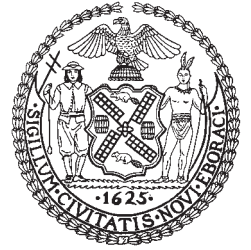


# Building a Better FDNY

The Rudolph W. Giuliani Administration

January 1, 1993-December 31, 2001



## Introduction

There is an often-repeated story among the former members of a Brooklyn engine company about the old-timer who would make an occasional visit to quarters in the early 1970s. The old-timer, a retired Firefighter, felt the need for a cup of firehouse coffee every now and then, along with the camaraderie of the firehouse kitchen. The old-timer would speak fondly of the days gone by and express his concerns about how things had changed over the years. The tradition of this story is that the old-timer would always end his reminiscences with the same lament: "The job has been going downhill ever since they got rid of the horses!"



Most members of the New York City Fire Department can relate to this story and the feelings of the old-timer. The FDNY is an organization with a proud history and an impressive record of achievement. Its members are steeped in the traditions of the Department and they share a sentimental appreciation of the "old days." At any gathering of two or more members of the Department, the opening of many conversations begins with the familiar words, "Hey, remember the time...?" Nostalgic feelings for the past are always present in an organization such as ours. These feelings are more prevalent at the present time as the world has just embarked on its journey into the 21st century.

The FDNY, while enjoying fond memories of the past, has--by necessity--always looked ahead to the future. The arrival of the new century and the new millennium heralded changes within the Department, but these changes did not happen overnight. Firefighting on New Year's Eve 2000 did not differ from that on New Year's Day 2001 in any dramatic way. However, January 1, 2001, marked a clear delineation point between the FDNY of the past and that of the future. It gave us a point at which to take stock and evaluate where we had been in the 20th century and where we would be going in the 21st.

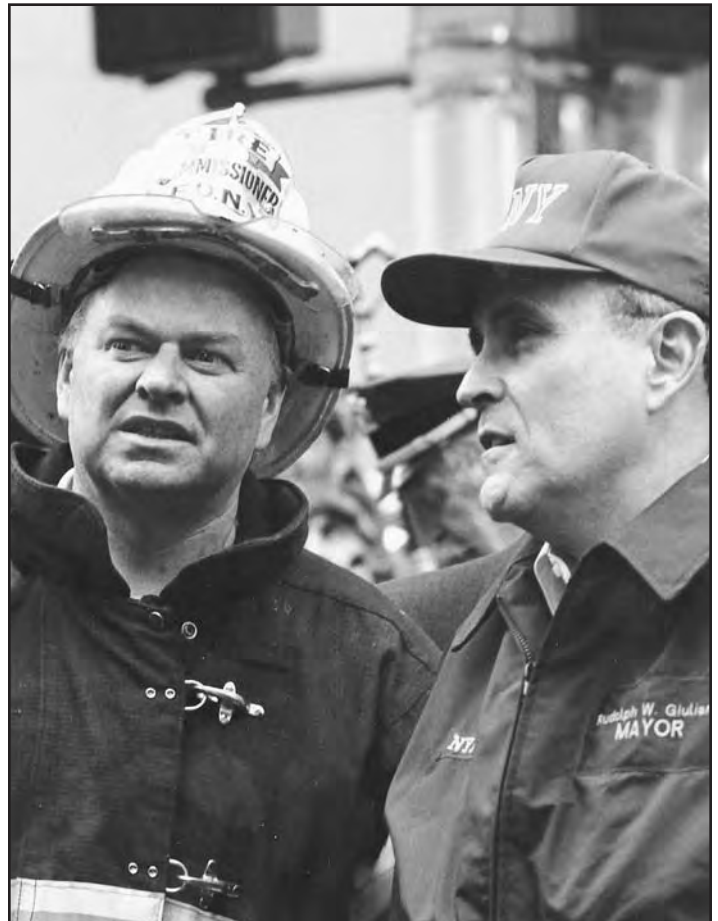
The FDNY's entry into the new century did not coincide with the popular excitement of "millennium 2000." Preparations for the Department's progress took shape and form over the better part of the past decade, coinciding with the mayoral administration of Rudolph Giuliani. The Department was faced with its traditional challenge of protecting the life and property of the people of New York City, as well as providing its Firefighters with the best and most modern means available for accomplishing that task.

Mayor Giuliani also saw the need for strong and competent leadership of the Fire Department in order to meet the challenge. He selected Howard Safir (1994-1996) and Thomas Von Essen

(1996-present) as Fire Commissioners during this time of change. Both Commissioners were dedicated to maintaining the FDNY's high standards.

Additionally, both were intent on carrying out the Department's traditional mission, while investigating new ideas and procedures simultaneously. Commissioners Safir and Von Essen focused on several key areas during their administrations. At all times, the priorities have been to more efficiently serve the populace of New York City, while providing for the safety and well-being of its Firefighters. Some of the areas that have undergone development and improvement during this time are training, health and fitness, education of the public, oper-

ations, safety, technology, capital improvements and legislation and law enforcement. The past decade has been a time of change for the FDNY--change like no other time in its history and change for the better. Details on these improved areas follow.



# Operations

During the past decade, there have been many innovative and important changes that directly affect Firefighters on the fireground. The Department continues to adapt its equipment, fire tactics and procedures to meet the demands of providing the best fire protection possible.

One of Rudolph Giuliani's first moves as Mayor was to reopen Engine Company 294 in the Richmond Hill/Woodhaven section of Queens on March 6, 1994. Since then, Ladder Company 133 has been opened. This much-needed company was established in the South Jamaica/St. Albans section of Queens, which, at the time, was the highest fatal-fire community in the City. Plans for yet another new Engine Company in Staten Island are set for 2002.

There also has been an emphasis on specialized units in recent years. On July 1, 1998, five Engine Companies were designated as

Squad Companies after its members were trained as such to bring the total number of Squads, under the Special Operations Command, to seven. The new (and old) Squads retain their original function of being able to go into action as either an Engine or Ladder Company at a fire. Additionally, their members receive intensive training in Ladder Company operations, haz-mat mitigation and decon procedures and a variety of rescue skills, such as confined space operations and high-angle rope rescue.

In that same year, a new Special Operations Command Battalion was established to oversee the expanding role of special units at incidents concerning hazardous materials, chemical/biological threats and confined space and high-angle rescue. The SOC Battalion is responsible for five Rescue Companies, seven

Squad Companies, three Marine units and one Haz-Mat unit, as well as the Tactical Support, De-Watering, De-Con and Recuperation and Care (RAC) units.

In 1996, Auxiliary Rescue Craft (ARC) went into service within the Marine Division. These two-Firefighter boats patrol the City's recreational waterways during the months of May to October. Since going into service, these units have responded to fires, marine accidents and water rescues. This year, Department medals were awarded to two members operating on these auxiliary craft for the rescue of four people, one mile off the Coney Island shore. The Department has ordered two new 80-foot fireboats to be added to the Marine Division's fleet.

New tools and equipment continue to be tested and developed for use on the fireground. One of the most successful of these is the thermal imaging camera, carried by Rescue, Squad and Ladder Companies. This innovative tool gives Firefighters the ability to "see" fire victims through dense smoke and detect hidden pockets of fire in walls, ceilings, etc. Now, the thermal imaging camera is employed at virtually every structural fire.

Operations on the fireground have evolved for the benefit of civilians and Firefighters alike during the past decade. Now, more units are dispatched to the report of a working fire than had been done in the past. With the transmission of signal "10-75," a Commanding Officer receives two Battalion Chiefs, four Engine Companies, two Ladder Companies, one Firefighter Assist and Search Team (FAST) unit, one Squad Company (if available) and one Rescue Company (if available).

The Firefighter Assist and Search Team (FAST) is, in itself, an important development in FDNY operations. With this procedure, an additional Ladder Company is



The tools and equipment of a FAST Company in readiness at a fire rescue.



Auxiliary Rescue Craft have extended the FDNY's rapid response to the City's recreational waterways.

photo by Lieutenant Thomas P. Van de Kieft



special-called to the scene of a fire upon transmission of the 10-75 signal. This unit reports to the Command Post with a lifesaving rope and life belt, search rope, stokes stretcher and an extra self-contained breathing apparatus (SCBA), in addition to the normal complement of tools. Its function is to be available for immediate rescue of a trapped or injured Firefighter, thus providing an extra margin of safety for Firefighters on the fireground.

Staffing issues have been changed and/or settled during the current administration to the betterment of operations on the fireground. Roster staffing arbitration was settled, resulting in a fifth Firefighter returned to 60 Engine Companies. The quota for Battalion Chief was increased by 21 to ensure more experienced Senior Officers available at the scene of a fire or emergency.

Perhaps the most dramatic change in operations during the past decade is the merger of New York City's EMS system into the FDNY, along with the subsequent responsibility of firefighting units to respond to medical emergencies as Certified First Responder/Defibrillation units. The result is that medical treatment is provided to ill or injured civilians faster and more efficiently than ever before. The worth of the CFR-D program to our members was proved on May 26, 1998, when Firefighters on duty at Engine 268 and Ladder 137 in Rockaway, Queens, saved the life of Captain Frank Liebeck, who had suffered cardiac arrest while at work in quarters.

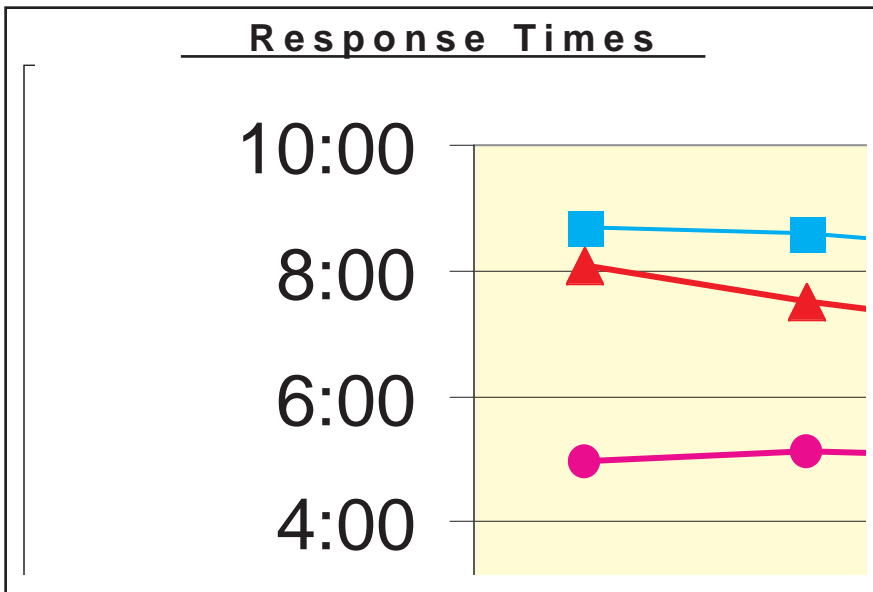
During the fiscal year 2000, the FDNY responded to



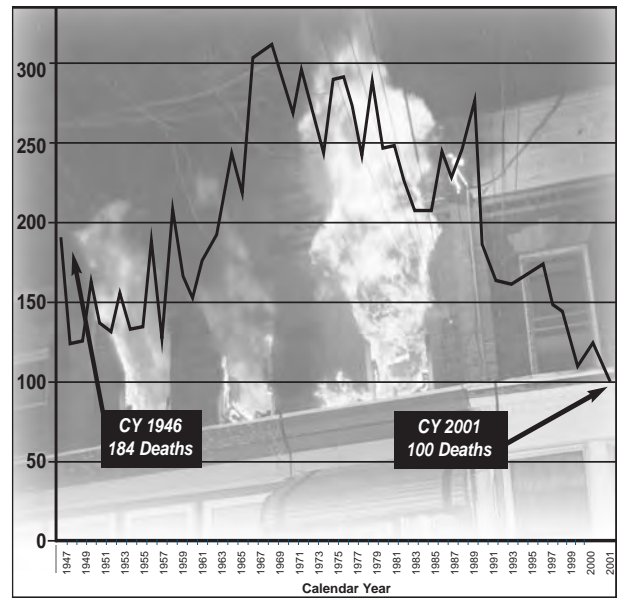
The CFR-D program and the merger of EMS into the Fire Department dramatically have improved emergency health care to the citizens of New York.

1,064,591 medical emergencies. The merger had been a long-time goal of Mayor Giuliani. It went forward in March of 1996. Within six months, 51 additional ambulance tours were added to the EMS calendar. This increased the number of ambulances and experienced EMS crews available to citizens by 10 percent. The Bureau of EMS within the Fire Department family has continued to expand with new ambulances, new EMS stations, reduced response times and renewed commitment to the welfare of the people of New York City.

Fire Department operations continue to change and develop to meet the needs of New York City. The only thing that remains constant is the professional and dedicated service provided by the members of the FDNY to New York City's citizens and visitors.



Ambulance and CFR-D response time chart.



Year 2000 marked another 50-year low in civilian fire deaths.

# Training

Training is one of the most crucial areas in firefighting. It begins when a newly appointed Firefighter enters Probationary Firefighter School and is trained in the basics of firefighting, as well as in being a team player. It continues throughout his or her career as the earlier training is reinforced and refined to keep up with newly developed tactics, procedures and equipment.

During the past decade, the Department's focus regarding training has been on practical, hands-on training in firefighting operations and procedures. Thousands of Firefighters and Fire Officers have benefited from a number of programs geared to

sharpening their skills on the fireground. A daily training schedule is distributed to units every month, with an accompanying resource material sheet to standardize daily drill periods. Innovative drills are encouraged to address areas of critical or immediate concern. The various training initiatives during this time have been successful, in no small part, due to the efforts of line Officers and Firefighters who have developed the training programs

from their own practical experiences and knowledge.

One example is **Search Training**, conducted at the Brooklyn Navy Yard. An Engine and a Ladder Company are brought in from the field from different parts of the City to take part in the search of a simulated fire apartment. Blacked-out face pieces, red lights to simulate fire, noise and radio transmissions add as much realism as possible. Besides the search for "civilian victims," problems such as mayday transmissions for a trapped Firefighter and a partial "collapse" of the hallway are thrown into the mix. The safety concept of "two in/two out" is stressed. Afterward, both companies view videotape of the drill and practice forcing a door using the ax and halligan tool. Usually, the Engine and Ladder Companies swap assignments during this training, with each taking on the traditional role of the other. Firefighters have responded enthusiastically to this program, eager to demonstrate their confidence and skill.

Some of the many innovative training initiatives developed during the past decade follow.

## Training Programs

The **Captains Management Program** was begun in 1995 to help newly promoted Captains adjust to their roles as Company Commanders. In this program, newly promoted Captains were taken from the field for a period of six months to a year, assigned to Fire Department Headquarters and given a particular project to develop. Additionally, the Captains received weekly training in a variety of firefighting and administrative procedures. They

also received familiarization with many aspects of the Fire Department with which they normally would not have had experience in the field.

This successful program produced a number of improvements within the Department, such as the Probationary Firefighter rotation program, development of the Marine Division's Auxiliary Rescue Craft and the Design/Build Program for rehabilitating firehouses throughout the City.

The **Engine Company Back to Basics** program was initiated in 1996 to reinforce some of the most basic and some of the more important tasks of Firefighters on the fireground. This training concentrated on the importance of firefighting in the initial moments of arrival at the scene. The skills of size-up, proper stretching, positioning and operation of hose-lines, the proper positioning of apparatus at hydrants and other basic Engine Company operations were emphasized.

**Tactical Night Training** was begun at the Bureau of Training in order to offer tactical training to more companies on a daily basis, as well as simulate the challenging conditions of



Night training at the Bureau of Training provided Firefighters with the realistic challenge of darkness in its fire scenarios.

fighting a fire at night when visibility is reduced. The training involved a fire scenario with theatrical smoke and red lights to simulate rooms of fire. Engine Companies stretched and operated hose-lines and Ladder Companies performed ventilation, entry and search, just as they do in the field.

Following the scenario, Company Officers had an opportunity to comment on the drill. This training, as in other programs at the Bureau of Training, brought together units from different parts of the City that normally would not have the opportunity to work together in the field. It showcased an excellent mix of diverse experience and techniques on the training ground.

The **Probationary Firefighter Development Program** was initiated with the goal of giving Probationary Firefighters a wide range of firefighting experiences during their formative years with the Department. In this program, the Probationary Fire-

fighter was assigned permanently to a unit after graduation from the Fire Academy. After approximately one year in his or her assigned unit, the Firefighter was detailed to different units for the next two years, with each detail lasting approximately one year in each unit. At the end of his/her three-year training program, the Firefighter returned to his or her regularly assigned unit, pending a review of medical records, evaluations and other performance indicators (e.g., training notebooks). The purpose of this program was to ensure effective training and experience levels during the longer term of a member's career by providing the new Firefighter with an enhanced and varied work experience. This program gives the Firefighter a broader understanding and job knowledge of his or her duties and responsibilities within various units and is an effective confidence builder. The Firefighter learns to operate safely and efficiently in many situations in diverse communities with a variety of building types.

As in all types of training, the **Probationary Firefighter Development Program** is subject to a natural evolution to better meet the needs of the Department and better serve those who will benefit by the training. Recently, Probationary Firefighter training has been increased to 25 weeks, with eight weeks of training in the Probationary Firefighter Academy, a 14-week assignment to a double house and then three final weeks of training at the Academy. While in the double house, the Probationary Firefighter served half of his or her time in the Engine and the other in the Ladder Company. Additionally, Probationary Firefighter rotation has been scaled down from three years to two.

The **Probationary Firefighters Reading Program and Training Notebook** was introduced, along with the **Rotation Program**. It allows Probationary Firefighters to record lessons learned, ask questions and have them answered. It also enables Company Officers to more closely monitor the progress of training for new members.

The **Staying Alive** program was introduced at the Bureau of Training. The program was coordinated by the Evaluation and Training Unit and ran seven days a week. A morning session consisted of a video of a fire response, followed by a chronological review of events, starting with the receipt of the alarm through extinguishment of the fire. The review was followed by a critique of the fire, a "lessons learned" session and a discussion period. An afternoon session consisted of a "simulated fire" in which units used their own apparatus and equipment. Companies were given first- and second-due Engine and first-due Ladder assignments.

Companies at the Bureau of Training for preventive maintenance of apparatus were assigned to fill out the Box and act as Firefighter Assist and Search Team (FAST) units. Captains in the Captains Management Development Program acted as Battalion Chiefs during these drills to provide hands-on experience as Incident Commanders. A variety of scenarios were developed and training buildings doubled for structures, ranging from private dwellings, taxpayers, non-fireproof multiple dwellings and high-rise buildings.

In the course of the drill, a variety of fireground problems were thrown at units. The knowledge, skill and adaptability of members were tested with problems, such as members trapped, multiple civilian injuries, out-of-service hydrants, loss of water on the fire floor, etc. Following the fire scenario, a critique was held. Additionally, Fire Officers filled out a questionnaire,

enabling them to share experience from the field in dealing with similar problems.

The **Daytime Company Drill Program** was started in late April of 1997 in which Captains from the Captains Management Program visited firehouses to increase the effectiveness of company drill periods. They assisted Company Officers during daily drill periods by providing them with new information developed from the FDNY's Top Ten Program. The goal was to maximize interest in drills through member participation and input and via the use of new FDNY drill boards and graphics.

The **Chiefs Mentoring Program** was begun in 1997 as an offshoot of the Captains Management Program. The idea is to familiarize Captains with the rank and duties of Battalion Chiefs before the Captains are promoted to that rank. A Captain close to promotion is assigned to ride with a Battalion Chief for 90 days, thus giving him or her the opportunity of experiencing the Battalion Chief's rank on the practical level. This program has proved to be very successful in easing the transition from the rank of Captain, who may supervise five members at a fire or emergency, to that of Battalion Chief, who will be responsible for numerous companies.

The FDNY was awarded permanent use of Fort Totten in 1998. EMS and CFR-D training takes place at the site, as well as that for newly promoted Lieutenants in the First Line Supervisors Training Program. The Fort is also home to the Department's Quartermaster system.

**Back to Basics--Truck Operations** was held at the Bureau of Training beginning in November of 1998. Four Engine and two Ladder Companies were detailed to the Bureau of Training for the day to cover five major subject areas, including size-up, apparatus positioning, forcible entry, ventilation and search. Additionally, case studies and fires scenarios were presented.

Most classroom presentations were conducted using Microsoft PowerPoint. They focused on the hidden dangers of new construction, fire travel in renovated buildings, dangers of operating on roofs and the life-threatening dangers of window bars and how to remove them. The key areas covered by this program came directly from the field, the results of a 20-page survey conducted among 150 Officers and Firefighters throughout the City. Ladder Companies also added a "Top Ten Tips" that have worked for their members. Once again, Firefighters benefited from shared knowledge and experience from all parts of the job, from all sections of the City.

**Annual Education Day** was begun at the Bureau of Training in 2001 as a natural evolution of the **Back to Basics** programs of the past. This program emphasizes fatal fire reviews, building construction and basic Engine and Ladder Company operations.

## Preparedness Drills

Prior to September 11, 2001, the FDNY recognized the need to train for response to terrorist attacks upon the City. A number of innovative drills were staged to better prepare the Department in caring for the victims and mitigating a hazardous material or weapons of mass destruction attack upon the City.

An Inter-agency Chemical Exercise (ICE) was held on November 9, 1997. The ICE was designed to highlight New York City's capabilities in responding to a chemical attack. It focused on several key areas: first responder awareness, direc-



tion and control, hazardous materials, first aid and medical management of victims and crime scene and incident investigation.

A Haz-Mat/CBIRF drill was held on September 26, 1998, at the Bureau of Training at Randall's Island in conjunction with the U.S. Marine Corps to aid Firefighters responding to attacks of terrorism and weapons of mass destruction.

Battalion 39, in conjunction with the Special Operations Command, conducted a haz-mat drill at the United States Post Office at 1050 Forbell Street, Brooklyn, during the summer of 2000. This realistic drill simulated an incident in which a suspicious, unlabeled package, leaking an unknown liquid, was discovered. It gave field units the opportunity to deal with emergencies that they normally do not encounter in the field and proved to be an important learning exercise for all involved.

Unfortunately, nothing could have prepared us for the magnitude and savagery of the attack on the World Trade Center. The lessons learned at these drills, as well as the resources of the Department, were sorely tested on that day.

## Special Operations

During the past decade, there have been a number of training programs in Special Operations. In addition to our basic training, units such as Rescues, Squads and specialized Ladder Companies (Rescue Support) have benefited from training in

high-angle rope rescue, collapse scenarios, confined space rescue and haz-mat mitigation.

## Toward the Future

The Fire and Life Safety Training unit was established by Commissioner Von Essen to bring the various Department training courses and educational opportunities together under one organized system. The FDNY currently offers 100 different courses for managers, Firefighters, Fire Marshals, Fire Inspectors, EMS personnel and civilians. The Fire and Life Safety unit will be accountable for all Fire Department training and the educational needs of our employees. The various courses offered by the Department are being codified into a Course Opportunities Catalogue, similar to those issued by colleges and universities. Information on financial aid and scholarships available to Fire Department members and their families also will be provided. Nineteen FDNY courses have been reviewed by Program on Non-collegiate Sponsored Instruction (PONSI) and recommended for college credit.

Local colleges, in partnership with the Fire Department, will offer college credit for Fire Department training, "life experience" credits, on-line courses for college credit and tuition discounts for Department employees and their families. Transcripts, in a standard college format, will be issued to members, listing a record of training, qualifications, certificates, etc.

Computer technology will play a great role in future training. The Leadership Academy at Fort Totten will feature a comprehensive computer-training program. Video conferencing, on-line learning and on-line registration for courses will be used to their fullest potential. Annual Education, Medical Days and specialized training will be scheduled by computer to ensure maximum efficiency without affecting fire protection in the field.

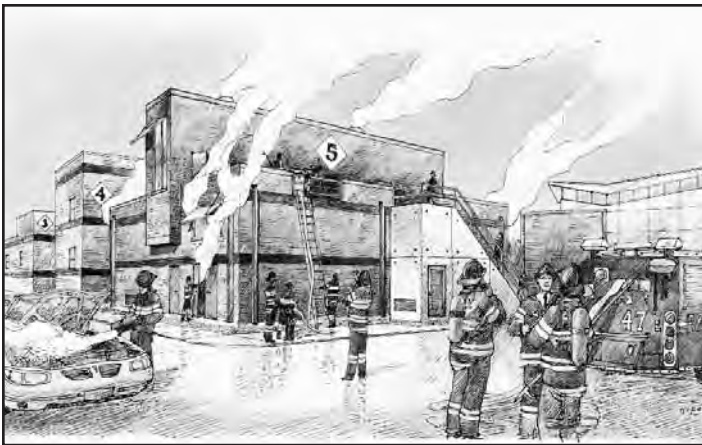
Other new training initiatives include formalized training partnerships with outside agencies and fire and public safety departments. Recruitment programs will reach out to public, private and parochial schools to enhance diversification within the firefighting and EMS ranks. Federal and State grants and funding from private and corporate sectors are being investigated for the financing of future training.

Educational professionals, such as a Registrar, an Admissions Counselor, academic deans and a librarian are being hired to enhance the program. In January 2000, Dr. Stephan Hittmann, PhD, came on board to manage the Department's new training and educational program.

Ground was broken on December 11, 2000, for a 21st century, state-of-the-art training center at Randall's Island. Some of the existing buildings at the Bureau of Training will still be used, but three new buildings are being planned to enhance Firefighter training. One structure will be dedicated for classroom instruction. This building will contain six classrooms with the latest in audio-visual technolo-



Fort Totten, Queens, is the location for a number of FDNY programs.



**New Training Buildings:**

*The new Field House and classroom and simulator buildings at the Bureau of Training will provide a variety of scenarios and all-weather training for Firefighters in the 21st century.*

gy. It will also have a “distance learning center” for training, allowing direct training at local firehouses.

Operational training will be held in a domed field house. This 35,000-square-foot structure will have buildings that simulate a tenement, taxpayer, brownstone, H-type and private dwelling. It will be used year-round in structural firefighting operations. A new “burn building” will use computer-controlled technology to simulate actual fire conditions in a variety of types of building construction. Additionally, a new “car simulator” will provide state-of-the-art fire suppression training for

**The New Fire Academy Training Buildings**

**Building 11--The Classroom Building**

Location	Adjacent to and connected to Building 9
Size	35,000 square feet 4 stories
1st Floor	Cafeteria, reception area, heated storage area for bunker gear
2nd Floor	Six classrooms, wired for computerized instruction, distance learning and testing
3rd Floor	Gym and locker room
4th Floor	Firefighter physical agility course

**Building 12--The Field House**

Location	Adjacent to Building 11
Size	39,000 square feet 6 stories
Features	One three-story row of buildings One four-story row of buildings Provides for a variety of training scenarios Provides for all-weather training Sound system in each building to replicate actual conditions

**Building 5--Fire Simulator**

Location	On existing Building 5 site
Size	6000 square feet
Features	Taxpayer, commercial and residential simulators  Provides multiple scenarios, including cockloft, flashover and cut-roof fires Two air changes per minute (purge) Computer controlled Automatic shutdown at 700 degrees

**Auto Fire Simulator**

Location	Across from Building 3
Size	14 feet long x 5 feet wide x 5 feet high
Features	Eliminates burning wrecked cars Better for the environment Simulates engine, trunk, passenger compartment fires and fuel spills



motor vehicle fires. The \$44 million facility is scheduled to be completed in 2003. It will be the premier fire training facility in the nation.

Significant improvements also are planned for the Department's training facility at Fort Totten. Mayor Giuliani committed \$50 million for these improvements that include renovating many of the buildings formerly used by the U.S. Army. Plans for the Fort include setting up a Leadership Management Academy, with new Battalion Chief and First Line Supervisors Training programs, an administrative support unit for accreditation and increased availability of classroom space for skills and academic training. Present training facilities, such as those of our EMTs and Paramedics, will be updated. Eventually, the site will become the College of Fire & Life Safety, further expanding the training and educational programs for uniformed and civilian members of the FDNY.

## The FDNY Corporate University

Colleges and universities across the nation routinely confront the challenge of keeping curriculum current and relevant to the lives of the students served. A similar challenge faces agencies charged with public safety. Not only do they need to deliver training and education that is up to date, they must ensure the security of the public as recipients of the service and to the employee providing it. FDNY has sought to address this issue by integrating the responsibility for all training in a new unit, the Office of Fire and Life Safety (FLS).

The underlying belief for this new direction is that continuing education benefits both the Department and FDNY personnel. This effort begins by working to link advancement in the Department to the accumulation of college credit. Rather than simply mandate recruits and officer candidates to return to school, we have begun to review training available at our Fire and EMS academies as creditable opportunities. It is clear that the time spent in classrooms, hands-on training, field activities and exam preparation equal or exceed the requirements of many colleges. In fact, the Program On Non-collegiate Sponsored Instruction (PONSI), a regional credit-recommending service, and the American Council on Education (ACE), a national group, quickly found credit-worthy components at both the Fire Academy at Randall's Island and the EMS Academy at Fort Totten. While ACE and PONSI crediting promises advanced standing for all FDNY members, uniformed and civilian, the process is arduous and time-consuming. A third way to obtain credit for FDNY training and education presents itself in the "corporate university" concept.

Several years ago, many in the corporate sector set out to achieve levels of excellence unknown earlier. In part, they were responding to global competition emerging from Total Quality Management. The Japanese demonstrated the benefits of this approach most notably in the automobile industry. The foundation of this approach was relatively simple conceptually; namely, that of "continuous improvement." Implementation requires increased training for every worker from the security guard to the CEO to create the belief that ever-higher expectations are both realistic and beneficial to the entire enterprise.

Over time, several business models of the corporate university have emerged. Some attempt to offer full degree programs

on company facilities; others seek to partner with selected local colleges and universities; and others simply procure credit for internal training, thus allowing the employee to negotiate with the college of his/her choice for credit.

After considerable research, FLS now proposes the establishment of the FDNY Corporate University. Like others, it is a partner relationship that identifies maximum crediting for FDNY training, identifies partner colleges and universities from the metropolitan area and will open advanced standing possibilities to FDNY personnel in nearly every educational area offered in these schools. The goals of the FDNY Corporate University include continuing education for the good of the Department, for the employee looking to a post-FDNY career and for the intellectually curious who believe, quite simply, that education improves people. Some may choose fire science or the health professions, while others may choose teaching, social work, finance or political science. FLS believes that pursuing excellence in one endeavor will lead to higher achievement levels in others. Not surprisingly, most educational experts agree--continuous improvement happens one step at a time.

As of December 2001, FDNY's Corporate University is already well underway. During the next few months, additional college and university partners will be identified and a representative group will review FDNY training and assign credit recommendations. Then, as other institutions seek to join, they will be required to accept the credit award. Rather than having FDNY employees negotiate credit packages with the college, the transcript issued by the FLS registrar will contain credit hours approved by colleges in advance. Furthermore, ACE and PONSI reviews will continue to permit maximum educational opportunity for FDNY personnel. Two additional steps will accelerate FDNY's development of a corporate university. One is a contribution from the Thompson Learning Corporation to match the FDNY expenditures required; the second is membership in the Corporate University Exchange (CUX).

FDNY shares the conviction that the entire Department benefits each time any member raises his or her awareness, skill level or ability to the next level. Training and education provided within the Department will continue to be at the highest level possible for the good and well-being of every citizen of this great City, to minimize risks to and enhance the safety of every FDNY employee and ensure the success of the Department as a whole. Eventually, the Department may eventually support its own freestanding, independent and fully accredited college. For now, the Corporate University is our most promising option.

At no other time in our history has so much emphasis been placed upon improvements in training. The many successful programs developed by the FDNY during the past decade could easily serve as models for training in fire departments throughout the country. The obvious goal is to provide the best training possible for our Fire Officers, Firefighters, EMTs and Paramedics. The result will be the best-trained fire department in the world, providing the best fire, emergency and health protection for the people of the City of New York.

*WNYF thanks Dr. Stephan Hittmann and Lieutenant Robert Higgins for providing information for this article.*



# Safety

Firefighters' safety has been a major concern of both Fire Commissioners Safir and Von Essen. No one has to be reminded that firefighting is an inherently dangerous job. As long as Firefighters enter burning buildings to extinguish fires and make rescues, there will be hazards and risks. However, the risk of injuries to Firefighters can be minimized.

Firefighters' safety begins with their training. The more knowledgeable a Firefighter is regarding the tools of his or her trade and the hostile environment that he or she works in, the greater the chances that the Firefighter will avoid serious injury. After training, a Firefighter's protective gear is the next line of defense in his or her personal safety.

There is a dual responsibility concerning personal protective gear. There is the responsibility of the Department to provide the best protective gear for the Firefighter. Then, there is the responsibility on the part of

the Firefighter to wear and use the gear properly and diligently.

The need for improved fire protective gear became painfully apparent in 1994, after the losses of Captain John J. Drennan, Firefighter James F. Young and Firefighter Christopher J. Siedenburg in an apartment fire in Manhattan. Fire Commissioner Safir and Mayor Giuliani speeded up the process of getting a full set of bunker gear to every New York City Firefighter. The delivery of the gear began in mid-May of 1994 and continued through the rest of the year until 11,300 sets were delivered.

The gear meets or exceeds the safety standards of the National Fire Protection Association, the New York Public Employee



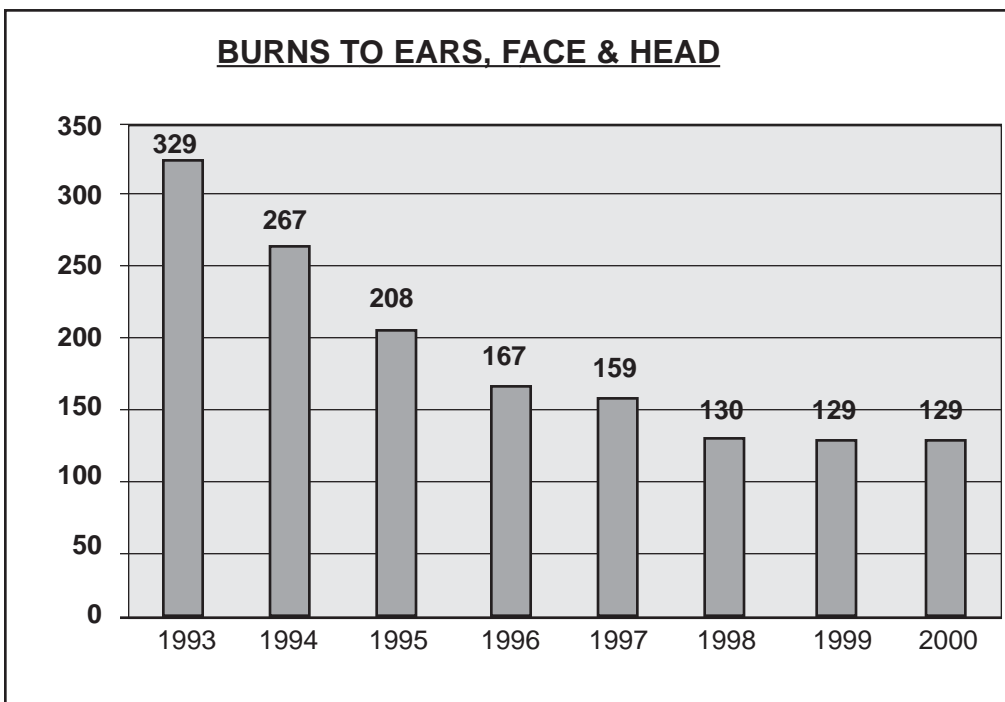
Safety and Health Office and the International Association of Fire Fighting Project FIRES. Bunker gear is the most dramatic change in personal protective gear since the Fire Department adopted a standardized form of turnout gear. The adoption of bunker gear has reduced significantly the number and severity of burn injuries to Firefighters. In 1994, before the issuance of bunker gear, the Department recorded 1586 burn injuries to members. In 1996, after all members were equipped with the gear, burn injuries dropped to 651.

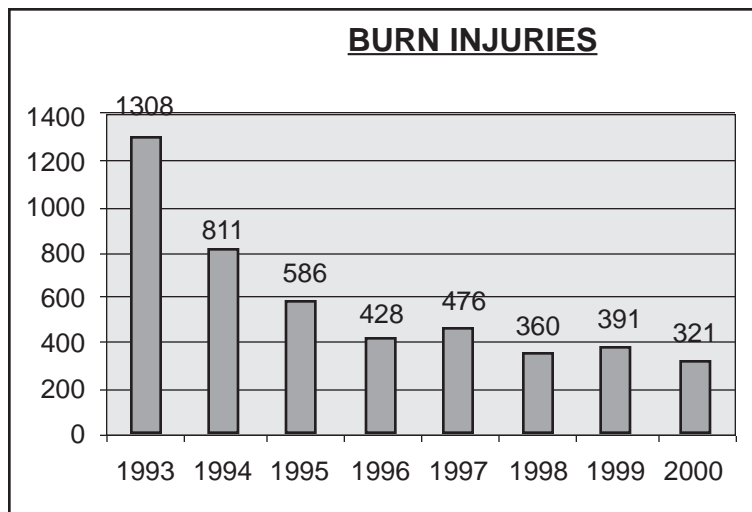
The next step in the evolution of protective gear for the FDNY was the adoption of hoods for all members. While statistics have shown that bunker gear dramatically reduced the incidence of burns to the arms, legs and torso, the same was not true for burns to the face, neck and head. Bunker gear had reduced burn injuries by 60 percent between 1994 and 1996, but burns to the face, neck and head went down by only 15 percent for the same period.

Commissioner Von Essen recognized this to be a safety issue requiring immediate attention. He assigned the Bureau of Health Services and the Safety Command the job of determining whether hoods would be beneficial and practical for use by the FDNY. (See Chief of Safety Stephen J. King, et. al., "FDNY Hood Study," *WNYF* 4th/1997 issue.)

The results of the study resoundingly were in favor of bringing the hoods into the FDNY's inventory of protective gear. It was shown that the hood acts as an efficient insulator, providing the Firefighter with greater protection. A hood--whether wet or dry--still provides a Firefighter at least three times more protection he or she would have without it.

Field tests confirmed the results of the study. The tests compared





since it was shown--through tests--that the short pants reduced heat stress without any appreciable loss of protection to the lower legs. Lighter leather boots were introduced and lighter (by six pounds) 45-minute Scott cylinders were purchased for use by companies in midtown Manhattan. In 1997, 29 air-conditioned Seagrave pumpers and three Rescue apparatus were purchased by the FDNY. These were the first of all future air-conditioned units to be purchased by the Department.

Besides innovations in gear and apparatus, the concern for protecting Firefighters against heat stress extends to the fireground. Chief Officers are more attuned to the welfare of their Firefighters working in bunker gear, and relief for units operating in a fire building is provided faster than in the past. Recuperation and Care Units (RAC) respond to 7-5 alarms and doubtful fires, greater alarms and when special-called by the Incident Commander. Equipped with ice, water, fruit drinks, cold towels and misting fans, these units provide relief and hydration at the fire scene.

FDNY head burn injuries during three winters before the hoods were introduced to those of three winters after the hoods were used. During this period of study, wearing hoods reduced the incidence of neck burns by 54 percent, ear burns by 60 percent and head burns by 46 percent.

Firefighting gear for the FDNY continues to improve the safety of members. In addition to bunker gear and hoods, lighter Scott masks, uniform shorts, leather boots and personal face pieces have been purchased and are now in regular use.

The FDNY Quartermaster system is another important improvement to Firefighter safety, developed and refined during the administrations of Commissioners Safir and Von Essen. This system ensures that no Firefighter continues to work in worn-out or damaged gear. Bunker coats and pants, boots and helmets are replaced on a one-for-one basis and every Firefighter has two sets of coats, pants and hoods.

Besides providing the protective gear for Firefighters, the Department also has set up a system for laundering the gear. Bunker pants and coats are picked up twice a year at firehouses for cleaning. This method ensures that both sets of a Firefighter's gear are cleaned professionally once a year.

The end result of the issuance of bunker gear, the Quartermaster system and annual cleaning program is that New York City Firefighters have better personal protective equipment. Firefighters have greater protection, with no lapse in safety, if one or more pieces of the equipment is damaged or contaminated at a fire or emergency.

As always, the key to the success of personal protective equipment is its proper use. A Firefighter must have all his/her gear and use it correctly. Bunker gear is not an entry suit. The purpose of bunker gear is not for Firefighters to go deeper, stay longer and do more work in hotter, more dangerous environments. Its purpose is to give Firefighters an extra margin of protection when conditions at a fire suddenly change for the worse.

With the introduction of bunker gear came concerns about encapsulation and increased heat stress. The Department recognized the need to help Firefighters minimize the effects of heat stress after working at a fire in full bunker gear and a number of changes were implemented.

A short-sleeve, 100 percent cotton tee shirt and flame-resistant short uniform pants were approved for use under bunker gear

The Department has sought to educate its members in the importance of hydration in fighting the effects of heat stress and the message was brought to the field. Articles in *WNYF* have been dedicated to this subject. (See Lieutenant Kevin S. Malley "Minimizing the Effects of Heat Stress on Firefighter Health and Performance," *WNYF* 2nd/1998 issue and Commissioner Thomas Von Essen "Commissioner's Message," *WNYF* 2nd/2000 issue.) A videotape on the subject was distributed to firehouses and Lieutenant Malley, the FDNY's Director of Human Performance, has lectured all Chief Officers on hydration and heat stress.

Another important innovation in Firefighter safety was the introduction of the integrated PASS (Personal Alert Safety System) in 1998. The integrated PASS alarm is a motion detector that emits a loud, high-frequency alarm when activated manually or when the wearer remains inert for 30 seconds. It is designed to sound a warning if a Firefighter becomes trapped or is overcome at a fire. Since it is "integrated" with the Scott self-contained breathing apparatus, the device is activated any time the Scott air pack is turned on. Firefighters no longer have to worry about forgetting to activate their PASS alarms in the heat of battle.

The price of this new device is approximately \$500 apiece. The outfitting of every New York City Firefighter with the alarms was made possible by the more-than-generous endowments of Jane Forbes Clark of the Clark Foundation and Honorary Deputy Commissioner Dorothy Marks.

The Department recently has established an Occupational Safety and Health (OSHA) unit to help fulfill its commitment of providing a safe work environment for all of its employees. The unit is staffed by certified safety professionals who hold degrees in industrial hygiene, occupational health and safety or engineering.

The FDNY, with the path shown by Commissioners Safir and Von Essen, proved that safety initiatives can produce positive results, even in this most demanding and dangerous of occupations.

*WNYF thanks Battalion Chief Arthur S. Lakiotes, Firefighter Gaulrapp and Lieutenant Kevin Malley (retired) for providing information for this article.*

## Health and Fitness

The administration of the FDNY has made health and fitness one of its top priorities. The Bureau of Health Services (BHS), under Chief Medical Officer Dr. Kerry Kelly and Deputy Chief Medical Officer Dr. David Prezant, is committed to the health and well-being of our Firefighters. Besides its traditional role of caring for and evaluating ill and injured members, BHS now conducts a number of programs geared toward preventing medical problems before they start.

Commissioner Von Essen, who as a union official lobbied Commissioner Safir to improve the treatment of firefighters at the medical office, furthered his concern for firefighter health and safety by instituting an aggressive "annual" medical program in BHS. Before, firefighters would get a medical exam once every three years. Now, medical exams are given to every firefighter once every 15 months. (In the aftermath of the World Trade Center tragedy, staff at BHS was able to accelerate the process so that everyone in the Department would be given a medical in a period of about four months.) Last year alone, some 11,000 exams were given. Tests are conducted to identify and head off problems that place emergency service workers at risk, due to lifestyles, age or the unique aspects of their jobs. The medical examination is broken down into three phases: a written evaluation in which the member fills out a questionnaire about his or her health; a medical exam--the actual physical; and a fitness test.

Among the tests are those for tuberculosis, blood tests for elevated levels of cholesterol and triglycerides, PSA blood test for prostate disease and guaiac test for blood in the stool. EKG, stair mill evaluation and pulmonary function tests detect potential or actual heart and lung problems.

In addition to determining the physical condition of Firefighters during the medical exam, BHS seeks to educate members regarding their health and advise them in methods of improving areas in which they are at risk. This program has proved successful in that a number of members were found to have medical problems, such as silent heart disease. They received the proper care and treatment before it was too late.

Besides the tests during the annual medical exam, Firefighters also are given training in areas such as hazardous materials and protection against blood-borne pathogens.

In 2001, a heart disease prevention program was added to the Annual Medical Day to inform members of the latest in heart disease prevention.

In addition to looking after the physical well-being of Firefighters, BHS also maintains a Counseling Unit for the psychological care of members. Under the direction of Malachy Corrigan, the unit helps members cope with difficulties from a painful divorce, parenting problems, drug and alcohol abuse, life-threatening illnesses and deaths of family members and loved ones.



Dr. David Prezant monitors Firefighter's physical responses to a stairmaster workout.

Medical research



Lieutenant Kevin Malley (now retired) explains the rigors of firefighting to a class of Probationary Firefighters.

figures into the mission of BHS. The Bureau now takes an active role in seeking to identify dangers to Firefighters' health from the job itself or potential problems from new equipment or protective gear.

Some of the studies that BHS has conducted are:

- *The Impact of Modern Firefighting Protective Uniform on the Incidence and Severity of Burn Injuries in New York City Firefighters;*
- *The Impact of a Design Modification in Modern Firefighting Uniforms on Burn Prevention Outcomes in New York City Firefighters;*
- *The Impact of Protective Hoods and their Water Content on Firefighter Burn Injuries: Laboratory and Field Results.*

A study currently is underway to document the effects of firefighting activity on the heart rates in all Firefighters wearing bunker gear. So far, tests have shown that heart rates are elevated above 80 percent of predicted maximum from the receipt of an alarm to the end of operations. With this evidence in place, BHS continues in its efforts to educate members of the Department about the importance of physical fitness and helps them maintain the proper physical conditioning to do the job.

An important development in the health of members of the FDNY was the appointment of Lieutenant Kevin S. Malley (now retired) as Director of Human Performance. Lieutenant Malley holds a Master's degree in exercise physiology and is working toward his PhD. He is recognized as a pioneer in the field of physiologic consequences of work performance in Firefighters. During his tenure as Director of Human Performance, he was charged with researching, developing and enhancing programs, equipment and procedures toward meeting the goals of health and safety. Toward this end, his time was well-spent. While Director, he established the Health and Fitness Unit and constructed three new health and fitness unit training facilities, created two new training curriculums, published two original training manuals and developed academic and physical training modules for the Firefighter Cadet Curriculum. Additionally, he was instrumental in the research and testing of bunker gear, knee pads, hoods, self-contained breathing apparatus and the uniform shorts and tee shirts to be used with bunker gear.

The membership of the Department has benefited greatly from having someone from the ranks who knew the challenges Firefighters face and is so involved with their health and fitness.

WNYF thanks Chief Medical Officer Dr. Kerry Kelly, Deputy Chief Medical Officer Dr. David Prezant and Lieutenant Kevin Malley (retired) for providing information for this article.



# Public Education

Successful fire protection and fire safety call for a partnership between the City's fire-fighting force and its citizens. An educated, safety-conscious public aids a well-trained, highly motivated Fire Department greatly in its mission of protecting life and property. With this in mind, Fire Commissioner Safir initiated the Fire Safety Education Fund to finance programs that bring the message of fire safety and survival to the people. Along with response to fires, emergencies and medical emergencies, Fire Prevention and Fire Investigation, public safety education is now part of the FDNY's mission statement.



Fire Safety Corps Cadets distribute FDNY Fire Safety Coloring Books to local children. Cadets go door to door in high fire fatality neighborhoods to spread the message of fire safety.

Fire Safety Education has grown and expanded during the administration of Fire Commissioner Von Essen. The Fire Safety Education Unit has developed a number of innovative programs to help educate New York City's citizens.

These programs have shown some dramatic results. In the past four years--1998, 1999, 2000 and 2001--civilian fire deaths in New York City were the lowest in the past half-century. Some of the programs that have brought about these results are described below.

## Elementary School Program

The Elementary School Program targets children four to 10 years old. Basic fire safety principles are instilled by teaching children to recognize and acknowledge smoke alarms, to develop home escape plans with an outdoor meeting place and to dial "911" in an emergency. They also are taught the "stop-drop-and-roll" procedure, the danger of matches and lighters, the ramifications of transmitting a false alarm and realizing what is hot and what is not. The use of videos, live pantomime, puppet shows, "911" simulators and other related props help to convey the message of fire prevention to children at their most impressionable age. Hot Dog--a Firefighter dressed as a Dalmatian--makes a great spokesperson for the FDNY and is always a favorite with the youngsters.

## Senior Programs

By visiting Senior Centers, the Fire Safety Education staff members reach a segment of the population that suffers a higher rate of fire-related casualties than other age groups. The elderly

are educated in fire prevention through informative videos and then have the opportunity to partake in a question-and-answer session. Smoke alarms, nine-volt batteries and fire safety literature are distributed to the seniors during these visits.

## Fire Safety Response Team

Following the Fire Safety Education Unit's monthly staff and developmental meeting, the entire unit travels to areas of the City that are experiencing higher than usual incidents of fires and fire fatalities. By personalizing their approach, the Firefighters have a chance to reach the core of a particularly disturbing "high fire zone" and deliver the message of fire prevention to the doorstep of residents. Armed with an assortment of literature, fire safety devices, a "mobile fire safety escape home," other Department vehicles and uniformed in neon-colored jackets, the unit presents a very high-profile appearance and attracts a good deal of public interest.

## Mobile Fire Safety Escape Homes

With the aid of two mobile "fire safety escape homes," the FSE Unit instructs people--especially pre-teens--in the basic principles of surviving a fire by the "crawl-low-and-go" technique. Children and adults are given the opportunity of finding their way through a maze of partitions and doorways, while rooms and exits

### PUBLIC EDUCATION HIGHLIGHTS:

- Public Safety Campaigns
- Fire Zone Learning Center
- Smoke Detector/Battery Giveaways
- FDNY Website



Firefighters distribute fire prevention literature to the public at Rockefeller Center, Manhattan, during Operation Sidewalk in the summer of 2000. In foreground, Firefighter describes benefits of “Change your Clock, Change your Battery” Program to woman.

are obscured by theatrical smoke. They are taught to find their way through by feeling along baseboards for door openings in near-zero visibility. This effective tool adds an important fire prevention message to local schools, day-care centers, health fairs, block parties and major civic events.

## Operation Sidewalk

Adults and children get the opportunity to converse with local Firefighters from the City’s 360 plus “line” fire companies as the Firefighters display their fire apparatus, tools, equipment and protective gear. Firefighters likewise learn about the people in their community in this effective public relations program. The public is provided with special fire safety information. Approximately four million FDNY Fire Safety newsletters have been distributed over two years.

## New York City Fire Museum

The history of firefighting in New York City comes to life with a display of rare artifacts, antique apparatus, tools and equipment. In addition to its historical collection, the museum also has a newly developed interactive learning center, along with a mock-up of a residential apartment with all of the typical fire hazards.

## Change Your Clock, Change Your Battery Program

In keeping with the policy of changing smoke alarm batteries twice a year at Daylight Savings Time, members of the Fire Safety

Education program distribute some 50 to 60 thousand free smoke alarm batteries in the Spring and Fall. Neighborhoods that recently have suffered fatal fires are targeted for this major public information campaign.

## Free Smoke Alarm Program

The FDNY, in conjunction with major smoke alarm manufacturers, the Jeep Corporation, Radio Shack, Columbia Presbyterian Cornell Weill Burn Center and Channel 7 News, have embarked on a campaign to distribute 50,000 free smoke alarms per year to the citizens of New York City. Residents are requested to furnish information regarding their address and where the

smoke alarm will be installed. This information is entered into a computer data base in order to track the effectiveness of the program in the event of any future fires.

## Fire Department Training Academy

The Fire Safety Education unit conducts public tours of the FDNY Training facility at Randall’s Island. Visitors are shown the various training buildings and the unique features and characteristics of each building are explained. Visitors are invited to participate in the “escape” from a smoke-filled fire safety house,



Firefighter explains intricacies of some of the antique firefighting equipment and apparatus at the New York City Fire Museum in Manhattan.



followed by a 1/2-hour classroom lecture and video on basic fire survival techniques.

## Fire Zone

The Fire Zone is the latest and most advanced program from the FDNY's Fire Safety Education Fund. Through a series of hands-on exhibits and multimedia presentations, the visitor becomes part of a fire-fighting team. The presentation includes a firehouse with a full-scale engine apparatus, tools, equipment and protective gear. An action film of a fire response, a theater complete with the remains of a burned-out apartment, the stories of fire victims and a practice fire drill through a darkened, smoke-filled hallway bring the fire prevention and survival story to life. The Fire Zone is reserved for school groups each morning.

## High-Rise Office Building Training

Using a new "Class E" fire alarm panel simulator, a high-rise office building's fire safety team, fire brigade, fire safety director and building employees have the opportunity to initiate an emergency alarm, without interrupting the building's actual fire alarm system. This program, complete with the operation of pull boxes, horns, strobes, smoke alarms, air supply and exhaust fans, public address systems and fire warden phones, provides an educational, "hands-on" experience for all responsible building personnel.

## FDNY Probationary Firefighter School

Along with their education in firefighting, Probationary Firefighters now receive additional instruction in fire safety education. The goal of this training is to send the Probationary Firefighter into the field with the knowledge of the importance of fire prevention and safety and the ability to bring that message to the civilians he or she will encounter.

## Operation Fire Stop

An important development in getting the message of fire safety out to the people is Operation Fire Stop. In this program, units go out and distribute fire prevention literature to civilians at their homes and heavily trafficked commuter sites. Firefighters are able



Authentic tools and an engine apparatus enhance the multimedia experience at the FDNY Fire Zone. This state-of-the-art fire safety education center opened in Rockefeller Center in the Fall of 2000.

to interact with the community and available to answer questions about fire prevention and safety. This high-profile, aggressive method is one of the best ways to get the public thinking about its needs and responsibilities regarding fire safety.

## FDNY On-Line

Another effective method of keeping citizens (and members of the Department) informed about the FDNY is the newly established Fire Department internet site at [www.nyc.gov/fdny](http://www.nyc.gov/fdny). The public has access to this valuable site 24 hours a day. They can access information on fire safety, Department news, upcoming events and activities, as well as research job opportunities.

All of the initiatives in Fire Safety education stress interaction between the Fire Department and citizens. They reinforce the need for teamwork between members of the Department and the public in making the City fire-safe.

*WNYF thanks Lieutenant Joseph Torrillo for providing information for this article.*



# Legislation and Law Enforcement

The administrations of Fire Commissioners Safir and Von Essen have been pro-active in determining where improvements in fire safety and protection can be made and then making them. Two examples are the passage of Local Law 10, which addresses sprinkler regulations in high-rise residential buildings, and the enforcement of the laws against illegal fireworks in New York City.

Local Law 10, an important piece of legislation that benefits both civilians and Firefighters, was signed into law by Mayor Giuliani on March 24, 1999. It came about as the result of two

tragic residential high-rise fires that claimed the lives of civilians and members of our Department. Following the deaths of four building residents in a fire at 124 West 60th Street, Manhattan, and the loss of Lieutenant Joseph Cavalieri and Firefighters

Christopher Bopp and James Bohan at the Vandalia Avenue, Brooklyn, fire, Mayor Giuliani put together a task force to address the problems of fire protection in high-rise buildings. This task

## LEGISLATION & LAW ENFORCEMENT HIGHLIGHTS:

- *Local Law 10*
- *Fireworks Reduced*

force, made up of Fire Department officials and industry representatives, investigated the following:

- Building fire protection features.
- Public education focusing on how to react during a fire.
- Construction and building practices.
- Application of sprinkler codes.

The City Council rallied behind this bill and passed it unanimously on March 16, 1999. Some of the major provisions of this bill include:

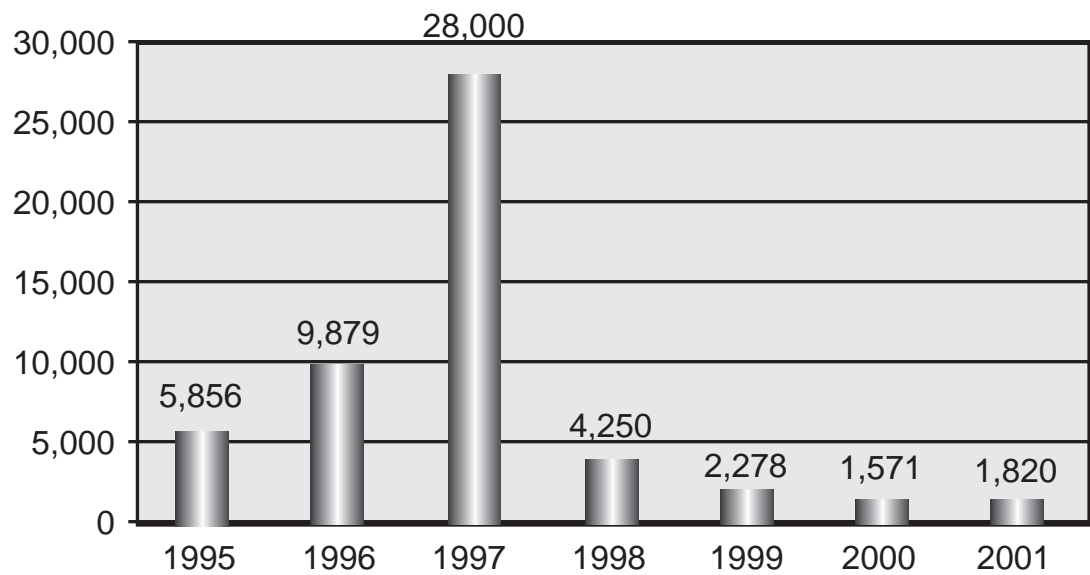
- Automatic sprinklers are required in all new residential J-2 (apartment buildings) housing four or more families. (Sprinklers may be omitted from closets, pantries, bathrooms and enclosed stairways.)
- Automatic sprinklers will be required in existing J-2 buildings housing four or more families, which are renovated to the extent of 50 percent or more of the residential portion of the building's value in any 12-month period. (Sprinklers may be omitted from closets, pantries, bathrooms and enclosed stairways.)
- Two new reference standards to the building code--RS-17-2A and RS-17-2B--governing the installation of sprinkler systems in J-2 buildings up to six stories and one- and two-family homes, respectively, are adopted.
- A single three-inch inlet Fire Department connection may be used in lieu of a siamese for J-2 buildings up to six stories or 75 feet in height. (Fire Department connections are not required in one- and two-family homes.)
- A flow test now will be required for the sprinkler systems in these affected buildings.
- The owners of J-2 buildings must develop a fire safety plan and provide a copy of appropriate fire safety educational material to building occupants and service employees.



Tragic fires, such as the one at Vandalia Avenue in Brooklyn, brought about sprinkler law reform through Local Law 10.

## Cases of Fireworks Confiscated from 1995 to 2001

The dramatic decrease in confiscated fireworks after 1997 is due to the fact that smugglers no longer felt safe in bringing their dangerous wares into New York City.



## Fireworks Crackdown

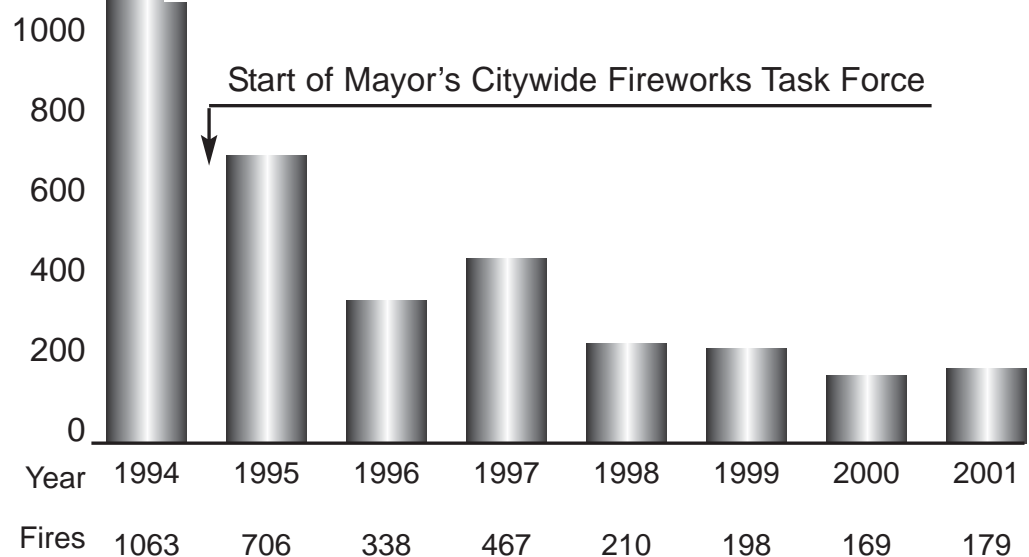
Traditionally, July 4th is a busy time for firefighting and emergency medical personnel in New York City. Illegal fireworks cause a surge in fire activity, as well as kill and maim a number of people each year. The crackdown on fireworks in the City, a very successful program begun under Fire Commissioner Safir, continued under Fire Commissioner Von Essen.

In the summer of 1994, members of the Bureau of Fire Investigation began conducting random "buy and bust" operations of fireworks in lower Manhattan. Based on street-level intelligence obtained in this action, Fire Marshals were able to expand their operation during the next two years. In 1996, a special task force of Fire Marshals, New York Police Department detectives and Federal agents of the Bureau of Alcohol, Tobacco and Firearms began interstate interdiction to seize fireworks before they reached the City.

The program reached its high point in 1997, when 28,000 cases of dangerous fireworks were confiscated. Since then, the amount of fireworks seized each year has decreased for the simple reason that fireworks smugglers know that New York no longer is an open city for their illegal wares. The dramatic results of this program show that fire activity decreased to 179 fires on July 4th, 2001, from more than 1000 fires on July 4th, 1994, the year before the crackdown began.

The program reached its high point in 1997, when 28,000 cases of dangerous fireworks were confiscated. Since then, the amount of fireworks seized each year has decreased for the simple reason that fireworks smugglers know that New York no longer is an open city for their illegal wares. The dramatic results of this program show that fire activity decreased to 179 fires on July 4th, 2001, from more than 1000 fires on July 4th, 1994, the year before the crackdown began.

## Total Fires on July 4th: Eight-Year Trend



As the fireworks decreased, so did fires on July 4th, traditionally the FDNY's busiest day of the year.

amount of fireworks seized each year has decreased for the simple reason that fireworks smugglers know that New York no longer is an open city for their illegal wares. The dramatic results of this program show that fire activity decreased to 179 fires on July 4th, 2001, from more than 1000 fires on July 4th, 1994, the year before the crackdown began.

WNYF thanks Chief Fire Marshal Louis Garcia for providing information for this article.



# Capital Improvements

The FDNY has grown and expanded during the past decade. It has taken on more responsibility, faced more challenges and brought more emergency services to the people of the City of New York as in no other comparable time in its history. As the Department's responsibility has grown, its buildings and facilities have been improved and continue to be improved to meet the needs of an evolving emergency service.

## CAPITAL IMPROVEMENTS HIGHLIGHTS:

- *New FDNY Headquarters*
- *Firehouse Renovations*
- *New EMS & Fire Stations*
- *Expanded Capital Spending*

Perhaps the most dramatic improvement in Fire Department facilities during this decade was the opening of the new Department Headquarters at 9 MetroTech Center in Brooklyn. This modern, eight-story building replaced the older headquarters at 250 Livingston Street. Fire Department Headquarters now is home to the joint Fire

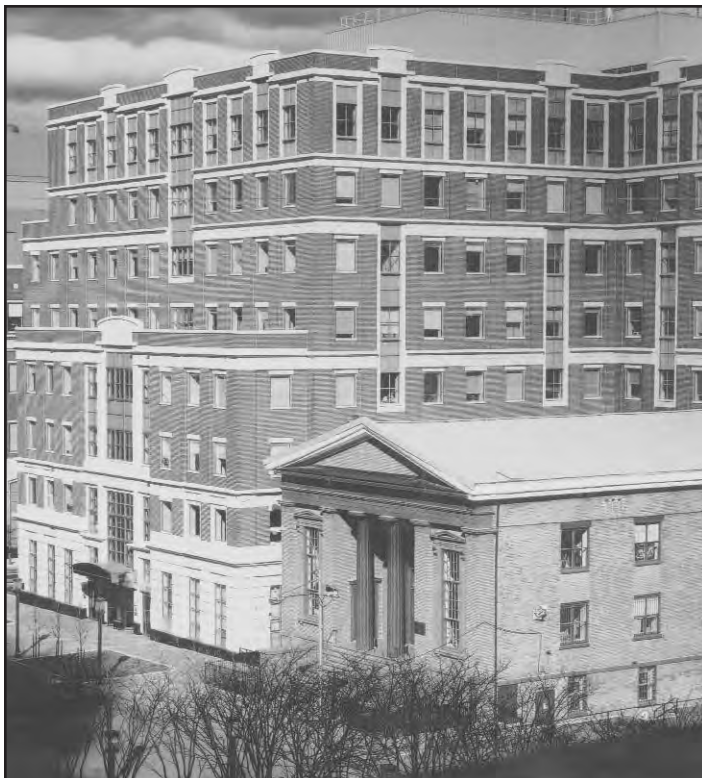
Department/EMS Command, as well as many other Department Bureaus, including the Bureau of Health Services.

Among its many efficient features, 9 MetroTech includes an Operations Command Post, where critical incidents can be monitored by senior staff; a state-of-the-art audio-visual center; a 200-seat auditorium; training rooms; record room with moving files; a fitness center; a physical therapy unit; indoor, below-grade parking facilities; and an intranet computer system.

The consolidation of most of the Department's offices in this comfortable, modern environment has done much to increase the day-to-day efficiency of Fire Department administration.



The decorative quarters of Engine 55 in Manhattan is but one of many that were renovated under the Design/Build program.



9 MetroTech Center provided the FDNY with a much-needed, state-of-the-art headquarters for the 21st century.

November of 1999 witnessed the opening of the FDNY's new technology center at two MetroTech sites in Brooklyn. These state-of-the-art buildings house the EMS computer-aided dispatch (CAD) system and backup local area network (LAN) and radio logging equipment. The center greatly enhances Fire Department dispatch/communication capabilities.

The Design/Build program is an ongoing project to modernize, repair and/or build Fire Department facilities. The program consists of "gut renovations" to facilities that require work on multiple building components. This includes roofing, interiors, electrical upgrades, apparatus floor replacements, masonry and waterproofing. Many existing firehouses have benefited by these much-needed repairs and additional firehouses are undergoing or are slated for this work.

Other firehouses have been or are being repaired in any one of a number of construction projects. These projects include apparatus floor replacement; kitchen, toilet, electrical (KTE) upgrade; roof replacements; waterproofing; and window replacements.

In addition to Fire Department buildings that are being repaired, new buildings are going up. A new quarters for Engine 75, Ladder 33 and Battalion 19 was opened in the University Heights section of the Bronx in July of 2000. This was the first new firehouse to be built in more than a decade. Designs now are





The new quarters of Engine 75, Ladder 33, Battalion 19 in the Bronx, was built in July 2000.

in the works for a combined fire and EMS station in the Rossville section of Staten Island to provide coverage for the rapidly growing population in that part of the borough.

Many EMS stations have been or are being renovated and many others are being established in rehabilitated former firehouses and Fire Marshal bases. The increase in the number of bases will reduce the response time of ambulances through the City, as well as provide clean, functional quarters with adequate locker space, showers and facilities for meal breaks for EMS crews.

In August of 2000, a new home for Harlem-based EMTs and Paramedics was opened at Lenox Avenue and 136th Street. The new facility features a four-bay, double-length apparatus floor, lounge, kitchen and locker room facilities capable of accommodating 100 members. This station is home to three Paramedic and five basic life support units.

Construction and plans for new EMS stations continue. In January of 2001, work commenced on a station at Washington Avenue and 172nd Street in the Bathgate section of the Bronx. Another new station is slated to be built at Rockaway Beach Boulevard and Beach 49th Street in Rockaway. A station on the campus of Kings County Hospital in Brooklyn is scheduled to be completed in the Spring of 2002.

A site plan has been selected for an EMS station on Zerega and Havemeyer Avenues in the Bronx. Potential sites for EMS stations have been identified in the Red Hook section of Brooklyn and the Springfield Gardens section of Queens. Work has commenced to obtain these sites.

Besides construction of new EMS stations, plans are underway for additional building projects. These include the resurfacing, fencing and security lighting installation for a new parking lot in the Brownsville section of Brooklyn for EMSC Station 44; reconstruction of the current Marine Park facility in Brooklyn EMSC station 58; and renovating the current Tuscan facility in the Maspeth section of Queens EMSC station 45, which will house the new medical control center.

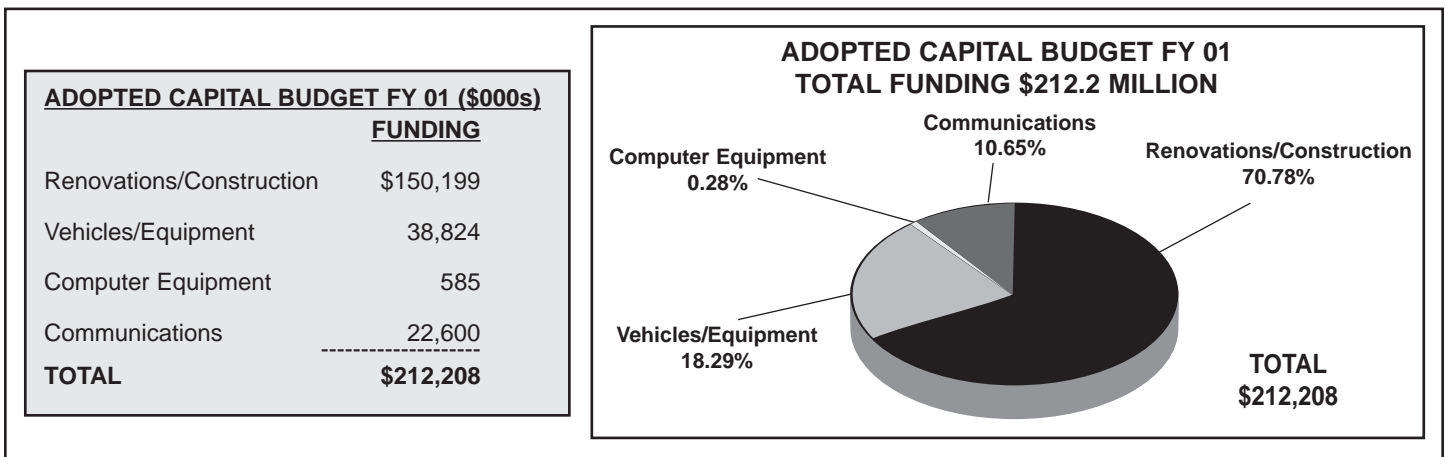
In addition to firehouses and EMS stations, plans for the gut renovation of the five boroughs Communications Offices currently are in the design stage. This approximately \$30 million project will encompass roofs, masonry, interiors and electrical systems and

will complement the upgrade of the Department's communications system.

An early goal of Fire Commissioner Safir was to bring the FDNY into the "information age" by installing computers in every firehouse. This goal has been accomplished under Commissioner Von Essen. Now, Headquarters, every firehouse and other Department facilities are linked through our own intranet system. Company Officers can communicate with one another or to Headquarters via Department e-mail, forward reports on apparatus field inspection duty or get the latest information, announcements and news relating to the job. The time will come in the foreseeable future when all personnel, fire and emergency, building inspection and other reports will be forwarded via the computer.

These projects and innovations, along with the planned construction at the Bureau of Training and Fort Totten, will provide the Department with a substantial physical base for meeting the challenges of 21st century firefighting in New York City. City Hall has supported this growth. Capital spending for the Fire Department has risen to an average of \$120 million a year for eight years. This is a substantial increase over the previous administration's \$21 million a year for four years.

WNYF thanks Assistant Commissioner Roy Katz for providing information for this article.



# Management

## Fire MARC

Several years ago, the Fire Department began to incorporate information technology equipment--cell phones, fax machines, computers--in the field to improve our ability to pass on information. Near-term plans now include the development of wide-area networks and intranets, thus allowing FDNY to enter "The Information Age." As is the case in other Mayoral agencies, FDNY has developed new management protocols that will enable the Department to better assess and evaluate the effectiveness of various operational and management strategies.

Paralleling such successful performance measurement programs as COMP-STAT in the Police Department and T.E.A.M.S. in the Department of Corrections, FDNY has instituted a revolutionary Managerial Appraisal, Review and Comparison (Fire MARC) program.

The Fire Department will use the information within the Fire MARC program to improve communication and coordination among the Bureaus and highlight indicators that monitor performance. The *sole* purpose is to ensure effective management of resources that contribute to successfully carrying out our stated mission: prevent and suppress fires to protect lives and property and provide efficient pre-hospital healthcare.

The Fire MARC program is structured around routine meetings called Fire MARC sessions. These sessions are not designed to catch anyone by surprise. A Fire MARC session is a forum to get all the facts, eliminate speculation and address the real issues. These sessions are intended to:

- Help build communication links between field Commanders and the Department's support Bureaus.
- Provide a forum to identify areas of concern.
- Determine realistic expectations.
- Ensure adequate resources.
- Help formulate solutions to problems when necessary.
- Recognize successes.
- Identify any areas for improvement.

### Objectives of the Fire MARC Program

- Provide our Commanders in the field with access to timely and accurate information to help them identify patterns and detect emergent conditions.
- Encourage use of this information for decision-making and day-to-day management.
- Promote creativity and encourage discretion by those field Commanders who are better positioned to develop solutions based on the needs of their communities.
- Learn from those Commanders who excel and provide direction and support to those who need more help.

Each Bureau is represented so that those from either the field or support Bureaus understand who is responsible and accountable to address any issues that may arise.

Fire MARC uses information technologies to provide information to Department members at all levels. Much of the information is pulled from the CAD system. This information will enable us to identify patterns and trends and recognize change. Then, we can pinpoint problems and develop the solutions. For example, statistical information collected revealed a significant disparity in response times between fire and medical runs. Without response time data, field Commanders were unable to identify that the problem even existed. As we began to provide the information to our Chiefs, several things happened. Members in the field addressed

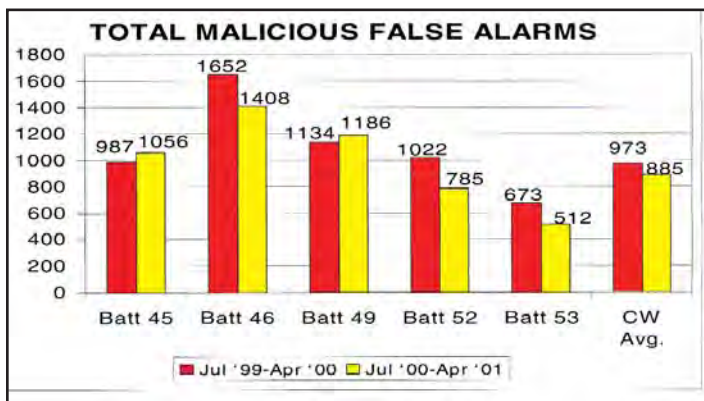
the issues over which they had control and highlighted the problem areas out of their control. The result was a significant improvement in both response times and the way we collect the data. This example illustrates the fundamental concept of the Fire MARC program: Provide information to responsible people and they will take corrective action where appropriate.

Fire MARC is about clearly defining expectations and distributing the relevant information in all directions--up, down and across. Field Commanders can feed their views and information **up** to top management. **Downward** information is necessary for members to do their jobs and understand the goals, plans and performance of the Department. Information that goes **across** provides a greater understanding of the roles and functions of others and how they operate on a day-to-day basis in different Bureaus or locations.

Today, our members are accustomed to having information "pushed" at them, waiting for something from the "bag" to appear on their desk or in-box. During the next few years, information access will change for members, with greater emphasis on personal responsibility to "pull" the information from electronic sources, such as the intranet. Fire MARC will provide both "push" (e-mail or network-based broadcasting technology) and "pull" (relevant data will be posted on the FDNY intranet for the Commanders) methods of obtaining information. For example, our Chiefs can return to work after being off--between tours, vacation or medical leave--and be able to access information that will bring them up to date as if they hadn't been off the job at all.

The Fire MARC program was initiated in June with the 14th Division and has been subsequently expanded to other FDNY Divisions. It has been well-received by our civilian and uniformed staff--especially our conscientious Chiefs--who want the detailed information we've provided, which can help them better manage their Battalions and Divisions.

WNYF thanks Chief of Staff Michael Vecchi for providing information for this article.





# Emergency Medical Service

One of the principal initiatives of the Giuliani Administration, which has had a major impact on the Department, has been the merger of the City's Emergency Medical Service into FDNY in March 1996. During the course of the past eight years, FDNY not only has accepted full responsibility for municipal pre-hospital services throughout New York, but also has added an important component to basic fire response protocols--Certified

First Responder/Defibrillation (CFR-D). Taken together, these two initiatives have provided faster and qualitatively improved lifesaving capability for nearly 1.2 million city-wide annual EMS requests for medical assistance.

Since becoming a part of the Fire Department, the EMS Command has initiated a host of innovative operational, medical, administrative and evaluative programs designed to improve pre-hospital care. Results can be demonstrated through a host of improved statistics, including faster response time, increased ambulance tours and improved patient care. Some of the programs initiated during the past several years include the following.

## EMS HIGHLIGHTS:

- More Ambulance Tours
- New EMS Stations
- Improved Ambulance Fleet
- EMT Asthma Medication
- Cardiac Arrest Survival

## Operations

**CFR-D Program:** CFR-D program continues to play a significant role in the delivery of pre-hospital care services throughout the City of New York to priority assignments. As seconds literally count in responses to cardiac arrest cases, the arrival of firefighters with first responder and defibrillation skills can dramatically improve the victim's chance of survival. Responses are coordinated so the nearest available unit--whether an ambulance or CFR-D unit--is dispatched to the scene with appropriate follow-up if necessary.

**Continued Quality Improvement:** To ensure that the level of care delivered to call types remains at an appropriate and necessary level, Call Receiving Operator dispatch formulas are continually reviewed jointly by the Office of Medical Affairs, EMS Operations and the Bureau of Communications (EMD). Additionally, ambulance dispatch protocols are continually reviewed to ensure that the most appropriate ambulance resource(s) are recommended for pending assignments.

This year, the Department redesigned, tested and implemented a new call-receiving algorithm to prioritize stroke calls from patients who are most in need of immediate emergency room drug therapy. By implementing a higher priority response, hospital notification and early access to treatment, recovery becomes more of a reality. Based on national

statistics from the American Heart Association, as many as 30 percent of these patients may now have a greater chance for improvement or even complete resolution. The Department continues to work with the American Heart Association and the NYS Health Department to evaluate approaches to further improve EMS response to stroke patients.

**EMS Stations:** At the time of the merger, EMS had a total of 16 facilities throughout the City of New York. Since that time, the Department has opened an additional nine facilities (one in Manhattan, three in the Bronx, two in Brooklyn and three in Queens). The goal of these projects is to decompress existing EMS facilities to provide a better working environment for EMS personnel, while increasing resource performance through the decentralization of resources into the communities where they serve.

Currently under construction or renovation are the Bathgate and University Heights facilities in the Bronx. A new combined Fire/EMS facility for Rossville, Staten Island, is now being built.

**Asthma Project:** The Department developed and implemented a pilot project in the New York City area to allow the population of asthmatics to benefit from early access to bronchodilator therapy. Currently, approximately 50,000 assignments for asthmatic conditions are received through the 911 system annually. EMTs were trained in the proper protocol and, in December 1998, were permitted to begin administering nebulized albuterol to patients meeting the treatment criteria, while participating within the guidelines of the pilot approved by the New York State Department of Health. This skill was previously reserved for use by Paramedics. As a result of the FDNY study, NYS DOH approved the change in the EMT's scope of practice and the pro-



tol has been adopted statewide.

**Emergency Response to Terrorism Awareness & Weapons of Mass Destruction Preparedness:** All EMTs and Paramedics have received training in identifying and treating victims of chemical and biological agents that could be used in terrorist attacks. All FDNY EMS units have been equipped with the appropriate medications to treat these patients. Additionally, all support vehicles (i.e., Major Emergency Response Vehicles, Supervisor's vehicles, Logistical Support Units) have been equipped with these medications.

**Haz-Tac Units:** These units are specially equipped units staffed by personnel who have undergone additional training in the proper handling of patients contaminated by hazardous materials. Prior to the merger, there was only one ALS Haz-Tac unit and two BLS Haz-Tac units. Currently, there is one ALS Haz-Tac unit and one BLS Haz-Tac unit in each borough, with the exception of Staten Island, which is staffed with one BLS Haz-Tac unit.

**LifePak 12 Upgrade:** All Paramedic resources have been equipped with LifePak 12 Cardiac Monitor/Defibrillator/Pacemaker units. With the distribution of this lighter (7.5 lbs.) unit, Paramedic resources can deploy the needed equipment easier and more quickly. Additionally, the modular design of the LifePak 12 will allow the Department to easily upgrade the equipment as new treatment devices and options become available.

**Medication Insert Program:** A medication insert exchange program is intended to provide pre-stocked inserts, containing all medications that are used by Paramedics to treat patients. After using medications on an assignment, units can respond back to a facility and exchange a used insert for a fully stocked one. Prior to this program, Paramedics were required to manually restock the used insert. This created additional off-service time. With this program, units can immediately return to service. Additionally, a greater accountability of medications has been established.

## Medical Improvements

**Public Access Defibrillators:** The City of New York has initiated a campaign to install publicly accessible defibrillators (PADs). This project identifies the growing importance of these devices in saving the lives of the thousands of individuals who suffer sudden cardiac arrest. The American Heart Association has recognized early defibrillation as one of the key components in the chain of survival. PADs remain available to properly trained civilian personnel and aids in the early intervention of medical assistance to a cardiac arrest victim. Locations of PADs are main-



tained on-file with the Fire Department and resources responding to these emergencies are made aware of their location during response. Beginning in FY 2001, Phase 1 of the program purchased and placed 70 PADs in facilities operated by the Department of Parks and Staten Island Ferries. Phase 2, planned for FY 2002, continues the implementation in other strategic locations, including senior citizen housing areas.

**Telemetry Replacement:** The Department is currently in the process of replacing its Telemetry Console. The existing console is more than 15 years old and replacement spare parts are virtually non-existent. The new console will incorporate the latest technologies for the field EKG transmission to a Department medical doctor. This information permits a physician to remotely analyze a patient's EKG strip, and based upon that analysis, provide appropriate medical advice to the Paramedic on the scene for appropriate medication or treatment.

## Administrative Programs

**Personnel:** The Department continues to expand the promotional opportunities for EMS members. In addition to initiatives to promote members through the EMS ranks, promotional opportunities exist for promotion to the rank of Firefighter. Since the inception of this program, 157 EMS members eligible for promotion have accepted positions with the uniformed firefighting force. Through additional annual testing, it is anticipated that additional members of the EMS Command will continue to use this promotional option to further their career within the New York City Fire Department.

**Needle Stick Prevention Program:** To ensure the safety of EMS personnel, we have implemented the use of safety IV catheters and safety syringes. These devices are designed to easi-



ly and quickly shield needles that have been used to administer IV fluids and/or medications to patients, minimizing the threat of a needle stick in the pre-hospital setting.

**Ambulance Fleet:** Since the time of the merger, great improvements have been made to the emergency ambulance fleet. There are more ambulances available for use by the EMS Command and the average age of these vehicles is younger than prior to the merger. The Department has begun steps to establish a finite life cycle for all ambulance resources, thereby ensuring the safe and reliable operation of these vehicles for EMS personnel, as well as the citizens of New York. The Department currently has a contract to deliver 400 ambulances during the next five years.

**Queens Radio Frequency Split:** In an effort to enhance Queens radio Communications and reduce radio traffic on the Queens frequency, the borough was split into separate areas, thereby creating an additional dispatch position--Queens One and Queens Two. With the division of the borough, the air traffic on the Queens frequencies has been reduced greatly, thereby allowing units to receive assignments more quickly, decrease response time and make notifications to area hospitals while inbound to the hospital.



## Community-Based Services

**Voluntary Hospital Initiatives:** The Department continues to work with those voluntary hospitals participating in the 911 system. In an attempt to enhance the service we provide daily, additional facilities and resources have been added to the system. To ensure consistency of service, a contract of participation has been established and every hospital participating in this system has a signed agreement on file.

During Fiscal Year 2001, the Department entered into contract with the 28 voluntary hospitals in the 911 system. A contract is mandatory for any voluntary hospital to participate in the system. The contract covers requirements for service operation, performance measures, responsibilities and quality assurance oversight by the Department. All 28 voluntary hospitals currently in the 911 system have signed the contract. The contracts will be renewed every two years from the date of expiration. EMS Operations plays a significant role in the oversight of this process.

The Fire Department offers many training initiatives to Voluntary Hospital EMS staff, including pre-hospital care, incident command and weapons of mass destruction. This allows voluntary providers a better understanding of the overall system in which they operate.

**Volunteer/Community-Based Ambulances:** The Department continues to work also with those Volunteer Community-Based Ambulances participating in the 911 system. Department representatives have been meeting on a regular basis with these organizations to identify ways in which the 911 system can more effectively use these resources. Similar to the voluntary hospital initia-

tive, a contract of participation is being established and every organization participating in the system will be required to abide by the agreement. Here, too, EMS Operations plays a significant role in the oversight process.

## Evaluating Service Delivery

**Pre-Hospital Evaluation of New York Cardiac Survival (PHENYCS):** The New York City Fire Department, in collaboration with the New York Academy of Medicine and the Center for Pediatric Emergency Medicine at NYU Medical Center, now evaluates cardiac arrest survival in patients treated by the NYC 911 EMS system. This effort is being funded by a grant from the American Heart Association and is supported by the resources and cooperation of the FDNY.

Approximately 10 years ago, NYC\*EMS participated in a research project that demonstrated a very low survival rate for pre-hospital cardiac arrest patients in New York City. Since that time, numerous improvements have been implemented in the 911 EMS system, including the introduction of Public Access Defibrillation, the implementation of the CFR-D program, increased staffing levels of EMTs and Paramedics and an overall decrease in system response times. These changes provide the rationale for the current follow-up study.

This initiative will involve both FDNY and voluntary hospital ambulance units participating in the 911 EMS system. All adult and pediatric cardiac and respiratory arrests will be subject to review and analysis. The evaluation program commenced December 1, 2001, and will be in place for a 15- to 18-month period.

WNYF thanks EMS Chief-In-Charge Robert A. McCracken and Assistant Chief of EMS Operations Jerry Gombo for providing information for this article.