

CHAPTER SEVEN

FIRE SERVICE TRAINING

This chapter includes sections on fire and rescue training standards, regulations, programs, and certifications at the national, state, county, and local level, including the process by which fire, rescue and EMS training is conducted in Harford County.

OVERVIEW OF FIRE SERVICE TRAINING

The main objectives of the fire service are to prevent injury and the loss of life, and to protect property and the environment. All emergency response personnel providing these services must be fully qualified to safely and effectively perform a wide range of practical skills. These responders must have a broad knowledge base that allows them to adapt quickly to the many different scenarios faced by modern day emergency services providers. While “on-the-job” experiences are important for gaining knowledge, most knowledge and skills must first be obtained through some type of training program. In any modern fire department, effective training is the key to successful emergency operations and service delivery effectiveness.

Training in the fire service over the past decade has undergone a revolutionary process because of the changing environment in which it exists. There have been many changes in technology that have resulted in significant improvements in equipment for emergency services use. The fire, rescue and emergency medical situations that responders encounter are often more complex in the “post-9/11” environment and therefore, responders in all public safety agencies must now prepare for more large-scale, catastrophic type incidents in addition to the traditional fire, rescue, and EMS incidents of times past.

The past decade has seen society place more emphasis on environmental concerns; this poses additional challenges to the emergency services and their approach to fire and hazardous situations. Personnel safety has become a primary concern; technology has evolved to provide firefighters and EMS staff with more effective protective clothing and equipment. Fire service line-of-duty deaths are more closely analyzed than ever before, thus resulting in new, safety-directed training standards and emergency scene operating guidelines.



TRAINING

OVERVIEW OF FIRE SERVICE TRAINING (continued)

Nationally, the rate of firefighter injuries and fatalities remains fairly high, in spite of advances in technology; thus, the emphasis on firefighter safety and survival. Fire departments across the United States have worked on refocusing some of their training efforts to “saving their own” from life-threatening situations and on returning to the basics of firefighting. Fire service professionals realize that a fire department’s commitment to training is an indicator of that department’s commitment to excellence because the two values rely on each other.

Fire service personnel receive their training and education in many different ways and from many different sources. Traditionally, fire service training falls into one of three categories:

1. Training courses;
2. Company drills (a.k.a. in-service training); and,
3. Formal education classes.

Training courses normally address three areas of concern: new or entry-level employee training, skills maintenance training (refreshers and recertification), and career development training (promotion requirements).

Training courses are generally structured classes conducted by an individual skilled and certified in the adult educational process. Training courses usually cover a specific subject area either in its entirety or in a sequential format (e.g., Fire Fighter I and Fire Fighter II). Examples of subjects which are covered in training courses for fire personnel include:

- Recruit firefighting
- Advanced firefighting courses
- First responder and emergency medical technician courses
- Pump operations
- Aerial ladder operations
- Rescue techniques
- Hazardous materials



TRAINING

OVERVIEW OF FIRE SERVICE TRAINING (continued)

- **Emergency vehicle driver training**
- **Company officer training**
- **Incident command courses**

The reinforcement and maintenance of critical job skills and the updating of new information or practices usually occurs through in-service training or company drills. These company drills are planned practice sessions that are usually conducted by a company officer covering a single, specific topic or the practice of a manipulative skill. Examples of in-service drills include the practice of hose layouts, ladder raises, and knot tying.

An aggressive, well-planned company drill training program is very important to department readiness. Because so much of a firefighter's job requires the use of manipulative skills, it is necessary to regularly reinforce those skills to ensure that they are performed effectively, efficiently and safely each and every time they are needed.

Formal education courses are generally the responsibility of community colleges and other institutions of higher learning. Formal education is traditionally focused at the collegiate level and involves academic subject areas. These academic courses are designed to assist fire service personnel in performing their job as well as providing career development in preparation for promotion.

Fire science and emergency medical services degree programs are now available from the associate's to the master's level. There are a few universities in the United States that have bestowed doctorate degrees in similar areas of study. (Maryland has been a longstanding recognized leader in the area of college-level fire and EMS programs with numerous institutions offering such degrees throughout the state.)

The current trend in many career fire departments is to require the successful completion of college-level course work as pre-requisite training for promotion. Volunteer fire departments have traditionally lagged behind in the requirement and or recognition of collegiate level course work for promotion and there has been little forward movement by the volunteer



TRAINING

NATIONAL TRAINING STANDARDS AND PROGRAMS (continued)

services in this area. Many volunteer fire service chief officers are still elected into office by their department membership.

NATIONAL TRAINING STANDARDS AND PROGRAMS

Over the course of the last three decades, more and more demands have been placed on emergency responders to increase their level of service; which means that the level of training has had to increase as well. Movements began back in the early 1970s to provide structure and organization to the fire service training process. Those efforts resulted in the development of nationally recognized standards to serve as the basis for fire service training programs.

National Professional Qualifications System

In 1972, the Joint Council of National Fire Service Organizations founded the National Professional Qualifications System in an effort to help guide the fire service toward training professionalism through training accreditation and certification. Certification arose over a concern that fire service training was becoming very imbalanced between various jurisdictions; almost to point of becoming inadequate in some instances. As a result, a nine-member National Professional Qualifications Board (Pro Board) was established by the Joint Council to direct the new accreditation and registry system.

In order to develop a system of nationalized training for firefighters, the Pro Board requested that the National Fire Protection Association (NFPA) delegate to their technical committees the development of clear standards for use in the certification process. As these standards were developed, they were reviewed, edited, and updated by fire service professionals throughout the United States.

The new NFPA standards were adopted as the basis for the Pro Board certification program. Today, NFPA professional qualifications training standards are the foundation of most fire



TRAINING

NATIONAL TRAINING STANDARDS AND PROGRAMS (continued)

service training programs found in North America and are recognized as the “standards of practice” in the fire/rescue training area.

As this push to develop professionalism in the fire service continued, the National Board on Fire Service Professional Qualifications was established in 1990 to accredit training organizations and to certify individuals meeting the NFPA training standards. Today, this board accredits 23 states (including Maryland) using 72 levels of 16 different NFPA training standards.

Fire departments with a commitment to the national certification process gain the respect, reputation, and prestige associated with an organization dedicated to professionalism. It is generally recognized in the fire service that departments that teach and certify their personnel to the professional standards will no doubt become stronger entities both in their community and among fellow departments.

National Fire Academy

In 1975, the National Fire Academy (NFA) was established in Emmitsburg, Maryland, as part of the United States Fire Administration (USFA), for the purpose of developing and delivering fire service training programs on a national basis. Much of the work done by the NFA has been in the areas of executive officer development, fire department operations planning, and organizational management. Through its courses and programs, the NFA works to enhance the abilities of fire and emergency services and allied professionals to deal more effectively with fire and related emergencies—both natural and manmade.

The NFA’s delivery systems are diverse. Courses are delivered at their resident facility in Emmitsburg and throughout the nation in cooperation with state and local fire training organizations, colleges, and universities. In an effort to make training affordable, a travel expense and lodging stipend is made available to students attending resident NFA courses in Emmitsburg.



TRAINING

NATIONAL TRAINING STANDARDS AND PROGRAMS (continued)

Currently, the NFA has a four-year program for the development of senior fire officers. The Executive Fire Officer (EFO) program consists of four, two-week resident programs:

1. Executive Development;
2. Leading Community Risk Reduction;
3. Executive Analysis of Fire Service Operations in Emergency Management;
and,
4. Executive Leadership.

Following each course, the EFO candidate must submit an original research paper before being allowed to take the next course. Upon completion of the four-year program, the EFO student is awarded a certificate and is invited to attend an annual conference which focuses on the latest trends in the fire service.

The NFA also offers courses at the college level for staff and command officers, technical specialists, and executive fire officers. To reach the mass of the fire service population the NFA has developed a “train-the-trainer” program to assist in providing their training courses to state and local agencies.

STATE TRAINING PROGRAMS

Fire and emergency services training programs in Maryland are available through the University of Maryland’s Maryland Fire and Rescue Institute (MFRI). MFRI is the “State’s comprehensive training and education system for emergency services. The Institute plans, researches, develops and delivers various training programs to enhance the ability of emergency services providers to protect life, the environment, and property.”

MFRI offers a wide variety of training courses and seminars throughout Maryland using its headquarters facility in College Park and its five regional training centers, one of which is located in Harford County. Each regional training center has classroom and live-fire training



TRAINING

STATE TRAINING PROGRAMS (continued)

facilities to accommodate the needs of the training courses and of the local fire/rescue departments.

MFRI is considered one of the premier, state-run fire/rescue training programs in the United States today. MFRI's programs and instructors are well-respected in the training field and the organization has often been considered a model service delivery system.

In addition to the programs and facilities operated by MFRI, a number of Maryland counties operate their own training academies which are accredited through the state and can deliver their own certification-based training programs. In general, the counties that operate their own training academies also have a fairly large career firefighter contingent which drives the demand for local level training services. Anne Arundel, Baltimore, Howard, Montgomery, and Prince Georges Counties all operate their own fire/rescue training academies.

Maryland Voluntary Fire Service Certification System

The Maryland Fire Service Personnel Qualifications Board (MFSPQB) administers the Maryland Voluntary Fire Service Certification System (MVFSCS) which is based on, and complies with, the National Board on Fire Service Professional Qualifications requirements. The MVFSCS has existed since 1988 when it was first approved to issue certifications under the national standards. Currently, MVFSCS certifications are available in over 60 different fire/rescue qualification categories. According to the most recent MFSPQB Annual Report, "over 5,100 certifications were issued in 2005." Over 78,000 certifications have been issued since the inception of the program.

Instructor Training

One of the most important components of any training program is instructor training and certification. In Maryland, it is the Maryland Instructor Certification Review Board (MICRB) that certifies emergency services instructors. Instructor candidates have to be sponsored by a local fire/rescue training academy or by MFRI in order to become MICRB certified.



TRAINING

STATE TRAINING PROGRAMS (continued)

Instructor training is provided by MFRI and several of the county fire/rescue training academies. MFRI requires that all of its instructors be MICRB certified in order to instruct MFRI programs.

The Study Team considers the State of Maryland to have a very strong, state level training and certification program that is well-organized and operates with professionalism. The state is commended for their efforts in developing, implementing, and operating such a quality program.

EMS Training

In terms of emergency medical services (EMS) training programs at the state level, courses are available through MFRI and through the Maryland Institute for Emergency Medical Services System (MIEMSS). It is the opinion of the Study Team that MIEMSS and MFRI do an excellent job of coordinating and delivering EMS training and provider certification services on a statewide basis. As with the statewide fire/rescue training program, Maryland's statewide EMS training program is often considered a model program for training services delivery.

HARFORD COUNTY TRAINING

Fire, rescue, and EMS training services in Harford County are delivered using a combination of different processes and training service providers. The County does not own or operate a fire/rescue training facility and it is not in the business of conducting fire/rescue training courses or issuing fire/rescue training certifications. All of the basic level fire/rescue training is handled at the local volunteer company level with some funding and planning involvement by the Harford County Volunteer Fire and EMS Association (HCVFEA). When needed, a formal training facility is available through MFRI at their Northeast Maryland Regional Training Center located in Aberdeen, Maryland.



TRAINING

HARFORD COUNTY TRAINING (continued)

This absence of training at the county level is not unusual in the State of Maryland for counties similar in size and makeup to Harford County. As discussed earlier in this chapter, MFRI is the lead agency charged with the responsibility of providing fire, rescue and basic EMS training throughout the state for career and volunteer fire and rescue personnel. Harford County is part of MFRI's North East Region (Baltimore City, Baltimore County, Cecil County, and Harford County) and receives almost all of its fire/rescue and EMS training course services directly from the state institution.

The Study Team finds that the local volunteer fire departments' and EMS company's dependence on MFRI for their training needs is adequate and appropriate at the present time. The only matter of concern relating to the use of MFRI for training course delivery is MFRI's minimum class size requirements. In order for a course to "run", a minimum of 15 students must be enrolled and be present at the first session. If less than 15 students are present at the first session, then the course most likely will be cancelled. Likewise, once the course is running, if the class attendance falls below 10 students, then the course will also be cancelled.

The concern over the MFRI minimum class size requirement is that, generally, there are fewer eligible students for the higher ranking training courses: e.g., there are more folks needing Fire Fighter I than folks needing Fire Officer II training at any one time. Therefore, it can be difficult to run a 15-person Fire Officer II course in the county which can then affect the number of persons eligible to function as chief officers.

One possible method for addressing this class size problem would be for the HCVFEA to enter into an agreement with MFRI to compensate the Institute for instructor hours when class size falls below the MFRI requirements and the HCVFEA deems the course necessary for the delivery of fire, rescue, and EMS services in the county.

Other than the class size issue identified above, the Study Team finds the relationship between the volunteer fire and EMS companies and MFRI to be a stable one and the Study



TRAINING

HARFORD COUNTY TRAINING (continued)

Team recommends that the County and the individual companies continue to utilize MFRI as the primary provider for their fire, rescue, and EMS training needs.

Training Facility

Harford County does not own or operate a fire/rescue training facility. Currently, every volunteer company in Harford County has the ability to host the basic MFRI courses. Each department has a training room designed to support classroom-type activities, however, accommodations for some of the more complex practical skill applications are minimal (live fire training, aerial ladder work, etc.). Companies needing access to a fire/rescue training practical skills facility utilize MFRI's North East Regional Training Center facility in Aberdeen.

A number of jurisdictions in Maryland have found it convenient and cost-effective to build and operate a public safety training facility that supports the local fire/rescue, EMS, and law enforcement training needs in terms of classroom and practical skills space. The public safety training facilities in Frederick County and Howard County, Maryland, are good examples of cooperative efforts in operating a multi-agency facility.

Recently, MFRI was awarded funding to construct a new North East Regional Training Center in the Edgewood area, once again located in Harford County. The Study Team recommends that the HCVFEA and the County not enter into the training facility business but instead continue to support their close working relationship with MFRI. Part of this relationship will be to monitor MFRI's ability to meet the training needs of the Harford County fire/rescue/EMS system as it grows over the next two decades.

Training Standards

The Study Team believes that training standards and requirements are critical to the success of emergency scene operations when multiple response agencies are involved such as in Harford County. In terms of inter-operability, minimum training standards allow different



TRAINING

HARFORD COUNTY TRAINING (continued)

departments to integrate much easier on the emergency scene. Such standards can also boost public confidence in the fire/rescue/EMS system, for they ensure that operational leaders of the emergency services departments have met minimum training and experience requirements.

Unfortunately, a review of HCVFEA documents produced few training standards and requirements for the volunteer fire and EMS companies in the County. The Study Team learned that most of the written training requirements are at the company level and not at the HCVFEA level. The Team also found that those requirements varied between companies, especially at the officer ranks.

The Study Team also found that all of the officer qualifications and training requirements exist in the individual bylaws of the volunteer fire and EMS companies. The requirements vary between the 12 companies and this variance is seen throughout the entire rank structure. For example, in examining the requirements for the rank of Chief, the Study Team found the following:

- Three of the companies require completion of the Fire Officer II course in order to qualify for being elected as the Chief.
- Three of the companies require completion of the Fire Officer I course in order to qualify for being elected as the Chief.
- Two companies require the Fire Fighter III course for Chief—a course (and certification) that was discontinued several years ago and divided up into the Fire Fighter II and Fire Officer I programs.
- Five companies require their Chief to be certified at least to the EMT-Basic level.
- Four companies require their Chief to be certified at least to the Fire Responder level (EMS).
- Three companies require no EMS certification to be Chief.



TRAINING

HARFORD COUNTY TRAINING (continued)

Because of the current size and expected future growth of Harford County, the Study Team is concerned that training standards vary between the individual companies—especially when these companies routinely operate with each other and within each other’s response areas. Using the concept of minimum training standards, the Study Team has several recommendations.

The Study Team considers it important to note that they are well aware of the concerns over the amount of training and certifications already needed in order to function in the existing system. However, the Team is a strong supporter of professional standards for all fire/rescue and EMS agencies, regardless of their career or volunteer affiliations.

Officer Training Standards

The Study Team recommends the minimum Officer Training Standards (training and experience requirements) for officers in Harford County outlined in Figure 7.1.

The Study Team’s recommended Officer Training Standards are considered basic level changes for a system as large and diverse as the Harford County system. All chief officers should be trained to the Fire Officer II level due to the expectations and complexity of the chief officer position in today’s all-hazards approach to the delivery of emergency services. Further, all junior officers (captains and lieutenants) should be trained to at least the Fire Officer I standard.

Next to law enforcement, EMS is the most frequently delivered public safety service in Harford County. The officers of the fire and EMS companies need to be trained and certified to at least the EMT-B level. These officers lead their crews on emergency scenes and often must serve as incident commanders. Being trained and certified to the EMT-B level allows them to have a basic understanding of emergency medical care while, at the same time, being able to direct subordinates effectively at EMS-related incidents.



Proposed Officer Promotional Requirements

Figure 7.1

Rank	Agency	Minimum Training Requirements	Minimum Experience Requirements
Chief	Fire Company	<ul style="list-style-type: none"> •Fire Officer II •EMT-B •Hazmat Operations •NIMS IS100, IS200, IS300, IS700 •Rescue Tech – VMR* 	1 year as a chief officer in a Harford County company
Chief	Ambulance Company	<ul style="list-style-type: none"> •EMS Officer II** •EMT-P or EMT-I •HazMat Operations •NIMS IS100, IS200, IS300, IS700 	1 year as a chief officer in a Harford County company.
Assistant or Deputy Chief (Fire)	Fire Company	<ul style="list-style-type: none"> •Fire Officer II •EMT-B •HazMat Operations •Rescue Tech VMR* •NIMS IS100, IS200, IS300, IS700 	1 year as an operational officer in a Harford County company
Assistant or Deputy Chief (EMS)	Fire or Ambulance Company	<ul style="list-style-type: none"> •EMS Officer II** •EMT-P or EMT-I •HazMat Operations •NIMS IS100, IS200, IS300, IS700 	1 year as an operational officer in a Harford County company.
Captain (Fire)	Fire Company	<ul style="list-style-type: none"> •Fire Officer I •EMT-B •HazMat Operations •Rescue Tech VMR* •NIMS IS100, IS200, IS700 	1 year as a Lieutenant in a Harford County company.
Captain (EMS)	Fire or Ambulance Company	<ul style="list-style-type: none"> •EMS Officer I*** •EMT-P or EMT-I •HazMat Operations •NIMS IS100, IS200, IS700 	1 year as a Lieutenant in a Harford County company.
Lieutenant (Fire)	Fire Company	<ul style="list-style-type: none"> •Fire Officer I •EMT-B •HazMat Operations •Rescue Tech VMR* •NIMS IS100, IS200, IS700 	2 years as a fire, rescue or ems provider in a Harford County company.
Lieutenant (EMS)	Fire or Ambulance Company	<ul style="list-style-type: none"> •EMS Officer I*** •EMT-B •HazMat Operations •NIMS IS100, IS200, IS700 	2 years as a fire, rescue, or EMS provider in a Harford County company.

* Rescue Tech – Vehicle Machinery Rescue (VMR) or MFRI equivalency is required for those officers serving a department that operates a heavy rescue squad.
 ** Fire Officer II is interchangeable with the EMS Officer II course or its MFRI equivalency.
 *** Fire Officer I course is interchangeable with the EMS Officer I course or its MFRI equivalency



TRAINING

HARFORD COUNTY TRAINING (continued)

In terms of hazardous materials training, the Study Team recommends Operations level training for all officers. Emergency incidents—fire, rescue, or EMS related—often involve the release or presence of hazardous materials and the Study Team recognizes the Operations level of training as the “standard of care” for emergency responders. The majority of fire/rescue personnel in the United States are trained to the Operations level of hazardous material response. The Study Team finds that the present officer requirements in Harford County are deficient in this area.

In reference to the increase in incident command training (NIMS), the Study Team finds that the current, officer training requirements fail to address the federal government mandate that requires incident command training for all personnel. At a minimum, the Study Team recommends that all chiefs complete the NIMS IS 300 course, including its prerequisites, in order to meet the federal mandate. This will enable them to be in a position to be able to integrate and be inter-operable at the command level throughout Harford County and across county lines.

Finally, the Study Team recommends the completion of the Rescue Technician—Vehicle and Machinery Rescue course (or its equivalent) for all officers serving in companies that operate heavy rescue equipment or deliver vehicle extrication services. This training is very important because the delivery of heavy rescue services requires specialized knowledge and skills. In requiring this training the officers, the departments can improve their level of professionalism and most likely their level of service delivery.

MFRI provides all of the basic training course delivery for the County’s fire and EMS companies. All of the basic MFRI courses meet or exceed the national certification standards. Therefore, the Study Team is not requiring Pro Board certification for fire and EMS officers in Harford County. The Team recommends verification of course completion for compliance with the Officer Training Standards.



TRAINING

HARFORD COUNTY TRAINING (continued)

Training and Certification Standards Committee

As stated above, there are no current HCVFEA standards addressing officer training and experience requirements. In order to develop, implement, and enforce the proposed Officer Training Standards, the Study Team recommends the creation of a Training and Certification Committee under the HCVFEA. This committee would be responsible for all of the training and certification-related standards, would report directly to the leadership of the HCVFEA and possess the ability to suspend a company officer from emergency scene operational authority if that company officer fails to meet the applicable training and certification standard.

The Study Team suggests a two-year phase-in plan for implementation of the proposed Officer Training Standards. In the first year, all existing officers and personnel desiring to serve as officers must complete NIMS and Fire Officer I or II training. In the second year, all existing officers and personnel desiring to serve as officers must complete EMT-B training. The practice of “grandfathering” existing officers to avoid additional training requirements should not be allowed. However, equivalency for “like” training should be permitted using the MFRI equivalency process.

The Study Team also recommends, both now and in the future, all training standards developed by the Training and Certification Standards Committee be made applicable to all fire, rescue, and EMS providers in Harford County. This applicability to all providers needs to occur regardless of affiliation—volunteer members of a local fire or EMS company, an employee of the Harford County Volunteer Fire and EMS Foundation, or an employee of a Harford County government-based fire/rescue organization.

Firefighter Training

In the traditional fire department setting, firefighter training begins with the introduction of new personnel to the basics of fire and rescue operations through the recruit training process. Recruit training differs from state to state and from jurisdiction to jurisdiction, depending



TRAINING

HARFORD COUNTY TRAINING (continued)

upon local standards and requirements. In most career fire/rescue systems, the recruit training process depends on the size of the department and the proximity to a formal training center.

In volunteer fire and EMS systems, recruit (or new member) training can vary greatly based upon the department's rules and regulations, county or state regulations, and the level of access to entry-level training programs. Some volunteer departments have stringent training requirements for new members while other departments may require little to no training.

As was the case with the officer training requirements, there are some differences between the 12 fire and EMS companies in terms of how new members receive training and then are "checked off" to ride emergency apparatus. Basically, all of the departments have some form of check-off program or packet that must be completed by the new member before being eligible for active member status. The problem is that each department's requirements vary and, therefore, new members can receive different training depending upon where they join.

The Study Team did find an HCVFEA standard that addresses minimum training for company members. *Standard 2.1.1 Minimum Fire Training Standard (Fire pre-Basic Training)*, also known as the "black stripe" policy, outlines the basic requirements that company members must complete before being permitted to respond on emergency calls. Through interviews and visits with various company personnel, it is clear to the Study Team that this minimum fire training standard is not being followed by all companies in the same manner and, further, that the standard needs to be revised and re-issued.

The Study Team recommends that the Training and Certification Standards Committee immediately develop and implement a minimum training standards policy/program that clearly identifies the training requirements for probationary (new) members and that it be applied to all 12 companies. At a minimum, these standards must address the training requirements needed to ride on both fire and EMS emergency apparatus as a crew assistant and as part of the minimum staffing crew.



TRAINING

HARFORD COUNTY TRAINING (continued)

The Study Team recognizes that one of the biggest difficulties in volunteer fire, rescue, and EMS departments is keeping the interest level up for new members. The first hurdle often faced in this process is, “What does a department do with a member just voted in but can’t complete Fire Fighter I training until next year?” It is important to be able to allow that new member to ride on the apparatus in an “assistant” capacity until such time that formal course work has been completed and the member can serve as minimum staffing. Thus, in the case of Harford County, the Study Team suggests that the proposed Training and Certifications Standards Committee establish minimum training standards for the positions of Crew Assistant and Minimum Staffing Crew Member to include:

A. Firefighting/Rescue

- Crew Assistant
 - Must complete training on the use of personnel protective equipment (PPE)
 - Must be trained to the Hazmat Awareness level
 - Must be trained in CPR/AED
 - Must complete an orientation to the department’s equipment, apparatus, and standard operating procedures

- Minimum Staffing Crew Member
 - Must have been trained to the Crew Assistant level
 - Must be trained to the Fire Fighter I level
 - Must be trained to the Hazmat Operations level
 - Must be trained to the Rescue Technician–Vehicle and Machinery Rescue level in order to serve as minimum staffing on a heavy rescue squad



TRAINING

HARFORD COUNTY TRAINING (continued)

B. EMS

- Crew Assistant
 - Must complete training on the use of personnel protective equipment (PPE)
 - Must be trained to the Hazmat Awareness level
 - Must be trained in CPR/AED,
 - Must complete an orientation to the department's equipment, apparatus, and standard operating procedures

- Minimum Staffing Crew Member
 - Must have been trained to the Crew Assistant level
 - Must be trained to the EMT-B level
 - Must be trained to the Hazmat Operations level

Driver Training

Of all the services provided by a fire, rescue, or EMS department, two positions that provide great exposure to liability are a provider of emergency medical care and the driver of an emergency vehicle. In both cases, training needs to be extensive, well documented, and recertified on a regular schedule.

As with all other aspects of training thus far discussed, driver training programs and procedures also vary among the 12 fire and EMS companies. Although all companies had some form of driver "check-off" procedures, few appeared to be totally compliant with the requirements set forth in NFPA 1002 *Standard for Fire Apparatus Driver/Operator Professional Qualifications*.

The Study Team urges the HCVFEA Training and Certifications Standards Committee to develop and implement an emergency vehicle driver training program and procedure that is



TRAINING

HARFORD COUNTY TRAINING (continued)

NFPA 1002 compliant and that is applied equally and equitably to the individual fire and EMS companies.

Incident Management Training

Incident command training is critical to the success of incident management. If emergency responders expect to have positive outcomes at the incidents to which they respond, then those responders must be well-trained and well-versed in incident command. Fire department incident command has grown well past the days of the fire chief standing in the front yard of a burning home with nothing but his helmet and his portable radio. Today's incidents can challenge even the most seasoned incident commander, and all incident commanders must be able to command and operate in an era of "inter-operability."

Without training and certification in incident command, fire departments are exposing their organizations to great liability and the potential for disastrous outcomes. For nearly every firefighter line-of-duty death that has occurred on the fire ground over the last ten years in the United States, investigative findings have listed ineffective (or absent) incident command and poor crew accountability as common contributing factors to those deaths.

The Study Team did not learn of any state or local regulation requiring that fire service chief officers be trained in the practice of incident management (command). However, Presidential Directive 5 issued in February 2003 requires all emergency response agencies across the nation to be trained in and implement the National Incident Management System (NIMS) in order to be eligible to receive future federal funding for Homeland Security initiatives.

As described earlier in this chapter, there is a need for the development and implementation of officer training standards. Currently, nothing addresses the NIMS requirements in terms of NIMS compliance; therefore the number of members already having completed the required training is undetermined.



TRAINING

HARFORD COUNTY TRAINING (continued)

The Study Team recommends that the HCVFEA immediately require all chief officers to complete the NIMS ICS 300 incident command training, and all captains and lieutenants to complete the NIMS ICS 200 incident command training. The Study Team recommends that the HCVFEA establish a deadline of no longer than one year for all officers to comply with this mandate. The Study Team recommends the removal of incident command authority from those officers who have not met the requirement.

Skills Maintenance Training

One of the most important parts of a fire department training program is the continued maintenance of skills and knowledge. “In-service” training, as it is commonly called, generally covers a wide area of topics including such items as basic firefighting skills, emergency vehicle driving, and government mandated hazardous materials refresher training.

When developing a company drill training program, the Fire Suppression Rating Schedule used by the Insurance Services Office (ISO) should be considered. The schedule is actually a manual that is used by ISO to review the firefighting capabilities of individual fire departments. One section of the Schedule reviews a fire department’s training functions and assigns points (credits) based upon certain training items. The following list shows examples of the training required for all fire department personnel for whom credit points are allotted:

- Half-day drills (3 hours), eight per year
- Half-day multiple company drills (3 hours), four per year
- Night drills (3 hours), two per year
- Company training at the fire station, 20 hours per member per month
- Two days per year for all officers
- Four half-day sessions for driver and operator training per year

Each of the Harford County fire and EMS companies have designated drill nights. All of the companies have a designated training officer, who is most likely an officer in the company as well as who may or may not have completed any instructor training. In a few of the



TRAINING

HARFORD COUNTY TRAINING (continued)

companies, the training officer seems to be merely the coordinator of drills for the department, while in other companies the training officer function appears to be a shared responsibility.

A review of the drill topics and drill attendance records submitted to the Study Team indicate that a majority of departments are engaged in regular company level training activities and that attendance varies, which is not unusual for this size volunteer organization.

Drill Attendance

Through interviews, the Study Team noticed that it appears that company drill attendance requirements vary from company to company and that some topics are sometimes repeated in lieu of more complex activities. Regular attendance at company level drills should be considered a requirement of maintaining active member status.

The Study Teams recommends that the HCVFEA establish a required, minimum attendance level for active members at company drill training sessions. This requirement should be applied equally and equitably to all fire and EMS companies. Should an active member fail to meet this minimum training standard, then that member should be placed in a “provisional” (non-minimum staffing) status until the training is completed.

Inter-Operability Training

In terms of multiple company operations and mutual aid inter-operability training, it was apparent to the Study Team that a limited number of these activities occur. The Study Team found that regional or mutual-aid training has been limited over the past few years and there are no immediate plans to improve this training.

The Study Team believes that multi-agency training events are important to the development of teamwork and to reinforce the concept of emergency scene discipline at the company level. The Study Team urges the HCVFEA to require the companies to host, deliver, and or



TRAINING

HARFORD COUNTY TRAINING (continued)

participate in meaningful, multi-company drills at least six times a year and that these drills focus on the various emergency response activities that require multiple units to work together in order to mitigate an incident.

EMS Training

With the exception of the recommended development and implementation of Officer Training Standards and the creation of Minimum Staffing Standards described earlier in this chapter, the Study Team found no issues with EMS-related training. Through interviews, the Study Team learned that access to EMS training was acceptable and that all agencies had a good working relationship with MIEMSS. Further discussion about EMS training is presented in the EMS chapter of this report.

Training Certifications

The Study Team found that even though the state operates the Maryland Voluntary Fire Service Certification System (MFVSCS), the use of the certification system varies amongst the County's fire and EMS companies. It appears that members do not apply for certifications even though they have completed the course work for eligibility.

The Study Team is not overly concerned with the lack of MVFSCS certifications among company members because almost all of the basic fire, rescue and EMS training courses delivered in the County are MFRI courses which meet or exceed the national standards. In most every case, when a student completes a basic MFRI course, such as Fire Fighter I, they have met the national standard and their course certificate is proof of their completion.

One exception to this case is the Fire Apparatus Driver Operator (FADO) certification. FADO certification is not awarded simply by completing a training course; there are other driver training requirements linked to the certification. For this reason, the Study Team does recommend that the proposed Training and Certifications Standards Committee develop and implement an Emergency Vehicle Operation Standard that would include the FADO Pump,



TRAINING

HARFORD COUNTY TRAINING (continued)

Aerial, and Mobile Water Supply certifications for all drivers of engines, ladder trucks, and tankers respectively.

When department members achieve a particular certification, it represents their commitment, dedication, and hard work in a particular area of study and practical skill. Because the Study Team supports the professional standards certification process and because the State of Maryland has one of the model certification systems in the nation, the Study Team suggests that professional certification be used in the recruitment and retention of volunteer fire, rescue, and EMS service providers in Harford County.

The Study Team recommends that the HCVFEA consider implementing some type of training certification award system that provides an award to the company members who pursue and attain certification under the MVFSCS. The award system could use a sliding scale method to provide one-time financial awards (cash, gift cards, saving bonds, etc.) to members meeting all of the training requirements for the various MVFSCS certifications. At a minimum, the Study Team suggests that the following certifications be considered in the awards program:

- Fire Fighter I and II**
- Fire Officer I, II, III, and IV**
- Fire Apparatus Driver/Operator (FADO) Pump, Aerial, and Mobile Water Supply**
- Rescue Technician–Vehicle and Machinery Rescue**
- Rescue Technician–Confined Space Rescue**
- Rescue Technician–Surface Water Rescue**
- Rescue Technician–Rope Rescue**
- Fire/Rescue Boat Crew–Motor Vessel Operator**

For EMS, the Study Team recommends a similar training certification awards program for the EMT-B, IVT, EMT-I, and EMT-P certifications obtained through MIEMSS. Because the MIEMSS certifications require a renewal process for each level of certification, the Study



TRAINING

HARFORD COUNTY TRAINING (continued)

Team suggests that the program consider providing awards based upon the certification renewal process.

Training Records

Training records and documentation are vital in the delivery of emergency services for they are the means by which provider qualifications are verified. The Study Team found that the keeping and maintenance of training records varied between the fire and EMS companies in Harford County. The Study Team has seen similar situations when multiple provider agencies exist in a single, governmental jurisdiction. However, this does not mean that the findings are acceptable.

Because all of the fire and EMS companies in Harford County are expected to work together in a “seamless” manner on emergency scenes, the standardization of training records and the process by which those records are stored and maintained is very important. As stated above, there currently is no standard use of a recordkeeping system. The companies use different software systems for various administrative functions but there is not a standard manner in which company level training records are created or stored.

The Study Team recommends that the County provide a training recordkeeping system for use by all of the fire and EMS companies. The system should have data entry points at each fire and EMS station so that the company training officers can enter and retrieve training data directly from the system. The training data entry and recordkeeping program must be able to manage and support the following types of training-related information:

- The entry and retrieval of individual member training course completion documentation and the imaging (scanning) of training certificates
- The entry and retrieval of individual member recertification documentation
- The entry and retrieval of company drill attendance and topic documentation
- The retrieval of individual member training records (training transcript)



FIRE SERVICE TRAINING

SUMMARY (Continued)

- The retrieval of training topics and hours of attendance data (e.g., 230 hours of driver training in 2006)

Funding

The Study Team found no issues with funding for training. Almost all of MFRI's training programs are cost-free to public sector emergency responders in Maryland—a huge benefit given the quality of the programs that are delivered. If there are any costs, they are limited to textbooks or student materials or the cost of transportation to courses.

SUMMARY

The main objective of the fire service is to prevent injury and loss of life and to protect property and the environment. Training is a key element to successful emergency scene operations and organizational effectiveness. Training in the fire, rescue, and EMS disciplines is also a career-long venture starting with recruit and basic training programs and working up to more sophisticated, advanced training and participation in higher education opportunities. Between formal training programs and educational courses, there needs to be ongoing reinforcement of knowledge and skills that apply to all ranks.

It is very apparent from speaking with the members of Harford County fire and EMS companies that the organizations are committed to providing good service to their customers. It is also important for the organizations to remember that their own members are customers as well. Like many other fire departments across the United States, there are some shortfalls in training in the Harford companies, but none so critical that they cannot be overcome in relatively short order.



FIRE SERVICE TRAINING

RECOMMENDATIONS

- 7.1 The HCVFEA and the individual fire and EMS companies should continue to utilize MFRI as the primary provider for their fire, rescue, and EMS training needs.
- 7.2 Harford County Government should not enter into the fire/rescue training academy “business” until such time that MFRI can no longer meet the needs of the fire, rescue, and EMS providers.
- 7.3 The HCVFEA should create a Training and Certifications Standards Committee as a sub-committee of the association with the authority to establish and enforce various training and certification standards for fire, rescue, and EMS providers in Harford County regardless of the providers’ affiliation, e.g. volunteer company, the Harford County Volunteer Fire and EMS Foundation, or a Harford County Government fire/rescue agency.
- 7.4 The Training and Certifications Standard Committee is urged to develop and implement the suggested Officer Training Standards.
- 7.5 The HCVFEA should utilize a two-year phase-in plan for implementation of the proposed Officer Training Standards:
 - A. In year one, all existing officers and personnel desiring to serve as officers must complete their NIMS and Fire Officer I or II training; and,
 - B. In year two, all existing officers and personnel desiring to serve as officers must complete their EMS training.
- 7.6 The HCVFEA should not permit the “grandfathering” of existing fire, rescue, or EMS officers in order to avoid having them comply with the additional training requirements proposed in this study.



FIRE SERVICE TRAINING

RECOMMENDATIONS (continued)

- 7.7 The proposed Training and Certification Standards Committee must immediately develop and implement a minimum training standards policy/program that clearly identifies the training requirements for probationary (new) members and that applies equally and equitably to all 12 companies. At a minimum, these fire and EMS standards must address the training requirements needed to ride on emergency apparatus as a crew assistant and as part of the minimum staffing crew.
- 7.8 The proposed Training and Certifications Standards Committee must develop and implement an emergency vehicle driver training program and procedure that is NFPA 1002 compliant and that is applied equally and equitably to the individual fire and EMS companies.
- 7.9 The HCVFEA should require all chief officers to complete the NIMS ICS 300 incident command training, and all captains and lieutenants to complete the NIMS ICS 200 incident command training within a one-year time limit from the release date of this study.
- 7.10 The HCVFEA should establish a required, minimum attendance level for active members at company drill training sessions and this requirement should be applied equally and equitably to all fire and EMS companies.
- 7.11 The HCVFEA should ensure that the individual fire and EMS companies host, deliver, and/or participate in meaningful, multi-company drills at least six times a year and that these drills focus on the various emergency response activities that require multiple units to work together in order to mitigate an incident.
- 7.12 The HCVFEA is encouraged to implement a training certification award system that provides an award to the department members who pursue and attain certification under MIEMSS and the MVFSCS.



FIRE SERVICE TRAINING

RECOMMENDATIONS (continued)

- 7.13 Harford County is urged to provide a training recordkeeping system for use countywide by all of the fire, rescue, and EMS departments with the ability to enter and retrieve training data directly from the system at the local company level.



CHAPTER EIGHT

EMERGENCY MEDICAL SERVICES

This Chapter includes an overview and history of emergency medical services (EMS) in the United States and the State of Maryland. It also provides an assessment of EMS delivery in Harford County.

OVERVIEW

In the United States, one of the most basic services that a local government must ensure that is made available to its citizens is the delivery of quality, emergency medical care. The actual delivery of such care is really just one component of a complete EMS system. In general, an EMS system is complex and consists of those organizations, resources and individuals from whom some action is required in order to ensure a timely and appropriate medical response to medical emergencies. The basic goal of an EMS system is to transport patients to a definitive care medical facility in a timely manner so that the patients suffer no further harm from their ailments or injuries. Although an EMS system does not stop when the patient arrives at the hospital door, the delivery of *pre-hospital medical care and patient transport to a hospital* are perhaps the most complex components of a community's EMS system.

HISTORY OF EMS

Modern EMS has only been in existence for about the last 40 years. During the first half of the 20th century, many ambulance services were operated by community funeral homes. Not only were the hearses used to transport deceased persons to funeral homes, but they were also used to transport sick and injured persons to a hospital. In many cases, the funeral home attendants had little first-aid training and the funeral homes were simply in the ambulance business because their vehicles were large enough to carry long stretchers.

After World War II, a number of civilian rescue squads and ambulance services began to emerge in the United States. While well-intentioned, often times the rescue personnel were untrained, poorly equipped, unorganized and unsophisticated; and the systems were unregulated. In addition, there were very few training standards for personnel or programs.



EMERGENCY MEDICAL SERVICES

HISTORY OF EMS (continued)

In 1966, the National Academy of Science's National Research Council published a white paper that described the inadequacies in emergency health care. The paper was titled "Accidental Death and Disability: The Neglected Disease of Modern Society" and it exposed the facts about a clear lack of a systems approach to EMS delivery. Also in 1966, the Highway Traffic Safety Act established the U.S. Department of Transportation and awarded that agency the authority and responsibility to improve EMS education, including the development and implementation of training standards.

As pre-hospital care started to become more sophisticated with the introduction of national standards for training of emergency medical technicians (EMT) and paramedics, fire department involvement in EMS grew throughout the United States. In 2004, it was estimated that more than 60 percent of all fire departments in the United States were involved in providing some level of emergency medical service.

In 2007, fire departments that provided EMS services to their community found that at least 50 percent, and as high as 80 percent, of their total emergency incidents handled each year were EMS-related. For a fire department to deliver quality EMS service, local government officials, fire department leadership, and EMS care providers must all embrace the importance of the service and must all understand the demands that a quality EMS program places on departmental resources.

THE MODERN EMS SYSTEM

The progressive EMS delivery system is really a complex system that has many customers – one of which is the patient receiving the care. It is important to emphasize that EMS customers also include the patient's family, the citizens of the community, the local medical professionals, the local hospital emergency room staff, the trauma and specialty referral centers, the local nursing and long-term care facilities, the health care insurance providers, the health care educators, the 911 call-takers and dispatchers, and of course, the EMS providers themselves.



EMERGENCY MEDICAL SERVICES

MODERN EMS (continued)

Modern EMS delivery is a service delivery that begins before the 911 call is initiated. Public health care awareness and injury prevention education are often delivered by local or regional hospital resources, as well as the EMS provider agency in hopes that the 911 call can be prevented, or at least made early in the medical emergency event. In communities where public health care education has been prioritized as an important part of the EMS system, an improved patient survivability and outcome is often the result. As a community's population changes in age and cultural composition, the need for public health care education grows increasingly more important. Elderly people and people with lower socioeconomic status often have more need for health care but less access to health care providers. Thus the demand for EMS is often higher for both of those demographic groups because they often are forced to use the hospital emergency room as their primary health provider in lieu of a regular family physician.

When the 911 call is made, the progressive EMS system will answer that call with an emergency medical dispatch (EMD) trained call-taker, who will also provide pre-arrival instructions to the calling party so basic lifesaving interventions can be started prior to the arrival of trained EMS providers. The progressive EMS system will have in place a tiered-type of response plan that gets both basic and advanced life support services to the patient within nationally accepted response time criteria. Ultimately, the patient will be properly diagnosed, treated, and transported to a medical facility capable of providing definitive care. If needed, the patient will also have access to the appropriate rehabilitation services.

An EMS System

According to the National Association of State EMS Directors (NASEMSD) and the National Association of EMS Physicians (NAEMSP), an EMS system is a comprehensive, coordinated arrangement of various resources and functions which are organized to respond in a timely manner to targeted medical emergencies, regardless of their cause or the patient's ability to pay. The system is expected to accomplish service delivery while minimizing the physical and emotional impact to patients. To the average individual who calls 911 for an



EMERGENCY MEDICAL SERVICES

MODERN EMS (continued)

ambulance because of an injured child, that they probably never considers the level of complexity that is involved in getting that ambulance to arrive at their front door.

The delivery of EMS requires the use of many resources, resources that must be funded, coordinated, and maintained in a ready state. The following list is a sampling of the resources needed to operate an EMS system (NASEMSD):

Professional, Occupational, and Lay Disciplines

1. Pre-hospital emergency medical care personnel (EMTs and paramedics);
2. Physicians;
3. Nurses;
4. Emergency medical dispatchers;
5. Directors and administrators;
6. Public safety first responder personnel; and,
7. Lay citizens and/or workers trained in system access, CPR, and AED use.

Facilities, Agencies, and Organizations

1. Hospitals;
2. Ambulance and first-responder services;
3. Fire departments and law enforcement agencies;
4. Regional and state EMS planning and training organizations;
5. Educational programs;
6. EMS professional organizations;
7. Federal EMS funding agencies; and,
8. EMS standard-setting agencies.



EMERGENCY MEDICAL SERVICES

MODERN EMS (continued)

Equipment

1. Ambulances and rescue vehicles;
2. Medical equipment and supplies;
3. Extrication devices;
4. Communications equipment;
5. System access equipment; and,
6. Personal protective equipment.

Funding

1. Federal, state, and local agencies;
2. Dedicated revenue sources;
3. Reimbursement mechanisms; and,
4. Private sector donations.

In addition to the resources needed to operate an EMS system, one must also consider the functions of an EMS system. Returning to the 911 scenario presented above, the individual who has called 911 for the injured child has thus far only encountered one small (but vital) part of the complete system. According to NASEMSD, there are 11 fundamental functions of a comprehensive EMS system and each of the functions integrates the use of the resources that were listed above.

The fundamental functions of a comprehensive EMS system are:

1. System organization and management (authority);
2. Medical direction (protocols, on-line medical direction);
3. Human resources and education (recruitment, training, stress management);
4. Communications (911 access, emergency medical dispatch, inter-agency communication);



EMERGENCY MEDICAL SERVICES

MODERN EMS (continued)

5. Transportation (ground, air, non-emergency);
6. Definitive care facilities (acute care, rehabilitation services);
7. Quality assurance/improvement, evaluation, and data collection (patient run records, system performance review);
8. Public information and education (prevention education, system access information, citizen CPR and first aid);
9. Disaster medical services (integrated planning, mutual aid exercises, triage system);
10. Research (systems, intervention); and,
11. Care of patients with special needs (designated trauma care systems, pediatric care systems, poison control systems, mental health facilities).

For an EMS system to be effective, all of the resources and functions must work together according to a plan. Any undue emphasis on one sub-component that causes neglect of another sub-component can induce fragmentation in the system and possibly compromise the effectiveness of service delivery.

Returning once again to that individual who called 911, it is easy to see how the end users of EMS seldom think about the collection of resources and effort that goes into the delivery of an ambulance at one's front door with trained providers who will care for the injured and the ill. Similarly, when EMS services are delivered to a community by an organization other than a local government provider, then members of local government can also become complacent and simply "take EMS delivery for granted."

EMS Delivery Models

Emergency medical care can be delivered through a variety of methods which include:

- A. Contracting the service through a private ambulance company;
- B. Delegating the service to a career or volunteer agency in the community;



EMERGENCY MEDICAL SERVICES

MODERN EMS (continued)

- C. Providing direct service through government employees; or,
- D. Any combination of the above.

As EMS in the United States has evolved, so have the different models or profiles of organizational structures for the delivery of the service. In the early 1980s, the United States Fire Administration published Fire Service/EMS, A Program Management Guide. This publication identified 28 different profiles for the delivery of EMS. Twenty-six of the profiles included participation of the fire department in some aspect of the pre-hospital EMS system and each profile has its own particular strengths and weaknesses. The profiles, identified almost two decades ago, still accurately portray EMS today. The original profiles identified in the Management Guide are built around five primary variables:

1. Dual-role EMS providers or cross-trained providers or “civilian” providers;
2. Career-only organizations or combination career and volunteer organizations or volunteer-only organizations;
3. First responders (First-Aid trained) or EMTs or paramedics;
4. Transporting units or non-transporting units; and,
5. Fire department-provided first response or no fire department-provided first response.

These variables can be combined into 52 different ways of EMS delivery, and it is likely that every variable has been tried and is probably being used somewhere in the United States today. The variables also can be pieced together as necessary to meet the needs and resources of a particular community. Many jurisdictions have started out with one profile and changed to a different profile as their EMS system grew and their resources shifted.

The combination of these variables can be classified into one of four main categories of pre-hospital emergency medical service delivery:



EMERGENCY MEDICAL SERVICES

MODERN EMS (continued)

1. Third service: EMS services are delivered by a separate public safety agency that usually holds equal status with other agencies in the community, such as the fire department and police department. These third party services may be provided by career, volunteer or a combination of career and volunteer personnel, and the organizations generally have non-profit status. (*The Harford County Volunteer Fire and EMS Foundation fits "loosely" into this category.*)
2. Hospital-based: EMS services are delivered from a medical facility, normally a local or regional hospital. Personnel delivering the services are normally hospital or health care system employees, and the services are commonly supported by hospital funding. (*Pennsylvania and New Jersey are known for their use of hospital-based ALS delivery. There have been few – if any instances of hospital-based EMS in Maryland.*)
3. Private service-based: EMS services are delivered by a privately owned company for a fee, on a for-profit basis. A local government would most likely enter into a written agreement with the private ambulance company identifying the level of services provided and cost of said services. (*This category is not used in Maryland for handling the 911 emergency call.*)
4. Fire department-based: EMS services are delivered by fire department personnel (career, volunteer, or combination). Fire department personnel are trained as EMS care providers and are equipped to provide care and transport for sick and injured patients. (*This is the most wide-spread type of EMS system used in Maryland.*)

EMS IN MARYLAND

Harford County is part of one of the most sophisticated, state EMS systems in the nation. For the past four decades, Maryland has played a lead role in pre-hospital EMS and has served as a model to other states. Pre-hospital EMS is part of the Maryland Institute for Emergency Medical Services System (MIEMSS) which includes in its network volunteer and career



EMERGENCY MEDICAL SERVICES

EMS IN MARYLAND (continued)

EMS providers, medical and nursing personnel, communications and transportation systems as well as trauma, specialty care centers and hospital emergency departments.

As an independent state agency, MIEMSS is responsible for overseeing and coordinating almost all of the components of the EMS systems throughout the state. Some of the many functions that MIEMSS provides include:

- Developing Statewide EMS plans - which includes aspects that impact each of the EMS regions;
- Providing medical direction;
- Supporting educational programs for pre-hospital personnel;
- Operating and maintaining a Statewide communication system;
- Maintaining an EMS data reporting system; and,
- Participating and supporting EMS related public education and prevention programs.

Maryland EMS Regions

Maryland's EMS system is composed of five regions. Each region has a Regional Advisory Council composed of members whom represent the various components of the EMS system and the various localities of the region. The Councils' responsibilities are defined by State regulation and cover a wide range of activities and coordination efforts for the region. They are an important conduit for communications from the State level and help provide feedback and input into decision making for the Statewide EMS Advisory Council. The Statewide Council provides input to the State EMS Board. MIEMSS provides staff to each of the Regional Councils for administrative support and assists the local jurisdictions with development and implementation of various components of their EMS program.

Seven jurisdictions make up Region III of the State-wide system: Anne Arundel County, Baltimore City, Baltimore County, Carroll County, Cecil County, Harford County, and



EMERGENCY MEDICAL SERVICES

EMS IN MARYLAND (continued)

Howard County. With the exception of Baltimore City which is an all-career system, all of the other Region III jurisdictions use a combination of paid and volunteer EMS providers to deliver their EMS services.

EMS Levels of Training and Certification in Maryland

More than half of the pre-hospital providers in Maryland are volunteer members of fire and rescue departments. The others are paid members of municipal agencies and commercial air and land ambulance services. All providers are certified/licensed by the State and are authorized to provide care in accordance with the Maryland Medical Protocols for EMS Providers.

As is the case in most states, pre-hospital EMS in Maryland is divided into two levels of care; basic life support (BLS) and advanced life support (ALS).

Basic life support is provided by individuals certified by the State:

- **Emergency Medical Dispatchers (EMD)** – Individuals who work in Emergency Communication Centers who are trained and certified to perform telephone triage and provide pre-arrival instructions. EMD training is provided by State approved programs throughout the State. The EMD license must be renewed every two years. Renewal is dependent on the individual maintaining affiliation with an EMD approved program and meeting skill proficiency and continuing education requirements for the EMD program.
- **First Responders (FR)** - First Responders are trained and certified to perform first aid procedures including cardiopulmonary resuscitation (CPR) and use of an Automatic External Defibrillator (AED). First Responder training (approximately 40 hours) is offered by local community colleges, the Maryland Fire and Rescue Institute (MFRI), various law enforcement agencies and even some Maryland public schools.



EMERGENCY MEDICAL SERVICES

EMS IN MARYLAND (continued)

First Responders must renew their certification every three years based upon completion of a MIEMSS-approved First Responder Skills Course (6 hours) and a minimum of 6 hours of continuing education credits. This requirement can be met with attendance at a MIEMSS approved 12 hour FR Refresher course.

- **Emergency Medical Technicians – Basic (EMT-B)** - EMT-Bs are individuals trained and certified to provide basic life support skills (includes bleeding control, bandaging, splinting, CPR, AED application) associated with emergency response on an ambulance. The EMT-B courses (approximately 130 hours) are also offered by community colleges throughout Maryland as well as MFRI, law enforcement and fire/EMS agencies, and some high school cadet/intern programs. An EMT-B certification is valid for 3 years as long as the individual maintains affiliation with a recognized EMS agency. EMT-Bs renew their certification by successfully completing 12 hours of State approved EMT-B skills courses and 12 hours of approved continuing education in specific topic areas. These hours can be obtained by taking an approved 24-hour EMT-B Refresher Course.

- **Emergency Medical Technicians – Basic – IV Technician (EMT-B IVT)** – [*The EMT-B IVT certification is a local option that is implemented and managed by a local jurisdiction – usually a county. Harford County operates an EMT-B IVT program.*] EMT-B IVTs are individuals trained and certified to provide basic life support skills (includes bleeding control, bandaging, splinting, CPR, AED application) plus initiate intravenous therapy. In Harford County, persons wishing to attain the EMT-B IVT certification must first complete an EMT-B program before they can be considered for the Harford County IVT Program. Should the candidate be accepted into and pass the IVT Program, then the IVT certification is good for only one-year during which time the EMT-B IVT must:
 1. Maintain active membership with a Harford County fire or ambulance company providing ALS level of care;



EMERGENCY MEDICAL SERVICES

EMS IN MARYLAND (continued)

2. Meet and/or exceed the minimum success rate of 75%, as required for recertification of total venipunctures performed; and,
3. Successfully complete ten (10) intravenous infusions, including med-lock placement on actual patients by:
4. Completing at least seven (7) on a Harford County EMS unit during the certification year or;
5. Completing clinical IV experience, coordinated by the PCC at a designated cooperating hospital or,
6. Successfully completing five (5) IV starts in other EMS jurisdictions or health care related work place settings, with the remainder being done on Harford County units.

Advanced life support providers are State licensed as:

- **Cardiac Rescue Technician – Intermediate (CRT-I).** This level meets the National standard curriculum for Emergency Medical Technician- Intermediate (EMT-I) 99. Providers must successfully complete a CRT/EMT- Intermediate 99 course (400-800 hours). There is provision for Registered Nurses, licensed physicians or certified Physician Assistants to complete a health care provider or CRT program. CRT training is offered in community colleges and universities throughout the State as well as by certain fire/EMS training academies. Testing is done through the National Registry of EMTs (NREMT). CRTs must renew their license every two years based upon the successful completion of the NREMT requirements for skills proficiency and continuing education.
- **EMT- Paramedic – (EMT-P)** is the highest level of certification/licensure for pre-hospital providers. These individuals are trained and educated to provide advanced life saving and supportive care. They must complete an approved EMT-P course of approximately 1100 hours or if they are a RN, physician or Physician’s Assistant they can complete the health care provider to EMT-P course. Providers who are CRT can



EMERGENCY MEDICAL SERVICES

EMS IN MARYLAND (continued)

complete the EMT-P bridge course. The training for EMT-Ps is provided at community colleges, universities and some fire/EMS training academies. EMT-P licensure is valid for two years and renewal is based on requirements of the NREMT.

EMS Communications

Maryland was one of the first states in the nation to develop and operate a state-wide communication system. The system uses radio and microwave technology to link the components of the EMS system together throughout the State. It provides State-wide communication from the scene of any incident to hospitals, specialty consult centers, and helicopter med-evac units. The communication system is not only for daily linkage of system components but also provides for coordination of resources for major incidents and disaster situations.

Two major components of the Maryland Communication system are the Emergency Medical Resource Center (EMRC) and the System Communication System (SYSCOM). The EMRC is capable of coordinating consultation between ALS units and physicians in hospitals and specialty centers and SYSCOM dispatches and coordinates the Maryland State Police med-evac helicopter program.

Voluntary Ambulance Inspection Program

In 1981, MIEMSS implemented a Voluntary Ambulance Inspection Program (VAIP) to ensure the public a high level of emergency medical care. The program also recognizes ambulance services which meet the standards established by MIEMSS. The program is endorsed by the Maryland State Firemen's Association which supports its acceptance of ambulance services throughout the State. Ambulances that pass the inspection program are recognized with a Certificate of Excellence for display - along with decals for placement on the vehicles. Certification is good for two years. To initiate an inspection, the ambulance company must submit a letter of request and complete an application verifying that the



EMERGENCY MEDICAL SERVICES

EMS IN MARYLAND (continued)

ambulance has met the DOT inspection criteria within the last year and that personnel staffing the unit meet minimum training and staffing requirements.

The inspection includes checking that the units contain the equipment and supplies specified in the inspection program and that the equipment is functioning properly – including the EMS communication equipment. The VAIP has EMS supply and equipment requirements for First Responder units, BLS ambulances, ALS ambulances, ALS fire engines, and EMS chase cars. *(During the course of their work, the Study Team learned that nine of the twelve Harford County volunteer Fire and EMS Companies participate in VAIP.)*

Quality Assurance Program

MIEMSS has developed a Quality Assurance Plan for adoption and implementation on the local level. It is a peer review system for significant medical events. It requires that every EMS operational program have a quality assurance plan approved by their Medical Director verifying that it is in accordance with the State plan. The State program has two components for the local plans: a system of audits and a quality improvement program.

Local plans are the responsibility of the local program's Medical Director working with a medical review committee. The State of Maryland plan requires that the local plans provide for the following:

1. Reviewing of all allegations that an EMS provider failed to follow protocol or administer appropriate care;
2. Identifying violations of the Maryland Medical Protocols for EMS Providers by providers;
3. Providing remedial action to resolve any patient care issues;
4. Notifying MIEMSS within 30 days of discovery of any significant incidents; and,
5. Reporting to MIEMSS on a quarterly basis any quality assurance issues.



EMERGENCY MEDICAL SERVICES

EMS IN MARYLAND (continued)

In reviewing the oversight and delivery of EMS services at the state level in Maryland, the present system appears to be extremely well-organized and operated. There appear to be no issues with EMS at either the state or regional levels. MIEMSS is commended for all of its efforts put forth to deliver a quality EMS system over such a diverse state.

EMS IN HARFORD COUNTY

History of Concerns

The topic of EMS in Harford County is one that has been discussed many times over the last decade. In fact, as far back as 1995 efforts were made to address the issues effecting EMS delivery in the county. Since then, many hours of work have been spent producing a number of different reports – each with the common thread of addressing critical items that effect EMS delivery in Hartford County.

In 1999, the Harford County Volunteer Fire and EMS Association (HCVFEA) commissioned the Harford County Emergency Medical Services Task Force (Task Force) to document the then current EMS performance of the member companies and to investigate methods of enhancing service and recommending improvements to the HCVFEA's leadership. Work over the next few years produced four reports – each with an in-depth review of EMS problems, concerns and recommended practices for improvement. The reports include:

- A. Harford County Emergency Medical System Task Force – Phase 1 Report, April 26, 2000;
- B. Harford County Emergency Medical System Task Force – Phase 2 Report, October 25, 2000;
- C. Harford County Emergency Medical System Task Force – Phase 3 Report, March 12, 2002; and,
- D. Interim Report – Harford County EMS Task Force 2004, March 4, 2004.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

The Study Team's review of the above reports revealed that many of the same issues and concerns that existed ten years ago continue to exist today – increasing call volume, increasing time demands on volunteer EMS providers and decreasing volunteer participation to name a few. While a few actions have been taken to remedy some of the critical areas of EMS delivery (such as paid staffing), other areas continue to operate as problem areas.

It is clear that the past work done by the Task Force provides an excellent history of EMS in the county. Therefore, the Team encourages anyone who becomes engaged in the future of EMS delivery in the county to start by first reviewing the four Task Force reports listed above.

Organizational Overview

The EMS System in Harford County is a system with limited structure and organizational oversight. Currently, EMS delivery is not a direct function of county government so it falls upon the independent volunteer Fire and EMS Companies to provide the service and therefore they each operate their EMS service independently. It appears that historically, each company has organized its EMS delivery model to best fit its organizational needs - which today, does not necessarily mean that the model best fits the end users' needs.

Since the county does not operate a fire or EMS department, the (HVCFEA) is the “lead” agency in terms of oversight of fire and EMS operations. (*See Chapter Two – Fire and EMS Organization for more detailed information concerning the organization and operation of the HCVFEA.*) At present, the EMS system is designed to be overseen by the EMS Committee of the HCVFEA. The committee develops policy, generates standards, conducts training and recertification and administers quality assurance/quality improvement programs. The Committee has an elected Chairperson who reports to the HCVFEA. There are also several sub-committees of the EMS Committee:



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

- A. The Training Sub-committee conducts yearly ALS skills evaluations, BLS, ALS classes and continuing education for all providers;
- B. The IVT Sub-committee conducts IVT training and IVT re-certifications; and,
- C. The Medical Advisory Board reviews calls that may have a protocol variance and recommends corrective actions when required.

The Harford County EMS system uses a mixture of different service delivery profiles. Ten volunteer fire companies provide ALS and BLS response and transport service in addition to their regular fire response services. One volunteer fire company provides First Responder EMS only with no transport capability in addition to their regular fire response services, One, volunteer ambulance company provides ALS and BLS response and transport service, and one federal government fire department provides ALS and BLS response and transport service on a mutual aid basis in addition to their regular fire response services.

The Harford County EMS system also uses a three-way mixture of volunteer and paid personnel to staff the various EMS response and transport units. All of the Fire and EMS Companies have some level of volunteer EMS participation, but that varies greatly between organizations. In general, the Study Team found that the busier companies had less volunteer EMS participation than the slower companies; however, but a clear correlation could not be made.

Two of the volunteer fire companies – the Aberdeen Fire Department (FD) and the Bel Air Volunteer Fire Company (VFC) – hire ALS and BLS trained providers from outside their organization to staff and operate their EMS units. The providers are employees of the individual companies. They work various shifts to deliver EMS response and transport service using ambulances owned and maintained by the companies. In FY2009, the Aberdeen FD and Bel Air VFC spent approximately \$440,000 and \$822,000 respectively on payroll and associated costs for paid EMS staffing.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

The third part of the “delivery system mixture” is the use of the Harford County Volunteer Fire and EMS Foundation (Foundation) which is a non-profit corporation that hires trained ALS and BLS providers to staff volunteer Fire and EMS company-owned ambulances in order to provide EMS response and transport services. Created in 2005, the Foundation is presently used by Level, Abingdon, Joppa Magnolia, and Fallston VFCs and the Havre de Grace Ambulance Corps. In addition, the Foundation operates an ALS “chase car” that serves the Darlington, Jarrettsville, Norrisville, and Whiteford VFCs. Foundation employees work various shifts and in different staffing numbers at the companies that utilize their services. In FY2008, the Foundation spent approximately \$2.4 million to provide supplemental, paid EMS staffing to the Fire and EMS Companies identified above.

With the exception of the Susquehanna Hose Company, all of the other Fire and EMS Companies in the county own and operate EMS transport units – or ambulances. There are a total of 25 ambulances owned by these companies and they are distributed as follows:

Each ambulance has a full complement of BLS and ALS equipment so that it can function as either an “ambulance” or a “medic unit” based simply upon the certification level of the providers staffing the unit.

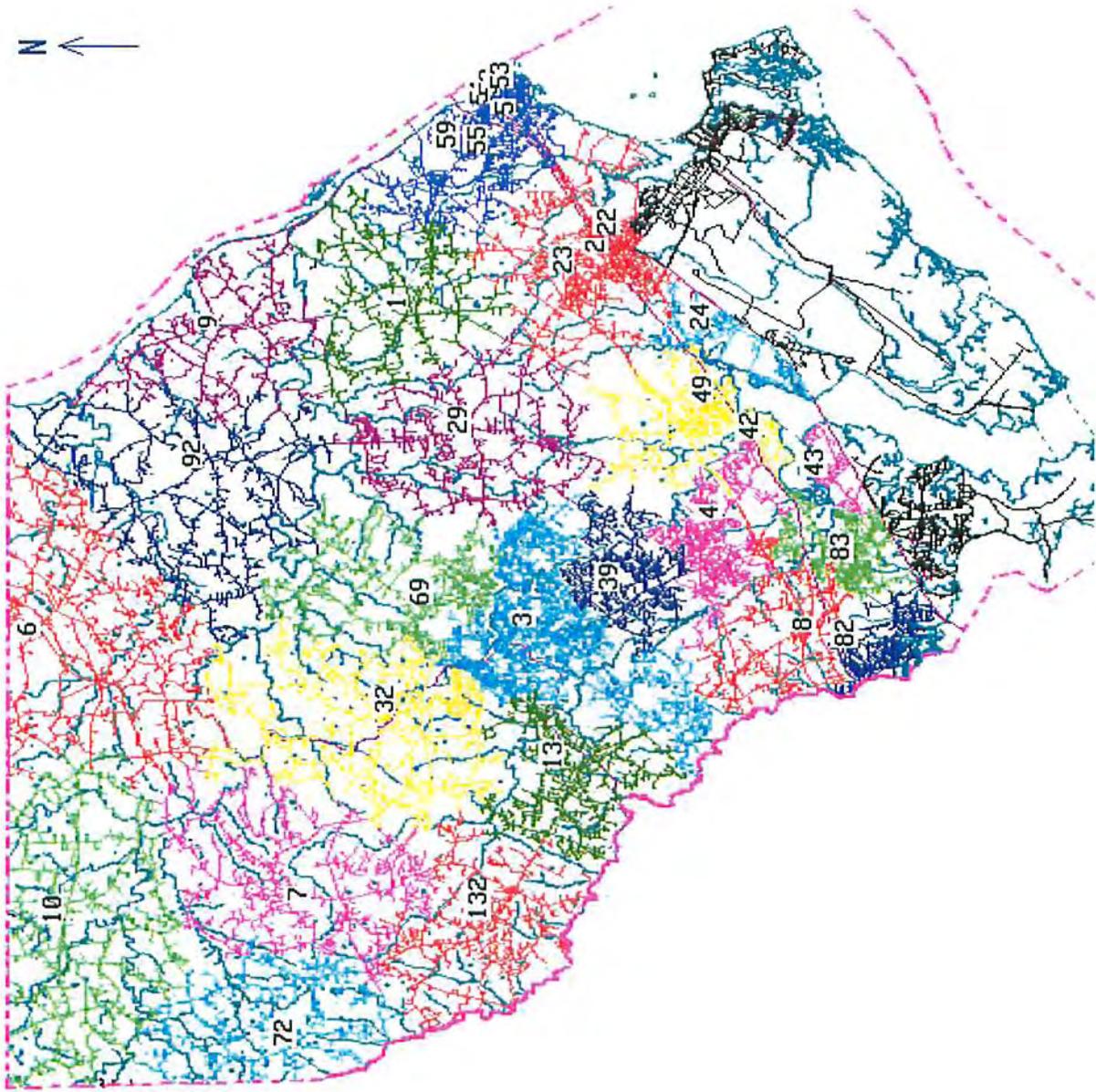
Delivery of EMS in Harford County

(Important Note: While in this section of the EMS Chapter, the reader will find the Study Team critical of numerous areas of the current EMS delivery system; they found people who care EMS. Many volunteer and paid staff are to providing EMS to the citizens of Harford County. It appears that the methods and the system by which EMS is delivered are the primary culprits for the Study Team’s criticism – not the people who deliver the service.)



Figure 8.1

Projected Station Response Areas - EMS



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Public Education/Preventing the 911 Call

Delivery of EMS in Harford County begins with the detection and recognition of the emergency situation by the victim or bystander. Throughout the nation, fire departments have been very effective in reducing the instances of fire through public fire safety education and fire prevention programs. Numerous fire and EMS departments have applied the same concept to health and wellness programs by being involved in injury and illness prevention in their communities. Injury and illness prevention is very important in all communities, but it is vital in areas where extended times exist for EMS response and patient transport. Examples of effective EMS public education/prevention programs include:

1. Citizen Cardiopulmonary Resuscitation (CPR);
2. Proper use of the 911 system – Making the Right Call;
3. Prudent heart living;
4. Child safety;
5. Child passenger seat checks; and,
6. Support of public access Automatic External Defibrillators (AEDs).

The Study Team found no organized approach to EMS-related public education and injury prevention programs in Harford County. A few of the volunteer Fire and EMS Companies seem to offer CPR courses to the public but only at the public's request. Other companies appear to participate in some health care-related prevention efforts – but primarily only when their company hosts an annual open house for fire prevention week. A couple of companies indicated that they sometimes participate in local health fairs or similar events in their community but not on a consistent basis.

It is clear that there is no county-wide organized effort to promote safe and healthy living – and who better perhaps to do this work than the persons responsible for delivering EMS care. With Upper Chesapeake Health (UCH) being based in Harford County, there is a great opportunity for the EMS system to partner with the local health care system to promote the



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

concept of “preventing the 911 call.” Thus, the Study Team recommends that the HCVFEA partner with UCH to develop and deliver public education programs focused on injury prevention for all age groups, healthy living related to cardiovascular diseases (stroke, heart attack, etc), citizen CPR, and knowing when to call 911 versus when to see a primary care physician. These programs should be offered not only at UCH locations but also at the Fire and EMS stations; because the Fire and EMS stations are community-based and generally easily accessibly and recognized.

In areas of the country that have embraced the concepts of injury prevention and health awareness, such programs are often included in school curriculums to afford maximum effect in the community. One such program, CPR is a relatively easy to deliver and is an important program that can be inserted into a number of school curriculums. At present, CPR is not part of the curriculum in Harford County schools. Therefore, the Study Team recommends that CPR be required coursework for all high school students in the Harford County school system and that the HCVFEA and the County work together to implement this recommendation.

Over the last ten years, the EMS community – both public and private – has experienced the tremendous benefits associated with automatic external defibrillators (AEDs) used for the treatment of sudden cardiac death. The use of AEDs allows trained bystanders to administer electrical shock to dying hearts prior to the arrival of EMS providers. Since time is critical in the most severe situations of cardiac arrest, having AEDs available in public buildings can account for the saving of lives prior to the arrival of EMS units. The success of AEDs has been so great that public access to these devices has significantly increased. In fact, there are many locations now throughout Maryland where one can easily find public access AEDs – high schools, sports centers, airports, health clubs, shopping malls, and swim centers to name a few.

In Harford County, the Study Team did not find the level of public access AEDs participation that was expected given the size of the county and its development. Interviews with the EMS



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

responders revealed limited knowledge of locations with public access to AEDs. In addition there was limited knowledge of any effort to support a public access AED program. Therefore, the Study Team recommends that the HCVFEA develop and implement an aggressive, public access AED program that has a county-wide focus and works with the local government and business interests to implement public access to AEDs throughout Harford County.

Handling the 911 Call

When a person dials 911 in Harford County, the call is answered at the Harford County Emergency Operations Center (EOC) where it is processed by a trained Emergency Medical Dispatcher (EMD). In 2008, the EOC dispatched 25,916 EMS-related calls.

In relation to EMS delivery, there are three important components to handling the 911 call; process the call quickly, dispatch the appropriate level of care (ALS v. BLS), and provide pre-arrival instructions when life threatening situations occur. In terms of call processing, the goal is to quickly identify the true life threatening emergencies and process those calls as fast as possible: that is the purpose of having EMD certified dispatchers. Harford County's EOC was the first 911 communications center in Maryland to become an Accredited Center of Excellence for Emergency Medical Dispatch and Emergency Fire Dispatch. The Study Team commends the EOC leadership and staff for their achievement.

At the EOC, all 911 calls for EMS service are initially handled by a call-taker who answers the 911 call and speaks to the calling party in order to triage the call by obtaining information needed to make the appropriate dispatch. The call-taker obtains information and enters it into the computer-aided dispatch (CAD) system in order to further triage the call by nature and priority. As this process takes place the system will automatically forward appropriate incident information to a fire/EMS dispatcher if it is determined to be a high priority (ECHO) type call. At that point, while the call-taker continues to gather additional information from the calling party, the fire/EMS dispatcher makes the initial dispatch of EMS units.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

The CAD system and the Medical Priority Dispatch System (MPDS) protocols integrated in the CAD system provide guidance to the call taker on questions to ask and information to obtain from the calling party. If the type of situation requires medical pre-arrival instructions, the call-taker provides that service to the calling party (CPR instructions for example). When all relevant incident information obtained from the calling party is entered into the CAD system, the call record is then forwarded to the fire/EMS dispatcher for handling, including updating responding units with further information as appropriate. *(A more detailed discussion of this dispatch process along with appropriate Study Team conclusions and recommendations are included in Chapter Twelve - Communications and Dispatch of this Study report.)*

Regarding the alerting and notification of stations and company personnel, it is the dispatcher that activates those systems. When a call is dispatched, alerting systems in the stations are activated as are the voice/tone pagers carried by the emergency responders. One of the difficulties noted by the Study Team is that alphanumeric pagers are not used. The advantage of an alphanumeric pager is that the incident type and address is displayed when the pager is activated by the dispatch alerting system.

Currently, emergency responders in Harford County only have access to a voice/tone alert pager that simply alerts with a tone and provides the same vocal announcement that is heard over the main dispatch radio channel. Thus, if a provider is not in a position to write down an address, then he or she is already at a disadvantage in terms of knowing where the incident is located and quite possibly will have to use the radio to request an "address check" – which only increases radio traffic. When call volume is high, this additional radio traffic makes more work for the dispatcher and can cause more stress for the providers who are trying to respond to the correct address. Alphanumeric alert pagers are used in many Maryland jurisdictions with success. Therefore, the Study Team recommends that the County, through the EOC and in cooperation with the HCVFEA, implement the use of an alphanumeric alert paging system in addition to the current voice/tone alert paging system.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

An important part of the 911 call handling and dispatch process is sending the appropriate level of care to the calling party. In Harford County, as in most all jurisdictions, there are two options of care level – ALS and BLS. The dispatch of ALS care produces the response of a medic unit which is staffed by at least one, ALS provider and an EMT-B driver. A medic unit is equipped to handle the most serious of medical and trauma-related emergencies in addition to being able to provide basic care if needed (BLS). The Study Team learned that some of the Fire and EMS Companies allow a medic unit to respond with an ALS provider and a First Responder driver. The Study Team does not support such staffing because an ALS call indicates the potential for life-threatening medical or trauma emergencies and therefore should have at the least, an EMT-B serving in the support role to the ALS provider. Therefore, The Study Team recommends that the HCVFEA develop and implement an EMS unit staffing standard that establishes the minimum staffing for a medic unit as one ALS provider and one EMT-B provider (driver). *[Note: A First Responder can participate in the ALS treatment and transport process, but not as the second provider of a two provider crew.]*

The dispatch of BLS care produces the response of an ambulance which is staffed by at least one, EMT-B and at least a First Responder driver. An ambulance is equipped to handle less serious medical and trauma-related emergencies. In Harford County, all ambulances are equipped to function as medic units; all that is needed is an ALS provider. The Study Team commends the individual companies and the HCVFEA for supporting the practice of equipping ambulances with ALS equipment – this is an expensive endeavor that certainly enhances the ability to get an ALS-equipped vehicle to the scene of an ALS-type call.

In addition to the dispatch choices of an ambulance or a medic unit, the EOC dispatcher also has the choice of an IVT dispatch. The HCVFEA in cooperation with the EOC and the medical director have developed a dispatch/response plan for an IVT-staffed unit in lieu of a medic unit or ambulance. Like the ALS and BLS dispatches described above, an IVT dispatch uses the same ambulance vehicle - just with an EMT-B/IVT certified provider instead of an ALS provider.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Dispatch criteria for IVT responses generally fall into the trauma-related categories where there may be information about someone falling or having an injury that might be trauma-related but no cardiac or respiratory problems are noted. The Study Team feels that the IVT dispatch choice adds a level of complexity to an already complex dispatch process and that other than starting an IV, the EMT-B/IVT has no additional training. Sending an EMT-B/IVT as the lead provider on an ambulance to a potential trauma or serious medical event can delay the appropriate level of care. Therefore, the Study Team recommends that the EOC, working with the HCVFEA discontinue the IVT response plan as one of the EMS dispatch choices. However, the Team recommends no change to the IVT certification program because IVTs can still perform an important role as assistants to ALS providers.

Another area of concern found by the Study Team relates the use of coded phrases during the dispatch and alert process. At the national level, one of the goals and initial requirements of the National Incident Management System (NIMS) is the use of “plain speak” during radio communications. Prior to NIMS, many jurisdictions across the nation utilized the 10-code system for transmitting radio messages. For example, a police officer requesting a tow truck might ask for a “ten-thirteen (10-13)” or a fire chief asking for the location of an engine might ask for its “ten-twenty” (10-20). However, after September 11th, it was clear that the use of coded phrases only complicate radio communications when multiple jurisdictions are involved because not every jurisdiction uses the same code system.

Currently, Harford EOC and all of the Fire and EMS Companies use coded phrases for various radio transmissions. For EMS, there are three problem areas: the terms “10-99,” “Code 3,” and the three digit code used to identify a hospital. The term 10-99 is when a company is alerted but has no crew or specified provider. For example: “Medical Box 403, Company 4 respond a medic unit, 123 Main Street for chest pains, 10-99 a crew, operate on A4, 2241.” The use of plain speak would simple require the dispatcher to say, “...Company 4, waiting on a crew,” instead of using the phrase 10-99.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

The term “Code 3” is used when a company is alerted but has not yet responded at the 3-minute mark. The dispatcher will re-vocalize the dispatch and add the words Code 3. For example: “...Company 4, 10-99 a driver, Code 3.” Again, plain speak should be used in lieu of the coded phrase.

When an ambulance or medic unit has completed on-scene patient care and is ready to begin transport to a hospital, the care provider in charge of the unit will notify the dispatcher that transport has begun. This notification allows a time stamp of the call to occur thus showing when transport to the hospital began. Presently, when making these radio notifications, providers refer to the hospitals by the 3-digit number used in the MIEMSS reporting system (EMAIS). For example: “892 enroute to 224.” Which means, that an EMS unit from the Joppa-Magnolia VFC is transporting a patient to Upper Chesapeake Hospital in Bel Air. Plain speak would have the provider state the following: “Medic 892 is enroute to Upper Chesapeake.”

The Study Team recommends that the HCVFEA, in conjunction with Harford EOC develop and implement a plain-speak radio communications standard for use with all radio communications traffic in the fire and EMS system.

Response Time

(For a more detailed discussion and analysis of response times for all fire and EMS units, refer to Chapter Four – Fire and EMS Stations of this Study.)

With the exception of getting the right level of care to the right patient, perhaps the most important part of any EMS system is response time. Even if the right level of provider with the right equipment responds, if he/she cannot arrive in a timely manner, then the best EMS delivery system will fail. In Harford County, response times to EMS incidents have been sub-par for a number of years. They have improved in recent times with the addition of some



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

paid EMS staffing, but overall, response times are in need of improvement for a jurisdiction with a population over 250,000.

An analysis of response time does not point to any one item as the primary cause of the problem. Instead, the problem is related to numerous components of the EMS system all somewhat intertwined. Because travel time from a fire/ambulance station to an incident scene is a relatively fixed value for each incident, it is the time period to get the ambulance “on the street” which becomes the problem in a volunteer system where personnel may not be at the station. Unfortunately, to be effective in delivering care to the critically ill and injured, a medic unit has to respond as soon as possible after it receives the alert.

Presently, after alert, an ambulance or medic unit has 3-minutes to indicate that either it is responding or a crew is enroute to the station to “get the unit out.” If at the 3-minute mark neither of the aforementioned has happened, then the next due unit is dispatched and the original unit is re-alerted. An added delay occurs if a crew has notified the dispatcher by radio or phone that they are enroute to the station and they have done this before the 3-minute mark, then that crew has another 15 minutes to get that unit out. The Study Team has never encountered such a response practice in an EMS system anywhere and finds it difficult to believe that such an archaic practice exists today in Maryland – a state well known for its EMS programs.

Another problem relating to alert and dispatch of EMS units is the failure to respond rate. In any volunteer or combination system where stations are not fully-staffed there will be times when apparatus that has been alerted fails to respond on a call due to no staffing. In Harford County, a failure to respond is presently known as a “dropped” call or a “no show.” This means that the unit dispatched failed to respond at all and most likely was replaced by a unit from the next closest company.

According to data provided in the Harford County EMS Task Force 2004 – Interim Report, there were 1,335 no shows for EMS incidents in 2004. Regardless of what percentage that



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

number represents of the total call volume handled, it still represents 1,335 times that the closest EMS unit failed to respond to a 911 call for a injury or medical emergency. Like the 15-minute response procedure noted above, the Study Team finds this failure to respond data unacceptable.

Since that 2004 report, it is clear that the implementation of paid staffing at some of the Fire and EMS Companies over the last two years has made a positive impact on reducing the failures to respond, but it has not eliminated them. In the second quarter of 2009 alone, there were 151 failures to respond (no shows) by EMS units – many of which were second and third calls in a company response district. Once again, that was 151 times that the closest ambulance or medic unit failed to respond to a 911 call – in 2009.

Basically, the paid EMS staffing that has been implemented has done a good job of handling the first 911 call in a company's response district. It is the second or third 911 call that is now the problem. As one interviewee told the Study Team, "You just have to hope that you are the first 911 caller asking for an ambulance – otherwise you may not get one for awhile."

The Study Team recommends that the HCVFEA working in conjunction with the EOC develop and implement a dispatch procedure for EMS incidents that addresses the following items:

1. An EMS unit – regardless of type – is given 3-minutes to respond after being alerted. If at the 3-minute mark the unit is not responding, then the next due unit of the same type is dispatched. If that next due unit is not staffed (attended) then the next due staffed unit must also be dispatched.
2. If during a 3-month period, a company has a dropped EMS call rate of 12% or greater, then all EMS calls in that company's response district will be dual-dispatched using the next closest unit of the same type. The dual-dispatching practice will be re-evaluated for continuation after a 3-month period.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

3. If during a 3-month period, the total of all dropped EMS calls, EMS late responses, and EMS short staffed responses equals 30% or greater of the company's total EMS calls, then all EMS calls in that company's response district will be dual-dispatched using the next closest unit of the same type. The dual-dispatching practice will be re-evaluated for continuation after a 3-month period.

Resource Deployment – Vehicles

Another very important component effecting EMS response time is the deployment of resources – both vehicles and providers. In terms of vehicles, the key component to deployment is the ability to have an adequate number of response units available to handle the normal call volume with some reserve to handle surges in the system.

In Harford County, there are three types of vehicles that are used to handle EMS emergencies: ambulances, utility vehicles, and fire trucks. In terms of ambulances, they are also equipped to operate and serve as medic units as described previously in this chapter. Besides the level of staffing and the equipment carried on the unit, the key feature of an ambulance is its ability to transport a patient to a hospital.

Without transport capability, EMS care is of little use to critically injured or sick individuals. In 2008, the volunteer Fire and EMS Companies in Harford County transported 14,850 patients to local hospitals, which represents about a 3% increase over the number of transports made in 2007. The number of transports made in 2007 represented about a 4% increase over 2006 transport statistics. With the expected continued growth in population in Harford County, the Fire and EMS Companies can expect similar growth in EMS calls and patient transports.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Presently, there are a total of twenty-five (25) ambulances in Harford County owned and operated by the volunteer Fire and EMS Companies. The twenty-five ambulances are housed at sixteen (16) of twenty-six (26) Fire and EMS stations located throughout the county.

(The Aberdeen Proving Ground Fire Department also operates ALS and BLS transport units that can be used on a mutual aid basis, but they are not part of the discussion in this part of the study.)

Because the location of a fire/EMS station certainly affects the response time of an EMS unit in terms of travel time, the Study Team finds it unusual that some of the Harford County fire companies would operate multiple ambulances out of one station while their other station(s) operates no ambulance. The important point to remember is that travel time really cannot be changed, for it is the distance from the station to the incident. The only way to change travel time is to deploy resources in a manner that provides better distribution over the response district. Therefore, the Study Team recommends the HCVFEA develop and implement an EMS resource deployment standard that places at least one ambulance (ALS equipped) in the locations shown in Figure 8.1. It illustrates ambulance response areas including Havre de Grace Ambulance and unit located in the vicinity of the Susquehanna Hose Company station on Revolution Avenue

(Note: The ambulance recommended for Susquehanna Hose Company House 4 is a unit operated by the Havre de Grace Ambulance Corps.)

In addition to the recommended deployment of EMS transport units listed above, the Study Team believes that there is an immediate need for an additional, ALS staffed transport unit that is available along the Route 40 corridor area during the daytime hours, seven days a week. Incident and response data for the last fifteen years have all shown the demand for EMS resources is greatest along the Route 40 corridor – specifically from the Baltimore County line to the Aberdeen area.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

On any given day, there are numerous calls for service in the Route 40 corridor, many of them as second and third calls in a given company's response district. By placing in service an additional ALS transport unit during the peak demand period in a peak demand zone, response times should be reduced to the area as well as the burden placed on other EMS units also should be reduced.

The Study Team believes that the need for this additional ALS service exists today and therefore should be treated as a priority implementation matter perhaps best managed by the Foundation in conjunction with the HCVFEA. The Team recommends that the HCVFEA through the Foundation, implement an ALS-staffed transport unit to serve the Route 40 corridor with the possibility of operating out of Abingdon VFC's House 2 on a 6:00 am to 6:00 pm basis, seven days a week.

In terms of the ambulance fleet, the volunteer Fire and EMS Companies appear to operate a well-equipped and well-maintained fleet of transport units and EMS utility vehicles. As mentioned earlier in this chapter, MIEMSS operates the Voluntary Ambulance Inspection Program (VAIP) of which only nine of the twelve Harford County Fire and EMS Companies participate. The Study Team finds the VAIP an important program for both professionalism of the organization and for building public trust in the system. Therefore, the Team recommends that the HCVFEA implement an EMS standard that mandates participation by all companies in the VAIP.

Resource Deployment – Providers

The second important component of EMS resource deployment is the EMS care provider. As discussed previously, providing the appropriate level of care to the injured or sick patient in the shortest amount of time is vital to achieving a positive patient outcome. Obviously then, the role of the trained provider is critical. In Harford County, there are several levels of trained EMS providers: First Responders (FR), EMT-Bs, EMT-B IVTs, CRT-Is, and



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

EMT-Ps. All providers are Maryland certified and authorized to practice in Harford County following State protocols and local jurisdictional standards.

As of April 1, 2009, according to data provided by the HCVFEA EMS Committee, there were 1,115 volunteer and paid responders certified at the following levels. See Figure 8.2.

Presently, the deployment of EMS care providers is managed by the volunteer Fire and EMS Companies. As described in the organizational discussion earlier in this chapter, there are several different deployment practices in use – each somewhat autonomous to the individual company. In most cases, the more effective deployment strategy is to have a qualified crew ready to respond at a station equipped with a qualified response unit. In an all career fire and EMS system, that provider deployment strategy is easy to implement – the system simply pays providers to staff the individual response units for some set period of time. In that system, the stations are designed to house employees twenty-four hours a day by providing sleeping, eating, showering, and other living space. The trade-off for this fully-paid, ready response force is the costs associated with paying salaries, wages, and benefits.

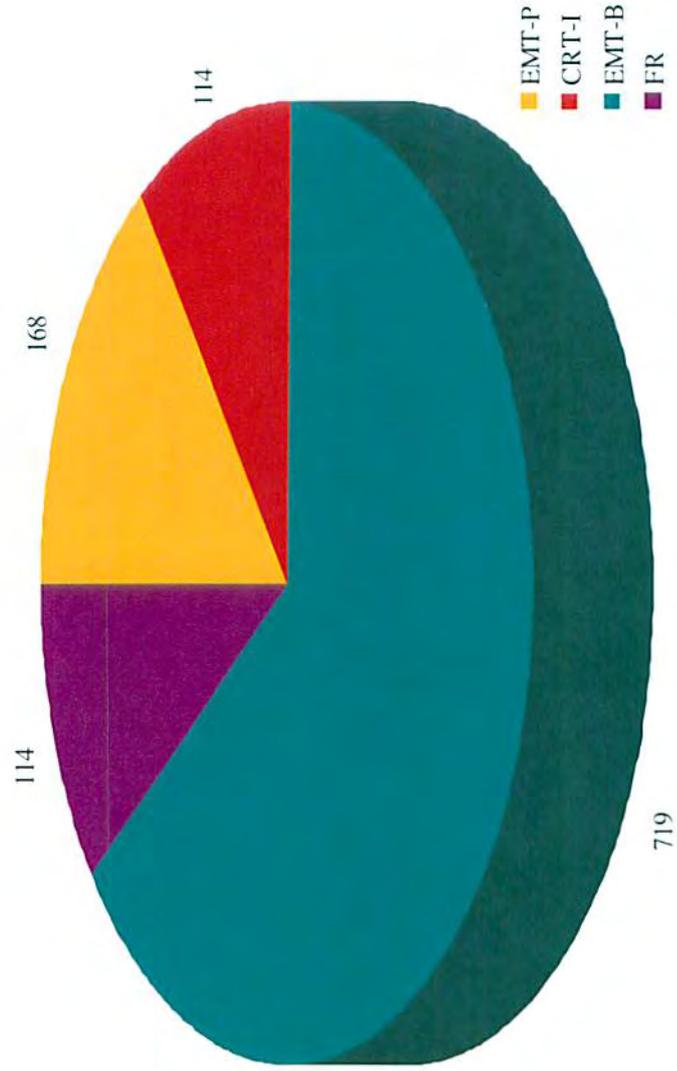
The deployment of EMS care providers in a volunteer system is more difficult due to a number of factors: proximity to the station, variance in availability, alerting mechanisms, call volume, etc. In Harford County there is a variety of deployment practices used for volunteer providers. Most of the companies use some type of “duty program” where providers sign up to cover EMS calls for a given time period. For an example; an EMT-B at Darlington might sign up to cover the driver position on the ambulance for an evening/overnight period from 6:00 pm to 6:00 am. If a call for the ambulance is received, then that EMT-B responds to the station and drives the unit. Perhaps a paramedic and EMT-B driver at Abingdon sign up to cover an EMS unit on Sunday from 7:00 am to 5:00 pm and they both choose to stay at the station during that period. If a call for the medic unit is received then that crew is already in quarters and can quickly respond to the call for service.



Figure 8.2

**HARFORD COUNTY EMS PROVIDERS
BY CERTIFICATION
April 2009**

Figure X.X



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

The Study Team finds the duty program effective only if the EMS units can respond within the response time goals. As discussed earlier, allowing 15-minutes to get an ambulance on the street because a duty crew has radioed that they are responding to the station is unacceptable. The reader should recall the discussion in a previous part of this Report relating to the importance of response time and the fact that brain death in a heart attack patient whose heart has stopped occurs in 4-6 minutes.

In the development zones of the county, response from home by volunteers is not easy. Traffic and congestion quite often do not permit an effective home response deployment strategy. In the non-development zones (rural) – home response can be somewhat effective as long as response time goals can be met.

The Study Team also found that a number of the Fire and EMS Companies pay their duty crew participants some type of stipend for covering duty periods or emergency responses. The stipends vary between companies but generally involve a sliding scale based upon training and qualifications and the position held on the EMS unit.

Both the Bel Air VFC and the Aberdeen FD use a paid EMS response force to deliver the majority of their companies' EMS response service. The Aberdeen FD examined the need for paid EMS staff in 1999 and implemented that program in 2000. Currently, Aberdeen FD uses paid EMS providers to staff one medic unit 24-hours a day, 7-days a week plus provide a second ALS provider for twelve hours some time between 6:00 am to 11:00 pm every day. The 12-hour period covered is based upon the availability of the ALS provider. The Study Team was informed that there are plans to move to full, 24-hour coverage for the second medic unit in the future.

For the Bel Air VFC, they implemented paid staffing for their EMS units in 2005. Presently, the Bel Air VFC uses paid EMS providers to staff two medic units 24-hours a day, 7-days a week. The company used to staff a third EMS unit using paid providers, but they have transitioned back to a volunteer crew. Bel Air's call volume is very high with often four and



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

five EMS calls occurring at one time in their response district. The Study Team was informed that plans are in progress to operate a fourth EMS unit once the new station opens in the Patterson Mill area of Bel Air.

Both the Bel Air and Aberdeen paid EMS response forces are primarily comprised of part-time providers – many of which are providers in other jurisdictions or with other Harford County Fire and EMS Companies. The use of part-time staff to fill a full-time schedule requires a fairly large complement of available providers, but the Study Team learned of no issues in meeting the daily, paid EMS staffing needs at either company.

In 2005, the Harford County Volunteer Fire and EMS Foundation (Foundation) was incorporated as a non-profit organization to help with staffing EMS units throughout the county on “as needed” basis in order to reduce the instances of late response and failure to respond. Foundation staffing operations began in April 2006 with immediate participation by a couple of companies. Today, the Foundation provides the staffing illustrated in Figure 8.3.

As one can see, the Foundation staffing is used in different ways at the various companies. Both the Abingdon VFC and the Joppa-Magnolia VFC use the Foundation staffing to staff a medic unit with a full crew. However, at Abingdon, the crew can be split up if volunteer providers are in the station and want to ride on the unit. At Joppa-Magnolia, the Study Team learned that the company does not allow the Foundation crew to split up – therefore the two paid EMS providers are always together on the medic unit.

At the Level and Fallston VFC’s and the Havre de Grace Ambulance Corps, the single, Foundation ALS provider must wait on a volunteer driver to complete his or her response crew. If a driver is not available, the Foundation provider can respond alone – but this is not standard practice. The Study Team learned of no current issues with the deployment of Foundation staffing at the Level, Fallston, or Havre de Grace companies.



Foundation Staffing Coverage

Company	Foundation Staffing
Level VFC	One (1) ALS provider 6:00 am to 6:00 pm - 7-days a week
Aberdeen FD	
Bel Air VFC	
Abingdon VFC	One (1) ALS & One (1) BLS provider - 24-hours/day - 7-days a week
Susquehanna Hose Company	
Havre de Grace Ambulance Corps	One (1) ALS provider - 24 hours/day - 7-days a week
Whiteford VFC	Shares the North County Chase Car
Jarrettsville VFC	Shares the North County Chase Car
Joppa-Magnolia VFC	One (1) ALS & One (1) BLS provider - 24-hours/day - 7-days a week
Darlington VFC	Shares the North County Chase Car
Norrisville VFC	Shares the North County Chase Car
Fallston VFC	One (1) ALS provider 6:00 am to 6:00 pm - Monday to Friday
North County Chase Car	One (1) ALS provider - 24 hours/day - 7-days a week
EMS Supervisor	One (1) ALS provider - 24 hours/day - 7-days a week



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

The Darlington, Jarrettsville, Norrisville, and Whiteford VFCs all share the use of the North County Chase Car which is housed and operated out of the Whiteford VFC station. The chase car is a fully-equipped ALS response SUV-type vehicle that is staffed by one Foundation ALS provider 24-hours a day, 7-days a week. The chase car is alerted on all EMS calls and responds to the incident scene along with an ambulance from the local fire company. If the ALS provider from the chase car is needed to help with patient care, then the provider becomes part of the ambulance crew and transports the patient to the hospital.

Currently, the North County Chase Car covers the entire response districts of the Darlington, Norrisville, and Whiteford VFCs and only part of the response district of the Jarrettsville VFC. The Jarrettsville areas not covered by the North County Chase Car are commonly known as “no-go boxes” with the term “box” meaning a subdivision of the entire Jarrettsville response district.

During the Study Team’s interview process with many folks from all aspects of the EMS delivery process in Harford County, the topic of the Jarrettsville no-go boxes always seemed to come to the forefront as one of the more controversial issues. The notion that a staffed, ALS-equipped chase car is not dispatched to calls in its coverage area is unusual – especially when it is not dispatched to ALS calls. The Study Team finds the practice of no-go boxes unacceptable – they complicate the dispatch process, the response process, and are just not in the best interest of patient care. Therefore, the Study Team recommends that the HCVFEA working with the EOC staff and the Foundation immediately stop the practice of no-go boxes for the North County Chase Car. *[Note: Once the results of this study are implemented and company response districts are re-aligned with travel distances, then a more accurate dispatch procedure for the North County Chase Car can be implemented.]*

Another dispatch item related to the North County Chase Car is the unit identifier used for radio and dispatch communications. The current practice is to identify the chase car by the vehicle number that the Foundation is running as the chase vehicle. The Foundation has three large, SUV vehicles that are used for the North County Chase Car, the on-duty



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Foundation supervisor car, and a spare car that is kept at Foundation headquarters. The three SUVs are numbered 1496, 1497, and 1498 and are rotated through the assignments for maintenance purposes – so at any given time any one of the SUVs could be operating as the North County Chase Car.

The Study Team found this numbering problem when attempting to sort out response data for the North County Chase Car. The unit radio designation for the chase car is whatever vehicle number is running for the day. So the Study Team found response data for 1496, 1497, and 1498 and because the on-duty Foundation supervisor uses the same radio identification procedure – the data query was difficult. When looking at data for 1496 additional work had to be done to see if that unit was the North County Chase Car or the Foundation Supervisor.

Inquiry into the numbering system for the Foundation units revealed a variety of reasons as to why a simple “North County Chase” term is not used for unit identification. Unfortunately, most of the reasons involved concern that the volunteer Fire and EMS Companies would “lose face” because calling the unit North County ALS (or similar plain speak) would imply that the companies could not produce the service and the Foundation was getting credit for the response on the radio.

The bottom line is that plain speak radio communications need to occur on a daily basis so that when the large scale, multi-jurisdictional event occurs, units are prepared to communicate clearly with each other. Therefore, the Study Team recommends that the HCVFEA in conjunction with the EOC and the Foundation immediately assign the North County Chase Car and the Foundation supervisor plain-speak radio identifiers that clearly identify the unit by organization and purpose.

Related to the North County Chase Car is the topic of chase car staffing. Presently, the chase car is staffed by one ALS provider. The Study Team finds this staffing inadequate for it prevents the chase car from being used on a second call in its coverage area. The concept



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

of the North County Chase Car is to share Foundation resources between four companies that have a lower call volume than the companies in the more populated areas of the county. The problem is that these companies can only share the resource one at a time and once used, the resource is not ready until the ALS provider returns from the hospital – which sometimes can be upwards of one hour or more.

The Study Team examined the Cecil County, Maryland EMS system where ALS chase cars are used to deliver ALS service throughout the entire county. Chase cars in the Cecil County system are staffed using two ALS providers so that the crew can split up if needed on a multiple-patient incident or if a second call comes in nearby and one ALS provider can handle the existing incident. The Study Team has previously examined other ALS chase car systems and found that the two, ALS provider staffed chase cars are better suited for patient care and the ability to handle the second patient or second call.

A concern heard by the Study Team was that there are shifts when no calls are run by the chase car so the ALS provider has nothing to do. The Study Team finds this argument moot because it is simply a matter of the assignment of work by the supervisor. Perhaps the chase car staffing is simply assigned collateral duties that support the delivery of EMS county-wide – duties that can be managed remotely from the Foundation and HCVFEA offices. The Study Team finds that there generally is no lack of work for an active and growing EMS organization.

Based upon the Study Team's previous work and current evaluation of the North County Chase Car, the Team recommends that the HCVFEA through the Foundation immediately implement a two-ALS provider minimum staffing standard for the North County Chase Car on a 24-hour, 7-day a week basis.

During the Study Team's assessment of the North County Chase Car the Study Team learned of discussion involving the implementation of a second chase car - perhaps operating out of the Level area of the County. The Study Team concurs with this planning discussion and



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

recommends the implementation of a second ALS chase car using the Level VFC as a home operating base and staffed with two, ALS providers 24-hours a day, 7-days a week. This second chase car should be made operational within 12 to 24 months after the release of the Study Team's report. Staffing for the new chase car should use the existing ALS provider assigned to the Level VFC with the addition of other ALS providers to complete the staffing complement for the unit.

The advantage of this second ALS chase car in the Level area is that it will provide some flexibility in ALS coverage in the Level, Havre de Grace, and Aberdeen areas when transport units are already committed to events. It will also allow the dispatch center to have an ALS response unit that they can relocate more "down-county" if needed during busy times without compromising ALS coverage in the north. Likewise, the additional chase car will allow the current chase car to be moved on the western end of the county toward Fallston and Bel Air should ALS demand be greater in those areas, without compromising the ALS coverage in the north.

Finally, regarding paid EMS staffing at Aberdeen FD, Bel Air VFC, and the Foundation, the Study Team believes that all paid EMS staffing should fall under one organization for consistency and reduced levels of complexity. While the Team appreciates Aberdeen and Bel Air's pro-active approach to address their EMS staffing needs, the Foundation is now the current model for paid EMS staffing in Harford County and the Team recommends that the two fire companies transition their paid EMS staffing to the Foundation within the next 18 months. The Study Team also recommends that the Foundation move to employ as many full-time providers as possible so as to build a more cohesive work-force as the organization moves towards becoming a full-time EMS agency.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Provider Training

Initial and recurrent training for all EMS providers is an important component in any EMS system. With over 1,000 EMS providers in Harford County, providing access to training can be quite a logistical challenge. Currently, there is no one person responsible for the EMS training function. While there is an EMS Liaison on the HCVFEA Training Committee, there is a significant amount of work to do for just one person in terms of managing and or tracking an entire system.

At the company level and at the Foundation, the Study Team found EMS training to be managed a bit differently in each organization however everyone appeared to meet the MIEMSS requirements and the Team learned of no problems with the EMS certification or recertification process.

Regarding initial certification training, the Maryland Fire Rescue Institute (MFRI) provides the EMT-B certification and recertification training free of charge to the Fire and EMS Companies. All of the companies have the ability to host the EMT-B and other EMS training courses. For ALS certification and recertification a couple of options are used. Certification in ALS can be completed through Essex Community College which is where many of the ALS providers interviewed by the Study Team completed their work. Recertification and continuing education for ALS providers is handled through MFRI ALS refresher coursework and “in-county” continuing education sessions arranged and scheduled by the EMS Liaison, the Foundation administrative staff, and the individual Fire and EMS company EMS officers. All ALS providers in Harford County are also required to complete an annual ALS skills session which is run by the HCVFEA EMS Committee and held in the fall of each year.

At a minimum, the Study Team believes that there should be one office and most likely one person responsible for tracking the certification and recertification of all ALS providers in the county regardless of their company or Foundation affiliation. Currently, such tracking



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

is not as strong as it could or should be given the nature of ALS provider duties and responsibilities.

There are several ways that such an ALS training and certification tracking process can be managed. The Study Team feels at a minimum that it is time for a part-time, paid ALS coordinator for the county's EMS system with the responsibility of coordinating all ALS training and certification activities. One possibility is to use the Foundation as the mechanism by which to hire an ALS coordinator. The Study Team therefore recommends that the HCVFEA working in conjunction with the Foundation, create a part-time, ALS Coordinator that is a paid position responsible for the general overall management of ALS certification, recertification, and continuing education for all ALS providers in Harford County – volunteer and paid. The Study Team realizes that the workload for the part-time, ALS coordinator will increase as growth in the EMS system occurs. Therefore, the Study Team would expect the part-time ALS coordinator position to transition to a full-time, EMS coordinator position sometime in the next 3 to 5 years, or sooner if more paid providers are needed before then.

Patient Care and Transport

Once EMS crews arrive at the emergency scene, patient care and treatment is initiated based upon the level of provider certification and in accordance with the Maryland Medical Protocols for EMS Providers. As discussed earlier in this chapter, ambulance and medic unit crews in Harford County are generally sufficiently equipped to handle both BLS and ALS incidents and once adequate staffing has arrived on the scene, patient care and transport is most often handled without incident.

In terms of patient transports, most patients in Harford County are transported by ambulance to one of two local hospitals – Upper Chesapeake Medical Center in Bel Air or Harford Memorial Hospital in Havre de Grace. For companies that border the Baltimore County line, there are occasional transports to Franklin Square Hospital. For trauma patients, there are



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

no trauma centers in Harford County so all patients have to be either flown by med-evac helicopter or taken by a ground transport unit to one of the trauma centers in Baltimore.

One of the important logistical features of an EMS system is the ability to transport patients to hospitals, off-load them, and then return to service to accept the next patient. If patient transfer time at hospital emergency departments is delayed, then ambulances are delayed in returning to service which creates the necessity for other ambulances to answer calls that the delayed ambulance has missed while waiting for a bed at the emergency department. Thus, the problem can compound itself rather quickly when a hospital delays patient transfers.

During the Study Team's interviews sessions with Harford County EMS providers, a common area of concern was the wait time at local hospital emergency departments for transferring patients to beds. The Team learned that over the last 18-months, wait times have fluctuated with some waiting periods being over 90-minutes. The problem is this creates the inability to respond on another EMS call and deters volunteer participation - because a once 90-minute response-transport-and return to service cycle might now be a 3-hour cycle and the volunteer coming in from home to respond on the unit may not have the time commitment to a 3-hour call.

What seems to be missing is the ability to have a liaison with the hospitals because there is no one, consistent voice that speaks for all EMS providers. For a Foundation crew, the Foundation supervisor can certainly drive right to the emergency department at the time of the problem to speak with the emergency department staff. But on the volunteer side, the Study Team found little help for volunteer crews facing such problems – especially in the overnight hours.

Most of the county-based EMS systems in Maryland have designated liaison officers who communicate daily with the hospitals and also serve as points of contact for the other health care facilities in the community that impact EMS delivery such as nursing homes, assisted



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

living centers, and urgent care facilities. Such a person does not exist in Harford County and the effects are felt by the EMS providers.

The Study Team recommends that the HCVFEA through the Foundation, develop and implement a procedure whereby liaison officers are designated for each hospital in Harford County and the on-duty Foundation Supervisor serves as the initial point of contact for all immediate EMS matters involving patient transfer at local emergency departments - regardless of the EMS crew's company or Foundation affiliation.

Medical Director

The work of the EMS providers at the emergency scene falls under the auspices of the system's Medical Director – a position required by MIEMSS. The role of Medical Director is an important role in any Maryland EMS system. It is a position of authority that should not be taken lightly. All EMS providers in a jurisdiction basically operate and perform their duties under the license of the Medical Director – thus the Medical Director must be carefully selected to ensure that the person chosen is engaged at all levels of EMS in the jurisdiction. Some jurisdictions have assistant or deputy medical directors to help provide oversight and direction to the EMS system. This arrangement may very well be needed in the future as the EMS system grows in Harford County.

The current Medical Director for the HCVFEA and the volunteer Fire and EMS Companies has served in that capacity since 1988 and presently serves both the ALS and BLS components of the system. He has worked for 31 years as an emergency department physician at Harford Memorial Hospital where he has come to know many of the EMS providers. The current Medical Director performs his duties and responsibilities without compensation and without a written contract. In addition, the Medical Director operates without any additional liability insurance in relation to his work in the Medical Director position. The Study Team commends the Medical Director for his many years of volunteer



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

service. His work without pay certainly shows a commitment to community from both him and his employer.

While the Study Team can appreciate the Medical Director's gratis work, the Study Team is concerned over the lack of a written agreement and the lack of liability insurance – neither represent good business practice in today's emergency medical care field. The Study Team recommends that the HCVFEA and the Medical Director enter into a written agreement concerning the roles and responsibilities of the Medical Director position and that the agreement be completed using State guidelines for the role of the local Medical Director.

There are increased insurance coverage needs related to a physician serving as medical director for a pre-hospital EMS system. By agreeing to assume the medical director responsibilities for a jurisdiction, a physician is assuming responsibilities that are consistent with, but substantially different from those the doctor is involved with in his or her regular medical practice, either private or hospital related. The medical director's professional liability coverage should be clearly stated in a contract for services. Liability issues include not only medical negligence, but also operational issues. Good Samaritan Laws do not usually provide adequate protection, even in these cases where a medical director is not compensated.

There are two types of insurance needed by an EMS medical director. The first is malpractice insurance. The medical director should obtain a certificate of insurance or binder from his/her malpractice carrier specifically identifying coverage for EMS activities. The second type is directors and officers' professional liability insurance which covers operational issues.

There are insurance packages that are offered by insurance companies specifically focused on the unique insurance coverage needs of physicians performing medical director functions for an EMS system. Typically, the coverage needed includes the following:



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

1. Professional Liability coverage for services performed or advice given in the medical director capacity;
2. Bodily injury coverage or personal injury arising out of direct patient care while acting as medical director;
3. Coverage for employment liability practices such as wrongful termination, discrimination, sexual harassment and retaliatory treatment, while acting as medical director;
4. Defense coverage for civil suits brought against the medical director for sexual misconduct, while acting as medical director;
5. Defense coverage for proceedings brought against the medical director by a state or other regulatory or disciplinary official or agency to investigate charges alleging professional misconduct in performing the medical director functions; and,
6. Coverage for personal injury, including false arrest, malicious prosecution, libel or slander, while acting as medical director.

Given that the Study Team found no evidence of existing liability insurance relating to the role of medical director, the Team recommends that the HCVFEA require medical director liability insurance and that the coverage and minimum limits be clearly listed in the medical director's contract for service. The cost of this insurance should be considered as part of the fee and expense compensation package provided by the HCVFEA in the contract, since it is in the best interest of the HCVFEA, the individual Fire and EMS Companies, and the medical director that they be protected for third party claims including defense costs.

One final note about the HCVFEA Medical Director, he also serves as the Medical Director for the Foundation where he operates under a signed agreement and receives a stipend for his work. The Study Team believes that the same arrangement needs to occur with the HCVFEA.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Report Writing - EMAIS

Once the patient has been transferred to the care of hospital emergency department staff there are still a few activities that need to be completed by the EMS crew and their company – report writing, billing, and some type of quality assurance (QA) review. Presently, all EMS personnel utilize the State patient reporting system known as EMAIS. The EMAIS program is web-based and can be accessed from any computer with Internet access and a web browser.

The Study Team's work found mixed reviews about the use of EMAIS for patient encounter reporting. Providers who used the paper reporting system that existed prior to EMAIS often stated to the Team that EMAIS adds additional time to an EMS call; and for volunteer providers this is another aspect of the EMS system that can further extend their time commitment and possibly deter their participation. The Study Team finds these EMAIS concerns legitimate issues in a volunteer EMS system but the Study Team is unable to recommend change because the EMAIS system is a State process and outside the scope of this Study.

Regarding the use of EMAIS reporting in Harford County, the Study Team found no operational issues with the reporting system – other than the time needed to complete the work. Providers seem to have adequate access at the stations and record completion appears to be well-supervised. It will be important for the HCVFEA to work closely with MIEMSS to improve the EMAIS system so that it does not become a deterrent to volunteer participation.

EMS Billing

All of the volunteer Fire and EMS Companies in Harford County that provide EMS transport service participate in EMS billing. Permissible by law and used as a funding source in many jurisdictions throughout Maryland and the United States, patient transport billing has truly



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

changed how EMS systems are funded. The principle behind the billing program is that most health care insurance providers will reimburse patients for the cost of transport by ambulance to a medical care facility. Ambulance transport fees generally include a base charge for the transport, a mileage fee, and charges for any procedures, supplies or medications used during the transport.

At first, many public sector ambulance provider services were hesitant to pursue the billing option because of concerns over it being viewed as another “use tax” or its affect on fund drive donations. But, as time passed, these organizations saw how a billing program can actually improve the level of EMS provided to the community. With billing, there often can be a somewhat consistent revenue stream that can be used to purchase new vehicles and equipment and hire part-time and/or full-time staff to ensure that ambulances are available to respond to emergencies.

With patient transport billing, there can be some concerns from the public, but fortunately most of those concerns can be resolved with good program oversight and education. One common public concern is the fear that different people will be charged different fees or rates for the same level of service. Today’s health care regulations require that all patients be treated the same, including “billed the same” for transport services.

In Harford County, EMS billing is handled by the individual Fire and EMS Companies using different EMS billing firms. Rates are based on the level of service provided (BLS v. ALS), and the mileage incurred during transport to the hospital. The fire or ambulance company that transports the patient is the company that gets to charge for the service. So if Abingdon responds to a call in Bel Air’s response district and transports the patient, then the Abingdon VFC will bill the patient via Abingdon’s EMS billing vendor. Even if a Foundation crew transports the patient, the billing is still based upon what company’s ambulance transported the patient to the hospital.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Currently, the Fire and EMS Companies do not charge the same billing rates for their EMS services and it is probable that the cost of an ambulance transport in one area of the county can be different from the same type of transport in another area of the county. In addition, some of the companies operate an “ambulance club” where residents can join for an annual fee (donation). If a club member needs ambulance transport service, then his or her “out of pocket costs” for transport service - which are not covered by medical insurance - will be covered by the ambulance club membership.

Because EMS billing brings in tens of thousands of dollars each year to the Fire and EMS Companies (except Susquehanna Hose Company) and because the companies also receive significant funding from Harford County Government, the Study Team believes that the companies have a fiduciary responsibility to manage their EMS billing in a manner that is cost-efficient and equitable across the county, regardless of response districts. The “public’s trust” is important in the delivery of EMS and it is even more critical when fees for service are used to fund operations.

The Study Team has five recommendations concerning EMS billing in Harford County. First, the Team recommends that the HCVFEA implement an EMS billing standard requiring all companies to charge the same rates for service: ALS transport, BLS transport, and mileage. The Team recommends that prior to the start of each fiscal year, the HCVFEA should establish the EMS billing rates for the upcoming year based upon any costs increases or changes in the federal EMS billing and reimbursement regulations. Once annual rates are established, only the HCVFEA can authorize any change during the fiscal year.

The Study Team recommends that all Fire and EMS Companies utilize the same EMS billing firm in order to standardize the administrative processing fee structures. By going to one billing firm, the Study Team believes that the HCVFEA will be able to negotiate a contract that can reduce processing costs thus showing a commitment to responsible financial management of public funds and improving public trust in the sometimes controversial area of EMS transport fees. The Study Team also believes that by using the same billing service,



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

the Fire and EMS Companies will be in better position to maximize their returns while minimizing their processing costs.

The Study Team's third recommendation concerning EMS billing is that the billing company chosen by the HCVFEA should be fully vetted in terms of personal and financial relationships with the administrative and operational leadership of the individual Fire and EMS Companies and the Foundation as this is a public trust matter. If a fire or ambulance company leader is also an executive or senior administrator in the EMS billing company used by the HCVFEA, then that must be fully-disclosed so that public trust is not put at jeopardy. Even the perception of impropriety could be enough to destroy public confidence in the EMS billing system.

The Study Team's fourth EMS billing recommendation involves who receives the billing revenues. The Team recommends that the HCVFEA establish an EMS billing standard that allows the individual Fire and EMS Companies to keep their EMS billing revenues as long as the company meets the HCVFEA EMS response time goals and measures of performance standards enacted as described earlier in this chapter.

The final recommendation from the Study Team concerning EMS billing involves the topic of ambulance clubs. Once again, because the individual Fire and EMS Companies receive county government funding to support their operations, the Study Team feels it is unfair to have one company offer an ambulance club when the adjoining company does not. The Team does not take stance against the use of ambulance clubs; just that if ambulance clubs are going to be used then all companies receiving county funds should use the same organizational format, fee structure, and benefit use procedures. Therefore, the Study Team recommends that the HCVFEA, in conjunction with the Fire and EMS Companies confer on the continued use of ambulance clubs and that if the agreement reached is to continue the use of ambulance clubs, then an HCVFEA standard must be established that addresses all aspects of club operation so that all citizens have the same opportunity for participation and receipt of benefits.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Quality Assurance

Another important part of an EMS system is the presence of a quality assurance program. A quality assurance (QA) program helps ensure that proper documentation has been completed and that patient care was provided in accordance with medical protocols and procedures.

In Harford County, there is a two-tier QA process. First, each Fire and EMS company operates its own QA process – which is mainly a review of EMAIS reports for completion accuracy. Each company varies in the percentage of reports that are QA'd and who QA's those reports. The level of training for those individuals involved in the company-level QA process varies and sometimes, the job appears to be assigned simply to an EMS officer position without consideration for qualification. Because patient care reports are part of the billing process, the report completion accuracy is important if a fire or ambulance company wants to have an effective EMS billing process.

Regarding the Foundation, it too has its own internal QA process. The on-duty Foundation supervisor reviews 100% of all EMAIS reports completed by Foundation providers. If problems are found they are addressed immediately – or no later than the next shift that the provider works. The Study Team commends the Foundation's leadership for its 100% QA review of patient care reports. This type of goal is not easy to attain and the Team recognizes the efforts put forth by the Foundation leadership and staff.

The second level of QA in Harford County is the Medical Advisory Board (MAB) which is a seven-member board that consists of a Chairperson who is an EMT-P, two other EMT-P's, one CRT-I, one IV Tech, one EMT-B and the Medical Director. No two members may be from the same company.

The MAB reviews and handles QA cases that get sent to it from the individual company QA processes. These cases are generally cases involving more serious matters that either



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

cannot be handled at the company level or must be reported by law or the company QA officer is uncertain what action to take, so the MAB's services are requested.

The Study Team's review of the HCVFEA's standards found two that address quality assurance: Standard 4.0 – Standards Describing Quality Assurance Process (September 26, 2001) and Standard 3.2 – Medical Advisory Board (February 28, 2007).

Unfortunately, both standards seem to address the same topic – the MAB. The assumption is that Standard 3.2 supercedes Standard 4.0 because of its date of implementation, however, any wording about superceding is not found anywhere in either document. The Study Team recommends that the HCVFEA carefully review Standards 3.2 and 4.0 for their applicability and consider combining the standards into one document that clearly describes the member make-up of the MAB and their duties and responsibilities as well as the procedural processes for handling items brought before the board.

Other than the old and new Standards concerning the MAB, the Study Team found the MAB to be effectively organized and in compliance with state regulations. The Study Team's concern with the QA process in Harford County lies with the company-level processes for which no HCVFEA standard exists. This does not mean that the Study Team found gross errors or reporting failures in the QA process at the company level. What they did find was inconsistencies in how the QA process was handled and the Study Team feels that improvement can be made by standardizing the process for all companies. The Study Team recommends that the HCVFEA working with the MAB to establish a Standard for Quality Assurance and Quality Improvement for all Fire and EMS Companies in Harford County. The standard must comply with all aspects of the MIEMSS requirements and State regulations. The Study Team also recommends that the HCVFEA standard require quality assurance officers to complete the MIEMSS Quality Improvement Officer training course.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

Other EMS-Related Matters

Mass Casualty Incidents

By general definition, a mass casualty incident (MCI) is an EMS incident in which there are more injured or sick patients than there are care providers to treat them. When a two-person medic unit arrives on the scene of a triple-shooting, they by definition have an MCI until additional help arrives. From the Study Team's review of MCI preparation in Harford County, the Study Team considered larger scale MCI events such as a passenger airplane crash in the BWI flight path, a train derailment along Amtrak's Northeast Corridor, or a suicide bomber attack at Ripkin Stadium. All of those MCIs would require the response from multiple agencies to handle a variety of hazards – including the triage, treatment, and transport of numerous patients.

The Study Team found that no county-wide response plan exists for the management of MCI events. The Study Team does not find this unusual for a county where the fire and EMS services are not a function of county government. In Harford County, each Fire and EMS company is responsible for managing an MCI. The problem of course is that each company may handle the MCI in a different manner and when resources from various companies and agencies must work together, then inter-operability problems will most likely occur.

In terms of MCI resources, there are twenty-five ALS-equipped transport units (ambulances) owned and operated by the Fire and EMS Companies. Without the units being staffed and attended either in quarters or by a duty-crew, there is absolutely no guarantee that these units will be able to respond on an MCI event. As discussed earlier in this chapter, the ability of the companies to handle the "second-call" is not consistent. An MCI event could conceivably be a very large, second and third call event for those companies operating two or three ambulances and the Study Team does not believe this type of volume could be handled using the current unit staffing and unit deployment model.



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

A number of jurisdictions in Maryland have some type of MCI response vehicle that can quickly deploy treatment supplies to the MCI event scene. Some jurisdictions operate portable roll-off pods, some operate small box truck type vehicles, and other use trailers. The Study Team did not find any MCI vehicle operated by the Fire and EMS Companies. This is not unusual given the current organization of fire and EMS delivery in Harford County. The Team did find limited MCI response capability available through the Aberdeen Proving Ground FD (APGFD) on a mutual aid basis. The APGFD response resources are basically trailers that provide additional patient treatment supplies that would be available assuming that the type of event did not impact APGFD's own response (terrorist attack for example).

In most communities in the United States, the greatest threat for a mass casualty incident generally lies within the area of transportation. The recent MCI incidents in the Washington, DC Metro System and the San Francisco light rail system reinforce the concerns of transit-related MCIs. Therefore, with the Amtrak and MARC train lines and Interstate 95 all running through Harford County, the possibility of a large-scale MCI is very real. Therefore, the Study Team recommends that the HCVFEA establish a standard operating procedure for the response to mass casualty incidents including standardizing the initial dispatch of resources for an MCI event.

Pandemic Response Plan

The Pandemic response plan is addressed in Chapter Ten, Wellness, Health and Safety, in this Report

Foundation Reimbursement

The final EMS item is the fees relating to the use of Foundation services. Currently, the Fire and EMS Companies that utilize Foundation providers - either through unit staffing or through the chase car - must pay the Foundation a fee. For the chase car, the fee is applied every time the Foundation provider transports a patient to the hospital. For the staffed units,



EMERGENCY MEDICAL SERVICES

EMS IN HARFORD COUNTY (continued)

the fee is for staffing the unit. While the Study Team understands how this fee arrangement was established, the Study Team considers it no longer necessary since the County is providing the funding to the Foundation and the companies, and really the companies are just reallocating some of the money back to the Foundation. It may be a deterrent to the use of Foundation in providing quality services. Therefore, the Study Team recommends that beginning next fiscal year the practice of charging fees to the fire and EMS company users be discontinued and the County fully-fund the Foundation operation.

SUMMARY

The topic of EMS delivery in Harford County is a topic that has been discussed and debated for at least 10 years with much work put forth in terms of examining how the system works, its deficiencies, and potential ways of improving the system. The Study Team found many care providers interested in improving the system and it appears that the “system” – or lack thereof – is actually the problem.

There are many good EMS care providers in Harford County and they are well-equipped with the tools and vehicles of their trade. It is clear that effort has consistently been put forth by the Fire and EMS Companies to provide the tools needed to deliver the service. The deficiency has been in the staffing of the ambulances and medic units so that they may respond in a timely manner to emergency calls.

The bottom line in effective EMS delivery is getting a properly staffed unit to the incident scene in enough time to have a positive outcome on the patient. The present deployment of EMS resources in Harford County is in need of serious overhaul in order to reduce the late responses and failures to respond. No one calling 911 for an EMS emergency should have to wait for a second or third due EMS unit to be dispatched while the closest EMS unit sits un-staffed.



EMERGENCY MEDICAL SERVICES

In order for this overhaul of the EMS system to occur, the HCVFEA and the volunteer Fire and EMS Companies are given a chance to improve their own operations through the implementation of HCVFEA standards. While the standards will certainly be a change in practice, they need to occur if success is expected. If the recommended standards are implemented in a timely fashion, then a marked improvement in EMS delivery should be seen. If the standards are not implemented – or implemented standards are not complied with – then the Study Team believes that a transition to a fully-paid EMS delivery system will have to occur much sooner than expected.

RECOMMENDATIONS

- 8.1 The Harford County Volunteer Fire and EMS Association (HCVFEA) should partner with Upper Chesapeake Health to develop and deliver public education programs focused on injury prevention for all age groups, healthy living related to cardiovascular diseases (stroke, heart attack, etc), citizen CPR, and knowing when to call 911 versus when to see a primary care physician.
- 8.2 The HCVFEA should work with the County to require CPR as required coursework for all high school students in the Harford County school system.
- 8.3 The HCVFEA should develop and implement an aggressive, public access AED program that has a county-wide focus and works with the local government and business interests to implement public access AEDs throughout Harford County.
- 8.4 Harford County Government, through the Emergency Operations Center (EOC) and in cooperation with the HCVFEA, should implement the use of an alphanumeric alert paging system in addition to the current voice/tone alert paging system.
- 8.5 The HCVFEA must develop and implement an EMS unit staffing standard that establishes the minimum staffing for a medic unit as one ALS provider and one EMT-B provider (driver) with the role of a First Responder limited to a third or fourth care provider on the unit.



EMERGENCY MEDICAL SERVICES

RECOMMENDATIONS (continued)

8. 6 The EOC, working with the HCVFEA should discontinue the IVT response plan as one of the EMS dispatch choices.
8. 7 The HCVFEA, in conjunction with the EOC must develop and implement a plain-speak radio communications standard for use with all radio communications traffic in the fire and EMS system.
8. 8 The HCVFEA, working in conjunction with the EOC must develop and implement a dispatch procedure for EMS incidents that addresses the EMS-related suggested Measures of Performance.
8. 9 An EMS unit – regardless of type – is given 3-minutes to respond after being alerted. If at the 3-minute mark the unit is not responding, then the next due unit of the same type must be dispatched. If that next due unit is not staffed (attended) then the next due staffed unit must also be dispatched.
8. 10 If during a 3-month period, a company has a dropped EMS call rate of 12% or greater, then all EMS calls in that company’s response district will be dual-dispatched using the next closest unit of the same type. The dual-dispatching practice will be re-evaluated for continuation after a 3-month period.
8. 11 If during a 3-month period, the total of all dropped EMS calls, EMS late responses, and EMS short staffed responses equals 30% or greater of the company’s total EMS calls, then all EMS calls in that company’s response district will be dual-dispatched using the next closest unit of the same type. The dual-dispatching practice will be re-evaluated for continuation after a 3-month period.



EMERGENCY MEDICAL SERVICES

RECOMMENDATIONS (continued)

8. 12 The HCVFEA should develop and implement an EMS resource deployment standard that places at least one ambulance (ALS equipped) in every fire and EMS station in the County with the following considerations:
 - A. Aberdeen: Fire and EMS Stations 2 and 2-4;
 - B. Abingdon: Fire and EMS Stations 4 and 4-3; and,
 - C. Havre de Grace: Operated by Havre de Grace Ambulance Corp at or in the vicinity of Susquehanna Hose Company House 4.

8. 13 CVFEA through the Foundation, should implement within the next 12 months, an ALS-staffed transport unit to serve the Route 40 corridor with the possibility of operating out of Abingdon VFC's House 2 on a 6:00 am to 6:00 pm basis, seven days a week.

8. 14 The HCVFEA should implement an EMS standard that mandates participation by all companies in the MIEMSS Voluntary Ambulance Inspection Program.

8. 15 The HCVFEA, working with the EOC staff and the Foundation, must immediately stop the practice of no-go boxes for the North County Chase Car.

8. 16 The HCVFEA, in conjunction with the EOC and the Foundation, should immediately assign the North County Chase Car and the Foundation supervisor plain-speak radio identifiers that clearly identify the unit by organization and purpose.

8. 17 The HCVFEA through the Foundation, should immediately implement a two-ALS provider minimum staffing standard for the North County Chase Car on a 24-hour, 7-day a week basis



EMERGENCY MEDICAL SERVICES

RECOMMENDATIONS (continued)

8. 18 The HCVFEA and the Foundation should implement within the next 12 to 24 months a second ALS chase car using the Level VFC as a home operating base and staffed with two, ALS providers 24-hours a day, 7-days a week.
8. 19 The Aberdeen FD and Bel Air VFC should transition their paid EMS staffing to the Foundation within the next 18 months.
8. 20 The Foundation should move to employ as many full-time providers as possible to build a more cohesive work-force as the organization moves towards becoming a full-time EMS agency.
8. 21 The HCVFEA working in conjunction with the Foundation, should create a part-time, ALS Coordinator that is a paid position responsible for the general overall management of ALS certification, recertification, and continuing education for all ALS providers in Harford County – volunteer and paid.
8. 22 The HCVFEA through the Foundation, should develop and implement a procedure whereby liaison officers are designated for each hospital in Harford County and the on-duty Foundation Supervisor serves as the initial point of contact for all immediate EMS matters involving patient transfer at local emergency departments - regardless of the EMS crew's company or Foundation affiliation.
8. 23 The HCVFEA and the Medical Director must enter into a written agreement concerning the roles and responsibilities of the Medical Director position and that the agreement must be completed in compliance with State guidelines.



EMERGENCY MEDICAL SERVICES

RECOMMENDATIONS (continued)

8. 24 The HCVFEA must require liability insurance for the medical director, with the coverage and minimum limits clearly listed in the medical director's contract for service.
8. 25 The HCVFEA should implement an EMS billing standard requiring all companies to charge the same rates for service (ALS transport, BLS transport, and mileage) and the rates should be established by the HCVFEA prior to the start of the fiscal year.
8. 26 All Fire and EMS Companies should utilize the same EMS billing firm in order to standardize the administrative processing fee structures.
8. 27 The HCVFEA should establish a standard that requires all EMS billing companies used in the County to be fully vetted in terms of personal and financial relationships with the administrative and operational leadership of the individual Fire and EMS Companies and the Foundation.
8. 28 The HCVFEA should establish an EMS billing standard that allows the individual Fire and EMS Companies to keep their EMS billing revenues as long as the company meets the HCVFEA EMS response time goals and measures of performance standards enacted as described in a previous recommendation.
8. 29 The HCVFEA, in conjunction with the Fire and EMS Companies should confer on the continued use of ambulance clubs and that if the agreement reached is to continue the use of ambulance clubs, then an HCVFEA standard must be established that addresses all aspects of club operation so that all citizens have the same opportunity for participation and receipt of benefits.



EMERGENCY MEDICAL SERVICES

RECOMMENDATIONS (continued)

- 8.30 The HCVFEA should review Standards 3.2 and 4.0 for their applicability and consider combining the standards into one document that clearly describes the member make-up of the MAB and their duties and responsibilities as well as the procedural processes for handling items brought before the board.
- 8.31 The HCVFEA working with the MAB, should establish a Standard for Quality Assurance and Quality Improvement for all Fire and EMS Companies in Harford County: the standard must comply with all aspects of the MIEMSS requirements and State regulations and also require quality assurance officers to complete the MIEMSS Quality Improvement Officer training course.
- 8.32 The HCVFEA establish a standard operating procedure for the response to mass casualty incidents - including standardizing the initial dispatch of resources for an MCI event.
- 8.33 The Foundation must stop the practice of charging fees to the users of their service and the County must begin fully-funding the operation of the Foundation.



CHAPTER NINE

FIRE AND EMS OPERATIONS

This Chapter includes a review of fire protection-related water supply, pre-fire planning, the incident command system and specialty operations services provided in Harford County by the Fire and EMS Companies and their partner service providers.

CFAI FIXED FACILITIES CRITERIA

The Study Team considered criteria from the Commission on Fire Accreditation International (CFAI) as the Harford fire and EMS operations were assessed as part of this Master Plan effort.

The CFAI accreditation criteria related to fire department operations are as follows:

“A current standard operating policy and procedure manual/general operating guidelines manual, meeting the needs of the agency, is available and utilized by all personnel.”

MEASURES OF PERFORMANCE

The following MOPs seem applicable to subjects contained in this Chapter.

County-wide Fire and EMS Standard Operational Procedures (SOPs)

Definition: County-wide fire and EMS operations SOPs to be developed and implemented by the Association.

Where it applies: Association and Fire and EMS Companies.

Measure of Performance assigned: Develop and implement fire and EMS standard operating procedures as recommended by the Fire and EMS Master Plan.

Source of Measurement Data: Association and Fire and EMS Companies.

Action if not met:



FIRE AND EMS OPERATIONS

MEASURES OF PERFORMANCE (Continued)

1. If Association does not adopt needed operational SOPs then other AHJ is given responsibility.
2. If Fire and EMS Company is non-compliant implement appropriate provisions of Harford County Volunteer Fire and EMS Association By-Laws.

County-wide Safety-Related Policies

Definition: County-wide fire and EMS safety-related SOPs to be developed and implemented by the Association.

Where it applies: Association and Fire and EMS Companies.

Measure of Performance assigned: Develop and implement fire and EMS standard safety-related policies and procedures as recommended by the Fire and EMS Master Plan.

Source of Measurement Data: Association and Fire and EMS Companies.

Action if not met:

1. If Association does not adopt needed operational SOPs other AHJ is given responsibility.
2. If Fire and EMS Company is non-compliant implement appropriate provisions of Harford County Volunteer Fire and EMS Association By-Laws.

These MOPs outlined in the Measures of Performance Chapter were considered by the Study Team in the development of conclusions and recommendations contained in this Chapter.

BACKGROUND

There is no time at the scene of fire emergencies to make committee decisions. Although some appropriate quick consultation can take place to assure that facts guide the decisions, there is limited time for deliberation. Potentially irreversible decisions made at the emergency scene may lead to disastrous consequences. Errors can lead to further property



FIRE AND EMS OPERATIONS

BACKGROUND (Continued)

loss, as well as, injury or death to civilians and firefighters. The fire officer will need to make decisions on the basis of information often gathered hastily.

All fire situations occur differently; the differences include:

- Nature and location of fire in a building
- Building type and construction
- Interior contents and furnishings
- Utilization of built-in systems
- Time of day and weather conditions

THE NATIONAL FIRE PROBLEM

Prior to a review of specific workload in Harford County and outlining specific response strategies and alternative approaches, the reader may benefit from a number of facts that highlight the fire problem in the United States.

The following facts define the national fire problem:

- Fire causes \$3 billion in property loss in residential structures alone.
- Six thousand fire deaths occur annually.
- Eighty-five percent of these deaths occur in residences, apartments, town houses, hotels, motels and single family homes.
- Fifty percent of those killed by fire are elderly, handicapped, intoxicated, or children.
- On the average, four children die of fire-related injuries each day.
- Toxic fumes, not burns, cause most fire deaths.
- Eighty percent of all fire fatalities occur in the home, with approximately 85 percent of those occurring in single-family homes and duplexes.
- Fires in family dwellings most often start in the kitchen.
- Seventy percent of fatal residential fires originate in bedrooms or living rooms.



FIRE AND EMS OPERATIONS

NATIONAL FIRE PROBLEM (Continued)

- Smoking is the leading cause of fatal residential fires.
- A significant percentage of firefighter deaths results from residential fires.
- Fires injure more than 250,000 people each year.
- 70 percent of those injuries occur in residential fires.
- A large percentage of those injured are firefighters.
- Annually, fire costs \$36 to \$45 billion.
- Each year, 125,000 people suffer the psychological trauma of fire.
- More than two million fires are reported each year.
- A half million residential structure fires are reported annually.

(Source: the Operation Life Safety Program and the U.S. Fire Administration's Fire Safety & Education web site.)

HARFORD COUNTY INCIDENT WORKLOAD DATA

In a growing county, it is not realistic to project workload based on one growth period with other periods that are projected to have a higher or slower growth rate. The Study Team considered the limited workload data available. Consistent comprehensive fire and EMS workload data was not available for consideration. Reportedly, a new computer aided dispatch (CAD) system was implemented by the County in 2007 with prior CAD system data not having been maintained for planning use.

Figure 9.1 provides the number of fire and EMS incidents handled by the Fire Companies for Calendar Year 2008.



FIRE AND EMS OPERATIONS

Figure 9.1
HARFORD COUNTY FIRE AND EMS COMPANIES
FIRE & EMS INCIDENTS DETAIL
Calendar Year 2008

Company	Fire	EMS	Total
Co 1 - Level	335	1,056	1,391
Co 2 - Aberdeen	1,125	3,291	4,416
Co 3 - Bel Air	1,968	5,960	7,928
Co 4 - Abingdon	1,633	3,909	5,542
Co 5 Susquehanna Hose	636		636
Co 5-9 - Havre de Grace		1,860	1,860
Co 6 - Whiteford	313	557	860
Co 7 - Jarrettsville	463	1,003	1,466
Co 8 - Joppa-Magnolia	1,503	3,551	5,054
Co 9 - Darlington	394	735	1,129
Co 10 - Norrisville	223	335	558
Co 13 - Fallston	494	1,304	1,798
Total	9,087	23,561	32,648

Source: Harford County 9-1-1 Center CAD system.

While caution is required in the interpretation of data from one year. The Study Team believes the workload should be monitored annually and the response times to calls by the service providers should be monitored for determination in considering future needs of the service providers.

SPECIAL OPERATIONS SERVICES

The following sections relate to special operations services provided by various components of the Harford County Fire and EMS Services.

Overview of Special Operations

In fire service terms, “special operations” generally refers to those services that a fire department provides other than fire and emergency medical response (EMS). The traditional special operations services include:



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS (Continued)

- A. Hazardous materials (hazmat) response,
- B. Vehicle extrication service; and,
- C. Technical rescue service.

The delivery models for these special operations services can vary greatly from community to community across the United States. With the exception of vehicle extrication service, special operations services are commonly not needed in most communities; however, their mere availability is very important.

Because special operations services are highly technical in nature and require specialized training and equipment, many communities opt not to deliver such services. Other communities may elect to form a partnership with neighboring jurisdictions and share resources through either a mutual aid agreement or a regional response team approach.

When a community evaluates the need for special operations services, it is important to remember when these specialized services are needed, there cannot be significant delay in response. The common dilemma faced by many communities today is “at what cost” does the community wish to support the delivery of fire department-based special operations services, because the delivery of said services is generally expensive both in terms of the training commitment and equipment.

As a general rule, the decision by a fire department or community to initiate the delivery of any new service must be examined closely both in terms of the expected demand for service and the costs of delivering that service. The demand and costs must always be compared to the existing available resources in the department’s response area. This comparison is important in order to gather adequate information so that an informed decision on special operations services can be made.

For example, it might be more practical for a fire department to train all of its responders to the “awareness” level of trench collapse emergencies and use a neighboring community’s



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS (Continued)

trench rescue team as the primary response agency rather than fund the purchase of expensive trench rescue equipment and train its own trench rescue team.

The regional team approach to the delivery of special operations services continues to be a common approach in suburban communities across the nation. In Maryland, many of the regional response teams are organized and operated at the county level. For example, Baltimore, Carroll, Cecil, and Howard Counties all operate county-level hazardous materials emergency response teams.

Hazardous Materials Response

Over the last quarter century, international disasters in India; USSR; and the United States have all focused attention on the potential for catastrophic hazardous materials incidents throughout the world. In the United States, the concern for the prevention of hazardous materials disasters served as impetus for federal legislation to prevent and control the releases of hazardous materials and to protect workers involved in hazardous waste site clean-up and emergency response.

On October 17, 1986, President Ronald Reagan signed into law the Superfund Amendment and Reauthorization Act of 1986 (SARA). This legislation truly transformed the delivery of emergency response services and affected almost every jurisdiction throughout the nation. Although SARA is now more than 20 years old its impact still affects how emergency responders handle present day hazardous materials incidents both in terms of response operations and personnel training.

SARA provides for protection of the community under Title III and the protection of the worker under Title I. As a result of the legislation, the federal Environmental Protection Agency (EPA) and the federal Department of Labor, through the Occupational Safety and Health Administration (OSHA), both adopted regulations which had a major impact on a community's planning and response to hazardous materials incidents. These regulations impacted communities in a number of ways but most significantly in the areas of planning, information gathering and retrieval, and emergency response capabilities.



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - HAZMAT (Continued)

In 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response, OSHA provides the following definitions for the various levels of emergency response capabilities:

First Responder - Awareness (FRA) - Individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. Persons trained to the FRA level simply recognize the presence of an emergency involving hazardous materials and take action to notify emergency responders.

First Responder - Operations (FRO) - Individuals who respond to releases or potential releases of hazardous substances as part of the initial response for the purpose of protecting nearby persons, property or the environment from the effects of the release. Persons trained to the FRO level meet the FRA requirements and are trained to take defensive actions to control, or minimize the effects of a hazardous materials release. FROs generally do not take any action that involves touching the hazardous material or its container and they are commonly trained in decontamination operations. The FRO is the “workhorse” of most every fire department in terms of basic response to hazardous materials incidents. More fire department personnel are trained to the FRO level than to any other hazardous materials training level.

Hazardous Materials - Technician (HMT) - Individuals who respond to releases or potential releases of hazardous substances for the purpose of stopping the release and mitigating the incident. Persons trained to the HMT level meet the FRO requirements and are trained to take offensive actions to control the release of a hazardous material from its container. HMTs are basically trained to manage leaks involving a wide variety of hazardous materials containers. The HMT is the workhorse of most every hazmat response team. More hazmat team personnel are trained to the HMT level than to any other hazardous materials training level.

Hazardous Materials Specialist (HMS) - Individuals who respond with, and provide support to hazardous materials technicians at hazardous materials incidents. Typically, persons trained to the HMS level specialize in certain topic areas either



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - HAZMAT (Continued)

through specialized knowledge or specialized skill. A local or regional hazmat response team may have several “specialists” available to them through a callout or contact roster. For example, a local agricultural chemist might serve as a hazmat team’s pesticide specialist, but he would not respond to an acid tanker incident.

In the “post 9-11” era, most hazmat response teams have been tasked with accepting the new role of Weapons of Mass Destruction (WMD) response in addition to their regular hazmat response duties. When looking to identify who would best fill the need for WMD response, the local hazmat team was the natural choice given their training in chemical protective clothing and decontamination operations and their experience in the management of chemical releases. These additional WMD responsibilities were further reinforced by the anthrax events that followed September 11th when hazmat teams all across the nation found themselves responding to potential biological agent emergencies.

Today, a local hazmat team must be able to deal with a myriad of complex issues. The hazmat response field has grown tremendously over the last two decades from just responding to oil spills along the highways in the 1980s to being prepared for chemical, biological, and nuclear terrorist events in 2009.

Hazardous Materials Response in Maryland

In the State of Maryland, many hazmat teams are organized at the county level with varying levels of county government funding and involvement. In terms of forming or operating a hazmat response team in Maryland, it is the local jurisdiction that oversees such creation and operation. There are no state statutes specifically regulating the operation of a hazmat response team.

In terms of hazmat response at the State level, there is the Maryland Department of the Environment (MDE) which has various environmental authorities and responsibilities – one of which is to provide hazmat emergency response and support. The staff and responders at MDE are well-trained, well-equipped and quite capable of rapid deployment from their main response facility located in Baltimore. The response of MDE to an incident allows local level



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - HAZMAT (Continued)

responders to not only receive additional response support, but also to receive support in the areas of spill and release clean-up cost recovery and incident mitigation.

Throughout the state, there are also a number of federal government installations that provide hazmat response services on a mutual aid basis to surrounding communities. The National Institutes of Health (NIH) is a good example of this mutual aid service: NIH provides hazmat response service to Montgomery County on an “as requested” basis.

Hazardous Materials Response in Harford County

The response to hazardous materials incidents in Harford County is presently handled by the local volunteer fire and ambulance companies with technical support from the Harford County Hazardous Materials Response Team (HCHMRT).

The HCHMRT is a paid response force that falls under the direction of the Harford County Division of Emergency Operations. All members of the team are paid in some capacity for their work relating to emergency response and preparedness operations. Of the team’s 31 authorized positions, seven are full-time county employees who have varying levels of responsibility with the team. The remaining team members are a “paid on call” type of response force who are trained in various hazardous materials response capabilities and are compensated for their attendance at drills, equipment maintenance activities, and emergency response incidents. A tiered compensation program is used for the paid on call personnel with the higher hourly pay rates being paid for more serious incidents requiring higher levels of training and the use of more sophisticated equipment.

The HCHMRT is organized into five crews each lead by a paid on call Crew Chief. The crews take turns throughout the month handling various equipment checks and maintenance activities in addition to responding to incidents. The Crew Chiefs take turn throughout the month serving as the Duty Crew Chief for the team, which is a supervisory role relating to response activities. The five crews and their respective Crew Chiefs answer to the Hazmat Team Manager who is a full-time county employee.



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - HAZMAT (Continued)

The Hazmat Team Manager is responsible for a variety of team responsibilities relating to response readiness – such as equipment maintenance and repair and program scheduling. The Hazmat Team Manager reports to the Division of Emergency Operations' Special Operations Manager who also oversees the SARA Title III Supervisor. The SARA Title III Supervisor handles the inspection of the 194 SARA Title III facilities located in Harford County. Both the Hazmat Team Manager and the SARA Title II Supervisor hold key roles in planning for and responding to hazardous materials events in the county.

In terms of response, the Team has its own Standard Operating Guidelines (SOGs) covering alerting procedures and response procedures. Basically, the Team uses a tiered alerting and response system format whereby the level of response (equipment and people) is selected based upon the nature of the incident. Such a tiered response system is common placed in the field of hazmat response and the Study Team learned of no issues concerning the alerting or response of hazmat resources in Harford County.

The Study Team reviewed the HCHMRT's SOGs and found many well-written and organized procedures covering both the administrative and operational aspects of the team. The Team is commended for their work on the SOGs. They are some of the best seen by the Study Team for a hazardous materials response agency at the local government level.

The Study Team found the HCHMRT to be adequately equipped, trained, staffed, and ready to respond on calls. In terms of vehicles and equipment, the HCHMRT operates a fleet of five, primary response vehicles and four trailers with specific response capabilities. These units are stored at the Emergency Operations Center facility on Ady Road in the Forest Hill section of the county.

Funding for the HCHMRT comes through the Division of Emergency Operations' budget. In FY09, the HCHMRT received \$483,975 in County funding for its operation. In recent years, the HCHMRT has also received grant funding through the Department of Homeland Security and the Urban Area Security Initiative programs.



FIRE AND EMS OPERATIONS

Authorized by Chapter 146 of the Harford County Code, HCHMRT can bill responsible parties for any and all costs associated with hazardous materials incidents. However, the payments received for those costs are returned to the General Fund and not specifically earmarked for hazmat use. In recent years, these cost recovery efforts have generated approximately \$25,000 to \$30,000 per year in reimbursements for equipment, disposable supplies, and labor used to mitigate hazardous materials emergencies in the county.

In terms of calls for service, the HCHMRT has averaged around 250 calls per year since 2004, with 60 percent of the calls in “Investigations” which is consistently the leading type of response. An “Investigation” normally involves an incident where the on-scene first responders are unsure if hazardous materials are involved and the hazmat team Duty Officer is called out to examine the problem. Another example of an investigation could be a 911 call that indicates a possible hazardous material problem. The Duty Officer would then respond to examine the situation. Most of the investigation calls are handled with minimal HCHMRT resources at minimal cost.

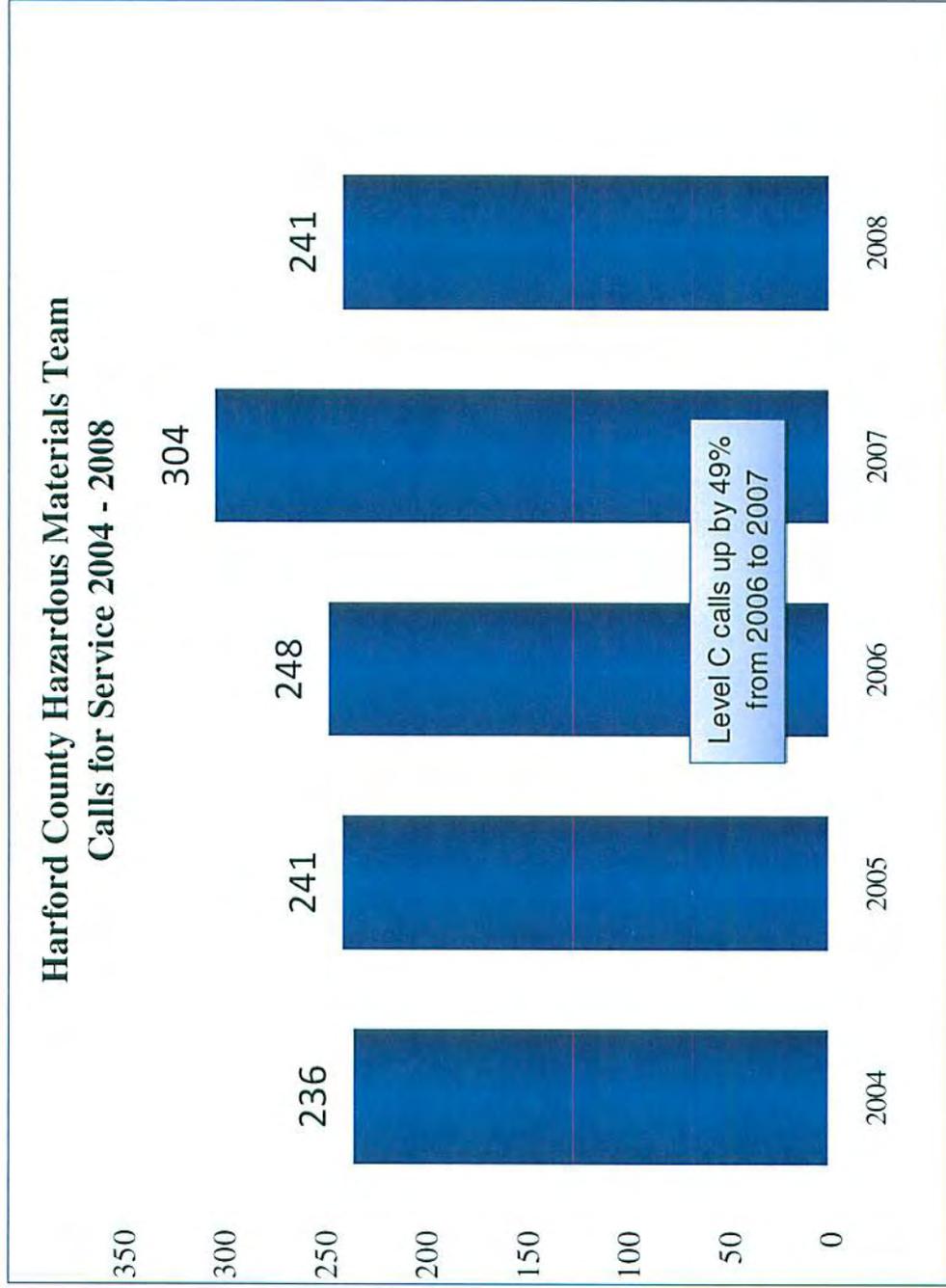
Regarding the other types of calls for service, the Level A, B, and C types refer to the level of protective clothing and equipment needed to mitigate the emergency. Of the three levels noted, Level C is the lowest level of chemical protective clothing and equipment needed for safe operations near the hazardous materials release. A fuel spill along the highway is one example of an incident that might require Level C protective clothing clean up.

A Level A incident requires the highest level of response and protective clothing. Hopefully, a residential community does not have many incidents requiring a Level A response. Fortunately, HCHMRT call data confirms that a Level A response is an infrequent occurrence. However, there is potential for Level A incidents to occur in Harford County – especially in the various industrial facilities and along the major transportation routes. Therefore it is important that the HCHMRT continue to train and prepare for a Level A response.

Figure 9.2 illustrates the hazmat call data for Harford County.



Figure 9.2



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - HAZMAT (Continued)

It seems that the future of the HCHMRT will rest with the decisions made concerning the path of the fire, rescue, and EMS services in the county. Assuming at some point a career fire service component is developed and implemented in the county, the Study Team recommends that hazmat response should then become part of that career fire service's responsibility. The hazmat responsibility would need to be phased in over time for it would be very difficult to simply open one, career fire/rescue station and then have them assume 100% of the hazmat response responsibilities. However, the first station could certainly be trained to the Hazardous Materials Technician level and thus provide staffing for a HCHMRT response. As additional career fire and EMS stations come on-line, the Study Team recommends that one of those stations assumes the role of the Hazmat Team station – similar to other Maryland counties, e.g., Baltimore County, Howard County, Anne Arundel County.

In summary, the Study Team finds the level of hazardous materials emergency response appropriate and adequate for the hazards presented in Harford County. The HCHMRT is a well-organized response agency that is capable of handling a broad scope of hazardous materials emergency incidents. The Study Team recommends that the County continue to fund the HCHMRT in a manner to maintain its operational readiness and that once a career fire service component is implemented in the county, then resources and responsibilities for hazmat response should be shifted to that career fire service.

Vehicle Extrication Service

Vehicle extrication service is the most common type of rescue service provided by fire departments today. While the advancement in passenger vehicle safety features has certainly helped reduce civilian injury and death rates in motor vehicle collisions, there still remains the need for specialized emergency response equipment and specially trained response personnel capable after a violent collision of “cutting” patients out of mangled cars.

The manner in which vehicle extrication service is delivered generally varies by locale and the demand for services. Three common service delivery models are the use of a heavy rescue squad platform (a specialized vehicle that carries large quantities of various rescue



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - VEHICLE EXTRICATION (Continued)

equipment), the use of a rescue engine platform (an engine company equipped with some rescue equipment in addition to firefighting equipment) and the use of a ladder truck platform (aerial device that carries extrication equipment). Each model has its own strengths and weaknesses. The most important component is that trained rescue personnel (technicians) arrive with the tools needed to complete the extrication so that the traumatically injured patient can be taken to an appropriate medical care facility for treatment in a timely manner.

Rescue Vehicle Terminology

In reference to terminology and radio designations, the terms “Rescue” and “Squad” refer to heavy duty vehicles dedicated solely to transporting responders and equipment to an emergency scene for the purpose of delivering rescue services. In some jurisdictions, the terms “Rescue” and “Squad” have different meanings in terms of the type and quantity of equipment carried on the vehicle.

The Harford County Volunteer Fire and EMS Association (HCVFEA) have two standards that address rescue vehicles and squad vehicles – they are Standards 7.1 and 7.2 respectively. The Study Team reviewed both standards and the apparatus fleets of the volunteer fire companies. The Study Team is unclear as to which of the current rescue and squad vehicles met which standard and how each vehicle obtained its identifier designation.

The Study Team recommends that the HCVFEA revise their apparatus standards so that nomenclature and equipment lists are clearly stated. One approach that is recommended is the use of the terms “Rescue Squad” and “Rescue Engine”. The Team recommends the development and implementation of one HCVFEA standard that addresses the rescue equipment carried on a heavy rescue vehicle – with that vehicle being known as a Rescue Squad. The primary purpose of the Rescue Squad would be to transport people and equipment for various rescue operations.

The Team recommends the development and implementation of one HCVFEA standard that addresses the rescue equipment carried on an engine company – with that vehicle being known as a Rescue Engine. The primary purpose of the Rescue Engine would be to operate



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - VEHICLE EXTRICATION (Continued)

as an engine company but also be able to provide a basic level of vehicle extrication services instead of a rescue squad or until the arrival of a rescue squad at the emergency scene.

Extrication Service Providers

Currently, extrication services in Harford County are provided by the eleven fire companies. Nine of those fire companies operate some type of heavy rescue vehicle – either a rescue or a squad – according to their terminology. The other two fire companies deliver extrication services via the rescue engine or the ladder truck platform.

One of the special operations issues reviewed by the Study Team was the possibility of duplication of resources. For a community the size of Harford County both in land mass and population, it is easy to question the need for nine heavy rescue vehicles. However, given the distances between some of the fire stations, the number of highly traveled, high-speed roadways (50 mph or greater), and a substantial history of serious and fatal motor vehicle collisions, the Study Team recommends no change in the present level of heavy-duty extrication services. The Study Team is of the opinion that until such time that additional fire or rescue stations are constructed, the delivery of extrication services should remain unchanged in terms of the vehicle platform and vehicle location. Once additional stations are built the HCVFEA should conduct a complete review of how extrication services are distributed using the rescue squad and rescue engine concepts with a focus on reducing the duplication of services.

Vehicle Rescue Training

There are two NFPA standards that address rescue training and incident scene operations: NFPA 1006 Standard for Rescue Technician Professional Qualifications, 2008 Edition, and NFPA 1670 Standard on Operations and Training for Technical Search and Rescue Incidents, 2009 Edition.

In Maryland, the commonly recognized training standard for vehicle rescue is the Maryland Rescue Institutes (MFRI) Rescue Technician– Vehicle & Machinery Rescue course that is



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - VEHICLE EXTRICATION (Continued)

delivered throughout the State. In addition, the Maryland Voluntary Fire Service Certification System (MVFSCS) offers certification at the Rescue Technician– Vehicle and Machinery Rescue level; although the applicant must also be certified at the Fire Fighter I level and as an EMT-Basic in order to be eligible for the Rescue Technician certification. The MFRI Rescue Technician– Vehicle and Machinery Rescue Course is considered the level of training expected by the Study Team for personnel who staff rescue and squad units in Harford County and who respond to vehicle extrication incidents.

The Study Team requested verification of training certification from the County’s fire and ambulance companies. The training data received by the Study Team varied from company to company. A few of the variances were significant. As stated above, it appears that all personnel who respond to and command incidents involving vehicle extrication operations should be trained and certified to the Rescue Technician– Vehicle and Machinery Rescue level under the State certification system.

Unlike the emergency medical services that have stringent training and certification requirements concerning patient care, the volunteer fire and rescue services in many locales throughout the United States often have few, if any, regulatory agencies that impose such requirements. The same is true in Harford County, Maryland. A fire company can operate a heavy rescue squad with basically no training. Which is probably not in the best interest in terms of liability, however, it definitely can be done.

Because the Study Team found dissimilarities in training requirements and certifications between the various Harford County fire and ambulance companies, the Team proposes that the HCVFEA develop and implement a minimum training standards policy that requires all personnel (officers and members) who wish to help deliver vehicle extrication services be trained and certified to the applicable NFPA and/or the MVFSCS certification standards. The suggested minimum is the Rescue Technician– Vehicle and Machinery Rescue course.



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - TECHNICAL RESCUE (Continued)

Technical Rescue Services

Technical rescue services normally include confined space rescue, trench collapse rescue, structural collapse rescue, high-angle rescue, and water rescue. In Harford County, the Harford County Technical Rescue Team (TRT) is responsible for the delivery of technical rescue services. Formed in 2005, the TRT is a 52-member, volunteer team that specializes in confined space rescue, trench and structural collapse rescue, water rescue, technical rope rescue, and overland search and rescue – including K-9 work.

In terms of organization, the TRT is a component of the HCVFEA and reports to the Chief Officers Liaison Committee (COLC) for budgetary and administrative purposes. In addition to specially trained members, each discipline also has a designated Leader who is responsible for the management and operation of his/her discipline. The TRT itself is divided by organizational function and rescue discipline. There are three basic functional areas of the Team that include:

- Command Staff;
- Support Staff; and,
- Operations Staff.

The Command Staff is responsible for overseeing the operations of the team and commanding the team at technical rescue incidents. The Support Staff is responsible for providing such support functions as training and public information (liaison). The Operations Staff oversees the individual team disciplines which include:

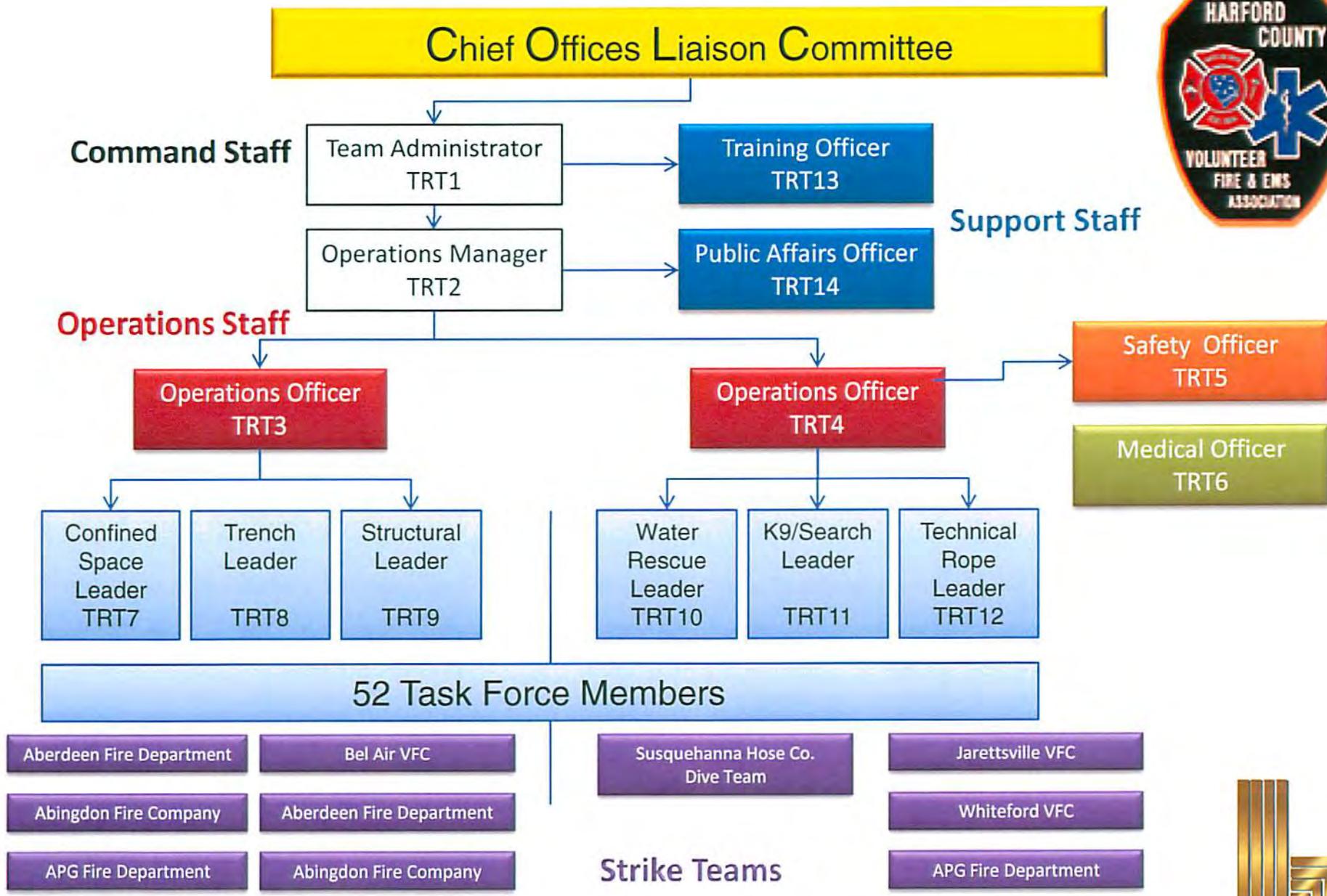
- Confined Space;
- Trench, Structural;
- Water Rescue;
- K-9 Search; and,
- Technical Rope.

Figure 9.3 illustrates the TRT organization chart.



Harford County Technical Rescue Team

Figure 9.3



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - TECHNICAL RESCUE (Continued)

The TRT relies on several of the volunteer fire companies to support the operation of the team and also provide support in the form of vehicle and equipment use. Currently, Abingdon, Aberdeen, Bel Air, Fallston, and Susquehanna Hose all provide active support to the team. The Study Team learned that Jarrettsville and Whiteford have provided support to the TRT in the past in the Technical Rope Rescue discipline, however it is unclear what level of support is currently being provided. In addition to the volunteer fire companies' support, the Aberdeen Proving Ground Fire Department also participates in the TRT and provides personnel, vehicle, and equipment support to team operations.

Training for the TRT is accomplished in a number of ways. First, persons applying for membership generally are already trained to the basic level for their particular rescue obtained through their employer or volunteer fire company prior to team membership. The second type of training is team-related training which is provided by the TRT's support staff in the form of specialized class offerings and team exercises. Team-related training is scheduled throughout the year to meet the needs of the various disciplines and requirements of the team command staff.

The Study Team's review of the TRT training program determined that there are three areas needing improvement. First, the TRT should establish an annual, minimum training requirement to which all members are held accountable. As a starting point, the Study Team recommends the following minimum training requirement:

Each TRT member must complete twelve hours of training per year, eight hours of which must be in his or her primary discipline with no more than six of the twelve hours "outside" of the TRT organization— meaning a conference or seminar not sponsored by the TRT. *(This training requirement format forces members to train with the team and not rely on a class at a conference somewhere to meet the requirement. Training as a team is important for team cohesiveness.)*

The second training area in need of improvement is skill certification and recertification. For example, if a member joins the TRT in the trench rescue discipline then that member should be trained in how to deploy an air shore for shoring a trench collapse. The member should



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - TECHNICAL RESCUE (Continued)

also be able to demonstrate his knowledge and use of that air shore (certification) to his peers. The member should then be able to demonstrate the same air shore skill set two or three years from now (recertification) to his peers. Currently, there is no formal skill recertification program for the TRT, therefore, the Study Team recommends that the TRT develop and implement a “skills certification and recertification” standard for each of the TRT’s disciplines. At a minimum, this certification/recertification process should occur biennially.

The final training item needing improvement is compliance with NFPA 1670 Standard on Operations and Training for Technical Search and Rescue Incidents, 2009 Edition. This NFPA standard “identifies and establishes levels of functional capability for conducting operations at technical search and rescue incidents while minimizing threats to the rescuer.” The standard applies to organizations that provide response to technical search and rescue incidents, including those not regulated by governmental mandates.

NFPA 1670 is a standard recognized in the technical rescue community. Many teams across the country use the standard to further develop and improve their team organization and operation. Complete compliance with the NFPA standard is not an easy task for a technical rescue team and the TRT presently does not fully comply. While some improvement is needed in areas such as procedures, documentation, and training, the Study Team finds the TRT operationally capable of performing the technical rescue service duties at this time. However, the Study Team does recommend that the HCVFEA direct the TRT to complete a full assessment of its operations in order to determine its NFPA 1670 deficiencies and develop a written plan for compliance. The written plan should have a deadline of no more than 24 months for compliance achievement.

In terms of equipment and resources, the TRT appears to be well-equipped to handle technical rescue incidents in the county as long as the volunteer fire companies continue to providing current level of support. The TRT owns one, response trailer and two, rescue boats which are titled to, and insured by the HCVFEA. The TRT does not own any vehicles, therefore towing for the boat and trailer is provided by the fire companies.



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - TECHNICAL RESCUE (Continued)

In addition to the boats and trailer, the TRT owns various items of portable, rescue equipment such as protective suits for water rescue, rope for high angle rescue, and GPS devices for overland search operations. Some of the TRT equipment is stored and maintained at supporting fire companies. When that occurs, both entities sign an MOU that outlines the responsibilities for the care, maintenance, and accountability of the items. Thus far, this MOU process appears to be working without issue.

For response, the TRT is alerted by using the same tone/voice alert paging system that is used by the fire and ambulance companies in the county. Members of the TRT can also receive incident notification via text message over their cell phones. Once alerted, the TRT responds as a support agency to the local volunteer fire company – similar to the manner in which the HCHMRT operates. Once on the emergency scene, the TRT command staff integrates into the command structure being used by the fire company incident commander.

With the exception of the Water Rescue discipline which already has a 5-person minimum staffing standard, the TRT does not operate with a minimum staffing standard operating procedure. When alerted for a TRT response, team members simply respond to the scene or if needed, to the local fire company to transport the TRT equipment to the scene. The Study Team did not learn of any issues in assembling sufficient TRT members to respond to the scene of incidents.

However, the Study Team does recommend that the TRT develop and implement a minimum staffing response standard for the Confined Space, Trench Collapse, Structural Collapse, Technical Rope, and K-9 Search disciplines. This staffing standard would establish a minimum number of personnel for emergency responses in each rescue discipline. The Study Team recommends a 10-minute time limit for the required number of response personnel to mark responding to incident. If at the 10-minute mark the minimum staffing compliment has not been met, then the communications center will alert the next due technical rescue team which most likely would be a mutual aid team.

In terms of funding for the TRT, the team formulates a budget and submits it to the HCVFEA Budget Committee who then submits the TRT budget as part of the overall Association



FIRE AND EMS OPERATIONS

SPECIAL OPERATIONS - TECHNICAL RESCUE (Continued)

budget. In FY09, the TRT was budgeted \$110,000 which was fully funded. As part of the TRT annual budget, \$10,000 is budgeted and set aside for equipment replacement. The annual \$10,000 can accumulate up to a total of \$100,000 before its allocation is stopped. This annual installment functions as a cash reserve fund for the replacement of vital equipment such as a boat or an air shore broken beyond repair. Finally, in recent years the TRT received some grant funding dollars through the Urban Area Security Initiative program that was used to purchase one of the rescue boats.

Like the HCHMRT, the future of the TRT will depend on the development of a career fire service in Harford County. Assuming at some point a career fire service component is developed and implemented in the county, the Study Team recommends that technical rescue response should become part of the career fire service's responsibility. This responsibility would have to be phased in over time. It would be very difficult to simply open one, career fire/rescue station and have them assume 100% of the technical rescue response responsibilities. However, the first station could certainly be trained to support TRT operations and thus provide staffing support for a TRT response. As additional career fire/rescue stations come on-line the Study Team recommends that one of those stations assumes the role of the TRT station – similar to how Baltimore, Howard and Anne Arundel Counties with a career fire service component operate at this time.

RESIDENTIAL SPRINKLERS

Presently, there is no residential sprinkler requirement for single-family dwellings in Harford County. Because the majority of structure fires in the United States involve residential occupancies, when more residential occupancies are built, then one can reasonably expect more opportunities for structure fires to occur.

It is also a well-accepted fact in the fire service that today's lightweight building construction systems do not endure fire conditions as well as their pre-1970s counterparts. This generally means more rapidly developing fire conditions with quicker destruction of the structural components.



FIRE AND EMS OPERATIONS

RESIDENTIAL SPRINKLERS (Continued)

For firefighting crews to be successful, they must arrive on scene before those severe conditions develop. The installation of residential sprinklers significantly reduces the development of severe fire conditions and in fact, generally extinguishes most of the fires if sprinkler activation occurs. More importantly, residential sprinklers are designed to save lives by being “fast-acting” and allowing the safe evacuation of the structure during the early stages of the fire.

A good example of the use of residential sprinklers in a “bedroom” type of community is the Carroll County, Maryland, residential sprinkler ordinance. Because of Carroll County’s limited development of public water systems and the vast majority of the fire protection service is provided by volunteer Fire and EMS Companies, the residential sprinkler requirement has alleviated some of the concerns over providing water supplies in areas previously undeveloped. Before the sprinkler ordinance was enacted, developers had the choice of installing underground fire protection water storage tanks or installing residential sprinklers. Many choose the sprinklers over tanks because of the cost difference when compared to the tanks.

The Study Team encourages the County to adopt an ordinance that requires the installation of automatic sprinklers in all new, residential structures regardless of structure size regardless of structure size and non-residential structures that have over 1,500 square feet of enclosed space.

WATER SUPPLY

Assessment and Training

There does not appear to be a County-wide effort to determine the water supply capabilities of the local Fire and EMS Companies: e.g. tanker shuttle drills, water supply drills, large diameter hose relay drills, etc. Operational readiness is very important in the delivery of fire protection services. In terms of water supply, operational readiness means that all supply sites have been identified, equipment used in the delivery process is adequate and functional, and the people expected to execute the delivery process are trained and ready to respond.



FIRE AND EMS OPERATIONS

WATER SUPPLY (Continued)

For the Harford County Fire and EMS Companies in the future, there needs to be more water supply interoperability training between the departments. This training should at least take the form of semi-annual water supply drills that simulate the 2-hour ISO water supply test in the County's non-hydranted and/or inadequate public water system areas. These drills should be held at various locations through the County and should include all of the local Fire and EMS Companies.

A good example of this type of interoperable water supply training is the South Carroll Water Supply Shuttle which has been run in Carroll County, Maryland, by the Winfield Community Volunteer Fire Department for the last 11 years. Each year, the shuttle exercise simulates a needed fire flow rate somewhere in the local community and the participants work to deliver that needed flow, uninterrupted for two hours. The shuttle has always proven to be a valuable learning tool for all participants as well as a good assessment of department interoperability. In addition to the South Carroll exercise, the Rural Water Supply Committee of the Maryland State Fireman's Association also coordinates some water supply training on a statewide basis.

The HCVFEA, working in conjunction with the local Fire and EMS Companies, is encouraged to implement semi-annual water supply training on a County-wide basis. The purpose of the drill is to evaluate the water supply sites, water supply equipment, water supply standard operating procedures and personnel skills.

Water Supply Coordinator

When attempting to improve a community's fire protection water supply delivery process, some emergency services organizations appoint a person to serve as the jurisdiction's Water supply coordinator (WSC). A WSC is probably most useful in the suburban/rural areas forced to use a variety of means to provide water supplies for fire protection.

The WSC is often responsible for assembling data and information on all of the community's water supply sources, for collecting information on the fire department water supply delivery resources, and for approving the design and installation of new water supply sources.



FIRE AND EMS OPERATIONS

WATER SUPPLY (Continued)

Given the size and nature of Harford County's local fire response areas and their water supply sites, the Study Team believes that a County-wide WSC is appropriate. Therefore, the Team recommends that the HCVFEA appoint a WSC and assign the following responsibilities:

1. Create a County-wide water supply map book/resource guide that identifies the location and capability of all water supply sites within the County;
2. Recommend additional water supply sites for underground storage tanks and/or dry fire hydrants;
3. Possess review sign-off authority on new fire protection water supply development; and,
4. Coordinate the interoperability water supply training for the local Fire and EMS Companies.

PRE-FIRE PLANNING

Pre-fire planning serves an important component of the success of firefighting agencies in dealing with fire incidents. For that reason, this section outlines an approach to, and the need for, initiating a comprehensive and consistent pre-fire planning effort by the Harford County fire companies with the guidance and assistance of the HCVFEA.

Pre-Fire Planning - The Concept

One of the major job responsibilities of firefighting personnel is to conduct pre-fire planning programs to target hazards within their first due response area. Chief William Clark, in his textbook *Firefighting Principles and Practices*, also discusses pre-fire planning in the following manner:

“When a fire department is acquainted with the potential of a fire before it occurs, that department has an advantage over the fire, provided that it makes preparation in keeping with the need shown by the advanced study. It is of little use to identify and isolate firefighting problems if nothing is done to offset them. The elements of a pre-



FIRE AND EMS OPERATIONS

PRE-FIRE PLANNING (continued)

fire plan should not only pinpoint needs but provide for meeting them. Target hazards and their peculiar features should be identified. The requirements for combating a fire should be studied and plans should be prepared.”

To ensure preparedness for emergency situations, firefighters should visit the target hazards in their area, tour each facility, prepare drawings and lists of hazards, and develop the tactics and strategy for handling incidents at each particular facility. All stations that may respond to an incident should have access to the drawings and information. The officer should have information readily available to refer to while enroute to the incident. In addition, the officers should conduct regular station refresher drills utilizing this material. In summary, pre-planning is knowing in advance what you are up against.

The essential features of a pre-fire plan suggested for use in Harford County should include the following:

1. **Special Hazards:** Structural faults, cracked walls, overloading, hazardous materials, and man-traps (locations, amounts, 704M class, etc.).
2. **Entry and Access:** Types of doors and windows, recommended entry, how to force entry if necessary, stair location, access to roof, basement, storage, and utilities.
3. **Special Apparatus Assignment:** Recommended revisions to the standard apparatus assignment based on one or more unique aspects of the structure and/or contents.
4. **Life Safety:** Need for evacuation, number of people, how to evacuate, special evacuation needs for the disabled, where people are concentrated or potentially trapped, exit travel, and operational restrictions.
5. **Exposure:** Buildings and/or material in vicinity of, distance from, type of occupancy, type of construction, means of fire spread, and combustibility.



FIRE AND EMS OPERATIONS

PRE-FIRE PLANNING (continued)

6. **Confinement:** Possible fire and smoke travel (within or without), firefighting openings, fire walls, compartmentalization, automatic dampers, and fire doors.
7. **Protection Systems:** Sprinklers, automatic extinguishing systems, standpipe, internal alarm, emergency lighting, and location of valves, controls, etc.
8. **Ventilation:** Building features, building equipment, location of controls, roof, wall, and basement openings.
9. **Occupancy and Fuel Load:** Location, type or class, amount, and concentration of combustibles.
10. **Water Supply:** Location of fire company connections, valves, hydrant locations, main sizes, location and quantity of auxiliary sources.
11. **Salvage:** High value areas, stock susceptible to sprinkler/water damage, water removal methods, location of drains and sumps.
12. **Utilities:** Location of HVAC controls and switches, location of Knox box, location of elevator keys, location of trash room/s. Location of controls and valves for electricity, gas (inside and outside), and water (inside and outside).
13. **Construction:** Building specifications, type of construction, class type, construction of roof, interior walls and floors, false ceilings, and shafts.
14. **Personnel Needs:** Personnel needs required to deliver the estimated fire flow, and their recommended locations around the facility.
15. **Additional Agencies:** Any additional agencies in the County or the state equipped in handling an incident at a given facility.



FIRE AND EMS OPERATIONS

PRE-FIRE PLANNING (continued)

Finally, a complete pre-fire plan also addresses the placement of apparatus and of the operational priorities.

Pre-Fire Planning in Harford County

Fire and EMS Company officials advised the Study Team that fire units may be involved in building familiarization, as part of company training and/or fire prevention activities. There appears to be a limited amount of consistent pre-fire planning taking place. Apparently, there is no formalized pre-fire planning program utilized by the fire companies; and reportedly, there is no written procedure for a County-wide program. The Study Team was provided with limited documentation relating to pre-fire planning accomplished by the Fire and EMS Companies.

The Study Team encourages the HCVFEA and Fire and EMS Companies to adopt and initiate a consistent and comprehensive pre-fire planning program to strengthen their ability to handle major fire incidents.

POST INCIDENT CRITIQUES

Post incident analysis is a tool used by many fire/rescue departments and companies interested in continuously learning and improving their ability to handle emergency situations.

Due to the opportunity for service providers to benefit and learn from post incident critiques, the Harford County Fire and EMS Companies and the HCVFEA are encouraged to develop and implement a standard operating procedure (SOP) relating to post incident critiques on all working fire, rescue, EMS, hazmat incidents and other special issue incidents.



FIRE AND EMS OPERATIONS

INCIDENT COMMAND SYSTEM (ICS)

This section reviews the incident command system (ICS) and its relevance in Harford County.

National ICS Experience

The incident command system provides an organized technique for handling various emergencies, including hazardous material incidents, and ensures that the incident commander's decision-making process can be initiated quickly and efficiently. The establishment of this system is required under the OSHA regulations of the Superfund Authorization and Re-authorization Act (SARA) of 1986 and the National Fire Protection Association Standard 1500, paragraph 6-1.2.

An incident command system was developed in the United States as a consequence of several large fires that consumed portions of southern California in 1970. As a result of those fires, a need was identified to develop a system whereby many different agencies could work together toward a common goal in an effective and efficient manner. The system consists of procedures for controlling personnel, facilities, equipment, and communications.

The incident command system is designed to be in effect from the time an incident occurs until the requirement for management of operations no longer exists. Incident commander serves as a title which can apply equally to the officer of a single fire truck, or to the chief of a large department or company. Designers of the system's structure allowed for the establishment and expansion of the system depending upon the changing conditions of the incident. Qualified personnel from many different emergency response agencies are staffing this system. Although established originally for use in controlling large brush fires, the system has proved very effective in the typical building fire, as well as, the controlling of hazardous material incidents.

The incident command system has a number of components. These components, working together interactively, provide the basis for an effective ICS concept of operations:

1. Common terminology;



FIRE AND EMS OPERATIONS

INCIDENT COMMAND SYSTEM (continued)

2. Modular organization;
3. Integrated communications;
4. Unified command structure;
5. Consolidated action plans;
6. Manageable span of control;
7. Predesignated incident facilities; and,
8. Comprehensive resource management.

The ICS organizational structure develops in a modular fashion based upon the nature of an incident. The staff builds from the top down with responsibility and performance placed initially with the incident commander. Four separate sections can be developed, each with several units. The specific organizational structure established for any given incident will depend upon the management needs of that incident.

If one individual simultaneously manages all the major functional areas, no further organization is required. If one or more of the areas require independent management, an individual assumes responsibility for that area. This plan requires advance designation of the individuals qualified for specific areas of supervision. As the plan escalates, announcements can be made as to the level of response the situation has attained, and those individuals can automatically assume the responsibilities for that particular area.

Obviously, there exists a need for this type of control function. When no command exists, the free enterprise system takes over. Under the free enterprise system, officers respond and work independently of any other supervision. As a result, the common goals and objectives cannot be achieved. Individuals may become injured, and the incident cannot be handled in a controlled manner. Other problems with the lack of establishment of a command system involve multiple-competitive commands where competing officers establish conflicting orders and different attack plans. This is especially true for hazardous material incidents where agencies other than the Fire and EMS Companies or companies respond. Certainly, the incident command post is not the place to determine supervision and control.



FIRE AND EMS OPERATIONS

INCIDENT COMMAND SYSTEM (continued)

Applicable National Standard

Incident command systems are strongly recommended for implementation by the HCVFEA and followed by all Fire and EMS Companies, the Foundation and specialty teams as a means of managing potentially chaotic incident scenes. A number of incident command systems exist. The applicable standard is NFPA 1561, Fire Department Incident Management System.

ICS in Harford County

The HCVFEA Standards Manual includes three standards that relate to ICS are:

1. Standard # 2-2, Incident Command System, dated November 29, 1989;
2. ICS Guidelines, Enclosure #1 to Standard # 2-2, undated; and,
3. ICS Vests, Enclosure #2 to Standard # 2-2, dated December 16, 2004.

For purposes of safety as well as successful incident operations, it is essential that there be consistency in the ICS utilized by the Harford County Fire and EMS Companies and other County officials and staff. Important standard should be kept up to day with state-of-the-art ICS concepts and procedures. In that regard, the current standards should be combined and updated. Moreover, there should be one ICS implemented and utilized County-wide. There should not be duplicating ICS policies and procedures implemented by any of the Fire and EMS Companies.

Further, there needs to be regular and comprehensive training in ICS. ICS must be utilized to the appropriate level on every emergency incident. Finally, all organizations should participate in joint training exercises involving the use of the ICS.



FIRE AND EMS OPERATIONS

INTEGRATED EMERGENCY COMMAND STRUCTURE

At the present time, each volunteer Fire and EMS Company has an operational chain of command established in its bylaws or as determined by the fire chief by operational guideline. Potentially each Fire and EMS Company has a different rank structure that may or may not include the following:

- Fire chief
- Assistant chief
- Deputy chief
- Captain
- Lieutenant
- Sergeant

There is no County-wide policy giving operational authority to any officer leaving their station's first due area. In theory, an officer leaving the first due area would only have operational authority over the crews and units responding from the home station.

As an example, there appears to be very little in writing, County-wide or between volunteer organizations, that would give the chief from Jarrettsville operational authority when responding into the Fallston first due area. Reportedly, in practice, that authority is exercised in some cases. However, there may be incidents that take place where the senior qualified officer present is not the incident commander since the person is not from the volunteer fire department within whose first due area the incident occurs.

Therefore, in theory, even if the Jarrettsville fire chief were on the scene of an emergency incident, a Fallston senior firefighter could retain command and be the incident commander throughout a working incident. This situation occurred during the course of this Study when a working fire on Angel Drive. The fire chief from a neighboring Company was on the scene and not utilized in the command of the incident while a lieutenant from the home company retained command.

This lack of an integrated chain of command within Harford County potentially results in less qualified personnel commanding incidents while more qualified personnel are on the scene.



FIRE AND EMS OPERATIONS

INTEGRATED EMERGENCY COMMAND STRUCTURE (continued)

This is a practice that, if changed, could improve the management and command of incidents in Harford County. A standard that establishes an integrated chain of command within Harford County should be developed and adopted by the HCVFEA.

COMMAND OFFICER COVERAGE

The Study Team noted that the dispatch and response of an appropriate number of command (chief) officers on emergency fire and EMS incidents is not a mandated part of the unit responses. It is an accepted fact that it is essential to have appropriate command officers on emergency incidents to assure proper direction and coordination of incident mitigation efforts.

Typically, there should be at least one command officer dispatched on house fire assignments and two command officers dispatched on commercial/industrial box assignments and every alarm (second and third, etc.) subsequently dispatched on incidents. Command officers should be dispatched initially from the first due station/company and then from other next due companies on the box assignment in sequential order.

As with other fire and EMS units dispatched on incident command officers should be dispatched and replaced as needed when there is failure to respond.

The establishment of command officer duty schedules by company and County-wide is used in many regions and county fire and EMS systems to assure command officer coverage of emergency incidents. The Association should consider establishing a standard requiring the establishment of company and County-wide duty schedules.

It should be noted that the implementation of the recommended officer training, certification and experience requirements proposed in the Training Chapter goes hand-in-hand to assure the qualifications of command officers. Well-qualified command officers are an essential component to the delivery of effective incident command.



FIRE AND EMS OPERATIONS

POLICIES AND STANDARD OPERATING PROCEDURES

The following sections address HCVFEA and Fire and EMS Company policies and standard operating procedures (SOPs).

Input from Harford Ems Services Providers

The Study Team was provided with a substantial amount of input from Harford County fire and EMS services providers that should be considered as part of this Chapter. The points made relating to written policies, standards and standard operating procedures include:

1. There needs to be unified policies;
2. We need to provide fire and EMS services as one under a standard set of SOSs and SOGs;
3. There is no control over Fire/EMS operations;
4. There are 12 different operational policies;
5. The chiefs finally approved guidelines for operations at single family dwellings and commercial & multi-family dwellings in hydrant and non-hydrant areas and technical rescue operations, but they are not followed;
6. County-wide operations policies are needed;
7. They want to have no specific guidelines for all;
8. We need effective promulgation and enforcement of standards, with an efficient appeals process for fairness;
9. There is too much difference in rules and regulations;
10. There needs to be the same policies and procedures of operation and administration;
11. Fire companies need to be held to the same county-wide standards;
12. County standards are issued or changed at the whim of the companies;
13. There need to be standard running assignments and SOGs for all fire companies;
14. In southern end of county when we respond there seems to be a lack of structure and safety as a concern;
15. There need to be common engine assignments county-wide—1st, 2nd and 3rd due engines;



FIRE AND EMS OPERATIONS

POLICIES & STANDARD OPERATING PROCEDURES (continued)

16. There need to be standard running assignments instead of each company running what they want, when they want;
17. Many standards are not met throughout the county;
18. Incident command on many calls at other companies is a joke and do not follow ICS;
19. There should be standards for riding the front seat of fire apparatus;
20. There needs to be one set of operations standards that all companies follow;
21. Standards should be enforced; and,
22. Standards should be based on what is best for the customer—resident and business owner.

The reader will note duplication in subjects covered in this list of input points. The Study Team included the duplicate points due to the fact that a large number of current service providers indicated a concern over the same issue—the need for County-wide policies, standards and SOPs that are followed by all with compliance enforced, as needed.

HCVFEA Standards

The Study Team reviewed established County-wide standards established through the years by the Association for subject coverage, consistency and comprehensiveness. Further, HCVFEA standards were discussed generally with officers, firefighters and EMS personnel.

In a volunteer Fire and EMS system, such as has been operational in the County, providing clear and consistent policy direction to all members of the organizations is critical to the safe and efficient functioning of the personnel and apparatus on incidents. There should be no duplication, inconsistency and/or lack of direction to the volunteer members.

In the experience of the Study Team, all operational policy and procedural direction should come from one source and should be County-wide. The HCVFEA should assure the establishment of state-of-the-art County-wide policies and SOPs with comprehensive input and review by the volunteer officers and members.



FIRE AND EMS OPERATIONS

POLICIES & STANDARD OPERATING PROCEDURES (continued)

Fire and EMS Companies and members should comply with HCVFEA standards and Fire and EMS Company policies and SOPs should not duplicate HCVFEA standards.

The operations and safety subjects that should be considered for County-wide standards by the HCVFEA include:

1. Personnel accountability on the emergency scene;
2. Post-incident critique;
3. "May-day" communications;
4. Personnel rehabilitation;
5. "2-in / 2-out";
6. Pre-fire planning;
7. Emergency incident safety officers;
8. Incident scene safety; and,
9. Accident review procedures.

Fire and EMS Company Policies and SOPs

As part of the project document review process the Study Team requested copies of all company policies, procedures and standard operating procedures. In any organization, particularly in fire and EMS services where there are many safety issues involved in services provision, written organizational policies, procedures and standard operating procedures (SOPs) are an essential part of an effort to create as safe a working environment as possible.

Company members stated and the Study Team observed that there is a diverse approach taken by the various Harford County volunteer Fire and EMS companies relating to these written policies and guidelines. Based on a comparative review of the written policies and guidelines there appears to be a broad range of subjects and standards in effect in the various companies that can be described as follows:

- Comprehensive, up-to-date and state-of-the-art;
- Outdated, many written in the 1980s and 1990s and not up-to-date;



FIRE AND EMS OPERATIONS

POLICIES & STANDARD OPERATING PROCEDURES (continued)

- Limited in scope and content;
- Standard format;
- Memorandum-based;
- Differ in content and approach from company to company;

A key issue relates to the fact that operational procedures and guidelines should be in effect for handling many safety-sensitive fire and EMS incident procedures, strategies and tactics. When these company policies and SOPs differ substantially and/or are outdated or non-existent serious potentially dangerous situations may occur during emergency operations that likely may have serious safety consequences to the service providers. This may lead to freelancing and uncoordinated tactical approaches being taken during incidents.

Foundation employees assigned to each company expected to follow applicable individual fire and EMS company policies, procedures and SOPs where assigned and/or working from one day to the next. Foundation employees would need to know and follow applicable different policies, Foundation and 12 fire and EMS company procedures and SOPs from one day to the next.

CONSISTENT DISPATCH BOX ASSIGNMENTS

Dispatch box assignments are utilized by the 9-1-1 Center in the dispatch process for all fire and EMS incidents occurring in the County. By tradition the establishment of these box assignments are under the auspices of each Fire and EMS Company fire chief. Each of the 12 fire chiefs may make whatever changes are desired annually, with some changes being requested as desired by the fire chief. County-wide there are nearly 300 box assignments.

It is not unusual for a newly elected fire chief to make extensive changes to the box assignments for their Company area. Further, it is not unusual for decisions on units to be placed on box assignments that are not the closest or of the type of unit based on a chief “liking” or “not liking” a Company or its chief or officer/s. Many times these box assignment decisions result in an increase in travel time for responding units based on their coming from a more distant station than a similar unit from a closer station.



FIRE AND EMS OPERATIONS

CONSISTENT DISPATCH BOX ASSIGNMENTS (Continued)

Further, the number type of and EMS apparatus types, e.g., engines, ladder trucks, rescue squads, EMS transport units and tankers, that are included on dispatch box assignments that each of the 12 chiefs instructs the 9-1-1 center to dispatch on incidents of various types in each of the Fire and EMS Company response areas.

The number and type of units listed by the Company chiefs varies substantially between companies and across the County for similar incident natures and risk types.. A good illustration of how the number and type of apparatus determined to be dispatched by different chiefs can be seen in comparing three adjoining company box assignments that meet at Dublin and Ady Roads (MD RT 440 and MD RT 543) involving the Bel Air, Whiteford and Darlington Fire and EMS Companies.

Figure 9.4 includes a copy of each of the box assignments in question; Bel Air Box 318, Whiteford Box 614 and Darlington Box 930. The reader will note, as an example, that the Bel Air box calls for four engines, the Whiteford box calls for six engines, and the Darlington box calls for seven engines to be dispatched on an initial fire dispatch for a house fire.

These types of dispatch procedure differences provide the opportunity for increased errors in dispatch and increases the difficulty of the dispatch process.

The HCVFEA should assure that box assignments across the County are standard and based on dispatching the closest available unit of the proper number and type. The number and type of units to be dispatched on each type of incident should be consistent and based on resource needs, not on the whim of individuals that many times changes from time to time or year to year.

SUMMARY

Fire ground operational decisions must be made rapidly and consistently and not by committee after consultation. Even though every fire situation differs, the fire officer must make decisions based on hastily gathered available information.



Figure 9.4

Box Assignment Comparisons

Box: 318
 Location: Conowingo Rd & Allibone Rd
 0048

Special Instructions: All Fire Calls: Open Co 3 & Co 9 Pagers (Co 9 due 1 engine only)
 PFA, Rescues, Cardiac Arrest: Co 3 assignment, Co 9 due Engine

Any working structure fire: Alert Co 3 for BLS ambulance for standby at the scene

Alarm	Stations	Engine	Tanker	Truck	Supply	Air	Special	Notify	Transfer
1	3-8-6	3-3-8-6		331					
2	1-3-6-9-YC	3-9-6-1	Delta						
3	1-9	(FI)-9-1							
4	1-YC	(FI)-1-Delta							
5	7-YC	(FI)-Delta-7							FID
6	2-7	(FI)-7-2							Aux
7									
8									

Engines: 3-9-6-1-Delta-7-2-13-4-Fawn
 Trucks: 3-2-4-8-Rising Sun-5
 Tankers: Delta-1-13-Fawn-10-12A
 Brush: 3-8-6-1-Delta-2-13-7-4
 Ambo: 3-8-6-1-Delta-7-13-2-4
 Rescue: 3-8-Delta-13
 Air: 3-5-1-7
 Boat: 9-4
 Supply: 1-7-Fawn-8
 Confined Space: 3 & 2 & 4 & 12A & TRT-Balt Co ATR
 Trench Collapse: 3 & 2 & 4 & 12A & TRT-Balt Co ATR
 Tech Rope Res: 3 & 2 & 4 & 12A & TRT-Balt Co ATR
 Struct Collapse: 3 & 2 & 4 & 12A & TRT-Balt Co ATR
 Swift Water Res: 3 & 5 & 9 & King SWT & TRT-Balt Co ATR
 Tech Res Unk: 3 & TRT-Balt Co ATR
 Dive Teams: 5-Middle River-City BRO
 HazMat Teams: Harford-12A-Balt Co-Cecil Co-Balt City
 EMS Transfers: 13-1-7-9

1/13/2009

Box: 614
 Location: Prospect Rd & Ady Rd
 0016

Special Instructions: Alert next due company for RIT engine
 Any working structure fire: Alert Co 6 for BLS ambulance for standby at the scene

Alarm	Stations	Engine	Tanker	Truck	Supply	Air	Special	Notify	Transfer
1	6-3-9-YC	6-6-6-9-9-3	Delta	631	56-1				
2	3-7-9-10-YC	9-Delta-3-Fawn (FI)-3-7-9-Delta-Fawn	Fawn 1025	331	781	961			FID
3	3-7-9-YC	(FI)-1-3-7		121	1331	181			
4	1-3-7-13	(FI)-1-4-13		1321					781
5	1-4-13	(FI)-1-4-13-Stew							
6	1-4-7-13-YC	(FI)-1-4-13-Stew							
7									
8									

Engines: 6-6-Delta-3-Fawn-10-7-1-13-Airville
 Trucks: 6-3-13-Stew
 Tankers: Delta-Fawn-10-1-13-Air
 Brush: 6-5-Delta-3-Fawn-10-7-1
 Ambo: 6-6-Delta-3-Fawn-10-7
 Rescue: 6-9-3-7-1
 Air: 9-5
 Boat: Fawn-7-1
 Supply: 6 & 2 & 4 & 12A & TRT-Balt Co ATR
 Confined Space: 6 & 2 & 4 & 12A & TRT-Balt Co ATR
 Trench Collapse: 6 & 7 & 12A & TRT & 1st due truck-Balt Co ATR-Cecil Co
 Tech Rope Res: 6 & 2 & 3 & 4 & 12A & TRT-Balt Co ATR
 Struct Collapse: 6 & 2 & 3 & 4 & 12A & TRT-Balt Co ATR
 Swift Water Res: 6 & 5 & 9 & King SWT & TRT-Balt Co ATR
 Tech Res Unk: 6 & TRT-Balt Co ATR
 Dive Teams: 6-Middle River-City BRO
 HazMat Teams: Harford-12A-York Co-Balt Co-Cecil Co-Balt City
 EMS Transfers:

1/13/2009

Box: 930
 Location: Dublin Rd & Wilson Rd
 0033

Special Instructions: Alert next due company for RIT engine
 Any working structure fire: Alert Co 9 for BLS ambulance for standby at the scene

Fill in Darlington Station

Alarm	Stations	Engine	Tanker	Truck	Supply	Air	Special	Notify	Transfer
1	9-3-6-YC	9-9-9-6-6-3		331	57-5	961			
2	1-3-6-7-YC	3-Delta-1-7	Delta						FID
3	1-6-7-YC	6-Delta-1-7-(FI)		121					
4	2-10-CC	Port-(FI)-10-2							
5	1-2-7-10	(FI)-1-7-10-2							
6	5-LC	5-5-(FI)							
7									
8									

Engines: 9-6-3-Delta-1-7-10
 Trucks: 3-2-6
 Tankers: Delta-1-Fawn-10-Port-Robt Fulton-12A
 Brush: 9-6-3-Delta-1-7-10
 Ambo: 9-6-3-Delta-1-7-10
 Rescue: 9-6-3
 Air: 9-3-1
 Boat: 9
 Supply: Delta-1-7-Fawn
 Confined Space: 9 & 2 & 4 & 12A & TRT-Balt Co ATR
 Trench Collapse: 9 & 2 & 4 & 12A & TRT-Balt Co ATR
 Tech Rope Res: 9 & 2 & 4 & 12A & TRT & 1st due truck-Balt Co ATR-Cecil Co
 Struct Collapse: 9 & 6 & 7 & 12A & TRT-Balt Co ATR
 Swift Water Res: 9 & 2 & 3 & 4 & 12A & TRT-Balt Co ATR
 Tech Res Unk: 9 & 5 & King SWT & TRT-Balt Co ATR
 Dive Teams: 9 & TRT-Balt Co ATR
 HazMat Teams: 6-Middle River-City BRO
 EMS Transfers: Harford-12-Cecil-Balt Co-York-Balt City

4/13/2007



FIRE AND EMS OPERATIONS

SUMMARY (continued)

The organization and operation of the TRT appear to be adequate for the present call volume level relating to technical rescue incidents in Harford County. The TRT has many good organizational components in place and seems to have a core group of response personnel who are interested and dedicated to improving the delivery of technical rescue services throughout the county. As with any specialty response force, access to good equipment and training are critical to the success of the organization and the TRT appears to be on track with both.

Fire departments improve their effectiveness and the safety of their firefighters and officers with the initiation of pre-fire planning, incident command systems, policies and procedures and comprehensive firefighter safety programs. Reportedly, the fire companies do not conduct regular pre-fire planning and have not adopted consistent incident command system procedures or important safety-related SOPs in a number of important areas.

When faced with limited resources and expanding calls for service from the community, a fire and EMS department should carefully select the services it provides. Often times a joint effort approach by several neighboring departments is a far more efficient use of resources.

In the case of Harford County, the County and its twelve Fire and EMS Companies and special teams are encouraged to consider the observations and suggestions in this Chapter. Establishing program goals and mutual aid partnerships will be important for each type of special operation service provided. In some cases, perhaps the best way to meet the established goals will be to utilize outside, mutual aid or regional resources instead of trying to be the sole-source provider of the service.

RECOMMENDATIONS

- 9.1 The County should continue to fund and operate the HCHMRT as it presently exists until such time that a career fire service component is implemented in the county - at which point hazmat response should be transferred to the career fire service in incremental phases.



FIRE AND EMS OPERATIONS

RECOMMENDATIONS (Continued)

- 9.2 The HCVFEA should revise their apparatus standards to include only two types of extrication service vehicles – Rescue Squad and Rescue Engine. The Rescue Squad standard should address the equipment requirements for a heavy duty rescue vehicle. The Rescue Engine standard should address the equipment requirements for an engine that is outfitted with vehicle extrication tools and equipment.
- 9.3 The HCVFEA should retain the present level of heavy-duty extrication services until such time that additional fire or EMS stations are constructed. At which point the overall distribution of rescue engine and rescue squad services should then be examined for unnecessary duplication of resources.
- 9.4 The HCVFEA should develop and implement a minimum training standards policy that requires all personnel (officers and members) who wish to help deliver vehicle extrication services to be trained and certified to the applicable NFPA and/or the MVFSCS certification standards. The Rescue Technician – Vehicle and Machinery Rescue course should be considered the minimum training standard.
- 9.5 The TRT should establish an annual, minimum training requirement for all personnel based upon the principle that team members should have to meet a minimum number of training hours per year in their primary discipline in order to remain on the team.
- 9.6 The TRT should develop and implement a skills certification and recertification standard for each of the TRT disciplines and the recertification cycle should be no longer than biennially.
- 9.7 The HCVFEA should direct the TRT to complete a full assessment of team operations in order to determine its NFPA 1670 deficiencies and develop a written plan for compliance.
- 9.8 The TRT should develop and implement a minimum staffing response standard for the Confined Space, Trench Collapse, Structural Collapse, Technical Rope, and K-9



FIRE AND EMS OPERATIONS

RECOMMENDATIONS (Continued)

Search disciplines. The developed standard should use an alert-to-responding time limit of no more than 10 minutes as the TRT minimum staffing standard.

- 9.9 The County and the HCVFEA should continue to fund and operate the TRT as it presently exists until a career fire service component is implemented in the County at which point technical rescue response should be transferred in incremental phases to the career fire service.
- 9.10 The County should consider adopting an ordinance that requires the installation of automatic sprinklers in all new, residential structures – regardless of structure size and non-residential structures that have over 1,500 square feet of enclosed space.
- 9.11 The HCVFEA in conjunction with the Fire and EMS Companies, is encouraged to implement semi-annual water supply training on a County-wide basis for the purpose of evaluating water supply sites, water supply equipment, water supply SOPs, and personnel skills.
- 9.12 The HCVFEA is encouraged to appoint a Water supply coordinator assigned the following responsibilities:
- A. Creating a County-wide water supply map book/resource guide that identifies the location and capability of all water supply sites within the County;
 - B. Recommending additional water supply sites for underground storage tanks and/or dry fire hydrants;
 - C. Possessing review sign-off authority on new fire protection water supply development; and,
 - D. Coordinating the interoperability water supply training for the local Fire and EMS Companies.
- 9.13 The HCVFEA and the local Fire and EMS Companies should identify and pre-plan appropriate buildings as part of a County-wide program.



FIRE AND EMS OPERATIONS

RECOMMENDATIONS (Continued)

- 9.14 The HCVFEA and Chief's Committee should assure that there is a state-of-the-art incident command system in use and regular related training takes place.
- 9.15 The HCVFEA is encouraged to implement updated and new standards to be utilized and enforced on a County-wide basis.
- 9.16 The Fire and EMS companies are encouraged to review and update their policies and SOPs to assure there is not duplication with HCVFEA standards.
- 9.17 The HCVFEA should consider establishing an up-to-date incident command system standard and assure consistent command officer coverage of incidents County-wide.
- 9.18 The HCVFEA and Fire and EMS chiefs are encouraged to establish command duty officer schedules.
- 9.19 The HCVFEA should assure the establishment of consistent box alarm assignments that are standard by type of incident and risk and limit revisions to County-wide changes that may be needed on a periodic basis.



CHAPTER TEN

WELLNESS, HEALTH AND SAFETY

This Chapter provides a review of information on the important subject of firefighter and EMS provider safety and wellness. There is also a review of national standards and federal regulations that should be reviewed in order to determine applicability and compliance.

OVERVIEW

The physical and mental demands associated with firefighting and emergency medical care operations, coupled with the environmental dangers of extreme heat or cold, create conditions that can have an adverse impact upon the safety and health of the individual firefighter and EMS responder. Moreover, when one considers the health hazards (e.g., blood borne pathogens and hazardous materials) that today's emergency response personnel come in contact with during the conduct of their duties and responsibilities, it becomes clear firefighting and emergency medical services delivery are considered some of the most dangerous occupations. Firefighting has been recognized as one of the most hazardous jobs because of the high number of occupational deaths and injuries. While those in the industry recognize the dangers inherent with providing EMS, there is, unfortunately, no one source for collecting and analyzing injury and fatality data for EMS providers.

For over two decades the National Fire Data Center and the National Fire Protection Association have tracked firefighter fatalities. The information discussed in this study comes from both of these sources.

Firefighter Injuries: A National Overview

Based on data from the National Fire Protection Association, the following are a number of key data elements related to firefighter injuries:

- 83,400 firefighter injuries occurred in the line of duty in 2006, an increase of 4.1 percent over 2005.
- Fifty-three percent (44,210) of all firefighter injuries occurred during fire



WELLNESS, HEALTH AND SAFETY

OVERVIEW (continued)

ground operations. An estimated 13,690 occurred during other duty activities, while 13,090 occurred at non-fire emergency incidents.

- Regionally, the Northeast had the highest fire ground injury rate with five injuries occurring per 100 fires: this was more than twice the rate for the rest of the country.
- The majority of injuries received during fire ground operations were strain, sprain, muscular pain; wound, cut, bleeding, bruise (17.3 percent); burns (5.9 percent); smoke or gas inhalation (5.6 percent).
- The NFPA estimates that there were 1,890 exposures to infectious disease such as hepatitis, meningitis and HIV. This amounts to 0.8 exposures per 1,000 emergency medical runs by fire departments.
- The NFPA also estimates that there were 23,580 exposures to hazardous conditions such as asbestos, radioactive materials and chemical fumes.
- An estimated 15,950 injuries, or almost 20 percent of all firefighter injuries, resulted in lost time in 2006.

Firefighter Injuries: Harford County

Figure 10.1 illustrates injuries to Harford fire and EMS Company personnel reported as part of the Workers Compensation coverage.



WELLNESS, HEALTH AND SAFETY

OVERVIEW (continued)

Figure 10.1
Harford County Injury Claims
2004 - 2009

Company	2004	2005	2006	2007	2008	2009
Aberdeen	2	5	9	4	4	1
Abingdon	2	14	9	9	7	0
Bel Air	5	15	17	15	13	2
Darlington	0	2	3	5	3	2
Fallston	1	1	1	2	10	0
Havre de Grace	0	3	2	1	4	2
Jarrettsville	2	0	2	2	2	0
Joppa Magnolia	1	11	7	6	2	2
Level	1	3	2	5	5	0
Norrisville	1	0	1	1	0	0
Susquehanna	1	8	6	5	1	1
Whiteford	0	2	3	6	2	3
TOTAL	16	64	62	61	53	13

Source: HCVFA

In an effort to keep injuries to Harford fire and EMS personnel to a minimum an analysis of the causes for these injuries should be made by the Association with appropriate changes being made to existing standards or new standards developed.

National Firefighter Fatalities

According to the 2006 Annual Report of the U.S. Fire Administration, the following is information regarding firefighter deaths in 2006:

- Seventy-seven volunteer and 29 career firefighters died while on duty.
- Activities related to emergency incidents resulted in the deaths of 61 firefighters.
- Thirty-six firefighters died while engaged in activities at the scene of a fire.



WELLNESS, HEALTH AND SAFETY

OVERVIEW (continued)

- Fifteen firefighters died while responding to, or returning from, an emergency incident.
- Nine firefighters died while engaged in training activities.
- Twenty firefighters died at the conclusion of their on-duty activities.
- Heart attacks were the most frequent cause of death for 2006 (50 firefighter deaths).
- Nineteen firefighters were killed as a result of vehicle crashes.

A Retrospective Study of Firefighter Fatalities

Selective findings from the report *Firefighter Fatality Retrospective Study 1990-2000* (the latest retrospective study available) by the Federal Emergency Management Agency follow:

- The leading nature of firefighter fatalities is heart attack (44 percent); trauma, including internal and head injuries, is the second leading cause of fatal injury at 27 percent. After age 35, the proportion of deaths from traumatic injuries decreases and the proportion of deaths from medical causes rises significantly.
- Approximately 60 percent of firefighters were over the age of 40 when they were killed and one-third were over the age of 50. The older firefighters tend to be affiliated with volunteer agencies. About 40 percent of volunteer firefighters are over the age of 50 compared to only 25 percent of career firefighters.
- The majority of firefighter killed in the line of duty (57 percent) were members of volunteer fire agencies.

These findings are presented here to emphasize the risk to and vulnerability of volunteer firefighters when it comes to injuries and death associated with occupational hazards, not to reflect negatively in any way on volunteer agencies.



WELLNESS, HEALTH AND SAFETY

OVERVIEW (continued)

Often small volunteer agencies do not have comprehensive data regarding the injuries and deaths of their members. Such is the case in Harford County. National data provides an overview and identifies risks that can and should be applied and used locally to support needed health and safety initiatives.

GENERAL BACKGROUND

Results of data collection and analysis regarding firefighter injuries and fatalities have led to an increasing focus on the safety of emergency service personnel. Numerous factors have contributed to this, including:

- A. Increased personal concerns of firefighters and emergency care personnel over their own well being;
- B. Impact of the lack of fitness has on an emergency responder's ability to perform his/her job or to rescue citizens or other personnel;
- C. Increased costs associated with occupational illnesses and injuries; and,
- D. Increased regulation of occupational health.

Most of the emphasis on firefighter/EMS provider health and safety is to be in career departments or with paid staff. This is due to the concerns over employer liability and compliance with Occupational Safety and Health Administration (OSHA) standards. Although paid departments, including those in Maryland, must comply with OSHA standards; the question of volunteer compliance varies from state to state.

Federal law allows each state to determine whether volunteer firefighters are considered employees and therefore must comply with the OSHA standards. Maryland OSHA law requires wage or other compensation to be paid for an individual to be considered an employee.



WELLNESS, HEALTH AND SAFETY

GENERAL BACKGROUND (continued)

While volunteers may not be considered employees and therefore may not have to abide by OSHA regulations, the safety of volunteers is as important as that of career personnel. There are various interpretations of the OSHA regulations, however, many volunteer services in Maryland and other states have decided to follow the regulations for the following reasons:

- A. OSHA regulations have been developed to provide safe work environments for employees. If volunteers are working under the same circumstances, they should have the same protection.
- B. While the law does not require compliance, if there is an incident involving injury or death of a volunteer, the department may be liable to the injured person or the survivors for allowing unsafe conditions which may have contributed to the harm.
- C. If volunteers work with paid personnel who are covered by OSHA, it seems prudent to have everyone function under the same standards and work conditions.

In keeping with this philosophy, the Volunteer and Combination Officers Section (VCOS) of the International Association of Fire Chiefs (IAFC) published a statement regarding the 2 in/2 out provision of the OSHA Respiratory Standard, 29 CFR 1910.134.

“Yes, it is the opinion of the IAFC Volunteer Chief Officers Section that this regulation is applicable in all situations where interior firefighting operations are being conducted. VCOS believes it is applicable to the vast majority of volunteer departments in the United States. “The VCOS supported the concept of 2 in/2out when it was originally proposed and VCOS still supports these new regulations since they deal directly with the safety and well being of our firefighters.

While OSHA has stated that volunteer fire departments will not be affected by the regulation, VCOS believes that this will not be the case since 25 states align with the federal OSHA. The



WELLNESS, HEALTH AND SAFETY

GENERAL BACKGROUND (continued)

standard also applies to private incorporated fire and EMS companies including 'employees' of incorporated volunteer companies. In addition, other non-OSHA states are giving the regulation consideration under the Environmental Protection Agency (EPA), the federal entity that takes the lead in non-OSHA states.

"The application of the 2 in/2 out rule can be argued by volunteer fire departments in many states. The reality is that 2 in/2 out is the right thing to do for the safety of our firefighters and each volunteer fire department should seek to implement new 2 in/2 out."

This powerful statement by VCOS has had a significant impact on volunteer departments. It clearly indicates that the demands and dangers of firefighting are the same whether one is paid or performs the job on a volunteer basis. Over the years the debate about adopting and implementing policies and procedures for 2 in/2 out has almost disappeared. The process of having 2 in/2 out has become a standard of practice and safety.

Fire department officials said that rapid intervention teams (RIT) are assigned on multiple alarm fires. There has not been significant training on the roles and responsibilities of the RIT nor policies developed to guide their actions on the scene. It is recommended that the Fire and Rescue Commission assign the appropriate group to address these issues and ensure that there is a policy for the training and operation of RITs. There is also the need to ensure that everyone uses the accountability system during all incidents; comments were made that it is only needed on major incidents. Unless the process is used frequently, responders will not be familiar with its use when truly needed to ensure their safety. Frequent use of the accountability system should be encouraged throughout the system.

NATIONAL STANDARD - NFPA 1500

In 1987, the first national standard entitled "Fire Occupational Safety and Health Program," known as NFPA 1500, was adopted. Since then there have been several updates, the most current being in 2007. This standard, although a voluntary consensus standard, has become mandatory because of adoption of components of the standard in the Federal Occupational



WELLNESS, HEALTH AND SAFETY

NATIONAL STANDARD - NFPA 1500 (continued)

Safety and Health Administration regulations. As a result, fire agencies need to develop safety programs which meet this national standard and begin to develop implantation plans to ensure they have a program in place. Another reason for compliance to this “voluntary” standard is that these standards (NFPA) are generally viewed as the acceptable standard of practice whenever litigation regarding health and safety issues arise.

The NFPA 1500 is very comprehensive and when first reviewed can appear overwhelming. It should be mentioned that in many cases a fire agency may not have the resources, whether personnel or financial, to comply with the safety standards and regulations. This is not considered to be an acceptable excuse. Agencies must show that they are making the effort to comply and provide for the safety and well being of their providers. Senior fire officials need to review current safety standards and develop plans for the implementation of a program that provides for responder safety.

Although it is unlikely that all risks associated with the profession can be eliminated, the incidence of injuries and even responder deaths can be reduced the development of a risk management system, the development of health and safety programs and the application of existing technology. Since the statistics show higher injury and death rates among volunteers, and especially among volunteer agencies in the Northeast, it is vital that these programs be developed. NFPA standards recommend the following as components of programs that should be developed at the local level:

1. A fire official should be designated as a safety officer who must develop programs in accordance with NFPA standards;
2. An Occupational Safety and Health Committee should be established and serve in an advisory capacity;
3. The fire and EMS companies must establish a data collection system and maintain records of all accidents, injuries, illnesses or deaths that are, or might be, job-related. It is also necessary to maintain individual records of occupational exposure to known or suspected products or contagious diseases;



WELLNESS, HEALTH AND SAFETY

NATIONAL STANDARD - NFPA 1500 (continued)

4. The fire and EMS companies must maintain training records for each member indicating dates, subjects covered and certifications achieved. This is necessary to show proper training was provided when an injury does occur;
5. The fire and EMS companies must provide training and education for all members to ensure that they are able to perform their assigned duties in a safe manner that does not present a hazard to the responder or to other members of their service;
6. Fire company training officers should meet the requirements of NFPA 1041;
7. Whenever changes in procedures or technology are introduced or new hazards are identified in the work and response area, appropriate training and education must be provided and documented for all affected members;
8. All firefighters who engage in structural firefighting must meet the minimum requirements of NFPA 1001;
9. All fire apparatus driver/operators must meet the minimum requirement in NFPA 1002;
10. All fire officers must meet the minimum requirements in NFPA 1021, commensurate with their duties and responsibilities;
11. Training in fire ground operations must be based on standard operating procedures. These procedures must be maintained in written form and address all emergency operations;
12. All persons riding on fire apparatus must be seated and secured in the vehicle by seat belts and safety harnesses any time the vehicle is in motion. Standing while riding must also be prohibited;
13. All new fire apparatus must be designed and ordered in accordance with the NFPA safety standards for vehicles;
14. All fire vehicles should be inspected on a regular basis and fire pumps and ladders tested in accordance with NFPA standards and the appropriate records maintained;
15. All equipment carried on emergency apparatus must be inspected and maintained on a regular basis and records maintained on these activities;



WELLNESS, HEALTH AND SAFETY

NATIONAL STANDARD - NFPA 1500 (continued)

16. All firefighters and EMS personnel must be provided with the appropriate protective clothing and items which meet the national standards and must be maintained according to manufacturer instructions and standards to ensure continuing safety;
17. Fire and EMS agencies must have grooming standards which provide for the safe wearing of personal protective clothing and equipment;
18. Every firefighter must be provided with a personal alert safety system. Individuals must be trained in the proper use of these items, and the equipment tested and maintained according to standards;
19. All equipment used by fire and EMS responders must meet required standards, and be tested and maintained as indicated by manufacturers and/or standards;
20. An incident command system should be established, with written policies and procedures, and implemented according to policy;
21. Fire and EMS stations must be designed and provided with systems to ventilate and eliminate exhaust emissions so as not to expose personnel and contaminate living and sleeping spaces;
22. There should be a system of annual station inspections to ensure that all safety conditions are in place;
23. All applicants for emergency response assignments must be examined and certified by a physician as being medically fit in accordance with NFPA standards;
24. All emergency responders should be reexamined by a physician at least annually and before being allowed to resume duty after a debilitating injury or illness;
25. Fire and EMS agencies must establish a physical fitness program to ensure the readiness and fitness for duty of their personnel;
26. Fire and EMS departments must attempt to identify and limit exposure of members to infectious and contagious diseases; and,
27. Fire and EMS agencies must provide an employee assistance program which identifies and assists members with substance abuse, stress or personal issues that could adversely affect their performance and put them at risk for injury.



WELLNESS, HEALTH AND SAFETY

NATIONAL STANDARDS - NFPA 1500 (Continued)

This list is very detailed and should serve as a guide for departments in developing a comprehensive safety plan for their fire and EMS systems. Compliance with each of these areas changes frequently as technology improves and new and better ways of ensuring safety and reducing risk are developed.

There is a need for a comprehensive safety plan in Harford County. Components of a plan are in place countywide and in some of the volunteer agencies. The staff of the Division of Fire-Rescue and EMS manages the respiratory protection program. This officer rotates through the individual departments on their meeting nights to perform fit testing and maintain the necessary records. While he tries to test everyone, individual members are often not available. During the interviews, officials stated they were not sure if all of the equipment testing is being completed as required. This task is generally assigned to a specific person within an organization.

Most departments have established a safety officer position. Training requirements to be assigned to this position are outlined in the Chief's Reference Guide. In Harford County it is not standard procedure to assign incident safety officers unless there is a major, long-term incident.

The Study Team recommends that the Harford County Volunteer Fire and EMS Association appoint a task force to develop a comprehensive safety plan in accordance with OSHA and national standards. This task force should also be assigned to develop an implementation strategy to phase in the plan. A budget should also be prepared as part of the implementation strategy.

The task force will have to consider the needs and resources of Harford County in developing a realistic plan that will be acceptable and provide for the safety of emergency responders.



WELLNESS, HEALTH AND SAFETY

EVERYONE GOES HOME PROGRAM

Several years ago the National Fallen Firefighters Foundation (NFFF) expanded their mission by bringing prevention of firefighter fatalities to the forefront of their activities. In 2004, they convened a firefighter life safety summit to address the need for change in fire and emergency services to reduce firefighter injuries and fatalities. The results of this meeting were the development of 16 life safety initiatives and the development of a national Everyone Goes Home program. The NFFF leadership has partnered with the U.S. Fire Administration to help meet the goal of reducing firefighter fatalities by 25 percent within five years and by 50 percent in ten years. This is an aggressive, but much needed, goal.

Firefighter Life Safety Initiatives

The following are the 16 life safety Initiatives:

1. Define and advocate the need for a cultural change within the fire service relating to safety incorporating leadership, management, supervision, accountability and personal responsibility;
2. Enhance the personal and organizational accountability for health and safety throughout the fire service;
3. Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities;
4. All firefighters must be empowered to stop unsafe practices;
5. Develop and implement national standards for training, qualifications, and certification (including regular recertification) that are equally applicable to all firefighters based on the duties they are expected to perform;
6. Develop and implement national medical and physical fitness standards that are equally applicable to all firefighters, based on the duties they are expected to perform;
7. Create a national research agenda and data collection system that relates to the initiatives;



WELLNESS, HEALTH AND SAFETY

EVERYONE GOES HOME PROGRAM (continued)

8. Utilize available technology wherever it can produce higher levels of health and safety;
9. Thoroughly investigate all firefighter fatalities, injuries, and near misses;
10. Grant programs should support the implementation of safe practices and/or mandate safe practices as an eligibility requirement;
11. National standards for emergency response policies and procedures should be developed and championed;
12. National protocols for response to violent incidents should be developed and championed;
13. Firefighters and their families must have access to counseling and psychological support;
14. Public education must receive more resources and be championed as a critical fire and life safety program;
15. Advocacy must be strengthened for the enforcement of codes and the installation of home fire sprinklers; and,
16. Safety must be a primary consideration in the design of apparatus and equipment.

The Everyone Goes Home program has spawned several programs in support of the Everyone Goes Home mission. The life safety initiative is such a program for local implementation. Part of this initiative is a seat belt pledge for individual departments to utilize for their members.

Everyone Goes Home has a resource kit and training program available to fire and EMS agencies. Training is offered to enhance the presentation of these programs and is available at no cost to departments.

The Study Team recommends that every fire and EMS agency in Harford County have their members take the seat belt pledge. They should also secure the resource kits from the Everyone Goes Home program and work to enhance safety within their agencies.



WELLNESS, HEALTH AND SAFETY

NATIONAL FIREFIGHTER NEAR-MISS REPORTING SYSTEM

The International Association of Fire Chiefs (IAFC), with the endorsement of the International Association of Fire Fighters and the Volunteer Combination Officers Section (VCOS), hosts the national near-miss reporting system. The program is funded by grants from the Department of Homeland Security's Assistance to Firefighters Grant Program and the Fireman's Insurance Fund Insurance Company. The near-miss program is a voluntary, confidential, non-punitive and secure reporting system with the goal of improving fire and EMS personnel safety.

The Web-based system collects and analyzes information submitted by responders on near-miss events improvements to be made to command systems, emergency services education, operations, equipment and training. Strict confidentiality is provided and maintained to encourage providers' participation. Information obtained is disseminated to departments and individuals via a "report of the week" by emailing articles in professional journals and presentations at educational programs.

Fire and EMS agencies are encouraged to have their personnel participate in this program, not only by adding to the volume of information gathered but as a means to raise the level of safety awareness and to be included in the reports that result from the data collection. It should be noted that while the program was started with the focus on fire incidents, EMS incidents are now included in the data collection.

The Study Team recommends that the safety officer in each department encourage the use of the near-miss reporting system and use the tools available from the program to enhance safety in their departments.



WELLNESS, HEALTH AND SAFETY

INFECTION CONTROL

In the rendering of emergency services to aid the sick and injured, firefighters and emergency medical personnel are exposed to infectious and communicable diseases. To prevent infection from occurring in both patients and care providers, emergency services must have a comprehensive infection control program. Although data is limited on the threat of communicable disease transmission in the emergency work environment (pre-hospital), there is some information on studies of non-emergency healthcare providers. This information is available from the Center for Disease Control (CDC) and provides an indication of the risk to pre-hospital personnel.

The diseases presenting a high risk level to emergency responders include:

- A. HIV;
- B. Hepatitis;
- C. Meningitis;
- D. MRSA; and,
- E. Avian influenza (future potential).

MRSA

Much information has been disseminated over the past two decades about the dangers of HIV, hepatitis and meningitis to healthcare workers. A new condition for emergency workers is methicillin-resistant staphylococcus aureus (MRSA). MRSA is an antibiotic-resistant infection usually seen in intensive care units and nursing homes in debilitated patients. In 2005, 94,360 people contracted serious MRSA infections; 18,650 died during hospitalization related to MRSA. The CDC reports that 85 percent of MRSA cases are associated with healthcare and two-thirds of these occur outside the hospital.

Anyone can be at risk for MRSA. Factors that have been associated with the spread of MRSA skin infections include close skin-to-skin contact, openings in the skin such as cuts or abrasions, contaminated items and surfaces, crowded living conditions and poor hygiene. CDC has stated that any patient contact puts emergency services workers potentially at risk.



WELLNESS, HEALTH AND SAFETY

INFECTION CONTROL (continued)

In a recent issue of *On Scene*, a publication of the IAFC, it was indicated that “MRSA and communicable disease is a reality not soon to fade.” The following excerpt is from the same article:

“In June, *Journal Watch Emergency Medicine* published “MRSA in the Ambulance,” summarizing a study from *Prehospital Emergency Care*, (April/June; 11(2): 241-4, “Can (MRSA) be found in an ambulance fleet?”). According to the study, 48 percent of ambulances tested positive for MRSA. One urban EMS service was tested at multiple sites within the ambulance. Twenty-one ambulances were tested, with ten of those demonstrating a positive result. Positive test results were found in a number of areas in the ambulance, including the steering wheel, stretcher, patient compartment and Yankauer tip suction catheter.”

In “Sick Fire Stations” (*Fire Chief* blog July 20, 2007), *Fire Chief* magazine’s editorial director Janet Wilmoth describes a California scenario in which nine firefighters were afflicted with some type of infection and at least two of these tested positive for MRSA.

Tips offered by the EMS Section, IAFC, for prevention of the spread of this disease and protection of emergency services workers include:

- Follow general body fluid precautions on all patient encounters;
- Remove gloves after patient contact but before driving to the hospital. Do not contaminate the steering wheel. Follow local policy for infection control;
- Disinfect all items exposed during any patient encounter. Include cot, stethoscope, sphygmomanometer, and items most frequently neglected but touch the patient nonetheless (Koenig). Follow local policy;
- Diligently clean the fire station. One thread by Brian Klugh to Janet Wilmoth’s blog describes common firehouse items testing positive for bacteria, including dishes;



WELLNESS, HEALTH AND SAFETY

INFECTION CONTROL (Continued)

- Do not bring contaminated items home to mix with household laundry. Work with executive management to develop a policy on cleaning contaminated clothing; and,
- Wash hands. The CDC reports that hand contact is the most common means of MRSA transmission.

While the risk to MRSA is greater for EMS providers, there is a significant risk in fire stations because of the close living arrangements and human contact. Fire and EMS officials must ensure that their facilities are kept clean, and clothing and items which may be contaminated are not taken home by their members.

PANDEMIC INFLUENZA

In the past five years, there has been a growing concern about a pandemic influenza resulting from a mutation of the avian influenza H5N1 virus. Although the H5N1 virus is not readily transmitted from person to person, the situation is being closely monitored. If the virus mutates to a more readily transmitted form, a pandemic could ensue. A highly transmissible pandemic strain could spread around the world in a matter of months. Because it takes about six months to make influenza virus once the pandemic virus is detected, it is likely that the vaccine will be in limited supply at the beginning of the pandemic.

In response to this concern, many emergency management agencies are working with all facets of the public and private sector to develop contingency plans for continued operations during a pandemic. There are predictions that in a pandemic situation approximately 25 to 40 percent of the population could be impacted. This includes the workforce.

Harford County has started developing plans for continued operations during a pandemic. In addition to the impact a pandemic influenza could have on the number of volunteers available for service, an increase in the number of calls for assistance will also likely occur.



WELLNESS, HEALTH AND SAFETY

PANDEMIC INFLUENZA (continued)

A reduced workforce and increased call volume presents the potential for an acute crisis situation. The Harford County Volunteer Fire and EMS Association and Public Safety Department need to ensure that this issue is also addressed with the involvement of the volunteer departments and companies.

INFECTION CONTROL REQUIREMENTS

There are several federal laws (The Ryan White Comprehensive AIDS Resources Emergency Act and Americans with Disabilities act) which apply to emergency service providers regarding notification of exposure and prohibiting discrimination against an individual with a certain contagious disease. The most comprehensive document addressing infectious disease is OASH 29 CFR part 1910.1030, Occupational Exposure to Bloodborne Pathogens. This regulation requires:

- A. Employers develop a comprehensive exposure control plan;
- B. Development and implementation of work practice controls to eliminate or minimize employee exposure to bloodborne diseases;
- C. Employers supply, repair, and replace personal protective equipment including gloves, gowns, face shields or masks and eye protection, and resuscitation equipment;
- D. Employers make available, free of charge at a reasonable time and place, the Hepatitis B vaccine and vaccination series to all at risk;
- E. Employers must provide training and annual refresher training as defined in the regulation; and,
- F. Employers must make sure that there are procedures in place for post exposure care and record keeping.

This is a brief summary of the regulation. Each emergency agency should have a person appointed as infection control officer who is familiar with the most current regulations and CDC guidelines.



WELLNESS, HEALTH AND SAFETY

INFECTION CONTROL REQUIREMENTS (continued)

The NFPA has several standards (1500, 1501, 1581 and 1582) that relate to firefighter safety and infection control. They contain recommendations similar to the OSHA standards and make recommendations for station facilities as well as other preventative measures for the health and safety of personnel.

The development and implementation of an infection control program is no longer an option for emergency response agencies. Compliance with all of the legislation and standards is complex and may be overwhelming, especially when there are no individuals available to coordinate the program on a full-time basis.

INFECTION CONTROL IN HARFORD COUNTY

The HCVFEA adopted Standard 4.3, entitled Management of Communicable Diseases on September 24, 2003. The purpose section of this document that “This manual is a teaching tool designed to educate emergency response personnel about infection control for Harford County Volunteer Fire and EMS Association.” There should be a Association-level infection control effort specified in the Standard to assure implementation County-wide.

This Standard outlines Fire Company and personnel responsibilities, including reporting requirements under Federal and State laws and regulations. It appears to be comprehensive in nature, however, does not specify any Association responsibilities for follow-up and coordination to assure compliance on the part of the member Fire Companies.

It is also recommend that the Harford County Volunteer Fire and EMS Association continue to participate with County officials to address preparations of contingency and continued operations plans for use in a pandemic situation.



WELLNESS, HEALTH AND SAFETY

MENTAL HEALTH

Over the past several decades, attention has been paid to the mental health needs of firefighters and EMS personnel. Firefighters and EMS personnel. They are out serving their community and taking care of individuals in crisis are faced with conditions that add to the responders stress levels. They face unprecedented personal demands, which develop as a result of involvement with critical and disaster incidents.

Past studies have shown that more than 86 percent of emergency response personnel experience some emotional, cognitive or physical reaction after responding to critical incidents. Such incidents have the potential to create, over a period of time, a state of chronic distress that can lead to health problems, personality changes, marital and family discord, and even a ruined career as a volunteer or paid responder.

There are many factors that contribute to the psychological stresses on emergency services workers. First is the psychological make-up of the emergency workers themselves, who tend to have one or more of the following traits:

- Action-oriented
- Like being in control
- Risk taker
- Enjoy being the center of attention
- Perfectionist
- Competitive
- Loyal and dedicated to the detriment of their own well being at times

Then there are external stress factors associated with the occupation and environment they work in and associated with helping others. They include:

- Physical dangers such as fire, noise, hazardous materials and contagious diseases



WELLNESS, HEALTH AND SAFETY

MENTAL HEALTH (continued)

- Over activity as well as inactivity (very frustrating to action-oriented people)
- Poor relations at times with other members of the organization
- Change in sleep patterns and lack of sleep
- Dissatisfaction with rules, regulations, policies and procedures
- Dealing with difficult people on incidents
- Exposure to death, illness and physical suffering
- Involvement with patients who remind the workers of loved ones
- Frustration of not being able to help everyone

These stressors can produce symptoms at any time, but are likely to materialize in association with a critical incident—not only in an emergency situation but even in their personal lives. The stress may start showing over a period of time or be delayed for an extended time after the incident occurs. Some individuals will experience cumulative stress response that is not incident specific, but results from repeated disappointments and unrelieved stress of sufficient duration.

All of these stress reactions are serious and a threat to the well being of the responders. Stress not only can represent itself in physical symptoms but also lead to actions resulting in serious injury or even death to the provider, patient or other workers.

Stress prevention and management is a responsibility of the emergency agency leadership. They need to provide an environment where stress in the organization is managed and provisions made to support emergency workers with the stress associated with incidents.

Many public safety organizations have developed stress management programs which create a working environment where stress is minimized and support personnel are available when members need assistance. These programs generally include:

- Classes or sessions teaching personnel about the stresses and how to handle them
- Creation of an environment where there is concern and caring for each other



WELLNESS, HEALTH AND SAFETY

MENTAL HEALTH (continued)

- System of debriefing after incidents which afford workers an opportunity to address their concerns and feelings
- Availability of peer and professional counselors who can work with emergency workers following critical incidents
- Long-term counseling services for workers when needed

Emergency service workers in Harford County have Critical Incident Management Team services available from a statewide program. Fire and EMS officials who were interviewed stated that there has not been much of a need, however, they are aware of the services available and there does not appear to be any reluctance to call the team if needed.

PHYSICAL FITNESS

Individuals working in public safety, particularly firefighting and EMS personnel, perform one of the most physically demanding and mentally stressful jobs in the nation. Fire and EMS personnel are subjected to various environments that require their rapid physical and mental response with a minimum of preparation. They often go from states of complete rest to strenuous heavy labor within a matter of minutes.

Studies have indicated that an increase in physical activity targeted at specific muscle groups and improved diet, work to reduce the physical and mental stress and other negative impacts on firefighter and EMS personnel. The results seen in many fire and EMS departments that have implemented physical fitness training programs support the conclusions reached by the studies.

Until very recently, there has been very little attention paid to the wellness and fitness of volunteer firefighters and EMS personnel. This is not due to lack of caring, but the fact that there are usually so many other aspects of the service that demand attention. In a review of the data regarding deaths of volunteers (in the 10-year period from 1995 to 2004, 307 of 440 firefighters who suffered sudden death were volunteers), it is obvious that there is a need to start showing that volunteer leadership cares as much for their personnel as they do for the



WELLNESS, HEALTH AND SAFETY

PHYSICAL FITNESS (continued)

people they serve. A comprehensive health and wellness programs for volunteer emergency response personnel is of vital importance in reducing injuries.

While this may sound like a good thing, many among the volunteer ranks are threatened by this and resistant to moves in this direction. Many fear that their members will not be able to pass medical examinations or meet physical requirements and therefore will not be able to participate operationally as a volunteer. While this is a valid concern, common reasoning should provide the answer. If individuals are not fit to meet the physical demands of the job, their co-workers and community (even themselves) should not be placed at risk. Individuals who are not fit for the stresses of firefighting or EMS can serve their volunteer company and community in equally important ways. To gain acceptance when a new program is developed and implemented, many volunteer agencies have phased in implementation and made the program mandatory for new members and voluntary for incumbent members.

The VCOS has been proactive and made a position statement that “..encourages volunteer fire departments to develop a practical wellness and fitness program.” More recently the VCOS issued another position statement identifying that physical examinations should be given for firefighters according to age as outlined in NFPA 1582. The position paper recommends annual physical examinations as well as encourages the incorporation of physical fitness into the organizational culture and the department’s regular training programs.

The National Volunteer Fire Council has been promoting heart health in the volunteer fire service. They have a wealth of information and programs available through their Heart Healthy Firefighter Program to help members with their local heart health programs. The ultimate goal is to assist volunteer fire agencies in reducing the number of firefighters and EMS personnel deaths from heart attack.



WELLNESS, HEALTH AND SAFETY

PHYSICAL FITNESS (continued)

The Study Team recommends that the Harford County Volunteer Fire and EMS Association establish a task force to research and examine the development of a health and wellness plan for implementation in Harford County. The plan must meet the fire service and EMS needs and available resources.

EMERGENCY INCIDENT REHABILITATION

As previously discussed, there are extreme physical and mental demands associated with firefighting and other emergency operations. These demands, coupled with the environmental dangers of extreme heat, humidity and cold, create conditions that have a serious adverse impact on the safety and health of emergency operations personnel. Personnel involved in these situations as well as training exercises must be provided with adequate rest and rehydration. If they are not provided with this rehabilitation, they will show signs of fatigue. Their reaction times will be reduced and their ability to make critical decisions diminished. This increases their risk of illness and injury, and may jeopardize the safety of others on the incident scene.

The U.S. Fire Administration has recommendations for rehabilitation procedures and guidelines for:

- Rehabilitation sector establishment
- Hydration procedures
- Nourishment to be provided
- Rest criteria
- Recovery criteria
- Accountability procedures

For major incidents, some of the fire departments have auxiliary members available to bring refreshments to the scene. Ambulance personnel are used to set up a rehabilitation area during incidents of long duration or in extreme weather conditions.



WELLNESS, HEALTH AND SAFETY

EMERGENCY INCIDENT REHABILITATION (continued)

The Study Team recommends that the Harford County Volunteer Fire and EMS Association assign the appropriate group to develop a countywide rehabilitation policy and procedure. The assigned group should identify any resources needed to provide rehabilitation services.

SUMMARY

The health and safety of firefighters and EMS personnel should be a major concern of those delivering the services, their leadership, those receiving the services and those responsible for the provision of emergency services (elected officials).

Most of the emphasis for firefighter/EMS provider health and safety seems to have been focused on career departments and combination departments with paid staff. This is due, in large part, to the concerns over employer liability and compliance with OSHA regulations. Despite this, many volunteer services in Maryland and other states are reportedly following the regulations.

In recent years, many national organizations, especially VCOS, IAFC and the National Volunteer Fire Council, have developed recommendations and programs to support health and safety of volunteers. They recognize the barriers for implementation of these programs are different in volunteer agencies and have developed resources to assist volunteer services.

There are several national programs, such as the Everyone Goes Home program and National Firefighter Near-Miss Reporting System, which have resources available that could enhance safety in Harford County. It is recommended that the HCFVEA and the Fire and EMS Companies take advantage of these resources and participate in the programs.

A comprehensive health and safety plan which meets OSHA regulations and national standards is needed in Harford County. The plan could address a way to bring the volunteer departments into compliance with the necessary testing of equipment and apparatus as well as provide for programs to enhance the health, fitness and safety of the volunteer members. The Study Team believes that the Harford County Volunteer Fire and EMS Association



WELLNESS, HEALTH AND SAFETY

SUMMARY (continued)

needs to support the development of a plan along with an implementation strategy. A comprehensive plan will require funding. The County is encouraged to provide the necessary resources. Their most valuable resource is the individual who provides the emergency services.

If a plan is to be developed and implemented, there will need to be staff support. The Study Team recommends that the HCVFEA seek funding for a full-time wellness and safety coordinator to support the plan development and implementation and to assist the individual departments with their safety programs.

RECOMMENDATIONS

- 10.1 The Harford County Volunteer Fire and EMS Association is encouraged to appoint a Wellness, Health and Safety Committee to develop a comprehensive safety plan in accordance with OSHA and national standards.
- 10.2 The Harford County Volunteer Fire and EMS Association is encouraged to assign the Chief's Committee to address development of a policy and procedure to be applied county-wide addressing the use of rapid intervention teams and the accountability system.
- 10.3 The HCVFEA should encourage every fire and EMS agency in Harford County to have their members take the seat belt pledge.
- 10.4 The HCVFEA should encourage all fire and EMS agencies to secure and use the resource kits from the Everyone Goes Home program to enhance safety within their agencies.
- 10.5 The safety officer in each Fire and EMS Company is encouraged to use the near-miss reporting system and to use the tools available from the program to enhance safety in their departments.



WELLNESS, HEALTH AND SAFETY

RECOMMENDATIONS (continued)

- 10.6 The HCVFEA should revise the Management of Communicable Diseases Standard to specify Association responsibilities for follow-up and coordination to assure compliance on the part of the member Fire Companies.
- 10.7 The Fire and EMS Company infection control officers should familiarize emergency service workers with the risks and how to reduce those risks associated with MRSA.
- 10.8 Harford County is encouraged to continue its efforts to address preparations of contingency and continued operations plans for use in a pandemic situation with appropriate involvement of the Fire and EMS Companies..
- 10.9 The Harford County Volunteer Fire and EMS Association is encouraged to establish a task force to research and examine the development of a health and wellness plan along with an implementation program for Harford County that fits the fire, rescue and EMS services needs and available resources.
- 10.10 The Harford County Volunteer Fire and EMS Association should consider assigning the appropriate group to develop a countywide rehabilitation policy and procedure. The assigned group should identify any resources needed to provide rehabilitation services.
- 10.11 The Harford County Volunteer Fire and EMS Association is encouraged to provide wellness, safety and EMS support and quality assurance assistance to departments and companies as needed and/or requested by adding a full-time specialist position to the recommended Department of Fire and Emergency Services..



CHAPTER ELEVEN

COMMUNICATIONS AND DISPATCH

This Chapter addresses the basic concepts and processes related to 9-1-1, public safety communications and dispatch functions. Relevant aspects, conclusions and recommendations relating to the use of automation and technology, emergency communications center characteristics, state-of-the-art procedures, training, staffing and scheduling of emergency communications center personnel are also discussed.

Information relating to a number of relevant dispatch subjects such as objectives, performance measurements, 9-1-1 operations and automated dispatch systems, are included in this Chapter to acquaint the reader with the technology and processes. For the reader not interested in general information on 9-1-1 operations, the Harford County staffing and operations begin on page 356.

MEASURES OF PERFORMANCE

The following MOPs and trigger points seem applicable to subjects contained in this Chapter.

The Measures of Performance -related to this Chapter include the following.

911 Dispatch

9-1-1 Answer Time

Definition: Time from the initial 9-1-1 ring until the call is answered by the Call Taker in Dispatch.

Where it applies: 9-1-1 Communications and Dispatch Center

Measure of Performance assigned: answer fire and EMS 9-1-1 calls, within 30 seconds, 95% of the time.

Source of Measurement Data: 9-1-1 Communications and Dispatch Center

Action if not met: County to require a third-party assessment to determine action/s to be taken to meet goal.

Internal Call Taking Processing Time on ECHO Calls



COMMUNICATIONS & DISPATCH

HARFORD MOPS (Continued)

Definition: time from the initial 9-1-1 call answered until the Call Taker completes sending sufficient information on ECHO fire and EMS calls to allow the Dispatcher to dispatch the call.

Where it applies: 9-1-1 Communications and Dispatch Center

Measure of Performance assigned: 30 seconds, 95% of the time

Source of Measurement Data: 9-1-1 Communications and Dispatch Center

Action if not met: County to require a third-party assessment to determine action/s to be taken to meet goal.

Initial Dispatch Time

Definition: time from initial 9-1-1 call answer until the Dispatcher completes the alert radio and data transmission to dispatch fire and EMS ECHO calls.

Where it applies: 9-1-1 Communications and Dispatch Center

Measure of Performance assigned: 60 seconds, 95% of the time

Source of Measurement Data: 9-1-1 Communications and Dispatch Center

Action if not met: County to require a third-party assessment to determine action/s to be taken to meet goal.

Total Call Processing Time

Definition: time from 9-1-1 call answer until the alert and data transmission for all assigned units is complete.

Where it applies: 9-1-1 Communications and Dispatch Center

Measure of Performance assigned: 90 seconds, 95% of the time

Source of Measurement Data: 9-1-1 Communications and Dispatch Center

Action if not met: County to require a third-party assessment to determine action/s to be taken to meet goal.

OVERVIEW



COMMUNICATIONS & DISPATCH

A commonly held belief of the public is that public safety providers are as close as a telephone. While this is generally true of public safety service provision, there is a significant misunderstanding and lack of knowledge by the public of the myriad functions which cause public safety officers to arrive where needed in a timely manner. Given the vast array of technological and human functions which must be carefully, accurately, and quickly executed to ensure a proper response to a demand for service, it is amazing to many, upon learning the sequence of actions, that existing dispatching systems work as well as they do.

Without the ability to receive calls, gather necessary preliminary information, transmit that information, and dispatch appropriate resources in such a manner to ensure a timely response, any system is doomed to failure. While there are a variety of methods in use across the country today, each must be considered individually for applicability to the needs, capabilities, and technologies of the jurisdiction being served.

COMMUNICATION CENTER OBJECTIVES

An emergency public safety communications center is the nerve center of primary emergency public safety services. It is the critical link—the lifeline—between the public and its protectors—the police officers, firefighters and rescue personnel. The general purpose and intent of the emergency communications center is best described by the following statement of objectives:

- A. Establish and maintain a center that the public client can contact for emergency assistance with the expectation that some corrective action or emergency service will result from that call.
- B. Establish and maintain a system to which emergency calls for service result in prompt dispatch of proper agencies, personnel and equipment to effectively address the emergency.
- C. Establish and maintain a system wherein properly trained and dedicated personnel closely monitor the progress of the agencies, personnel and



COMMUNICATIONS & DISPATCH

OBJECTIVES OF COMMUNICATIONS CENTERS (continued)

equipment en route to the scene of the emergency and assist in prompt arrival of the services.

- D. Establish and maintain a system wherein the resources remaining available to an emergency service agency are redistributed throughout the service area to minimize extended service response times because of “holes” in the coverage.
- E. Provide in a timely manner, and upon request from the field emergency units, additional resources which match the field request as closely as possible.
- F. Generate accurate and precise records as required by the emergency response system. The emergency response system includes the communications center.
- G. Monitor the emergency to its conclusion, exchanging with field units any record-related or administrative information required by standing orders. Upon stabilizing or abating the emergency, properly close the records on the event or incident, file the record, and move on to the next incident.
- H. Establish and maintain a properly designed radio communications system able to provide reliable dispatch of emergency units in stations or the field and provide reliable information flow between the communications center and the field units, and the field units one with another at any time, including non-emergency periods.
- I. Establish and maintain a properly designed radio, information and telecommunications system capable of providing reliable information flow between the agency that addresses an incident and other agencies or jurisdictions that may be called to assist.



COMMUNICATIONS & DISPATCH

OBJECTIVES OF COMMUNICATIONS CENTERS (continued)

- J. Develop and maintain a database and records system that allows the communications center to identify the location of the call for service so the proper operational agency can respond.

These stated objectives of a public safety communications and dispatch center are general in nature; but, these objectives provide the framework within which to understand the overall goals and purposes of a modern model emergency communications center. The objectives also provide an overview of how the support systems involved in a model public safety communications system assist in realizing the mission of the typical communications center.

ORGANIZATION AND MANAGEMENT

This section discusses model management and coordination approaches for communications centers used by other municipalities. The Study Team has evaluated each of these models in the delivery of emergency communications services.

Approaches to Model Dispatch Center Organization

The Study Team has observed a number of approaches to manage and direct combined public safety communications centers. These include management by:

- Police departments;
- Separate municipal agencies;
- Fire departments; and,
- Regional facilities (e.g., multiple municipalities or county).

The management of communications centers by law enforcement departments is the most predominant approach in the United States. This practice seems related to the law enforcement workload, which typically has a higher call load than fire/rescue/EMS agencies. Third party agencies include separate telecommunications agencies or emergency



COMMUNICATIONS & DISPATCH

ORGANIZATION AND MANAGEMENT (continued)

management agencies. There are very few combination public safety communications centers managed by fire departments.

When either the police or fire department manages the combination communications center, there is a potential for a perceived or actual “favoritism” to develop where the dispatchers indirectly or openly favor the field personnel, policies and procedures of the agency for which they work. Regardless of whether the problem is perceived or real, public safety officials need to be proactive to avoid claims of “favoritism” in emergency communications service delivery.

The management of a number of combination public safety communications centers have dealt with this potential issue in three primary ways. Larger municipalities often budget for a police or fire liaison/supervisor position from the agency not responsible for the communications center. This position may be onsite either around the clock (in very large communications centers) or on the day shift to monitor, provide liaison and/or actually provide a certain level of dispatch operations supervision.

Another method has been the establishment of a “board of advisors” or “users board” to provide a means for input and communications on issues of mutual concern to the management of the communications center.

COMMUNICATIONS CENTER STAFF SCHEDULING

There are a number of work schedules utilized by public safety dispatcher centers, including:



COMMUNICATIONS & DISPATCH

- 8-hour shift - Three shifts of dispatchers work generally eight hours in a day to provide dispatcher staffing;
- 10-hour shift - This shift is generally a swing shift that is combined with another type of shift to provide 24-hour-a-day dispatcher coverage;
- 12-hour shift - Two shifts of dispatchers work generally 12 hours in a day to provide dispatcher staffing; and,
- 24-hour shift - One shift of dispatchers works an entire 24-hour shift each day. Some sleep time is generally allocated during each shift for dispatchers assigned to this work shift.

Although the exact hours of work and the shift rotation may vary, these are the primary dispatcher work shifts that the Study Team has observed in communications centers across the nation. The 8-hour and 12-hour shifts are used in most communications centers with civilian dispatch staffing. The Study Team has observed very professional dispatch centers with 8-, 10- and 12-hour shift schedules. Two 24-hour schedules observed by the Study Team were very inefficient.

COMPUTER AIDED DISPATCHING

One of the most significant improvements in public safety dispatch in the last 40 years has been the introduction of computer aided dispatch (CAD) systems. These systems represent a well-proven technology that offers noteworthy benefits for the safety of law enforcement personnel; decreases in dispatch processing time; and improved accuracy of the dispatch process. The result is quicker and more accurate emergency public safety responses. CAD systems have become an essential component of quality communications and dispatch centers in public safety throughout the United States.

In order to effect reductions in the response time components, elicit incident information, verify the location of the incident, identify potential hazards to public safety personnel, and



COMMUNICATIONS & DISPATCH

COMPUTER AIDED DISPATCHING (continued)

determine the available unit(s) most appropriate to respond, automation of at least some of these processes should be implemented for public safety agencies.

The primary objectives of CAD systems are to:

- Increase the speed of the dispatch process, thus reducing response time;
- Increase the accuracy of the dispatch process;
- Increase safety by improving the information that is available to field personnel;
- Improve the utilization and management of resources by providing more information regarding incident locations, and by improved status keeping and display; and,
- Collect data concerning calls for service and subsequent responses in support of management information and resource allocation in departmental activity.

CAD systems vary widely in their functions and capabilities. The reasons for variances are the individual characteristics and requirements of different public safety agencies. The size of the service area involved, the population being served, and the funding available are all key factors the function and capabilities acquired as part of a CAD system.

Typical Features of CAD

CAD provides a number of specific beneficial features for public safety, such as:

A. Geographic Base Files

Generally, computer aided dispatch systems have five geographic files which are utilized in the operational CAD environment. These include:

- The block face file;
- The intersection file;
- The common place name file;



COMMUNICATIONS & DISPATCH

COMPUTER AIDED DISPATCHING (continued)

- The alias/misspelled street name file; and,
- The hazards/premise file.

These files are utilized to define to the CAD the street segments, address range, intersections and so forth that comprise the geographic aspects of the service area.

B. Location Data

CAD systems can quickly and accurately retrieve specific location data from a large data base.

C. Unit Dispatch Recommendation

Based on criteria developed by public safety officials, a CAD system has the capability to recommend specific fire unit(s) or other emergency service provider for a response assignment for any given address entered into the system as part of the call taking and dispatch process. As calls for service are received, the system can reorder response assignments.

D. Incident Records/Premise History

The CAD system storage of recent incident records allows for rapid access to various kinds of incident data for later analysis and study. For field public safety personnel, premise history can be very important. For example, if department resources are dispatched to an address of a known felon or hazmat storage location, the dispatch personnel and the responding public safety units dispatched may not know the volatility of this incident, and may become involved in a situation without essential information. Address-based "hazard information" that can be entered into the CAD system, based on prior calls to this same address, information provided by the property owner/occupant and/or fire investigations in progress, may well prevent



COMMUNICATIONS & DISPATCH

COMPUTER AIDED DISPATCHING (continued)

injury or worse to the personnel responding, and allow for improved incident handling.

E. Message Capability

CAD can have a message-sending capability that, for many fire departments, has become critical to their internal operations. In addition, both dispatch messages, as well as administrative messages, may be transmitted and logged.

CAD / 9-1-1 Systems Interface

The more recent, up-to-date versions of CAD systems include an interface with the 9-1-1 system. The 9-1-1 telephone number and address data can be entered into a CAD system to reduce the number of keystrokes necessary to carry out the dispatch function. This feature improves accuracy and speed of emergency dispatch.

CAD provides for the accurate logging of all operational activity associated with calls for service, incidents, nature of incidents, location of calls, time of calls, duration of calls and units assigned. When coupled with a computerized records management system, this capability provides management with an accurate data base upon which to base rapid operations analysis and feedback for determining an efficient deployment and distribution model for basic service delivery.

When CAD is interfaced with the 9-1-1 system, citizens calling for fire or EMS services automatically have their address and telephone number displayed on the screen for the call-takers. In emergency situations the citizen caller is not required to explain in great detail the circumstances and the address. The exact address can be a very difficult issue as it relates to response in emergency situations because of the anxiety, possible language barrier, and/or physical impairment of the individual calling for emergency services.

Documentation of Incidents



COMMUNICATIONS & DISPATCH

COMPUTER AIDED DISPATCHING (continued)

CAD systems generally document all dispatch and CAD systems activities on a computer. The specific data that CAD systems normally document include the following:

- Nature of incident;
- Incident number;
- Location (address) of incident;
- Fire and/or EMS agency response district where incident occurred;
- How call received: 9-1-1, business line, radio, etc.;
- Name of calling party;
- Telephone number of calling party;
- Time call received;
- Time call dispatched;
- Time units on-scene;
- Time units in-service;
- Time incident cleared;
- Unit(s) assigned;
- Name or ID number of call-taker receiving call;
- Name or ID number of dispatcher handling call; and,
- Other relevant incident data.

Most CAD systems are designed utilizing mini or PC-type computers. Incident data for a certain period of time is maintained in the data base of the CAD computer. Management reports can be produced and analysis can be performed with the incident data. Based on the storage capacity of the CAD computer(s), incident data are normally transferred to other larger computers for long-term record keeping and analysis.

MOBILE DATA COMPUTERS

As part of state-of-the-art CAD systems, fire and EMS agencies have been acquiring and implementing portable/mobile computing devices. This technology has been emerging in public safety communications systems since the late 1970s and is another well-proven



COMMUNICATIONS & DISPATCH

COMPUTER AIDED DISPATCHING (continued)

technology. In the private sector, mobile digital terminals have been used since the early 1980s to speed transmission of assignments.

Initially, as the technology evolved, the units were mobile and therefore generally referred to as “mobile digital terminals” (MDTs). However, as the technology has continued to progress portable computing devices have come into use in this capacity and therefore a number of differing types of portable/mobile computing devices are in use, many currently referred to as “mobile digital computers” (MDCs).

In addition to being an integral part of the computer-aided dispatch process, these units may be a part of the records management system (RMS) and/or they can be standalone reporting mechanisms.

TIME SYNCHRONIZATION

Maintenance of accurate dispatch times is important to many aspects of public safety dispatching. Some of the following require the maintenance and documentation of accurate times for various components of the dispatch process:

- Response to inquiries from the public;
- Management studies and analysis; and,
- Response to requests for documented information for legal and court cases.

Individually, many components of the communications center include time keeping capability. Many of the following components of the typical communications center include internal time keeping capability:

- Voice recorders;
- Dispatch consoles;
- CAD systems;
- ANI/ALI controllers and other 9-1-1 equipment;



COMMUNICATIONS & DISPATCH

TIME SYNCHRONIZATION (continued)

- Wall time displays;
- Time-lapse video units; and,
- Alarm receivers.

The accuracy of dispatch-related times maintained by the various dispatch center communications components is essential to the availability of reliable and consistent time information. Likewise, it is essential that the times maintained by the various communications system components be synchronized and consistent.

TRAINING OF DISPATCHERS

Training is one of the most important factors when considering the requirements of a public safety communications center. Training is key to the effective operations of the center and the center's ability to provide the appropriate emergency response to the public, as well as providing the necessary support to fire and EMS personnel.

The required amount and content of training will depend greatly on the background and experience of the individuals staffing the communications center. When individuals staffing the center have the institutional background and field experience, such as in the case of using uniformed personnel, then the training only has to focus on the equipment, skills, and procedures common to the communications center operations. When civilian personnel are used, the training may need to be more extensive so that the individuals are familiar with the service and field operations that impact or could be impacted by communication center operations.

Even with the automation of communication centers, there still must be provisions for human intervention and application of discretion. Because of human and situational variables, especially in emergency situations, decision making cannot be deleted from the dispatchers' responsibilities.

Dispatcher Training Model



COMMUNICATIONS & DISPATCH

DISPATCHER TRAINING (continued)

This Section reviews a model public safety dispatcher training program.

Basic Dispatcher Training

A model fire/rescue/EMS dispatcher training program should include basic dispatcher training that would include some of the following basic topics:

- A. Mission of communications center
- B. Dispatcher duties and responsibilities
- C. Professionalism
- D. Telephone systems
- E. Telephone answering and other related procedures
- F. Radio communications systems
- G. Radio procedures and codes
- H. Telecommunications concepts and technology
- I. Dispatch related automation concepts
- J. 9-1-1 and CAD systems generally
- K. Stress management and critical incident stress debriefing
- L. Fire and rescue operations and terminology
- M. Emergency medical dispatching and pre-arrival instructions
- N. Records management systems

This basic training is generally concentrated classroom lectures and established lesson plans. The content of the basic training programs offered by or following the instructional programs of APCO meet the intent of the basic training envisioned in this model.

Internship

Following completion of the basic dispatcher training program, each dispatcher candidate should complete an “internship” consisting of an appropriate number of shifts working with an experienced dispatcher. The candidate is evaluated on a daily basis.



COMMUNICATIONS & DISPATCH

DISPATCHER TRAINING (continued)

Probationary Performance Standards

As an adjunct support to the basic training requirements outlined above, the implementation of a dispatch personnel training program should include comprehensive probationary training with appropriate performance standards and a dispatcher training manual or handbook.

Continuing In-Service Training

Following the completion of the basic dispatcher training, the internship, and successfully meeting the performance-based probationary standards and program, the dispatcher would be considered to be fully proficient. Subsequently, dispatchers should be required to maintain their dispatch knowledge through attending continuing in-service training programs.

Continuing in-service training programs vary with each communications center and are customized according to the needs and the personnel requirements. The majority of programs have regularly scheduled review and updating of basic subject areas and the addition of new topics and procedures. The amount of time varies since some are formal off-site classes while others are updates at line-up and shift change.

Supervisory Training

Supervisory training and continuing education is individualized in each communications center. In most of the centers, the focus of the training is supervisory and management subjects. The nature and level of formality of supervisory dispatcher training would be dependent upon the size of the communications center and the number of dispatchers to be supervised.

Quality Assurance

Quality assurance for call taking and dispatching should be an important part of ongoing dispatcher training. Senior dispatchers or a supervisor reviews dispatch records and recording



COMMUNICATIONS & DISPATCH

RADIO SYSTEMS - GENERALLY (continued)

of significant or unique events or incidents. Any problem observed or heard is noted and placed into line-up information and/or a follow-up drill or retraining program. Over the long-term, problem trends are identified and dispatch personnel are advised of methods for improvement.

RADIO SYSTEMS - GENERALLY

A number of radio frequency bands have been made available for public safety agencies by the Federal Communications Commission (FCC). These bands are as follows:

- VHF low band
- VHF high band
- UHF 450 MHZ
- UHF 490 MHZ
- UHF 700 MHZ
- UHF 800 MHZ

Each frequency band has associated advantages and disadvantages. The selection of a particular frequency band by public safety agencies is dependant upon a number of factors, including frequency availability, area to be covered, type of geography, size of radio system designed, and frequency bands used by adjacent public safety agencies.

Typical Radio System Configurations

There are a number of radio system configurations available for public safety use. These system configurations vary primarily in the number and usage of radio frequencies that comprise each of the systems. The different system configurations are as follows:

- **Simplex** - Utilizes a single radio frequency for both transmitting and receiving all radios for each channel. Only one radio can transmit at any time while all other radios receive.



COMMUNICATIONS & DISPATCH

RADIO SYSTEMS - GENERALLY (continued)

- Two-frequency half duplex - Utilizes separate frequencies for transmitting and receiving. Only one radio can transmit at any one time; all others receive.
- Two-frequency full duplex - Utilizes separate transmit and receive frequencies and permits simultaneous conversations in two directions.
- Two-frequency repeater - Utilizes a centrally located high-powered base station "repeater." The repeater receives a transmission from any radio in the system on one radio frequency and instantly retransmits or "repeats" the message on a second frequency that is received by the other radios on the system. Repeater systems are two-frequency half duplex systems.
- Trunking systems - Utilizes a group of radio frequencies that are controlled by a computer at the base station or communications center. When a transmitter is keyed, it transmits a unique identity code to the computer. The computer instantly selects an available radio frequency and automatically directs the transmitting radio to use that frequency for transmission.

A radio system is generally comprised of the following primary components:

- Base station transmitter and receiver equipment;
- Antennae tower and equipment;
- Mobile radio equipment;
- Portable radio equipment;
- Applicable automation hardware and software; and,
- Communications center control equipment and consoles.

800MHz Trunking System



COMMUNICATIONS & DISPATCH

RADIO SYSTEMS - GENERALLY (continued)

It is common knowledge that two-way radio communication is an essential tool for effective delivery of a wide range of public services. Fire, rescue, emergency medical services, law enforcement, public works, and transportation agencies cannot function well without access to reliable radio communications. Public safety radio communications is expected to grow by 55 percent over the next 10 years as a result of population and commercial growth. While the need is growing rapidly, the ability of users to upgrade their existing radio systems is limited, because most UHF/VHF frequencies have been licensed to users and are not available to jurisdictions or regions needing to upgrade or expand radio systems.

In recognition of this frequency availability problem, the Federal Communications Commission (FCC) has taken action to allocate large blocks of 800MHz spectrum radio frequencies to help satisfy this growing communications requirement of government, business, industry, and land transportation. While releasing these frequency blocks, the FCC stipulated that certain communications systems operating in the 800MHz band must employ trunking techniques (computer controlled) to achieve increased channel utilization and loading.

On the conventional single-channel, two-way radio system, several users have access to only one channel. When that channel is in use, other users in the shared system should not access the channel. Therefore, like telephone users on a "party-line," they must wait until the channel is free. Another channel may be clear in the area, but conventional system users have no means to access it.

On a trunking radio system, each user has access to a number of radio channels. When a user places a call (pushes the transmit button), the user is automatically assigned a clear channel for the duration of the message. While that channel is in use, other users can access other channels. At the conclusion of each message, the vacated channel is returned to the common pool where it becomes available to other users in the system.

Several key advantages of utilizing computer controlled trunking 700/800MHz radio systems are as follows:



COMMUNICATIONS & DISPATCH

RADIO SYSTEMS - GENERALLY (continued)

1. Measurable improvement in frequency utilization;
2. Transmission of messages on identical frequencies at every site in the trunking system simultaneously;
3. Dynamic frequency allocation by tracking users and keying only sites and channels required to reach a particular user group;
4. Enhanced records capability regarding frequency use by units and groups in the system;
5. Improved frequency security;
6. Total ability to exclude unauthorized units from transmitting on the system;
7. Ability to allocate frequency groups "on-the-fly" in response to emergency requirements, such as disaster situations; and,
8. Ability to handle the increasing communications requirements with improved frequency allocation.

For a number of years, the FCC has been encouraging and facilitating communications users, such as fire, EMS and other local government agencies, to initiate regional planning efforts leading to the implementation of well coordinated and planned 800MHz trunking radio systems. As a result, many such systems have been or are being planned and implemented across the United States.

DISPATCH CONSOLE FURNITURE

For efficiency and effectiveness of operations, all dispatch components should be integrated into the consoles, including:

1. CAD screens, keyboards, and related support equipment;
2. Crime information access systems;
3. Map display system;
4. Telephone lines and controls;
5. Radio controls;
6. Quick recall short-term recording devices; and,



COMMUNICATIONS & DISPATCH

DISPATCH CONSOLE FURNITURE (Continued)

7. Time synchronization clock.

Clearly, both the computer and other equipment support requirements, as well as call taker, dispatcher and supervisor staff needs, should be carefully considered as part of the design and implementation of consoles. Some of the more progressive ergonomic aspects of consoles include:

1. Adjustable height work surface;
2. Task lighting that may be dimmed;
3. Adjustable keyboard platform mechanism;
4. Radiant heat panel;
5. Footrest with provision for a foot switch;
6. Integrated trash bin;
7. Enclosed storage compartment;
8. Open design for equipment mounting flexibility; and,
9. Acoustic environment.

RECORDING RADIO AND TELEPHONE TRAFFIC

The recording of radio and telephone traffic on all radio frequencies is an essential function that should be performed at all times. Instant and long-term access to these recordings is important for many reasons, including:

1. Assist with dispatcher training;
2. Support dispatcher personnel evaluation efforts;
3. Legally document incident-related occurrences;
4. Provide documentation for purpose of a specific incident critique;
5. Provide recording of dispatcher activities for immediate playback to clarify unclear verbal information for dispatch accuracy purposes.

Short-Term Recording Systems



COMMUNICATIONS & DISPATCH

DISPATCH CONSOLE FURNITURE (Continued)

Short-term (five to 30 minutes in duration) recording devices in communications centers can be of significant benefit to dispatch personnel. The availability of a short-term recording with immediate playback capability provides the call taker or dispatcher with the ability to play back a radio or telephone message in an effort to clarify what was said or occurred. This playback capability can be an invaluable tool to assist in situations where the dispatcher or call taker is unclear as to what the calling party or officer said or requested.

In many high-stress situations, people do not communicate as clearly and messages can be “garbled” or barely audible. For the dispatcher, immediately playing back the message may clear up the misunderstanding.

The technology involved with radio frequency recording has advanced significantly in the past few years. Today, many of the recording devices are computer controlled, utilize digital technology, and are very compact in size. A number of the more specific features of such equipment include:

1. Software based for ease of future upgrade ability;
2. Extended recording hours on digital data storage cartridges (e.g., 640 hours);
3. Simultaneous playback of multiple channels;
4. Extensive search capability;
5. Re-record capability;
6. Internal battery backup; and,
7. Voice compression to save media storage space.

Long-Term Recording Systems

Initially, when radio dispatch frequencies were recorded for purposes of long-term documentation, the recording medium was magnetic reel-to-reel tape. These recorders were of various sizes. Subsequently, the reel-to-reel magnetic recording machines utilized 24-hour tape reels with one magnetic tape reel recording each 24-hour period. Generally, a communications center would retain each 24-hour magnetic tape for a specified period of



COMMUNICATIONS & DISPATCH

RECORDING RADIO AND TELEPHONE TRAFFIC (continued)

time (90 to 120 days, for example). Unless the tape was placed on hold for specific reasons, the magnetic tape would be reused.

Most recently, a number of computer disk and digital recording devices have been developed that allow for the continuous recording of much greater periods of time (days and weeks) with high quality, permanent storage, and various levels of search and replay capabilities.

PERFORMANCE MEASUREMENTS

Dispatch performance measurements assists officials in maintaining a high level of communications and dispatch performance. The following are frequently utilized by progressive emergency dispatch centers:

- A. Internal call processing time segments, including:
 - 1. PSAP answer time;
 - 2. PSAP processing time;
 - 3. Fire/EMS answer time;
 - 4. Call taker call processing time;
 - 5. Pre-Arrival instruction time (when implemented);
 - 6. Dispatch processing time; and,
 - 7. Dispatch time.

- B. Number of radio transmissions by time of day and day of week.

- C. Number of incoming calls by type (time of day and day of week):
 - 1. 9-1-1 system calls;
 - 2. Public agency calls;
 - 3. Seven-digit general public emergency access; and,
 - 4. Non-emergency business calls.



COMMUNICATIONS & DISPATCH

PERFORMANCE MEASUREMENTS (continued)

- D. Number of outgoing calls by type (emergency and non-emergency/time of day and day of week):
 - 1. Fire stations (or to fire/EMS dispatch service provider);
 - 2. Law Enforcement department;
 - 3. Other organizational elements;
 - 4. Other County departments and agencies; and,
 - 5. Non-County organizations and agencies.

- E. Number and percentage of answered calls:
 - 1. By time of day and day of week; and,
 - 2. By time delay in answering calls

- F. Number and type of complaints filed by callers regarding the quality of service.

HARFORD COUNTY FIRE AND EMS DISPATCH

The following sections review and make recommendations relating to fire and EMS communications and dispatch.

Organization

Fire and EMS communications and dispatch in Harford County is one of the responsibilities of the Harford County Division of Emergency Operations. The County website describes the Division as follows:

“The Harford County Division of Emergency Operations is a multi-component agency. The Division is comprised of the 9-1-1 Communications and Dispatch Center, the Office of Emergency Management, and Hazardous Materials Response Team



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

(HAZMAT). All three divisional components have both regular day-day functions as well as emergency response function during and after an emergency or disaster. The Harford County Division of Emergency Operations and its components are staffed by public safety professionals, using state-of-the-art technology. Even though each of the three divisional components has different roles and responsibilities they each share one common function to protect and serve the citizens of Harford County.”

County Code: Division of Emergency Operations

The County Code includes the following description of the responsibilities of the Division of Emergency Operations.

The Division of Emergency Operations was established pursuant to Executive Order 89-1, and is administered by a Chief who reports directly to the Director of Administration.

The Division of Emergency Operations shall be responsible for:

- A. Receiving and handling all 911 telephone calls in the County;
- B. Transferring requests for police service to the Maryland State Police or municipal police agencies, when appropriate;
- C. Receiving and dispatching requests for the volunteer fire and emergency medical service, rescue service, and service from the Sheriff's office;
- D. Providing and maintaining telecommunication services and equipment for the Sheriff's office, and the volunteer fire and emergency medical service;
- E. Managing and implementing all emergency plans for major emergencies and disasters;



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

- F. Commanding and controlling the hazardous materials response team;
- G. Acting as liaison with volunteer fire companies which serve the County, and the Harford County Volunteer Fire and Ambulance Association;
- H. Managing and maintaining a communications system used by the volunteer fire and emergency medical service, rescue service, law enforcement personnel, and Sheriff's office;
- I. Controlling and coordinating the County's response to major emergencies and disasters; and,
- J. Performing such other functions as may be directed by the County Executive, by legislative action of the County Council, or by other applicable laws or regulations.

Input from Harford Ems Services Providers

The Study Team was provided with a substantial amount of input from Harford County fire and EMS services providers that should be considered as part of this Chapter. The points made relating to communications and dispatch include:

1. There are no County-wide response standard equipment assignments;
2. There needs to be unified dispatch procedures for all companies;
3. Dispatchers should have more freedom based on need when filling box alarms and other assignments;
4. Slower companies should be used for more routine assignments, such as, filling in;
5. The closest available proper type fire and EMS unit should be dispatched on all calls;



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

6. On average, the time from call received to dispatch is over two minutes per the CAD printouts;
7. CAD does not work well, dispatchers must still pull paper cards for full assignments because the CAD cannot be relied upon;
8. Box cards should list closest unit/s for dispatch based on GIS analysis;
9. EOC needs to be studied hard to determine improved dispatch processing time;
10. Some dispatch policies approved by the Chiefs Committee are not implemented because some dispatchers just do not agree with it;
11. There are too many nonsense calls being dispatched;
12. There is a need to improve dispatch operations to provide for more timely efficient dispatching;
13. The one area that seems to have degraded with technology is our dispatch operation; and,
14. Each chief determines the box card assignments for their company and if Chief A does not like Chief B or his company then box card assignments may be set up to not include the units from the disliked chief or company.

9-1-1 Communications and Dispatch Center

In Harford County the emergency dispatch function is provided by the Division of Emergency Operations' 9-1-1 Communications and Dispatch Center which is also referred to as the 9-1-1 Center.

Dating back to the 1950s, the Harford County Central Alarm worked out of a small room at the Bel Air Volunteer Fire Company. As the population of the County and fire and EMS dispatch workload increased a new emergency operations center was created at the County's Public Works Complex in Forest Hill. Subsequently, in the 1980s planning was initiated for a new emergency dispatch center new 9-1-1 system was activated in a new facility in 1984 where the 9-1-1 Center continues to be located today.



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

Figures 11.1 and 11.2 illustrate the original Central Alarm room and the current 9-1-1 Center.

Since 9-1-1 Center operations were relocated to its current facility 9-1-1, fire and EMS and Sheriff communications and dispatch have been fully integrated into a comprehensive integrated County-wide public safety center. In 1998, the building was upgraded with the first CAD system.

Today, Harford County has much to be proud of relating to its 9-1-1 Communications and Dispatch Center. In 2008, the National Academy of Emergency Medical Dispatch officially recognized the 9-1-1 Center as an Accredited Center of Excellence in Emergency Medical Dispatch for the period of 2008 to 2011. This accreditation was bestowed on March 21, 2008, for the 9-1-1 Center having “demonstrated compliance to the highest level of standards as set forth in the Academy’s Twenty Points of Accreditation.

9-1-1 in Harford County

The 9-1-1 emergency telephone system is the 20-position Plant/CML Vesta, version 2.20 system provided by Verizon. The County’s 9-1-1 telephone system was upgraded to include ORION mapping as an integrated component with the Vesta system. Mapping system software is Plant/CML Orion Mapstar version 5.2. All 9-1-1 telephone system maintenance is the responsibility of Verizon.

Funding for the provision and maintenance of the 9-1-1 telephone system is from Maryland State funds generated by a fee paid by telephone subscribers and is under the auspices of the Maryland Emergency Numbers Board.

Staffing and Supervision

The staffing of the Harford 9-1-1 Communications and Dispatch Center includes the following positions with the number of positions authorized by position title:



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

	<u>Title</u>	<u>Number</u>
1.	Public Safety Manager	1
2.	Public Safety Shift Supervisor	7
3.	Public Safety Shift Manager	3
4.	Public Safety Dispatcher III	22
5.	Public Safety Dispatcher II	12
6.	Public Safety Dispatcher I	29

This position structure appears to be appropriate for the size and staffing of the Harford County emergency dispatch center. The Study Team has recommended a similar structure in other emergency communications centers.

Minimum Shift Staffing

The Study Team was advised that the minimum shift staffing of the Center for day, evening and night shifts is as follows:

- Calltaker Workteam on day and evening shifts - 4
- Calltaker Workteam on night shift - 3
- Fire Dispatch Workteam on all shifts - 3
- Police Dispatch Workteam on all shifts - 3
- Shift Manager or Acting Shift Manager - 1

Regarding minimum shift staffing, reportedly the policy if actual staffing is below authorized, the Calltaker Workteam staffing may be reduced by one position with the approval of the Workgroup Manager.

Work Schedule



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

The communications dispatch staff work an eight-hour shift schedule that involves five working days and three regular days off. It is known as a “Five and Three” work schedule that includes eight rotations during the eight day cycle.

The Study Team was told that this dispatcher work schedule has been utilized for a number of years since the Staffing Study for 911, Fire and Police Dispatch Final Report was issued by a consultant December 20, 1999. This schedule has been in use in a number of communications and dispatch centers assessed by the Study Team.

Dispatch Consoles

The dispatch console furniture equipment is Orbicom console equipment. The radio consoles are Motorola Centracomm Gold Elite consoles.

Harford County Radio System

The Study Team was advised that the current Harford County public safety radio system is an 800MHz digital trunking system that is reportedly state-of-the-art serving all public safety agencies in Harford County.

During interviews and data collection on the development of this plan the Study Team was not advised of concerns or issues by fire and EMS services providers.

Radio Interoperability



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

Radio system interoperability is the ability of any public safety government or military radio user to initiate and receive calls at any time without the assistance of an operator. Radio interoperability allows calls to be made to any other radio, packet-switched IP network, or circuit-switched telephone network connected user, or a combination of these, when the connection is properly authorized by system rules. Simply stated, it is when firefighters and emergency medical responders can go anywhere in the region or state and have immediate radio communications with each other using their own equipment on designated channels.

Reportedly, users on the Harford County radio system have a form of interoperability in operations with Cecil County units that has not been totally reliable and apparently involves intervention on the part of the users to function adjacent to the Harford/Cecil county line.

Harford County Computer Aided Dispatch (CAD) System

The current CAD system is an InterAct Public Safety Systems of Raleigh, NC, CAD that has been in operation since July, 2007. The system was purchased with the intent of implementing a “turnkey” CAD system to coordinate and control the E-9-1-1 and dispatch functions for the 9-1-1 Center, Fire and EMS, and the Harford County Sheriff’s Office Dispatch Center.

The hardware is comprised of two Windows clusters, one located at the primary 9-1-1 Center and the second at the Backup Center. Each hardware cluster includes two main servers, one in standby mode with other supporting servers, using NAS RAID for storage at each location.

The system will also be used by Aberdeen, Havre de Grace and Bel Air Police Departments. This full implementation will provide County-wide public safety interoperable dispatch operations.

During implementation it reportedly was determined that the InterAct system was not “turnkey” from the needs perspective of fire and EMS it seems the new CAD system was



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

focused more on law enforcement dispatching. Since installation a substantial number of upgrades and fixes were identified and implemented. Despite the substantial CAD system upgrade work accomplished to accommodate the Fire and EMS dispatch requirements the Study Team was provided a copy of a lengthy list of items remaining to be implemented.

Reportedly, it seems that the County may not be paying for many of the upgrades as InterAct is doing development Harford has been the Beta development and test site while other clients and InterAct reap the benefits. The apparent result of purchasing a primarily law enforcement CAD system has been a lengthy and difficult fire and EMS implementation process that remains to be completed.

It seems clear to the Study Team that this CAD system was purchased without a full determination of the functional requirements being developed and used in the selection of the system. Further, the Study Team was advised that fire and EMS and dispatch staff members were not given the opportunity to participate in the final determination of the CAD system to be acquired.

One item that remains problematic and resulted in the loss to the County of valuable historic call data was the fact that the call-related data that had been stored in the old CAD system was not converted to the format of the new CAD system for continued availability for planning and other purposes. Data conversion is typically a standard task to be performed when moving to a new CAD system.

Another item that is problematic at this time is the fact that CAD-interfaced “rip and run” printers have yet to be placed in all fire and EMS station facilities. Only 10 of the 12 main Fire and EMS Company stations are equipped with these important printers. Further, 15 substations reportedly remain to be equipped. These printers print out data relating to incidents being dispatched in order for responding personnel to have the opportunity to take a printout with them or have it available upon return to the station from the call for incident reporting system use.



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

Mapping Systems

Two separate mapping systems are used in the 9-1-1 Center. The 9-1-1 Orion Mapstar comprehensive digital mapping for enhanced call processing, previously described. And, the CAD system uses InterAct Geo mapping, version 5.16.60.

Time Synchronization - Netclock

The Harford Control Center utilizes a netclock system manufactured by Spectracomm that utilizes the WWVB, a time signal radio system that radio controls clocks throughout North America. The Study Team was advised that Harford County is upgrading to a GPS-based system master clock with a newer model Ethernet server.

Reportedly, all major systems are synchronized to the system, including E-9-1-1, CAD, radio system, recording/logging, Office Windows domain and CAD workstations. Further, all wall clocks in the 9-1-1 Center facility are on the netclock system.

This seems to be a very good feature that is not often seen in many public safety communications and dispatch centers.

Back-up 9-1-1 Dispatch Center

The Study Team was advised that Harford County has a fully functional backup communications and dispatch center located approximately 15 minutes from the main 9-1-1 Communications and Dispatch Center on Ady Road. If the main Center must be evacuated the dispatch staff would relocate to the backup center to continue operations.

This level of redundancy in dispatch center facilities is excellent and rarely seen by the Study Team, except in the most progressive well-planned municipal communications and dispatch



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

center operations. Harford County should be commended for the foresight in providing backup communications and dispatch centers.

Emergency Medical Dispatch

The Harford 9-1-1 Communications and Dispatch Center utilizes Priority Dispatch products to manage each incoming fire, EMS and police call. These products provide a framework for the triage process that must take place with each calling party that subsequently leads to the dispatch of appropriate resources. For fire and EMS the products used include Emergency Fire Dispatch (EFD) and Emergency Medical Dispatch (EMD). EMD is the important product that provides the basis for life-saving medical pre-arrival instructions (PAI) to be provided to appropriate calling parties with medical emergencies.

Two other Priority Dispatch products are utilized on a regular basis as part of the dispatch and EMS call processing quality assurance efforts. These are ProQA and AQUA.

These Priority Dispatch products are integrated with the CAD system to accomplish the dispatch and quality assurance tasks.

Call Processing Time

The Study Team noted a considerable amount of friction and potential misunderstanding between leaders and staff of the Division of Emergency Operations and field fire and EMS agencies relating to the actual or perceived length of time taken to process and subsequently dispatch emergency calls. There is the perception on the part of Fire and EMS Company personnel that an excessive amount of time is taken to answer, triage and dispatch fire and EMS calls.

Examples of incidents involving long processing time provided to Study Team by field personnel seem to indicate there may be a problem involving long processing time. A



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

number of detailed data views of specific and average processing time for various components of internal 9-1-1 Center processing time also provided to the Study Team appears to indicate that priority (ECHO) fire and EMS calls for emergency service are handled in a timely manner, however there are indications that improvement may be possible.

As pointed out in the Fire and EMS Stations Chapter, in the overall view of incident response time the 9-1-1 Communications and Dispatch Center is responsible for internal processing time that is comprised of a number of segments, including 9-1-1 call answer, calltaking and dispatch time. Further, that Chapter stated that subsequent to dispatch center processing time the fire and EMS agencies have responsibility for turnout time and travel time. It is suggested that both the 9-1-1 Center and the field services work as a team in an effort to reduce overall response time.

In the view of the Study Team both the personnel and leadership of the field Fire and EMS Services and the Division and its 9-1-1 Center have the same goal relating to call processing time; handling incoming emergency fire and EMS 9-1-1 calls in the shortest possible time. In this regard, the Division has the responsibility for the call processing component of the overall call response time. And, as such, the Division also has the responsibility for assuring that one of its two primary public safety services delivery customers (fire/EMS and law enforcement) fully understand the call processing steps and have access and understand their call processing dispatch data.

On the other hand, the Fire and EMS Services have the responsibility to work with the Division to assist it in identifying and implementing task revisions that may reduce processing times without “second guessing” the Division as it works to carry out its important responsibilities. The Fire and EMS Services should be willing to make changes in field communications approaches and task expectations that enhance the Division’s effort to reduce internal processing time.



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

Individual fire and EMS chiefs and officials should not attempt to circumvent the established call taking and dispatch process in their effort to have “their calls” processed quicker than the next Fire and EMS Company. In that regard, the practice, although likely limited, of calltakers/dispatchers via cellular telephone or other communications approach to give a personal “pre-alert” on calls to their favorite Fire and EMS Company should cease. This practice may be seriously disruptive to the established internal 9-1-1 Center call processing procedures. This practice could result in increasing processing time for other calls in progress and/or result in undocumented tasks occurring or dispatch errors being made.

Further, the Fire and EMS Company and Association leadership should provide a single focal point to work with the Division in assisting to reduce processing time. Having multiple fire chiefs and others circumventing the process and placing differing demands on the dispatch staff may in fact increase processing time.

In short, the Division and Fire and EMS Services have their respective areas of responsibility relating to the overall response time continuum and each should respect and work with the other in a positive effort to pursue the goal of realizing the shortest possible response time.

Availability of Fire and EMS Incident-Related Data

During the course of this project the Study Team perceived that there is a strong desire and need on the part of the Fire and EMS Services to have full access and use of fire and EMS -related communications and dispatch data. Further, there appears to be a reluctance on the part of the Division to fully share fire and EMS data with the Fire and EMS Services. The Study Team understands that part of this issue relates to the apparent multiplicity of different fire and EMS personnel requesting various view of their dispatch data. There seems to be a feeling at times this data is being requested in an effort to “sharp shoot” and find fault with actions of Division staff.



COMMUNICATIONS & DISPATCH

HARFORD COUNTY FIRE AND EMS DISPATCH (continued)

It is the opinion of the Study Team that fire and EMS dispatch -related data should be readily available to the Fire and EMS Services on a timely basis. The Division's customers should have full access to this information. To accomplish this the HCVFEA should designate a fire and EMS point of contact for all dispatch data access for the information needed on a regularly scheduled or special needs basis. The practice of individual chief officers or other fire and EMS personnel making their special data requests directly to the Division or selected Division staff members should cease and should be handled through the Association's designated dispatch data contact.

Finally, an effort has been underway to implement a networked County-wide fire and EMS records management system with the CAD system being appropriately interfaced to provide incident dispatch data to computers in all fire and EMS stations. The fire stations and the Association should be using one standard comprehensive off-the-shelf fire and EMS records management software system. The technical staff of the Division should take the lead in assisting the Association to select the fire and EMS software package to be used and in implementing this County-wide fire and EMS records management system. A priority should be place on the implementation of this important records management system due to the need for the Association, Fire and EMS Companies and County to have full access to this important historical data.

It should be noted that the recommended Department of Fire and Emergency Services Director could play a key role on behalf of the Fire and EMS Services in the data access and records management project.

SUMMARY

An emergency communications center is the nerve center of police, fire, and EMS service delivery agencies. It is the critical link, the lifeline, between the public and its protectors.



COMMUNICATIONS & DISPATCH

SUMMARY (continued)

Typically, emergency dispatch centers in a municipality are managed by a number of agencies, including fire, separate municipal agencies, regional agencies, or a police department. Predominantly, the public safety dispatch function is the responsibility of the police department. In Harford County the emergency dispatch function is provided by the Division of Emergency Operations' 9-1-1 Communications and Dispatch Center.

The radio system is the backbone of the emergency dispatch system as it is the means for communications between the dispatchers and the service delivery personnel, and among the service delivery personnel—police, firefighters, fire officers, EMTs, and paramedics. Radio systems have progressed technologically through the years to the point where today, many radio systems are computer controlled, digital signal-based radio systems. The Harford public safety agencies utilize a state-of-the-art 800 MHZ digital trunking radio system.

The provision of emergency medical dispatch and medical pre-arrival instructions for EMS patients is a state-of-the-art dispatch service providing a measurable enhancement to a community's EMS service delivery. Harford residents and business people are provided EMD services by the Harford 9-1-1 Communications and Dispatch Center calltakers.

The facility from which the municipal emergency dispatch function is provided should not simply be upgraded office space. It should be appropriately designed to meet the specific needs of the high-tech systems and 24-hour operations inherent in emergency dispatch centers. A number of critical design areas include false flooring for wiring, uninterruptible power sources, heavy HVAC systems, high quality controllable lighting, and heavy-duty flooring, furniture, and seating to support operations on a long-term basis.

A number of options for improving emergency fire and EMS dispatch services in Harford are outlined for consideration.

RECOMMENDATIONS



COMMUNICATIONS & DISPATCH

SUMMARY (continued)

- 11.1 The Division should adopt, monitor and analyze appropriate communications and dispatch-related performance measurements in the future.
- 11.2 The County should place a high priority on the completion of the upgrades to the CAD system implemented in 2007.
- 11.3 For the future, the County should assure that when the next CAD system is selected a comprehensive effort is undertaken to fully develop the functional needs of a new CAD system in order to select a system that is “turn-key” relating to the needs of all customers—fire/EMS and law enforcement.
- 11.4 The County should continue to place a priority on maintaining both the primary and backup 9-1-1 communications and dispatch facilities.
- 11.5 The County is encouraged to continue with the implementation of mobile data computers with associated unit status capability.
- 11.6 The Division, HCVFEA and Fire and EMS Companies should work together in an effort to identify means for reducing response time components in their respective areas of responsibility.
- 11.7 The County and Fire and EMS Services are encouraged to place a high priority on implementing a station-based records management system with full CAD interface.
- 11.8 The County should continue the planning effort to implement a new dispatch center facility.
- 11.9 The County and Department should continue the planning and upgrade the current 800MHz radio system to current state-of-the-art digital trunking system standards and full interoperability with surrounding counties.



COMMUNICATIONS & DISPATCH

RECOMMENDATIONS (Continued)

- 11.10 The Division should complete the installation of “rip and run” printers in all fire and EMS stations.



CHAPTER TWELVE

VOLUNTEER RECRUITMENT AND RETENTION

This Chapter provides information relative to fire, rescue and EMS volunteer recruitment and retention. Additionally, associated options and recommendations are outlined for consideration by the volunteer companies and the County officials.

Maintaining a strong volunteer focus for the staffing of the fire and EMS services provided in the County was noted to the Study Team as a very important aspect of this Study. This was a stated goal in the County's Request for Proposals and reiterated numerous times by officials, stakeholders and service providers during the interview process.

For that reason, the Study Team has included this Chapter about volunteerism generally, and volunteerism nationally and the County specifically. Recruitment of volunteers, retention of volunteers, current efforts in recruitment and retention, length of service awards program and other related topics are included with the goal of assisting in maintaining and enhancing volunteer involvement in future fire/rescue/EMS service provision in Harford County.

OVERVIEW OF VOLUNTEERISM

The Study Team's experiences in volunteer fire, rescue and EMS services reflects various approaches and reasons for volunteer participation. This experience is useful in explaining some opinions of volunteer service constraints and benefits.

Nationally, some volunteer fire departments seem to have a continual supply of individuals who want to volunteer their services. Others, however, have problems trying to recruit enough volunteers to maintain minimal staffing of units and subsequently may have difficulty retaining members and developing qualified volunteer leaders. The key seems to be meeting the needs or expectations of the volunteers, which are different in many respects from paid personnel.

When an individual becomes a career firefighter/EMT, his/her initial concerns may be material needs, such as salaries, benefits and financial security, in addition to their desire to



VOLUNTEER RECRUITMENT AND RETENTION

OVERVIEW OF VOLUNTEERISM (continued)

serve the public. The reasons for people volunteer their services has been raised to the Study Team. Therefore, a review of accepted principles of motivation may be helpful. As Maslow's "Hierarchy of Needs" states, individuals are motivated by five levels of needs. These are in order of highest to lowest:

1. Physiological needs, such as food, water and shelter;
2. Safety needs, such as security, order and stability;
3. A sense of belonging, involving friendship, identification and love;
4. Esteem involving prestige, success and self-respect; and,
5. Self actualization needs which involve psychological needs from within.

Maslow said that people must meet their first need before being able to proceed to meeting the second need. The first need is usually met through regular employment and, in some cases, through a second job. In order to meet this first need, sometimes both spouses must work.

As employment and salary also provide for the safety and security needs, individuals move to the third level, which involves the need for a sense of belonging. One way to satisfy this need is by volunteering to provide some level of community services. It is from this pool of people that volunteers are available for firefighting and emergency medical services.

VOLUNTEERISM: THE PENNSYLVANIA EXPERIENCE

Nationally, fire service leaders across the United States and many municipal officials have come to realize that the volunteer fire service is potentially in trouble. Likewise, in recent years, many knowledgeable people have determined that the volunteer fire service in a number of states, in particular, are at a crossroads. The Commonwealth of Pennsylvania is a case in point. A review of the current Pennsylvania experience could be beneficial as a tool to illustrate what may happen with substantial reduction in volunteer firefighters and what one state is doing about the problem.



VOLUNTEER RECRUITMENT AND RETENTION

VOLUNTEERISM: THE PENNSYLVANIA EXPERIENCE(continued)

According to Pennsylvania officials, there has been a significant reduction in recruitment and retention of individuals serving as volunteer fire/EMS service providers in recent years. As a result of this reported trend and the apparent resulting problems, the Commonwealth's Legislative Budget and Finance Committee developed and issued a report entitled "The Feasibility of Regionalizing Pennsylvania's Volunteer Fire Companies," commonly referred to as the House Resolution 148 report.

In the opinion of the Study Team, who participated as members, managed volunteer systems and assessed and developed plans for more than 120 volunteer fire service agencies in the last 18 years, the Pennsylvania House Resolution 148 report is well written. It addresses many findings and recommendations relating to the problems resulting from the reduction in the availability of community members interested or willing to serve as volunteer fire and EMS service providers in Pennsylvania.

As stated in this report:

"For many years, volunteer fire companies functioned independently and were relatively stable both operationally and financially. This has changed dramatically over the past 20 years as fire companies and other emergency service providers face mounting challenges and service demands."

The report continues by stating that "significant changes have occurred throughout the state (and the nation) in the past two decades that have altered the organization of volunteer fire services..." including:

- Large losses of volunteer members;
- Challenges in recruiting new volunteers;
- Difficulties in retaining existing volunteers;
- Changing demographics;



VOLUNTEER RECRUITMENT AND RETENTION

FIRE RESCUE VOLUNTEERISM IN PENNSYLVANIA (continued)

- Changing work habits;
- Changing work locations; and,
- Changing personal living habits.

These and other issues have reportedly had a negative impact on the volunteer fire services in Pennsylvania.

According to this very comprehensive report, the results may have been:

- Delayed responses;
- Failure to respond to calls;
- Insufficient staffing on apparatus for emergency calls;
- Greatly reduced ability to function as a business;
- Loss of revenue;
- Loss of personnel;
- Inability to maintain apparatus;
- Inability to maintain fire stations and facilities; and,
- Increased liabilities for volunteers and local governments.

The primary findings, relating to the problems and challenges facing the volunteer fire service outlined in the report include:

1. “Pennsylvania is experiencing significant losses in the number of citizens who are willing to volunteer to provide fire, rescue, and emergency medical services.
2. Rising operating costs and fundraising demands are placing serious strains on the state’s volunteer fire companies.



VOLUNTEER RECRUITMENT AND RETENTION

FIRE RESCUE VOLUNTEERISM IN PENNSYLVANIA (continued)

3. The history of the relationship between volunteer fire companies and local governments has been marked by independence rather than interdependence.
4. Pennsylvania has more fire companies than any other state and, in some cases, multiple companies in close proximity result in an unnecessary and inefficient overlap and duplication of firefighting resources.”

The House Resolution 148 report presents a number of key recommendations, including comprehensive legislative changes aimed at attempting to reverse the seeming decline of the volunteer fire services in Pennsylvania. The major overriding finding relates to mutual cooperation and/or regionalization being the primary means of addressing the Pennsylvania fire services problems and challenges.

This information is presented in this Harford County Fire and EMS Master Plan to provide information on the problems faced by other municipalities/states relating to the loss of volunteer fire, rescue and EMS personnel and what actions are being taken: in this case a statewide assessment of the problem with recommendations for improvement. The Study Team has been advised that Delaware has initiated State-wide volunteer recruitment and retention efforts that should provide further insight into similar problems with potential solutions.

The Harford County volunteer services have been implementing in a number of functional consolidation program. Examples of areas of cooperation include communications, volunteer recruitment and retention and training. The key concept in regard to pursuing cooperative program efforts is there is “strength through cooperation.” The primary recommendation coming from the Pennsylvania assessment has been in the process of implementation in Harford County for a number of years.



VOLUNTEER RECRUITMENT AND RETENTION

FIRE RESCUE VOLUNTEERISM IN PENNSYLVANIA (continued)

With this “snap-shot” background comparison, it should be noted again by the Study Team that **Harford County is very fortunate to continue to be serviced by a largely all-volunteer fire and EMS group of companies that include a strong group of dedicated volunteers. It is also clear that Harford County officials have supported volunteers. Every effort should be made to continue this volunteer approach to service delivery.**

INPUT FROM HARFORD EMS SERVICES PROVIDERS

The Study Team was provided with a substantial amount of input from Harford County fire and EMS services providers that should be considered as part of this Plan. The points made include:

1. With the increase in responses and the training required there are few people that can take the time from their normal jobs to volunteer;
2. The life span for service of a young volunteer is shorter today because of job opportunities in the emergency services field;
3. Should make the volunteer field of service more restricted/focused to the concentration on certain fields of services to prevent burnout and provide longer services for a volunteer;
4. Years ago, whether you were just hanging out with your friends or working the biggest social event of the season, you were probably at the firehouse...now everything from soccer to lacrosse to dancing or gym takes you away from the firehouse...and takes your time, money, etc., in addition to taking you physically away;
5. LOSAP program needs to be refined to provide greater share for personnel who actually respond to emergency, not just “pour coffee”;
6. More effective use of the media should be incorporated in the program;
7. The County should offer a property tax credit for active volunteers who own homes in the County;



VOLUNTEER RECRUITMENT AND RETENTION

FIRE RESCUE VOLUNTEERISM IN PENNSYLVANIA (continued)

8. There should be a big public awareness program as to our volunteers;
9. Help the communities be more aware of what the volunteer fire and EMS members do;
10. A college tuition reimbursement program is needed;
11. Need more incentives to volunteer;
12. More tax breaks are needed;
13. A better marketing plan is needed;
14. Need more advertizement of volunteer service;
15. This should be handled professionally on a County-wide basis;
16. There needs to be more involvement in the school systems;
17. Help the public understand how the volunteer service works; and
18. Need to have followup with volunteers to help keep them interested and coming.

VOLUNTEERS IN THE HARFORD COUNTY COMPANIES

The County has been provided fire, rescue and EMS services by volunteer members of companies for decades. Each of these companies was incorporated under the laws of the State of Maryland, operates under a set of company bylaws and other rules and guidelines, and elects and/or appoints a set of administrative and operational officers pursuant to their bylaws. Each of the volunteer companies receives funds from the County, and, operationally, are under the command of their respective volunteer chief.

Reportedly, for many years the volunteer fire companies located in Harford County have provided services to the County with an all volunteer membership. This is a very respectable and impressively long history.

It is the Study Team's goal to provide suggestions as part of this Fire and EMS Master Plan that will provide the opportunity for more substantial service delivery by volunteer fire service



VOLUNTEER RECRUITMENT AND RETENTION

FIRE RESCUE VOLUNTEERISM IN PENNSYLVANIA (continued)

delivery members and maintaining the productivity. **The goal is to strengthen the current volunteer system.**

RECRUITMENT OF VOLUNTEERS

Each volunteer for the Fire and EMS Services is an ambassador who can encourage individuals to apply for membership. While incentives, as listed in this section, are very important, personal recruitment by the current members is vital to the continued success of the volunteer program.

A number of the ways new volunteers are recruited in many counties and cities with volunteer fire departments include:

1. Development and distribution of brochure material;
2. Word of mouth;
3. Family tradition;
4. Interest after having been a customer of the fire/EMS service;
5. Area-wide poster placement in businesses, etc.;
6. Door-to-door neighborhood recruitment;
7. CPR and EMT-A classes open to the public;
8. Televised public service announcements;
9. Radio public service announcements; and,
10. Speakers sent to community group meetings and high schools to promote volunteerism.



VOLUNTEER RECRUITMENT AND RETENTION

RECRUITMENT OF VOLUNTEERS (continued)

Current Harford County Recruitment Efforts

The Study Team was advised that a number of volunteer recruitment tools have been used in an effort to attract new volunteers for the companies. Reportedly, the volunteer companies in the County have recruited new volunteers in a number of the following ways:

- Word of mouth;
- Recruiting family members;
- Recruitment pages on Company website;
- Signs posted in the community;
- Radio spots on local country station;
- High school cadet program;
- Notices in newspapers and/or community papers; and,
- Public gathering and school public education opportunities.

Further, the Association's Volunteer Recruitment and Retention Committee have recently become quite active and are taking the lead with implementing signs posted throughout the County and providing radio spots on a local radio station related to volunteer recruiting. This Committee effort should be encouraged and fully funded as needed.

High School Cadet Program

High school cadet programs have been utilized by many fire departments across the United States to recruit and train high school students in fire and EMS work. Basically, the local school board would establish within one or more of their high schools a special curriculum that would be fire and EMS -based. High school cadet program curricula are normally based on state and national fire, rescue and EMS training and certification programs. Training is also taught by local fire academies to the staff of the local fire companies.



VOLUNTEER RECRUITMENT AND RETENTION

RECRUITMENT OF VOLUNTEERS (continued)

In essence, the school board would adopt the existing fire, rescue and EMS training curricula as the educational programs to be utilized in the high school cadet program. These programs are normally implemented in a partnership approach between the local school board and the local fire training program staff and participating area fire departments.

The high school student interested in this program would register with the local high school and be guided to a participating fire department for periodic hands-on participation in fire, rescue and EMS activities appropriate to the age and training level of the student. High school graduates who have completed the high school cadet program often continue as a volunteer or work as a paid firefighter in the fire department in which they participated as a cadet.

The Study Team was advised that there is an active successful high school cadet program in operation that has brought a number of new recruit firefighters and EMTs to serve as volunteers. This program should be continued and expanded as appropriate in the future.

Junior Firefighter/EMT Program

Many fire and EMS services across the U.S. have implemented junior firefighter/EMT programs. Junior firefighter programs are for teenagers between the ages of 16 and 18. They to join a fire or EMS department, participate in appropriate training, fire department activities and provide support in limited ways in active operations. As these members become 18 years old they become eligible to be active full-service firefighter EMTs.

Properly managed junior firefighter/EMT programs have successfully been a source of productive fire/EMS staffs when becoming age 18. Harford County Fire and EMS Companies having not already implemented such a program should consider the junior firefighter/EMT program option for recruiting volunteer personnel for the future.



VOLUNTEER RECRUITMENT AND RETENTION

RECRUITMENT OF VOLUNTEERS (continued)

Student Live-in Programs

A firefighter recruitment tool that has been used very effectively by a number of volunteer fire and EMS companies that are in reasonably close proximity to colleges and universities is the implementation of a student live-in program. A number of Baltimore and Washington D.C area fire departments have successful student live-in programs..

A student live-in program essentially provides students interested in serving as volunteer fire rescue scheduling for staffing nights and weekends that opportunity while attending their chosen educational institution during normal daytime class hours. The host fire company provides program organization, oversight, and bunk room and related facilities at the fire station. Typically, prospective students entering such a program at a fire company would enter the program with at least basic firefighter rescuer training. Subsequent to becoming part of the program, participating students would normally be expected to take additional training courses, as determined appropriate, and would be expected to participate in ongoing in-station drill and other required activities.

To be effective, student live-in programs need to be well organized and well managed through comprehensive rules and guidelines, as well as have direct oversight provided by the officers of the fire company. If left unmanaged, student live-in programs can present significant disciplinary and other more serious problems that must be dealt with by company leaders.

As an example, one of the most successful student live-in programs observed by the Study Team has been that of the College Park (MD) Volunteer Fire Department, which is located near the campus of the University of Maryland, College Park Campus. That student live-in program has been very productive through the years in providing the volunteer fire department with trained volunteer staffing while at the same time providing the participating students with housing, as well as on-the-job training and experience in fire and EMS work. Many of these participating students have gone on to very successful careers in their chosen areas, especially



VOLUNTEER RECRUITMENT AND RETENTION

RECRUITMENT OF VOLUNTEERS (continued)

fire, rescue and EMS public service. This and other well-known student live-in programs could serve as models for the expansion of current efforts in this area by possible establishment of one or more additional student live-in programs at Harford County volunteer fire stations.

It should be noted that the Fire and EMS Facilities Chapter of this Report includes a recommendation relating to upgrading Harford County fire station bunkrooms. Prior to considering the initiation of a student live-in program, adequate facilities would need to be available at the fire station.

RETENTION OF VOLUNTEERS

Clearly, the management of public safety personnel resources is a critical task, since human resources generally determine the quality of services delivered to the public.

Volunteers may not be available to respond to fire and EMS calls for a variety of reasons. These include days off, away from the area, vacation, sickness, injury, other priorities and time commitments and time away for training.

A critical time period for efforts to retain volunteers is the first four years of membership. It has been said that if a new member completes the first four years, he/she will most probably remain for many years. Programs aimed to retain volunteers during their first four years of membership should be identified as a priority.

Based upon interviews with and the Confidential Member Survey form completed by volunteer personnel participating in this Study, it seems there may have been a reduction in some volunteer memberships. Additionally, as the area has developed and become less rural and more suburban, recruiting and retaining volunteer personnel may have become more difficult.



VOLUNTEER RECRUITMENT AND RETENTION

RETENTION OF VOLUNTEERS (continued)

The overall philosophy of the leadership of the County and companies is consistent with a very important volunteer retention approach. Pride in the organization and treating the volunteer personnel “right” seem to be important to the leadership.

Typically, when people are asked their rationale for remaining volunteers, they give a number of reasons, including:

- Pride in the organization;
- Once you get a taste of it, you want to continue;
- Continuing need to help the public;
- Keep up the friendships;
- The great personal satisfaction received;
- Physical activity; and,
- Continuing involvement is an enjoyable activity for those who are career or volunteer firefighters in other jurisdictions.

The efforts to retain volunteer personnel seem to vary by fire and EMS organization. There is an official program focused on the retention of volunteer fire and EMS members at the County level by the Association’s Volunteer Recruitment and Retention Committee. The retention programs for volunteer fire and EMS personnel should be broad-based and County-wide. The various fire companies may be competing against each other for a very limited and valuable human resource. This County-wide approach should continue to be the goal of the Committee.

The County leadership clearly appreciates the services of its volunteer personnel. There are a number of incentives to retain volunteers. Funds are currently earmarked to help in the recruitment and/or retention process.



VOLUNTEER RECRUITMENT AND RETENTION

RETENTION OF VOLUNTEERS (continued)

There are many very successful volunteer services throughout the United States. The basis for their success varies significantly. However, the Study Team has noted that the more successful systems expend a considerable amount of effort to retain their volunteer personnel, including recognizing the significant efforts of their volunteers and their efforts.

Organizations with successful volunteer programs commit a lot of time and effort in providing training and experience to volunteer personnel. Retaining trained and experienced personnel is more cost-effective than having to constantly train new volunteers. Also, trained and experienced personnel provide better service.

Although a number of incentives in other communities may not apply to the Harford County area, the various benefits reflect a community's commitment to recruiting and maintaining volunteers. Several of the programs that have been successful in helping to retain volunteers in other municipalities include:

1. Comprehensive awards program;
2. Social events, such as banquets and dinners;
3. Education tuition assistance programs;
4. Workers Compensation coverage;
5. Length of service awards programs;
6. Free training and experience for career preparation in fire, rescue, emergency medical and other related areas;
7. Free passes or tickets to community activities;
8. Physical fitness facilities and equipment;
9. Insurance coverage, including medical, dental and life insurance;
10. Various compensation programs, such as out-of-pocket expenses for fuel, clothing, education and training materials, and meals; hourly pay rate ("paid on call" volunteers); and, compensation based on an activity-related point system;
11. Reduced sewer and water rates;



VOLUNTEER RECRUITMENT AND RETENTION

RETENTION OF VOLUNTEERS (continued)

12. Housing assistance programs in areas with costly housing;
13. Property tax percentage reduction; and,
14. Uniforms, clothing with the department's logo and individual tools, such as flashlights, and stethoscopes.

Recruitment and retention of volunteers are of prime importance to the continuation of the volunteer Fire and EMS Services in the County. Therefore, it is important that the County and each of the volunteer company work together to develop and implement programs that are intended to attain and maintain a high degree of volunteerism in the system.

Current Retention Efforts

Reportedly, with County funding and under the leadership of the Association, the Fire and EMS Companies in the County have initiated varying efforts that may impact the retention of volunteer members. These efforts have included:

1. Scholarship program;
2. Social events;
3. Free training and funds for training;
4. Uniform items; and,
5. Length of Service Award Program.

Although a number of volunteer recruitment and retention programs have been implemented, there are additional initiatives that could be implemented to further enhance the potential for maintaining the all-volunteer staffing into the future. The County, Association and Companies should continue their efforts to implement further appropriate recruitment and retention programs, including the property tax incentive and utility bill assistance programs.



VOLUNTEER RECRUITMENT AND RETENTION

PUBLIC AWARENESS

The Study Team interviewed volunteer leaders and members who expressed concern that the general public may not be fully aware of the volunteer nature of the fire rescue service. Many residents of the service area have moved from urban areas or other municipalities to Harford County and some may believe that they are being served by a fully paid fire department. Most citizens may know they have a local fire station, but some may not understand it is not fully staffed with paid firefighters and officers. The Study Team has noted that this lack of understanding increases when the community is near major metropolitan areas, e.g., Baltimore, Washington, D.C. and Philadelphia.

There appears to be a need to continually educate County citizens and business people on the programs and composition of the volunteer service delivery agency.

RECRUITMENT AND RETENTION PLAN

The County, Association and volunteer Companies are encouraged to develop recommendations for a comprehensive written volunteer recruitment and retention program. In developing such a program, the volunteers and the County should consider the program ideas presented in this Chapter, as well as the experiences of other County Companies. This will help to ensure program recommendations are both comprehensive and focused on the needs related to improving volunteerism in the County and the participating volunteer Companies.

Any County-wide volunteer recruitment and retention program recommendation should include a delineation of appropriate funding requirements. The County is encouraged to continue to approve the funding necessary to plan, develop, and implement a comprehensive County-wide volunteer recruitment and retention program.



VOLUNTEER RECRUITMENT AND RETENTION

VOLUNTEER COORDINATOR

A national trend in successful volunteer fire and EMS systems is the appointment of a volunteer coordinator to serve as a focal point of an aggressive volunteer recruitment and retention program. Investment in such a position provides significant long-term benefits in the recruitment and retention of volunteer personnel.

A full-time volunteer coordinator position (possibly a lower level program management position) could be beneficial if dedicated to the development and implementation of County-wide and individual company focused volunteer fire and EMS personnel recruitment and retention programs. This individual should be part of the proposed Department and assigned to fully support and assist in the volunteer recruitment and retention programs of the Association and its Committee.

SUMMARY

Currently, fire and EMS services are provided in Harford County largely by volunteer members who respond to emergencies. The staffing approach involving volunteer members of the communities has provided a cost-effective service in the past. The viability of this volunteer staffing approach in the future will, to a large extent, be based on the level of effort placed on volunteer recruitment and retention by the Fire and EMS Companies and the County. It is quite apparent to the Study Team that Harford County officials and the volunteers of the Association and Fire and EMS Companies have placed substantial emphasis on attracting and retaining volunteers. This Chapter outlines some potential opportunities to strengthen the current and prior initiatives.

Recruitment of volunteers for the Fire and EMS Services has been accomplished in a number of ways. Additionally, the volunteer companies have been implementing a number of retention efforts. These programs appear to continue to be successful contributing to the maintenance of the volunteer fire and EMS services in Harford County.



VOLUNTEER RECRUITMENT AND RETENTION

SUMMARY (continued)

Nationally, there are a number of very successful volunteer recruitment and retention programs in municipalities that continue to assist in providing the essential volunteer personnel for the provision of their fire and EMS services. This Chapter outlined a number of recruitment and retention options for consideration by the County and the fire companies.

RECOMMENDATIONS

- 12.1 Officials are encouraged to continue to place periodic articles in local newspapers regarding activities of the volunteer fire and EMS service.
- 12.2 Elected and appointed officials are encouraged to financially support the volunteer recruitment and retention efforts through annual budgetary funding.
- 12.3 The officers of the fire companies are encouraged to:
 - A. Develop a standard exit interview form to be completed by volunteer personnel who leave the program;
 - B. Collate exit interview information, analyze any trends and work to establish a program to reduce attrition; and,
 - C. Share exit interview data with the volunteer coordinator for recruitment and retention program development.
- 12.4 A comprehensive volunteer recruitment and retention program should continue to be developed and implemented, building on the prior and current initiatives of the Association and the companies. The program should be appropriately funded and include:



VOLUNTEER RECRUITMENT AND RETENTION

RECOMMENDATIONS (continued)

- A. The length of service awards program enhancements;
 - B. Recommendations for volunteer retention programs based on input received from the exit interview or forms;
 - C. Implementation of a property tax incentive and utility cost assistance retention initiatives;
 - D. Initiate recommendations for additional volunteer recruitment programs, such as possible medical and dental care;
 - E. Develop a volunteer handbook which can be given to prospective members of the fire departments, explaining the benefits and requirements of becoming a volunteer; and,
 - F. Focus volunteer programs toward retention of members during their first four years of membership.
- 12.5 Consideration should be given by the company chiefs to establishing official mentor programs for new operational volunteer members.
- 12.6 The fire companies, with the support of the County, are encouraged to develop and implement additional fire and EMS student live-in programs.
- 12.7 The County is encouraged to consider funding a full-time volunteer recruitment and retention coordinator to fully support and assist the Association and its Volunteer Recruitment and Retention Committee as well as local Company fire and EMS station focused recruitment program development efforts.



CHAPTER THIRTEEN

FIRE PREVENTION AND LIFE SAFETY

This Chapter addresses the provision of fire prevention and life safety functions in Harford County and includes observations and recommendations considered appropriate.

CFAI CRITERIA ON FIRE PREVENTION

The Study Team considered criteria from the Commission on Fire Accreditation International (CFAI) as the current and future apparatus needs were assessed as part of this Study.

The CFAI accreditation criteria related to fire department fire prevention programs are as follows:

The code enforcement program is designed to ensure compliance with applicable fire protection law and agency objectives.

There is a plan check system in place to insure buildings are built.

There is an information system in place to record activities and transactions and to determine effectiveness of the fire prevention program and its efforts in risk reduction.

There is a public education program directed toward the agency's mission.

There are methods and procedures in place to investigate the cause and origin of all reported fires.

There is adequate staffing to meet agency fire prevention objectives.



OVERVIEW

The NFPA Fire Protection Handbook, Seventeenth Edition, Section 10, Chapter 4, describes the elements of a fire prevention program as follows:

- “1. Activities that relate to construction, such as building codes, the approval of building and facility plans, and occupancy certification and re-certification for new occupants. Also included may be a sign-off for the presence of smoke detectors when new or old properties are sold.
2. Activities that relate to the enforcement of codes and regulations, such as inspections of certain occupancies, the licenser of certain hazardous facilities, the design of new regulations and codes, and legislation to adopt model codes.
3. Activities that relate to the reduction of arson, such as fire investigation and the collection of information and data related to setting fires. Included may be arson investigation and related court proceedings, and programs such as counseling for juvenile firesetters.
4. Activities that relate to the collection of data helpful in improving fire protection, such as standardized fire reporting, case histories and fire research.
5. Activities that relate to public education and training, including fire prevention safeguards, evacuation and personal safety steps, plant protection training for industrial and other work groups, hazardous materials and device safeguards, and encouragement to install early warning and other built-in signaling and extinguishing devices. Very popular are programs for school children, such as NFPA’s Learn Not to Burn curriculum, and self-help classes such as water safety and similar ‘Stay Alive Till We Arrive’ projects.”



FIRE PREVENTION AND LIFE SAFETY

ORGANIZATION AND STAFFING IN HARFORD COUNTY

Harford County has no staff members assigned to perform any of the key fire prevention and life safety related functions that are typically provided in a municipality. County staff and volunteers provide very limited fire related plans review, public fire education and other related fire prevention work.

Selected fire prevention functions are performed for Harford County by the Maryland State Fire Marshal (MSFM). Statewide, the State Fire Marshal has the authority under the State Fire Prevention Code to perform the full-range of fire prevention functions. Staff of the State Fire Marshal's Office are responsible State-wide for providing fire prevention functions. Primarily, the State Fire Marshal's staff does plans review, existing and new constructions-related inspections, fire investigations and handling complaints. However, reportedly the functions performed by the State Fire Marshal vary by county and municipality.

The State Fire Marshal has the Northern Regional Office located in Prince Frederick to serve Harford and Cecil County's. The Study Team was advised that the staff of the Northern Region includes:

- Regional commander - 1
- Sworn deputy fire marshals - 6
- Special assistant deputy fire marshal - 1
- Civilian inspectors - 3
- Fire protection engineer - 1
- Administrative aide - 1

The local State Fire Marshal staff reportedly perform a number of fire prevention-related functions for the two counties served, including code enforcement inspections, fire cause and origin and arson investigations and public education upon request.



FIRE PREVENTION AND LIFE SAFETY

SITE INFORMATION SURVEYS AND PRE-FIRE PLANS

The Study Team was advised that volunteer firefighters and officers conduct some fire safety surveys or pre-fire plans of buildings in their response areas. Typically, the personnel on an engine and/or ladder truck go to a property and, with the permission of the property owner/manager, conduct an onsite review of the following aspects of the property being surveyed:

- General site information relating to location, address, etc;
- Building exterior;
- Valve and panel location/s;
- General statement of site hazards;
- Unit response information relating to resources to be dispatched by alarm level;
- Fire hydrant locations;
- Exposure information by side of building; and,
- General list of hazards.

The purpose of these site survey pre-fire plans is to provide firefighters with crucial safety information before a response is required to a particular location. In essence, these site surveys seem to be a very general form of pre-fire planning that is discussed in more detail in another chapter of this report.

FIRE SAFETY CODE ENFORCEMENT - INSPECTIONS

A fire-related building inspection program that is accomplished by well-trained personnel is the backbone of a total fire prevention program. Nothing can take the place of an onsite visit and one-on-one discussion with the property owner or manager in order to eliminate code violations and potentials for the cause of fire.

Equally important to a quality fire-related building inspections program is the availability of resource material, such as code books, reference standards, and data collection forms.



FIRE PREVENTION AND LIFE SAFETY

FIRE SAFETY INSPECTIONS (continued)

Additionally, automated records management support for the inspections program is essential.

The Study Team was advised that the local staff of the Maryland State Fire Marshal maintains a database of inspectable properties in the County and conducts all new construction code enforcement inspections as well as inspections of existing commercial and industrial properties. Reportedly, the existing inspectable properties are prioritized based on use and potential life safety issues with the goal of the highest priority properties being inspected annually and lower priority properties being inspected as the opportunities present itself.

With full support and in a team effort with the State Fire Marshal the County and Department should consider action to eventually upgrade the building inspection program for an annual County-wide fire safety code inspection and pre-plan program utilizing State Fire Marshal, Department, volunteer staff of the Fire and EMS Companies and eventually paid County firefighter/officer staffing.

Appropriate training and certification of staff and other volunteer officers who might wish to serve in this manner is necessary. Personnel conducting these inspections would work under the direction and supervision of the State Fire Marshal while enforcing the fire safety code in a team effort.

The following section describes a model building inspection program that requires limited staff that could be considered for implementation by Harford County and fire service delivery agencies.

Small Business Self-Inspection Program

The building inspections program could include a self-inspection component where the building owner or manager is requested by the fire inspector to conduct a self-inspection.



FIRE PREVENTION AND LIFE SAFETY

FIRE SAFETY INSPECTIONS (continued)

Small “mom and pop” sized business establishments such as barber shops and convenience stores are provided a self-mailer pamphlet, entitled “business fire safety checklist,” that explains the program and provides instructions, as well as the fire safety checklist.

The business owner/manager is requested to conduct the safety inspection of their business, complete the checklist and fold, staple and mail the self-addressed mailer back to the fire inspector.

The fire safety checklist includes:

1. Business is kept clean;
2. Nothing is stored next to furnaces and heaters;
3. Extension cords are not used for permanent wiring;
4. There is clear access to electrical panels;
5. Circuit breakers/fuses do not trip routinely;
6. Fire extinguishers are permanently mounted and serviced annually;
7. Cigarettes are disposed of separately;
8. Building address is clearly visible from the street; and,
9. Dumpster and storage are away from the building.

If returned by the business owner/manager, this self-inspection program could essentially accomplish the same objective as having an inspector take the time to personally inspect the property. This approach may save significant staff time while providing an important record of the property having been inspected for fire safety purposes.

FIRE SAFETY CODE ENFORCEMENT - PLANS REVIEW

Plans and specifications for new construction, additions, renovations and alterations must be submitted by the applicant and must include sufficient data to confirm compliance with applicable codes and standards. Inspections and witnessing of fire protection and detection



FIRE PREVENTION AND LIFE SAFETY

PLANS REVIEW (continued)

system tests, response to citizen and other agency inquiries and all other code enforcement functions are performed by the State Fire Marshal staff as part of the County permit process.

The Study Team was advised that there has been limited involvement in this review process by fire service providers. This plans review process should include a review by representatives of the volunteer fire companies. The fire service provider staff should be an integral part of this plans review process in order to have input to such aspects as water supply and apparatus access.

FIRE AND LIFE SAFETY EDUCATION

An effective fire prevention effort has a life and fire safety education program, focusing on awareness and attitude that reduces the fire and injury risk in the community.

NFPA Standard 1201 states the following:

- “13-1.1 Fire safety education shall be considered a major component of fire protection management.

- A13-1.1 Fire officials recognize that public fire safety education is the most effective way to reduce fire incidence. The majority of fire and fire-related deaths and injuries occur in residential occupancies, which are more difficult to inspect because of social resistance and constitutional protection. Education brings safety attitudes into the home.

- 13-1.2 Fire safety education objectives shall focus on providing citizens with information to help them to protect their lives and their property from fire.”



FIRE PREVENTION AND LIFE SAFETY

FIRE AND LIFE SAFETY EDUCATION (continued)

A Typical Public Fire and Life Safety Education Program

The Study Team is familiar with the goals of many typical municipal public fire and life safety programs. The goal of such programs is to provide fire hazard education to the public in order to reduce injuries and the loss of life and property due to fire.

The focus and content of many fire and life safety education programs includes:

1. How to prevent fires;
2. What to do if there is a fire; and,
3. How to extinguish a fire, if trained and equipped to do so.

School Fire Safety Classes

The fire safety classes in schools often address various aspects of fire safety, depending on the grade level of the students the presentation is being given. The topics generally covered include:

1. Stop-drop-roll;
2. Get out and stay out;
3. Family meeting place;
4. Matches and lighters;
5. 911 telephone system;
6. Crawl low under smoke;
7. Hazards of smoking;
8. Exit drills in school and home;
9. Smoke alarms;
10. The fire triangle;
11. Fire extinguishers; and,
12. Careers in the fire service.



FIRE PREVENTION AND LIFE SAFETY

FIRE SAFETY EDUCATION (continued)

Out-of-School Programs

Fire safety classes for out-of-school and adult fire safety programs routinely address the basic fire safety lessons that are used in the school programs and extend to fire safety in the home. The added topics addressed include:

1. Cooking safety;
2. Candles;
3. Electrical fires;
4. Extension cords;
5. Good housekeeping;
6. Family meeting places; and,
7. Carbon monoxide detectors.

Business Fire Safety Program

Business fire safety programs may include topics from the school and out-of-school programs and a detailed in-depth class on the use of fire extinguishers. The fire extinguisher classes include hands-on use. Other topics included in business classes are good housekeeping in the office, keeping aisles and exits clear, and use of portable electrical heaters.

Fire and life safety public education programs are typically staffed by personnel of the local fire company, office of the fire marshal and/or civilian public education specialists. Such programs that are successful are normally an integral part of the municipal fire prevention program; this fact is due to the need to utilize information from actual fire cause data to determine the priority areas within a community. Actual fire incident reporting data must be examined and considered in determining the priority areas on which the local fire education programs are focused.



FIRE PREVENTION AND LIFE SAFETY

HARFORD PUBLIC FIRE SAFETY EDUCATION PROGRAMS

The State Fire Marshal staff and a number of volunteer members of the Fire and EMS Companies provide fire safety education programs. The school year, particularly early Fall, is a busy time for the staff due to public educational programs. The Study Team was advised that volunteer firefighters and officers participate and assist in these programs. Further, the staff of the Maryland State Fire Marshal participates in these program efforts as requested.

FIRE INVESTIGATIONS

The Maryland State Fire Marshal staff also conduct all fire cause and origin investigations. Reportedly, there is a typical 30 minute average response time by MSFM staff to the fire incident scene locations in Harford County. The following, by cause type, are the results of cause and origin investigations conducted each of the last five years.

2004

Accidental	40
Incendiary	38
Undetermined	37

2005

Accidental	46
Incendiary	40
Undetermined	32

2006

Accidental	42
Incendiary	46
Undetermined	32



FIRE PREVENTION AND LIFE SAFETY

FIRE SAFETY EDUCATION (continued)

2007

Accidental	39
Incendiary	46
Undetermined	33

2008

Accidental	27
Incendiary	107
Undetermined	19

Reportedly, the increase in incendiary fires in 2008 related to an increase in drug and gang activity and potentially due to the economic downturn.

According to the MSFM staff the estimated dollar loss resulting from fires that occurred each of the last five years was:

2004 - \$ 2,132,376
2005 - \$ 1,061,385
2006 - \$ 3,860,640
2007 - \$ 3,709,983
2008 - \$ 2,440,921

JUVENILE FIRE SETTERS PROGRAM

Harford County is fortunate in the fact that the Northern Regional Office of the Maryland State Fire Marshal is staffed with a deputy state fire marshal with expertise and interest in assisting juveniles with a fire setting problem to deal with the issue through counseling of the juvenile and parents, as appropriate. This counseling may occur in either a group or



FIRE PREVENTION AND LIFE SAFETY

individual setting. The staff member is a certified Juvenile Fire Setter Specialist and has been assisting 50-60 juveniles each year through a program referred to as the “Deputy Chapman Course”.

FIRE PREVENTION PROGRAMS STAFFING

To accomplish this fire building inspection process, plans review and public education coordination, the County should consider eventually establishing a fire prevention programs specialist position in the suggested new Department of Fire and Emergency Services.

This individual could be responsible for the following functions:

- Conducting existing code enforcement building inspections;
- Coordinating a self-inspections program;
- Coordinating and supporting fire, rescue and EMS records management;
- Coordinating the completion of building pre-fire planning efforts;
- Coordinating the fire service provider input to plans reviews;
- Providing input and support to the State Fire Marshal, as necessary;
- Coordinating the fire safety education program;
- Coordinating the activities of volunteer staff in public fire educations; and,
- Coordinating the involvement of volunteer staff in building inspections.

SUMMARY

A fire prevention program, as part of a fire services delivery effort, is an integral part of a municipality’s responsibility to provide for the welfare of the County and its citizens. It is through an effective life and fire safety education, investigation, code administration, application and enforcement effort that a municipality will realize the greatest protection from fire and accident. No number of firefighters, fire/rescue houses, apparatus and/or equipment will save the number of lives or reduce the loss of property from fire as well as an educated public. Complement the fire prevention function with an effective suppression



FIRE PREVENTION AND LIFE SAFETY

SUMMARY (continued)

force and a municipality has the basis for a proactive, efficient, cost-effective, municipal life and fire safety program.

Harford County should consider utilizing an innovative approach to conducting building inspections. This approach is the self-inspection for the small “mom and pop” type businesses.

The Harford County fire and life safety education program is limited in scope and nature. Fire and life safety education is an important part of service delivery by a state-of-the-art fire service. The need for early intervention and prevention to avoid actual fires is important to fire protection in a community. Despite what some fire personnel may think, the job of fire services is far more than responding to fires when they occur; it is also an aggressive and comprehensive fire prevention effort to avoid the occurrence of fires.

In a fire services delivery system that relies heavily on volunteer staffing for the delivery of fire and rescue services, an aggressive and effective fire prevention program is essential to the safety of the customers (property owners, residents, business operators and owners). The goal of a county fire prevention program is to stop fires before they occur and prepare customers to play an important part in the prevention effort through becoming well-educated in what to do in the event of fire. **An aggressive fire prevention program goes hand-in-hand with fire and rescue services provision via volunteer staffing and organizations, in that it should reduce the incidence and magnitude of fires.**



FIRE PREVENTION AND LIFE SAFETY

RECOMMENDATIONS

- 13.1 The County should consider taking action to enhance the fire building inspections program by implementing an innovative self-inspections program with complete documentation/records maintained.
- 13.2 The HCVFEA should consider tasking the Fire and EMS Company volunteers with the initiation of a County-wide pre-fire plan program through a team effort utilizing volunteer staffing from the fire Companies and eventually the paid fire staffing.
- 13.3 The HCVFEA is encouraged to task the Fire and EMS Company volunteer staff with implementing a well-planned and comprehensive public fire education program, including a teamwork approach with the Companies.
- 13.4 The County, HCVFEA and Fire and EMS Companies should consider the implementation of a state-of-the-art network to support a records management fire and EMS records management system interfaced with the CAD system.
- 13.5 The County is encouraged to eventually provide a new fire prevention programs specialist position in the recommended Department for purposes of supporting the various fire prevention and field records systems.



CHAPTER FOURTEEN

IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

This Chapter provides a suggested framework and timeline for considering the findings and recommendations in this Fire and EMS Services Master Plan (Blueprint) for Harford County. County officials expressed to the Study Team their goal of providing qualitative and quantitative fire and EMS services through maximum use of volunteer service providers.

The suggestions in this Report represent the Study Team's best judgment in August 2009 of how to best accomplish that goal. Of course, keeping pace with "best business practices" in fire and EMS and future challenges in service delivery will require annual updates to this Blueprint for the Future. County officials and service providers should make the final decision on recommendations and timing.

REVIEW OF REPORT

In conducting fire and EMS studies, the Study Team typically suggests that a municipal government and its service providers take the necessary time to conduct a review of the entire report. Accordingly, the County is encouraged to consider the following:

- A. Take an appropriate time to review the report/plan;
- B. Consider relevant input relative to clarification on practices, procedures, manuals, data, and programs;
- C. Reorder priorities based on the review and relevant input;
- D. Take appropriate action as necessary;
- E. Revise the report/plan as necessary;
- F. Assess fiscal impacts after final decisions;
- G. Move forward; and,
- H. Update the Plan annually.

Chapters Two through Thirteen contain numbered stand-alone recommendations. To assist County officials and service providers in responding to the suggestions and monitoring progress, this Chapter includes a list of all the numbered recommendations. For ease of reading, references to County Council, County Executive, the HCVFEA, Chiefs and



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

Companies have been removed from the numbered recommendations. In that respect, it is important to note that the service providers will need the support of County officials (County Council, County Executive, HCVFEA and County Staff) in a number of the recommendations. Those requirements are contained in the numbered recommendations in each chapter. In addition, to assist budget officials, an outline of the recommendations (some of which are ongoing by Harford County) that have obvious fiscal impacts is included for ease of calculating fiscal impacts, depending on the decisions by the County. The estimate of the suggested addition of four employees, including a department director, is included under the fiscal impacts section of this Report.

SPECIFIC NUMBERED RECOMMENDATIONS

The following recommendations are an abbreviated version of the recommendations at the end of each chapter. It should be pointed out that to gain insights into the reasons for the recommendations, the respective chapters need to be reviewed.

ORGANIZATION AND ADMINISTRATION - CHAPTER TWO

- 2.1 Continue to take actions to maximize volunteer participation through the maintenance and expansion of participation of volunteer personnel in fire, rescue and emergency medical service operations, administration and policy-making.
- 2.2 Enhance the role of the Chief Officers Liaison Committee relating to fire and EMS operations.
- 2.3 Continue to conduct the required annual financial audits of the Fire and EMS Companies.
- 2.4 Revising the HCVFEA ByLaws to incorporate the names of all member companies and such other changes necessary to implement the organizational alternatives included in this Report.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 2.5 Enhance the role of the Harford County Volunteer Fire and EMS Association by providing it with clear lead responsibility for the Fire and EMS Services.
- 2.6 Adopt a comprehensive set of policies and standard operating procedures in compliance with County Charter Article VIII, Section 807.
- 2.7 Create a Fire and Emergency Services Commission with the responsibilities as outline in this Report, including monitoring and facilitating the implementation of the suggestions of this Plan and the implementation and ongoing use of the Measures of Performance.
- 2.8 Create a Department of Fire and Emergency Services headed by a Director with the roles and responsibilities outlined in this Report and including the following elements:
 - A. Fire and EMS Foundation staffing;
 - B. Hazmat Team and other specialty teams;
 - C. Fire and EMS records management system and data analysis capability;
 - D. Volunteer recruitment and retention;
 - E. Coordinating fire and EMS training;
 - F. Fire prevention and education functions;
 - G. Fire and Emergency Services Commission and Association support;
 - H. Monitoring, supporting and facilitating the implementation of this Plan;
 - I. Paid firefighter staffing; and,
 - J. Other functions and responsibilities, as determined appropriate.
- 2.9 Adopt a comprehensive set of County Code provisions relating to the Fire and EMS Service, including:
 - A. Statement of legislative intent regarding providing adequate public safety, health and welfare through a fire and emergency medical services that is highly competent and efficiently delivered by a combination of volunteer and paid personnel;
 - B. Objectives of the combination Fire and EMS System;
 - C. Maximum participation of volunteer fire and EMS personnel;
 - D. Fire and Emergency Services Commission, authority;



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- E. Harford County Volunteer Fire and EMS Association, role and responsibilities;
 - F. Independent Volunteer Fire and EMS Companies, roles and responsibilities;
 - G. Department of Fire and Emergency Services, headed by the Director, authority and responsibilities;
 - H. Additional fire and EMS companies;
 - I. Relocation/addition of facilities;
 - J. Equitable allocation of funding
 - K. Annual fire tax levy; and,
 - L. Volunteer Length of Service Awards (currently in existence).
- 2.10 Implement public-private partnership memoranda of understanding for the provision of fire and EMS services in Harford County.
- 2.11 Provide tax funds for operations and capital projects based on need with the Fire and EMS companies submitting annual budgets via the HCVFEA and Fire and Emergency Services Commission as part of the County's annual budget preparation process.
- 2.12 Provide any tax fund allocations to the Fire and EMS Companies on a quarterly basis.
- 2.13 Consider alternate sources of funding, including a fire tax.
- 2.14 Pursue a potential insurance premium tax through appropriate State of Maryland avenues.
- 2.15 Adopt the non-integrated approach with separate fire stations when paid firefighter staffing is implemented.
- 2.16 Revise the name of the current Division of Emergency Operations to Division of Public Safety Support Services.
- 2.17 Take actions appropriate to the implementation of a cooperative team effort at all levels, as outlined in this Study report.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

MEASURES OF PERFORMANCE - CHAPTER THREE

- 3.1 Designate the suggested Fire and Emergency Services Commission as a high-level user/stakeholder group from various levels of service providers, County officials and the public to oversee the fire and EMS and related 9-1-1 communications and dispatch MOPs by finalizing, implementing, monitoring, reporting and revising in the future, as appropriate.
- 3.2 Provide and manage appropriate records management systems and subsystems for the Fire and EMS Services that are integrated, as appropriate, with the 9-1-1 Communications and Dispatch Center computer aided dispatch system.
- 3.3 Assure that the MOP measurement systems produce accurate and reliable performance measures.
- 3.4 Continue to benchmark the performance measures developed to identify best practices to ensure continuous improvement.

FIRE AND EMS STATIONS - CHAPTER FOUR

- 4.1 Analyze response time data to determine opportunities for reducing response times.
- 4.2 Continue to implement new fire and EMS station facilities including the following locations:
 - A. Patterson Mill Road;
 - B. Riverside area on MD Route 543 just north of US Route 40;
 - C. Fountain Green Road / MD Route 543 between Hickory and Fountain Green;
and,
 - D. Churchville / MD Routes 22 and 136.
- 4.3 Conduct a bunkroom facility assessment and place a priority on providing adequate upgraded bunkroom facilities in all stations to enhance staffing of fire apparatus.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 4.4 Re-establish fire and EMS response areas based on projected travel times for current stations facilities now and periodically in the future as new stations are built.
- 4.5 Implement the deployment and dispatch of fire and EMS resources at the station-level.
- 4.6 Revise response areas to be station-based and determined initially with projected response times.
- 4.7 Implement the separate fire stations model for volunteer and paid staffing.
- 4.8 Pursue the implementation of OPTICOM traffic light control devices for traffic lights controlling high traffic roadways in the County.
- 4.9 Implement a sequential station numbering system with related changes to apparatus and station designation changes.
- 4.10 Consider the approval of capital station requests from the Fire and EMS Services as important tools in the recruitment and retention of their volunteer service provider staffs.

FIRE AND EMS APPARATUS - CHAPTER FIVE

- 5.1 Arrange for in-station apparatus preventative maintenance by either qualified vendor/s or County staff in support of the volunteer service providers.
- 5.2 Adopt the suggested future baseline apparatus fleet.
- 5.3 Consider funding appropriate baseline fire and EMS apparatus if the suggestion is implemented to provide tax funding to Fire and EMS Companies based on need.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 5.4 Implement a consistent, preferably computer-based, apparatus maintenance records approach should be implemented County-wide as part of the recommended fire and EMS records management system.
- 5.5 Adopt the suggested 20-year apparatus replacement criteria for purposes of making their capital outlay program requests to the County.

FIRE AND EMS STAFFING - CHAPTER SIX

- 6.1 Consider the establishment of a County-wide policy requiring the gathering and periodic analysis of volunteer apparatus staffing data.
- 6.2 Provide the Harford County Volunteer Fire and EMS Association with quarterly and annual volunteer activity information in summary form to identify any trends in the levels of activity.
- 6.3 Implement volunteer in-station standby programs to ensure that a minimum level of volunteer personnel are available in the station.
- 6.4 Continue with the strong volunteer-based system for the delivery of fire and EMS services. Although the volunteer system should remain the goal, the recommendations should be carefully considered by the County and the Companies for future paid staff fire and EMS station needs.

TRAINING OF PERSONNEL - CHAPTER SEVEN

- 7.1 Continue to utilize MFRI as the primary provider for their fire, rescue, and EMS training needs.
- 7.2 Do not enter into the fire/rescue training academy “business” until such time that MFRI can no longer meet the needs of the fire, rescue, and EMS providers.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 7.3 Create a Training and Certifications Standards Committee as a sub-committee of the association with the authority to establish and enforce various training and certification standards for fire, rescue, and EMS providers in Harford County regardless of the providers' affiliation, e.g. volunteer company, the Harford County Volunteer Fire and EMS Foundation, or a Harford County Government fire/rescue agency.
- 7.4 Develop and implement the suggested Officer Training Standards.
- 7.5 Utilize a two-year phase-in plan for implementation of the proposed Officer Training Standards:
 - A. In year one, all existing officers and personnel desiring to serve as officers must complete their NIMS and Fire Officer I or II training; and,
 - B. In year two, all existing officers and personnel desiring to serve as officers must complete their EMS training
- 7.6 Do not permit the "grandfathering" of existing fire, rescue, or EMS officers in order to avoid having them comply with the additional training requirements proposed in this study.
- 7.7 Develop and implement a minimum training standards policy/program that clearly identifies the training requirements for probationary (new) members and that applies equally and equitably to all 12 companies. At a minimum, these fire and EMS standards must address the training requirements needed to ride on emergency apparatus as a crew assistant and as part of the minimum staffing crew.
- 7.8 Develop and implement an emergency vehicle driver training program and procedure that is NFPA 1002 compliant and that is applied equally and equitably to the individual fire and EMS companies.
- 7.9 Require all chief officers to complete the NIMS ICS 300 incident command training, and all captains and lieutenants to complete the NIMS ICS 200 incident command training within a one-year time limit from the release date of this study.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 7.10 Establish a required, minimum attendance level for active members at company drill training sessions and this requirement should be applied equally and equitably to all fire and EMS companies.
- 7.11 Ensure that the individual fire and EMS companies host, deliver, and/or participate in meaningful, multi-company drills at least six times a year and that these drills focus on the various emergency response activities that require multiple units to work together in order to mitigate an incident.
- 7.12 Implement a training certification award system that provides an award to the department members who pursue and attain certification under MIEMSS and the MVFSCS.
- 7.13 Provide a training record keeping system for use countywide by all of the fire, rescue, and EMS departments with the ability to enter and retrieve training data directly from the system at the local company level.

EMERGENCY MEDICAL SERVICES - CHAPTER EIGHT

- 8.1 Partner with Upper Chesapeake Health to develop and deliver public education programs focused on injury prevention for all age groups, healthy living related to cardiovascular diseases (stroke, heart attack, etc), citizen CPR, and knowing when to call 911 versus when to see a primary care physician.
- 8.2 Require CPR as required coursework for all high school students in the Harford County school system.
- 8.3 Develop and implement an aggressive, public access AED program that has a county-wide focus and works with the local government and business interests to implement public access AEDs throughout Harford County.
- 8.4 Implement the use of an alphanumeric alert paging system in addition to the current voice/tone alert paging system.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

8. 5 Implement an EMS unit staffing standard that establishes the minimum staffing for a medic unit as one ALS provider and one EMT-B provider (driver) with the role of a First Responder limited to a third or fourth care provider on the unit.
8. 6 Discontinue the IVT response plan as one of the EMS dispatch choices.
8. 7 Develop and implement a plain-speak radio communications standard for use with all radio communications traffic in the fire and EMS system.
8. 8 Develop and implement a dispatch procedure for EMS incidents that addresses the EMS-related suggested Measures of Performance.
8. 9 An EMS unit – regardless of type – is given 3-minutes to respond after being alerted. If at the 3-minute mark the unit is not responding, then the next due unit of the same type must be dispatched. If that next due unit is not staffed (attended) then the next due staffed unit must also be dispatched.
8. 10 If during a 3-month period, a company has a dropped EMS call rate of 12% or greater, then all EMS calls in that company’s response district will be dual-dispatched using the next closest unit of the same type. The dual-dispatching practice will be re-evaluated for continuation after a 3-month period.
8. 11 If during a 3-month period, the total of all dropped EMS calls, EMS late responses, and EMS short staffed responses equals 30% or greater of the company’s total EMS calls, then all EMS calls in that company’s response district will be dual-dispatched using the next closest unit of the same type. The dual-dispatching practice will be re-evaluated for continuation after a 3-month period.
8. 12 Develop and implement an EMS resource deployment standard that places at least one ambulance (ALS equipped) in every fire and EMS station in the County with the following considerations:
 - A. Aberdeen: Fire and EMS Stations 2 and 2-4;
 - B. Abingdon: Fire and EMS Stations 4 and 4-3; and,



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- C. Havre de Grace: Operated by Havre de Grace Ambulance Corp at or in the vicinity of Susquehanna Hose Company House 4.
8. 13 Implement within the next 12 months, an ALS-staffed transport unit to serve the Route 40 corridor with the possibility of operating out of Abingdon VFC's House 2 on a 6:00 am to 6:00 pm basis, seven days a week.
 8. 14 Implement an EMS standard that mandates participation by all companies in the MIEMSS Voluntary Ambulance Inspection Program.
 8. 15 Stop the practice of no-go boxes for the North County EMS Chase Car.
 8. 16 Assign the North County Chase Car and the Foundation supervisor plain-speak radio identifiers that clearly identify the unit by organization and purpose.
 8. 17 Implement a two-ALS provider minimum staffing standard for the North County Chase Car on a 24-hour, 7-day a week basis
 8. 18 Implement within the next 12 to 24 months a second ALS chase car using the Level VFC as a home operating base and staffed with two, ALS providers 24-hours a day, 7-days a week.
 8. 19 Transition the Aberdeen and Bel Air paid EMS staffing to the Foundation within the next 18 months.
 8. 20 Employ as many full-time providers as possible to build a more cohesive work-force as the organization moves towards becoming a full-time EMS agency.
 8. 21 Create a part-time, ALS Coordinator that is a paid position responsible for the general overall management of ALS certification, recertification, and continuing education for all ALS providers in Harford County – volunteer and paid.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

8. 22 Develop and implement a procedure whereby liaison officers are designated for each hospital in Harford County and the on-duty Foundation Supervisor serves as the initial point of contact for all immediate EMS matters involving patient transfer at local emergency departments - regardless of the EMS crew's company or Foundation affiliation.
8. 23 Enter into a written agreement concerning the roles and responsibilities of the Medical Director position and that the agreement must be completed in compliance with State guidelines.
8. 24 Require liability insurance for the medical director, with the coverage and minimum limits clearly listed in the medical director's contract for service.
8. 25 Implement an EMS billing standard requiring all companies to charge the same rates for service (ALS transport, BLS transport, and mileage) and the rates should be established by the HCVFEA prior to the start of the fiscal year.
8. 26 Utilize the same EMS billing firm in order to standardize the administrative processing fee structures.
8. 27 Establish a standard that requires all EMS billing companies used in the County to be fully vetted in terms of personal and financial relationships with the administrative and operational leadership of the individual Fire and EMS Companies and the Foundation.
8. 28 Establish an EMS billing standard that allows the individual Fire and EMS Companies to keep their EMS billing revenues as long as the company meets the HCVFEA EMS response time goals and measures of performance standards enacted as described in a previous recommendation.
8. 29 Confer on the continued use of ambulance clubs and that if the agreement reached is to continue the use of ambulance clubs, then an HCVFEA standard must be



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

established that addresses all aspects of club operation so that all citizens have the same opportunity for participation and receipt of benefits.

- 8.30 Review Standards 3.2 and 4.0 for their applicability and consider combining the standards into one document that clearly describes the member make-up of the MAB and their duties and responsibilities as well as the procedural processes for handling items brought before the board.
- 8.31 Establish a Standard for Quality Assurance and Quality Improvement for all Fire and EMS Companies in Harford County: the standard must comply with all aspects of the MIEMSS requirements and State regulations and also require quality assurance officers to complete the MIEMSS Quality Improvement Officer training course.
- 8.32 Establish a standard operating procedure for the response to mass casualty incidents - including standardizing the initial dispatch of resources for an MCI event.
- 8.33 Cease the practice of charging fees to the users of their service and the County must begin fully-funding the operation of the Foundation.

FIRE AND EMS OPERATIONS - CHAPTER NINE

- 9.1 Continue to fund and operate the HCHMRT as it presently exists until such time that a career fire service component is implemented in the county - at which point hazmat response should be transferred to the career fire service in incremental phases.
- 9.2 Revise their apparatus standards to include only two types of extrication service vehicles – Rescue Squad and Rescue Engine. The Rescue Squad standard should address the equipment requirements for a heavy duty rescue vehicle. The Rescue Engine standard should address the equipment requirements for an engine that is outfitted with vehicle extrication tools and equipment.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 9.3 Retain the present level of heavy-duty extrication services until such time that additional fire or EMS stations are constructed. At which point the overall distribution of rescue engine and rescue squad services should then be examined for unnecessary duplication of resources.
- 9.4 Develop and implement a minimum training standards policy that requires all personnel (officers and members) who wish to help deliver vehicle extrication services to be trained and certified to the applicable NFPA and/or the MVFSCS certification standards. The Rescue Technician – Vehicle and Machinery Rescue course should be considered the minimum training standard.
- 9.5 Establish an annual, minimum training requirement for all personnel based upon the principle that team members should have to meet a minimum number of training hours per year in their primary discipline in order to remain on the team.
- 9.6 Develop and implement a skills certification and recertification standard for each of the TRT disciplines and the recertification cycle should be no longer than biennially.
- 9.7 Direct the TRT to complete a full assessment of team operations in order to determine its NFPA 1670 deficiencies and develop a written plan for compliance.
- 9.8 Develop and implement a minimum staffing response standard for the Confined Space, Trench Collapse, Structural Collapse, Technical Rope, and K-9 Search disciplines. The developed standard should use an alert-to-responding time limit of no more than 10 minutes as the TRT minimum staffing standard.
- 9.9 Continue to fund and operate the TRT as it presently exists until a career fire service component is implemented in the County at which point technical rescue response should be transferred in incremental phases to the career fire service.
- 9.10 Adopt an ordinance that requires the installation of automatic sprinklers in all new, residential structures – regardless of structure size and non-residential structures that have over 1,500 square feet of enclosed space.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 9.11 Implement semi-annual water supply training on a County-wide basis for the purpose of evaluating water supply sites, water supply equipment, water supply SOPs, and personnel skills.
- 9.12 Appoint a Water supply coordinator assigned the following responsibilities:
- A. Creating a County-wide water supply map book/resource guide that identifies the location and capability of all water supply sites within the County;
 - B. Recommending additional water supply sites for underground storage tanks and/or dry fire hydrants;
 - C. Possessing review sign-off authority on new fire protection water supply development; and,
 - D. Coordinating the interoperability water supply training for the local Fire and EMS Companies.
- 9.13 Identify and pre-plan appropriate buildings as part of a County-wide program.
- 9.14 Assure that there is a state-of-the-art incident command system in use and regular related training takes place.
- 9.15 Implement updated and new standards to be utilized and enforced on a County-wide basis.
- 9.16 Review and update Company policies and SOPs to assure there is not duplication with HCVFEA standards.
- 9.17 Establish an up-to-date incident command system standard and assure consistent command officer coverage of incidents County-wide.
- 9.18 Establish command duty officer schedules.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 9.19 Establish consistent box alarm assignments that are standard by type of incident and risk and limit revisions to County-wide changes that may be needed on a periodic basis.

WELLNESS, HEALTH AND SAFETY - CHAPTER TEN

- 10.1 Appoint a Wellness, Health and Safety Committee to develop a comprehensive safety plan in accordance with OSHA and national standards.
- 10.2 Assign the Chief's Committee to address development of a policy and procedure to be applied county-wide addressing the use of rapid intervention teams and the accountability system.
- 10.3 Encourage every fire and EMS agency in Harford County have their members take the seat belt pledge.
- 10.4 Secure and use the resource kits from the Everyone Goes Home program to enhance safety within their agencies.
- 10.5 Use the near-miss reporting system and to use the tools available from the program to enhance safety in their departments.
- 10.6 Revise the Management of Communicable Diseases Standard to specify Association responsibilities for follow-up and coordination to assure compliance on the part of the member Fire Companies.
- 10.7 Familiarize emergency service workers with the risks and how to reduce those risks associated with MRSA.
- 10.8 Continue efforts to address preparations of contingency and continued operations plans for use in a pandemic situation with appropriate involvement of the Fire and EMS Companies..



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 10.9 Establish a task force to research and examine the development of a health and wellness plan along with an implementation program for Harford County that fits the fire, rescue and EMS services needs and available resources.
- 10.10 Assign the appropriate group to develop a countywide rehabilitation policy and procedure. The assigned group should identify any resources needed to provide rehabilitation services.
- 10.11 Provide wellness, safety and EMS support and quality assurance assistance to departments and companies as needed and/or requested by adding a full-time specialist position to the recommended Department of Fire and Emergency Services..

COMMUNICATIONS AND DISPATCH - CHAPTER ELEVEN

- 11.1 Adopt, monitor and analyze appropriate communications and dispatch-related performance measurements in the future.
- 11.2 Place a high priority on the completion of the upgrades to the CAD system implemented in 2007.
- 11.3 Assure that when the next CAD system is selected a comprehensive effort is undertaken to fully develop the functional needs of a new CAD system in order to select a system that is “turn-key” relating to the needs of all customers—fire/EMS and law enforcement.
- 11.4 Continue to place a priority on maintaining both the primary and backup 9-1-1 communications and dispatch facilities.
- 11.5 Continue with the implementation of mobile data computers with associated unit status capability.
- 11.6 Work together in an effort to identify means for reducing response time components in their respective areas of responsibility.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 11.7 Place a high priority on implementing a station-based records management system with full CAD interface.
- 11.8 Continue the planning effort to implement a new dispatch center facility.
- 11.9 Continue the planning and upgrade the current 800MHz radio system to current state-of-the-art digital trunking system standards and full interoperability with surrounding counties.
- 11.10 Complete the installation of “rip and run” printers in all fire and EMS stations.

VOLUNTEER RECRUITMENT AND RETENTION - CHAPTER TWELVE

- 12.1 Continue to place periodic articles in local newspapers regarding activities of the volunteer fire and EMS service.
- 12.2 Financially support the volunteer recruitment and retention efforts through annual budgetary funding.
- 12.3 Perform the following tasks at the Company-level:
 - A. Develop a standard exit interview form to be completed by volunteer personnel who leave the program;
 - B. Collate exit interview information, analyze any trends and work to establish a program to reduce attrition; and,
 - C. Share exit interview data with the volunteer coordinator for recruitment and retention program development.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- 12.4 Develop a comprehensive volunteer recruitment and retention program building on the prior and current initiatives of the Association and the Companies. The program should be appropriately funded and include:
- A. The length of service awards program enhancements;
 - B. Recommendations for volunteer retention programs based on input received from the exit interview or forms;
 - C. Implementation of a property tax incentive and utility cost assistance retention initiatives;
 - D. Initiate recommendations for additional volunteer recruitment programs, such as possible medical and dental care;
 - E. Develop a volunteer handbook which can be given to prospective members of the fire departments, explaining the benefits and requirements of becoming a volunteer; and,
 - F. Focus volunteer programs toward retention of members during their first four years of membership.
- 12.5 Establish official mentor programs for new operational volunteer members.
- 12.6 Develop and implement additional fire and EMS student live-in programs.
- 12.7 Consider funding a full-time volunteer recruitment and retention coordinator to fully support and assist the Association and its Volunteer Recruitment and Retention Committee as well as local Company fire and EMS station focused recruitment program development efforts.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

FIRE PREVENTION AND LIFE SAFETY - CHAPTER THIRTEEN

- 13.1 Take action to enhance the fire building inspections program by implementing an innovative self-inspections program with complete documentation/records maintained.
- 13.2 Task the Fire and EMS Company members with the initiation of a County-wide pre-fire plan program through a team effort utilizing volunteer staffing from the fire Companies and eventually the paid fire staffing.
- 13.3 Implementt a well-planned and comprehensive public fire education program, including a teamwork approach with the Companies.
- 13.4 Implement a state-of-the-art records management fire and EMS records management system interfaced with the CAD system.
- 13.5 Provide a new fire prevention programs specialist position in the recommended Department for purposes of supporting the various fire prevention and field records systems.

FISCAL IMPACTS

Harford County is in the process of planning for new facilities and a variety of programs are under development. This report recommends four full-time employees and a department director to provide the necessary staff to implement a number of the recommendations and to strengthen the volunteer-based fire, rescue and EMS services. At approximately \$60,000 with fringe benefits, the estimated personnel costs are approximately \$300,000, excluding vehicles or computer equipment.

As noted in Chapter Two, **the citizens of Harford County are reaping major substantial benefits from its all-volunteer fire, rescue and EMS system. To provide the same level of service with full-time paid personnel in the fire, rescue and EMS stations would require at least \$61 million each fiscal year for personnel wages.** This estimate is based



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

on the average cost of personnel, including fringe benefits, of \$57,000 on an annual basis. Of course, the five-year costs would be more than \$305 million.

In charting a course for the future delivery of fire, rescue and EMS, this estimate of a paid system should be uppermost in considerations about funding

Alternate Sources of Funding

The Study Team is aware of a number of potential current and future alternate sources of funding that should be considered by the County, HCVFEA and Fire and EMS Companies and the suggested Fire and Emergency Services Commission and Department of Fire and Emergency Services. These sources include:

- A. United States Fire Administration (USFA) Assistance to Firefighters Grant Program for grants and funding;
- B. U.S. Department of Homeland Security Commercial Equipment Direct Assistance Program for equipment for first responders;
- C. USFA Staffing for Adequate Fire and Emergency Response (SAFER) program;
- D. Federal Office of Hazardous Materials, Hazardous Materials Emergency Preparedness (HMEP) grant program;
- E. Various Maryland State grants and low interest loans;
- F. **County fire tax;**
- G. Fire inspection and plans review fees;
- H. Patient billing for EMS transports;
- I. False alarm registration and enforcement charges;
- J. National Fire Academy Training Assistance funding; and,
- K. **Potential insurance tax on foreign insurance companies..**

The Association and County are encouraged to aggressively research and seek out these and other opportunities for funding.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

Fire Tax Option

In particular the County should consider the implementation of a fire tax levied under Maryland Law. A single fire tax rate, as apposed to two or more is suggested given the fire and EMS service deployment approach that could have units responding from one area of the County to another. In the experience of the Study Team, a single fire tax rate is much easier to justify and administer.

A number of Maryland counties have reportedly implemented fire tax/es for financial support of their fire and EMS services, including Allegheny, Charles, Frederick, Garrett, Howard, Montgomery, St. Marys and Wicomico.

Insurance Premium Tax

A number of states have implemented a Foreign Insurance Tax that applies to insurance companies not organized in the state—meaning those out of state. Typically, the tax applies to the gross amount of premiums from policies for state risks during the preceding calendar year, less deductions. Further, the tax rate for foreign insurers is 1.4 percent with a minimum tax of \$250.00. Reportedly, a number of states have implemented a foreign insurance tax, including Pennsylvania, New Jersey, New York, Ohio, West Virginia, Massachusetts, Michigan, Florida, Texas, Illinois, Kentucky and California.

Some states may also have a fire insurance tax which may be an additional 0.75 percent tax levied with some variances amongst the states on the gross premiums derived from fire insurance.

The County may wish to consider pursuing with the State the implementation of a form of foreign insurance or fire insurance tax levied under Maryland Law.



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

Some of these funding opportunities have the potential for substantial ongoing sources of revenue and others may be one-time project specific grants or funding. Fire and EMS agencies and municipalities that pursue alternate sources of funding find the revenue beneficial to service delivery and many times supplement the normal primary source/s of funding.

ANTICIPATED OUTCOMES

When conducting a review of the delivery of fire and EMS and projecting the needs of the future, it is not possible to delineate all the positive outcomes. Improving the quality of life in a community and saving lives for service providers and stakeholders do not necessarily involve quantitative analysis.

A number of the anticipated outcomes through implementation of the recommendations in this report/plan and the continuation of the outstanding services by fire/ and EMS volunteers in Harford County are as follows:

- A. Improved public recognition of volunteer-based service delivery;
- B. Enhanced data collection and utilization for operations, staffing, training, and volunteer participation;
- C. Enhanced management and staff support from four County employees for department direction, volunteer recruitment and retention, records management and wellness/health/safety;
- D. Enhanced initiatives to recruit and retain volunteers;
- E. Improved training of officers and supervisors;
- F. Improved safety and efficiency of service providers through upgraded training;
- G. Enhanced teamwork by service providers;
- H. Enhanced teamwork and coordination relative to major energy generating/distributing complexes;
- I. Improved delivery of fire and EMS services through upgraded apparatus;
- J. Improved work environment through rehab and upgrades of stations;
- K. Improved physical condition of members through fitness and health initiatives;



IMPLEMENTATION & BLUEPRINT FOR THE FUTURE

- L. Improved utilization of the volunteer officers by establishing eligibility requirements;
- M. Improved coordinated response through incident command training;
- N. Reduced liability exposure through compliance with a number of national standards, e.g., driver training and other standards;
- O. Improved self-development initiatives by volunteers through awards system for meeting specific certifications;
- P. Improved coordination/management of apparatus-related replacement, records and maintenance programs; and,
- Q. Improved apparatus acquisition and timing through apparatus replacement schedule.

SUGGESTED TIMELINE

This Study Report (Plan and Blueprint) should be considered as a **strategic planning tool for use over the immediate, mid-term and future.** Additional issues may need consideration in the future; therefore, the Plan should be used as a flexible guide for decisions relative to the organization, management and provision of fire and EMS services.

Figure 14.1 depicts a timeline that could be used as a guide for consideration of important changes. After relevant review and input, a final timeline should be established.

QUALITY OF SERVICE PROVIDERS

This Blueprint builds on the current strengths of the many men and women providing fire and EMS services in Harford County. This includes all the volunteers, the County staff in the Division of Emergency Operations (dispatch and Hazmat). A number of recommendations in this Study came from volunteers providing the services. These very talented personnel work hard and deserve the trust, support, and respect of the stakeholders in Harford County. **Full County support of these volunteer service providers, financially and programatically, is essential to retain a volunteer fire and EMS service for the long-term.**

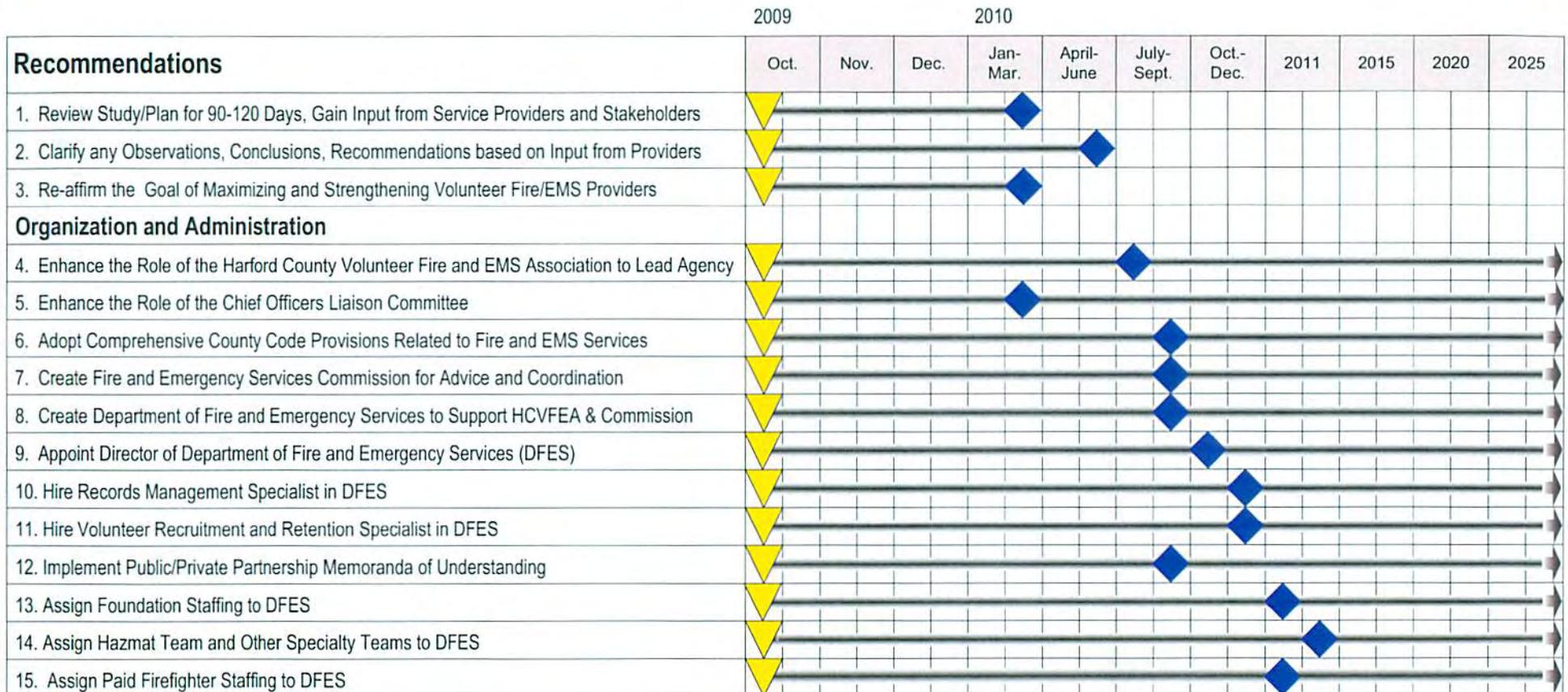




Fire & EMS Services Master Plan Harford County, Maryland

Figure 14.1

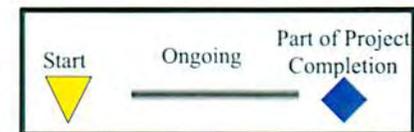
Suggested Timeline Page One of Six



Carroll Buracker & Associates, Inc.



Legend

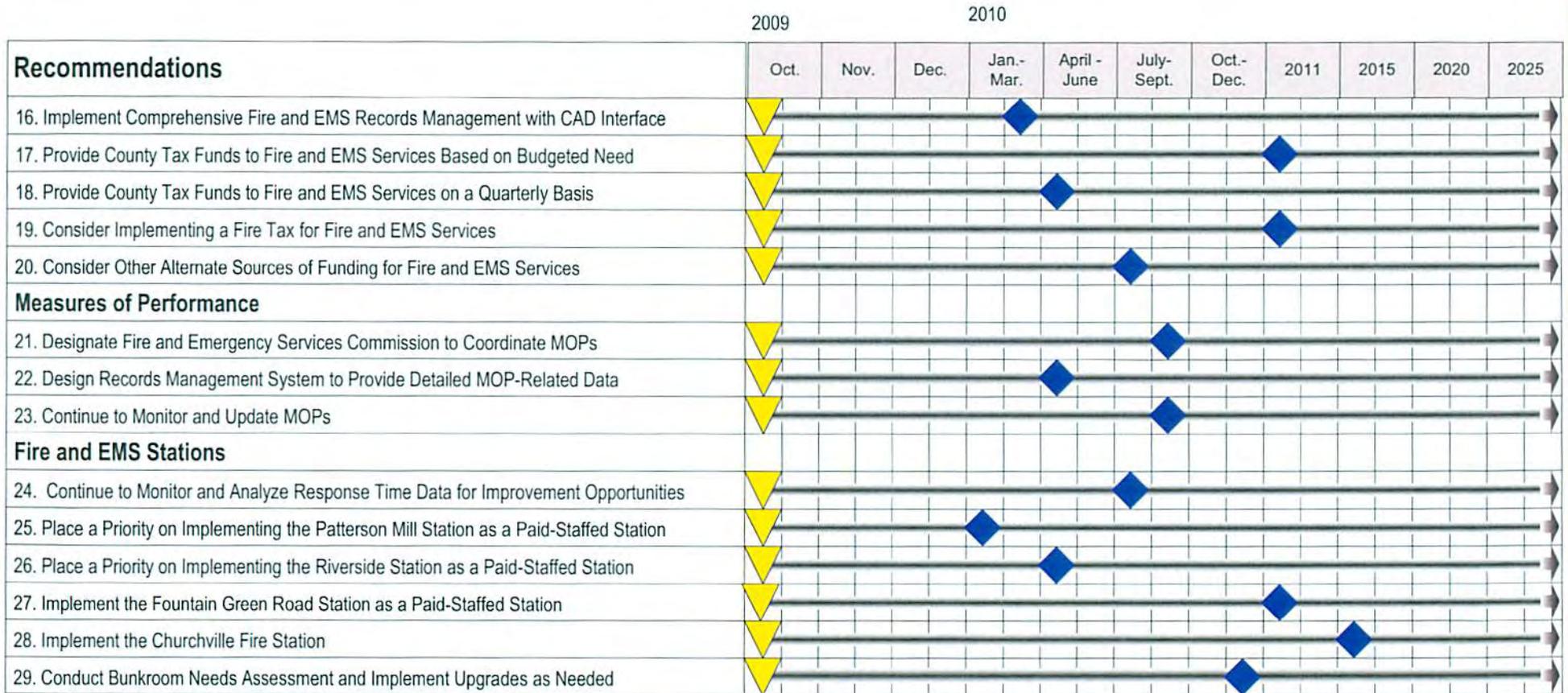




Fire & EMS Services Master Plan Harford County, Maryland

Figure 14.1

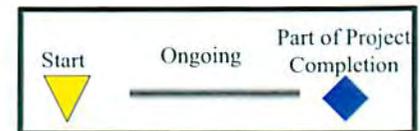
Suggested Timeline Page Two of Six



Carroll Buracker & Associates, Inc.



Legend

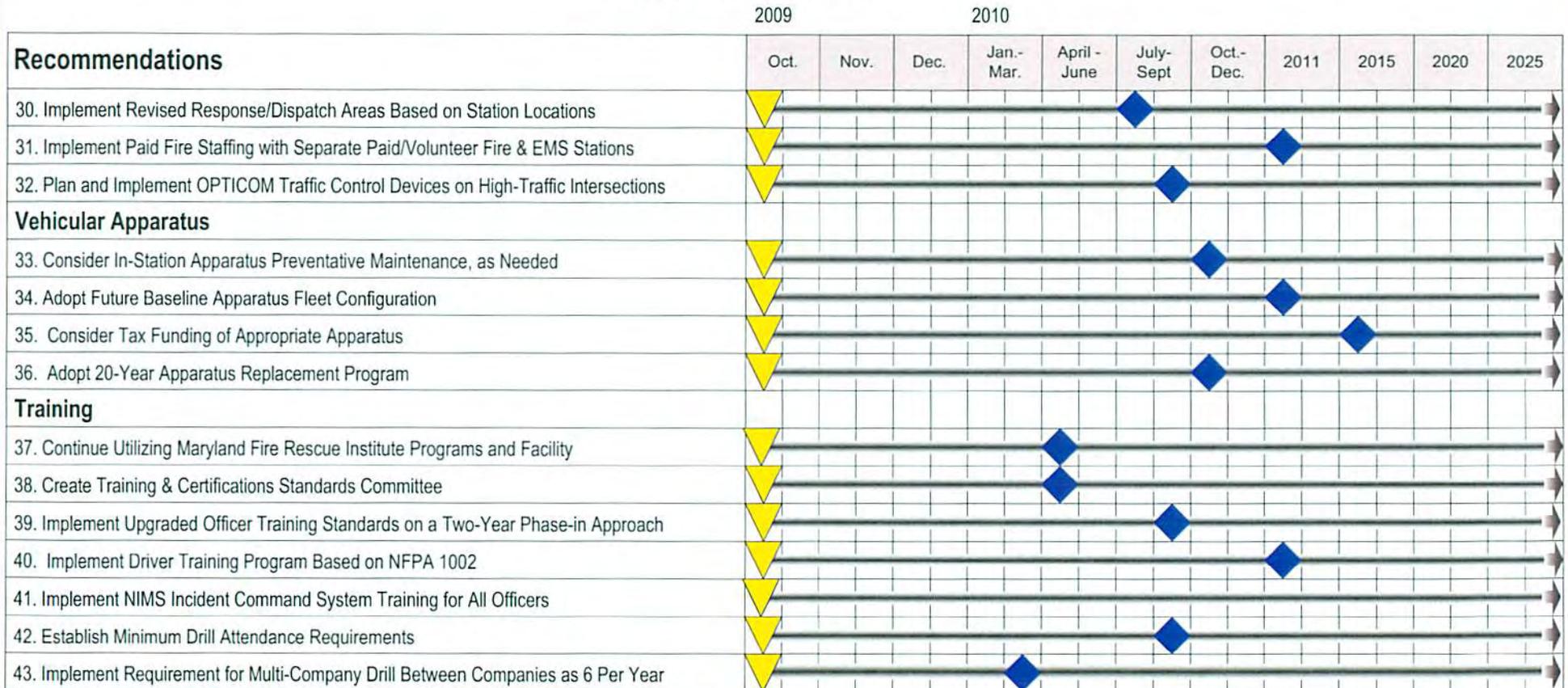




Fire & EMS Services Master Plan Harford County, Maryland

Figure 14.1

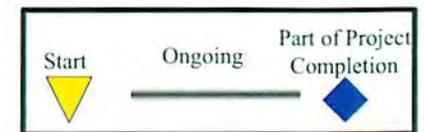
Suggested Timeline Page Three of Six



Carroll Buracker & Associates, Inc.



Legend

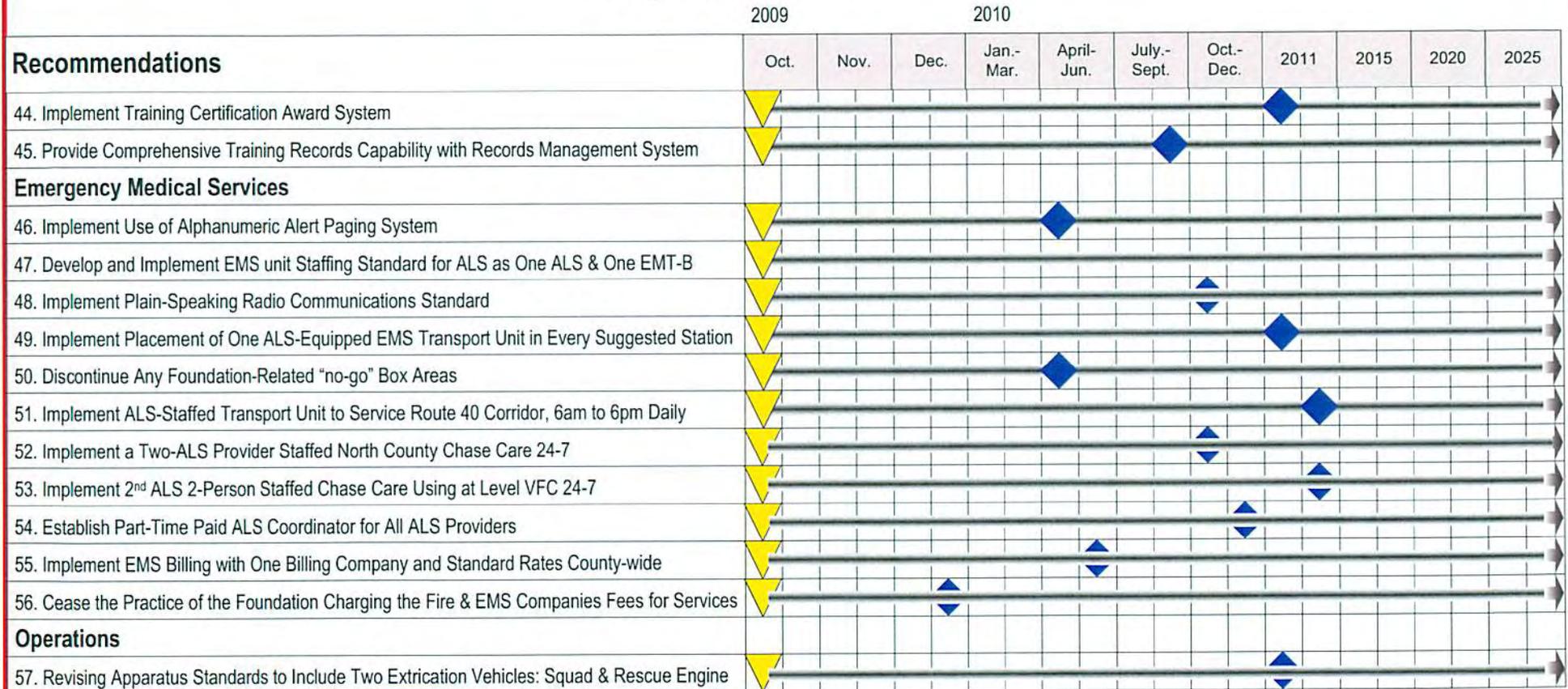




Fire & EMS Services Master Plan Harford County, Maryland

Figure 14.1

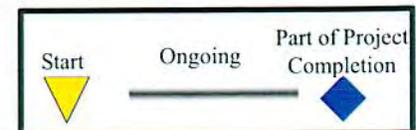
Suggested Timeline Page Four of Six



Carroll Buracker & Associates, Inc.



Legend

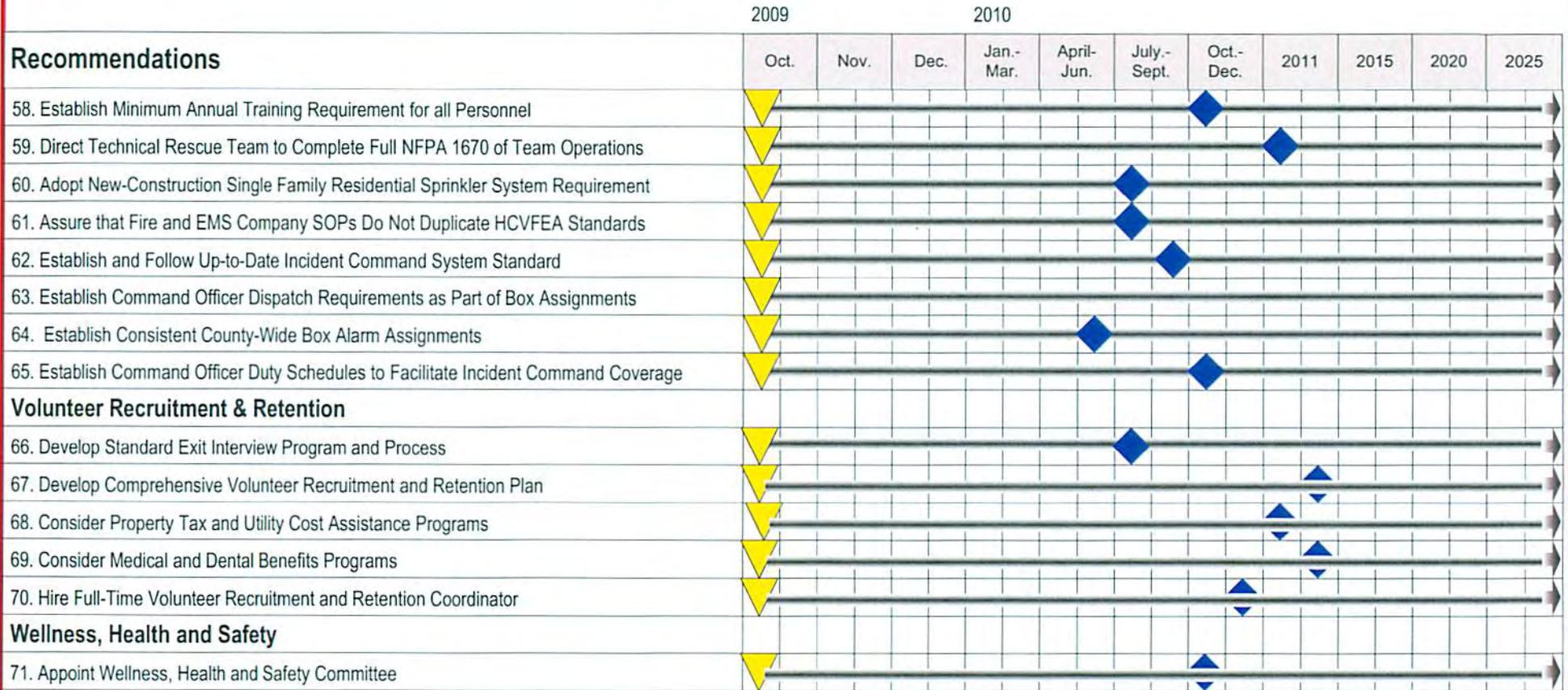




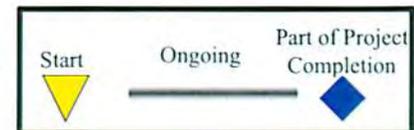
Fire & EMS Services Master Plan Harford County, Maryland

Figure 14.1

Suggested Timeline Page Five of Six



Legend



Carroll Buracker & Associates, Inc.



Fire & EMS Services Master Plan Harford County, Maryland

Figure 14.1

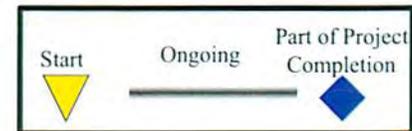
Suggested Timeline Page Six of Six



Carroll Buracker & Associates, Inc.



Legend





Carroll Buracker & Associates, Inc.

Public Safety Consultants

Fire and EMS Division

1881 College Avenue, Suite 100

Harrisonburg, Virginia 22802

540.564.1500

www.firestudies.com

www.emsstudies.com

www.dispatchstudies.com