

The Billing Unit lacks modern office automation capabilities. There are a few old stand-alone desktop computer systems, but they lack the capacity to perform substantive data processing or EMSB-related analysis. Staff members utilize computers for limited word processing in the production of letters and memoranda only. The scanners used by the staff previously to automate document processing are broken and unusable.

Appropriate maintenance and/or replacements were requested by staff, however, due to budget shortfalls those requests were placed on hold. Hence, there is currently no means of automating any of the documents used in EMS billing office.

Finally, there is an inadequate amount of suitable furniture for the EMS billing unit. The furniture is antiquated with insufficient room or seating for office visitors.

### **Little/No Injury EMS Public Prevention Education**

Preventing illness and injury before they occur is the best way to ensure that the health and safety of the public is safeguarded and that an EMS system isn't overloaded with calls. Teaching the public how to avoid the need for EMS and how to get the service when it is needed has become accepted as a critical mission of fire and EMS departments.

There is only one person dedicated as a public fire educator, far too small staff for traditional fire safety education let alone injury prevention.

TriData became involved with the FEMSD several years ago on a FEMA/DOT sponsored public education project entitled *Make the Right Call*. This program is directed toward teaching the public when to call for help (and when not to), how to call for help, and what to do until help arrives. It is an excellent program, having won awards from a number of organizations. Personnel from the EMSB have volunteered their time to present this program throughout the District; however, the program and the EMSB volunteers have received little official support from the department.

## **Vacancies for Field Positions**

There are presently 20 vacancies at "Basic Paramedic" level and seven vacancies at the EMT level. This forces EMS units to be "back-filled" with overtime personnel. While it may be cheaper to use personnel on overtime (to an extent) because extra benefits are not required, it is a bad practice to rely too heavily on overtime personnel, for a number of reasons. First, personnel need days off to see family, raise children, and accomplish personal chores. Second, personnel need days off to recuperate from the stress (emotional and physical) of being on duty. Finally, personnel who work too many consecutive hours make clinical errors. Excessive reliance on overtime can jeopardize patient safety.

It is unclear why these vacancies exist when there are promotable paramedics occupying EMT slots, as well as requests from EMTs in both the EMSB and the FFD to attend paramedic classes.

## **Lack of Computer Maintenance**

During the previous the Medical Director's tenure, there was a sizable investment made in computers and other technology to improve the efficiency of the EMSB. Unfortunately, the maintenance contracts on the data processing equipment have been allowed to lapse. Much of the acquired equipment has fallen into disrepair, and without maintenance contracts in place, has languished in that state.

For example, the scanning equipment used to read data off the completed EMS run sheets (FD form 151) is inoperable. The vital data contained on those forms are not being abstracted. This has a downstream effect of making quality assurance more difficult, inaccurate, and time-consuming. Additionally, information is not being transmitted automatically from the run sheets to Lockheed IMS, the EMS billing contractor. The effect of this is can be measured in terms of dollars which go uncollected.

## **Communications Are Not Consistently Professional**

TriData personnel spent a good deal of time monitoring EMS radio communications over the past few weeks. Overall, radio communications procedures and discipline need to be improved. Field units and dispatchers were heard being discourteous to each other, displaying sarcasm and unwarranted editorializing during transmissions.

Individual transmission lengths are too long. Too much unimportant information is being transmitted (both from the dispatch center and from the field), and frequently important pieces of information are lost in the process.

There is no uniformity of dispatching. Each dispatcher dispatches units according to his or her own particular style. Some dispatchers use the Medical Priority Dispatch codes (e.g., "27-Delta-1"), while others use plain English (e.g., "Stabbing or Gun Shot"). Some dispatchers use the old "Code 1/Code 2" system, while others refer to them as "Priority 1" or "Priority 2." This inconsistency is confusing and unprofessional.

## **Medical Priority Dispatch**

Medical Priority Dispatch (MPD) is currently being performed using a set of cards instead of the computer-assisted version that is considered necessary for high-volume cities such as D.C. According to staff at Medical Priority Consultants (the group that assists with MPD implementation), the MPD project was never completed. These are two main reasons why this hampers EMS delivery.

First, there is a much higher error rate associated with the card system than with the computer-assisted system. Assuming that the MPD quality assurance statistics are correct, for the month of August 1997, 175 calls received at the 9-1-1 center were under-triaged (i.e., were categorized as being less serious than they actually were); 350 calls were over-triaged (i.e., were sent ALS responses when a BLS response was warranted). Second, the cards are much slower than the computer-based version. Tracing the correct sequence through the cards is done on caller answers to medical interrogation by the call-

taker. This requires flipping from card to card, sometimes in a confusing sequence of forwards and backwards.

### **Oxygen Supply Problems**

According to EMS managers and field personnel, oxygen supply is a regular problem. Oxygen is essential on every EMS unit. It is the primary treatment modality of both EMTs and paramedics. EMS units which run out of oxygen cannot deliver even minimal BLS care and must be placed "out-of-service" until more oxygen can be found. Resupply frequently entails driving from station to station in a search for oxygen. This is wasteful and dangerous. A TriData analyst monitoring EMS radio communications heard an EMS supervisor order an ambulance that had been out-of-service due to a lack of oxygen to go back in service while it attempted to find oxygen. That unit could have been dispatched on a call which required the administration of oxygen. Lack of oxygen endangers the welfare of patients and places EMTs and paramedics in ethically questionable situations.

An adequate supply system should be implemented to ensure that such shortfalls do not occur. Safeguards should be created to prevent units from being dispatched without essential supplies such as oxygen.

### **Fuel Supply Problems**

Similar to the oxygen supply problem is the fuel supply problem. EMS units low on fuel must often go from station to station searching for fuel. Lack of a centralized fuel reporting system means that dispatchers have difficulty advising EMS units where to refuel.

TriData analysts monitoring radio communications heard several instances in which the dispatcher asked a unit that was attempting to go for fuel to respond on an EMS incident. In such cases, the dispatcher would promise to remember that the unit needed fuel, and that the unit would be allowed to refuel after that run. While critical calls clearly should receive the benefit of an immediate response from EMS vehicles,

such responses are useless if a vehicle runs out of fuel idling on the scene of an emergency – or even worse, with a patient on board.

Most emergency service organizations have a rule (some formal, some informal) that fuel tanks not be allowed to fall below half-full. This provides a large (but not foolproof) margin of safety. To the extent possible, EMS units should monitor their fuel levels more carefully and head for known fuel locations well before the need for fuel becomes urgent.

### **Uniform (Clothing) Regulations Laxly Enforced**

One of the most readily observable problems that plagues the EMSB (and the FEMSD in general) is the appearance of some of its personnel. Simply put, uniform regulations are laxly enforced – some personnel are sloppily dressed. There is too much latitude accorded FEMSD personnel in what they wear and how they wear it. This poor appearance undermines public perception of the department as a professional organization. Seeing firefighters and EMTs on duty with their shirt tails hanging out, shirts unbuttoned, and baseball hats worn backwards speaks volumes about the department. In many fire departments or emergency medical services, personnel who wear their uniforms as done in FEMSD would be directed to sharpen their appearance, reprimanded, or sent home without pay. Emergency service personnel from other departments have commented on the shoddy appearance of DC's personnel – something which gives the FEMSD a bad reputation in the emergency response community.

Poor appearance has a second bad effect. It serves to exacerbate the differences between FFD and EMSB personnel. The EMSB uniforms are the same as the FFD uniforms, and firefighters will be inclined to complain because of the impact on the public's perception of the department – even when they, themselves, are not always in uniform.

## **Medical Protocols**

The complement of medications carried by EMSB paramedics is below par for the area. For example, paramedics in all the surrounding jurisdictions are authorized to administer morphine, Valium, and adenosine, whereas these medications are not within the scope of practice for D.C. paramedics.

It seems unjust that someone suffering a heart attack on the east side of Western Avenue should receive care that is sub-optimal *by design*, while someone suffering a heart attack on the west side of Western Avenue would be afforded better care. Where clinical practice is clear-cut (as with the three medications mentioned earlier), the patient is better served by assuring comparable levels of care with surrounding jurisdictions. Where the efficacy of treatment is questionable or procedures are inherently risky, the scope of care should be debated and decided by the Medical Director and the medical community.

## **Count of EMS Calls**

The computer-assisted dispatch system counts EMS calls in a manner which is not employed by any other emergency service agency with which we are familiar. The program counts each piece of apparatus sent on a call as a "medical response." For example, when an ALS medic unit responds to assist a BLS ambulance, that counts as two medical responses. Every other EMS system we have seen would count such an incident as a single call, irrespective of how many different pieces of apparatus respond to that call. This means of counting has the effect of inflating the data on EMS call volume, rendering them less useful for benchmarking comparisons. (Note that it is appropriate to count the response of each vehicle on a call when assessing unit workloads.)

## **Quality Assurance**

Quality assurance (QA) is an integral function of the EMSB, as it is in any medical care delivery system. For medical, moral, and legal reasons, it is vitally important that the department be able to guarantee that medical care meets accepted

standards of the profession and the local medical community. The only way to do this is to have constant medical oversight.

QA is ultimately the responsibility of the Medical Director; however, it is carried out on a day-to-day basis by eight EMSB personnel assigned to the Training Division's Quality Assurance Office on a full-time basis. The QA system in place for the EMSB seems to operate reasonably well. The data gathered and reported are useful, but there is substantial room for improvement in the realm of efficiency.

**Chart Review Process** – EMS call reports (FD form 151) are reviewed on a daily basis by two teams of QA evaluators. A set of 250 run forms randomly selected by workers at the EMSB billing contractor, Lockheed IMS, are used for the overview. A sample of reports filled out by firefighter/EMTs (FD form 902) are reviewed from a weekly pool of 150 forms randomly selected by Lockheed, as is all documentation on the use of automated external defibrillators (AEDs) by FFD personnel. Additionally, all run forms from the rapid response units and special documentation on incidents involving intubations, AED usage, cardiac arrests, and presumed dead on arrival are examined.

The review and data abstraction is done by hand, and accounts for about half of each QA evaluator's day. This is inefficient, especially since the FD form 151 is scannable. The data could be abstracted by computer. Unfortunately, as noted earlier, computer maintenance contracts have been allowed to lapse and many computers are in a state of disrepair. This includes the equipment needed to scan the FD form 151. Were the data to be abstracted and analyzed by computer, QA evaluators could be freed up to spend more time in the field working with the EMS providers. This might also obviate the need for the administrative assistant currently being requested by the Lieutenant in charge of the QA office.

**No QA Oversight of FFD Personnel** – Although the QA office reviews copies of FD form 902, which of filled out by firefighter/EMT first responders, there is no meaningful QA oversight of the FFD personnel. A representative of the FFD attends the department's monthly QA meetings, but there is no person dedicated to QA activities for the FFD.

In addition to presenting a problem in terms of ensuring the quality of clinical care rendered, lack of QA oversight of the firefighters reinforces the perception that firefighters play by a different set of rules than the EMS personnel. For example, in order to be “checked out” as one of the two EMTs on an ambulance crew, civilian EMSB personnel must undergo an apprenticeship. During this time they ride as the third person on an ambulance and render care under the observation of a senior EMSB EMT. Once the senior EMT is convinced that the new person is ready to be checked out, an EMS supervisor will evaluate the trainee. Upon demonstration to the EMS supervisor of adequate proficiency, that person is then “checked out” to ride as part of a two-person crew.<sup>13</sup> No such check-out procedure exists for FFD EMTs – either to function as the lone EMT on an engine company or to fill vacancies on an ambulance. If the firefighter has a valid District of Columbia EMT card, he or she is presumed to be proficient.

This situation presents QA questions when FFD EMTs fill vacancies in the ambulance staffing. While utilization of the firefighters on the ambulances helps ensure that more ambulances are available for emergencies, there is nothing to ensure that the assigned firefighters have been adequately prepared for ambulance duty. For instance, firefighter/EMTs reportedly do not receive formal training on the EMS “protocols” – the set of standing orders that govern pre-hospital emergency care. Such training is required of EMSB EMTs.

There appears to be no formal means by which a firefighter/EMT can be prohibited from practicing as an EMT short of having the person’s EMT card revoked by the issuing authority, the Office of Emergency Health Services. Because the QA office maintains no formal authority over the FFD EMTs, it is essentially powerless to investigate complaints beyond the cursory level. TriData was informed that of the three complaints brought to the QA office about care rendered by a firefighter, none has been officially closed (i.e., there had been no resolution or follow-up to the case).

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<sup>13</sup> One failing of this system is that there is no formal, written documentation added to the individual’s employment file indicating that he or she has been certified by the EMS supervisor to work as an ACA (active crew assigned) on an ambulance. Such documentation exists at the paramedic level.



## **Critical Incident Stress Management**

The nature of the incidents to which FEMSD personnel are exposed can cause problems that closely resemble Post-Traumatic Stress Disorder (the syndrome to which battle veterans are subject). Emergency responders know this stress as "critical incident stress." Much has been written on the subject, and critical incident stress management (CISM) has emerged as a means to deal with it. Provision of CISM is an accepted practice in most modern emergency response agencies.

According to EMSB personnel, the critical incident stress team in the FEMSD has been allowed to languish. Some personnel did not even know one existed. As alluded to earlier, when a well-respected EMS supervisor died at work at Christmas last year, a stress debriefing was conducted using a CISM team from Virginia because it was felt there was inadequate capability within the FEMSD.

## **Quick Fixes**

There are a number of suggestions that might be quickly implemented to solve some of the problems discussed above. Some examples:

### ***1. Contract for Oxygen Supply Tanks***

EMS units have difficulty keeping supplied with oxygen. Anecdotes abound about units having to go to several stations before finding oxygen tanks.

A maintenance contract could be established with a local compressed gas company to exchange the large tanks in the cascade systems and on EMS units on a regular basis.

### ***2. Enforce Uniform Regulations***

Strict enforcement of uniform regulations is a no-cost solution that could be implemented immediately. In addition to creating a more professional, confidence-

inspiring appearance for all personnel (not just EMSB personnel), the department would be sending a strong message to the public, its employees, and sister organizations that it is taking steps to reform its operations and service delivery. Looking sharper would simply be the first outward-manifestation of the renewed department.

***3. Require Crews to Respond Equally Quickly to Fire and EMS Calls.***

Both medical and fire calls should be responded to with the same vigor. Both types of calls are subject to false alarms, but when a real emergency occurs, a speedy response could mean the difference between life and death. Furthermore, an unexplainable delayed response could leave the department open to liability, especially if a trend in that respect could be demonstrated.

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## **CHAPTER 5 – FIREFIGHTING**

The firefighters in the fire stations are assigned to the Firefighting Division, which reports to the Assistant Chief for Operations, who also directs the Training, Prevention and Communications Division. This chapter discusses firefighting operations. The other functions are addressed in different chapters.

### **Organization**

Reporting to the Assistant Fire Chief, Operations are the four Deputy Fire Chiefs, who direct the Firefighting Division, one on each of the four shifts. In addition to administrative and training responsibilities, the Deputy Chiefs assume command at major fires and other emergency incidents unless relieved by the Assistant Fire Chief or the Fire Chief. The Deputy Chief on duty supervises six Battalion Chiefs located throughout the City. Each Battalion Chief oversees a group of fire suppression units or companies. The ambulance units assigned to fire stations do not fall under the direct authority of the Battalion Chiefs, but rather report via EMS supervisors through the EMS chain of command. The same is true of EMS personnel assigned to fire stations.

Some of the engine companies stationed in Washington, DC are among the busiest in the entire United States in terms of number of responses (fire and emergency medical service). This represents a unique situation and one in which subtle policy changes can have significant impacts on the company level.

The fire suppression personnel are assigned to engine and ladder companies, heavy rescue squad companies, a Hazardous Material Unit, fireboats, and foam units.

### **Response Assignment**

On a reported structure fire the basic response is four engine companies, two ladder companies and a Battalion Chief. Additional help is readily available if needed and is dispatched sequentially. The second alarm has a designated complement of units, as well as the third alarm and so on.

Upon arrival at the fire, predetermined assignments are followed. The companies split their response between the front and rear of a building reported to have a fire. This response pattern originated to deal with row-type structures with limited front to rear access and the need to cover all sides of the building quickly. This policy is reasonable based on the District's building stock. The first arriving engine company covers the front of the building, the second takes the rear, the third engine backs up the first, the fourth engine backs up the second. The first ladder company responds to the front and the second ladder to the rear. This is a system that has been in place for many years and has worked well in the District of Columbia. It is a larger than average response to a dwelling fire, but appropriate for DC's conditions in many areas of the city.

A potential area for improvement is the undifferentiated nature of response sent to reported fires. The response is the same throughout the District, regardless of the type of structure involved. That is, the same response is given for a downtown high-rise as for a single family detached dwelling. This policy is defended by senior staff as a means to saturate fires with personnel in the early stages, subsequently preventing excess loss and the need to call for extra alarms. Also a factor was the change from the "two piece engine companies" where each engine company responded with a second pumper to provide water supply from the hydrant. The change to the "single piece" engine reduced apparatus response, and management is cautious about reducing responses further. This policy will be an area of continued review with respect to the company workload and effectiveness implications.

On unusual emergency responses such as chemical or hazardous material spills, confined space or high angle rescue rescues or building collapses more specialized units are dispatched. The Department has three Rescue Squads and a Hazardous Materials Unit. The Department also has two Foam Units that are used on a regular basis for Presidential and Vice Presidential helicopter departures and arrivals on the grounds of the White House.

Special Operations are now coordinated by a single Battalion Chief who reports to the Assistant Chief for Operations. He coordinates services involving the following technical areas:

- Metro Operations
- Rail Operations
- Hazardous materials operations
- Confined space rescue
- High angle rescue
- Foam unit operations
- Fireboat operations
- Terrorism preparation

The organization of Special Operations under a single chief-level officer is a very positive step towards the efficient delivery of these services. Special operations are the least called for emergency dispatches yet pose the greatest danger to emergency responders and require the highest levels of technical skill and competence. The Special Operations functions are discussed in detail in Chapter 6.

## **Staffing**

After a long period of relatively stable staffing levels, the firefighting division has undergone considerable downsizing in the last ten years, including reductions in staffing of both engine and truck companies (twice), the abandonment of the two-piece engine company concept, the elimination of Battalion Chief's aides, the elimination of two battalion districts, and the closing of companies. The impact of these reductions is still being felt and came up frequently in interviews. The firefighting procedures and experience of the District of Columbia is still adjusting to these changes in the basic staffing and configuration of companies. Policies and procedures and overall effectiveness have not been formally reviewed since these reductions were implemented.

At the present time, staffing of units is mandated by the Rules and Regulations Manual. That is, each engine and truck company must respond with an officer and three

firefighters. The Rescue Squad, the Hazardous Materials Unit and the Fireboat are all staffed with an officer and four firefighters. The Fireboat has special ranks for piloting and engineering, but the number of staff still totals five. The Foam Unit responds with one individual backed up by other suppression units. The staff of engines and ladders meet the national minimums of what is considered adequate. (Staffing of Special Operations is discussed in Chapter 6.)

*Chief's Aides* – At one time Battalion Chiefs had aides. These individuals not only drove the Battalion Chief, but acted as another set of eyes on the fireground and did administrative duties as well. They also assist in running the Incident Command System at emergencies. Budgetary constraints caused the Department to eliminate this position at the battalion level; the Deputy Chief has retained his aide. Although this position does not drive the Deputy Chief, it is tasked with responding with and assisting in operating the command post vehicle at extra alarm fires or special incidents.

*Incident Command System* – There is a question of how well the department is able to implement the Incident Command System, a philosophy which has helped enormously in improving accountability on the fireground, and which is credited with reducing the potential for injury to personnel, as well as better managing emergency incidents. The DCFEMS developed its first true standard operating procedure and general training on ICS last year. This was considerably behind the national trend. Some of the Chief officers we interviewed viewed the new policy as a formalization of “what we’ve been doing all along.” Despite such comments, the ICS is a major change for the DCFEMS, and like any change, will take time. Compliance is bound to be inconsistent in the early stages, and is. Continued diligence in enforcing this policy and additional training may be required. Our impression is that the ICS is not always used at routine incidents, where its impact is less obvious, and that leads to difficulty in implementing it effectively on large incidents when the officers are not used to using it every day. For ICS to be effective on major emergency incidents, it must be a continuation of day to day standard operations.

Adoption of and compliance with a recognized incident command system is critical to interaction with neighboring jurisdictions at major incidents as well as being critical to liability avoidance for the City.

***Overtime Expenditures*** – High overtime costs are a major concern to the Department. While some overtime is good for efficiently smoothing out variations in scheduling and leave without hiring extra personnel, the Department has built-in constraints that force overtime to be high. A large portion of the overtime budget that is charged to the firefighting division is driven, to a great extent, by other functions. Those functions include: 1) filling some EMS positions with firefighters on an almost daily basis; 2) substituting firefighters for communications dispatchers; 3) filling departmental vacant positions; 4) filling positions held by members on extended Performance of Duty leave who are not allowed to retire on disability; and 5) utilization of suppression forces to fill or support a number of fire department activities.

In order to reduce expenditure on overtime, all of these items must be addressed. In looking more closely at the overtime problem with all its complexities, it might be worthwhile to go back to square one and determine if current funding of the Department is realistic considering the required number and types of authorized positions (FTEs) in the Department.

In the fire service as with other around the clock operations, a “staffing factor” is determined and used for budgeting purposes. For instance, it takes four firefighters to fill one 24-hour duty tour on a 4-platoon system, but more than four when substitutes for assigned days off and other leave is provided for. On a 4-shift system, the factors will be in the 5+ range, meaning you need 5+ firefighters to fill one position for a 24-hour tour of duty. It was reported (by the CFO) that the current staffing factor in the Department is 5.48 for suppression personnel. You also need to determine the staffing factor for the entire Department including EMS, dispatchers, staff workers and clerical support personnel and fund that as well. (EMS staffing functions have not yet been developed since change to the FLSA rules – a problem in formulating budgets and managing those positions.) Only when these factors are determined and applied will you know whether or not you have allocated enough funding to support the effort. This is a process that

must be periodically updated, and this would be an ideal time to review the matter. The minimum daily staffing levels of the department and the leave impact factor should be documented in the budget preparation justification. The budget has been formulated more by allocation of a mark from the top than from the bottom up. The result is high overtime to fill in for lack of adequate budgeting of FTEs in the first place.

One response in the recent past to the budget problem contributed to by overtime was the rotation station closure program. This approach has now been discontinued, but ran during most of FY96. In order to avoid the political fallout that follows the closing of a fire company, the City Council elected to spread company closures citywide thereby sharing the burden among the various neighborhoods. They mandated that eight companies throughout the City would be closed each day, the Department to decide which ones. Closing eight companies a day reduced, but did not eliminate the need for overtime, and the net effect was that there were eight fire companies not available for service each twenty-four hour period, thereby diminishing overall fire protection for the City.

**Disability** – Another avenue that should be explored is reduction in the extended disability leave. When members sustain on-duty injuries that preclude them from ever returning to full active duty status, based on medical evaluation, they are placed on the “POD” (Performance of Duty) list. While on this list their benefits continue to accrue and they enjoy any pay raises granted their rank, along with enjoying the tax breaks offered relative to disability income, and earning additional vacation and sick leave that the city will eventually pay for. In addition, the City pays all medical expenses related to their particular debilitating injury. This situation is so rewarding that there is no impetus for the individual to leave the Department and go out on disability pension. Compounding this is the fact that there is a joint police/fire cap on the number of members hired pre-1980 who can retire on disability each year, regardless of how many are injured. In the past there has been some relief by way of special exemption, but the critical point is the situation is that each one of these individuals is filling a position budgeted for a firefighter but is not available to work. The end result is that this frequently causes the Department to resort to overtime pay in order to staff fire units. A more economical procedure should be sought.



***Robbing Peter to Pay Paul*** – The DCFEMS, adjusting to the budget reductions in 1986 from \$101 M to \$73M, gave priority to maintaining the emergency response services, which was the departments' primary mission. This DCFEMS reassigned personnel from support services to the Firefighting Division to maintain essential operations. The resulted in the reduction of staff in the Training Division, Communications, Prevention, Maintenance, and most other areas of the department.

The reduction of staffing in essential non-emergency divisions has contributed to the deterioration of the Department's infrastructure, including fire apparatus, facilities, and other support services. It is now recognized that the neglect of essential non-emergency services has impacted on emergency service delivery because fire equipment is not dependable or disabled, and unavailable for response.

The reassignment of much support staff to the Firefighting Division created additional problems. Divisions such as Communications, Training, and EMS must be staffed for the Department to function, so the Firefighting Division has become the staff pool drawn upon for employees to assign to other divisions on temporary duty.

It must be recognized that to keep an emergency response agency the size of DCFEMS, essential non-emergency support services are just as important to the ability of the department to function as hands-on service delivery.

## **Apparatus**

There are a number of major problems about the firefighting apparatus. The apparatus replacement program, or lack thereof, is a major and long-standing weakness in the DCFEMS. The blame for the present situation can lie both with the District government for failing to adequately fund an apparatus replacement program and the DCFEMS for a history of poor management and performance of apparatus repairs and planning. Deficiencies were noted in every respect of the apparatus program. In fairness to incumbent managers, many needs are well-known, and requests for assistance are documented. Until the last two years, the apparatus maintenance function was under the

direct authority of a Deputy Chief. This position was recently downgraded to a Battalion Chief. Despite the high-level oversight, the poor results speak to a legion of systemic problems both within and outside the Apparatus Maintenance Division and a history of ineffectual management.

**Record Keeping** – There is a crying need for computerization of apparatus records. Critical information on unit in-service time is essentially unavailable since it is not recorded in a computer database. Almost all key documents are filled out by hand and kept in paper form. There is no computerized apparatus or fleet maintenance software that could track repairs and maintenance expenditures by apparatus, mileage, and age. A computer network is scheduled to be installed, but progress has been very slow. Automation in processing of work orders, parts inventory, and analysis is badly needed. Given the critical nature of apparatus problems, high priority should be given to implementing a maintenance MIS and the staff support needed to get the record system running with data back to the beginning of the fiscal year, at a minimum.

**Reserve Apparatus** – A reserve apparatus by definition is one that replaces another in need of repair or service in order to insure continuity of service. This department has no reserve fleet to speak of. While their vehicle inventory shows some reserves, in reality there are none functional. Attesting to this fact is the almost daily need to shut down fire companies simply because there are no replacement vehicles. A reserve fleet must be created and maintained to the point where no unit has to be placed out of service due to mechanical difficulties. There are generally accepted fire service guidelines for the ratio of front line fire vehicles to reserve apparatus. The National Fire Protection Association (NFPA) recommends that the number of reserve apparatus be 25-33 percent of the number of front-line vehicles. Consideration should be given to exceeding these general guidelines due to the extreme wear and tear caused by the high number of responses made by several of District of Columbia units, the poor condition of the street network and the current poor condition of the fleet in general.

**Fleet Age and Reliability** – A related area of concern is the state of the Department's vehicle fleet in terms of age and reliability. An aging fleet will obviously demand more service and maintenance. As the fleet has aged, the demand placed on the

apparatus in terms of response workload has increased. This dictates increased maintenance expenditures. Historically, the Department had a viable apparatus replacement program but due to budgetary considerations and/or adjustments it was not fully implemented and even ignored. Recently there has been attention to funding replacements, but a reasonable, long-range apparatus replacement plan remains to be developed if the District of Columbia is to solve or remedy this problem. It is likely that acute needs for apparatus will persist for several years even under an ambitious replacement plan. Emergency action to obtain equipment may be necessary. Leasing or rental might be considered to meet short-term needs. (The ambulance fleet will be addressed in the EMS Chapter 4: it now does have a reasonable replacement plan.)

**Vehicle Maintenance** – Yet another area in need of redress is the extended out-of-service time a number of vehicles experience for maintenance. Initial inquiry into this problem produced simply incredible findings. The steps in the procurement process for routine repairs, the lack of preventive maintenance, and the limited capability of some of the mechanics in the maintenance division combine to produce long delays in returning vehicles to service. Turnaround time for a purchase order was often in excess of 50 days, according to department records. No improvement has yet been noted since reforms in procurement associated with the Authority have been in place. Part of this problem is due to suppliers who will not give credit or only limited credit to the District of Columbia due to past poor performance in paying bills.

As an example of excessive delays in repairing apparatus, Truck 3 went to the shop on January 30, 1996 and remained there until July 7, 1997. Regardless of the extent of actual repairs that this vehicle needed, this time span is inordinate and should be considered totally unacceptable. There was no Truck 3 for seventeen months. Its personnel were utilized to fill in elsewhere, but that is hardly a good solution to the overtime problem.<sup>1</sup>

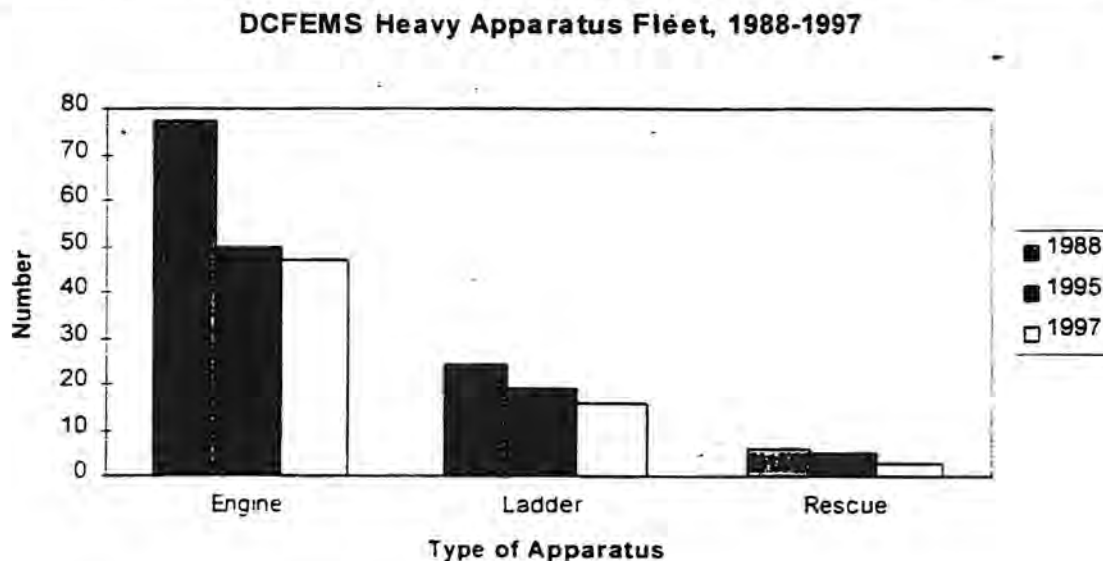
Another key issue to bear in mind when evaluating the apparatus maintenance function is the reduction in the size of the heavy apparatus fleet. From 1988 to 1997, the numbers of engines, ladders, and heavy rescues fell from 107 to 66 units (See Figure 5-

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<sup>1</sup> The importance of this reduction in coverage of Truck 3 remains to be determined.

1).<sup>2</sup> This was primarily a result of the abandonment of the second pumper used in the two-piece engine companies and the general depletion of the fleet's reserve apparatus. At the same time, the staff for the Apparatus Maintenance Division (AMD) was reduced only slightly. What should have been an improved environment for maintenance – a smaller fleet – did not result in improvements. The continued deterioration of the fleet and the persistent complaints of the limited capability of in-house mechanics are cause for extreme concern. The current Chief in charge of the AMD is reporting some success in enforcing standards of the District Personnel Manual on problem employees, but this is a time-consuming process not likely to bear direct improvements in the near term. (This issue is further discussed in Chapter 9, on Services.)

**Figure 5-1.**



**Vehicle Accidents** – Another contributing factor to the extensive out-of-service time for apparatus is motor vehicle accidents. These accidents range in causes from striking stationary objects to failure to obey procedures for vehicle operation, causing damage to the vehicle. In several cases, fire department apparatus have struck each other, taking two pieces of apparatus out of service. While identification of reforms is the next

<sup>2</sup> Analysis of DCFEMS Vehicle inventories.

phase of the project, it is clear that additional driver training is needed within the Department (a potential quick fix). Fire apparatus operators receive initial training in the Fire Academy (30 hours). This training covers driving of engine companies and tillering of ladder companies. There is little or no training on vehicle operation or preventive maintenance. Training continues on-the-job, whereby new firefighters practice driving and vehicle operation under the supervision of their company officer. Eventually the driver is cleared to drive to emergencies. A formal written and practical testing process for the position of Technician is given at the Training Academy. (Agreed to in September through collective bargaining was the initiation of an independently certified vehicle operators training program in the near future.)

Licensure is subject to the laws of the home state of the firefighter. Of the metropolitan jurisdictions, only Maryland requires special licensing for operation of fire apparatus. The lack of computerized records makes a study of safety versus the licensing status of the operator very time intensive.

Nonetheless, there clearly appears to be an accident problem within the Firefighting Division. There were reports that many accidents result in no penalty for the operator. This is both an operational and a liability concern for the Department. The trend in accidents is shown in Figure 5-2. Table 5-1 lists the 1996 apparatus accidents by type of apparatus.

Figure 5-2.

DCFEMS Motor Vehicle Accidents, 1991-1996

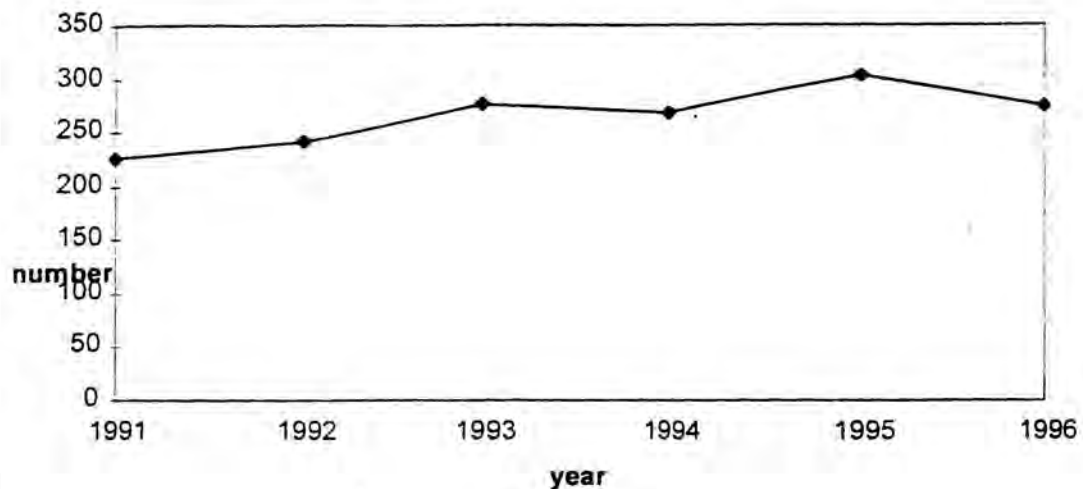


Table 5-1. DCFEMS Apparatus Accidents by Type of Vehicle, 1996

Vehicle Type	Number of Accidents
Passenger Vehicles (EMS Supervisor and Chief Officers)	20
EMS units	105
Engines	86
Ladders	40
Rescue	8
Other Divisions Vehicles	15
<b>Total</b>	<b>274</b>

## Response Times

An extremely critical aspect of fire suppression is response time. That is the elapsed time between when a call for help comes into the communications center, and the time fire suppression units arrive on the scene of the emergency. The primary factors that determine response time are the number and location of fire stations throughout the City. A first-order analysis indicates that the present deployment of engine and truck

companies provides reasonably adequate coverage of the District of Columbia. However, based upon a number of interviews and initial observation and evaluation by TriData team members, some modifications in the location of selected fire suppression units appears to be worthy of more in depth study.

A detailed study of station and unit location (the RESO study) was undertaken in-house two years ago by an operations researcher attached to the Department. This study was predicated on a cutback scenario in which the number of companies was to be reduced to meet a potential major budget reduction. Despite what appears to be a valid methodology, the study does not have the confidence of the Department and its validity is widely perceived to be questionable. A full review of this study would be worthwhile. (It cannot be done in three weeks.)

A review of actual response time statistics for each firefighting company reveals a number of contradictory trends. The portion of response times from dispatch to arrival on scene increased by an average of 30 to 45 seconds for fire calls from FY94 through FY96, but appear to be returning to their 1994 levels in FY97 YTD.<sup>3</sup> Average response times from call to scene, which include call processing time by communications personnel, appear to be increasing for fire/rescue (mainly EMS) calls, and staying stable for structure fires. This indicates that call processing for EMS calls has slowed by about 40 seconds over this period. Reports by company and platoon for August 1997 are inconclusive. Further research and verification will be necessary to assure that this data is valid. At present, discerning trends from variations caused by communications procedures, local idiosyncrasies in response areas, and differing reporting criteria over time is difficult. (This is a major area for follow-up in subsequent tasks.) There are some large variations in the response time for the same company between platoons, as well as some data that looks shaky (e.g., a "6:60" response time for E26).

**Fire Stations** – Firefighters reported – and we saw – numerous deficiencies in the state of station repair. Leaking roofs, inoperative air conditioning and burned out lights were common. Poor ventilation of vehicle exhaust fumes are the rule within the Department. In many cases, station maintenance has become a function performed by on-

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<sup>3</sup> Historical Summary of Fire and EMS Demands for Service Dated 9-8-97.

duty firefighters at their own expense. Repairs of all kinds of Department facilities have been delayed or neglected to the point where living conditions in some stations approaches the unacceptable. This came as no surprise, as reports provided the project team included an extensive inventory of needed or pending repairs and/or upgrades to fire stations and other Department facilities. Firefighters should not be expected to make station repairs to the extent they do now. They are only doing them in the interest of self-preservation as opposed to comfort. A case was cited where portable electric heaters were used to heat the station for a long period due to an inoperative permanent heating unit. Something must be done and done soon to address this continually deteriorating situation.

Many recent lighting problems in the station and other departmental facilities were attributed to long-life energy-efficient fixtures installed recently by Pepco. We understand that these fixtures malfunctioned within months of being installed. While this might seem a minor issue, it is a major aggravation to personnel and creates a safety hazard at the same time. It is hard to believe that Pepco is unable to assist the DCFEMS in offering some form of correction for this project gone wrong.

**Station Supplies** – Station supplies is another area suffering from long term delay and/or avoidance. If firefighters are expected to spend a twenty-four hour shift in a building, that building should contain the basic amenities. Firefighters should not have to be pleading for toilet paper, paper towels, cleaning materials and many similar items. There is a long standing problem in getting timely processing of orders for supplies and equipment. A more responsive approach to this supply need must be developed and implemented.

**Underground Storage Tanks** – There are a number of underground fuel storage tanks and related piping associated with fire department facilities that must be removed, rendered inert or upgraded by December 1998 as directed by the U.S. Environmental Protection Agency. While the Department has not been officially cited, it must comply by the deadline imposed. There is no alternative to full compliance. A serious inter-departmental concern arose when estimates for doing this job were considered. The Department of Public Works indicates that they need \$1,000,000 to do this work, but the



Fire and EMS Department received independent estimates to do the same work for \$340,000. The \$1,000,000 cost, if paid to the DPW, would be charges against the fire department's funding. Consider what the department could do with the \$660,000 savings realized by contracting out this work.

A number of specific DPW overcharges similar to the one cited about surfaced during our interviews. The estimate given by DPW to remove three tanks from a particular fire station was \$65,000. The higher of two independent bids received by the Department for the job was \$11,126. The disparate dollar figures suggests a systemic problem or deficiency that merits further review. In another case, the DPW charged the Fire Department for many more hours than they spent doing a job at a station. The ability of the Department to contract with outside firms to do maintenance must be strengthened.

*Computer Support at the Station Level* – A clearly identified shortcoming in the Firefighting Division, as in the whole Department, is the absence or inadequacy of computer capability. It was singled out as a hindrance in almost every station interview conducted, and considered a serious obstacle to efficient performance and data collection. Fire station personnel complained of having to type or write by hand a variety of departmental reports. As an example of archaic and duplicative practice, information is retained by the companies on EMS calls in a handwritten logbook, a computer response report and a handwritten EMS incident report. This does not reflect the actions of a fire department that desires to be "world class."

## **Personal Protective Equipment (PPE)**

There is no ongoing protective equipment replacement program within the Department. Firefighters report they have gear that is in need of replacement, as confirmed by a Battalion Chief inspecting that gear, but no replacement gear is available. Many firefighters continue to use defective or worn out equipment in spite of its questionable serviceability and safety. Some go out and buy new gear on their own. This is a major area of concern for personnel safety and a serious liability exposure for the District Government.

A second critical protective equipment issue is that the testing of the compressed air cylinders used on self-contained breathing apparatus is way behind federally-mandated inspection and testing schedules. While probably not an acute hazard, this situation should be brought into compliance with legal requirements as soon as possible. Similarly, the maintenance program for the Department's SCBA should be audited for compliance with manufacturers and regulatory requirements. Improper maintenance has been identified in a number of SCBA failures leading to injury to firefighters in other cities.

## **Personnel Hiring**

Fire personnel are drawn from an intake list based on competitive examination. They are then put through a basic training course, certified as Emergency Medical Technicians, and qualified to the Firefighter II level based on standards established by the National Fire Protection Association (NFPA). After serving a one-year probationary period and successfully completing an examination, they become full fledged Firefighter/EMTs.

The biggest concern with the current hiring process is the excessive amount of time that the list for firefighter hiring has remained active. In order to avoid the expense of administering a new test, the lists are allowed to remain in effect almost until they are completely exhausted. Offering employment to everyone who passes the entrance examination defeats the purpose of the examination's selectivity. The current list has been in use since 1989 – eight years.

## **Supervision**

A Captain or a Lieutenant normally staffs all the engines, ladder companies and rescue squads. The Captain functions as a platoon supervisor and is responsible for the station and coordinating the three other platoons that are supervised by a lieutenant.

The department also has a Sergeant rank, which is a first level supervisor who is used within a battalion primarily to fill in for platoon supervisors on leave. The

Sergeants also are responsible for delivering in-service training for the battalions. We have reviewed the need for a sergeant position, something not used by most departments. (Few have all three ranks of sergeant, lieutenant, and captain). We have not reached a definite conclusion, but think that there are extenuating circumstances in the Department for use of this rank. It appears to be a reachable stepping stone for the advancement of some firefighters who might otherwise consider taking the step from firefighter to lieutenant as too formidable.

Emergency operations such as firefighting and rescue operations require adequate supervision for safety. The span of control in the Firefighting Division is one officer to three firefighters on engines and ladder companies and one officer to four firefighters for rescue squads and some special units. This span of control is consistent with appropriate supervision for fire and rescue emergencies.

*Standing Watches* – A relatively minor point – it was not evident why DC continues to have station personnel stand watch at night. It disrupts sleep needed on the many busy units. The watchperson often dozes. The units could be alerted by the dispatch system, phone, or other means.

## **Mutual Aid**

The DCFEMS has traditionally not relied upon automatic mutual aid with surrounding suburban jurisdictions. (Automatic mutual aid is where the closest emergency units are dispatched regardless of jurisdictional boundaries.) The department has resisted mutual aid assistance except for specific incidents. All of the Washington Metro jurisdictions with the exception of DC have used automatic mutual aid for emergencies, with success.

The DCFEMS should reconsider automatic mutual aid with its surrounding jurisdictions. This could reduce response times and keep units available in the core of the city. The suburban departments are generally well equipped and receive or surpass the same national training standards used by DCFEMS. The surrounding fire departments

are nationally regarded and several are considered world-class, with units that have provided mutual aid nationally and abroad.

## CHAPTER 6 – SPECIAL OPERATIONS

Special operations is a new section in the Firefighting Division created in August 1997 to coordinate the following technical operations:

- Hazardous Materials Operations
- Rescue Operations (including confined spaces rescue, high angle rope rescue, water rescue, collapse rescue and vehicle rescue)
- Metro Operations
- Rail Operations
- Foam Unit Operations
- Fireboat Operations
- Counter Terrorism Planning and Operations

The organization of the special operations under a single battalion chief is a very positive step towards the efficient delivery of these services. Special operations are inherently the rarest of emergency incidents, yet pose the greatest danger to emergency responders and require the highest levels of technical skill and competence to safely perform. The combined training of firefighters and the EMS Bureau personnel on Medic 17 and ALS 3 (an EMS supervisor vehicle) is an example of efficient resource utilization, and a model for cooperative and combined operations between EMS and fire in the fire department.

The role of this unit is excellent, but logically might include two more functions: 1) fire, EMS, and rescue services coordination for special events in Washington DC, such as marches, parades, and demonstrations, and 2) coordinating fire, EMS and rescue protection for dignitaries. The unique position of the President, senior members of the federal government and visiting foreign dignitaries place a special demand on the DCFEMS not shared by other departments. The coordination for these functions is currently split between EMS and Fire Operations. Coordinating the protection through a single staff officer in Special Operations will give law enforcement agencies a single contact point and increase the likelihood that they will pass on intelligence gathered on

threats that would require a response of special operations resources. (A problem in counter-terrorism and other protections.)

**Budget** – Provisions have not yet been made to provide this section with a budget. The Special Operations continues to function only on the basis of \$40-\$50K in grants from the Office of Emergency Preparedness and the assistance of federal agencies such as the U.S. Secret Service. The Special Operations officer should develop a budget plan for personnel, training, equipment and apparatus and should track actual expenditures. This will help serve as documentation for grant procurement for additional resources; documentation of costs recoverable from the federal government or others for special events and assistance to the federal government, as well as cost recovery for hazardous material incidents or other large incidents.

**Mutual Aid in Special Operations** – Procedures for the use of mutual aid resources should be more thoroughly developed. Large scale incidents often exceed the capabilities of one department. The DCFEMS needs to develop the procedures to call upon mutual aid resources for special operations incidents. Needed technical and hazardous material equipment is not available, hampering the ability to safely perform operations, such as a lack of up-to-date and intrinsically safe confined space rescue equipment, including supplied air breathing apparatus with an air cart, and monitoring equipment, as an example.

## **Apparatus**

The Special Operations Division consists of three Rescue Squads (1-3), the Hazmat unit, E-12 (Hazmat), T-4 (Hazmat), E-15 (Collapse Response), Medic 17, and Battalion 1. All of these are fully staffed.

- The apparatus assigned to the rescue squads is in poor condition. Compounding that situation is the lack of a backup unit available when one of the rescue squads is out of service. Although the specialty units are not used as frequently as most other fire apparatus in Washington, they are still some of the busiest units in the country. When activated, they often operate on long

duration incidents. It is necessary that specialty apparatus receive prompt repairs, are replaced in a timely manner at the end of their service lives, and have a reserve unit available.

- The elements of the special operations need reliable support vehicles to transport rescue materials to the rescue site. The large amount of equipment necessary for technical operations is far greater than the amount that can be stored on any rescue squad vehicle. Each rescue squad therefore carries only enough equipment to start an operation. Additional equipment is then brought from storage areas to the scene. The collapse response team (Rescue Squad 3) does not currently have the ability to bring additional equipment such as lumber and shoring materials to the scene of an incident. The Hazmat team needs a large support vehicle in addition to the rescue squad. The efforts to procure federal surplus vehicles to carry this equipment have been stopped by the DC fleet maintenance division. It is essential that the appropriate transport equipment be obtained. Otherwise, the support equipment will simply not be available for use. Presently, private contractors are depended upon to transport these materials during an incident, but this system is not timely enough for life-threatening emergencies.
- The DCFEMS is taking delivery of two Rescue Engines this year. It has not been made clear whether these units will be assigned to special operations or what kind of specialized training their personnel will receive.

## **Equipment**

Special operations require the use of a wide variety of tools and equipment to mitigate incidents. There are many shortcomings with the available equipment. Needed technical rescue and hazardous material equipment is not available, hampering the ability to safely perform operations. For example, state-of-the-art safe confined space rescue equipment including specialized breathing apparatus with exchangeable air supply, above ground and emergency backup supply for rescues as well as air monitoring instruments should be available for safe operations.

- Vehicle rescue equipment such as the hydraulic rescue tools (“Jaws of Life”), air bags, and electric tools are in need of repair, replacement and routine servicing. Department members at each of the three rescue squad spoke of paying for repairs out of their own pockets.
- Specialized equipment needs to be repaired or replaced in a timely manner. Presently, this is not done because of problems with the procurement system. The equipment that has recently been purchased has been obtained through donations and grants sought out on the initiative of the members of the department.
- The rescue companies continue to function in part because the crews are paying for or making repairs to emergency equipment themselves when it breaks. They are doing everything from fixing broken hydraulic lines on Hurst (“Jaws of Life”) extrication equipment to paying for gasoline to run the power units. In one case, a group of firefighters paid a repairman working on the backup generator at a firehouse with their own money to perform emergency repairs on a broken generator in one of the fire squads. Crews are procuring their own hand tools such as axes, forcible entry equipment, pike poles and gloves, helmets, and boots, pliers, screwdrivers, wrench sets, etc.
- The number of types of specialized personal protective gear is currently inadequate. Special operations require different protective clothing than firefighting gear. Hazmat team personnel need flash fire protection such as fire-resistant jumpsuits to wear under their specialized gear. All rescue squad personnel should be afforded this level of protection for all their operations. In addition to these jumpsuits, firefighters assigned to the special operations should receive personal protective clothing consisting of a rescue helmet (fire helmets are bulky and inadequate), goggles, hearing protection, elbow and kneepads, and work gloves. A single major injury or several minor injuries to personnel will cost more than the initial cost of providing industry standard of



safety equipment. Also, as detailed later, the Hazmat unit has an insufficient number of specialized protective outfits.

- The Hazmat unit requires a second cellular phone, a hardened laptop computer, and a portable fax/copy machine to facilitate communications during Hazmat operations such as the B'nai Brith "anthrax" incident, where information was requested from experts from around the country.
- The Hazmat team had determined that their newly purchased communications equipment for the encapsulated suits does not operate to their needs.
- Carbon monoxide meters should be purchased for all truck companies in the city. Currently, the Hazmat unit has the only CO meter in the city, increasing its responses to numerous false alarms all over the city and decreasing its availability for other emergencies and training.
- The Special Operations are in dire need of improved lighting equipment and a generator for night operations. (This could be coordinated with a similar need at the Training Academy.)

## **Staffing**

The Battalion Chief in charge of special operations was promoted into this newly created position two weeks prior to the start of this review. He had previously served as a Captain in various special operations functions within the department, and has the appropriate background and experience to command these operations.

Each rescue company (including the Hazmat Company) is staffed with five personnel. All assigned personnel are trained for confined space rescue, structural collapse rescue, trench rescue, rope rescue, Hazmat level 3 and vehicle rescue. They are also tasked with water rescue, but received no water rescue training, and do not train with

fireboat crews.<sup>1</sup> On fires, the rescue squad's primary responsibility is the search and rescue of trapped victims in buildings. The crew divides into two teams, one going to the fire floor and one to the floor above to search for victims. The Rescue Squads function as very effective teams on fires.

Staffing problems include the following:

- Personnel detailed to a rescue squad, for fill-in purposes when a regular squad member is out are not required to have any technical rescue training to be detailed to the squad. There are no clear provisions for detailing members of one squad to another or for hiring trained personnel on overtime. (The engine crews in the rescue company stations might be utilized to provide back-up personnel for the squads as well, if they received some basic training in the technical rescue operations.) The engines often respond with squads anyway.
- The current selection of rescue squad personnel requires a long process in which candidates ride with the company for a 90-day trail period and evaluation by the squad officer. The officer must evaluate several candidates, and it therefore takes about one year to fill a vacancy. During this time, the squad is effectively down-staffed to four trained rescue personnel, because the untrained candidate is used to make up the fifth position, rather than assigned as an additional person for evaluation. Rescue incidents are frequently high risk situations for the rescue team as well as the victim. Not having a fifth trained person and having to look after an untrained person can reduce effectiveness and increase risk. The assignment of personnel to the newly formed special operations bureau, and a revised selection process for the division presents an opportunity for change. Personnel within Special Operations are considered the fire department elite. Provisions should be made for close scrutiny of applicants for transfer to these units. Most Special Operations personnel are very dedicated, but some have requested to be

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<sup>1</sup> The last DC firefighter killed in the line of duty was a rescue squad member who died of an aneurysm in 1987 during a water rescue drill. They have not trained for water rescue since.

assigned that duty simply because they desire to go to slower units at a later stage in their careers.

- Additional recognition such as a special operations uniform insignia or patch would help morale in these units, after the long training and selection period. EMS members of the Special Operations units should not be overlooked and be issued the same uniform insignias.
- The Special Operations Battalion Chief has no permanent position assigned to assist him with his numerous duties. It is too much for one person to coordinate all of these functions. A Special Operations staff should be developed, with an officer to coordinate the hazardous materials team and an officer to coordinate the technical rescue disciplines (collapse, trench, confined space, rope and water rescue). These officers would assist the Battalion Chief in recruiting and training personnel to the section, keeping track of resources, and planning for incidents. Another officer would coordinate special events and dignitary protection, (possibly an EMS officer). In light of the unique threats posed by terrorists to the Nation's Capital, the department should also consider a full-time staff officer positioned to coordinate response plans for counter-terrorist operations and response. This position would logically fall under the special operations Battalion Chief's responsibilities. The coordination of the sub-specialties might be the assignment of one of the officers in each unit.

## **Training in Special Operations**

Special operations require a great amount of training due to the technical nature of the incidents and amount of equipment involved. Progress is being made in training the Special Operations companies to bring them up to national standards. There is still a need for more training, especially increased cross-training among the rescue squads, and mutual aid training with other jurisdictions. Currently each Rescue Squad gets 4 hours of training each month for rescue squad operations, an inadequate amount of time to handle the continual training and re-certification that these skills require.

All personnel in the fire department are trained as Hazardous Material Level 2 (Operations Level) responders. Members of the Hazmat unit, Engine 12, and Medic 17 are cross-trained for confined space, trench collapse, and structural collapse response. The rescue squads are also tasked with vehicle rescue within the city and rescue of trapped victims or trapped firefighters. At the time of this review, the department was preparing to train all firefighters in the 1<sup>st</sup> Battalion to the Level 3 (Hazmat Technician Level) to assist with scheduling and to provide a large pool of responders available for terrorist incidents. Fireboat personnel receive specialized training in water rescue.

- Funding for training should be provided in the Special Operations budget. Presently, the department training is limited and funded through grants.
- The rescue squads currently respond to water rescue incidents but do not have any training and only limited equipment. Plans were underway at the time of this report to provide some water rescue training to squad personnel. The Department should consider using the fireboat personnel to assist in training members of the rescue squads to respond to water emergencies.
- Vehicle rescue training needs to be brought up-to-date for all rescue squad crews. Budget limitations and broken equipment have limited this training.
- The rescue companies do not get the opportunity to cross-train with each other, yet are supposed to back each other up during technical emergency incidents.
- General awareness training and SOPs for all first line engine and ladder companies need to be developed. Rescue companies are sometimes not dispatched initially on most technical rescues; the first arriving companies then attempting to improvise rescues without calling on available resources, possible in violation of OSHA rules. Commanding officers have varying knowledge of the capabilities and uses for each of the rescue companies. For example, a 911 dispatcher might send an engine company to a report of a

“man in a hole” and the engine crew may not have the training to realize that they are facing a confined space rescue requiring the response of a special operations team.

Cross-Departmental SOPs and Training for Special Operations – The department does not have adequate training for dispatchers in the communications division for the dispatch of special operations resources. There is also inadequate first-response training in special operations for all companies that might be the first to arrive on the scene of an incident requiring technical or other special operations. The department lacks written Standard Operating Procedures (SOPs) for the range of special operation responses. The consolidation of the unit is new but not most of its functions.

## **Special Operations Companies**

The following are detailed comments on each specialized unit:

**Rescue Squad 1** – Rescue Squad 1 is located in the downtown area of Washington, and is the designated high angle (rope) rescue company. It uses a 1993 E-1 Heavy rescue vehicle. While it is in the best condition of any of the rescue company apparatus, the body is coming apart in the rear, and there are problems with the frame and springs. The rescue vehicle may be scheduled for rehabilitation next year, only five years into its service life.

Rescue Squad 1 has more and better conditioned equipment than the other rescue squads in the city. This is largely due to the initiative taken by the individuals of this company to procure the tools themselves. There is no budget for any rescue squad equipment.

The vehicle extrication tools are old and approaching the end of their service lives. They still work because the firefighters have funded emergency repairs to some of their components out of their own pockets. There is virtually no preventative maintenance and no schedule for the routine replacement of these items. The air bags for lifting heavy objects off of people are at the end of their service lives. The unit has

virtually no electrical or pneumatic tools to back up the hydraulic rescue tools or to facilitate to the rescue of persons from modern vehicles or machinery.

The high angle equipment is up-to-date but in short supply. (There are only four helmets for a crew of five people, for example.) The bags the department purchased to store the equipment are tearing apart, and the firefighters have been forced to improvise, in one case carrying the equipment in a body bag.

The group assigned to Rescue Squad 1 has received approximately 40 hours in rope rescue techniques over the past year, and four personnel were in Arizona at the time of this report receiving instructions as rope rescue instructors. The initial training the personnel are receiving is on par with other jurisdictions, but provisions and time have not been made yet for continual training and maintenance of these technical skills. The personnel also indicated that training was not being delivered consistently by different instructors, and that every time they went to a training session, the procedures changed.

The squad's ability to function as a lead high angle rescue group is improving. The inability to train with other rescue companies means that they are on their own, however, if a protracted and manpower intensive incident arises. Additionally, they have not yet developed standard operation procedures for rope rescues.

***Rescue Squad 2*** – This unit is located in the uptown area of Washington on Georgia Avenue. It is the designated confined space rescue company.

Rescue Squad 2 is running a rescue vehicle that was the reserve unit. It is in poor condition and has over 141,000 miles. They are schedule to get a rehabilitated rescue squad on a brand new chassis (donated by Freightliner/Mercedes Benz) as soon as the department released funds to the manufacturer that performed the rehabilitation. (A \$36,000 fee is needed to finish a \$200,000 + vehicle that was donated.)

The firefighting tools on Rescue Squad 2 are in the shortest supply of any of the rescue companies. The unit is short one portable radio. Several SCBAs were lacking

PASS alarms. The generator on the reserve unit was broken, and the unit has virtually no lighting for night operations or to support fireground operations.

Vehicle extrication tools are old and approaching the end of their service lives. They still work because the firefighters have funded emergency repairs to some of their components out of their own pockets. There is virtually no preventive maintenance and no schedule for the routine replacement of these items. The air bags for lifting heavy objects off of people are at the end of their service lives. The unit has virtually no electrical or pneumatic tools to back up the hydraulic rescue tools or to facilitate the rescue of persons from modern vehicles or machinery. Rescue 2 is short on wood cribbing to stabilize vehicles and has virtually no means to secure a vehicle that has been overturned.

The confined space equipment was severely deficient. Personnel continue to use standard fire department one hour SCBA bottles for confined space entry, which are bulky and do not provide a continual supply of air. Some of the SCBA bottles have expired hydrostatic tests dates. The unit does not have an air monitor to do air sampling and must wait for the arrival of the Hazmat unit during an incident. Their confined space ventilation equipment consists of an old electrical smoke ejector. The unit does not have up-to-date, intrinsically safe equipment. The Battalion Chief in charge of Special Operations was attempting to procure this equipment via grant funding.

The personnel assigned to Rescue Squad 2 have received training in confined space rescue, but have not done cross-training with the other rescue squads that serve as their back-up. The detailing of untrained personnel into the squad companies reduces their ability to function for confined space rescue.

The squad's ability to function as a lead confined space rescue group and to meet the OSHA confined space standards is suspect at this time due to equipment shortages. They have not yet developed standard operating procedures for confined space rescues, and the other companies in the fire department are not always aware of their capabilities, not is there a clear policy for dispatching the company to confined space incidents.