdictions:
Arlington County, Virginia (Includes City of Falls Church)
City of Alexandria, Virginia
City of Fairfax, Virginia
Fairfax County, Virginia (Includes Towns of Clifton, Herndon, and Vienna)
United States Army Base – Fort Belvoir
The Chief of Fire & Rescue of each jurisdiction shall serve as the signatories to this agreement.

IV. Authority
This agreement is made in accordance with the provisions of Title 27, Chapter 1, Section 27-1, 27-2, 27-3 and 27-4 of the 1950 Code of Virginia, as amended and 42 USC, Section 1856a.

V. Proviso:
The parties of this NOVA Agreement concur with the following provisions specific to the exchange of mutual response emergency services:

A. For the purpose of this agreement, the Northern Virginia region shall be comprised of the entire geographic land area within the political subdivisions of Arlington County, City of Alexandria, City of Fairfax, City of Falls Church, Fairfax County and the Fort Belvoir military base.

B. Emergency Services shall mean Fire Suppression, Emergency Medical, Hazardous Material, Technical Rescue, and / or other disaster related types of emergency services. Other services not specifically named in this section may also be exchanged if mutually agreed upon by the parties to this agreement.

C. Each party agrees to participate in a mutual response system that, when needed, will automatically dispatch the most appropriate response resource(s) available, to an incident location, without regard to jurisdictional boundary lines.

D. Each party to this agreement shall retain primary responsibility for determining the most appropriate response resources to be utilized within its jurisdiction. For service in geographic areas where mutual response is desirable, the responsible jurisdiction shall confer with the other jurisdiction(s) affected prior to implementing mutual response programming.

E. Each party's Public Safety Communication Center shall maintain direct links to the other communication centers within the Northern Virginia region. These communication centers shall serve as the primary source for mutual response requests. Requests for mutual response may be made by telephone, radio, or via computer network. Each Communication Center shall also maintain records and reports of mutual response incidents, using their established procedures. Records, reports, and information concerning mutual response incidents shall be provided to the parties to this agreement, when requested through the appropriate method.

F. All tactical units and personnel responding to a mutual response incident shall operate in accordance with the Incident Command System. Incidents will be under the command of the first arriving officer on scene, regardless of jurisdiction, until command is assumed by an officer of appropriate rank from the jurisdiction in which the incident is located.

G. Each party shall participate in the development of operational guidelines to be used during mutual response incidents. These guidelines shall cover such areas as: dispatch procedures, communications, apparatus response, tactical operations, medical control, EMS protocols, incident command, and incident reporting. These operational guidelines shall be reviewed by the NOVA Operations Chiefs at least annually and updated as necessary.

VI. *Cost for Services*

In general, a party to this agreement shall not be indebted to another party for the cost of any usual and customary emergency services rendered by that other party in accordance with the terms and conditions of this agreement. However, in the event of

a specific incident where the responsible jurisdiction may be able to recover costs of mitigating a specific incident, the costs incurred by an assisting jurisdiction may be reimbursed to that jurisdiction if said costs are recovered from the party legally responsible for causing the incident.

VII. *Indemnity*

A. All services performed and expenditures made under this agreement shall be deemed for public and governmental purposes and all immunities from liability enjoyed by federal, state and local governments, within its boundaries, shall extend to its participation in rendering emergency services, in accordance with this agreement, outside of its boundaries.

B. Each party to this agreement shall waive any and all claims against all the other parties hereto, which may arise out of their activities outside their respective jurisdictions while rendering assistance under this agreement.

C. In providing for the exchange of Emergency Medical Services, each party agrees to acknowledge and accept the use of the pre-hospital medical protocols, procedures, and standards of care regularly employed by another parties EMS agency for use by said agency when providing patient care during a mutual response incident.

D. This NOVA Agreement is intended to work in concert with any other existing agreement(s) between parties, which address issues relating to cooperation of emergency service agencies. Should the terms of this agreement conflict with similar provisions of another existing agreement between any of the parties, said parties agree to meet and confer to resolve the conflict between the agreements in question.

VIII. *Modification and Termination of Agreement*

A. This agreement may be modified at any time the parties deem it necessary. Suggested modifications to this agreement shall be developed in writing and distributed to each party for their review and comment. A modification to this agreement is approved or rejected by mutual consensus of the NOVA Fire Chiefs.

B. Any party may terminate their participation in this agreement by submitting written notice of their withdrawal to the other parties. A termination notice shall be provided at least 90 days in advance of the effective date of such termination to provide time for any adjustments in response procedures that may be necessary.

IX. *Date of Effectiveness*

The terms and conditions of this agreement shall become effective on the date that the representatives of each jurisdiction sign this agreement. The provisions of this agreement shall remain in full force and effect until such time that this agreement is modified or terminated by the parties.

METROPOLITAN WASHINGTON AREA
FIRE MUTUAL AID RADIO SYSTEM (FMARS)
MANUAL

Protocol Procedures for:
Standard Operations
Disaster Operations
Testing Operations

Approved: November 1982

Revised: December 1990

TABLE OF CONTENTS

METROPOLITAN WASHINGTON AREA
FIRE MUTUAL AID RADIO SYSTEM
(FMARS)

FOREWORD

This document establishes protocol procedures for standard operations, disaster operations and standard testing for the Fire Mutual Aid Radio System (FMARS) of the metropolitan Washington area.

FMARS is a regional coordination system for the use of fire mutual aid radio frequency _ _ _5 MHz (FMARS 1), the calling channel, and_____) MHz (FMARS 2), the tactical operations channel, in the metropolitan Washington area and is designed to give area fire/rescue services the capability of communications with one or more other fire/rescue services in the region. FMARS participants include the fire/rescue services of Alexandria, Arlington County, Fairfax County, Loudoun County, and Prince William County in the Commonwealth of Virginia; the District of Columbia; Montgomery County and Prince George's County in the State of Maryland; Washington National Airport in Arlington County, Virginia; Washington Dulles International Airport and Fort Belvoir Army Base in Fairfax County, Virginia.

The metropolitan Washington area FMARS is controlled by the Fire Chiefs' Committee of the Metropolitan Washington Council of Governments and operationally maintained by the Fire Communications Officers' Subcommittee. System equipment is licensed, maintained, funded and operated by participating agencies.

I. PURPOSE AND OBJECTIVE

All communications, regardless of their nature, shall be restricted to the minimum practical transmission time.

The purpose of a public safety communication system is to handle dispatches, messages and information pertaining to the business of the licensee between jurisdictions and units, and to other other fire/rescue services within an area, as accurately and rapidly as possible.

All participants are to understand that this is the reason for the existence of Public Safety Communications Centers and that this aim can be realized only through diligent efforts in the proper operation of the communication system. This must be the goal and objective at all times.

There are at this time three basic methods of communication which are available to accomplish this goal:

- o Radio (including mobile and portable telephones)
- o Telephone
- o Face-to-face

In handling traffic, the most effective method for the intended purpose shall be used. When, for any reason, any method used for certain traffic becomes closed for a jurisdiction, then other methods, where possible, shall be substituted. For instance, where information ordinarily transmitted by telephone cannot be delivered after reasonable effort, it shall be delivered by radio. If the traffic is urgent, any expedient method shall be used.

Accurate and rapid delivery is the objective. The rules for message handling as set forth herein shall ordinarily be followed, but where this is impossible, the delivery of the information becomes more important than the means of doing so.

FMARS will ordinarily operate as an open network. Bear in mind, however, all operators at all stations shall exercise normal caution and care not to interfere with transmissions in progress between other area jurisdictions, and will stand by courteously and promptly when requested. During emergencies of short duration, all jurisdictions should recognize the priority of the jurisdictions handling the emergency traffic and use extreme caution so as not to interfere.

II. GENERAL OPERATING PROCEDURES

All operations of a particular jurisdiction's radio system shall comply with the regulations of the Federal Communications Commission as provided in Appendix A and their respective internal policies.

1

1. <u>Messages</u>

   Messages are of two classes: Emergency and Routine. The dispatcher shall determine which message shall receive priority and the decision shall be final. Emergency messages shall be given priority at all times.

2. <u>Emergency Traffic Signal</u>

   Although different fire/rescue services have their own terminology to indicate emergency traffic, for FMARS, the term "emergency" shall denote a priority message of a critical, life threatening situation.

   Example: Montgomery Engine 121 to Prince George's, <u>"Emergency - Priority"</u>

3. <u>Verbal Brevity</u>

   All FMARS transmissions shall be brief and concise. Unnecessary repetitions shall be avoided. All messages shall be business-like, without personal greetings or pleasantries. No codes, such as 10 code signals, shall be used.

   All operators shall be courteous, but expressions such as "THANKS" and "PLEASE" are unnecessary and shall be avoided in the interest of brevity.

   It is necessary only to say the word "Repeat" when a transmission is not understood or clear.

4. <u>Jurisdictional Prefix</u>

   To avoid confusion, units and communications centers operating on the FMARS channels must use their jurisdictional name and mobile/portable unit identification. Unit prefixes shall be in accordance with the approved COG terminology.

   Example: "Arlington Engine 75 to District of Columbia"

   Example: "Fairfax to Prince George's Engine 451"

5. <u>Concept of Operation:</u>

   <u>   MHz - FMARS 1 -</u> This frequency is designated as the calling channel for interjurisdictional base-to-base communications. Use of this channel shall be on a first come, first serve basis.

2

This channel is the major link between jurisdictions in the Washington, D.C., Baltimore, Maryland region for mutual aid support. Both emergency and routine message traffic can take place on this channel. All jurisdictions on the frequency are assigned a unique tone code for signaling purposes.

Prior to transmitting, the transmitting jurisdiction shall open their monitor to detect any on-going message traffic. If the channel is busy, then they should wait until message traffic is clear. When the channel is clear, tone signaling can take place.

_____ MHz - FMARS 2 - This frequency is designated as the tactical operations channel and shall be operated according to procedures described in Section IV. Communications on this channel will usually be unit-to-unit but can be unit-to-base, when conditions warrant.

III. TACTICAL OPERATIONS CHANNEL (_____ MHz) Use

In order to allow for a jurisdiction to take control of the tactical operations channel (FMARS 2) for disaster operations, it is necessary to prioritize radio traffic to be conducted. For control purposes, all radio traffic falls within one of the following priorities:

Priority #1 - Disaster Operations

Priority #2 - Route Daily Interjurisdictional Operations

Multiple multi-jurisdictional emergency incidents may be geographically separate enough to enable both incidents to utilize the FMARS-2 tactical channel. The jurisdiction with the second incident will coordinate the use of the FMARS-2 with the jurisdiction which is in control of the channel.

IV. PRIORITY #1, DISASTER OPERATIONS
    (STATE OF LOCAL DISASTER/EMERGENCY)

Adoption of standard phraseology must first start with a declaration of disaster/emergency and the reason for the need for control of the channel:

1. A disaster/emergency is a serious disruption to life, public order, security or safety that arises with little or no warning. It causes or threatens death or injury to a number of people in excess of those who could be dealt with by public safety services operating under normal conditions. A disaster/emergency thus requires special mobilization of additional services or organizations from outside the boundaries of the jurisdiction affected.

3

2. If the determination is made that FMARS 2 (154.280 MHz) is needed for disaster operations, then notification shall be made in the following manner:

   o "All call" encoding and <u>two (2) long</u> alert tones will be simulcast over both FMARS channels followed by the specific wording, "Attention all Stations, <u>(Jurisdiction)</u> has a disaster and is using the FMARS 2 tactical operations channel."

3. This will alert all other jurisdictions to undertake the following activities:

   o Refrain from using the FMARS 2 tactical operations channel until the jurisdiction with a disaster has released the channel, except in the case of direct involvement in the incident. (Alternate methods can be used for non-disaster or routine inter-jurisdictional traffic, such as other radio channels or telephone lines.)

4. The jurisdiction with a disaster shall make every effort to release the channel as soon as practicable utilizing the following procedures:

   o <u>One long</u> alert tone will be simulcast over both <u>FMARS</u> channels, followed by the specific working, "Attention all Stations, <u>(Jurisdiction)</u> is releasing the FMARS 2 tactical operations channel; all stations can resume normal use of the channel".

V. <u>PRIORITY #2, NORMAL DAILY OPERATIONS</u>

Daily operations involving incidents on the FMARS 2 tactical operations channel shall be on a first come, first serve basis. Jurisdictions with Priority #2 traffic shall make every effort to remove their operations from this channel, if a request is received from any jurisdiction requiring FMARS for Priority #1 disaster operations.

FMARS 2 can be used by mobile and portable radios to transmit routine messages or to request assistance from communications centers other than their own jurisdiction. Mobile and portable radio equipped units should be aware that this frequency is not monitored on a routine basis by communications centers. To accomplish transmissions, it may be necessary that a particular mobile or portable radio equipped unit contact their own jurisdiction and request that they contact the jurisdiction controlling the incident and request that the center contact the particular unit on the FMARS Channel.

VI. <u>TESTING PROCEDURE - FMARS Channel 1 (_____MHz)</u>

The jurisdiction responsible for initiating, conducting and logging the daily test is rotated in alphabetical order

4

every three (3) months, beginning on January 1, April 1, July 1 and October 1 of each year, in accordance with the schedule provided to each jurisdiction in November of each year (sample copy - Appendix E).

A test will be conducted by the testing jurisdiction at 0715 hours daily using the following statement:

"Metropolitan Washington Area Fire Mutual Aid Radio System Channel 1 operating on an assigned frequency of _____ MHz testing with Jurisdiction".

The testing jurisdiction will proceed through the roll call of jurisdictions in the following order:

    Alexandria
    Arlington County
    District of Columbia
    Fairfax County
    Loudoun County
    Montgomery County
    Naval District of Washington
    Prince George's County
    Prince William County

The tested jurisdiction should acknowledge the test as follows:

"Loudoun County OK", followed by the jurisdictions call sign KIU-862 i.e. "Loudoun County or KIK-862"

A jurisdiction that does not acknowledge the test will be recalled one "(1) time after completion of the roll call, as follows:

"Arlington County recalling Prince William County".

The failure to acknowledge a second time will be logged as a non-acknowledgement. A jurisdiction's non-acknowledgement will be logged on the test log provided in Appendix F. Appendix F.a. is a sample of a completed test log.

The testing jurisdiction will conclude the test as follows:

"Metropolitan Washington Area Fire Mutual Aid Radio System test complete" followed by the testing jurisdictions identity, call sign and time i.e. "Metropolitan Washington Area Fire Mutual Aid Radio System test complete, Arlington County KIC-338, 0704".

During the first seven (7) calendar days of the following month, the testing jurisdiction will forward a copy of the test log for the preceding month to COG Public Safety Office using the cover letter format provided in Appendix G.

5

During the first seven (7) calendar days of the third month of a jurisdictions three (3) month testing period, the current testing jurisdiction will notify the next jurisdiction responsible for conducting the test of their pending responsibility using the letter format provided in Appendix H.

APPENDIX A
RULES AND REGULATIONS
OF THE
FEDERAL COMMUNICATIONS COMMISSION

RULES AND REGULATIONS OF THE FEDERAL COMMUNICATIONS COMMISSION

IT IS UNLAWFUL

1. To transmit superfluous signals, messages or communications of any kind on your radio transmitter.

2. To use profane, indecent or obscene language.

3. To willfully damage or permit radio apparatus to be damaged.

4. To cause unlawful or malicious interference with any other radio communications.

5. To intercept and use or publish the contents of any radio message without the express permission of the proper authorities in your department.

6. To make unnecessary or unidentified transmissions.

7. To transmit without first making sure that the intended transmission will not cause harmful interference.

8. To make any adjustments, repairs or alterations whatsoever to your radio transmitter. It is required by law that only a professional radio technician, holding second-class license or higher, may make adjustments and repairs.

9. To deny access to your radio equipment if a properly identified representative of the Federal Communications Commission asks to inspect it. The equipment must be made available for inspection at any reasonable hour.

10. To transmit a call signal, letter or numeral which has not been assigned to your station or car.

Upon conviction for any of the above offenses, the Communications Act of 1934, provides a penalty of not more than $10,000 fine, or not more than one year imprisonment, or both for the first offense.

APPENDIX B
AGENCIES CURRENTLY USING THE
FIRE MUTUAL AID RADIO SYSTEM FREQUENCY _ __ _ _ MHZ
AS OF FEBRUARY 1990

AGENCIES CURRENTLY USING THE FIRE MUTUAL AID RADIO SYSTEM FREQUENCY ___ ___ __ .

*Denotes agencies utilizing both FMARS 1 and FMARS 2.

Washington Metropolitan Area

FMARS Participants

*Alexandria Fire Department
*Arlington County Fire Department
*District of Columbia Fire Department
*Fairfax County Fire/Rescue Department
*Loudoun County Fire/Rescue Service
*Montgomery County Fire/Rescue Service
*Prince George's County Fire Department
*Prince William County Fire/Rescue Service
 Washington National Airport
 Washington Dulles International Airport
 Fort Belvoir (U.S. Army)
 Naval District of Washington Fire Department

Other Agencies

 U.S. Park Police (U.S. Department of Interior)
   (Helicopter)
 MEDSTAR (Helicopter)
 Fairfax County Police (Helicopter)
 Maryland State Police (Helicopter)
 National Institute of Standards and Technology
   Gaithersburg, Maryland (U.S. Department of Commerce)
 Naval Surface Weapons Center
   Whiteoak, Maryland (U.S. Department of Defense)
 Maryland Fire and Rescue Institute
   (MFRI) (University of Maryland - College Park)

Maryland (Outside WMA)

*Anne Arundel County Fire/Rescue Service
*Baltimore City Fire Department
*Baltimore County Fire/Rescue Service
*Carroll County Fire/Rescue Service
*Cecil County Fire/Rescue Service
 Charles County Communications Center
 Frederick County Fire/Rescue Service
*Harford County Fire/Rescue Service
*Howard County Fire/Rescue Service
 Queen Anne County Fire/Rescue Service
 Calvert County Fire/Rescue Service
 Washington County Fire/Rescue Service
 Maryland State (EMRC)
*Maryland State Forestry (Longhill)
 Maryland State Hazardous Materials Unit

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Maryland State Fire Marshal's Office
*Baltimore International Airport

Virginia (Outside WMA)

Fauquier County Fire/Rescue Service

West Virginia

Jefferson County Fire Rescue Service

Pennsylvania

York County Fire/Rescue Service
Adams County Fire/Rescue Service
Cumberland County Fire/Rescue Service
Franklin County Fire/Rescue Service

APPENDIX C
METROPOLITAN WASHINGTON AREA
TONE CODE ASSIGNMENTS

METROPOLITAN WASHINGTON AREA
FIRE MUTUAL AID RADIO SYSTEM CHANNEL 1
DTMF TONE ASSIGNMENTS
(_ _ _ _ MHz)

TONE CODE	JURISDICTION
211	District of Columbia Fire Department
212	Naval District of Washington Fire Department
311	Montgomery County Fire and Rescue Service
312	Prince George's County Fire Department
511	Alexandria Fire Department
512	Arlington County Fire Department
513	Fairfax County Fire and Rescue Department
522	Prince William County Fire and Rescue Service

TONE CODE	CODE FUNCTION
***	System Wide All-Call
1	METRO All-Call
2**	DC All-Call
3**	MD All-Call
31*	MD METRO All-Call
32*	MD Extended All-Call
5**	VA All-Call
51*	VA METRO All-Call
52*	VA Extended All-Call

APPENDIX D
Common Fire/Rescue Service Terminology
for the
Metropolitan Washington Jurisdictions

COMMON FIRE/RESCUE TERMINOLOGY

1. AIR UNIT (AU) Principal function to be breathing apparatus support, with capacity to refill or replace air bottles.

2. AMBULANCE (A) A unit equipped for transport of patients and not staffed with advanced life support equipment or personnel.

3. BOAT (B) All boats without a pumping capacity.

4. BRUSH UNIT (BU) A unit that is equipped to fight brush, grass, or wildland fires. Usually a fourwheel drive unit.

5. CANTEEN UNIT (CU) A unit to provide personnel logistics such as coffee, doughnuts, etc.

6. CAVE-IN UNIT (CI) Principal function for cave-ins, building collapses and shoring.

7. ENGINE COMPANY (EC) Wagon, Pumper.

8. EXTRICATION UNIT (EX) A unit equipped with some tools for patient extrication at motor vehicle accidents.

9. FIRE BOAT (BT) Fire boat with pumping capacity.

10. FIRE MARSHAL (FM) Fire inspector or fire investigator.

11. FOAM UNIT (FU) Principal function to provide foam/twin agent capacity at scene of an incident.

12. HAZMAT (HM) Hazardous Materials Unit

13. HELICOPTER UNIT (HU) An aircraft with multiple use capabilities at a disaster scene.

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14.	LIGHT UNIT	(LU)	Principal function to provide light on the scene of an incident.
15.	MEDIC UNIT	(MU)	A unit staffed with certified Advances Life Support (ALS) Personnel and equipped with the required advanced life support equipment.
16.	METRO SUPPORT	(MS)	A support vehicle with long-term breathing apparatus, spare bottles and medical supplies for response to METRO rail system incidents and other appropriate incidents.
17.	MINI PUMPER	(MP)	A smaller version of a pumper - usually carries one to three people and generally does not qualify as a "Pumper".
18.	MOBILE COMMAND UNIT	(MC)	A vehicle equipped with radio and communications for incident command control.
19.	RESCUE SQUAD	(RS)	A unit equipped with heavy power tools, jacks, etc., and can provide extrication and fire ground support.
20.	SALVAGE UNIT	(SU)	Salvage equipment and fans.
21.	TANKER	(TK)	Unit which carries 1500 gallons of water or more.
22.	TRUCK	(T)	Aerial, platform, snorkel bucket, tower.
23.	UNDERWATER DIVING UNIT	(DU)	Principal function to provide underwater operation including rescue and recovery.

NOTE: Other types of equipment will be designated by the individual
        jurisdiction which controls that equipment.

APPENDIX E

Metropolitan Washington Council of Governments Letterhead

MEMORANDUM

DATE: November 1, 199_

TO: Fire Communications Officers' Subcommittee

FROM: Chairperson

SUBJECT: FMARS Testing Jurisdictions, Calendar Year 199_

In accordance with Section VI. of the Fire Mutual Aid Radio
System Manual, the following jurisdictions will conduct the
daily FMARS Channel 1 radio test for the periods indicated.

    Arlington ...... January 1, through March 31, 199_

    District of Columbia ... April 1, through June 30, 199_

    Fairfax County .... July 1, through September 30, 199_

    Loudoun County .... October 1, through December 31, 199_

If assigned jurisdiction is unable to adhere to this schedule,
the jurisdiction must notify Fire Communications Officers'
Subcommittee Chairperson at (XXX-XXX-XXXX) and XXXXXX XXXXXXXX,
COG Office of Public Safety at (202)-962-3270).

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APPENDIX F

Metropolitan Washington Council of Governments (COG)
Fire Mutual Aid Radio System (FMARS)

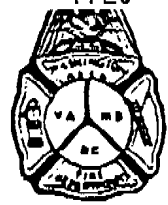Daily FMARS Channel 1 (Base Station to Base Station/___ ___ Hz) Test Log

For the Month of: _____ 19 _____

Jurisdiction conducting test: _____

Jurisdiction	Date(s) Jurisdiction Did Not Acknowledge Test.	% Of Non-Acknowledgement. *
City of Alexandria (VA) Fire Department 703-548-6000 (KIC-943)		
Arlington County (VA) Fire Department 703-558-2222 (KIC-338)		
District of Columbia Fire & EMS Department 202-673-3267 (KGA-611)		
Fairfax County (VA) Fire & Rescue Department 703-691-2131 (KJF-337)		
Loudoun County (VA) Department of Fire & Rescue Services 703-777-0637 (KIU-862)		
Metropolitan Washington Airports Authority Fire Department 703-417-8209 (WRD-344)		
Montgomery County (MD) Fire & Rescue Services Department 240-777-0744 (KGC-334)		
Naval District of Washington (DC) Fire Department 202-767-5407 (No Call Sign)		
Prince George's County (MD) Fire Department 301-499-8400 (KGA-361)		
Prince William County (VA) Fire & Rescue Department 703-792-6810 (KIW-334)		
U.S. Secret Service 202-395-4004 (No Call Sign)		

* The number of days unacknowledged divided by the number of days in the month equals percentage of non-acknowledgements.

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Rev 6/19/00

APPENDIX F.a.

Metropolitan Washington Council of Governments (COG)
Fire Mutual Aid Radio System (FMARS)

Daily FMARS Channel 1 (Base Station to Base Station/___ MHz) Test Log

For the Month of: **August** 19**9—**

Jurisdiction conducting test: **Fairfax County, VA**

Jurisdiction	Date(s) jurisdiction did not acknowledge test.	% of non-acknowledgement. *
City of Alexandria (VA) Fire Department KIE-943 703-548-6000	3, 17	6 %
Arlington County (VA) Fire Department KIC-338 703-558-2222	21	3 %
District of Columbia Fire Department KGA-611 202-673-3267	5, 12, 19	10 %
Fairfax County (VA) Fire and Rescue Department KIF-337 703-280-0843	Test Jurisdiction	
Loudoun County (VA) Department of Fire and Rescue Services KIU-862 703-777-0637	27	3 %
Montgomery County (MD) Fire and Rescue Services Department KGC-334 301-217-4644	9, 21	6 %
Naval District of Washington (DC) Fire Department No call sign 202-767-5407	16, 30, 31	10 %
Prince George's County (MD) Fire Department KUX-242 301-499-8400	1, 20	3 %
Prince William County (VA) Fire and Rescue Department KIW-334 703-335-6810	4, 11, 26, 29	13 %

* number of days unacknowledged divided by number of days in the month equals % of non-acknowledgement.

APPENDIX G

Montgomery County (MD) letterhead

February 5, 199_

Metropolitan Washington Council of Governments
XXXXXXXXXX XXXXXXXXXX, Public Safety Planner
Office of Public Safety
777 North Capitol Street, Suite 300
Washington, D.C.   20002-4201

Dear Mr. XXXXXXXXX:

Enclosed is a copy of the FMARS Channel 1 Test Log for the month of January 199_.

Sincerely,

XXXXXXXX   XXXXXXXXXX
Captain

Enclosure

APPENDIX H

Naval District of Washington (DC) letterhead

June 3, 199_

Prince George's County Fire Department
Combined Communications Facility
7911 Anchor Street
Landover, MD   20785

Dear Major XXXXXXXXX:

This letter is to advise you that effective July 1, 199_ the
Naval District of Washington will transfer responsibility for the
daily FMARS Channel 1 radio test to Prince George's County for
the period July 1, 199_ through September 30, 199_.

Sincerely,

XXXXXXXXX XXXXXXXXX
Fire Chief

APPENDIX C—ACRONYMS

APPENDIX C—ACRONYMS

ACFD	Arlington County Fire Department
AFD	Alexandria Fire and Rescue Department
APD	Alexandria Police Department
ATF	Bureau of Alcohol, Tobacco, and Firearms
COG	Council of Governments
COG Mutual Aid Plan	Greater Metropolitan Washington Area Police and Fire/Rescue Services Mutual Aid Agreement
COW	Cellular on Wheels
DCFD	District of Columbia Fire and Emergency Medical Services Department
DoD	Department of Defense
ECC	Emergency Communications Center
EMS	Emergency Medical Services
ERU	Emergency Response Unit
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
ICS	Incident Command System
ICS	Incident Command System
IST	Integrated Support Team
JOC	Joint Operations Center
LMR	Land Mobile Radio
MHz	Megahertz
NOVA Agreement	Northern Virginia Mutual Aid Agreement
NVTMA	Northern Virginia Trunked Mutual Aid Agreement
P25	Project 25
PMARS	Police Mutual-Aid Radio System
PSTN	Public Switched Telephone Network
PSWN	Public Safety Wireless Network
SOP	Standard Operating Procedure
TPSRIU	Transportable Public Safety Radio Interoperability Unit
UC	Unified Command
USAR	Urban Search and Rescue