Assistant Chief R. D. Andrew

Branford Fire Department Study

Project Report

October 1, 1997

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I. Introduction

The study of the Branford Fire Department (the Study) fieldwork procedures were performed from July 21, 1997 to September 12, 1997. Unless otherwise noted, data included or referenced in this report was obtained from the Branford Fire Department (the Department). Unless otherwise noted, we had no reason to question the authenticity of any of the data, information or reports provided to us by the Department. We did not, however, perform specific procedures to verify such data, information or reports.

The Branford Fire Department consists of the following officers Fire Chief/Fire Marshal, two volunteer Assistant Chiefs, two volunteer Deputy Chiefs and four paid Deputy Chiefs of Operations. There are also sixteen paid firefighters and seventy-eight active volunteer firefighters and line officers from the seven companies and the Fire Police. There are in excess of two hundred volunteer firefighters on the seven company rosters, however, we have deemed those who attend at least 25% of the drills and calls as being active. Such lists were provided to us by the volunteer company Captains.

There are also approximately 25 part-time Paramedics and Emergency Medical Technicians (EMT's) who work part-time shifts on Medic 2. There is a central fire headquarters station as well as five other fire stations. The following is a summary of the volunteer companies and their names:

Company Number	Company Name
Company 2	M.P. Rice Company
Company 4	Short Beach Hose, Hook and Ladder Company
Company 5	Stony Creek Rescue Company 5
Company 8	Headquarters Company 8
Company 9	Indian Neck/Pine Orchard Fire Company

As a result of a number of different factors, Shoreline Associates was engaged to perform a detailed review of the Branford Fire Department. The Study has been performed using a number of different research and investigation methods which will be described in the main body of the report.

In the process of performing a study such as this, observations are generally brought to the attention of the Department and implemented. Thus was the case with this Study project. Wherever Departmental changes have been made which would have been the subject of recommendations in this report, we have attempted to identify them. In any instances where changes have been made which would negate the viability of contemplated recommendations, they will also be highlighted.

II. Executive Summary

It is our understanding that the Town of Branford desired to obtain an impartial evaluation of the efficiency and effectiveness of it's fire and emergency medical services (EMS) department. The stated purpose of the Study was described to us as being an aid to Town management in determining if it is fully and effectively utilizing it's public resources in the fire and EMS area.

As we close in on the 21st century, the demands being placed on fire departments have intensified. The major ones are as follows:

1. Science and technology should ultimately be able to prevent, contain and suppress fires if properly installed.
2. There is constant pressure to reduce the risks for firefighters and the general public.
3. Financial pressure to act more like private business will continue.
4. The role of the fire department continues to expand in areas such as EMS, technical rescue, public education, fire prevention, etc.
5. It will be increasingly difficult to recruit and retain firefighters.
6. The general work force is getting older and more diverse.
7. Technology, lifestyles and urbanization are increasing the complexity of fire and other emergency incidents.
8. Legal and regulatory trends will continue to complicate fire department operations.
9. Fire department organizations will be subject to increasing pressure to relinquish their historic para-military structure in favor of leaner, more flexible structures similar to those used in private business.

The procedures we employed during the Study were varied. They included research, contacting agencies and organizations, interviewing Department and Town management and employees and discussions with our contacts throughout the United States. Some of the specific sources include the Connecticut and National Fire Academies, International Association of Fire Chiefs and various fire departments throughout Connecticut.

The procedures performed were based upon the Request For Proposal drafted by the Town, our response to that proposal and our engagement letter. The procedures included review of fire and EMS staffing, facilities, equipment, operations and administration. In addition, we were asked to provide a long term strategic plan for the Department.

Any fire department should have saving lives, limiting the spread of fire, extinguishment of fire and minimizing the damage from fire related hazards as it's primary goals. While these goals are important, they only relate to a fraction of the work performed by fire departments throughout the United States.

Preservation of human life must be the primary responsibility of the fire department during fires and other emergencies. It appears that the Branford Fire Department accepted this standard of

performance and adopted life safety and preservation as it's priority many years ago. The commitment to this goal was evident throughout our Study fieldwork.

Upon arrival at an involved structure fire, several factors become critical to successful (i.e., effective and efficient) fire extinguishment. They are:

1. Elapsed time from ignition of the fire to the dispatch of fire units.
2. Response time of the fire units to the fire scene.
3. Fire involvement at the time of arrival.
4. The resources (personnel, extinguishing agents and equipment) available at the fire scene.
5. The crew set-up, or reflex time.

One of the key areas of investigation in the Study was staffing. It is important to note that, if all incipient fires were discovered immediately, very few would require the services of a fire department. An analysis of fire company staffing involves the understanding of several factors, including:

1. The risks being protected.
2. The resources available.
3. The management of those resources.
4. The strategy and tactics being employed.
5. The type of protection being afforded.

There were no mission statement and values for the Department. The development of these items often provides for consensus as to the primary mission of the Department (life preservation and safety) and the basic values which the Department members subscribe to. The Branford Fire Department is in need of such a process to provide consensus and re-orient itself to it's most critical mission. ED AMATRUDO – FAIRFIELD GOALS Ron Mullen - Mission Statements
MARK BENSON – VALUES – TORRINGTON

The Board of Fire Commissioners is the governing body for the Branford Fire Department. This Board takes a much more active role in the management of the Department than is the case in other communities.

NFPA 1201 states that this governing body should establish only the primary policies of the fire department and shall not act as an administrative authority or become directly involved in the day-to-day operations of the fire department. In effect, the Board of Fire Commissioners should act like a Board of Directors does in private industry.

The Insurance Services Office (ISO) has completed it's review of the Branford Fire Department. This review is done so as to determine the Town's rating for fire insurance purposes. We contacted the individual responsible for the ISO review, who stated that the results of the ISO review will not be made public until subsequent to the release of these Study findings.

Numerous analyses of incident history, incidents by type, day of week and time of day were

generated. In addition, incidents in total and by type were determined by area of the Town. The Center of Town/Fourth Ward (25.5%), West Main Street/Branford Hills (15.8%) and Indian Neck/Pine Orchard (14.5%) accounted for almost 56% of all incidents.

When incidents are viewed by time of day, we saw that 76% of incidents took place between 8:00 a.m. and 8:00 p.m. We also saw that 54% of all structure fire calls were received from 7:00 a.m. to 6:00 p.m., however, the greatest risk of death in residential fires is from 11:00 p.m. to 8:00 a.m. There was no significant variation of incidents by day of the week.

We viewed the response of the volunteer fire companies and found that they generally answer 55% of the alarms they are dispatched to from 7:00 a.m. to 6:00 p.m. and 66% of the alarms they are dispatched to from 6:00 p.m. to 7:00 a.m. In total, the volunteer apparatus responds 59% of the times it is dispatched.

On average, Engine 1 arrives on scene five minutes after dispatch. That compares to 7.8 minutes for volunteer apparatus with the averages by individual apparatus ranging from a low of 6.0 minutes (Engine 4) to a high of 9.9 minutes (Aerial 1). This means that volunteer apparatus arrives one to five minutes after Engine 1. This statistic is important because the volunteer apparatus must arrive within two minutes of Engine 1 for it to be utilized in the initial structure fire deployment.

The requirements of volunteer firefighters have increased substantially in the past ten years while the lifestyle of the 1990's causes there to be less time available for most volunteers. When the Firefighter I, Hazardous Materials Operations and other training requirements are combined, it results in a total of over 200 hours of training required of a new volunteer. If that person chooses to become an EMT, another 120 hours of training is required. All of this is basic training and excludes time commitments for incident response, weekly drills and other company activities.

Many volunteer firefighters are working two jobs or are part of a two career family. This often requires the fire department to become a second priority. In addition, firefighting has continued to become more dangerous than in the past. The number of volunteer firefighters seriously hurt or killed during training and at incidents has not decreased, while firefighters and officers have been held personally liable for their actions or lack of action. As a result of all of these factors, the number of active volunteer firefighters in Branford and throughout the country is shrinking.

We noted instances where volunteer Assistant Chiefs and Deputy Chiefs had been granted incident management authority without having achieved the necessary Fire Officer and Safety Officer certifications. With the appointment of the new paid Assistant Chief, all of the chief officer positions should be reviewed and their duties and responsibilities adjusted in light of the changes in the Department management structure.

We reviewed the new Department SOP on Personnel Qualifications and agree with it. It is critical that sufficient training and educational opportunities be made available to paid and volunteer Department members and officers so as to allow them to satisfy the requirements of their positions.

We reviewed the incident management system and procedures being used by the Department which generally follow accepted procedures, however, annual ICS refresher training should be provided. We also reviewed the Standard Operating Procedures (SOP) Manual. We have provided recommendations for additional items in the body of our report.

The utilization of incident scene safety officers and a rapid intervention crew is called for in the SOPs, however, there does not appear to be widespread usage of either of these at incidents. Formal adoption of these would require training and equipping the appropriate individuals to adequately perform such tasks. There is currently no Department Safety Committee. Such a Committee should be formed as an advisory committee to the Fire Chief in the areas of review and evaluation of SOPs, standards, equipment and safety issues.

We were unable to locate job descriptions for any of the positions within the Department except for the new Assistant Chief and Fire Marshal positions. The Assistant Chief job description appears to be somewhat different from the duties of the new Assistant Chief. The Fire Marshal position has not yet been filled, therefore, it is not possible to verify the accuracy of that job description. Accurate job descriptions should be completed for all positions within the Department.

The relationship between the paid firefighters union and the Fire Chief appears to have significantly deteriorated over the past two years. A review of published media reports and the available files supports this assumption. The situation appears to have culminated itself in a vote of no confidence being taken by the firefighters union and one of the volunteer fire companies in early 1997.

Subsequently, the situation has further deteriorated whereby a number of the paid firefighters and senior officers avoid contact with the Fire Chief and/or severely limit their interaction with him. We were unable to determine the root cause(s) of the deterioration in relations, however, it is evident that it exists. If the Department is to progress, maintain adequate employee/management relations and move forward this situation must be resolved. It would be appropriate to bring in a facilitator to attempt to resolve the perceived conflict.

The average salaries and W-2 wages of the firefighters and shift commanders were determined and compared, where possible, to other Connecticut towns. The other Connecticut towns were East Haven, West Haven, New London, Poquonnock Bridge, East Hartford and Westport. Base salaries for firefighters ranked second lowest in that group while shift commander base salaries ranked third lowest.

Average firefighter W-2 compensation for 1996 was $48,749 while the average for shift commanders was $62,290. Firefighter compensation has increased 15.7% from the FY 1995/1996 actual expenditures to the FY 1997/1998 budgeted expenditures. This appears to be caused by a cost of living increase, increases in firefighter steps, increased overtime, sick, holiday, vacation and workers compensation replacement wages.

We performed our review of staffing in a number of stages. Those stages included:

1. Determination of the number of firefighters necessary to be on the scene of a residential or small commercial structure fire. Our review of numerous authoritative sources revealed that twelve (12) firefighters and a n incident commander should be on the scene of a residential or small commercial structure fire to initiate interior fire attack.
2. Analysis of the response patterns for the Branford volunteer firefighters and consideration of the factors included in the report section on Volunteerism. Of the twelve (12) positions initial structure fire attack crew, it would be appropriate to allocate four (4) positions to volunteer firefighters.
3. Review of regional and national average staffing averages and comparison to Branford. Comparisons to national, regional, area type and population sized data showed that Branford Fire Department staffing and overall costs are the lowest. On the other hand, the minimum and maximum firefighter salaries were higher than those averages.
4. Comparison of other Connecticut town fire department staffing to Branford. This analysis showed that Branford is in the lower third of staffing per population served and other factors when compared to the Connecticut towns for which we had data.
5. Development of alternatives for increased staffing of the Branford Fire Department.
6. Recommendation of what we perceived to be the best alternative.

Branford population increased by 35% from 1970 to 1990. With a 28% increase in housing units during the past decade, the Town exceeded the percentage increase of every other town in New Haven County and the State of Connecticut. The Town of Branford, like the rest of the State, has entered a period of slow growth. Population growth over the next twenty years is projected to be one-half of what it has been for the last twenty years.

As a result of the above, an increase in Fire Department staffing has been recommended. This recommendation is more to catch-up to the growth which has already taken place, rather than as preparation for the growth expected in the coming years.

Our recommendation is for a firefighter staffing increase, which would require that four additional firefighters be placed on each shift, resulting in a total of eight full-time firefighters being scheduled for duty twenty-four hours a day, 365 days a year. The exceptions would be when Medic 1 is out of service performing a patient transport and while returning from the hospital. Full-time paid staffing would thus be a Deputy Chief-Operations, four (4) firefighters on Engine 1, two (2) firefighters on Aerial 1 and two (2) firefighters on Medic 1. The cost of each additional firefighter per shift was estimated at $213,132 (four firefighters at $53,283 each). The total annual cost of our recommendation of four (4) additional firefighters per shift is $852,528, including benefits.

This would still require a minimum of four (4) positions or one-third of the initial structure fire attack crew to be comprised of qualified Class A volunteer firefighters. As a structure fire progresses, or in the event of a structure fire in a commercial, industrial, multiple family housing or health care

occupancy, the volunteer firefighters will be relied upon for a much greater number of structure fire assignments.

The question of what Paramedics really do is one that many fire and EMS administrators are unable to answer. Essentially, the Paramedic's higher levels of training allows them to perform airway management, medication and fluid administration and cardiac management skills.

EMS call volume and trends were reviewed. It appears that the current year EMS call volume will exceed each of the last three years. Year to date, Medic 1 has responded to 1,252 incidents of which, two-thirds resulted or could have resulted in patient transports. During the same period, Medic 2 responded to 706 incidents of which over 90% resulted or could have resulted in patient transports.

EMS patient transport collections were $168,000 in FY 1996/1997 as compared to $414,576 in FY 1995/1996. This decrease was primarily due to computer hardware problems and resulting failure to generate patient transport invoices for much of the year. An outside billing agency has been retained and will attempt to bill and collect for some of the missed revenue in addition to taking responsibility for the current year billing and collections.

We reviewed the part-time staffing of Medic 2 and evaluated the consideration of converting Medic 2 to full-time staffing. Our analyses determined that part-time staffing with call-in crews during the non-staffed shifts is the most cost effective option, even though the use of full-time staffing would be more effective for the Department operations.

We investigated the possibility of transferring EMS patient transport to a commercial ambulance company but could find no financial justification for doing so. In addition, there were a number of intangible reasons not to make such a change. As such, we have not recommended further consideration of this alternative.

We recommended the conversion of Engine 1 to a Paramedic engine company. With the number of Paramedics on staff and in training, this would appear to only require obtaining approval from the Sponsor Hospital and purchase of the appropriate equipment.

We reviewed Departmental training activities and identified a number of areas which require attention. One of the biggest areas requiring training is Hazardous Materials Operations. We also recommended the implementation of a Training Division which would include representatives of the paid and all volunteer companies.

Our review of fire stations, apparatus and equipment was performed by visiting and viewing them. In general, we found that they were adequate to meet the needs of the Department. The major exceptions were space available at Fire Headquarters, condition of Engine 9 (which has since been replaced by the spare engine), the location of and parking for Station 2 and the condition of Station 9.

We provided our opinions as to the possible options if volunteer companies were to be combined or merged. The possible options have been identified and considerations for each provided

Water supply and mutual aid usage were reviewed and various recommendations developed. Neither of these areas generated any significant concerns.

The management information and communications systems in use by the Department were reviewed and evaluated. Certain recommendations were developed, however, no significant concerns were identified.

In our review of the fiscal management of the Department we developed a flowchart of the purchase approval and payment process. We determined that a total of six approvals are required to purchase and pay for goods and services. This process should be made more efficient and we have provided a recommendation to do so.

Fire Marshal procedures were reviewed noting what had been completed to date in 1997. The new Fire Marshal position has yet to be filled, once that is accomplished the activity level will increase.

The following are the most significant recommendations included in this report:

1. The process of determining if a volunteer firefighter is eligible for the pension plan each year and documenting that process must be streamlined. This may require a standardized format for the volunteer companies to record attendance.
2. All chief officers who are given incident command/management responsibilities must be trained to the Fire Officer I certification level.
3. Firefighters should be provided with ample training opportunities to meet the requirements of the Personnel Qualifications Standard Operating Procedure, especially in the area of Hazardous Materials Operations.
4. All company officers should receive incident safety officer training and a safety officer should routinely be appointed whenever two or more companies are on scene and operating at an incident.
5. The Department should establish a Safety Committee and appoint individuals to serve on it.
6. An outside facilitator should be brought in to attempt to resolve the perceived conflict between the firefighters union and the Fire Chief. While this may no be the ultimate solution, it should allow for some of the issues to surface and be rectified.
7. The qualifications for inclusion on the utility firefighter list should include at lease two years of active service as a Class A firefighter, EMT-B certification, passing the Department agility test, written test and an oral board interview.
8. Aerial 1 should be fitted with a 1,500 gpm pump, 200 gallon water tank and hose.

9. Full-time paid staffing should be increased by four (4) firefighters per shift. This would result in staffing of a Deputy Chief-Operations, four (4) firefighters on Engine 1, two (2) firefighters on Aerial 1 and two (2) firefighters on Medic 1. At least 50% of all firefighters hired should be Paramedics.
10. Minimum staffing could be six (6) firefighters, plus the Deputy Chief-Operations if our staffing recommendation is adopted.
11. The Department should identify and actively attempt to develop agreements with non-ambulatory facilities in Town to provide routine and emergency patient transfer services.
12. The latest staffing configuration of Medic 2 staffing whereby part-time staff is supplemented with paid on call personnel should be retained if our recommendation on firefighter staffing is adopted. If not, staffing on Medic 2 should be by full-time Department personnel.
13. The Department should provide the EMS Coordinator with sufficient overtime compensation for him/her to supervise and monitor the EMS function.
14. Written mutual aid agreements should be developed with all surrounding towns and the procedures for engaging mutual aid assistance should be defined.
15. A major focus of the Branford Fire Department should be incorporating automatic fire detection and suppression devices in as many properties as possible and inspection of those properties on a regular basis.

Should the Town of Branford desire to minimize the need for future firefighter staffing increases above the essential additional required staffing included in our recommendations, well defined and enforced requirements for automatic fire detection and suppression systems must be instituted for substantially all structures other than single family dwellings. In the longer term, residential smoke detectors and sprinkler ordinances would be in order for single family residential dwellings.

The balance of our report covers all of the areas we reviewed, the analysis procedures performed and outlines each of the recommendations we developed.

III. Overview of Procedures Performed

Numerous procedures were performed in the process of completing the Study. The list of procedures included, but were not limited to the following:

Review of pertinent national standards from the National Fire Protection Administration (NFPA).
Review of numerous handbooks and texts considered to be the most authoritative in the fire service.
Review literature and information provided by the Management Information Center maintained by the International Association of Fire Chiefs.

Collection, summarization and review of information from other similar fire departments throughout Connecticut.

Visits to and research performed at the Learning Resource Center at the National Fire Academy.

Review of a number of research papers prepared by attendees of the National Fire Academy Executive Fire Officer Program.

Contacting, discussions with and summarization of information received from our colleagues throughout the United States.

Visits to and research performed at the Learning Resource Center at the Connecticut Fire Academy.

The list above represents on the major sources of research and information used to complete this project. The specific sources and resources which were used have been listed in Exhibit I. The procedures we set out to perform at the inception of the project were as follows:

1. Identify the minimum and optimum levels of effective fire suppression services.
2. Determine if present staffing (paid and volunteer), administration, operational structure, equipment, facilities and training levels fulfill the community's needs.
3. Review Federal and State regulatory standards and requirements as they affect the Town's fire/EMS operations and procedures. Also, identify deficiencies, if any, and recommend solutions to attain compliance.
4. Evaluate the effectiveness of current scheduling and shift assignments for all departmental staff.
5. Evaluate fire and EMS Standard Operating Procedures, protocols and policies.
6. Evaluate if the Town EMS service is the appropriate entity to deliver emergency advanced life support, including patient transportation, within the Town service area.
7. Provide the service and cost impact of any alternative EMS service recommendations.
8. Establish a long term plan (five and ten years) for the fire and EMS services so as to address potential Town growth and development.

There were certain procedures which were included in our original proposal, but were not performed. The reasons included inability to access sufficient information to adequately assess an area, the procedure not being deemed necessary and/or other circumstances beyond our control. The list of such procedures not performed includes communications with the Police Chief and Building Department, interview of South Central C-MED representatives and comparison of equipment inventories to ISO guidelines.

In our opinion, the exclusion of these procedures did not have an adverse effect on our Study. In certain instances, we expanded our procedures in response to the preliminary findings during our fieldwork. Those procedures resulted in a better understanding of the conditions present within the Town and Department and allowed us to develop more comprehensive recommendations.

IV. Organization

Fire Department Priorities

NFPA Standard 1201, *Developing Fire Protection Services for the Public*, contains requirements and recommendations on the structure and operation of organizations providing public fire protection services. NFPA 1201 clearly states that the level of service provided and the degree of risk accepted by the Town shall be subject to local determination.

This standard has been interpreted to say that while the local jurisdiction can determine the level of fire protection that it believes is prudent, anyone can assert that the fire department was not in compliance with specific standards and, therefore was negligent in providing proper protection to the local jurisdiction. As such, determination of compliance with standards is more a matter of interpretation than a clear-cut analytical procedure.

A fire department should have the following as it's fire suppression goals:

Save lives
Limit the spread of the fire
Extinguish the fire
Minimize the damage from fire related hazards

While these goals are important, they only relate to a fraction of the work performed by fire departments throughout the United States. Preservation of human life must be the primary responsibility of the fire department during fires and other emergencies. It appears that the Branford Fire Department accepted this standard of performance and adopted life safety and preservation as it's priority many years ago. The commitment to this goal was evident throughout our study fieldwork.

Departmental Organizational Structure

The Branford Fire Department organization chart, as it currently exits, has been included as Exhibit 4. It is in need of being modified to show the volunteer Assistant Chiefs and other missing individuals. It also lacks any reference to the emergency medical services (EMS) function.

While the organizational chart is not critical to the functioning of the Department, it's development usually will result in the resolution of questions concerning the duties and responsibilities of the individuals represented by the boxes on the organizational chart.

Recommendation

The Branford Fire Department organizational chart needs to be modified to reflect all ranks and functions represented in the Department. Doing so will force a review of the duties and responsibilities of each position within the Department.

Mission Statement/Values

We were unable to locate the Department mission and values statements. The development of these items often provides for consensus as to the primary mission of the Department (life preservation and safety) and the basic values which the Department members stand for. The Branford Fire Department is in need of such a process to provide consensus and re-orient itself to it's most critical mission. If requested, we can provide examples and assistance in the development of these items.

Recommendation

We recommend the development of a mission statement and a statement of values for the Branford Fire Department. The committee which develops these items should be comprised of the Chief and representatives of the Deputy Chiefs of Operations, volunteer chief officers, volunteer company officers, paid firefighters, volunteer firefighters and the part-time employees who work on Medic 2.

Strategic Plan

It is the responsibility of the fire department, in conjunction with the community government to develop and implement a strategic plan for community-balanced and cost-effective fire control and emergency services deployment. This strategic plan should take into consideration the existing conditions and anticipated community growth. The strategic plan is often for a period of five to ten years.

We were unable to identify any long term or strategic plan ever developed for the Branford Fire Department. In connection with the Study, Shoreline Associates has been engaged to prepare a long term strategic plan.

Role of the Board of Fire Commissioners

The Board of Fire Commissioners is the governing body for the Branford Fire Department. This Board takes a much more active role in the management of the Department than is the case in other communities.

NFPA 1201 states that this governing body should establish only the primary policies and strategic issues of the fire department and shall not act as an administrative authority or become directly involved in the day-to-day operations of the fire department. In effect, the Board of Fire Commissioners should act like a Board of Directors does in private industry.

Recommendation

While we understand that the Board of Fire Commissioners wants to remain in close contact with the operations of the Branford Fire Department, it must provide sufficient distance from day-to-day decision making to allow it to maintain it's objectivity and carry out it's oversight responsibilities through the development of policies.

V. Governmental Agency Involvement

ISO Review

The Insurance Services Office (ISO) has completed it's review of the Branford Fire Department. We understand that such a review is performed every 10 years in municipalities where population exceeds 25,000. This review is done so as to determine the Town's rating for fire insurance purposes.

We contacted the individual responsible for the ISO review, who stated that the results of the ISO review will not be made public until subsequent to the release of these Study findings. We were not provided with any of the data used by ISO, nor were any of their findings made available to us.

Should any of the findings of the ISO review conflict with the findings and recommendations included in this report, it would be prudent to have a complete analysis of both sources of information reviewed before considering one set of data to be "correct" or "incorrect".

NFPA Report

As was stated in our proposal, it was our intent to specifically exclude from this project any procedures related to the investigation of, evaluation of the procedures performed at, pending or threatened litigation or any other matters related to the November, 1996 fatal fire at 43 School Ground Road (the Floors and More facility). We did, however, read a preliminary draft of the NFPA report prepared concerning that fire. While the preliminary draft of the report was insightful, it did not cause us to modify any of the Study procedures or recommendations.

OSHA Citation

On January 31, 1997, the Town of Branford received citations from the Occupational Safety and Health Administration (OSHA) related to the 43 School Ground Road fire. Those citations related to incident scene personnel accountability, emergency response plans, annual hazardous materials refresher training, self-contained breathing apparatus, training levels, interior firefighting training, ladder inspections, hazard communication programs and portable fire extinguisher inspection.

The determination of whether the Department has satisfied the citations was beyond the scope of our Study. The State of Connecticut, Department of Labor will determine if they have been satisfied.

VI. Incident History

Summary of Incidents By Year/Type

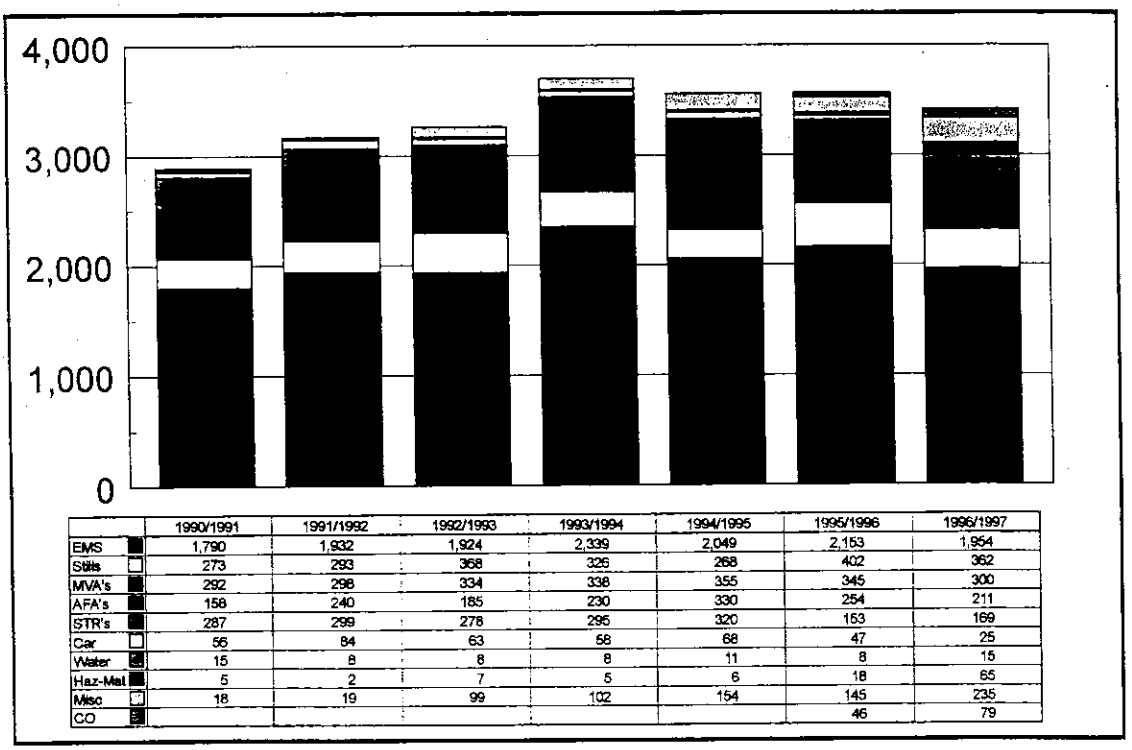
One of the first considerations in studying the Department was to determine what the incident history has been by year and type and other characteristics. The following is a summary of the number of incidents for each of the last seven fiscal years ended June 30:

Fiscal Year 1990/1991	2,894
Fiscal Year 1991/1992	3,175

Fiscal Year 1992/1993	3,266
Fiscal Year 1993/1994	3,701
Fiscal Year 1994/1995	3,561
Fiscal Year 1995/1996	3,571
Fiscal Year 1996/1997	3,415

While there appears to have been a decrease in the total number of incidents during the 1996/1997 fiscal year, this may be due to the implementation of a new computer aided dispatch (CAD) system in December, 1995. This new system provides computerized detail and a database of response information that was valuable during the Study. Unfortunately, the incident information previous to December, 1995 was manually calculated and the possibility exists that it may have contained mathematical errors. In addition, the Branford Town Ambulance merged with the Fire Department in 1993. For that fiscal year and the fiscal years previous to that, we developed pro-forma EMS incident totals from the records of the two organizations. While we attempted to provide accurate pro-forma incident data previous to the merger, no assurance can be given. That data has been converted into the graphs below:

Incidents By Type By Year



	1990/1991	1991/1992	1992/1993	1993/1994	1994/1995	1995/1996	1996/1997
EMS	1,790	1,932	1,924	2,339	2,049	2,153	1,954
Stills	273	293	368	326	268	402	362
MVA's	292	298	334	338	355	345	300
AFA's	158	240	185	230	330	254	211
STR's	287	299	278	295	320	153	169
Car	56	84	63	58	68	47	25
Water	15	8	8	8	11	8	15
Haz-Mat	5	2	7	5	6	18	65
Misc	18	19	99	102	154	145	235
CO						46	79

As can be seen above, there may be some inconsistencies between the placement of certain types of calls from the early years to the latest years. What is important to note is that still alarms and miscellaneous calls have risen while reported structure fires have decreased.

We understand that there are two reasons of this situation. First, the definition of what is considered a true structure fire has been narrowed in recent years and become more accurate. Second, the firefighters believe that there has been a true decrease in the number of confirmed structure fires in the past five years.

Incidents By Location/Type

When the incident information is sorted by location within in the Town of Branford, there are different items which become noteworthy. The Town was separated into the following ten areas.

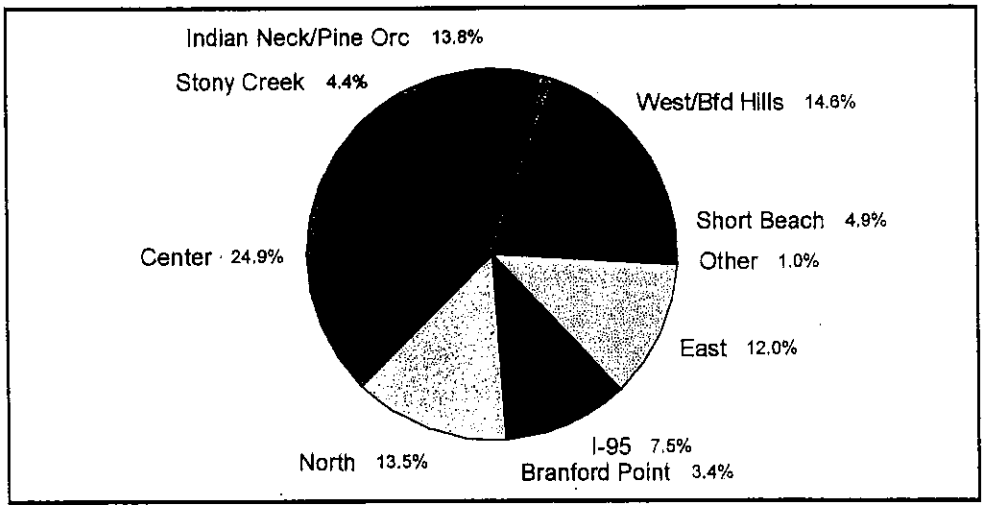
Short Beach
West Main Street/Branford Hills
Pine Orchard and Indian Neck
Stony Creek
Center of Town/Fourth Ward
Northern Section of Town
Branford Point
I-95
Eastern Section of Town

During the 1996/1997 fiscal year, the three areas with the highest call volume for all incidents and just EMS calls are as follows:

	All Incidents		EMS Calls	
	Number	Percent	Number	Percent
Center/Fourth Ward	870	25.5%	536	28.0%
West Main/Branford Hills	540	15.8%	309	16.2%
Pine Orchard/Indian Neck	495	14.5%	279	14.6%
Totals	1,905	55.8%	1,124	58.8%

As can be seen from the table above, these three areas of the Town account for 55.8% of all incidents and 58.8% of EMS calls. In graph form, the incident data for all ten areas is as follows:

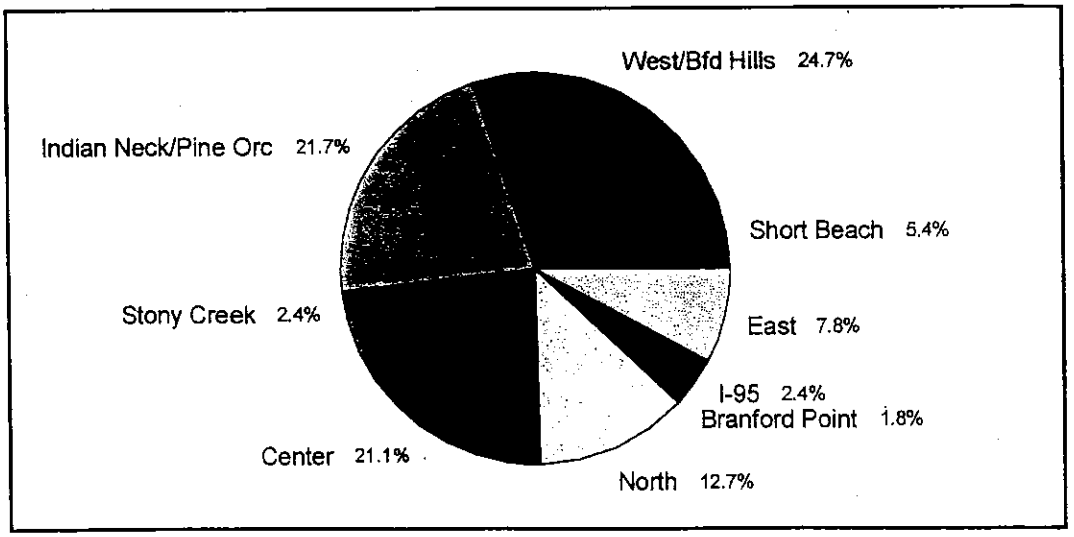
Incidents By Area



We reviewed the incident data by area of the Town for the previous two fiscal years and saw no significant deviation from the information incident identified for fiscal year 1996/1997. We do, however, see a deviation when we compared all incident data by area to the structure fire incident data by area.

In the structure fire data there was an increase in the West Main Street/Branford Hills, Center of Town/Fourth Ward and Indian Neck/Pine Orchard areas. The Eastern Section of the Town showed a decrease which may indicate the effectiveness of private fire protection devices such as automatic fire alarms and sprinkler systems. There was also an expected decrease in the percentage of incidents on I-95 when only structure fire data is examined. The structure fire data by area for fiscal 1996/1997 is as follows:

Structure Fires By Area



A complete set of the incidents by area for each major type of incident has been included as Exhibit 5.

Incidents By Time of Day/Day of Week
A review of the incidents by time of day yielded the following:

	All Incidents	EMS Calls	Structure Fires
12:00 midnight to 4:00 a.m.	8%	7%	2%
4:01 a.m. to 8:00 a.m.	6%	8%	5%
8:01 a.m. to 12:00 noon	25%	27%	17%
12:01 p.m. to 4:00 p.m.	25%	25%	23%
4:01 p.m. to 8:00 p.m.	21%	20%	30%
8:01 p.m. to 12:00 midnight	15%	13%	23%
Total	100%	100%	100%

As can be seen above, there is relatively little fire or EMS activity from 12:00 midnight to 8:00 a.m. It should be noted that the greatest concern for life loss in residential structure fires is from approximately 11:00 p.m. to 8:00 a.m. It is during this time that the inhabitants are at the greatest risk, especially if they are not protected by smoke alarms, automatic sprinkler systems or other automatic fire detection systems.

Whereas incident and EMS call activity is reduced after 8:00 p.m., the structure fire activity is consistent until around midnight. It is generally believed that adequate volunteer firefighter response can be relied upon most from 6:00 p.m. to 12:00 midnight. Unfortunately, approximately 54% of the structure fires take place between 7:00 a.m. and 6:00 p.m. It these calls which require the highest number of personnel.

When incidents are reviewed by the day of the week in which they happen, the following are the results:

	All Incidents	EMS Calls	Structure Fires
Sunday	13%	12%	9%
Monday	14%	15%	18%
Tuesday	15%	15%	16%
Wednesday	14%	15%	16%
Thursday	15%	15%	13%
Friday	14%	14%	10%
Saturday	15%	14%	18%
Total	100%	100%	100%

The incident history by day of the week would suggest that there is no one day of the week which has significantly higher or lower call volume. In general, Sunday has marginally lower call volume, especially in the area of structure fires.

1997 YTD Calls Dispatched By Apparatus

We obtained 1997 year-to-date (YTD) incident data for review just prior to the completion of Study fieldwork. The data included the total of the YTD incidents and a total for each apparatus. The following is a summary of the data:

January 1, 1997 to September 9, 1997 Incidents Dispatched **2,625**

	Number Dispatched	Percent of Total
Medic 1	1,294	49%
Engine 1	1,210	46%
Medic 2	682	26%
Rescue 1	607	23%
Engine 2	420	16%
Engine 8	336	13%
Engine 4	233	9%
Aerial 1	210	8%
Engine 5	176	7%
Engine 9	161	6%

From the above it is evident that the three apparatus with paid staff are dispatched the most, however, Rescue 1 is dispatched almost as much as Medic 2. Engines 2 and/or 8 are dispatched to substantially all structure fire calls in Town. As such, they have higher dispatch rates than the other volunteer engines.

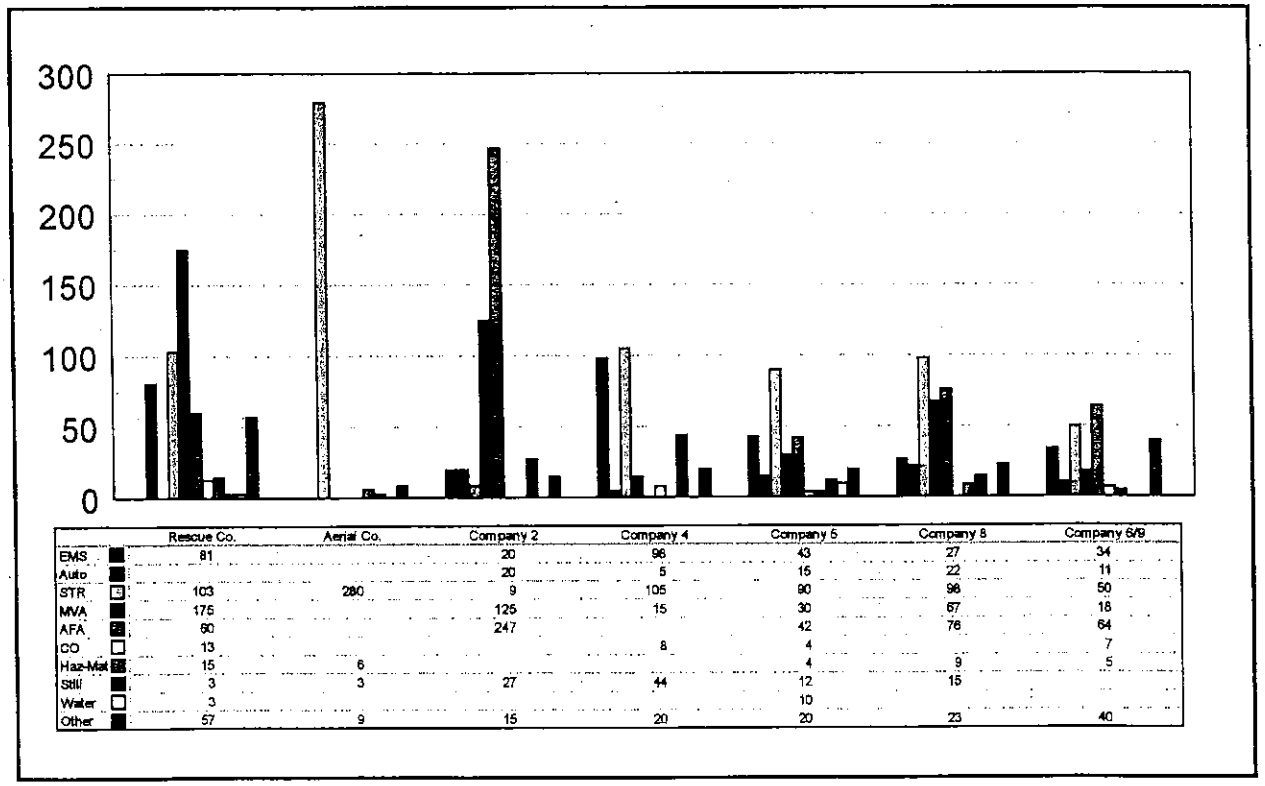
It can also be determined from the data above that, at the current run rate, total incidents for the calendar year 1997 would reach 3,800. If so, this would be an increase of over 10% from prior years.

Volunteer Response To Incidents

Each of the volunteer companies was asked to provide total numbers of calls by type for the year 1996. Although all of the previous incident information was provided on a fiscal year basis so as to have the most up to date data, fiscal year incident data was consistent with 1996 calendar year data.

We were unable to verify the accuracy of the data provided by the volunteer companies. As can be seen from the graph, the data does not coincide with what would be expected from the dispatch and response patterns we have seen.

Response Data Provided By Volunteer Companies



	Rescue Co.	Aerial Co.	Company 2	Company 4	Company 5	Company 8	Company 6/9
EMS	81		20	96	43	27	34
Auto			20	5	15	22	11
STR	103	280	9	105	90	98	50
MVA	175		125	15	30	67	18
AFA	60		247		42	76	64
CO	13			8	4		7
Haz-Mat	15	6			4	9	5
Still	3	3	27	44	12	15	
Water	3				10		
Other	57	9	15	20	20	23	40

A selection of the CAD system summary incident reports have been included as Exhibit 6.

Volunteer Response By Time of Day

Using the YTD data mentioned above, we were able to identify how often each apparatus was dispatched during various times of the day and how often the apparatus actually responded. The following is a table of the response rate each of the lead volunteer engines:

	Total Dispatches	Alarms Answered	Responses 7:00 a.m. to 6:00 p.m.	Responses 6:00 p.m. to 7:00 a.m.
Aerial 1	210	71%	68%	76%
Rescue 1	607	45%	41%	52%
Engine 2	420	54%	51%	58%
Engine 4	233	83%	81%	87%
Engine 5	176	80%	78%	84%
Engine 8	336	54%	44%	70%
Engine 9	161	68%	65%	72%
Overall Average		**59.4%**	**55.4%**	**65.5%**

From the information included in the table above it can be seen that, on average, the volunteer apparatus responds 59% of the times it is dispatched. When that statistic is reviewed by the time of day, it can be seen that daytime response is 55% while response between 6:00 p.m. and 7:00 a.m. is 66%.

The response percentages vary somewhat by company and frequency of dispatch. The units with the highest number of incidents dispatched to have the lowest response rates. For example, Rescue 1 has the highest number of dispatches for volunteer apparatus, but the lowest overall response rate (45%). The only apparatus with a wide variation in response between the daytime and the rest of the day is Engine 8 with a difference of 26% between responses rates by time of day.

We believe that a portion of the lack of response can be attributed to full-time staffed units (Car 6, Engine 1 and Medic 1) cancelling volunteer apparatus response prior to such units signing-on with the dispatcher. We did not, however, see any evidence that this was a major contributing factor to the low rates of response.

VII. Volunteerism

Changes In Volunteerism/Time Commitment

From 1983 to 1991, the number of volunteer firefighters in the United States dropped from 884,600 to 772,000, a decrease of 13%. In recent years, that trend has continued. This situation is complicated by many volunteer firefighters who are no longer active remain on the roster.

A number of factors have contributed to the decline in volunteer firefighters. Volunteer firefighters should be and usually are subjected to the same training requirements as paid firefighters. This results in an initial training requirement of approximately 200 hours to obtain Firefighter I and Hazardous Materials Operational Level certifications. In addition, there are additional weekly or monthly training requirements. If the firefighter chooses to become an EMT, another 120 hours of training will be required.

There are other areas where time commitment is required. Included are, equipment familiarization, understanding NFPA standards, CPR training, fund raising and understanding safety considerations.

At the same time, there are competing demands on the time people have available to volunteer their time to the fire department. Many firefighters are working two jobs or are members of a two career family. This often results in the fire department becoming a second priority.

Finally, firefighting has continued to become more dangerous than in the past. The number of paid and volunteer firefighters seriously hurt and killed during training and at incidents has not decreased. In addition, firefighters and officers are being held personally liable for their actions or lack of action.

In the preceding section of this report, we identified that 54% of the structure fires in the Town of Branford during the past year took place during the period of 7:00 a.m. to 6:00 p.m. Structure fires are the incidents which the Branford Fire Department depends on the volunteer firefighters most to supplement the five paid firefighters on duty. Unfortunately, that is the time when most of the volunteers are not available to respond. This is partially evident by the volunteer fire apparatus response rate being slightly more than 50% of the times it is dispatched during that time period.

Volunteer Response Time To Incidents

We calculated the average time (in minutes) from dispatch to enroute time for each of the volunteer lead apparatus and have included it below. Only the dispatch instances where the unit actually responded were included in our analysis.

	Average Enroute Time	Average Enroute To Arrival	Average Dispatch To Arrival	Average Elapsed Time After E-1 Arrival
Aerial 1	5.9	4.0	9.9	4.9
Rescue 1	3.9	3.7	7.6	2.6
Engine 2	4.3	3.1	7.4	2.4
Engine 4	3.0	3.0	6.0	1.0
Engine 5	3.7	4.2	7.9	2.9
Engine 8	4.5	3.5	8.0	3.0
Engine 9	4.5	3.8	8.3	3.3
Average	**4.2**	**3.6**	**7.8**	**2.8**

As can be seen above, the average time from dispatch to enroute ranged from 3.0 to 5.9 minutes with an average of 4.2 minutes. This statistic was best for certain apparatus, such as Engines 4 and 5, where many members of the company live near the fire station. This situation seems to work against Engines 8, 9 and Aerial 1. It should also be noted that some consideration must be given to the difficulty encountered by Engine 8, Engine 2 and Aerial 1 members who attempt to respond to the congested Town Center where their apparatus is housed. While we believe this has some affect on their dispatch to enroute times, we have no way of calculating the true effect.

The average time from enroute to arrival ranged from 3.0 to 4.2 minutes. There were no significant differences between the average times for the different volunteer apparatus. This statistic is somewhat affected by two factors. First, times would be lower for response to in district calls. Second, times are higher than the average for out of district calls where an engine could be second or third due. We were unable to determine the net effect of these two factors.

The average dispatch to enroute and enroute to arrival times were combined to arrive at average time from dispatch to arrival. These times ranged from 6.0 to 9.9 minutes. The average time from dispatch to arrival of Engine 1 is 5.0 minutes. When this is compared to the averages calculated above, it can be seen that volunteer apparatus arrives, on average, 2.8 minutes after Engine 1. Excluding Aerial 1, that average is 2.5 minutes. This is reasonable for a volunteer company.

As stated, the times for all units other than Aerial 1 are acceptable for volunteer companies. The key concern with Aerial 1 is that the services of an aerial truck company are often needed most in the early stages of a structure fire, unfortunately that vehicle arrives, on average, approximately five

minutes after Engine 1. This does not meet the criteria for arrival and initiation of procedures within the ten minute window of the receipt of the alarm previously discussed. It is interesting to note that it takes, on average, almost six minutes for Aerial 1 to respond.

History and Status of the Volunteer Incentive Plan

A volunteer service pension plan was instituted in the Branford Fire Department in January, 1991. The general provisions of the plan are as follows:

1. After 10 years of active service and having attained the age of 65, a volunteer member is eligible for a pension of up to $250 per month.
2. To accrue a year of active service, a volunteer firefighter must accrue 100 points in three categories, as follows:

a. Mandatory drills	32 points
b. Company drills	32 points
c. Response to calls	36 points

3. Those members that were active for at least ten years prior to January 1, 1991 received credit for up to a maximum of five years credited service.
4. Members qualifying for ten or more years are deemed fully vested.

A concern was raised a number of months ago regarding the number of firefighters which have achieved eligibility for the pension in recent years. The following is a table of the number of volunteer firefighters which are reported to have achieved eligibility for each year since the inception of the volunteer pension plan:

1991	25
1992	26
1993	24
1994	32
1995	29
1996	37

We understand that there have been a number of conversations recently concerning the process of submitting drill, call and meeting data for pension plan eligibility determination. While we have not evaluated the complete process, there appears to be significant room for improvement and efficiency increases.

During the course of the Study fieldwork, the Volunteer Pension Committee met several times. We made recommendations as to efficiency improvements and a number appear to have been adopted. In addition, the Department Information Systems Coordinator has accepted the responsibility for limited data input and the development of spreadsheet program which will summarize the data for submission to the Town Hall.

Recommendation
The process of determining if a volunteer is eligible for the pension plan each year and documenting that process must be streamlined. Company captains should maintain records and fill out a standard form on a monthly basis. That form should be forwarded to Fire Headquarters and then input by the Department Information Systems Coordinator. On a semi-annual basis, a print out of the status of all members should be provided to the captain of each company. On an annual basis, each volunteer should receive a statement of the number of years of eligibility he or she has earned as of that date.

The volunteer chief officers are also required to meet the points requirements to be eligible for the pension. These chief officers fulfill many tasks in addition to attending drills and incidents.

Recommendation
We recommend that each volunteer chief officer be granted eligibility each year based upon the adequate performance of the duties included in their job description. For each year that the Board of Fire Commissioners evaluates their performance as no less than acceptable, they should be granted eligibility regardless of the number of drills or calls attended. We understand that the Volunteer Pension Committee is attempting to obtain approval for this change.

Status of the Volunteer Chief Officers
There are currently two volunteer Assistant Chiefs and two volunteer Deputy Chiefs. Their responsibilities are as follows:

Assistant Chief - Suppression & Response Services
Assistant Chief - Administration & Support Services
Deputy Chief - Apparatus & Facilities
Deputy Chief - Deputy Fire Marshal

We understand that there is a position of Deputy Chief - Training which is currently vacant. The organizational chart also lists a Deputy Chief - Fire Prevention. To our knowledge, this position has not currently filled.

With the hiring of the paid Assistant Chief, the responsibilities of all of the volunteer chief officers must be reviewed and, if necessary, realigned. As will be discussed in the Personnel Issues section of this report, job descriptions for all positions must be developed and approved.

The volunteer chief officers have a wide cross section of experience and qualifications. In some cases, it appears that positions which were originally considered to be staff officer positions have changed into a combination of staff and line officer roles. While we do not disagree with this, each chief officer, paid or volunteer, must have the qualifications necessary to serve in a incident command capacity if they are given that responsibility.

Recommendation
All chief officers who are given incident management/command responsibilities must be trained to a

higher level than those they supervise. This would require them to achieve Fire Officer I certification. In addition, they must also be certified in the areas of safety officer, hazardous materials incident management and Incident Command System. These requirements are further explained in the Qualifications for Chief Officer section of our report.

VIII. Personnel Qualifications

The Standard Operating Procedures Manual (SOP's) includes an outline of the qualifications necessary for each level of firefighter and officer a copy of which has been included as Exhibit 8. We understand that the SOP's have yet to be approved, however, we believe that they should be. One of the most important points to be made about the personnel qualification requirements is that they apply to paid, utility and volunteer firefighters and officers. We agree with that approach, especially in a combination fire department such as in Branford.

Firefighter Qualifications
The following are the levels of firefighter qualifications along with the functions which they are allowed to perform:

Class A Firefighter - Permitted to wear SCBA and work as a member of an interior firefighting crew.

Class B Firefighter - Permitted to work as a member of an exterior crew, accomplishing fire ground activities which do not require the use of SCBA.

Class C Firefighter - Granted at the time a member is awarded active membership in the Department. They are permitted to participate in limited exterior fire ground activities. Use of SCBA and interior firefighting operations are expressly prohibited.

Class E Firefighter - Rating assigned to members who have been certified to provide emergency medical care. This rating may be assigned in addition to the firefighter ratings listed above.

The following is a summary of the requirements of each of the firefighter ratings:

Class A Firefighter	Class B Firefighter	Class C Firefighter
Annual medical exam	Annual medical exam	No medical exam
Certified Firefighter I	Certified Firefighter I	No firefighter certification
Haz-Mat Operations	Haz-Mat Operations	No Haz-Mat required
ICS training	ICS training	No ICS training
CPR certification	CPR certification	No CPR training
Live burn training session	No live burn training	No live burn training
Infection Control training	Infection Control training	No infection control training
Class A SOP training	Class B SOP training	Class C SOP training
Active member of BFD	Active member of BFD	Active member of BFD
Valid CT driver's license	Valid CT driver's license	CT license not required

Firefighter I certification is based upon a NFPA Standard 1001 and is generally considered to be the basic training requirement for firefighters. It typically includes over 100 hours of classroom lecture and practical skills training. At the end of the course, the State Fire Academy administers a practical skills evaluation and written test. Those that pass are awarded Firefighter I certification.

As can be seen above, the differences in training between Class A and Class B are interior firefighting training and the training in SOP's related to the specific Class.

Based upon our understanding of the current situation in the Department, we believe the following issues must be resolved:

1. Any paid firefighters who do not hold valid Firefighter I or CPR certification do not meet the qualification requirements of Class A or Class B Firefighters.
2. We understand that 3 of the paid firefighters are certified Hazardous Materials Technicians. All others are certified to the Awareness level. This level of individual is prohibited from being on the scene of a hazardous materials incident. This includes fuel spills, propane leaks, carbon monoxide calls, etc. This also specifically keeps them from meeting the Class A and Class B Firefighter qualification requirements.

Recommendation
The qualification requirements for Class A and Class B Firefighters are appropriate, however, paid firefighters not meeting those requirements should be provided with an opportunity to meet those requirements as soon as possible.

Recommendation
The Department should hold a Hazardous Materials Operations certification course as soon as possible for all paid and available volunteer firefighters not currently holding this level of certification or higher. Firefighters not achieving this level of certification should be restricted from attending hazardous materials incidents.

Fire Officer Qualifications
The qualifications required for line officers (Lieutenants and Captains) and chief officers as per the latest draft of the SOPs are as follows:

Line Officers	**Chief Officers**
Min 2 full years as a Class A Firefighter	Min 4 full consecutive years as a Class A
No disciplinary actions in past year	No disciplinary actions in past year
Annual medical exam	Annual medical exam
Firefighter II certification	Fire Officer I certification
Haz-Mat Operations certification	Haz-Mat Operations certification
ICS training	ICS training
CPR certification	CPR certification
Participate in a live burn training session	Participate in a live burn training session

Line Officers
Participate in 4 structural firefighting training sessions
Infection Control training
SOP training for Line Officers
Active member of the BFD
Valid Connecticut driver's license

Chief Officers
Participate in 4 SCBA training sessions
Infection Control training
SOP training for Chief Officers
2 full years as a Line Officer
Valid Connecticut driver's license
EMT certification
Safety Officer certification

The qualifications and the references from which those qualifications were derived were reviewed. We believe that the qualifications listed in the SOP are appropriate for the Branford Fire Department.

We understand that the SOP manual, including the SOP on Personnel Qualifications has been approved by the Fire Chief and formally adoption by the Board of Fire Commissioners.

Chapter 9 of the Fire Protection Handbook, Manning Combination and Volunteer Fire Departments states "In a number of combination fire departments, the career (paid) firefighters have complained about being commanded by volunteer officers whom they felt lacked the needed experience and qualifications. All fire officers, whether elected or appointed, should meet the appropriate NFPA qualifications for their rank. Countless volunteer officers have met the technical standards for their duties."

IX. Incident Management

Utilization of the Incident Command System
During the course of the project fieldwork, we attended a number of incidents to which the Department responded. On those occasions, we were able to observe the utilization of the Incident Command System (ICS) at automatic fire alarms, automobile accidents, vehicle fires and structure fires. In the process of doing so, we were able to determine that the ICS system was adequately employed.

We did not have the opportunity to observe the utilization of the ICS system by the Branford Fire Department at a major incident during the project fieldwork. As a result, we were unable to develop a current opinion as to the adequacy of the ICS system implementation at major incidents.

In the past and well prior to this Study, we have observed the utilization of the Department's ICS system at major fires and a large hazardous materials incident. Our general opinion is that the ICS system was adequately implemented. The nature of large emergency incidents is such that many decisions must be made in the initial stages of the incident without extensive information. With most

fire departments, the potential for confusion and/or conflicting orders being given in the initial stages of the incident is present. As such, our previous experiences at major incidents in Branford lead us to believe that the Department's use of the ICS system at major incidents generally follows accepted procedures.

Recommendation
One area which should be addressed in connection with our other project recommendations is that of the authority of the volunteer chief officers. The line authority, including when and where the volunteer chief officers have incident management responsibility does not appear to be adequately defined. Once all of the volunteer chief officers meet the qualifications required of an individual in a chief officer position, definition of their incident management responsibilities must be defined and included in the SOP manual.

While firefighters and officers are required to participate in ICS training as part of their qualifications, we noted no requirement for any subsequent refresher training in this area. It has been our experience that when fire officers and/or personnel do not routinely utilize the ICS system, or do not regularly use the components required at major incidents, they tend to forget the key concepts and required procedures.

Recommendation
All firefighters and fire officers which have a requirement in their position qualifications to complete ICS training, should also be provided with annual ICS refresher training. Doing so should standardize the usage if ICS, minimize the effect of poor incident management at major incidents due to lack of practice and should also minimize the impact of deviations from the standard ICS system in use in the Department.

Review of Standard Operating Procedures
We reviewed the SOP manual provided to us by Department management. We were also informed that the SOPs have been approved by the Chief with minor modifications to the ICS and Personnel Qualifications . We understand that he is waiting the final draft for submission of the SOPs for approval by the Board of Fire Commissioners.

Our review of the SOPs consisted of reading the SOP manual, comparing the individual SOPs to what we would expect to see for a Department such as this and identification of any SOPs which we would expect to be included in the SOP manual, but which were not.

While we could provide a number of very specific recommendations for technical or typographical corrections or changes to certain of the SOPs, we believe that the SOP manual is generally adequate for use by the Branford Fire Department.

Recommendation

There are certain SOPs which we would have expected to see in the SOP manual which were not included. We recommend the preparation, review and adoption of standard operating procedures in the following areas:

Usage of a Safety Officer at incidents and during training evolutions.
Procedures to ensure incident scene and training evolution safety.
Marine incidents, including marine fires, fire at structures which have direct waterfront access, lost person incidents and marina fires (other than Bruce & Johnsons Marina which has had a pre-plan developed and implemented).
Confined space and technical rescue training and incident response.
Rail incident planning and mitigation.
Incidents taking place on the islands which are located of the coast of Branford.

EMS Protocols

The protocols used by the Paramedics and EMTs of the Department are defined by the New Haven Sponsor Hospital Program. As such, they must be followed without modification so as to be in compliance with Medical Control. We did not deem a detailed review of those protocols necessary, but believe that the Department is in compliance with them. This belief is based upon our observations of the EMS personnel in action and the fact that Sponsor Hospital has a mechanism for review and providing oversight of the Department's EMS personnel.

Dispatching Procedures

During the fieldwork of the Study, we also monitored the dispatching and radio transmissions of the Department. The responsibility for dispatching fire and EMS calls was located at Fire Headquarters until December, 1995. At that time, fire, EMS and police dispatching were consolidated at Police Headquarters under the direct supervision of the Police Department. Since that time, there have been a number of relatively minor concerns voiced by the Fire Department, however, the process appears to have been successfully implemented.

Coincidental to the transfer of dispatching responsibility, a new computer aided dispatch (CAD) system was implemented. This subject will be discussed in greater detail in the Management Information Systems section of this project report. The CAD system provides the dispatchers with information as to which units to send to each type of incident based on the type of incident and location.

The CAD system appears to be functioning as designed. We did note during the Study fieldwork an instance where a dispatcher chose to ignore the instructions on the CAD with respect to the dispatching of a mutual aid ladder truck. This situation was addressed and the problem appears to have been adequately rectified.

The CAD also provides guidance to the dispatcher when multiple incidents take place. We noted a significant number of instances where this happened during our Study fieldwork. In each instance, the subsequent dispatch of simultaneous incidents appeared to be appropriate. We also believe that the dispatching of incidents, in general, is appropriate.

Review of Pre-Plans of Target Hazards

Fire departments should routinely identify the most significant or target hazards in their community and prepare a predetermined plan of actions to mitigate certain types of incidents at these facilities. These plans are referred to as pre-plans. We requested copies of all of the pre-plans of the Department as part of our Study.

There were only two pre-plans provided. They are for the Bruce & Johnson's Marina and Wal-Mart. No other pre-plans could be located. The critical value of a pre-plan is that decisions as to how to mitigate incidents of different types and complexities can be discussed and decided upon well in advance of the incident and with the assistance of many individuals.

Recommendation

We recommend that the Department take an aggressive approach to the development of pre-plans for all target hazards in the Town of Branford. The process of doing so will allow an incident commander to have site specific information at the time of the incident and also the ability to decide mitigation action alternatives and priorities prior to the incident.

It would be advisable to devote the paid firefighter training time of one day per week to the development of a pre-plan for one target hazard in the Town. Doing so will provide a regularly scheduled time for development of these important documents.

X. Safety

When aggressive procedures are undertaken without the immediate support necessary to complete them safely, there is a significant increase in risk to the firefighters involved. On the other hand, delays in the performance of critical tasks such as rescue, interior fire attack operations and ventilation, may cause irreversible conditions as the delays increase.

Statistics show a person with depleted oxygen level, as a collapsed person in a structure fire would be, will begin to suffer permanent brain damage after approximately four minutes without sufficient oxygen. Flashover, the very dangerous instantaneous ignition of all combustibles within a given area, usually occurs approximately seven to ten minutes after the fire's inception. Timely intervention with adequate personnel is of the essence.

Safety Officer Qualifications

We previously stated in this report that all chief officers should be certified Safety Officers. That requirement is included in the SOPs which have recently been approved.

This certification program examines the Safety Officer's role with the identification, evaluation and implementation of policies and procedures that affect health and safety aspects for emergency responders. Through the use of case studies, small group workshops and instructor facilitation of safety concepts, participants gain a thorough understanding of risk management, wellness issues, incident safety functions, regulatory requirements and their impact on increasing the survivability of fire department personnel. This 32 hour program is patterned after NFPA 1521, *Fire Department Safety Officer*.

There is also another program, Incident Safety Officer, which should be considered for the company officers. This 16 hour program examines the Incident Safety Officer's role at emergency response situations. The course content focuses specifically on the Incident Safety Officer's operations within an incident command system. Graduates of this program should be able to identify and analyze safety concerns as they relate to all hazards scene evaluation and communicate recommended solutions to the command authority.

Recommendation

All company officers should attend an Incident Safety Officer program as part of their qualifications to hold their position. In addition, active senior members of the Department who previously held officer positions should be considered for training and serving The Department as an Incident Scene Safety Officer. The Department should contract with the Connecticut Fire Academy to provide the program in Branford. It may be advisable to hold more than one such program to ensure that all company officers have the opportunity to attend. If necessary, the other area towns could send their company officers and defray some of or all of the cost incurred by the Branford Fire Department.

Utilization of Safety Officers at Incidents

We noticed few, if any incidents where an Incident Safety Officer was utilized by the Branford Fire Department during the fieldwork of our Study. This may be in part due to the lack of any large scale incidents, however, the assignment of an Incident Safety Officer should not be confined to large scale incidents. Consistent use of a Safety Officer at other than small scale incidents reinforces safe operations. It should remembered that safety is a concern at all incidents, not just large scale incidents.

The formal implementation of an Incident Safety Officer program would require the course offering recommended above as it's foundation. In addition, the authority of the Incident Safety Officers would have to be defined, an SOP would have to be written and adopted, identification vests purchased in sufficient quantities and portable radios made available.

Recommendation

At all incidents where two or more companies of the Department are on the scene and engaged in an incident, we recommend the appointment of a qualified Incident Safety Officer who has been provided with the appropriate identification vest and radio communication equipment. This person should be separate from the Accountability Officer.

Rapid Intervention Crew
NFPA 1500, *Fire Department Occupational Health and Safety Program* requires that personnel be provided for the rescue of members operating at emergency scenes if the need arises. It further states that the Incident Commander shall evaluate the situation and risks to the operating teams and shall provide one or more rapid intervention crews commensurate with the needs of the situation.

NFPA 1500 goes on to say that whenever members are operating in positions or performing functions that include special operations or would subject them to immediate danger of injury in the event of equipment failure or other sudden event, at least one Rapid Intervention Crew shall be standing by with equipment to provide assistance or rescue.

Branford Fire Department SOPs on Personnel Management and Accountability state that a Rapid Intervention Crew be assigned generally from the Rescue Squad or the third arriving engine company. Unfortunately, there is no guidance as to size, complexity or training of individuals which can be or are placed on the Rapid Intervention Crew.

Recommendation
All firefighters who are or could be assigned to a Rapid Intervention Crew (RIC) should be provided with training commensurate with the nature of this assignment. In addition, an analysis must be performed to determine how large the RIC should be for various sized incidents, what general tactical priorities the RIC should utilize and how, in general, the RIC should deploy itself at various types and sizes of incidents.

Safety Officer
NFPA 1500 requires the appointment of a Departmental Safety Officer. The Branford Fire Department does not appear to have a Departmental Safety Officer. The appointment of a Safety Officer will provide a person to chair the Safety Committee (see below).

Recommendation
A Departmental Safety Officer should be appointed after having received the required training. We recommend that one of the volunteer Assistant Chiefs be approached to fill this important position.

Safety Committee
NFPA 1500 also requires that a Safety Committee be established and serve in an advisory capacity to the Fire Chief. The Safety Committee should include the Department Safety Officer, representatives of the Department management, and individual members or representatives of member organizations. Representatives of the member organizations shall be selected by their respective organizations, but other Safety Committee members shall be appointed by the Fire Chief.

The purpose of the Safety Committee shall be to conduct research, develop recommendations and study and review matters pertaining to occupational safety and health within the Department. The Committee should meet on a regularly scheduled basis and written minutes of such meetings shall be generated and made available to all members.

Recommendation
The Department should implement a Safety Committee comprised of the newly appointed Assistant Chief, Departmental Safety Officer (when appointed), volunteer Assistant Chiefs, and representatives selected from the Deputy Chiefs-Operations, volunteer fire companies and the paid firefighters union. The Departmental Safety Officer should serve as the chairperson of the Safety Committee.

XI. Personnel Issues

Job Descriptions
We were unable to locate job descriptions for any of the volunteer or paid positions within the Department. There were job descriptions prepared for the newly appointed Assistant Chief and the Fire Marshal, however, the title and duties for the Assistant Chief appear to have changed from the time the job description was written to the date of the appointment. The position of Fire Marshal has yet to be filled, therefore it is not possible to determine if the job description is accurate.

Recommendation
Job descriptions for all positions within the Department should be created, reviewed and approved. The process of developing the job descriptions should provide for an opportunity whereby the Department can rationally determine the duties and responsibilities of each position while ensuring that the workload is adequately balanced throughout the Department.

Town Hiring Policy
When an opening occurs in a typical Town department, the position is advertised internally and externally as being available. There is also a memorandum forwarded to all Town departments requesting posting of the vacancy.

Current Town employees can be considered if they meet the minimum qualifications and prerequisites for the position. If there is a qualified Town employee applicant, outside applicants will not be considered. If there are no Town employee applicants, those who applied do not meet minimum the qualifications or one is offered the position and declines, the outside applicants are evaluated. The evaluation process include the appropriate skills for the position being filled and interviews.

In the case of the Town emergency services departments, there are usually no Town employee applicants. There have, on recent occasions, been instances where police officers and a Sewer Department employee have transferred to the Fire Department. We have been informed that Town employees receive no special consideration when attempting to be appointed to an emergency services department in the Town of Branford.

Departmental Hiring and Promotional Practices
As can be seen above, new firefighters can come from other Town departments, but most often do not. When new firefighter positions are advertised, an announcement is also sent to each volunteer company.

The hiring process includes the purchase and administration of a entry level exam , a physical agility test based on the duties of the job and an oral interview board made up of officers from other fire departments. The candidates receive points for their scores and those with the highest number of points scored are considered for appointment. Branford volunteer firefighters receive a certain number of additional points as a benefit of being a Town volunteer.

Firefighters appointed in recent years have been sent to the Connecticut Fire Academy for comprehensive training with new recruits of other Connecticut fire departments. Once the complete this training program, they are assigned to a division of the Department.

We understand that the promotional is also similar to what is used in other fire departments. An appropriate written examination is acquired and administered. That is followed by an oral interview board usually comprised of chief officers from other Connecticut fire departments. The Fire Chief will recommend someone for appointment from the highest rated candidates.

The processes outlined above were described to us by Department management. We attempted to locate a reference and description of the hiring and/or promotional process in the current union contract, but were unable to locate any references or descriptions of the procedures to be performed.

Status of New Position - Assistant Chief

The new Assistant Chief position was filled during the period of our Study fieldwork. As stated above, there does not appear to be an accurate job description although the person will report to work prior to the delivery of our final report. It is critical that this position, the Fire Chief and the Deputy Chief - Operation positions have accurate and agreed upon job descriptions. Doing so will minimize the overlap of duties and serve to provide for more efficient administrative operation of the Department.

Union Contract Review/Comparison To Other Towns

The information included in the table below was obtained from copies of the collective bargaining agreements for the firefighters of those communities.

	Branford	East Hartford	East Haven	Westport	New London	West Haven
Holidays	13	12	13	13	11	13
Overtime	1 1/2	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2
Uniform Allow	$250	As Needed	3%	$600	$370-$430	Issued
Probation	Year	Year	6 Mo.	Year	6 Mo.	Year
Shift	24/72	10/14	10/14	10/14	10/14	10/14
Work Week	42	42	42	42	42	42
Sick Incentive	Yes	Yes	Yes	Yes	Yes	Yes

	Branford	East Hartford	East Haven	Westport	New London	West Haven
EMS Sup.	EMT-P $266	MRT $125 EMT $400 EMT-P $800 to $1,600	MRT $500 EMT-D $1,450	EMT $500	EMT $200 to $500	EMT $??? EMT-B $???
Residency	None Noted	30 Min.	None Noted	15 Miles	None Noted	None Noted

As can be seen above, the contracts are reasonably similar.

Union Relations

Based upon our discussions with the involved parties and review of the available files, the relationship between the paid firefighters union and the Fire Chief appears to have significantly deteriorated over the past two years. The situation appears to have culminated itself in a vote of no confidence being taken by the firefighters union and one of the volunteer fire companies in early 1997.

Subsequently, the situation has further deteriorated whereby a number of the paid firefighters and officers avoid contact with the Fire Chief and/or severely limit their interaction with him. We were unable to determine the root cause(s) of the deterioration in relations, however, it is evident that it exists. If the Department is to progress, maintain adequate employee/management relations and move forward this situation must be resolved.

Recommendation

We recommend that an outside facilitator be brought in to attempt to resolve the perceived conflict between the firefighters union and the Fire Chief. While this may not be the ultimate solution, it should allow for some of the issues to be brought out and attempted to be rectified.

During the course of the Study fieldwork, it appeared that there was a lack of supervision of the process whereby paid firefighters switch shifts, take vacation time, book off for sick time, etc. This apparent lack of control could have caused overtime, sick, holiday and vacation coverage costs to be higher than they should be.

Recommendation

The new Assistant Chief should be responsible for approval of all personnel scheduling and changes. In doing so, there is the potential for lower overtime, sick, holiday and vacation coverage replacement expense.

Disciplinary Policy and Actions

Our review of the Union Contract revealed that the discipline procedures with respect to paid

firefighters are consistent with the bargaining unit contract. We understand that the procedures stipulated in the contract have been employed on a consistent basis. The discipline process could be improved with concentration on the Department Rules and Regulations and enforcement of the chain of command.

We also noted that there does not appear to be a written policy on disciplinary actions for volunteer firefighters and part-time employees. During the course of our Study fieldwork we were informed by a number of different people at different levels in the Department that supervision and discipline are lacking.

The lack of a formalized, comprehensive discipline policy may be a factor in the deterioration of union/management relations evident in the Department. We can provide assistance with the development or examples of a disciplinary hearing policy should the Department choose to desire such assistance. A clear and consistently applied policy should delineate the disciplinary actions resulting from various types of infractions.

Recommendation
A clear, concise and consistently followed policy of progressive discipline should be adopted for the Department. Such a policy will allow for disciplinary actions commensurate with the infraction while still allowing for immediate suspension or termination for very serious offenses. The progressive nature of such a policy, if consistently applied, will provide for a discipline process which should be consistent and will elevate if behavior is not modified.

Recommendation
A formal training program on supervision and discipline should be mandatory for all line, staff and chief officers in the Department. Doing so would be the first step in clear and consistent supervision and discipline which appears to be quite necessary within the Department.

Review of the Rules & Regulations Book
We reviewed the Departmental Rules & Regulations book which is generally referred to as the Red Book. The Red Book was revised during the course of our Study fieldwork but has yet to be approved. We understand that the Red Book had not been updated in over ten years.

Based upon our review of the latest proposed revisions to the Red Book, we suggest consideration of the modifications listed below:

Article IV Section 3 - Replace the disciplinary procedure with a clear progressive discipline policy.
Article V Section 10 - Define the roles of each of the Assistant Chiefs in the absence of the Fire Chief.
Article VI Sections 1 & 2 - Define the roles of each of the Assistant Chiefs in each area through the use of job descriptions.

Article VI Section 3 - Assistant Chiefs should be given eighteen months to achieve Fire Officer I and Safety Officer certification. It is not appropriate for any Assistant Chiefs to be grandfathered in this area.

Article VII Sections 1 & 2 - Define the roles of each type of Deputy Chief (Operations, Fire Marshal, Apparatus/Facilities, etc.) including whether each is to be granted incident command authority. The position roles and responsibilities should be included in a job description.

Article VII Section 3 - Deputy Chiefs should have eighteen months to achieve Fire Officer I and Safety Officer certifications. It is not appropriate for any Deputy Chiefs to be grandfathered in this area.

Article IX Sections 1 & 2 - References should be made to the chief officers, not just the Fire Chief in the roles and responsibilities of the company Captains. These individuals should have complete job descriptions.

Article IX Section 15 - Captains should be a minimum of Firefighter II. Use of wording such as "or demonstrate proficiency" is inappropriate and dangerous. A Fire Officer I certification requirement should be phased in over the three years.

Article IX Sections 16 & 17 - Lieutenants should also have Firefighter II certification. A Lieutenant currently is required to hold Firefighter II certification or "demonstrate proficiency".

Article X - This section relates to the roles and responsibilities of the Training Officer and is much too vague to provide meaningful guidance. A job description should be written once the roles and responsibilities of this position are clearly defined.

Article XI Section 7 - There should be a specific procedure for recognizing members for a meritorious act, distinguished service or length of service.

Article XI Section 17 - Reference should be made to the Substance Abuse Policy and Employee Assistance Program.

Article XVII Section 2 - Permission to take apparatus out of the station for other than incident and routine drill response, should be from the company Captain or a chief officer.

Recommendation

The modifications required during our review of the latest proposed changes to the Rules and Regulations (Red) Book should be instituted and the revisions finalized no later than December 31, 1997.

Employee Assistance Program and Substance Abuse Policy

There is the need in any emergency services department for a policy on substance abuse and an employee assistance program. We reviewed the Town of Branford Policy on Drug and Alcohol Abuse (Exhibit 9), however, the date of implementation is not noted on the document. We were informed that the Policy was implemented during approximately four years ago.

The most significant portions of this Policy are as follows:

1. The use, manufacture, sale, possession dispensing or distribution of illegal substances or the abuse of legal drugs and/or alcohol while at work is prohibited.
2. Alcohol may not be brought to, nor consumed on any Town property, including Town vehicles unless specifically authorized by the Board of Selectman.
3. Safety sensitive employees are prohibited from consumption of alcohol four hours prior to being scheduled to perform safety sensitive functions. They are also prohibited from doing so for up to eight hours following an accident or until the safety sensitive individual undergoes a post-accident alcohol test, whichever comes first.
4. The Town will normally offer assistance to the employee for the treatment of such a problem through the Employee Assistance Program.
5. Employees who successfully complete a rehabilitation program, who remain substance-free and who have violated no other Town policies, will not place their employment in jeopardy.
6. Being under the influence of alcohol or drugs while at work is strictly prohibited.
7. Criminal arrest for drug related offenses occurring during non-working hours, in general, will not constitute grounds for termination unless the offense is confirmed by criminal conviction.
8 The legal use of prescribed drugs is permitted on the job if such use does not impair the employee's ability to work safely and does not endanger other employees.
9. As provided under Connecticut General Statutes, all Town employees are included in "reasonable suspicion" drug and alcohol testing.
10. Safety sensitive employees shall comply with all testing procedures as mandated by the U.S. Department of Transportation guidelines.
11. Safety sensitive employees covered by the Department of Transportation regulations will not be subject to random drug and alcohol testing when called back to work, however, reasonable suspicion and post accident testing will still apply in call-back situations.
12. Violation of any of these policies or refusing to participate in any aspect of the program as outlined, may lead to disciplinary action, up to and including termination.

This Policy, included as Exhibit 9, appears to have been well thought out and comprehensive although it could be more stringent. We were provided with anecdotal evidence that paid firefighters have reported to work and volunteer firefighters have responded to alarm after consuming alcohol.

In addition, the fact that alcohol is available at some volunteer fire stations is not a major concern. What is a concern is that anecdotal evidence of a few instances of significant alcohol consumption at a volunteer company function can take place while the company is still in service. This could result in a company member driving apparatus or responding when impaired by alcohol, thus endangering other firefighters, motorists and those in need of the Department's services.

Recommendation

The Town Policy on Drug and Alcohol Abuse must be enforced by the Department. This would include paid firefighters, part-time employees and volunteer firefighters. The question of whether

volunteer fire companies may consume alcohol at Town owned fire stations and, if so, when and under what conditions that may do so must be decided.

Our recommendation is not to severely limit the social activities of the volunteer companies. Rather, our concern is the protection of the firefighters, citizens, those in need and the Town from the reckless actions of impaired individuals. Our recommendation is for a more stringent substance abuse policy that more suits an emergency response services organization.

Sexual Harassment Policy

We have reviewed the Town of Branford Sexual Harassment Policy and are of the opinion that it is appropriate for use by the Branford Fire Department. As such, it describes sexual harassment, identifies examples of it, explains the difference between overt and subtle sexual harassment, provides for complaint and disciplinary action procedures.

Recommendation

We saw no evidence of the Sexual Harassment Policy or any postings related to that policy at any of the fire stations. We do, however, recommend that a introductory memorandum from the Fist Selectman, Town Human Resources Director or Fire Chief and a copy of the policy be forwarded to each fire station for posting.

Department Administrative Assistants

There are two Administrative Secretary positions within the Department. One of the positions is that of Fire Department Secretary. Her duties currently include the following:

1. All aspects of firefighter shift planning, work schedules, time off and payroll.
2. Answering the telephone for the Public Works and Fire Departments.
3. Ordering and follow-up of uniform, medical, fire equipment and office supplies.
4. Certain procedures related to the Babysitter Program.
5. Certain data input procedures for the volunteer firefighters' pension plan.
6. Schedule Fire Marshal inspections and coordination with the Building Inspector.

During our discussions with this individual, we became aware that there is no mechanized system being used to summarize paid firefighter and part-time employee hours. This situation requires that work, vacation, sick, holiday, disability and other time be tracked, posted and payroll calculations manually generated.

Recommendation

We understand that the Public Works Department currently has a clerk/typist employed in their facility. As such, it in inefficient for someone in Fire Headquarters to have to answer the Public Works Department telephones and attempt to locate the individuals being called. The Public Works Department should be responsible for answering it's own telephones and/or voicemail should automatically pick up when they do not answer the telephone.

Recommendation

The Department should investigate a employee timekeeping and summarization software package designed specifically for use by fire and EMS services. The software should also have the capacity of transferring the data directly to the ADP Payroll Service. While this software is not critical to the functioning of the Department, it would provide for more efficient use of the Administrative Secretary's time, thus allowing time for other projects. In addition, it will provide for mathematical accuracy and management reports of the data.

In the past, the Fire Department Secretary served as the Administrative Assistant to the Fire Chief/Fire Marshal. In that capacity, she performed the following additional duties:

1. Act as the liaison for the Fire Chief/Fire Marshal.
2. Maintain files of underground storage tanks and hazardous materials information.
3. Issue blasting permits and monitor paperwork for blasting magazine inspections.
4. Enter and file NFIRS data and forward reports to the State Fire Marshal's office.
5. Preparation of Departmental information packages for distribution.
6. Implement and monitor fire prevention programs for the Branford Elementary School System and all day care centers located within the Town.
7. Preparation of certificates upon completion of inspections of day care facilities.

The other Administrative Secretary was a previous employee of the Branford Town Ambulance and came over to the Department when the two organizations were merged in 1993. Her duties included:

1. Answering the telephone for the EMS office.
2. Processing of the EMSIRS patient contact information forms which are forwarded to Sponsor Hospital.
3. Review and input of the patient transport billing information and the generation of the patient transport invoices.
4. Communication and resolution of issues related to invoices submitted to Medicare, Medicaid and private insurance companies and patients.

We noted no cross-training of these two individuals during the Study fieldwork. It was also evident that there was friction between these two individuals which had not been addressed at the Departmental administration level. During the period of the Study, one of the two Administrative Secretaries resigned. We understand that this person will be replaced.

Recommendation

The remaining Administrative Secretary should receive the title of Administrative Assistant to the Fire Chief. Her job description should be adjusted accordingly to include all duties and responsibilities which can efficiently be performed so as to reduce the administrative workload of the Fire Chief and Assistant Chief. The vacant position should have it's job description rewritten and then be filled. Both positions should be crossed-trained in the other's duties so as to provide back-up in the event

of illness and vacations. Also, the Administrative Assistant to the Fire Chief should be responsible for the supervision of the new Administrative Secretary.

XII. Firefighter Compensation

Average Firefighter and Shift Commander Earnings
We were provided with the W-2 earnings of each of the full-time paid firefighters and shift commanders (Deputy Chiefs - Operations) for 1996. From that data, we were able to calculate the lowest, highest and average W-2 earnings for both. The following is a summary of that data:

	Lowest W-2 Wages	Highest W-2 Wages	Average W-2 Wages
Firefighter	$36,549	$66,989	$48,749
Shift Commander	$56,597	$74,574	$62,290

Determination of Days/Hours Worked
We attempted to identify the total number of hours or days actually worked in 1996 for each of the paid firefighters and shift commanders. It soon became evident that such information either had to be assembled manually or received from ADP Payroll Services because of the manual nature of the current system.

Such information was requested from ADP Payroll Services by the Town Finance Director. As of the date of this report, that information has not been received by us. As a result, we worked with the Town Human Resources Department to estimate the total number of hours worked by each paid firefighter during 1996.

Firefighters working a 24 hour schedule with 42 hour weeks have the ability to work 2,184 hours per year. We summarized the hours worked for the firefighters and shift commanders. The shift commanders worked an average of 1,906 hours in 1996, or 87% of the available hours.

We also calculated the average hours worked for the firefighters but excluded one firefighter on disability a portion of the year and another who was appointed in July, 1996 and was available to work only one-half of the year. That average was 1,823 hours or 83% of the available hours.

Comparison of Base Salary Levels to Other Towns
We believed that it would be appropriate to compare the average compensation of Branford firefighters to other towns. The only method available to do so was to compare the annual compensation based on the applicable union contracts. Our review of the union contracts available yielded the following results:

	Hours Worked	Firefighter Entry Level Salary	Firefighter Highest Level Salary	Shift Commander Salary
Branford	42	$29,618	$37,632	$44,258
East Haven	42	$29,795	$38,699	$43,407
West Haven	42	$34,525	$43,058	$51,568
New London	42	$36,752	$38,863	$44,953
Poq Bridge	56	$31,752	$37,025	$43,186
East Hartford	42	$35,150	$42,739	$58,496
Westport	42	$35,753	$47,678	$58,156

From the data above it is evident that Branford Fire Department annual (base) compensation is generally on par with a number of the Connecticut municipalities available for our analysis. Some of the higher salaries may be indicative of the cost of the higher living in those communities.

Compensation As A Percentage of Total Budget

Firefighter compensation as a percentage of the total Department budget was determined for the past five years. We also researched the sources we had available to determine the regional and national averages. The following is a summary of our findings:

	Paid Staff Compensation	EMS Comp & Medic 2	Utility Staff	Admin Comp	Total Comp	Percent of Budget
Budget 1993/1994	$819,959	$55,038	$42,555	$122,742	$1,040,294	66.9%
Budget 1994/1995	$848,385	$58,212	$37,239	$117,640	$1,061,476	66.4%
Budget 1995/1996	$910,685	$152,517	$30,146	$97,480	$1,190,828	68.3%
Actual 1995/1996	$937,100	$156,478	$50,554	$95,378	$1,239,510	69.5%
Budget 1996/1997	$1,016,628	$119,700	$25,500	$99,230	$1,261,058	69.4%
Actual 1996/1997	$996,617	$128,245	$38,249	$98,480	$1,261,591	66.8%
Budget 1997/1998	$1,083,954	$123,250	$40,768	$193,748	$1,441,720	68.4%

From this it can be seen that firefighter paid staff compensation has increased 32% from the FY 1993/1994 Budget to the FY 1997/1998 Budget. At the same time, compensation as a percent of the total Department budget (excluding capital expenditures) has increased only 1.5%.

When the increase in the past three years is viewed, it is 15.7% and there has been a decrease in the total compensation as a percent of the Department budget. The increase in paid staff compensation appears to have resulted from a cost of living increase, firefighters receiving pay increases as a result

of step increases and overtime related to vacation, sick, holiday, workers compensation and disability replacement staffing.

XIII. Staffing

While it is important that equipment at the fire scene be adequate to accomplish the tasks, it is equally important that there be sufficient firefighters, adequately trained, to use the equipment effectively. This is not only our opinion, it was also stated in the original printing of America Burning, over twenty years ago.

One of the key areas we were asked to review in our Study was that of firefighter staffing. The major issue is the number of paid firefighters required to be on duty to adequately protect the Town. Our analysis of this issue was done in stages. Those stages were as follows:

1. Determination of the number of firefighters necessary to be on the scene of a residential or small commercial structure fire.
2. Analysis of the response patterns for the Branford volunteer firefighters and consideration of the factors included in the report section on Volunteerism.
3. Review of regional and national average staffing averages and comparison to the Branford Fire Department.
4. Comparison of other Connecticut town staffing to Branford.
5. Comparison of current Branford staffing to the necessary staffing.
6. Development of alternatives for increased staffing of the Branford Fire Department.
7. Recommendation of what we perceive to be the best alternative.

Determination of the Number of Firefighters Required On Scene
To safely mitigate a structure fire involving a residence or small commercial property generally requires a minimum of twelve (12) firefighters commanded by a chief or acting chief officer. The fire apparatus on scene should include two (2) pumpers and a ladder truck or apparatus capable of delivering the services of a ladder truck. This determination was developed by reviewing a series of sources.

National Fire Protection Association - NFPA Standard 1200 (Proposed)
Standard for Organization, Deployment and Evaluation of Public Fire Protection and Emergency Medical Services, 1998 Edition
Chapter 8, Primary Interior Fire Attack, states that the fire department shall initiate their actions within ten (10) minutes of the receipt of the alarm. It is generally agreed that one (1) minute should be allocated to the receipt of the alarm and dispatching. The Branford Fire Department averages approximately five (5) minutes to respond to and arrive at incidents. That would leave four (4) minutes left to initiate the required actions .

Chapter 8 describes the requirement of the twelve (12) firefighters during this four (4) minute

window. Those duties are as follows:

	Number
Incident Commander	1
Apparatus/Pump Operator	1
Firefighters on Primary Hoseline	2
Firefighters on Back-Up Hoseline	2
Outside Support and Rapid Intervention Crew	2
Firefighters Performing Search & Rescue	2
Firefighters Performing Ventilation	2
Total	12

If an aerial device is being used, an additional firefighter would be needed to control the device.

NFPA Fire Protection Handbook 17th Edition

This edition is the 95th year of publication of this journal of fire protection. It is organized around six major strategies that make for a systems approach to balanced fire protection. The systems include prevention of ignition, designs to slow early fire growth, detection and alarm systems, fire suppression and evacuation of building occupants.

Chapter 9 Fire Department Administration and Management includes extensive discussion on this topic. Some excerpts follow:

"Staffing levels for fire departments vary considerably and are influenced by such things as population protected, population density, firefighter work hours per week, response distances and firefighter safety. Cities in the Northeast generally have a higher staffing ratio than cities in the South and West. It has been demonstrated that when staffing falls below four firefighters per company, critical fireground operations are not carried out when needed. Tests conducted in 1984 with the Dallas (Texas) Fire Department indicated that staffing below a crew size of four (4) can overtax the operating force and lead to higher (life and property) losses."

"One study of twenty-five (25) fire departments working a 42 hour workweek in major metropolitan areas showed a median strength of 3.0 firefighters per thousand of population. (After consideration of the shift schedule and time off) this provides an average of twelve firefighters and officers on duty for a population of 20,000."

"Fire departments operating emergency medical services and rescue squads need additional personnel to maintain basic fire company strength. In some smaller communities, the staffing ratio per population protected may be relatively high because of the need for sufficient on-duty personnel for effective initial (fire) attack and rescue operations. This is especially true in "bedroom communities," where (volunteer and) call personnel are not readily available during the work day and where there are high-value properties to be protected, which may be more significant than population ratios in determining the number of firefighters provided."

"Keeping accurate response records for all firefighters has enabled many fire chiefs to hire additional career personnel. In numerous cases, municipal officials have believed that because they had the names of several hundred volunteers on the roster, the fire department had ample strength. This often resulted in serious delays and the extension of fires that should have been readily controlled. Where such situations persist, additional career personnel may be required."

"The concept of the above paragraph needs to also consider the physical condition, age, training levels and experience of the volunteer members who may be responding. Volunteer firefighters incapable of certain physical tasks associated with initial response firefighting, such as wearing SCBA, should not be counted as part of staffing levels. The physical requirements of initial response firefighters must be equal. An adage sometimes used is "A fire does not know what type of firefighter is responding to it." Therefore, issues of firefighter safety and health, in response and on the fireground, must be treated equally (for volunteer and paid firefighters)."

NFPA 1201 Developing Fire Protection Services

Chapter 5, Section 5-6 on Fire Suppression Force Staffing "the fire company or response group assigned to a fire call shall be comprised of the numbers necessary for safe and effective firefighting performance relative to the expected firefighting conditions." The standard goes on to describe the task analysis procedures that should be considered. They are:

1. Life hazard to the populace protected.
2. Provisions of safe and effective firefighting performance conditions for the firefighters.
3. The potential property loss.
4. The nature, configuration, hazards and internal protection of the properties involved.
5. The types of fireground tactics employed as standard procedure, the type of apparatus used and the results expected to be obtained at the fire scene.
6. Budgetary constraints.

NFPA 1410 Training For Initial Fire Attack

NFPA 1410 is a training standard which describes the required performance of fire suppression hoselines. The evolutions required by this standard are as follows to place one initial fire suppression hoseline into operation and provide immediate back-up with another hoseline either the same size or larger:

1. Handline evolutions shall be performed by the first arriving units staffed with the average number of personnel that ordinarily respond.
2. The total water flow of the required hose streams shall be a minimum of 300 gallons per minute (gpm).
3. The supply line shall be laid by an engine for a distance of 300 feet to or from a hydrant or water source.
4. The initial and back-up hoselines shall be advanced for a minimum distance of 150 feet.

Our tests have shown that, with the typical combination response routinely experienced by the

Branford Fire Department, these critical evolutions cannot be achieved within the ten (10) minute allotment.

NFPA 1500 Fire Department Occupational Safety and Health

This standard states that "the fire department shall provide an adequate number of personnel to safely conduct emergency scene operations. Operations shall be limited to those that can be safely performed by the personnel available at the scene."

It goes on to say "members operating in hazardous areas at emergency incidents shall operate in teams of two or more. Team members operating in a hazardous area shall be in communication with each other ... to coordinate their activities. Team members shall be in close proximity to each other to provide assistance in case of emergency."

"In the initial stages of the incident where only one team is operating in the hazardous area, at least one additional member shall be assigned to stand by outside of the hazardous area where the team is operating. This member shall be responsible for maintaining constant awareness of the number and identity of members operating in the hazardous area, their location, function and time of entry."

U.S. Occupational Safety and Health Administration (OSHA)

General Duty Clause, Section 5 (a) (1)

This section states that "each employer shall furnish to each of his (or her) employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees." This General Duty Clause provision shall be applied when there is no standard that addresses the particular hazard existing in the workplace.

Hazards must be recognized. Three forms of hazard conditions exist. They are:

1. Recognition by an employer industry.
2. Actual knowledge by the employer.
3. Common sense.

While OSHA has not formally adopted NFPA standards, it is using them as evidence of industry hazard recognition in response to structural fires.

OSHA requires the use of SCBA by the team performing interior fire attack. "Stand by" personnel must have equipment readily available in case emergency entry may be needed. OSHA recognizes that one person alone cannot be sent into a structure to safely fight a fire. This then creates the requirement of "two in, two out." OSHA also states that one of the individuals outside of the hazard area may be assigned to more than one role. These roles include things such as back up, incident command, apparatus operator or safety officer. The position of safety officer may not be abandoned to perform a rescue, as potentially may be needed, and causes the safety and health of other firefighters to be jeopardized."

While OSHA does not require that four individuals be on the first arriving response unit. the requirement listed above clearly shows the need for more than four qualified people to be on the scene prior to the commencement of any interior fire attack operations.

International Association of Firefighters (IAFF) Safe Firefighter Staffing Second Edition, Department of Research and Labor Issues, IAFF (1995)

This publication is a compilation of over a dozen studies related to the correlation of staffing levels and firefighter safety. Some excerpts are as follows:

"We have learned from grim experience that inadequate staffing on the fireground can result in unnecessary loss of life and serious injury to both the firefighter and the citizens they are sworn to protect. That is why knowledgeable professionals have consistently supported minimum firefighter staffing standards requiring at least four personnel on an engine company and five on a truck (aerial ladder) company."

"All too often, the issue of firefighter staffing boils down to simplistic arguments in a local budget battle. Municipal officials, forced to reduce the community's annual budget, make arbitrary decisions in firefighter staffing without looking at the repercussions or understanding the direct relationship between staffing levels, public safety and the protection of property. Minimum staffing is not an issue of labor vs. management, firefighters vs. fire chiefs, large fire departments vs. small fire departments or career vs. volunteer firefighters. The key element of the staffing issues is safety."

"The purpose of this publication is to objectively relate staffing to firefighter safety. Discussion of staffing must also address the level of effectiveness of the fire suppression services. It is expected that firefighters will aggressively intervene to extinguish a fire. Firefighter safety and the effectiveness of the fire suppression service are closely linked. Firefighters cannot maintain the same level of aggressive fire suppression services while receiving fewer resources."

"Inappropriate reductions merely shift the burden of attempting to maintain the expected level of service to the firefighter at the expense of his/her own safety. Consequently, fireground productivity and effectiveness are seriously compromised."

Managing Fire Services
Chapter 9, Manning Fire Control

This text is considered to be another one of the key sources of guidance and information in the design and deployment of fire service forces. The following are some excerpts of this chapter:

"The time has come for fire services managers to design the fire control system on the basis of the community's approved goals and objectives that have been established in the political arena and expressed in the community fire protection master plan. The grading schedule of insurance rates should be considered as secondary in the overall professional management and assessment of needs."

"One, three or four person companies can cost several hundreds of thousands of dollars per year. A fire control company not needed or poorly utilized represents a significant financial waste. On the other hand, too few companies or poorly staffed ones, can result in property and life loss beyond community accepted norms. Also, the cost of a firefighter death or disability injury may far exceed the cost of a fire company. This is not to say that there is a fixed value on a life or injury. The point is that the firefighting forces are the asset that protects the community's economic and tax base as well as it's health and welfare. This asset is a valuable one and must be carefully provided and wisely managed."

"There is a further challenge. That is to be effective. The elements that make up fire control management need to maintain a combat emergency readiness configuration twenty-four hours a day, 365 days a year."

"In some cases, following current practices and traditions is usually the most important factor. There is no absolute answer as to how and why an organization should change. The forces at play tend to prevail unless there is some overriding, compelling reason to press for change.

"In some cases, following current practices may be the most cost-effective method of achieving the desired goals. In many cases, however, goals may need to be reassessed in view of today's changing requirements. History has shown that most fire control organizations have evidenced a continuing desire on the part of fire services managers to improve the level of services delivered."

"Fire officers are risk managers. Much of the risk is present by structural conditions or the fire problem in the community. Other risks are set when the operational fire defense system is organized (manning standards, adoption of fire codes, etc.). But much of the day-to-day risks are set by the operations managers who in reality play the percentages. Fire departments that are well staffed and equipped have a much easier time of it than do those that are operating with inadequate staffing and equipment."

Fire Chief's Handbook, Pennwell Publishing (1995)
Chapter 17, Fire Company Operations
In this chapter, the author discusses the many strategies and tactics needed to control structure fires. He also discusses the many technological changes which have occurred since the founding of our country. The author goes on to explain the staffing needs for advancing a hoseline to the second story of a building. The positions required are:

	Number
Officer leading the interior attack	1
Firefighters on the hoseline	2
Firefighter at second floor doorway	1
Firefighter at entrance to the building	1
Pump operator	1
Total For The Evolution	6

Later in the chapter, the author discusses the additional need for someone to act as incident commander. This example of a routine fireground procedure displays how staff are rapidly consumed at structure fires. This evolution consumed seven members (including the incident commander) while personnel requirements for search and rescue, ventilation and the placement of a back up hoseline have yet to be addressed.

In the Fire Chief's Handbook, a survey was referred to which identified truck companies having an average of 1.52 firefighters in that sample group. Approximately 38% responded with more than two firefighters and 23% respond with only one firefighter.

This sample appears to have been made up of a number of smaller departments. "Some of the surveyed departments are responding with a total of two vehicles with two people on each, yet they are buying vehicles with six person cab seating, have instituted elaborate incident command and accountability systems. We now have two separate worlds in the fire service: the world of theory, and the world of reality. The gap between them appears to be widening."

In the chapter on Initial Response, he goes on to say "The group size total really matters. Recommended minimums for initial response range from twelve to sixteen, but in practice varied from four to thirty-five. Here again the correct number depends upon the character of the area being protected. We also have another dynamic driving the staffing of fire companies, economics."

One last point from the Fire Chief's Handbook should be made. It states, "Many fire chiefs, even in some fair sized cities, do not understand the functions of the truck (aerial ladder) company. Some think that because these companies travel to fires with an aerial apparatus equipped with ladders that they are limited to functions involving that equipment, such as applying water from heights and raising ladders. In fact, some departments don't send truck companies to fires in one or two story buildings. Some dispatch aerial trucks with only a driver. And some don't even send the truck except when the incident commander decides one is needed and calls for it."

Consideration of Different Firefighter Work Schedules

Paid firefighters currently staff Car 6, Engine 1 and Medic 1. Part-time employees staff Medic 2. The current work schedule of the paid firefighters is 24 hours on duty followed by 72 hours off duty. This amounts to a 42 hour average work week.

Though the 42 hour work week is the norm throughout the Northeast, the 24 hour scheduled day is not. Most departments work a schedule of 10 hour days and 14 hour nights to achieve the average 42 hour work week. This is accomplished with three days off between each three day shifts. The Department was previously on this work schedule.

The Branford paid firefighters seem to be split on whether they prefer the 24 or the 10/14 hour shift method. We find little advantage or disadvantage to one or the other. It should, however, be noted that with the 24 hour shift, senior Department management most often could make contact with a shift every fourth day. With the 10/14 shift and days off in between, a shift would not be in the

station during normal business hours for up to nine straight days (three night shifts involved).

Fire service bargaining units in the Northeast have achieved the 42 hour work week where most of the rest of the country's firefighters work a 48 or 56 hour week. We find no significant advantage or disadvantage associated with modifying the work schedule currently in use in the Department.

Summarization of Data on Incidents Responded to During the Study Fieldwork

During the course of our Study fieldwork, it became apparent that the issue of the number of volunteers responding in the early stages of incidents during the daytime would be a key consideration in our recommendation as to the level of paid firefighter staffing required by the Branford Fire Department. As such, we chose to ride with the on duty Deputy Chief-Operations to most incidents where the paid and volunteer companies were called to the same incident. These incidents tended to be motor vehicle accidents, automatic fire alarm sounding calls, structure fire calls, etc. The following is a summary of the results of our analysis:

	Percent of Incidents
Volunteer companies were called	100%
Volunteer firefighters were on scene prior to the arrival of the paid engine	27%
Volunteer company apparatus answered the alarm	67%
Volunteer company apparatus arrived within two minutes of the arrival of the paid engine	33%

As was determined in the detailed analysis previously discussed, volunteer apparatus respond 59% of the times they are called. In only 27% of the instances we observed were volunteer firefighters on scene upon the arrival of Engine 1. These situations were instances where incidents occurred in or near the Short Beach district. We previously stated that Engine 4 arrives on scene, on average, one minute after Engine 1. Most often, this situation requires the Engine 1 crew to initiate actions without adequate volunteer support.

The arrival of volunteer firefighters and apparatus within two minutes of Engine 1 and Car 6 allow them to be active in the initial evolutions. It also allows the Incident Commander to rely on them for initial fire attack assignments.

1997 ICMA Staffing Comparisons

Included in our research was a review of the International City/County Management Association (ICMA) 1997 Municipal Year Book. The Year Book provided comparative information and average numbers of fire personnel, compensation and expenditures for the previous year.

Information was developed using a survey questionnaire. The responses have been used to develop national, regional, population size and municipality type averages. The following is a summary of that data as it compares to the Branford Fire Department.

	National	Suburban	Northeast	Population 10K to 24K	Population 25K to 49K	BFD
Full Time Personnel	86	44	58	26	60	23
Paid Personnel Per 1,000 of Population	1.59					.75
Uniformed FD Personnel	83	41	58	25	57	21
Min Engine Crew	3.1	3.1	3.0	2.9	3.0	2.0
Min Ladder Crew	2.8	2.9	2.7	2.6	2.8	0.0
Min FF Salary	$25,810	$27,755	$27,365	$24,302	$26,478	$29,618
Max FF Salary	$34,154	$36,979	$33,940	$31,713	$35,410	$37,632
Per Capita Expense:						
Fire Department	$61.51	$62.52	$79.76	$56.58	$66.59	$58.04
Firefighters	$54.49	$45.70	$67.58	$46.38	$59.17	$53.36
Total Department	$93.32	$97.49	$105.79	$87.12	$97.00	$88.42

From this data we can see that Branford Fire Department base salaries are slightly higher than the ICMA survey, but lower than the per capita averages.

Communities were also asked if they adopted national standards for the fire service. A total of 51.6% of the survey respondents stated that they had adopted such standards and 83.5% of those who adopted standards reported that they had adopted NFPA Standard 1500.

The average number of full-time fire department employees per 1,000 of population in the United States is 1.59. This statistic has not deviated significantly for at least the last ten years. If that statistic was applied to Branford, it would require a total of 45 paid firefighters, or a doubling of the number of fire personnel.

Nearly one-half of the survey respondents (47.3%) reported that their fire department work week is 56 hours with only 6.7% reporting a 40 hour work week. Fire departments were most often on 24 hour shifts (75.0%), followed by just under 7% with 10 or 12 hour shifts.

The information in the ICMA Municipal Year Book provided a basic guideline for comparison of the Branford data to a broad cross-section of fire departments throughout the United States. The following observations can be drawn comparing that information to the Branford statistics:

1. The Branford Fire Department falls below all of the national, regional, municipality type and population average survey responses in the area of full-time personnel staffing. If the Medic 2 staff were converted to full-time equivalent employees, Branford would still fall below these staffing averages.
2. Salaries is an area where Branford is higher than the national, regional, municipality type and population average survey responses, however, the Department is lower than most of the other Connecticut towns for which we had salary data.

Status and Usage of Utility Firefighters

The history of the utility firefighter force has been simply if regular paid firefighters are not available to fill a shift assignment, utility firefighters are called in to fill that position. This policy has been in place since the hiring of the paid Department members in 1963.

Utility firefighters, with few exceptions, are selected from those candidates that tested for career positions and were not hired as full-time paid personnel. During the past fiscal year, eighty-four shifts were filled with utility firefighters. This equates to approximately 5.7% of the total shifts for the year. The current hourly pay rate is $11.45.

Recommendation

The qualifications for appointment to the utility firefighter list should be as follows:

1. At least two active years of service with the Branford Fire Department, having also qualified for the Department volunteer pension plan for those years.
2. State of Connecticut EMT-B certification.

In addition to the above, each individual wishing to be considered for the utility firefighter list shall pass the Department physical agility test required of all new paid firefighters and also pass the written examination given by the Department to all prospective paid firefighters. Once the candidate has completed these requirements, oral interviews should be provided by the Fire Chief, Assistant Chief and Deputy Chiefs of Operations. A final listing of the qualified utility firefighters should then be developed. That list should be reviewed annually by the Fire Chief, Assistant Chief and Deputy Chiefs of Operations. The list could also be used for choosing paid firefighters when openings come available.

Initial Response Levels

In an article in International Fire Chief magazine, Harry E. Hickey, Ph.D. stated "Communities that do not support an initial alarm response level of fifteen to eighteen firefighters may experience one or more of the following conditions:

1. A reduced capability to perform initial search and rescue tasks.
2. Increased property damage levels from the fire after the first alarm assignment response group arrives on the scene.
3. The inability to cope effectively with simultaneous emergency events in the community.

4. A required change from offensive (aggressive interior fire attack) to defensive (large water streams applied from outside of the structure) fire suppression tactics.
5. A regression in the fire suppression personnel safety statistics related to task involvement and stressful conditions."

He goes on to say "When considering reductions in fire company personnel below fifteen persons on the initial response to structures, life safety and property safety risks from fire probably will increase if the fire protection system does not compensate for the change in fire suppression capabilities."

Comparison of Actual Staffing to Required Staffing

This section has attempted to cover the various citations which identify the number of firefighters necessary to be on the scene of a residential or small commercial structure fire to initiate the initial fire attack and support activities.

Sufficient support has been provided to determine that a minimum of twelve (12) qualified firefighters and an incident commander must be on the scene and operating within ten (10) minutes of the receipt of the structure fire alarm. After consideration of the time for alarm dispatch, response and arrival, that leaves four (4) minutes from the average arrival time of Engine 1 for the requires initial structure fire attack operations to be initiated. The following are significant items which should be considered when identifying the number of paid firefighters to have on duty at any given time in the Town of Branford:

1. Sufficient staffing is critical. Firefighting forces are the asset which protects the community's economic and tax base, as well as it's health and welfare. At best, no more than four (4) positions in the initial fire attack team of twelve (12) people can be counted on as coming from the volunteer firefighter ranks during the daytime. Based on the analyses we performed, it would not be prudent to increase the number of firefighter positions on the initial attack crew that can be staffed by the volunteer firefighters in the evening hours.

   Under the current staffing a maximum of four (4) firefighters and Deputy Chief - Operations that are on-duty, along with the four (4) volunteer positions, leaves the necessary initial fire attack and support team short by four (4) firefighters.

2. Deploying adequate personnel and equipment in the first five (5) minutes after the receipt of a fire or emergency medical call is crucial to the outcome of the incident. We saw that Car 6, Engine 1 and Medic 1, when it is in service in quarters, arrives on scene approximately five minutes after dispatch. The volunteer apparatus arrives one to five minutes later. The times in our study were average times, inclement weather and other conditions could extend their response to any given fire or incident.

3. To be effective, the elements that make up a fire control/suppression team need to maintain combat readiness configuration twenty-four hours a day, 365 days a year.

4. Research has focused on the relationship of staffing to injuries with considerable evidence that the reduction from four members in an engine company to three or less, results in a significant increase in injuries.

5. The recommended minimum for effective initial operations structure fire staffing per one source was twelve (12) to sixteen (16) with a sample of departments having actual staffing of four (4) to thirty-five (35). The correct number is characteristic of the area being protected. The more automatic fire detection and suppression devices in place, and the lower the fire load and population density, the smaller the initial attack crew can be. Unfortunately, those factors work against the Town of Branford. We believe that a minimum initial fire attack team staffing level of twelve (12) is appropriate.

6. Statistics showed that 54% of the structure fires occurred between 7:00 a.m. and 6:00 p.m., while relatively few fire calls occur from 11:00 p.m. to 8:00 a.m. Unfortunately, it is during those night time hours that the highest loss of life in residential structure fires takes place. This negates the consideration of a lighter level of staffing of the fire suppression forces during the night time hours.

7. First hand observations in a judgmental sampling of actual incidents showed that in only 27% of the incidents we responded to were volunteer firefighters on scene before the paid firefighters. These situations were instances where incidents occured in or near the Short Beach district. We previously stated that Engine 4 arrives on scene, on average, one minute after Engine 1. In 33% of the incidents we responded to, volunteer company apparatus arrived within two (2) minutes of Engine 1.

8. To be effective, the aerial truck company should arrive and be operating within ten (10) minutes of the receipt of the alarm at ninety percent (90%) of the calls. We saw that, on average, Aerial 1 arrives on scene 9.9 minutes after dispatch, with dispatch usually being within one minute of the receipt of the alarm. When set-up time is added under varied volunteer staffing conditions, the time from alarm receipt to Aerial 1 being in operation is probably thirteen to fifteen (13 - 15) minutes. This would preclude Aerial 1 from being involved in the initial fire attack activities.

Staffing Alternatives

We have seen that there is a requirement that no less than twelve (12) firefighters be available on the scene of a structure fire to initiate an interior fire attack, ventilate the structure, perform search and rescue and serve in support/back up roles. We have also seen that the response of the four paid firefighters plus the shift commander during the daytime hours is not supported by a sufficient number of volunteer firefighters during those critical first few minutes on scene.

The number of volunteer firefighters responding after 6:00 p.m. is higher. Unfortunately, we have no data available as to the number of volunteers responding during that time. While we would expect that the number responding would be adequate to support aggressive interior fire attack, we have no

assurances. We are also unable to determine if sufficient volunteer personnel are available on scene within two minutes of the arrival of Engine 1. Without that support, interior operations will not be able to be performed or will be done only by placing firefighters in risk. This risk is due to a lack of a back up crew and/or ventilation not being performed.

A general review of YTD 1997 response data revealed that, on average, only one (1) volunteer engine arrived within two minutes of the arrival of Engine 1. On average, four volunteer engines arrived within three minutes of Engine 1. One engine arrived an average of 3.3 minutes after Engine 1 while Aerial 1 arrived, on average, almost five (4.9) minutes after Engine 1.

After consideration of all of the above, we find it necessary to consider increasing the full-time staffing of the Branford Fire Department. Our opinion is that this is not something that is being done as a result of recent changes in conditions in the Town of Branford. Rather, it appears to be a change which probably should have been done some time ago. If the Town of Branford required more fire protective devices, the fire protection staffing requirement might be lower. We believe that the current situation dictates that additional firefighters be added to the Department.

As a result of these facts and a number of other issues already identified in this report, we have developed a number of alternatives for increasing staffing. Our research in the area of staffing by apparatus coincided with the industry standard of three or four firefighters on an engine, two or three on a ladder truck and two on a rescue truck. The optimal staffing is four on an engine, five on ladder truck and two on a rescue truck. The staffing by vehicle varies by community, target hazards and the level of other services being provided (i.e., EMS).

Current staffing in the Branford Fire Department is two on Engine 1, two on Medic 1 and the Deputy Chief responding in Car 6. If a structure fire call is received, and Medic 1 is at Fire Headquarters, the Paramedic joins the Engine 1 crew and Medic 1 responds with only the EMT driver.

Occasions arise where a firefighter from Engine 1 must accompany Medic 1 to the hospital as a third crew member (i.e., cardiac arrest requiring CPR). When this occurs, Engine 1 is taken out of service and a cover company is called to Fire Headquarters. There does not appear to be a clear policy with respect to situations such as this. The practices currently being employed include:

1. Engine 1 and the driver remain out of service and in the station even if a cover company responds.
2. The Engine 1 driver joins the cover company crew.
3. The Deputy Chief-Operations will respond with or in Engine 1 along with the cover company.

The number of times that a cover company is called while a firefighter from Engine 1 accompanies a Medic unit to the hospital continues to grow. We witnessed a call for up to three cover companies during the Study fieldwork before a company was available to cover the company assignment.

This is not intended as a criticism of the volunteer companies, in fact it is to point out an area where the Town may be expecting too much of the volunteers. Our experience is that volunteers reach a critical point in what is expected of them and then the volunteer system begins to break down. In our opinion, a total of approximately 300 calls per year for a volunteer company is probably the limit of what can be expected from most volunteer companies. Some of the Branford volunteer companies exceed that and others come close. Additional staffing for Engine 1 and Aerial 1 should minimize or alleviate this problem.

In the process of developing staffing alternatives we had to estimate the cost of adding personnel. Our estimates showed that the approximate annual cost of adding a new firefighter/Paramedic per shift is $213,132. This estimate was developed below.

	Per Person	Per Shift
Base Salary	$29,618	$118,472
Paramedic Supplement	266	1,064
Overtime/Sick/Holiday/Vacation	10,734	42,936
Health/Pension/Unemp Benefits	12,665	50,660
Total Cost	$53,283	$213,132

Based upon the analyses performed, we have estimated the annual cost of adding one new firefighter/Paramedic per shift at $213,132 while the cost of adding a new firefighter/EMT per shift has been estimated at $211,975. These estimates include certain benefits which are incorporated into the Town budget and do not appear in any Fire Department budgetary or actual expense analyses. They have been included in our analyses to develop the full cost of adding staff to the Fire Department. For the purposes of the evaluation of staffing alternatives we will assume that the cost of each additional staffed position will require four additional firefighters at an approximate total annual cost of $213,000.

All of our staffing options/alternatives have been developed under certain basic assumptions. Those assumptions are as follows:

1. That Aerial 1 be retro-fitted with a 1,500 gpm pump, 200 gallon water tank and a complement of hoses.
2. That substantially all current firefighters are EMT-B certified while at least 75% of new hires will be firefighter/Paramedics.
3. At least one of the staff on Medic 1 will be a Paramedic.
4. Increased staffing levels would allow for in-service inspections and public fire education to be performed by the on duty staff.
5. With the hiring of additional staff, a supervisory position should be considered within the paid firefighter ranks. This company officer level position would be taken by one of the staffed positions on Engine 1 and would free the Deputy Chief-Operations to perform other duties. The additional annual cost of promoting four firefighters to

a company officer is approximately $15,500.

Recommendation
Aerial 1 should be retro-fitted with a 1500 gpm pump, 200 gallon water tank and hoses. This will provide a pumping capability for this unit and will provide greater flexibility for the Department in it's response. The cost of this work has been estimated at approximately $50,000.

Recommendation
A supervisory position should be considered within the paid firefighter ranks. This company officer level position would be taken by one of the staffed positions on Engine 1. He or she would be available to perform inspections, training, general station duties, allow for an adequate span of control to exist and would free the Deputy Chief-Operations to perform other duties.

In 1993, the Branford Town Ambulance Service was merged with the Branford Fire Department. This combination allowed elimination of some duplication of services. At the same time, the consolidation added one more person per shift on the Fire Department. While this appeared to have added a person, it actually resulted in the loss of a firefighter during a portion of the shift. When Medic 1 is dispatched to an EMS call, it goes out of service until it returns from the hospital. If a fire call takes place during this time, there are only two firefighters and a Deputy Chief - Operations available to respond.

Previous to the merger, there would have been three firefighters and the Deputy Chief - Operations available to respond during the time the ambulance was en route to and returning from the hospital. While we believe that the merger of the two organizations was the correct action to take, it did reduce the available fire department staffing during the time of patient transport to and returning from the hospital.

The staffing alternatives available are listed below and described in greater detail throughout the balance of this report section. The staffing of Medic 2, which is currently performed by part-time employees, will be discussed in the EMS report section.

	Car 6	Engine 1	Aerial 1	Medic 1	Added Cost
1. Fully staff Engine 1 and Aerial 1	1	4	2	2	$852,000
2. Staff Engine 1 and Aerial 1	1	3	2	2	$639,000
3. Staff Aerial 1, but not increase Engine 1 staffing	1	2	2	2	$416,000
4. Fully staff Engine 1, staff Aerial 1 Part-time	1	4	2PT	2	$519,550
5. Fully staff quint, staff Engine 1 with 2 utility firefighters	1	2 Utility	4Quint	2	$630,100

We considered the alternative of having all twelve (12) positions on the initial structure fire attack crew be paid firefighters. This would require the funding of a second paid engine company and four additional firefighters to provide twelve (12) firefighters to be on the scene of a structure fire at any time of the day or night. This situation would result in an additional Fire Department personnel cost increase of $1,720,000 to the taxpayers of the Town of Branford. We did not believe that this was a viable alternative and, as a result, did not include it as one of our options.

Option 1- Fully Staff Engine 1 and Aerial 1

This option is the most comprehensive. It would allow the Department to respond with eight firefighters plus the Deputy Chief-Operations twenty-four hours a day. The only exception would be when Medic 1 is out of service for fire response purposes due to transporting a patient to or returning from the hospital. The cost to do so would be an additional $852,000 per year. This situation would also require that a minimum of four additional qualified firefighters (volunteer) be available to respond to structure fires so as to allow for twelve firefighters to be on scene for aggressive interior fire suppression purposes.

Option 1 is the alternative which has the highest number of firefighters being added, yet it still requires that one third of the structure fire response be made up by the volunteer firefighters. Even if Option 1 is chosen, the volunteer firefighters will continue to be a critical resource for the Branford Fire Department.

We have not proposed an alternative with more than eight firefighters plus the Deputy Chief-Operations being on duty. There is a need in the future to reevaluate the volunteer response levels through the gathering of objective data which may or may not indicate a necessity to hire additional paid firefighters. The data available during the Study fieldwork would not be sufficient for monitoring or baseline data purposes.

Option 2 - Staff Engine 1 and Aerial 1

The second option is to staff Engine 1 with three firefighters and Aerial 1 with two firefighters. While not optimum, this option would allow for Engine 1 and Aerial 1 to be staffed twenty four hours a day. The cost of doing so would be $639,000 which is $213,000 less than Option 1. While this option is palatable, it is not optimal.

Option 3 - Staff Aerial 1 But Not Increase Engine 1 Staffing

We believe that it is critical that Aerial 1 respond with the initial apparatus assignment for a structure fire, including arrival on scene within five (5) minutes of the alarm. We noted many instances when it did not respond during the day. The YTD 1997 average dispatch to enroute time for this apparatus is 5.8 minutes. This average is substantially the same from 7:00 a.m. to 6:00 p.m. as it is from 6:00 p.m. to 7:00 a.m. On average, Aerial 1, when it responds, arrives on scene almost five (4.9) minutes after Engine 1 resulting in an average total time from dispatch to arrival of almost ten (9.9) minutes.

The aerial truck is critical to the performance of ventilation and search and rescue procedures. Both of theses procedures provide for a safer working environment for the firefighters and a more

"survivable" atmosphere for the inhabitants of the building. If only two positions are to be added, we would recommend that they be added to Aerial 1.

An option would be to purchase a new quint apparatus and allocate the two new firefighters to that apparatus. A quint is an engine with a medium length aerial ladder. The quint can be used as an aerial, an engine or both. Current quint apparatus can be specified to be approximately four feet longer than the current Engine 1, yet still have a 75 foot aerial device on it. The height would be 10' 8"which compares to 10' for Aerial 1. This would allow it to go under the same bridges that Aerial currently can travel under.

Option 4 - Full Staffing of Engine 1 and Part-Time Staffing of Aerial 1

The most difficult time period for the response of the volunteer firefighters is from 7:00 a.m. to 6:00 p.m. We have already determined that 54% of all structure fires occur during that time period. As a result, one option would be to fully staff Engine 1 with four firefighters and staff Aerial 1 from 7:00 a.m. to 6:00 p.m. on weekdays.

While this would allow for the Aerial to respond simultaneously with the other paid apparatus during the daytime hours and be put into operation as quickly as possible when required. Unfortunately, due to the nature of the volunteer fire service, the response of Aerial 1 would still be at least six minutes behind that of the paid apparatus from 6:00 p.m. to 7:00 a.m. This is when 46% of all structure fires take place. More importantly, it is at this time that the highest risk of residential fire death is present. This delayed response would also probably delay the ventilation and search and rescue procedures which should be performed by the Aerial crew.

Option 5 - Fully Staff a Quint and Staff Engine 1 With Two Full-Time Utility Firefighters

This option requires the purchase of a quint apparatus for approximately $400,000. Once that is done, the quint would be staffed by four (4) full-time paid firefighters. That apparatus would take the response assignments of the current Engine 1. Engine 1 could remain in service as the second due paid engine for at least three more years and would be staffed by utility firefighters twenty-four hours a day, 365 days a year. It would respond as the second apparatus out of headquarters and would reduce the number of times Engines 2 and 8 are dispatched.

This option would require sufficient utility firefighters be available to fill those shifts. The Town would save money on benefits if the utility firefighters did not work enough hours per week to be eligible for benefits. While this is an appealing option, it would be difficult to implement. It might be an interim solution, if sufficient funding is approved and utility firefighters are available for these shifts.

Recommended Staffing Alternative

We recommend that Staffing Option #1 be adopted by the Department. This would require that four additional firefighters be placed on each shift, resulting in a total of eight full-time firefighters plus the Deputy Chief-Operations being scheduled for duty twenty-four hours a day, 365 days a year. Paid staff would thus be a Deputy Chief-Operations, four (4) firefighters on Engine 1, two (2) firefighters

on Aerial 1 and two (2) firefighters on Medic 1. It would still require a minimum of four (4) positions or one-third of the initial structure fire attack crew to be comprised of qualified Class A volunteer firefighters. As a structure intensifies, or in the event of a structure fire in a commercial, industrial, multiple family housing or health care occupancy, the volunteer firefighters will be relied upon for a much greater number of the structure fire attack assignments.

Minimum Staffing Alternatives

If our recommendation for four (4) additional firefighters per shift is adopted, we believe that it would be financially prudent to adjust the minimum staffing to six (6) paid firefighters, any number of which could be utility firefighters, plus the Deputy Chief-Operations. If one firefighter is out, the staffing on Engine 1 would be reduced to three (3). If two firefighters are out, the staffing on Engine 1 would be reduced to two (2). In either case, the staffing of Aerial 1 would remain at two (2).

If Option #2 is chosen, minimum staffing should be six (6) firefighters, any of which could be utility firefighters, and a Deputy Chief-Operations. If one firefighter is off, the staffing of Engine 1 would be reduced to two (2).

Recommendation

Minimum staffing should be six (6) firefighters, plus the Deputy Chief-Operations, if our recommendation of adding four firefighters per shift is adopted. If only three firefighters per shift are added, the minimum staffing should still be six (6) firefighters, plus the Deputy Chief - Operations.

If any of the other options are chosen, the minimum staffing would have to be the same as the full-time scheduled staffing.

Sustained Fire Attack

In our evaluation of staffing, we have identified that a minimum of twelve (12) firefighters and an incident commander should be on the scene of a residential or small commercial structure fire to effectively and safely extinguish the fire. If the structure fire takes place at any of the non-ambulatory health care facilities, large commercial, industrial or multiple family/condominium housing occupancies in Branford, the personnel requirement will be much higher.

Should a structure fire take place in a 15,000 square foot or larger unprotected building, the following apparatus and personnel is recommended by the aforementioned source material with variations for fire load, occupancy, environment, etc.:

Apparatus:	
Engines	6
Ladders	3
Other	3
	12

Firefighters	
Suppression	10
Back-up Lines	10
Search & Rescue	10
Ventilation	10
Command Functions	6
Total	46

Obviously, personnel to command, direct and operate these apparatus and equipment amounts to many more than a town like Branford is expected to employ on a full-time basis. As this single example shows, the increase in paid firefighter staffing which is proposed will meet the requirements of basic residential and small commercial structure fires. For fires in the larger buildings in Branford, the support of the volunteer firefighters will be relied on heavily along with a certain amount of mutual aid assistance. Branford's volunteer force does have and has proven the ability to supplement the paid firefighting force, given the time to assemble and deploy.

Additional Staffing - Effect on Overtime Expense

A case can be made that an increase in staffing will cause a decrease in overtime. It is our understanding that paid personnel earn overtime compensation at one and one-half times their regular pay rate after 212 hours of work in a 28 day period in accordance with the Fair Labor Standards Act.

With additional staffing and an acceptable level of minimum staffing, we believe that overtime expense will be reduced. Unfortunately, we have no way of calculating the amount of such a reduction. In an effort to be conservative, we have assumed no reduction in overtime expense in connection with our recommendations of additional staffing.

XIV. Emergency Medical Services

Emergency Medical Services (EMS) is one of the most critical components of the Branford Fire Department. The EMS personnel have a direct impact on saving lives and minimizing the pain suffered by the individuals who summon them for help. It has been said that a person is three times more likely to require the services of EMS than those of the fire suppression department. As such, this group has the capability of performing the procedures deemed most important by it's customers. In addition, they are in the best position to present a positive image of the Department to the people they protect.

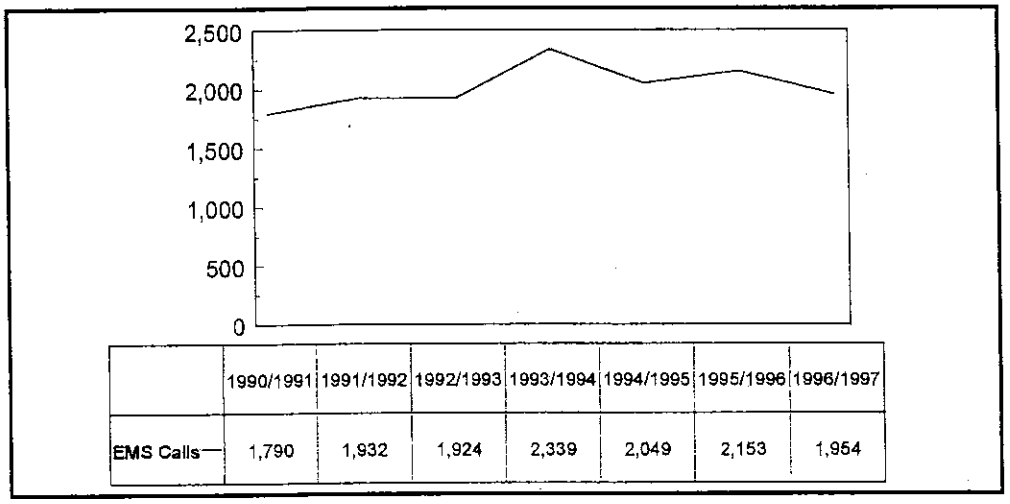
EMS has evolved to an integral part of everyday fire service operations. The fact that, in most communities, people hold Paramedic and EMS services as more important roles than fire protection may be difficult for some fire suppression personnel to accept. A great deal of public relations and community support can be developed through EMS. In many areas of the country, the term Paramedic is directly associated with the term fire department.

As stated earlier, the Branford Town Ambulance Service and the Branford Fire Department were merged in 1993. While we believe that this was the correct choice, it did reduce firefighter staffing during patient transport and return from the hospital.

EMS Call Volume and Trend

The pro-forma EMS call volume was somewhat difficult to determine for the period prior to the merger of the two organizations. We worked with Department personnel to determine what the best estimate of the total number of pro-forma EMS call would have been for each of the years previous to the merger. The following is a summary of the EMS calls by year for the last seven years.

EMS Calls By Year

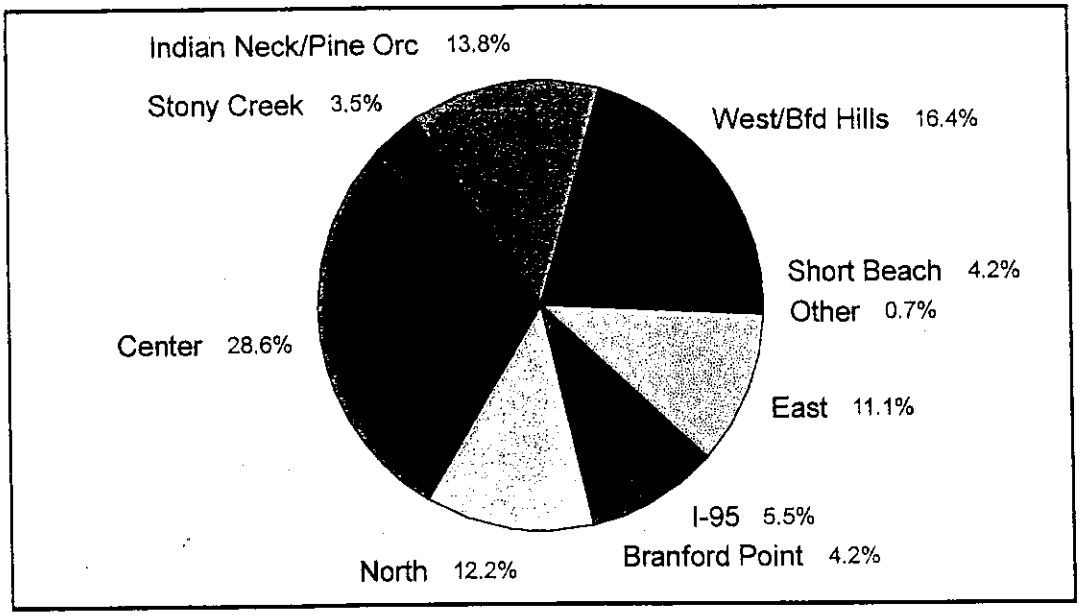


	1990/1991	1991/1992	1992/1993	1993/1994	1994/1995	1995/1996	1996/1997
EMS Calls	1,790	1,932	1,924	2,339	2,049	2,153	1,954

While there is not a significant trend upward evident in the graph above, we have reviewed the responses of Medic 1 and Medic 2 from January 1 to August 31, 1997. Medic 1 responded to 1,252 incidents during that period of which approximately two-thirds resulted or could have resulted in patient transfer. Medic 2 responded to 706 calls during that period of time over 90% of which resulted or could have resulted in patient transport. Annualization of this response data generates an estimate of approximately 2,200 EMS calls for the year, this would result in an increase over each of the prior three years history.

The distribution of EMS calls by location within the Town was also developed for the most recently completed fiscal year. We have summarized that data in the pie chart below:

EMS Calls By Area



As can be seen above, the Center of Town/Fourth Ward has the most EMS calls (28.6%) followed by the West Main Street/Branford Hills (16.4%) and Indian Neck/Pine Orchard (13.8%). While it was expected that the Center of Town/Fourth Ward and West Main Street/Branford Hills areas would have high EMS incident rates, the relatively high EMS call volume in Indian Neck/Pine Orchard was somewhat of a surprise. We requested supplemental data, attempting to identify if one or two occupancies were responsible for this call volume. We reviewed the response data for Parkside Village I and II and found that EMS calls to these senior citizen housing projects did not significantly add to the EMS call volume. Thus, it appears that this area simply has more EMS calls than the other areas of Town not discussed above.

EMS Billing History and Trend

We reviewed the EMS transport billing and collections history for the years available. That information has been summarized below.

	EMS Transports	Patient Billing	Avg Rev Per Call	Actual Collections
Fiscal Year 1990/1991	1,790	$451,006	$251.96	$313,312
Fiscal Year 1991/1992	1,924	$530,012	$275.47	$409,721
Fiscal Year 1992/1993	2,051	$548,618	$267.49	$379,042
Fiscal Year 1993/1994	1,768	$533,410	$301.70	$440,829
Fiscal Year 1994/1995	1,661	$490,514	$295.31	$283,870
Fiscal Year 1995/1996	1,672	$550,570	$329.29	$414,576
Fiscal Year 1996/1997	Information Not Available			$168,000

The data above was provided by the Department, we were unable to verify the accuracy of these amounts. There was a significant decrease in the EMS transport billing from FY 1995/1996 to FY 1996/1997. We understand that one of the major reasons for this situation was that a computer hardware problem arose during May, 1996. We understand that it has been rectified and patient transport billing is being resumed by the outside billing agency described below.

The average revenue per transport was calculated for each of the years listed above. That analysis showed that the average revenue per transport has generally risen over the past seven years. In fact, the increase has been 11.5% from FY 1994/1995 to FY 1995/1996.

Outsourcing of EMS Billing/Collections

Because of the problem with transport billing and collections, it would be inappropriate to discuss a trend of the billings in the past year. Partially as a result of this situation, a decision was made to outsource the EMS transport billing and collections.

We understand the Holdsworth & Associates has been chosen to perform this service. We also understand that their estimate of the potential annual net collections from transport activity are in the area of $500,000 to $600,000 per year. As such, that would be a significant increase for the Town of Branford.

These revenues are deposited into the General Fund so the Fire Department would not see the benefit of the higher revenues. It should, however, be noted that $500,000 of EMS transport collection revenues would be an increase of $322,000 over the recently ended fiscal year collections and increase of $85,000 over fiscal year 1995/1996. These funds would be available for use by the Town. The collected revenues could be higher if the outside billing service is able to invoice and collect for the EMS transports which took place in the last fiscal year, but which were never billed or collected.

We might not have advocated the outsourcing of the EMS patient transport billing and collections for the following reasons:

1. The outside agency will use the same software which the Department used.
2. The EMS patient transport billing and collections appeared to have been adequately performed previous to FY 1996/1997.
3. The FY 1995/1996 total patient billing revenue of $550,570 appears to be within the estimate of potential estimates developed by the outsourcing agency.
4. The agency will earn a 10% commission for their services. This equates to $50,000 to $60,000.
5. Electronic claims processing had previously been performed by the Department, however, it had ceased some time ago.

We understand that the decision has been made to do so and that the agreement has been finalized.

Recommendation
The agreement for the outsourcing of the EMS patient transport billing should include minimum performance criteria which the vendor should be required to provide evidence of to the Town on a regular basis. Such criteria should include timeliness of invoicing, collection/write-off procedures and rates, methodologies for placing accounts with collections and the development and distribution of management reports. In addition, there should be a mechanism whereby the Town can terminate the agreement with or without cause by providing thirty days written notice.

Advanced Life Support Procedures
The question of what Paramedics really do is one that many fire and EMS administrators are unable to answer. Essentially, the Paramedic's higher levels of training allows them to perform airway management, medication and fluid administration and cardiac management skills.

A study was performed to determine what advanced life support (ALS) procedures are most often performed by Paramedics and who they perform those procedures on. Of the 25,139 EMS call reports reviewed, 34% of them included at least one ALS procedure. With respect to the nature of the call, 72% of the calls were categorized as illness calls while 21% were reported as being related to an injury.

The average age of the ALS patient was 52 years while the most often encountered age was 18 years old. This bimodal data appears to show that the older patients are receiving ALS procedures because of an illness while the younger patients are being provided with ALS procedures for trauma reasons.

ALS is one of the most important services performed by the Department. It is where the patient is often literally placing their life in the hands of the Paramedic treating them. The process of fire suppression is somewhat different because the vast majority of fires do not require rescue. While a valid case can be made that public education, prevention and inspection can reduce the number of fire and EMS incidents, they do not have the impact on the public that properly performed ALS procedures delivered in a professional manner do.

Completion of EMSIRS and Billing Forms
Prior to the departure of the Administrative Secretary responsible for EMS, we had the opportunity to review certain of the procedures she performed. In doing so, we were told that the emergency medical service patient contact forms (EMSIRS) were not being completely filled out by Department members. The EMSIRS form is the official Department record of the patient's condition, interventions performed and other significant information related to the incident.

Without a complete EMSIRS form, the Department would be unable to substantiate the patient's condition and interventions performed. These forms are often subpoenaed in connection with lawsuits. As a result, an incomplete form would present a problem for the Department especially if the Department is named in the lawsuit.

Recommendation

A process should be developed whereby EMSIRS forms are routinely accounted for and reviewed for all EMS incidents by Department members or the EMS Coordinator. This will assure that adequate record keeping is maintained and that the Department will be in the best position to defend itself in the unfortunate event of a lawsuit.

We also were informed that the billing information was often incomplete or not being completed on a timely basis by Department members. This may have contributed to the reduction in EMS transport revenues in recent years.

Recommendation

A process should be implemented which will account for all EMS transport billing information by Department members or the EMS Coordinator. Doing so will provide for the maximization of patient transport revenues.

The average fees charged for transport services as listed above were $329.29 for FY 1995/1996 and were unavailable for FY 1996/1997. These average invoice charges represent a mix of ALS and BLS services, however, we would have expected the average to be higher. While the average fees charged have generally risen in recent years, this may be due more to the billable procedures performed rather than an increase in rates.

The average fees per transport are significantly higher for commercial ambulance companies. It should be noted that a portion of the cost of the transport fee is subsidized by the taxes paid by Branford residents, businesses and other taxpayers. An individual who does not live, work in or pay taxes to the Town obtains a similar benefit but has not contributed to the subsidization of the Medic units through the payment of taxes.

Below is a comparison of the EMS fees charged by the Department to those of a large commercial ambulance service provider. We were provided with the commercial ambulance service rates from sources affiliated with that company.

	Branford	Commercial	% Increase
Basic Rate	$239	$318	33%
Paramedic Intercept	$314	$401	38%
Night Charge	$46	$62	35%
Per Mile Charge	$7.30	$9.00	23%
ALS/Paramedic Surcharge	$130	$169	30%

As can be seen above, the large commercial ambulance service company's fees are approximately 30% higher than those of the Branford Fire Department.

Recommendation
The fees charged for medical intervention and patient transport services should be reviewed. While it may not be feasible to increase the fees for residents and taxpayers, it may be appropriate to charge others higher fees because they have not contributed to the subsidization of such services through the payment of taxes. This might be accomplished by increasing the fees, but providing a discount for town residents/taxpayers.

Patient Transfer Services
There do not appear to be any agreements with non-ambulatory facilities whereby the Department can provide routine or non-routine transfers of patients to another facility. While the average fee per transfer for such services may not be as high as emergency transport fees, these services can be scheduled or performed using a call-in crew using Medic 3 (spare ambulance). We understand that other are towns use this system and pay their employees $65 to $75 per transfer. During 1996, C-MED data shows that there were 140 non-ambulatory transfers that were not taken by the Department. At an average transport fee of $300, this would provide additional revenues of $42,000 available for use by the Town.

Recommendation
The Department should identify and actively attempt to develop agreements with non-ambulatory facilities in Town to provide routine and non-routine patient transfer services. Employee scheduling and/or call-in crews could be used to provide such services. This would provide for incremental patient transport revenues while not adding to the staffing levels of the Department.

Part-Time Staffing of Medic 2
In 1994, the second Medic (ambulance) unit was put into service an a regular basis. As of September 12, 1997, Medic 2 is staffed from 8:00 a.m. to 4:00 p.m. and 4:00 p.m. to 12:00 midnight except on weekends when it will be staffed from 2:00 p.m. to 10:00 p.m. All staffing for the time periods when Medic 2 is not staffed by part-time employees, it will now be by on-call personnel who will be paid only if they are called in for a transport. The compensation will be $40 for an EMT, $48 for an EMT-I and $55 for a Paramedic. The Medic 2 staffing is by off duty firefighters, volunteer firefighters and ambulance personnel from Branford and other surrounding towns. These individuals are part-time employees.

While many of the Medic 2 part-time employees are diligent and dependable, some fail to report to work or put their primary employer ahead of their responsibilities at Medic 2. This appears to periodically cause Medic 2 to be out of service due to staffing. We agree with the concept of Medic 2 staffing and the manner in which it is utilized by the Department, however, minor modifications may be warranted.

The part-time Paramedic staff of Medic 2 receive $15.65 per hour while the EMTs working on that unit receive $11.45 per hour. As mentioned above, for a number of different reasons, Medic 2 tends to be out of service for staffing reasons more than would be expected, especially as a result of Paramedic intercept requests. The evolution of Medic 2 has dictated that it's staff are part-time

employees, however, the changes that have taken place in the Department may dictate that the staffing be redesigned.

The hiring practices for Medic 2 staff has varied throughout the years. In some cases there were interviews, background checks and other qualifying requirements. In other cases, there was no formal process and individuals were merely placed on the staff list.

Supervision, accountability and continuing education appear to be lacking with the Medic 2 staff. The Medic 2 staff is technically accountable to the on-duty Deputy Chief-Operations, however, minimal supervision of these individuals was observed. The Department depends on these part-time employees to individually or have their primary employer be responsible for their training and continuing education.

Two options should be considered with respect to the staffing of Medic 2. They are to maintain the current system, staff with full-time personnel returning to a call-back system and maintain the current part-time staffing while returning to the paid on call system for the 12:00 midnight to 8:00 a.m. shift. Each of these options are described in greater detail below. The potential additional revenue estimates identified below are exclusive of any increase related to the correction of the FY 1996/1997 billing and hardware problems.

	Full-Time Personnel Added	**Additional Annual Cost**	**Additional Revenues Expected**
Option 1 - Part-Time Staffing With One Paid On Call Shift	0	$ 42,685	$66,850
Option 2 - Full-Time Staff With One Paid On Call Shift	2	$323,285	$66,850

Option 1 - Maintain Current System
The latest changes to the Medic 2 staffing system have been described in the preceding paragraphs. The biggest concern is that the supervision, accountability and continuing education appear to be lacking. In addition, the part-time employees are not considered part of the Department and generally do not participate in housekeeping and other station responsibilities. The approximate annual cost of Medic 2 part-time personnel is $122,000.

Paid on call personnel would be utilized from 12:00 midnight to 8:00 a.m. This option would be far more cost effective because part-time personnel are not entitled to medical, vacation, sick time, disability and pension benefits. If this option is selected, it will require that recruiting, selection, training, continuing education and supervision would have to be refined from the current practices.

As previously stated, 1996 C-MED data was reviewed noting that outside agencies transported patients to hospitals 203 times. At an average per transport fee of $329.29 those services could generate up to $66,850 in additional patient transport fees.

Option 2 - Staff With Full Time Personnel
This option would require staffing Medic 2 with full time personnel from 8:00 a.m. to 12:00 midnight while returning to the previously used paid on call system for the 12:00 midnight to 8:00 a.m. shift. Whenever Medic 1 is dispatched to an incident during that time period, the Medic 2 on call personnel would be summoned to Fire Headquarters to cover.

This could be set up so that the full-time Medic 2 staff are qualified firefighters that would respond to confirmed serious incidents, but remain available for routine or non-serious calls. Their work schedule could be worked out through negotiation of the union contract.

Medic 2 is the third most active response vehicle in the Department. From a pure business standpoint, the fact that this is such a large part of what the Branford Fire Department responds to, might dictate that it be staffed by full-time Department members.

During calendar year 1996, Department records report that there were 132 EMS transport opportunities missed due to Medic 2 not being staffed. This amount does not consider another 60 incidents missed due to the ambulance being out of service for mechanical reasons or any instances where motor vehicle accidents required three or more ambulances.

C-MED data was reviewed for the same period and 203 missed EMS transports were identified. If those patients were transported, those opportunities would have yielded an additional $66,850 in revenues at the FY 1995/1996 average transport fee level. This approximates one-third of the annual cost of one paid firefighter-Paramedic per shift. This option would have an annual net cost of approximately $256,435.

Recommendation
We recommend the adoption of Option #1, Continue Part-Time Staffing With Paid On Call Coverage Program if our recommended level of firefighter staffing is adopted. If not, we recommend the adoption of Option #2 Full Time Staffing of Medic 2 and those individuals should be firefighter/Paramedics.

Full-time staffing of Medic 2 with Medic 3 for paid-on-call back-up and routine transport service use would enhance the EMS and firefighter staffing. If increased firefighter staffing is not implemented, full-time personnel on Medic 2 should be implemented as soon as possible.

The selection of either of the Options listed above will require that job descriptions, SOPs, rules and regulations and supervision be required. These personnel share Fire Headquarters facility with the Fire Department full-time employees and should, therefore be required to take part in the normal daily station duties.

EMS Shift Design To Meet Peak Staffing Levels
When reviewing the time of day and day of the week distribution of EMS calls we found the following:

	EMS Incidents
12:00 midnight to 8:00 a.m.	15%
8:00 a.m. to 4:00 p.m.	52%
4:00 p.m. to 12:00 midnight	33%

As can be seen above, there is relatively little EMS activity from 12:00 midnight to 8:00 a.m. Over half of the EMS call activity takes place from 8:00 a.m. to 4:00 p.m. whereas only 15% of the EMS call activity takes place from 12:00 midnight to 8:00 a.m. As a result this supports our recommendation of Option 1 above because it would be the most cost effective if our firefighter staffing increase recommendation is adopted.

When EMS calls are reviewed by the day of the week in which they happen, all of the days, other than Sunday receive 14% to 15% of the call volume. Sunday accounts for 12% of the EMS calls. As a result, there is no day of the week with significantly higher or lower EMS call volume.

Based upon the analyses we have performed, the Medic 2 staffing option recommended above appears to be the most cost effective, while providing for the expected service requirements. We are of the opinion that EMS staffing has been designed to meet the requirements of peak service requirements while minimizing the cost of personnel during the time of day when expected service requirements are lowest.

EMS Coordinator Position

With almost 60% of all Fire Department requests for service being EMS calls and the fact that currently, four of the seven (part and full-time) employees on duty at Fire Headquarters are EMS providers reinforces the need for an EMS supervisor. The job description of the EMS Coordinator could include the following:

1. Review EMSIRS for completion and quality assurance.
2. Develop EMS training and monitor continuing medical education requirements.
3. Evaluate and recommend new EMS equipment, technologies and procedures.
4. Review EMS billing for completion.
5. Serve as liaison with the outside billing agency and review management reporting.
6. Monitoring of compliance with blood and airborne pathogen standards.
7. Communication and meetings with Sponsor Hospital and C-MED.
8. Medic 2 personnel scheduling.
9. Development and distribution of management reports.
10. Periodic review of billing rates and development of support for rate increases.
11. Coordinate EMS training and serve as an instructor.

This position could be a full-time appointment with a Departmental rank, it could be a position whereby the appointed individual is paid for an additional 15 hours of overtime per week to perform the duties required of him or her or it could remain as it currently is with a stipend being paid to the EMS Coordinator. We were provided with a job description which appeared to have been submitted to or considered by the former Fire Chief. It states the minimum qualifications for the position along with a majority of the items listed above.

Recommendation

There is sufficient work available to support additional funding for the EMS Coordinator. Initially, we would recommend that the position provide for approximately 15 hours of overtime per week for the EMS Coordinator to perform his/her duties. After one year, the position requirements should be reviewed and determination if the position needs to be a full-time one, working a forty hour week with a specific Departmental rank.

Consideration of Outsourcing EMS Transport Responsibilities

An analysis of the EMS operations of the Department would not be complete without a comparison of the cost and benefits of the internal EMS patient transport capabilities vs. having and outside agency provide such services. Our procedures in this area included reviewing the cost of having Paramedic personnel only being provided by an outside agency, having that outside agency provide all patient transport services and discussing our preliminary findings with Department and Town senior management.

Leased Paramedic(s)

The first consideration was the provision of one or more Paramedics available and stationed at Fire Headquarters twenty-four hours a day, seven days a week. The Department would pay a lump sum for the "leased" Paramedic and would have to continue to directly pay for the ambulance, equipment and supplies used.

The Town of Madison currently has an arrangement with American Medical Response (AMR) whereby this type of Paramedic service is used. We were informed by AMR that this service costs the Town of Madison approximately $215,000 per year. This compares to $202,645 as the annual cost for an entry level Paramedic employed by the Branford Fire Department. There appears to be no cost benefit to this type of arrangement.

Transfer to an Outside Agency

Based upon the patient transport fees generated in recent years and the estimates of revenues to be received under the new billing arrangement, we believe that annual patient transport revenues of $500,000 are attainable for the Department. The local Vice President of Operations of AMR explained to us that Medicare specifically prohibits payments to municipalities in return for receiving the right to perform patient transports in that municipality. As such, this would not be a significant one-time source of revenue for the Town.

We understand that a private transport provider such as AMR would determine the cost of providing the transport services within the performance criteria (response time) chosen by the municipality, would then add what they believe to be a reasonable profit margin and deduct their expected revenues. The result of these calculations would be the amount of subsidy they would expect the Town to pay them for the availability of the transport unit(s).

We developed general estimates of such costs and revenues and compared them with the cost savings of outsourcing the patient transport services of the Department. We did not identify a cost savings to be had. We also examined the intangible side of such a decision. The considerations were as follows:

1. The potential negative effect of having all transport units painted and lettered with the private transport company's name, not the Town of Branford.
2. It is perceived that Town employees would be more empathetic to patients that the employees of the private transport service.
3. There is a great amount of public support for the Department which is available if this service is performed with expertise, compassion and professionalism.
4. There is a concern that the citizens of Branford might sacrifice professional pre-hospital care with concern of not having care covered by their medical insurance carrier.
5. There is a concern that the commercial service provider would increase fees significantly after the first year of the agreement.

All of the above and various other scenarios and ramifications were discussed with senior Town and Department management. We were also informed that this issue had previously been discussed with the Area Director for C-MED and that he had stated that outsourcing of patient transport services would not be the correct decision for the Town of Branford. Based upon our general analytical procedures and discussions, we recommend not outsourcing patient transport services to a private transport service provider.

Consideration of Utilization of Engine 1 as a Paramedic Engine

Currently, there are six Paramedics on the Department's full-time staff and one EMT in Paramedic school. We understand that a number of the individuals on the potential hiring list for the Department are scheduled for Paramedic school. In addition, any increase in staffing should have Paramedics as a hiring priority.

Considering all of the above, consideration should be given to converting Engine 1 to an ALS response unit. This would require allocating a Paramedic to that vehicle in the staffing assignments, which is currently the situation on the shifts which have two Paramedics working.

In addition, appropriate ALS equipment and medications would have to be assembled. There appears to be the majority of the required items available today so we do not believe that this would be a major expenditure, probably not more than $25,000.

If converted to an ALS unit, Engine 1 could respond to medical calls when Medic 1 and Medic 2 are unavailable and provide ALS interventions until a paid-on-call out-of-town ambulance arrives. If the arriving ambulance is a BLS unit and increased staffing on Engine 1 is approved, the Paramedic could accompany the BLS unit to the hospital while Engine 1 remains in service.

Recommendation
Convert Engine 1 into an ALS unit which would respond to medical emergencies when Medic 1 and Medic 2 are unavailable for response. This will allow ALS interventions to take place while waiting for an out-of-town ambulance to arrive.

XV. Training

Training is a leading factor in the successful, professional operation of a fire department. The training task in a combination department is complex, time consuming, costly and magnified by State and Federal mandates. The position of Training Officer in this Department has been held by a number of people, especially, in recent years in which three of the Deputy Chiefs - Operations held the position and subsequently resigned.

In 1996, a volunteer firefighter with extensive fire training and chief officer experience took over the position and has made significant progress. That individual has been appointed to the paid Assistant Chief position and it is unclear whether he will also function as the Training Officer. This is not a task that can be accomplished by one person in a department this size. The Training Officer needs a representative from each volunteer company and the paid staff to work toward a meaningful training program.

Certification Levels of the Paid Firefighters and Shift Commanders
We have reviewed the certification and training levels of the twenty paid firefighters. The Deputy Chiefs - Operations have, for the most part, achieved the highest levels of training in this state. They hold certifications as Firefighters, Fire Officers, in Hazardous Materials, Safety Officer, Instructor and Fire Marshal. They continue to seek additional training and bring back the knowledge gained to their personnel.

The paid firefighter staff have, for the most part, progressed and continue to add to their training and certifications. A summary of the number of paid firefighters who have achieved the various levels of certification has been included below. As can be seen, many have numerous higher levels of certification and all but two have completed Firefighter I certification.

	Number
Firefighter I	18
Firefighter II	17
Firefighter III	9

	Number
Hazardous Materials - Awareness	15
Hazardous Materials - Operations	1
Hazardous Materials - Technician	1
Emergency Medical Technician	10
EMT-P (Paramedic)	7
Fire Officer I or II	10
Fire Instructor I or II	7
Safety Officer	5
Fire Marshal	5
Public Fire Educator	

The area of training most in need of attention is Hazardous Materials Operations. As previously recommended in this report, the Department should run an Operations level course as soon as possible. Also, all shift commanders and acting shift commanders should be trained to the Hazardous Materials technician level. At present, one of them is certified to this level.

The Red Book and SOPs identify the required ares of training for Class A and Class B Firefighters, the Training Officer and Training Division must take responsibility for providing the required training for Department members to achieve Class A Firefighter status.

Certifications of Volunteer Firefighters and Company Officers

The training provided for the volunteers appears to have increased in the past year. Training was conducted through the Department, neighboring departments and the Connecticut Fire Academy. Training included Firefighter I, Firefighter II, Fire Officer I, Fire Instructor I, Safety Officer, Hazardous Materials and live fire suppression training. We noted that a total of twenty volunteer firefighters and company officers received Firefighter I or Firefighter II certification during the past year.

Although detail records were not provided in this area, we did review the levels of training for those considered to be active members. As previously stated, we used at least 25% attendance at drills and calls as a guideline.

Of the 78 volunteer firefighters identified as being active, 65 have achieved Firefighter I certification. Two officers are certified to the Fire Officer I level and a large percentage of the active members are trained in EMS.

Certifications of Volunteer Chief Officers

The certifications held by the volunteer chief officers vary due to time in service and experience. We were unable to determine if any of the volunteer chief officers have achieved Safety Officer certification, while it appears that only one has obtained Fire Officer I certification.

Specialized Training Required

Firefighter training has progressed well in recent months. The Department has encouraged and required basic and advanced training in certain areas. It has also provided the necessary funds to accomplish this training.

We have become aware of a number of situations where members were denied entry into certain Connecticut Fire Academy courses because they filled-up almost immediately after being advertised. The Department has sufficient personnel and interest levels to conduct such courses locally.

The following areas should receive the highest priority in the scheduling and funding of training programs:

1. Incident Safety Officer and certified Safety Officer.
2. Hazardous Materials Operational level certification.
3. Confined space rescue
4. Lost person incidents
5. Aircraft, marine and rail incidents
6. Emergency vehicle safety and operations
7. Management/leadership for all officers
8. Dealing with discipline and conflict resolution
9. Problem solving and decision making for officers

Consideration of Combining Training With Area Towns

Training in certain areas is difficult or cost prohibitive for a single department to perform. As such, there is often the consideration of inviting other fire departments to participate and defray some of the cost. In the past, the Branford Fire Department has utilized this technique to a certain degree in the past.

Recommendation

The Department should sponsor certain types of training and certification programs and invite other fire departments to participate and defray the cost of the programs. Example of such would include Fire Officer I, Safety Officer, Hazardous Materials Operations, etc. These courses could be provided on weekdays, evenings and/or weekends to accommodate all interested parties.

For many years, the Department had it's own live fire training facility. As a result of environmental and other concerns, the facility was closed in the mid-1980's. While the New Haven Regional Fire Training Academy has become more accessible in the last year, consideration has been given to developing a joint training facility with Guilford and North Branford and locating the facility on East Main Street.

Recommendation

Investigation of the feasibility of a three town training facility should be formalized for the East Main Street area in the vicinity of the Town recycling facility. This would provide excellent access for all

three towns and might serve as a future fire station location or part-time housing of a paid engine during the daytime hours.

Status of the Training Division
We are encouraged about the outlook of training in the Department. The addition of a Training Officer is long overdue and accounts for much of the catch-up climate that now exists. It should be noted that one individual can not assume the complete responsibility for all training activities. In the past, an active Training Division existed within the Department. It appears that the Training Division has become inactive.

Recommendation
One member from each volunteer company should be appointed to the Training Division under the direction of the Training Officer. The Training Division should develop an annual training calendar, a listing of mandatory drill topics for company officers, provide lesson plans and assistance to the companies for training in specialized areas.

XVI. Fire Stations, Apparatus & Equipment

In connection with the Study, we performed a general review of the Department's fire stations, apparatus and equipment. In general, we found that they were adequate to meet the needs of the Department. The major exceptions were space available at Fire Headquarters, condition of Engine 9, the location of and parking for Station 2 and the condition of Station 9. The balance of this section of the report reviews each of those areas and the exceptions in detail.

Fire Stations
We developed a list of areas for review at Fire Headquarters and each of the other fire stations. A summary of the pertinent data for each station is included as Exhibit 10 to this report. The following are the key comments for each of the fire stations reviewed:

Fire Headquarters
This building was built in 1963 as the first station to house paid firefighters along with volunteer fire companies. It is one story masonry construction with four bays across the front and two bays in the rear. There was considerable discussion during the course of the Study fieldwork as to whether or not the building was designed so that a second story could be added at a later date. It was ultimately decided that the final building design did not provide support for adding a second floor.

The following apparatus are housed in this station:

Engine 1	Engine 8	Aerial 1
Medic 1	Medic 2	Medic 3
Car 6	Car 18	Marine 10
Rescue 1	Aluminum Boat	

In addition, there is also a vehicle service pit which is covered when not in use and four 55 gallon oil drums. The apparatus area is very congested and is in need of cosmetic repairs (ceiling tiles, paint, etc.).

There are three small rooms, one for each of the volunteer fire companies housed at the station (Engine 8, Aerial Company and Rescue Squad). These rooms are very small and do not provide sufficient room for meeting, training, lounging or storage.

The front office area was rearranged during the course of the Study fieldwork. Both Administrative Secretary positions are now located in the foyer and there are now offices for the Chief, Assistant Chief and the on-duty Deputy Chief-Operations. We believe that this rearrangement provides for better space utilization and administrative control.

The boiler room houses the original boiler, all electrical panels, a cascade system and air breathing air compressor. The boiler appears to be antiquated and should be considered for replacement. We noted that the breathing air compressor had been tested in accordance with NFPA 1500 as recently as May, 1997 and that an air sample was again taken on September 2, 1997 for analysis.

The bunk room appears to be cluttered and would not allow for additional staff to be housed without modification. The meeting room at the rear of the station is approximately 30' by 40' and appears to be used very little.

Fire Headquarters was the state of the art when it was constructed in 1963. Given the age of the building and the fact that it has had twenty four hour a day usage since then, it is in reasonable condition. The building is still well located, but has seen a significant increase in activity, apparatus, equipment and NFPA standard requirements since then.

Consideration should be given to expansion of the building to add two more apparatus bays and additional administrative offices, a conference room and training room. Expansion could be done by reworking the boiler room and adding on to the rear of the station. The administrative areas might be best suited as an addition to the East side of the front of the building. There is the potential to add a second story onto the building, however, it appears that additional reinforcements would be required.

Recommendation

Two additional bays and additional administrative areas should be built onto Fire Headquarters within the next three years. In the short term, consideration should be given to converting the current meeting room into an enlarged bunk room and the current bunk room into a combined volunteer day and administrative room.

M.P. Rice Company - Station 2

This single bay station was built in 1899 and has been renovated a number of times since then. It is well kept, however there are several concerns which should be highlighted:

1. There is a minimal amount of parking (two to three cars).
2. There is no ramp space, the front of the building is at the edge of the street.
3. The station is within 1/8 of a mile of Fire Headquarters.

This is a Town owned station and might be best for Company 2 to be moved to another location in the future. The benefits associated with relocation to Fire Headquarters or another area where a station may be required in the future would include eliminating a hazardous location, providing for better emergency response, the possibility of lower insurance rates, etc.

Short Beach Hose, Hook & Ladder Company - Station 4
This is the only fire station which is not owned by the Town. The Town pays $7,000 per year to rent the single bay facility from the fire company. The building was remodeled recently to accommodate the new Engine 4. The cost of the renovation was paid by the fire company, not the Town.

The station is well kept, neat and has adequate facilities and utility services. It is 1/8 of a mile from the East Haven town line and is located on a busy street. Relocation of this station is not deemed necessary because twelve of the fourteen active members of the company reside in the direct vicinity of the fire station.

Stony Creek Rescue Company 5 - Station 5
This station is owned by the Town and partially leased to the U.S. Coast Guard Auxiliary. There are four bays across the front with one additional bay having access to the north parking lot. Engine 5, Rescue 5, Engine 10 and the Department spare engine are housed there. This causes the apparatus floor to be quite crowded.

This station is well placed for protection of it's district, however, if the station were located in the area of the Saint Theresa Church on Leetes Island Road the Department might have better access to the Eastern end of the Town. At the present time, there does not appear to be a significant need for a fire station on East Main Street with rapid access to the industrial and residential areas in that vicinity. Conditions can and may change which would require such a station within the next five to ten years.

A large percentage of the members of the company reside in the vicinity of the fire station. As a result, there appears to be no reason to consider relocation of the station at this time.

Former Pine Orchard Company 6 Station
This single bay station is owned by the Pine Orchard Association and leased to the Fire Department. The station was slated for abandonment when Company was merged with Company 9 in 1996. Since then, an addition to Station 9 has been proposed because the attempt to place Engine 9 and Tactical Unit 6 in the current Station 9 was unsuccessful.
The station will house Tactical Unit 6 until the addition to Station 9 is completed. There was considerable discussion as to whether the apparatus floor of Station 6 would hold a full-sized engine. A former Captain of Company 6 stated that an engine could, in fact, be placed in that bay. This

station is located 1 1/2 miles from Station 9 and is located amongst high value properties. The location would provide excellent access to the Center of Town, High School and East Main Street and we understand that ISO would have given additional rating points if the combined company was stationed there. In spite of these considerations, the majority of the combined company's calls and a large percentage of the Department's incidents take place in the areas adjacent to the current Station 9.

The former Station 6 might, however, serve other purposes. If the floor will support an engine, it might be a good location to house a second paid apparatus part of the day or full-time. It might also be considered for stationing a Medic unit and the EMS coordinator part or full-time.

Indian Neck Fire Company 9 - Station 9
This is currently a single bay station which was built approximately seventy years ago. Station 9 is not up to the same levels of condition, maintenance and upkeep/housekeeping as the other volunteer stations. We noted a lack of equipment storage area, proximity to a busy intersection and a lack of parking area. Considerable work will be required to complete the addition and turn this station into a facility which is safe and functional.

Recommendation
Further consideration should be given to relocating Engine 9 and Tactical Unit 6 to the former Station 6. If not deemed appropriate, the addition to and renovation of Station 9 must be monitored to assure that the remodeled facility is safe, adequately kept and functional.

Recent Apparatus Purchases and Capital Purchase Plan
We reviewed the apparatus recently purchased along with the capital purchase plan (Exhibit 11). There have been seven vehicles purchased since 1993.

The Department had a policy, until this year, of allocating the new engine every two years to the paid firefighters and passing the engine that the paid firefighters had been using to one of the volunteer fire companies. In 1997, the Department took delivery of two new Pierce engines which were allocated directly to Company 2 and Company 4.

We noted that the two new engines have 500 gallon water tanks. This is in contrast to the last three engines which were purchased with 750 gallon tanks. Given the often delayed daytime response of a second due engine, the larger tank seems more appropriate. Furthermore, the current Engine 1 is the size of a full-sized engine with a 1,000 gallon tank manufactured by certain other apparatus manufacturers.

Recommendation
Strong consideration should be given to returning to the practice of including 750 gallon water tanks on all new engines. In the case of Engine 1, a strong case could be made for including a 1,000 gallon water tank if the overall size of the engine did not increase. This would allow for more water to be available at structure fires while waiting for a hydrant connection or a second due engine to arrive.

The capital purchase plan review revealed the following replacement cycle:

1959 Maxim Pumper	Engine 9	Replace in July, 1998
1981 Chevy/Ranger Heavy Rescue	Rescue 1	Replace in July, 2000
1988 Sutphen Aerial Tower	Aerial 1	Replace in July, 2006
1991 Pierce Pumper	Engine 8	Replace in July, 2009
1993 Sutphen Pumper	Engine 5	Replace in July, 2011
1995 Sutphen Pumper	Engine 9	Transfer to Engine 9 in 1998
		Replace in July, 2013

There is a discussion about purchase of a quint apparatus in the future. A quint is a combination of a full-sized engine and a medium length aerial ladder. We are of the opinion that an apparatus such as a quint is ideally suited for use in the Branford Fire Department. Such an apparatus would provide the maneuverability of an engine with the capabilities of a 75' aerial ladder. A quint could be purchased as a replacement for Engine 9, as a second paid apparatus or instead of putting a pump on Aerial 1. Various apparatus manufacturers produce quint apparatus which is approximately four feet longer than the current Engine 1, with the exception that there is an front overhang of approximately 18 inches for the ladder. It would appear that there are no bridges under which Aerial 1 could travel that a quint apparatus could not.

Recommendation

A quint apparatus (combination engine and aerial ladder) should be strongly considered for purchased within the next three years. Such an apparatus will provide added flexibility to the Department especially during the daytime.

Review of Apparatus and Other Department Vehicles

We developed a checklist for the review of all Department vehicles and examined them during the course of the Study. A summary of our findings is included as Exhibit 12. In general, we found that most apparatus is relatively new and in excellent condition.

Engine 9, a 1959 Maxim, was found to be in unacceptable condition. This apparatus was refurbished over ten years ago, but is suffering from mechanical brake problems and severe body rust. The Department spare engine, Engine 2A, is in much better condition that Engine 9. These two vehicles have essentially the same cab and compartment layouts. Engine 2A has replaced and is currently running as Engine 9. Engine 9 is said to be out of service due to brake failure and it's future is uncertain at this time.

Engine 10 is a 1981 GMC/Bean high pressure/low gpm pumper. This vehicle is not considered a Class A pumper for ISO purposes and is not considered adequate for structural firefighting purposes. We noted at least one instance during the Study fieldwork where it responded in the place of Engine 5. At in that instance, Engine 1 was dispatched so as to have a Class A pumper respond to the scene of a still alarm with an automatic fire alarm call. We saw no procedures, rules of regulations which

would prohibit Engine 10 and/or Tactical Unit 6 from responding in the place of or attempting to perform the duties of a Class A pumper at an incident scene.

Recommendation
A procedure, rule or regulation should be developed identifying specifically which types of incidents which Engine 10 and Tactical Unit 6 should respond to, what procedures they should engage in and specifically prohibit either unit from assuming the role of a Class A pumper at any incident.

Aerial 1 was manufactured without a pump, water tank or preconnected hoselines. As a result, whenever this vehicle must operate as an elevated water tower, an engine must be committed to pump water to the tower.

While there may have been reasons for this in the past, it would appear to be appropriate to install a pump, tank and preconnected hoselines. If this were done, Aerial could function as a second engine and the aerial ladder at a structure fire scene. If additional staffing allows paid firefighters to respond on the initial call with the Aerial during the daytime hours or at any time, this would result in the equivalent of two engines and the ladder truck arriving on scene together. Although the paid firefighters would drive the Aerial to the incident, they would still require the assistance of the volunteer firefighters to effect forcible entry, ventilation and search and rescue procedures. Qualified Aerial 1 operators could still be assigned to operating the unit, if available on scene.

Recommendation
A 1,500 gpm single-stage pump, 200 gallon water tank and an assortment of preconnected hoselines should be installed on Aerial 1. Based upon the research we performed, we have estimated the cost to do so at $50,000. Installing these items would eliminate the need for one of the engines on a structure fire scene and allow for two engines and an aerial device to respond together to structure fire calls.

We were unable to locate the seat belts on a number of the apparatus. In some cases, the seat belts were visible and it appeared that they were being used, in other apparatus we believe that the seat belts had fallen behind the seat as a result of misuse and in a few cases we could see no evidence of seat belts existing in the rear seat area.

Rescue 1 is now fifteen years old and has 75,000 miles on it. It shows evidence of rust and is starting to suffer from mechanical breakdowns. Although the vehicle is acceptable at this time, it may not last much longer. Consideration should be given to replacing that unit within the next three or four years or combining it with another unit as a rescue pumper.

Car 18, the brush fire truck was manufactured in 1968. It continues to serve the Department fighting only brush fires. It appears to run well and operate efficiently. As such, we see no need to replace this vehicle at this time. In addition, Tactical Unit 6 has brush fire extinguishment capabilities and is now dispatched to all brush fires. Should Car 18 suffer a mechanical breakdown, Tactical Unit 6 would be responding and would be able to assume responsibility for the incident.

Car 1 is a 1989 Chevrolet station wagon. Often during the Study fieldwork it was out of service for mechanical reasons. Consideration should be given to replacing this unit within the next two years.

Car 6 is a 1988 Chevrolet Suburban which is reported to be on it's third or fourth engine. It has high mileage, the steering appears to have significant "play" and there is a fair amount of body rust and deterioration. We understand that a replacement for this vehicle was included in the current year budget.

Medic 1 and Medic 2 are reasonably new vehicles. Medic 1 is a 1997 Ford ambulance with 9,000 miles on it, while Medic 2 is a 1996 Ford ambulance with 54,000 miles on it. Medic 3 is a 1991 Ford ambulance with 149,000 miles. While it still runs adequately as the back-up ambulance, it is approaching the end of it's useful life. Replacement of Medic 1 or 2 should take place in 1998 or 1999. At that time, the current Medic 3 can be retired. Until that time, it would be appropriate to use this vehicle as the back-up ambulance and for inter-facility transfers.

We met with the Director of Public Works for the Town regarding the feasibility of utilizing the Public Works Department facility and personnel to preform emergency vehicle maintenance. A portion of the maintenance is currently being done on the Medic units, Car 1 and Car 6 by them. It was his opinion that Public Works could handle most preventative maintenance and repairs, with the exception of pump maintenance and repairs. They feel an additional mechanic would be necessary, but with the additional mechanic they would be able to handle other town vehicles for which maintenance and repairs are now contracted out.

It is possible that mechanical service and repairs can be performed faster and with more personal interest by Public Works than by a private repair facility. The Guilford Fire Department is currently using their Public Works garage for fire and police department maintenance and repairs. There is at least one person on call 24 hours a day for emergency repairs. He/she is provided with a pager , each receives two hours of pay per week to be on call and these individuals are obligated to provide coverage. This procedure has worked well for Guilford for the past six or seven years.

Recommendation

Consideration should be given to utilizing the Branford Public Works Department for routine maintenance and emergency repairs of the Branford Fire Department vehicles with the exception of pump maintenance and repairs. This may provide for less vehicle down-time and an overall cost savings.

Review of Equipment

We performed a general review of the firefighting, EMS and rescue equipment available for use by the Department members. In general, we found the equipment to be adequate. On some occasions, volunteer companies have purchased equipment with their own funds because they could not get approval or funding for equipment they believed was necessary to adequate and safely perform their job.

Now that the Department's apparatus fleet is almost completely updated, concentration should be given to supplies and specialized equipment for hazardous materials incidents, technical rescue situations and other specialized equipment which would allow for more efficient on scene operations

The EMS equipment appeared to be adequate. We did note during the Study fieldwork that a LifePak 11, the latest generation of cardiac monitor had sat for a number of months because the $16,000 unit was purchased prior to receiving Sponsor Hospital authorization to use this cardiac monitor/defibrillator. We understand that Sponsor Hospital authorization to use the LifePak 11 will be received by October 1, 1997.

Review of Fire Boats And Consideration of Usage

There are currently three boats owned and operated by the Branford Fire Department. They are Marine 5, Marine 10 and the Department aluminum boat.

Marine 5 is a 28 foot long specially designed emergency response vessel. It is a Munson Hammerhead and was manufactured in 1984. It has twin 150 horsepower outboard engines and is operated by Company 5. There is ordinarily a 500 gpm pump on the boat, however, the pump has been removed as a result of numerous breakdowns. A new 73 horsepower engine and fire pump capable of delivering 835 gpm will be purchased. It will also have a manifold capable of discharging three 2 1/2" or a master stream device. The boat is equipped with the necessary appliances, hose, tools and equipment. There are eight certified helmsmen which pilot the vessel to boat fires, boats in distress, swimmers in distress, island medical emergencies, island structure fires and other similar incidents.

Marine 5 has proven it's usefulness many times. It should, however, be noted that it is docked in Stony Creek Harbor. It is in Branford Harbor that we estimate there are over 2,000 boats docked. The question arises whether there should be a second boat which is docked in the Branford Harbor area. While Marine 5 may be able to respond from Stony Creek Harbor to Branford Harbor in a matter of minutes, the rapid spread of boat fires, especially near gas docks, is a key consideration. We were informed that it takes Marine 5 a little as six minutes to reach the Branford River under ideal conditions, however, it could take over twenty minutes to arrive there in adverse conditions.

Managing Fire Services had a reference to the use of fire boats. It said "For fires in harbor areas, the fire boat must deploy within five minutes of the receipt of the alarm for 90% of all marine-oriented incidents with adequate marine firefighting equipment (and at least) 500 gpm (capacity)."

Recommendation

A determination should be made whether a Department boat should be docked in Branford Harbor. We considered recommending that Marine 5 be moved to Branford Harbor, but have been informed that the certified helmsmen are all from the Stony Creek area and that it might take longer to drive to the boat in Branford Harbor than it would to pilot Marine 5 from Stony Creek Harbor to Branford Harbor. Another consideration is the necessity to protect the homes on the Thimble Islands and the need to maintain a boat close to the over 100 homes located on those islands. Input from experienced

marine firefighters indicates that Marine 5 would prove to be too large and difficult to maneuver effectively in the Branford River.

Marine 10 is an inflatable Zodiac style boat which is stored on a trailer at Fire Headquarters. When an incident which is deemed to require Marine 10 takes place, Car 6 or Car 18 tow Marine 10 to the launching area closest to the incident and the Engine 1 crew responds with Marine 10.

The Department aluminum boat is used for evacuations and other situations where a short draft boat is required. It is also stored on a trailer at Fire Headquarters. Unlike the other marine units, this boat responds only when it receives a special call. Ice rescue operations are handled with either the aluminum or Zodiac boats.

Consideration of Elimination of Apparatus and/or Merger of Companies

We have given careful consideration of the merging of some of the Branford Fire Department volunteer companies. The merger of long-standing volunteer fire companies is an emotional issue which should be considered from a reasonable point of view. It is possible that the emotional and political roadblocks to company mergers will win out, however, the merging of Companies 6 and 9 appears to have been successful. The main reason to consider combination of companies is that there are three engines within 1/8 of a mile in the Center of Town (Engine 1, Engine 2 and Engine 8).

There are several combination options which should be considered. They are as follows:

Option 1 - Combine Company 8 and the Rescue Squad

Engine 8 could become a rescue pumper and serve in both capacities. The pluses include having more personnel available to respond and work off of one unit rather than two and also that there would be one less piece of apparatus to insure, maintain, etc. This would also free one space in Fire Headquarters.

The negatives associated with this option would be that it eliminates the only medium duty rescue unit in the Department which may be needed more in the future for storage and transportation of technical rescue equipment. Also, Rescue 1 is dispatched to significantly more incidents than any of the volunteer engines. The elimination of Rescue 1 might result in Engine 8 having to be replaced sooner than expected.

Option 2 - Combine Companies 2 and 8

In this situation , Engine 2 could become the pumper for the combined company. The pluses include having more personnel available to respond and work off of one unit rather than two and also that there would be one less piece of apparatus to insure, maintain, etc. This would also free one space in Fire Headquarters. Engine 2 is a new vehicle so the fact that it would have increased call volume should not present a problem of the vehicle wearing out for many years. also, it would eliminate the requirement for M.P. Rice Station 2 without adding to the number of apparatus at Fire Headquarters.

The negative associated with this option is that the volunteers of M.P. Rice Company 2 would lose their quaint and comfortable quarters and have to share the already inadequate Fire Headquarters facility with Company 8 until that building is expanded.

Option 3 - Combining the Aerial Company with the Rescue Squad
Our recommendation includes staffing Aerial 1 on a full time basis. If that takes place, Aerial 1 and Rescue Squad members could be cross-trained and be available for rescue and ladder company work at incident scenes. This combination would allow the Department to retain and escalate the rescue service by having more people available to perform the ladder company and rescue tasks at structure fires.

The negatives associated with this option are that the ladder company and rescue squad responsibilities are significantly different at structure fires. The ladder company is responsible for forcible entry, ventilation, search and rescue and ladder evolutions whereas the SOPs state that the Rescue Squad often has primary responsibility to act as the Rapid Intervention Crew.

Option 4 - Combination of Company 2 and the Rescue Squad
The combination of Company 2 and the Rescue Squad is similar to the combination of Company 8 and the Rescue Squad.

Engine 2 could become a rescue pumper and serve in both capacities. The pluses include having more personnel available to respond and work off of one unit rather than two and also that there would be one less piece of apparatus to insure, maintain, etc. This would also free one space in Fire Headquarters and eliminate the need for Station 2 and it's shortcomings.

The negatives associated with this option would be that it eliminates the only medium duty rescue unit in the Department which may be needed more in the future for storage and transportation of technical rescue equipment. Also, Rescue 1 is dispatched to significantly more incidents than any of the volunteer engines. Finally, we would expect that there would be significant resistance from Company 2 because they would lose their fire station and have to respond out of Fire Headquarters.

Mergers and/or combinations most often meet with significant resistance and disapproval. We are of the opinion that the alternatives should be objectively studied further before attempting to implement any such consolidations.

One of our significant concerns is the exposure firefighters take when Engine 1, Medic 1 and Car 6 are responding from Fire Headquarters while members of Company 8, the Aerial Company, the Rescue Squad and Company 2 are attempting to get through traffic to their fire station to respond with their apparatus. Merging companies would somewhat improve this situation.

Another suggestion we offer is to abandon the policy that requires a driver to wait for a rider before responding to an incident. If a driver is able to respond alone, sign his/her apparatus on duty and announce that he/she is responding alone the other firefighters responding to that apparatus could go

directly to the scene. There is a much better chance that volunteer firefighters would arrive on scene minutes faster than if they arrived with their assigned apparatus.

Recommendation
Apparatus driver/pump operators should be cross-trained so that members from one company can respond with apparatus from other companies if they are at or near the other company's station where they're awaiting a driver.

Though the latest ISO evaluation has not been provided to the Town, we discussed the effect on rating points granted or eliminated with the addition or elimination of engines or stations. We were told that ISO uses a 1 1/2 mile coverage area as ideal and having a positive impact on rating points. Therefore, eliminating Engine 2 or Engine 8 would have no impact on the ISO rating. It should be noted that moving, with or without combination of the companies, an engine to the East in the area of Branford Motel and railroad overpass would enhance the ISO rated protection coverage and overall ISO evaluation. This is in contrast to the fact that there does not appear to be sufficient call volume to support a fire station on East Main Street at this time.

The mileage from Fire Headquarters to the Guilford town line is 4.8 miles. The three mile point is just beyond the railway overpass near the Branford Motel. The distance from Stony Creek Station 5 to the Guilford town line is 3.4 miles. Again, the addition or relocation of an engine to the Branford Motel area would meet the ISO 1 1/2 mile coverage criteria for most of the eastern end of the Town. The relocation of Engine 9 to the former Station 6 would also enhance protection and ISO evaluation in Pine Orchard and Stony Creek.

Insurance
The Town general property and liability coverage is written through the Great American Insurance Company, represented by the H.D. Segur Agency of Waterbury. The contract goes out to bid on a bi-annual basis.

A cursory review of the coverages provided a determination that the insurance coverage is generally adequate. The practice of putting the insurance contract out to bid is wise and should be continued with responses being requested from at least three bidders.

XVII. Water Supply

The area of water supply is one that received significantly more attention than we would have expected it would have at the outset of the Study. Our initial impression was that substantially all of the Town is protected by hydrants which we assumed had adequate water flows. Our detail analysis provided information which was incongruent with our initial impressions. The balance of this section of the report provides insight into the areas we analyzed and the results of our analysis.

Hydrant Flow Coverage/Population Not Protected By Hydrants

Our first objective in the evaluation of water supply was the determination of the number of homes and the approximate percentage of the Town population which is not protected by hydrants. Through personal observation, we identified the areas where homes were are least 1,200 feet a hydrant. We used 1,200 feet because that is the amount of supply hose carried on Department engines.

We identified 144 homes without adequate hydrant coverage. This represents approximately 2% of the homes in Branford. The areas identified were the Ivy Street trailer park, the Piscitello Drive area, the Laurel Hill Road area and certain areas on and off of Leetes Island Road. These areas are all near the North Branford and Guilford town borders. The best alternative would be to have the appropriate town respond with a mutual aid tanker apparatus to all confirmed structure fires.

Recommendation

In the areas where there are no hydrants or where homes are more than 1,200 feet from the nearest hydrant, a mutual aid tanker truck should be requested for all confirmed structure fires. Doing so will provide for 2,000 or 3,000 gallons of water and the capability of using portable tanks to maintain a continuous water supply.

In addition to the 144 homes identified above, there are 102 homes located on the islands off of the coats of Branford which are not protected by hydranted water supplies. The response to incidents of structure fires on these islands will probably result in the loss of the structure where the original fire starts. The Fire Department will have a difficult time confining the fire to the structure of origin is weather conditions are a factor.

Recommendation

The Department should provide assistance to the part and full-time inhabitants of the islands in the areas of fire prevention and incipient fire control because these are the things which will protect their homes from fire. The assistance should include the following:

1. Fire extinguisher information and training sessions.
2. Courtesy safety and fire hazard inspection.
3. Smoke alarm battery reminder information.
4. All structures should have at least one ABC rated fire extinguisher.
5. Alarm systems should be installed for early fire detection.
6. Installation of hose and equipment boxes for use by Marine 5 personnel should be considered.

Water Flow Capabilities

During our discussions with senior Fire Department management, we inquired as to the areas of Town where there might be a concern about adequate water flows from the existing hydrants. From those discussions, we developed a list of areas and specific hydrants for flow testing. We tested the water flows from a number of hydrants and found the following problem areas:

Recommendation
When large vehicle fires or hazardous materials incidents requiring significant amount of water take place on Interstate 95, mutual aid tankers should be immediately dispatched. Doing so will provide for initiation of a rapid water supply utilizing fewer apparatus. This will also allow Department personnel to focus on mitigating the incident vs. maintaining an adequate water supply.

Consideration of Tanker Apparatus
We considered recommending the purchase of a 2,000 gallon or larger tanker apparatus by the Department but have determined that this would not be the most efficient use of Town funds. As was recommended above, mutual aid tankers should be requested for confirmed structures in the non-hydranted areas. Fortunately, the non-hydranted areas are located adjacent or reasonably close to the North Branford and Guilford town borders.

The areas where there are hydrants, but insufficient water to supply an engine operating at a structure fire, alternate hydrants on larger water mains or a static water supply should be identified. The use of tanker apparatus in such areas would be difficult due to the congested nature of the housing development and the narrow streets.

XVIII. Mutual Aid

Mutual aid is a mechanism whereby a fire department can supplement their response with specialized apparatus which would not be cost effective for it to purchase (i.e., tankers) or to provide additional apparatus and staffing in the event of a major incident. Mutual aid should not be thought of as a substitute for proper apparatus or staffing because such a situation would result in one municipality subsidizing another's fire suppression forces at the expense of the providing municipality's taxpayers.

History of Mutual Aid Provided and Usage
For the year 1996, we were able to assemble to mutual aid received by and provided by the Branford Fire Department. It was difficult to determine the difference between medical and fire service mutual aid, however, with the assistance of Department personnel we were able to develop a general idea of the nature of the mutual aid. The following is a summary of that information:

	Mutual Aid Provided To	**Mutual Aid Received From**
East Haven (combination of Medic units, I-95 and aerial apparatus)	15	10
Guilford (combination of Medic units and I-95)	13	9
New Haven (substantially all Medic units)	14	0
North Branford (substantially all Medic units)	83	3

Mutual Aid Ambulance Coverage
Mutual aid provided vs. received is approximately equal for East Haven and Guilford. The ratio of mutual aid provided to received is skewed for New Haven and North Branford. Most of these instances are Paramedic intercept calls or the lack of an available patient transport unit resulted in C-MED dispatching the Branford Medic unit to these areas.

While such a situation does remove the Medic unit from serving Branford citizens, it is being compensated for the call unless the Medic unit is cancelled enroute to the incident. We believe that a patient is treated and billed in almost all of these medical mutual aid situations, this generates additional revenues for the Town of Branford. If administered correctly, the use of Medic 3 as a mutual aid ambulance or cover ambulance when a Medic unit is dispatched to another town or city could be a significant source of revenues for the Town of Branford.

In the event that this concept is embraced, but that Medic 3 becomes no longer road worthy before the purchase of the new Medic 2, the replacement of Medic 2 could be hastened. If that is not possible, a suitable used ambulance can be purchased for approximately $10,000 to $15,000 and then traded in on the Medic 2 replacement.

Recommendation
The use of the Medic units for mutual aid transport or Paramedic intercept purposes should not be discouraged. With the expenditure of a few thousand dollars, Medic 3 could, in all probability, be made to last another year or two. Doing so would require the use of Medic 3 and call-in personnel whenever Medic 1 and 2 are unavailable due to an out of town response. Even with this added expense, there is the potential for additional revenues for the Town.

Mutual Aid Agreements
We requested copies of all Department mutual aid agreements with area towns. We were provided with a copy of the high angle rescue team agreement with Hamden Fire Department and were told that the only other existing agreement is with East Haven.

A copy of the East Haven mutual aid agreement could not be located at Fire Headquarters. We requested and were provided with a copy by the East Haven Fire Department. We reviewed the agreement and believe that it would be adequate for use by the Department with minor modifications.

Recommendation
Written mutual Aid agreements should be developed with Guilford and North Branford. The format of the agreements should be similar to the agreement with East Haven, however, the following situations should be specifically covered:

Tanker apparatus
Aerial response
Ambulance coverage
Turnpike response

These mutual aid agreements should be completed no later than December 31, 1997.

There is are no specific policies or procedures as to when and how to engage mutual aid services. The lack of such policies or procedures results in inconsistencies regarding the use of mutual aid assistance.

Recommendation
A policy or procedure should be developed describing when and how mutual aid assistance is to be requested and utilized. The policy or procedure should address the various types of mutual aid, including aerial devices, tanker apparatus, high angle rescue, ambulance coverage, etc. In addition, the policy or procedure might address automatic mutual aid when certain apparatus (i.e., Aerial 1) is out of service, tankers being automatically requested in non-hydranted areas, incidents taking place adjacent to Town boundaries and other specific situations. This policy or procedure will provide for consistency in the use of mutual aid services.

Mutual Aid Drills
The most important factors in the efficient implementation of a coordinated mutual aid response program are the development of mutual aid agreements and performing combined drills prior to the utilization of mutual aid response at an incident. The issue of mutual aid agreements has been addressed above.

We were informed that no mutual aid drills have been performed in the last three years. The lack of such drills could result in logistical problems when mutual aid response is requested. Examples would be radio communication, hose thread patterns not being compatible, lack of understanding of the procedures required to support a specialized team or apparatus, etc.

Recommendation
There should be at least two drills annually with each town that mutual aid agreements are developed with. This should minimize the logistical problems encountered when mutual aid is engaged at incidents.

XIX. Management Information Systems

Hardware and CAD System Currently In Use
The hardware and Computer aided dispatch (CAD) system currently in use by the Department appear to be state of the art. The CAD system was designed by Motorola and Applied Micro Technologies (AMT). The combined system was brought on-line in December, 1995. At that time, Fire Department dispatch was combined with Police dispatch and relocated to the Police Station.

Although there tend to be occasional issues, the system appears to be functioning adequately. We spoke with the Police Sergeant who is responsible for the dispatch/communications center. He expressed concern that there needs to be a clearly defined communications liaison person identified

in the fire, police and public works departments and that these individuals should be given the authority and responsibility of getting dispatch and communications issues resolved.

During the Study fieldwork, a Management Information and Communications Coordinator was appointed for the Fire Department. It remains to be seen if he is provided with the authority and responsibility to resolve all issues related to dispatch and communications.

There was a policy whereby dispatchers repeat the messages they are provided. This appeared to have been a holdover from the time period when radio messages could not be well received throughout the entire Town. We understand that is no longer the case. As such, we considered a recommendation to eliminate the repeating of all messages and only repeat significant communications from the first arriving units and the incident commander. As of September 12, 1997 we understand that a directive was issued to eliminate the repeating of message by the dispatchers.

Our monitoring of radio transmissions throughout the Study fieldwork left us finding dispatchers less than consistent. At least one dispatcher lacked spontaneity, directness and clear understanding. Others lacked clear enunciation. Streets unfamiliar to us were not easy to understand.

Substantially all of the AMT software which runs the CAD system appears to have been written by one individual. We understand that individual is no longer available for use by AMT to resolve software conflicts as they arise and to develop software updates . While an attempt is being made to rectify this situation, Branford runs the risk of not having the ability to resolve software conflicts or will be unable to obtain required software upgrades. A support agreement is in place with AMT, however, the Town has experienced some delays in receiving technical support.

Recommendation

AMT should be required to provide the Town of Branford with an action plan to ensure the provision of adequate support and upgrading the CAD software. This should be accomplished utilizing AMT employees, not outside contractors.

The hardware portion of the radio system and CAD is comprised of the latest generation Motorola dispatch consoles while the two Fire Department radios and four receiving stations were manufactured in the late 1980's. In fact, Branford is used as one of Motorola's demonstration sites. This has positive and negative aspects. Being the latest generation, there are few similar installations. If a problem develops, it may take longer to identify and rectify the situation. This does not appear to be a significant problem. By being the latest generation and a demonstration site, Motorola would be very concerned with maintaining the satisfaction of the Town of Branford because their potential customers will be contacting Branford for references.

The hardware being used at Fire Headquarters are substantially all new personal computers which are networked into the CAD system via a 56 kb telephone line. This results in significant time delays when processing information on the network. We were informed during the Study fieldwork that a 256 kb line would be installed which would greatly enhance the network performance. To date, the

256 kb line has not been installed.

Recommendation
The response of the network when attempting to input or sort CAD system data from Fire Headquarters is unacceptable. The 256 kb line which is scheduled to be installed should be completed as soon as possible. This will allow for data entry and the generation of management reports to be much more efficient.

During the Study fieldwork, we requested and received a number of the standard and customized management reports available in the CAD system. Examples of such reports are as follows:

Calls by day of the week
Calls by time of day
Complete call time analysis
Calls by grid area
Duration of calls by time of day
Calls by grid area by time of day
Calls by grid by day of week
Average time analysis by grid area

In some cases, we identified management reports which Department management did not know were available from the system.

Recommendation
A complete review of the available and additional desired CAD summary reports should be reviewed by the Chief, Assistant Chief, Deputy Chiefs of Operations and the Department CAD liaison should take place and a listing of the management reports to be distributed and their frequency should be developed. Doing so will provide management summary data available on a regular basis. These reports should then be reviewed and followed-up by the necessary parties.

At present, dispatchers have received emergency medical dispatcher (EMD) training. One of the best ways to assist patients in need of medical attention prior to the arrival of the pre-hospital care providers is through EMD procedures.

NFIRS Completion/State of Connecticut Reporting
The National Fire Information Reporting System (NFIRS) requires that each fire department report certain incident data to the State Fire Marshal on a regular, usually monthly, basis. We contacted the Connecticut State Fire Marshal's Office to obtain a copy of a summary of the data submitted by the Branford Fire Department in the past year.

We were informed that the Department has not provided information or has not done so in a format which their computer system can accept in over 2 years. A copy of the report received from the Connecticut State Fire Marshal's Office is included as Exhibit 13.

We understand that the data is being compiled, but that it is summarized in a format which the State Fire Marshal's Office cannot use and that attempts to resolve this problem are continuing. There is no penalty for not submitting such data, however, it is recorded, summarized and reported at the State and Federal levels.

Recommendation
Every possible effort should be made to produce the NFIRS fire incident data in a format which can be used by the State Fire Marshal's Office for analysis and reporting. This may require the continued assistance of AMT.

We understand that consideration is being given to the purchase of an inexpensive NFIRS software package. We also understand that a somewhat sophisticated inspection software package and pen-based computer are being considered for purchase. While both of these individual software packages are probably excellent stand-alone software, they will not integrate with each other and with the CAD system. The reason all of the software packages need to be integrated is so that there is one database of information for use in dispatching, reporting and inspection purposes. Having more than one database results in inconsistencies in data from one database to another.

Recommendation
All software modules should have access to the same database. Doing so will allow all dispatch, response, NFIRS and inspection data to be consistent. There are a number of fire service software records management system providers who provide an integrated records management system including modules for:

Incident reporting
Inspections
EMS reporting
Apparatus & equipment control
Station day book
Personnel information
Other occupancy information

Other Software In Use
Our review of the software being used at Fire Headquarters revealed that word processing, spreadsheet, database and other expected software are employed. We identified no concerns related to the use of those programs.

We noted that hard copies of computerized and manual reports are stored a number of places in Fire headquarters. As a result, there could be a lack of control over sensitive (i.e., payroll or personnel) information or an inability to find necessary documents when needed.

Recommendation
A central location should be identified for all Departmental storage of all Department records which have to be maintained, but not accessed on a regular basis. Those files should be catalogued on a regular basis and filed at a central location.

There is currently no efficient method to forward incident data to Fire Headquarters on a timely basis. As a result, incident reports may not accurately reflect the total number of volunteer firefighters who responded to an incident.

At present, the Deputy Chief - Operations on duty estimates the number of volunteer firefighters he believes responded to an incident and includes that number in his incident report. By their own admission, the Deputy Chiefs - Operations can not truly account for all of the volunteers who may have responded to an incident when they are filing out the incident report. This is in part due to apparatus being returned to service before arriving and other factors.

Recommendation
All volunteer fire companies who respond to incidents should have information on a completed a pre-printed form within thirty minutes of returning to the station. That information should be called into Fire Headquarters or faxed there. This basic information about the incident and members responding will be used by the Deputy Chief - Operations in completing the required NFIRS report.

Future Considerations
There are a number of different areas which should be considered for the future of the information system of the Fire Department. The list of areas includes the following:

1. Digital radio communications which will allow for additional fireground frequencies and data communication.
2. Mobile data terminals in Car 6 and other units with access to the Department database.
3. Integration of the data from the Town information systems (i.e., Building Department) into the Fire Department database.
4. Expanded usage of digital paging and apparatus mounted Knox Box controls.
5. Integration of global positioning into portable radios with the potential to use GPS to identify firefighters' locations within less than ten feet.

Further consideration of the future information system and CAD/communications requirements will be included in the long term strategic plan being developed in connection with this project.

XX. Fiscal Management

Our review of the fiscal management of the Department's processes was performed primarily to determine if or where any internal control weaknesses or duplication of duties exist. In addition, we performed certain other procedures with respect to comparison of spending levels to budget and

purchase from major vendors.

Purchase and Payment Process Review

We prepared a flowchart of the procedures performed to purchase items or services and make payment on such purchases. That flowchart was reviewed with the Fire Chief and the Town Finance Director for accuracy and has been included in this report as Exhibit 13 along with the documentation for the purchase we flowcharted.

Our review of the complete flowchart revealed the following:

1. All purchases are reviewed and approved by a Fire Commissioner after approval by the Fire Chief.
2. An off-line Excel spreadsheet has been developed by the Fire Chief to monitor Departmental expenditures vs. budget by account number.
3. All requests for payment are approved by a Fire Commissioner even though the Fire Commissioner previously approved the purchase order for the goods or services.
4. A total of six approvals take place for the purchase and payment of invoices for goods or services. The Fire Chief, a Fire Commissioner and the First Selectman all review and approve the Purchase Requisition and vendor invoice. We understand that the Fire Department is the only Town department which has such an extensive approval process.

Recommendation

There are an unnecessary amount of review and approval processes for Fire Department purchases. After review and approval by the Fire Chief, only expenditures in excess or $2,500 should be reviewed and approved by a member of the Fire Commission. The Fire Commission should review spending through management reports, not review of specific Purchase Requisitions.

Recommendation

With the elimination of the delay from having a Fire Commissioner review all Purchase Requests, there should be no need to maintain a separate Excel spreadsheet of the Fire Department expenditures by account vs. budget. We understand that there is, or soon will be, the capability to review the status of expenditures by account vs. budget through the Town computer network.

Recommendation

Given the extensiveness of the review and approval process for Purchase Requisitions and the fact that it is usually extremely difficult or impossible to cancel the purchase of goods or services after they have been received, we recommend that consideration be given to eliminating the review by Department and Town management of invoices submitted for payment. The Administrative Assistant to the Fire Chief could match the invoices to the signed packing slip and the previously approved Purchase Request and then forward the package directly to the Finance Department for payment. A general review of the final payment can be made by the Finance Director or First Selectman at the time the vendor check is presented for signature.

Comparison of Spending to Budgeted Amounts

We analyzed the spending for the most recently completed two fiscal years to the budgets for those years and the current fiscal year budget. We have provided a summary of that information below. A detail comparison has been included as Exhibit 14 to this report.

	FY 95/96		FY 96/97		FY 97/98
	Budget	**Actual**	**Budget**	**Actual**	**Budget**
Personnel Services	1,170,473	1,266,934	1,261,058	1,261,591	1,441,720
Increase/Decrease		*+8.2%*	*-.5%*	*-.1%*	*-14.3%*
Non-Personnel	552,811	544,027	555,898	625,849	664,780
Increase/Decrease		*-1.6%*	*+2.2%*	*+12.6%*	*-6.2%*
Capital Expenditures	175,027	183,932	234,100	226,643	314,325
Increase/Decrease		*+5.1%*	*+27.3%*	*-3.2%*	*38.7%*
Totals	1,898,311	2,003,893	2,051,056	2,114,083	2,420,825
Increase/Decrease	*+5.6%*	*-2.4%*	*-3.1%*	*-3.1%*	*-14.5%*

From the information above, it can be seen that:

1. Spending on Personnel Services has increased by 23.2% from the FY 1995/1996 budget to the FY 1997/1998 budget, with approximately half of that increase coming from the addition of two staff members (Assistant Chief and Fire Marshal).
2. Spending on Non-Personnel Items has increased 20.2% from the FY 1995/1996 budget to the FY 1997/1998 budget with the majority of the increase in spending coming from the ambulance billing contract fees, additional charges for hydrants and water mains and an increase in the amount billed by C-MED and an increase in the funding of Departmental training.
3. Spending on Capital Expenditures has increased 79.6% from the FY 1995/1996 budget to the FY 1997/1998 budget with the majority of the increase in spending coming from additional funding to replace apparatus, the addition to Station 9, a new vehicle for Car 6 and a replacement of the boiler at Fire Headquarters.

Spending as compared to the Budget for the 1996/1997 Fiscal Year was reviewed. Personnel Services approximated Budget although there was some shifting of spending between Personnel Services accounts. Non-Personnel Items were 11.2% over Budget for the Fiscal Year. The accounts which exceeded Budget in this area were physicals and inoculations, equipment repairs and maintenance and water main and hydrant charges. Capital Expenditure spending approximated Budget with the exception of defibrillators which experienced a savings over the budgeted cost. The increase in spending appears to have been an attempt by the Town to address the funding requirements presented and justified by the Department in the annual budgeting process.

Comparison of Department Budget to Other Towns

It is obvious that the spending on the Fire Department has increased substantially in recent years. The total increase in spending from FY 1995/1996 Budget to the FY 1997/1998 Budget is 43.3%. A review of the per capita spending of other Connecticut towns shows the following:

	Fire Budget Millions	Budget Per Capita	Fire Personnel	Budget Per Staffed Position	1996 Emergency Service Requests	Budget Per Emer Call
Branford	2.4	$ 85.53	21	$114,286	3,415	$ 702
Poq Bridge	2.4	$109.09	21	$114,286	1,800	$1,333
Allingtown	2.3*	$209.09	24	$ 95,833*	1,888	$1,218*
No. Haven	2.1*	$ 87.50	30	$ 70,000*	3,959	$ 530*
West Shore	4.0	$363.64	36	$111,111	1,812	$2,207
Naugatuck	2.1*	$ 65.63	37	$ 56,757*	2,200	$ 954*
East Haven	2.9*	$107.41	48	$ 60,417*	3,700	$ 784*
Norwich	3.2	$ 80.00	53	$ 60,377	2,500	$1,280
Westport	5.3	$165.63	53	$100,000	3,100	$1,710
West Haven	6.1	$190.63	54	$112,963	4,260	$1,432
Torrington	3.3*	$ 94.29	58	$ 56,897*	2,200	$1,500*
New London	5.3	$189.29	59	$ 89,830	3,647	$1,453

** Excludes items such as hydrants, apparatus maintenance, capital expenditures and benefits.*

The information in the table above was derived from the comparison of Connecticut towns included in Exhibit 7. The information was received directly from the departments involved and it's accuracy has not been verified.

From the data in the table above, it is evident that Branford is at the lower end of most of the statistics.

Purchases From Major Vendors

As part of our analysis of fiscal management, we summarized available data and developed a schedule of the major vendors of the Branford Fire Department. We also determined how much was paid to each one, what accounts the purchases were charged to and how what percentage of the total purchases of those accounts was paid to the major vendors. A copy of that analysis has been included as Exhibit 15 to this report.

The thirteen major vendors accounted for $93,934 of Departmental expenditures in FY 1996/1997. That amounted to 47.5% of the total expenditures from the accounts to which the purchases were charged and 14.1% of the total Non-Personnel Items spending for the fiscal year. There were three vendors which had significantly higher purchase volume than all others they were:

Vendor Name	Type of Expenditure	FY 1996/1997 Purchases
Industrial Safety Supply	Protective equipment	$30,558
Amatrudo's Fire App. Repair	Pump/apparatus maintenance	$28,460
Torrello Tire Company	Apparatus maintenance	$14,985

Recommendation

Although we understand that there may be a reduction in the purchases from some of the major vendors, each of the current and expected future major vendors should be contacted to attempt to obtain a discount based upon a certain volume of purchases being made from them in a fiscal year.

XXI. Fire Marshal

Fire Marshal Position/Purpose

The Branford Fire Department, for many years has combined the positions of Fire Chief and Fire Marshal. This was not unusual in smaller communities where it was expected that one person could effectively perform the necessary functions of both positions. The summary of the Fire Marshals in selected other Connecticut towns has been included in Exhibit 16.

In some communities, as they grew in size, the Chief maintained the title of Fire Marshal but a Deputy Fire Marshal was appointed to handle fire inspections, investigations and prevention. This allowed the Chief to devote more time to administration of the department. Thus, both areas of responsibility experienced improvements in quality and quantity of work generated.

We believe that Branford should have split these two roles at least fifteen years ago. As a result, condominium, single family homes, commercial and industrial growth far exceeded what a combined Fire Chief/Marshal could monitor and inspect.

The fire prevention divisions of the fire service, through new building plan reviews, inspections for safety compliance and public fire education programs are credited with deceasing the working fire incidents vastly in the past twenty years. It is understood that the combined responsibility of the Fire Chief and Fire Marshal had a serious effect on the functions mentioned above. Without baseline data we cannot prove that there would have been fewer serious fires with a more complete prevention and inspection program in Branford, but it has been proven throughout the industry.

Status of New Position - Fire Marshal

The Department now awaits the selection and appointment of a Fire Marshal. We understand that one of the key issues is whether or not the Fire Marshal will be a bargaining unit position.

The Department has recently retained and outside contractor to reduce the backlog of plan reviews. We are unsure as to how long this is expected to take, however, we would expect that this function be taken over by the new Fire Marshal.

Procedures Performed on a Regular Basis

We reviewed the duty log of the Fire Marshal for the period of January 1, 1997 through August 31, 1997. Although there were instances where the Fire Marshal's notes had not been transcribed into the log, we noted the following activity:

Inspections	85
Complaint Investigations	30
Fire Investigations	24
Plan Reviews	23
Fire Drills	7
Tank Inspections	11
Burning/Blasting Permits	12
Other	4

Inspection records have been manually input into a bound log book and lack sufficient information to adequately describe the procedures performed. This may be due to the time constraints of the Fire Chief/Marshal. Fire Marshals in other Connecticut towns currently utilize computer software programs specially tailored to the needs of Fire Marshals. This system is easier to manage and more comprehensive.

Recommendation

The record keeping of the Fire Marshal office activities should be converted prospectively onto computerized records. Software is available which will integrate into the other Department software modules, the Building Department and the CAD system. The time savings from using such a system could result in more inspections being performed. The Fire Marshal should also be providing a written summary report of his/her activities at the monthly Board of Fire Commissioner meeting. A computerized system such as described above would greatly aid in the development of the report and tracking of the tasks completed and in process.

Fire Marshal Responsibilities

General duties of a Fire Marshal are to review building plans, perform routine and special inspections and perform fire prevention and public education activities. We have available Fire Marshal job descriptions, should the Department require them.

Fire Marshals must complete 90 hours of continuing education in a three year period. If not, the Marshal could lose his/her accreditation. We understand that the Fire Chief/Marshal and all of the Deputy Fire Marshals have achieved the required continuing education hours.

According to the Office of the State Fire Marshal, the following are the duties of the local Fire Marshal:

1. Enforcement of many of the sections found in Chapter 541 of the Connecticut General Statutes, as well as numerous codes which are promulgated under the provision of these statutes.
2. Investigate the cause, origin and circumstances of all fires within their jurisdiction and shall within ten days report the same to the State Fire marshal in the designated format.
3. Issue permits for the use, transportation ad storage of explosives.
4. Notify the Labor Commissioner of fire hazards found in manufacturing establishments.
5. Inspect all flammable and combustible liquids tank storage installations.
6. Administer and enforce manufacturing employer hazardous materials notifications laws.
7. Conduct the review of plans and specifications for various occupancies being proposed within the town for compliance with the Connecticut General Statutes.
8. Attend educational seminars to remain abreast of the codes, regulations and new technologies.
9. Obtain ninety hours of continuing education over a three year period.

Life Safety Value of Fire Prevention and Inspections

The value of fire prevention, early detection devices and extinguishment cannot be debated. If all fires were detected in their initial stages the job of the fire department would be easier and life and property losses would be lower. Unfortunately, for a number of reasons, this is not the case in our country.

Should the Town of Branford desire to minimize the need for future firefighter staffing increases above the essential additional required staffing included in our recommendations, well defined and enforced requirements for automatic fire detection and suppression systems must be instituted for substantially all structures other than single family dwellings. In the longer term, residential smoke detectors and sprinkler ordinances would be in order for single family residential dwellings.

We have seen earlier in this report that over 100 homes are located on the islands adjacent to the Branford shoreline. In conversations with Department members, it became clear that any structure fire on an island would, in all likelihood, consume the structure prior to the arrival of the Fire

Department. many of the structures on these islands are older, but expensive homes.

There exist a number of different types of fire prevention, detection and extinguishment devices which can be used on these island homes. They include, but are not limited to, monitored fire detection systems, traditional smoke alarms and self-contained residential sprinkler systems. These systems should be supplemented by a courtesy life and fire safety inspection.

Recommendation
An ordinance requiring monitored fire detection and self-contained residential sprinklers in all new construction and remodelled homes on the islands adjacent to the Branford shoreline should be enacted. Homeowners who install and maintain such systems should receive a free annual courtesy fire and life safety inspection.

XXII. Long Term Strategic Plan

The long term strategic plan developed in connection with this Study has been included as Exhibit 14 to this report.

XXIII. Closing Comments

We would like to take this opportunity to thank the Department, the members and officers who provided input, the Fire Chief and Town management for the assistance provided in connection with the completion of this Study. Should there be any questions, clarifications required or assistance required in connection with the implementation of any of the recommendations, we are available to assist.

Exhibit 1

Listing of Sources of Research and Information

Listing of Sources of Research and Information

National Fire Protection Administration (NFPA) Standards

NFPA 1200 (Proposed) - Standard for Organization, Deployment and Evaluation of Public Fire Protection and Emergency Medical Services
NFPA 1201 - Developing Fire Protection Services
NFPA 1410 - Training For Initial Fire Attack
NFPA 1500 - Fire Department Occupational Health and Safety

1997 Municipal Year Book
International City/County Management Association

NFPA Fire Protection Handbook
17th Edition

U.S. Occupational Safety and Health Administration (OSHA)
General Duty Clause

Safe Firefighter Staffing
International Association of Firefighters (IAFF) , Department of Research and Labor Issues

Fire Chief's Handbook
Penwell Publishing

Managing Fire Services
International City Management Association

Peak Load Staffing - What's Fair For Personnel and Patients?
JEMS Magazine, August 1989

Public vs. Private Ambulance Service - Two Oregon Locals Help To Prove A Point
International Firefighter Magazine, February 1986

The Combination Fire Department: A 21st Century Solution
Firehouse Magazine, March 1993

Alternate Staffing For Combination Departments
The ISFSI Voice, September 1993

National Fire Academy
Executive Fire Officer Program Applied Research Project Papers

Integrating Fire and EMS Operations: A Systems Approach Maximizing Response Capabilities With A Reduction In Staffing, November 1991

Service Trends Associated With The Fire Service As The Primary Provider Of Emergency Medical Services, October 1995

Cost Effective Fire Department Staffing: Minimum Staffing vs. Constant Staffing. June 1993

Staffing Analysis For The Montgomery County, Maryland Fire and Rescue System, January, 1997

Pre-Hospital Emergency Medical Service: Private? Public? What Level Of Service? October 1993

Staffing For Fire Suppression and Emergency Medical Services For Portsmouth, New Hampshire, October 1990

Staffing Patterns Of Combination/Career Fire Departments in Iowa, May 1997

Measuring The Acceptance Of Volunteer Firefighters In Various Roles In A Combination Fire Department, October 1993

Exhibit 2

Summary of Recommendations

Summary Listing Of All Recommendations

1. The Branford Fire Department organizational chart needs to be modified to reflect all ranks and functions represented in the Department. Doing so will force a review of the duties and responsibilities of each position within the Department.

2. We recommend the development of a mission statement and a statement of values for the Branford Fire Department. The committee which develops these items should be comprised of the Chief and representatives of the Deputy Chiefs of Operations, volunteer chief officers, volunteer company officers, paid firefighters, volunteer firefighters and the part-time employees who work on Medic 2.

3. While we understand that the Board of Fire Commissioners wants to remain in close contact with the operations of the Branford Fire Department, it must provide sufficient distance from day-to-day decision making to allow it to maintain it's objectivity and carry out it's oversight responsibilities through the development of policies.

4. The process of determining if a volunteer is eligible for the pension plan each year and documenting that process must be streamlined. Company captains should maintain records and fill out a standard form on a monthly basis. That form should be forwarded to Fire Headquarters and then input by the Department Information Systems Coordinator. On a semi-annual basis, a print out of the status of all members should be provided to the captain of each company. On an annual basis, each volunteer should receive a statement of the number of years of eligibility he or she has earned as of that date.

5. We recommend that each volunteer chief officer be granted eligibility each year based upon the adequate performance of the duties included in their job description. For each year that the Board of Fire Commissioners evaluates their performance as no less than acceptable, they should be granted eligibility regardless of the number of drills or calls attended. We understand that the Volunteer Pension Committee is attempting to obtain approval for this change.

6. All chief officers who are given incident management/command responsibilities must be trained to a higher level than those they supervise. This would require them to achieve Fire Officer I certification. In addition, they must also be certified in the areas of safety officer, hazardous materials incident management and Incident Command System. These requirements are further explained in the Qualifications for Chief Officer section of our report.

7. The qualification requirements for Class A and Class B Firefighters are appropriate, however, paid firefighters not meeting those requirements should be provided with an opportunity to meet those requirements as soon as possible.

8. The Department should hold a Hazardous Materials Operations certification course as soon as possible for all paid and available volunteer firefighters not currently holding this level of certification or higher. Firefighters not achieving this level of certification should be restricted from attending hazardous materials incidents.

9. One area which should be addressed in connection with our other project recommendations is that of the authority of the volunteer chief officers. The line authority, including when and where the volunteer chief officers have incident management responsibility does not appear to be adequately defined. Once all of the volunteer chief officers meet the qualifications required of an individual in a chief officer position, definition of their incident management responsibilities must be defined and included in the SOP manual.

10. All firefighters and fire officers which have a requirement in their position qualifications to complete ICS training, should also be provided with annual ICS refresher training. Doing so should standardize the usage if ICS, minimize the effect of poor incident management at major incidents due to lack of practice and should also minimize the impact of deviations from the standard ICS system in use in the Department.

11. There are certain SOPs which we would have expected to see in the SOP manual which were not included. We recommend the preparation, review and adoption of standard operating procedures in the following areas:

Usage of a Safety Officer at incidents and during training evolutions.
Procedures to ensure incident scene and training evolution safety.
Marine incidents, including marine fires, fire at structures which have direct waterfront access, lost person incidents and marina fires (other than Bruce & Johnsons Marina which has had a pre-plan developed and implemented).
Confined space and technical rescue training and incident response.
Rail incident planning and mitigation.
Mutual aid procedures.
Incidents taking place on the islands which are located of the coast of Branford.

12. We recommend that the Department take an aggressive approach to the development of pre-plans for all target hazards in the Town of Branford. The process of doing so will allow an incident commander to have site specific information at the time of the incident and also the ability to decide mitigation action alternatives and priorities prior to the incident.

13. All company officers should attend an Incident Safety Officer program as part of their qualifications to hold their position. In addition, active senior members of the Department who previously held officer positions should be considered for training and serving The Department as an Incident Scene Safety Officer. The Department should contract with the Connecticut Fire Academy to provide the program in Branford. It may be advisable to hold more than one such program to ensure that all company officers have the opportunity to attend. If necessary, the other area towns could send their company officers and defray some of or all of the cost incurred by the Branford Fire Department.

14. At all incidents where two or more companies of the Department are on the scene and engaged in an incident, we recommend the appointment of a qualified Incident Safety Officer who has been provided with the appropriate identification vest and radio communication equipment. This person should be separate from the Accountability Officer.

15. All firefighters who are or could be assigned to a Rapid Intervention Crew (RIC) should be provided with training commensurate with the nature of this assignment. In addition, an analysis must be performed to determine how large the RIC should be for various sized incidents, what general tactical priorities the RIC should utilize and how, in general, the RIC should deploy itself at various types and sizes of incidents.

16. A Departmental Safety Officer should be appointed after having received the required training. We recommend that one of the volunteer Assistant Chiefs be approached to fill this important position.

17. The Department should implement a Safety Committee comprised of the newly appointed Assistant Chief, Departmental Safety Officer (when appointed), volunteer Assistant Chiefs, and representatives selected from the Deputy Chiefs-Operations, volunteer fire companies and the paid firefighters union. The Departmental Safety Officer should serve as the chairperson of the Safety Committee.

18. Job descriptions for all positions within the Department should be created, reviewed and approved. The process of developing the job descriptions should provide for an opportunity whereby the Department can rationally determine the duties and responsibilities of each position while ensuring that the workload is adequately balanced throughout the Department.

19. We recommend that an outside facilitator be brought in to attempt to resolve the perceived conflict between the firefighters union and the Fire Chief. While this may not be the ultimate solution, it should allow for some of the issues to be brought out and attempted to be rectified.

20. The new Assistant Chief should be responsible for approval of all personnel scheduling and changes. In doing so, there is the potential for lower overtime, sick, holiday and vacation coverage replacement expense.

21. A clear, concise and consistently followed policy of progressive discipline should be adopted for the Department. Such a policy will allow for disciplinary actions commensurate with the infraction while still allowing for immediate suspension or termination for very serious offenses. The progressive nature of such a policy, if consistently applied, will provide for a discipline process which should be consistent and will elevate if behavior is not modified.

22. A formal training program on supervision and discipline should be mandatory for all line, staff and chief officers in the Department. Doing so would be the first step in clear and consistent supervision and discipline which appears to be quite necessary within the Department.

23. The modifications required during our review of the latest proposed changes to the Rules and Regulations (Red) Book should be instituted and the revisions finalized no later than December 31, 1997.

24. The Town Policy on Drug and Alcohol Abuse must be enforced by the Department. This would include paid firefighters, part-time employees and volunteer firefighters. The question of whether

volunteer fire companies may consume alcohol at Town owned fire stations and, if so, when and under what conditions that may do so must be decided.

25. We saw no evidence of the Sexual Harassment Policy or any postings related to that policy at any of the fire stations. We do, however, recommend that a introductory memorandum from the Fist Selectman, Town Human Resources Director or Fire Chief and a copy of the policy be forwarded to each fire station for posting.

26. We understand that the Public Works Department currently has a clerk/typist employed in their facility. As such, it in inefficient for someone in Fire Headquarters to have to answer the Public Works Department telephones and attempt to locate the individuals being called. The Public Works Department should be responsible for answering it's own telephones and/or voicemail should automatically pick up when they do not answer the telephone.

27. The Department should investigate a employee timekeeping and summarization software package designed specifically for use by fire and EMS services. The software should also have the capacity of transferring the data directly to the ADP Payroll Service. While this software is not critical to the functioning of the Department, it would provide for more efficient use of the Administrative Secretary's time, thus allowing time for other projects. In addition, it will provide for mathematical accuracy and management reports of the data.

28. The remaining Administrative Secretary should receive the title of Administrative Assistant to the Fire Chief. Her job description should be adjusted accordingly to include all duties and responsibilities which can efficiently be performed so as to reduce the administrative workload of the Fire Chief and Assistant Chief. The vacant position should have it's job description rewritten and then be filled. Both positions should be crossed-trained in the other's duties so as to provide back-up in the event of illness and vacations. Also, the Administrative Assistant to the Fire Chief should be responsible for the supervision of the new Administrative Secretary.

29. The qualifications for appointment to the utility firefighter list should be as follows:

1. At least two active years of service with the Branford Fire Department, having also qualified for the Department volunteer pension plan for those years.
2. State of Connecticut EMT-B certification.

30. Aerial 1 should be retro-fitted with a 1500 gpm pump, 200 gallon water tank and hoses. This will provide a pumping capability for this unit and will provide greater flexibility for the Department in it's response. The cost of this work has been estimated at approximately $50,000.

31. A supervisory position should be considered within the paid firefighter ranks. This company officer level position would be taken by one of the staffed positions on Engine 1. He or she would be available to perform inspections, training, general station duties, allow for an adequate span of control to exist and would free the Deputy Chief-Operations to perform other duties.

32. We recommend that Staffing Option #1 be adopted by the Department. This would require that four additional firefighters be placed on each shift, resulting in a total of eight full-time firefighters plus the Deputy Chief-Operations being scheduled for duty twenty-four hours a day, 365 days a year. Paid staff would thus be a Deputy Chief-Operations, four (4) firefighters on Engine 1, two (2) firefighters on Aerial 1 and two (2) firefighters on Medic 1. It would still require a minimum of four (4) positions or one-third of the initial structure fire attack crew to be comprised of qualified Class A volunteer firefighters. As a structure intensifies, or in the event of a structure fire in a commercial, industrial, multiple family housing or health care occupancy, the volunteer firefighters will be relied upon for a much greater number of the structure fire attack assignments.

33. If our recommendation for four (4) additional firefighters per shift is adopted, we believe that it would be financially prudent to adjust the minimum staffing to six (6) paid firefighters, any number of which could be utility firefighters, plus the Deputy Chief-Operations. If one firefighter is out, the staffing on Engine 1 would be reduced to three (3). If two firefighters are out, the staffing on Engine 1 would be reduced to two (2). In either case, the staffing of Aerial 1 would remain at two (2). If Option #2 is chosen, minimum staffing should be six (6) firefighters, any of which could be utility firefighters, and a Deputy Chief-Operations. If one firefighter is off, the staffing of Engine 1 would be reduced to two (2).

34. Minimum staffing should be six (6) firefighters, plus the Deputy Chief-Operations, if our recommendation of adding four firefighters per shift is adopted. If only three firefighters per shift are added, the minimum staffing should still be six (6) firefighters, plus the Deputy Chief - Operations. If any of the other options are chosen, the minimum staffing would have to be the same as the full-time scheduled staffing.

35. The agreement for the outsourcing of the EMS patient transport billing should include minimum performance criteria which the vendor should be required to provide evidence of to the Town on a regular basis. Such criteria should include timeliness of invoicing, collection/write-off procedures and rates, methodologies for placing accounts with collections and the development and distribution of management reports. In addition, there should be a mechanism whereby the Town can terminate the agreement with or without cause by providing thirty days written notice.

36. A process should be developed whereby EMSIRS forms are routinely accounted for and reviewed for all EMS incidents by Department members or the EMS Coordinator. This will assure that adequate record keeping is maintained and that the Department will be in the best position to defend itself in the unfortunate event of a lawsuit.

37. A process should be implemented which will account for all EMS transport billing information by Department members or the EMS Coordinator. Doing so will provide for the maximization of patient transport revenues.

38. The fees charged for medical intervention and patient transport services should be reviewed. While it may not be feasible to increase the fees for residents and taxpayers, it may be appropriate to charge others higher fees because they have not contributed to the subsidization of such services through the payment of taxes. This might be accomplished by increasing the fees, but providing a

discount for town residents/taxpayers.

39. The Department should identify and actively attempt to develop agreements with non-ambulatory facilities in Town to provide routine and non-routine patient transfer services. Employee scheduling and/or call-in crews could be used to provide such services. This would provide for incremental patient transport revenues while not adding to the staffing levels of the Department.

40. We recommend the adoption of Option #1, Continue Part-Time Staffing With Paid On Call Coverage Program if our recommended level of firefighter staffing is adopted. If not, we recommend the adoption of Option #2 Full Time Staffing of Medic 2 and those individuals should be firefighter/Paramedics.

41. There is sufficient work available to support additional funding for the EMS Coordinator. Initially, we would recommend that the position provide for approximately 15 hours of overtime per week for the EMS Coordinator to perform his/her duties. After one year, the position requirements should be reviewed and determination if the position needs to be a full-time one, working a forty hour week with a specific Departmental rank.

42. Convert Engine 1 into an ALS unit which would respond to medical emergencies when Medic 1 and Medic 2 are unavailable for response. This will allow ALS interventions to take place while waiting for an out-of-town ambulance to arrive.

43. The Department should sponsor certain types of training and certification programs and invite other fire departments to participate and defray the cost of the programs. Example of such would include Fire Officer I, Safety Officer, Hazardous Materials Operations, etc. These courses could be provided on weekdays, evenings and/or weekends to accommodate all interested parties.

44. Investigation of the feasibility of a three town training facility should be formalized for the East Main Street area in the vicinity of the Town recycling facility. This would provide excellent access for all three towns and might serve as a future fire station location or part-time housing of a paid engine during the daytime hours.

45. One member from each volunteer company should be appointed to the Training Division under the direction of the Training Officer. The Training Division should develop an annual training calendar, a listing of mandatory drill topics for company officers, provide lesson plans and assistance to the companies for training in specialized areas.

46. Two additional bays and additional administrative areas should be built onto Fire Headquarters within the next three years. In the short term, consideration should be given to converting the current meeting room into an enlarged bunk room and the current bunk room into a combined volunteer day and administrative room.

47. Further consideration should be given to relocating Engine 9 and Tactical Unit 6 to the former Station 6. If not deemed appropriate, the addition to and renovation of Station 9 must be monitored to assure that the remodeled facility is safe, adequately kept and functional.

48. Strong consideration should be given to returning to the practice of including 750 gallon water tanks on all new engines. In the case of Engine 1, a strong case could be made for including a 1,000 gallon water tank if the overall size of the engine did not increase. This would allow for more water to be available at structure fires while waiting for a hydrant connection or a second due engine to arrive.

49. A quint apparatus (combination engine and aerial ladder) should be strongly considered for purchased within the next three years. Such an apparatus will provide added flexibility to the Department especially during the daytime.

50. A procedure, rule or regulation should be developed identifying specifically which types of incidents which Engine 10 and Tactical Unit 6 should respond to, what procedures they should engage in and specifically prohibit either unit from assuming the role of a Class A pumper at any incident.

51. A 1,500 gpm single-stage pump, 200 gallon water tank and an assortment of preconnected hoselines should be installed on Aerial 1. Based upon the research we performed, we have estimated the cost to do so at $50,000. Installing these items would eliminate the need for one of the engines on a structure fire scene and allow for two engines and an aerial device to respond together to structure fire calls.

52. Consideration should be given to utilizing the Branford Public Works Department for routine maintenance and emergency repairs of the Branford Fire Department vehicles with the exception of pump maintenance and repairs. This may provide for less vehicle down-time and an overall cost savings.

53. A determination should be made whether a Department boat should be docked in Branford Harbor. We considered recommending that Marine 5 be moved to Branford Harbor, but have been informed that the certified helmsmen are all from the Stony Creek area and that it might take longer to drive to the boat in Branford Harbor than it would to pilot Marine 5 from Stony Creek Harbor to Branford Harbor. Another consideration is the necessity to protect the homes on the Thimble Islands and the need to maintain a boat close to the over 100 homes located on those islands. Input from experienced marine firefighters indicates that Marine 5 would prove to be too large and difficult to maneuver effectively in the Branford River.

54. Apparatus driver/pump operators should be cross-trained so that members from one company can respond with apparatus from other companies if they are at or near the other company's station where they're awaiting a driver.

55. In the areas where there are no hydrants or where homes are more than 1,200 feet from the nearest hydrant, a mutual aid tanker truck should be requested for all confirmed structure fires. Doing so will provide for 2,000 or 3,000 gallons of water and the capability of using portable tanks to maintain a continuous water supply.

56. In the areas where there are no hydrants or where homes are more than 1,200 feet from the nearest hydrant, a mutual aid tanker truck should be requested for all confirmed structure fires. Doing so will provide for 2,000 or 3,000 gallons of water and the capability of using portable tanks to maintain a continuous water supply.

57. The Department should provide assistance to the part and full-time inhabitants of the islands in the areas of fire prevention and incipient fire control because these are the things which will protect their homes from fire. The assistance should include the following:

1. Fire extinguisher information and training sessions.
2. Courtesy safety and fire hazard inspection.
3. Smoke alarm battery reminder information.
4. All structures should have at least one ABC rated fire extinguisher.
5. Alarm systems should be installed for early fire detection.
6. Installation of hose and equipment boxes for use by Marine 5 personnel should be considered.

58. The Regional Water Authority should be contacted to determine if anything can be done to remedy the low hydrant water flow in certain areas of the Town without incurring significant expense.

59. The training activities for one specific day per week should be to test and record the adequacy of the water supply in areas where there is a concern about the adequacy of the water supply. In any are a where the water supply is less than 500 gpm there should be an alternative plan for water supply either through a separate hydrant on a larger water main, drafting from a static water source or the transporting of the necessary water to the incident.

60. Strong consideration should be given to returning to the practice of including 750 gallon water tanks on all new engines. In the case of Engine 1, a strong case could be made for including a 1,000 gallon water tank if the overall size of the engine did not increase. This would allow for more water to be available at structure fires while waiting for a hydrant connection or a second due engine to arrive.

61. When large vehicle fires or hazardous materials incidents requiring significant amount of water take place on Interstate 95, mutual aid tankers should be immediately dispatched. Doing so will provide for initiation of a rapid water supply utilizing fewer apparatus. This will also allow Department personnel to focus on mitigating the incident vs. maintaining an adequate water supply.

62. The use of the Medic units for mutual aid transport or Paramedic intercept purposes should not be discouraged. With the expenditure of a few thousand dollars, Medic 3 could, in all probability, be made to last another year or two. Doing so would require the use of Medic 3 and call-in personnel whenever Medic 1 and 2 are unavailable due to an out of town response. Even with this added expense, there is the potential for additional revenues for the Town.

63. Mutual Aid agreements should be developed with Guilford and North Branford. The format of the agreements should be similar to the agreement with East Haven, however, the following

situations should be specifically covered:

Tanker apparatus
Aerial response
Ambulance coverage
Turnpike response

64. A policy or procedure should be developed describing when and how mutual aid assistance is to be requested and utilized. The policy or procedure should address the various types of mutual aid, including aerial devices, tanker apparatus, high angle rescue, ambulance coverage, etc. In addition, the policy or procedure might address automatic mutual aid when certain apparatus (i.e., Aerial 1) is out of service, tankers being automatically requested in non-hydranted areas, incidents taking place adjacent to Town boundaries and other specific situations. This policy or procedure will provide for consistency in the use of mutual aid services.

65. There should be at least two drills annually with each town that mutual aid agreements are developed with. This should minimize the logistical problems encountered when mutual aid is engaged at incidents.

66. AMT should be required to provide the Town of Branford with an action plan to ensure the provision of adequate support and upgrading the CAD software. This should be accomplished utilizing AMT employees, not outside contractors.

67. The response of the network when attempting to input or sort CAD system data from Fire Headquarters is unacceptable. The 256 kb line which is scheduled to be installed should be completed as soon as possible. This will allow for data entry and the generation of management reports to be much more efficient.

68. A complete review of the available and additional desired CAD summary reports should be reviewed by the Chief, Assistant Chief, Deputy Chiefs of Operations and the Department CAD liaison should take place and a listing of the management reports to be distributed and their frequency should be developed. Doing so will provide management summary data available on a regular basis. These reports should then be reviewed and followed-up by the necessary parties.

69. Every possible effort should be made to produce the NFIRS fire incident data in a format which can be used by the State Fire Marshal's Office for analysis and reporting. This may require the continued assistance of AMT.

70. All software modules should have access to the same database. Doing so will allow all dispatch, response, NFIRS and inspection data to be consistent. There are a number of fire service software records management system providers who provide an integrated records management system including modules for:

Incident reporting
Inspections

EMS reporting
Apparatus & equipment control
Station day book
Personnel information
Other occupancy information

71. A central location should be identified for all Departmental storage of all Department records which have to be maintained, but not accessed on a regular basis. Those files should be catalogued on a regular basis and filed at a central location.

72. All volunteer fire companies who respond to incidents should have information on a completed a pre-printed form within thirty minutes of returning to the station. That information should be called into Fire Headquarters or faxed there. This basic information about the incident and members responding will be used by the Deputy Chief - Operations in completing the required NFIRS report.

73. There are an unnecessary amount of review and approval processes for Fire Department purchases. After review and approval by the Fire Chief, only expenditures in excess or $2,500 should be reviewed and approved by a member of the Fire Commission. The Fire Commission should review spending through management reports, not review of specific Purchase Requisitions.

74. With the elimination of the delay from having a Fire Commissioner review all Purchase Requests, there should be no need to maintain a separate Excel spreadsheet of the Fire Department expenditures by account vs. budget. We understand that there is, or soon will be, the capability to review the status of expenditures by account vs. budget through the Town computer network.

75. Given the extensiveness of the review and approval process for Purchase Requisitions and the fact that it is usually extremely difficult or impossible to cancel the purchase of goods or services after they have been received, we recommend that consideration be given to eliminating the review by Department and Town management of invoices submitted for payment. The Administrative Assistant to the Fire Chief could match the invoices to the signed packing slip and the previously approved Purchase Request and then forward the package directly to the Finance Department for payment. A general review of the final payment can be made by the Finance Director or First Selectman at the time the vendor check is presented for signature.

76. Although we understand that there may be a reduction in the purchases from some of the major vendors, each of the current and expected future major vendors should be contacted to attempt to obtain a discount based upon a certain volume of purchases being made from them in a fiscal year.

77. The record keeping of the Fire Marshal office activities should be converted prospectively onto computerized records. Software is available which will integrate into the other Department software modules, the Building Department and the CAD system. The time savings from using such a system could result in more inspections being performed. The Fire Marshal should also be providing a written summary report of his/her activities at the monthly Board of Fire Commissioner meeting. A computerized system such as described above would greatly aid in the development of the report and tracking of the tasks completed and in process.

78. An ordinance requiring monitored fire detection and self-contained residential sprinklers in all new construction and remodelled homes on the islands adjacent to the Branford shoreline should be enacted. Homeowners who install and maintain such systems should receive a free annual courtesy fire and life safety inspection.

Exhibit 3

Long Term Strategic Plan

Branford Fire Department
Long Term Strategic Plan

Prepared In Connection With The Fire Department Study

This long term strategic plan was developed in conjunction with the Branford Fire Department Study dated October 1, 1997. This plan has been presented in outline format for ease of presentation and understanding.

Overview

This long term strategic plan has been created in such a way as to allow the Department to use it as an outline in the development of a comprehensive master plan of fire services for the next ten to fifteen years. Such a plan should be based upon a comprehensive mission statement and set of values for the Department. It would also require more in depth analyses that were possible during the limited time available to perform the Study. At that time, a complete analysis of the Department's strengths, weaknesses, opportunities and threats can be completed.

Mission Statement and Values

A comprehensive mission statement and set of values are the foundation of a well conceived and written long term strategic plan. We were unable to locate a comprehensive mission statement and set of values for the Department. The proper development of these items requires the input of all organizational stakeholders. The process of their development causes those groups to decide on those things that are most important to the organization and how to best achieve them.

The development of the comprehensive mission statement and a comprehensive set of values by a group representing all of the stakeholders of the Department must be a high priority. The results of that process may even change the long term plan as drafted here.

Town Development Information

In conjunction with the Study, the Town Planner provided us with certain development items and the January 16, 1997 Plan of Conservation and Development for the Town of Branford. We have reviewed those items and have summarized them below:

1. The population of the Town increased 35% from 1970 to 1990, but has increased less than 2% from 1990 to 1996.

1970 Population	20,444
1980 Population	23,363

1990 Population	27,603
1996 Population	28,060

2. Today most of the Town has been developed and one of the primary challenges for the future is to achieve a balance between economic growth and maintaining the aesthetic qualities of the Town.

3. At the present time, 84% of the total area of the Town is fully developed or permanently preserved as open space or water. Approximately 16% is available for future development. The following is a summary of the land use in Town.

Low density (single family) residential	33%
Open space/recreation	24%
Farm/vacant land	16%
High density residential	7%
Office/industrial	6%
Water	6%
Multi-family housing	5%
Retail/commercial	3%
Total	100%

4. Of the undeveloped land area, 66% will be consumed by one and one-half acre residential lots, 23% will be devoted to office/industrial areas, 6% to higher density residential property development and 5% to retail/commercial establishments.

5. The median age of Town residents has risen from 30.0 in 1970 to 33.3 in 1980 to 36.6 in 1990. There is also a trend toward more young children. Both are consistent with national trends.

6. The Branford average household size declined from 3.1 in 1970 to 2.34 in 1990. This decline reflects not only the decrease in the number of children per family, but also an increase in elderly, single parent and non-family households.

7. With a 28% increase in housing units during the past decade, the Town exceeded the percentage increase of every other town in the region as well as the rate of increase for the county and state as a whole.

8. Low density residential is the category where most of the growth will occur and will consume 1,400 acres, more than twice as many as all other uses combined. Much of the land in this category is either difficult to access, having little or no frontage on a Town road, or is difficult to develop because of the terrain being rocky or wet.

9. Most of the area available for low density residential development is either north if Interstate 95 in the general vicinity of Brushy Plains Road or south of Interstate 95 on the east side of Town.

10. Office/industrial is the second largest category of undeveloped land, with approximately 500 acres available.

11. In the retail/commercial category, fewer than 100 acres remain undeveloped. It is likely that redevelopment of existing sites will occur in prime locations along Route 1 and in the vicinity of the Interstate 95 exchanges.

12. Land available for moderate and high density residential development is limited to approximately 100 acres.

13. The Town of Branford, like the rest of the State, has entered a period of slow growth. Population growth over the next twenty years is projected to be one-half of what is has been for the past twenty years.

14. Less than 15% of the Town's land area remains to be developed. Of that, two-thirds is zoned for large residential lot usage. Most of the remaining undeveloped land is zoned for office and industrial usage.

15. There are currently 1,559 boats registered in Town, however, there are approximately 2,000 boat slips.

Plan Items

The long term plan items have been developed in three categories. Short term items should be considered for the next eighteen months, medium term items should be considered for the nineteen month to five year period and long term items should be considered for the five to ten year period. For each period, we have taken the liberty of recommending possible goals and objectives.

Short Term Plan

The recommended goals and objectives of the short term plan are:

1. Ensure the safety of all emergency responders.
2. Improvement of the Department administration and relations.
3. Hire Fire Marshal and perform necessary inspection and plan review work.
4. Implementation of the items included in the Study.
5. Assure compliance with applicable standards and standard practices.
6. Increased emphasis on pre-hospital emergency medical care.

The short term plan items include:

1. Implement the recommended increase in firefighter staffing.
2. Implement firefighter and officer qualifications and provide for each to receive the required training.
3. Prepare pre-plans for all target hazards.
4. Appoint Department Safety Officer and Safety Committee.
5. Train the Rapid Intervention Crew.
6. Develop comprehensive job descriptions for all Department positions.
7. Increase the efficiency of the approval of Departmental purchases and payments.
8. Implement a patient transport and transfer service using Medic 3 and call in crews.
9. Appoint a part-time EMS Coordinator.
10. Develop a detailed master plan for the Department.

Medium Term Plan

The recommended goals and objectives of the medium term plan are:

1. Ensure the safety of all emergency responders.
2. Increase the level of automatic fire detection and suppression devices in the Town.
3. Attract and retain qualified volunteer firefighters.
4. Determine the effect of managed care on pre-hospital EMS and respond accordingly.
5. Consider merging or combining volunteer companies and elimination of apparatus.

The medium term plan items include:

1. Convert Engine 1 to a Paramedic engine.
2. Transfer all repairs and maintenance of apparatus to the Town Public Works Department.
3. Add onto Fire Headquarters.
4. Purchase a fire and rescue boat for the Branford Harbor area.
5. Appoint additional fire inspectors and plans reviewers.
6. Purchase quint apparatus as a replacement for Engine 1.
7. Develop public education and fire prevention programs and automatic fire detection and suppression requirement for the areas of the Town, including the islands, which are not supported by fire hydrants.
8. Improve the volunteer facilities at Fire Headquarters.
9. Reconsider performing EMS transport billing and collections in house.
10. Appoint a full-time EMS Coordinator or Assistant Chief of EMS.
11. Consider pen-based data collection for on-site fire inspection procedures.
12. Consider the purchase of a large body rescue truck.
13. Evaluate the continued viability of the volunteer companies and volunteer response.
14. Evaluate full-time staffing and increase only if necessary.

15. Consider pooling regional resources with other surrounding towns to develop a haz-mat team, ensure adequate supplies of foam, group purchases together or provide for spare apparatus and ladder trucks.

Long Term Plan

The recommended goals and objectives of the long term plan are:

1. Maintain the safety of all responding emergency personnel.
2. Development of a residential sprinkler ordinance.
3. Consider regionalization of certain functions or tasks.

The long term plan items include:

1. Develop a tri-town fire training facility.
2. Evaluate the viability of the volunteer companies and consider paid on call to assure volunteer response.
3. Evaluate full-time staffing and increase only if necessary.
4. Implement a Public Safety Committee to replace the Boards of Fire and Police Commissioners. Consider the appointment of a Town Public Safety Director .
5. Evaluate the necessity of a fire station or EMS facility in the Eastern or Northern sections of Town.
6. Consider electronic data collection for fire incident, EMS and other data collection purposes.
7. Consider relocation of certain volunteer fire stations based upon changing demographics and response patterns.

Exhibit 4

Departmental Organization Chart

BRANFORD FIRE DEPARTMENT ORGANIZATIONAL CHART

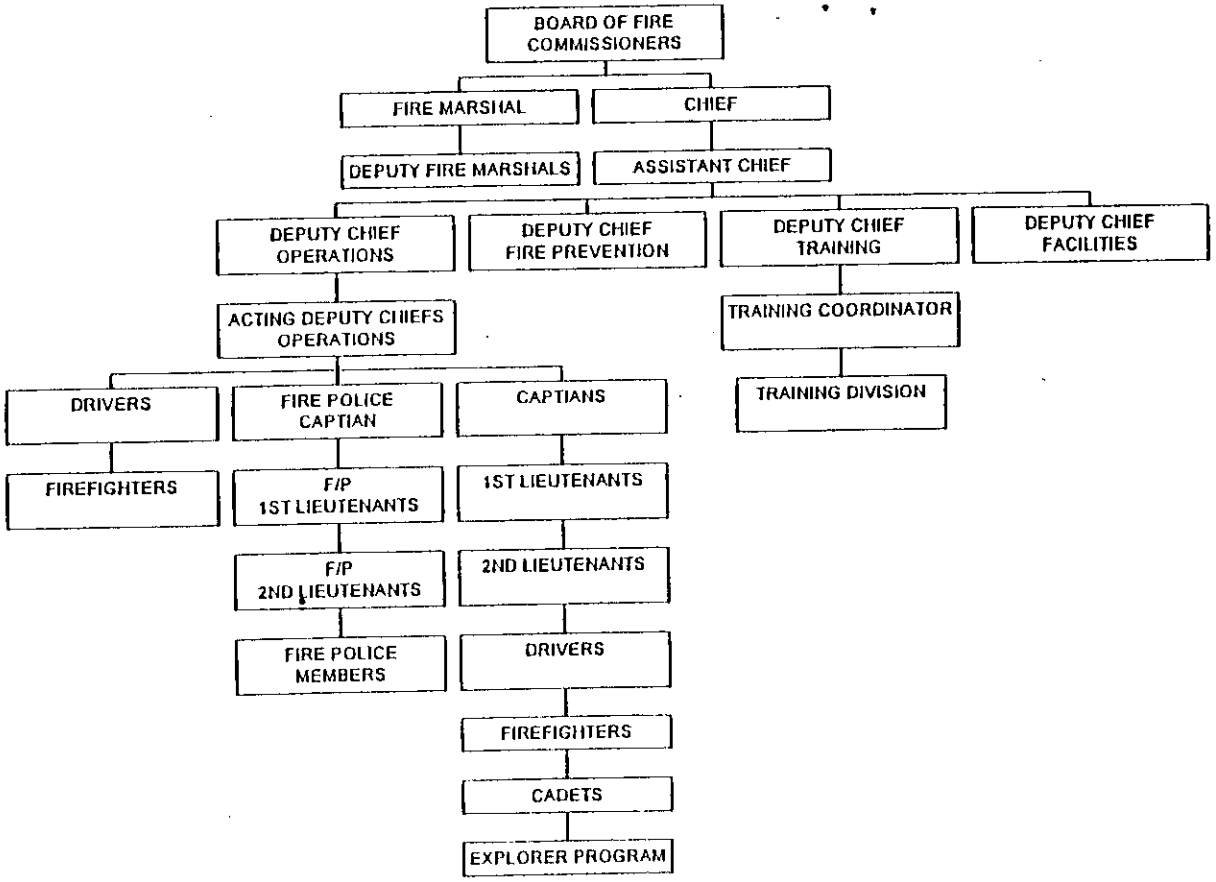
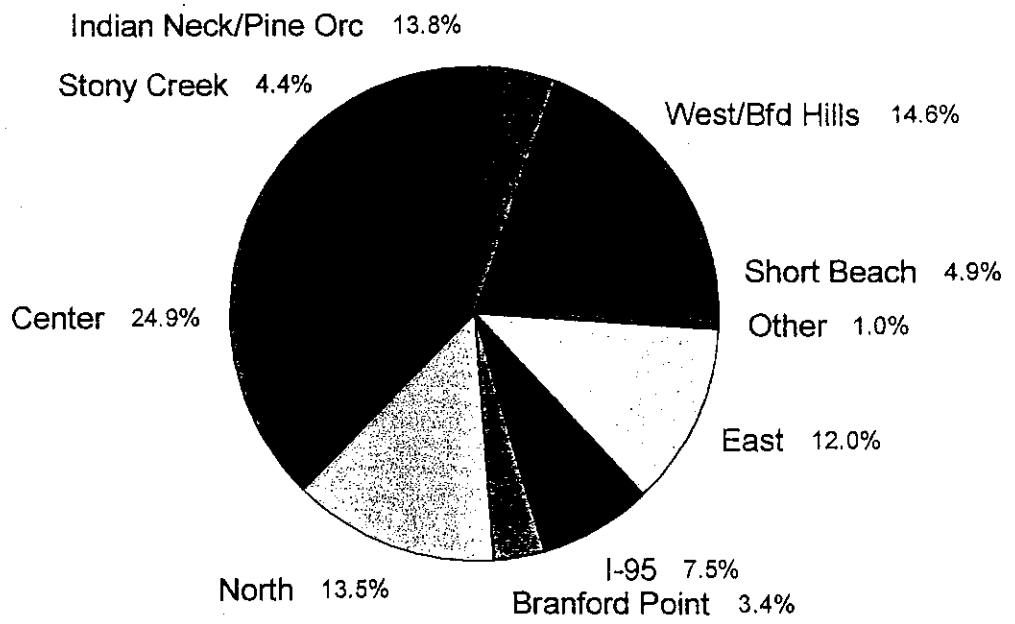


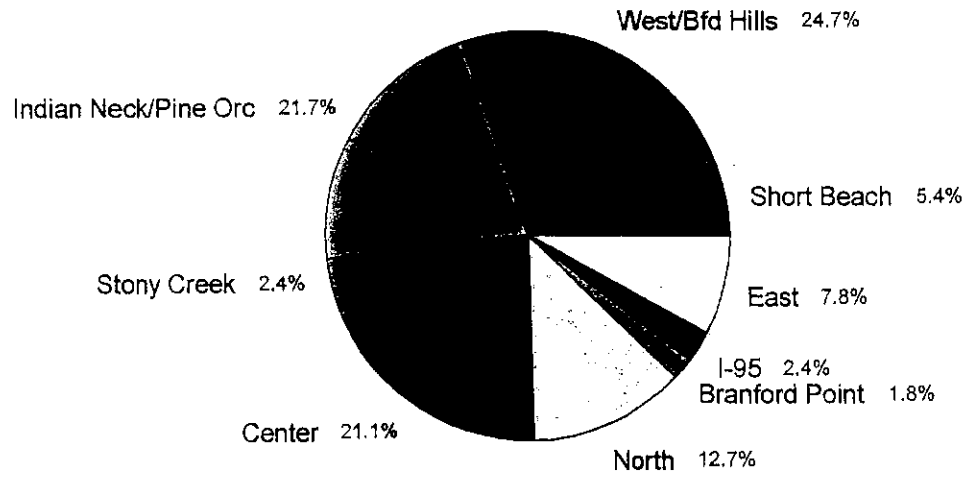
Exhibit 5

Incidents By Area/Type

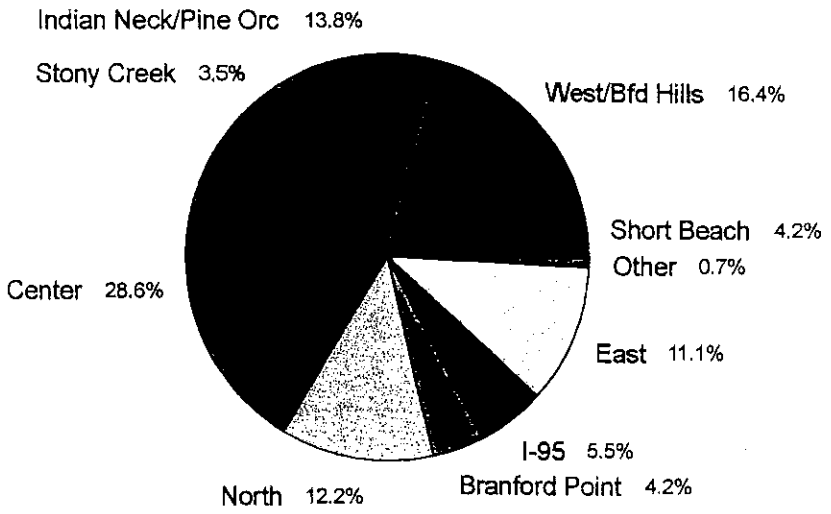
Incidents By Area - FY 96/97



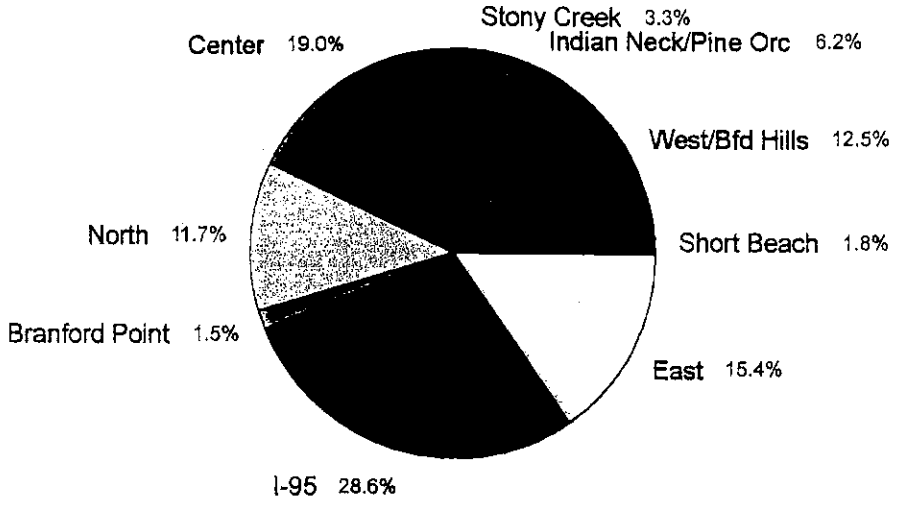
Structure Fire Calls By Area FY 1996-1997



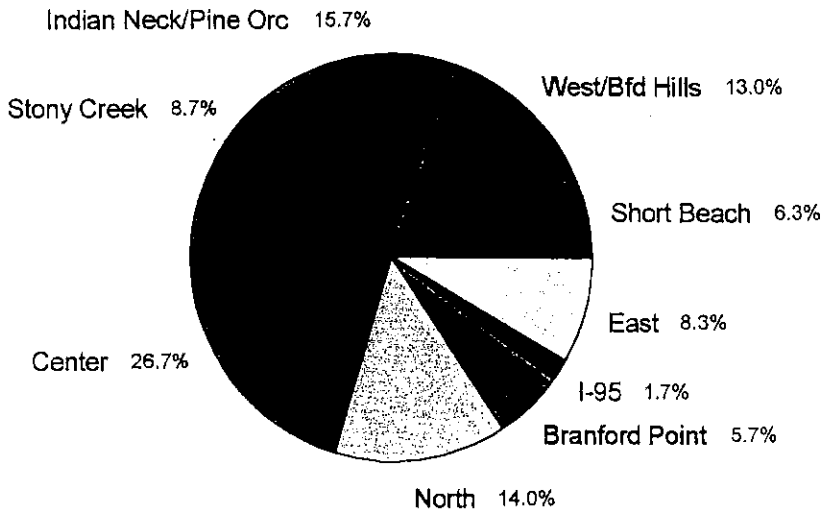
EMS Calls By Area
FY 1996-1997



MVA Calls By Area
FY 1996-1997



Still Alarms By Area FY 1996-1997



Automatic Fire Alarm Calls By Area FY 1996-1997

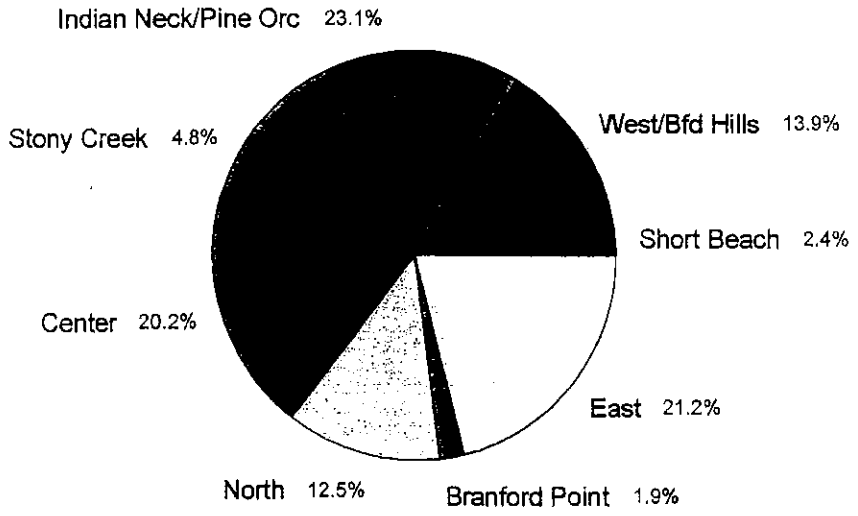


Exhibit 6

CAD Incident Summary Reports
FY July 1, 1996 to June 30, 1997

Actual CALL TYPE - By Day of Week

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

11 Type	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
All Cases - Dead on Arrival						1		1
Sudden Death/Bodies Found	3	3	2	2	5			15
Nothing Taken		1						1
Recovered Auto				1				1
Simple Assault	1							1
Bomb Scare			2	1	1	1		5
0860	1						1	2
Attempted Arson	1							1
Suspicious Fires	2	3	1		1		1	8
Criminal Mischief Private P			1					1
Family Dispute					1			1
Driving While Intox - Alcoh	1					2	1	4
Animal Nuisance					1			1
Other Nuisances		1	4					5
Drug Overdose				1	1			2
Mental Cases	2	2	2	2	3		1	12
Non-MV Accident			1				1	2
Minor Juvenile Complaints		1						1
Public Hazards			1				1	2
Vacant House				1				1
Other Miscellaneous	1	6	2	2	2	7	8	28
Found Intoxicated					1	1	1	3
MV Violations - Moving Vehi				1				1
MV Accident - Fatal				1			1	2
Accident - Non-Fatal	12	22	17	14	15	16	15	111
Accident - Property Dama	6	7	9	9	8	16	10	65
MV Accident - Private Prope		1	2					3
Suspicious Activity			1					1
License & Reg Check							1	1
Traffic Duty	4	3	3	2	4	4	2	22
Supplementary Investigation		1						1
Subpoena Service				1				1
Medical Assistance Needed	8	6	5	6	6	5	13	49
Medical Assistance Rendered	12	3	4	3	10	15	18	65
Burglar Alarms	1		2					3
Fire Alarms - Fire		1		1			1	3
Fire Alarms - No Fire	5	1	1	2	3	2	6	20
Fire - No Alarm	1		1					2
Other Alarms							3	3
Civil Inverstigation			1					1
Incident Unfounded	2	3	3	5	4	2	2	21
Unable to Locate Complainan						1		1
Accident MV W/Ijuries			1	1				2
AFA/HI	13	23	19	15	19	21	18	128
AFA/LOW	13	10	13	10	12	9	16	93
BOAT FIRE			1			1		2
BRUSH FIRE	3	5	6	3	2	4	1	24
CO	10	11	12	8	9	11	9	70
CO/EMS	1	1	1	1		3	2	9
Emergency Medical Request	225	263	272	266	262	260	249	1797
/TR			1			1		2

Actual CALL TYPE - By Day of Week

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

1 Type	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
FMR	3	12	18	12	17	15	6	83
HAZARDOUS MATERIALS INCIDEN	2	4	1	4	4	4	6	25
IND/EMS		5	1	4	6	2	1	19
ISLAND FIRE					1			1
LOCK	9	8	11	6	9	5	11	59
MVA	2	3		1	1	3	2	12
MOTOR VEH ACC/ WITH INJURIE	17	11	9	12	5	14	11	79
SECOND ALARM OF FIRE					1			1
STILL RESPONSE	44	34	34	48	54	32	57	303
STRUCTURE FIRE	15	29	26	26	22	16	29	163
VEHICLE FIRE	9	6	11	8	10	11	9	64
WATER RESCUE	2	5	1		3	1	3	15
Totals:	431	495	503	480	503	486	517	3415
Percent of Calls:	13%	14%	15%	14%	15%	14%	15%	100%

3415 RECORDS PROCESSED

Actual CALL TYPE - By Time of Day

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

	00 to 01	01 to 02	02 to 03	03 to 04	04 to 05	05 to 06	06 to 07	07 to 08	08 to 09	09 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Total
All Cases - Dead on Arrival																					1				1
Sudden Death/Bodies Found								2	2	1	2		1	1				1	1	3				1	15
Nothing Taken																			1						1
Recovered Auto		1																							1
Simple Assault																		1							1
Bomb Scare		1								1		1	1				1								5
0860												1					1								2
Attempted Arson															1										1
Suspicious Fires			1	1								1			1	1		1	1	1					8
Criminal Mischief Private P																			1						1
Family Dispute															1										1
Driving While Intox - Alcoh		1																			2		1		4
Animal Nuisance																			1						1
Other Nuisances								1		1						1				1		1			5
Drug Overdose																							2		2
Mental Cases	1	1							1			1	2				1			3	2				12
Non-MV Accident												1					1								2
Minor Juvenile Complaints												1													1
Public Hazards							1											1							2
Vacant House																	1								1
Other Miscellaneous								2	1	1			2	4		2	1	3		4	4	2		2	28
nd Intoxicated			1														1	1							3
iolations - Moving Vehi								1																	1
MV Accident - Fatal		1								1															2
MV Accident - Non-Fatal	2	2	3	2	1		4	2	5	4	2	7	8	5	6	9	12	10	9	5	6	3	2	2	111
MV Accident - Property Dama	1	1					1	3	4	1	3	6	6	5	2	7	5	5	5	2	2	2	3	1	65
MV Accident - Private Prope		1									1		1												3
Suspicious Activity																						1			1
License & Reg Check																	1								1
Traffic Duty			1		1			2			2	2		3	1	1	1	2	3	1	1		1		22
Supplementary Investigation																					1				1
Subpoena Service																					1				1
Medical Assistance Needed	1	4	1	1		1	1	1	2	1			4	4	7	1	1	3	5	3	4	1	1	2	49
Medical Assistance Rendered	5	5	9	6	1	5	4		2	2	2	1	1	1	6	1	1	2	1	2	2	3	3		65
Burglar Alarms	1																					2			3
Fire Alarms - Fire		1			1													1							3
Fire Alarms - No Fire	3	2		1	2	1	1	2					1				1	2	1					3	20
Fire - No Alarm			1							1															2
Other Alarms		1											1								1				3
Civil Inverstigation																					1				1
Incident Unfounded					1				3	2	3	1					2	2	1	1		2	1	2	21
Unable to Locate Complainan													1												1
Accident MV W/Ijuries									1														1		2
AFA/HI	3	2	3	1	2	3	3	7	9	8	5	6	11	11	9	5	6	7	3	4	8	7	2	3	128
AFA/LOW	2	1	3	1	2	1	1	2	8	7	5	6	6	1	6	5	5	5	4	4	1	2	1	4	83
BOAT FIRE								1													1				2
RUSH FIRE			1								1	1	1	3		3	2	8		2		1	1		24
	3		1		1		1	1	4	7	4	3	5	3	2	3	3	2	2	7	2	7	6	3	70
CO/EMS		1			1					3	1		1				1					1			9
Emergency Medical Request	29	30	28	34	30	27	41	52	88	121	147	122	127	108	112	109	92	91	93	82	72	67	46	49	1797
EMS/TR												1	1												2

Actual CALL TYPE - By Time of Day

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

	00 to 01	01 to 02	02 to 03	03 to 04	04 to 05	05 to 06	06 to 07	07 to 08	08 to 09	09 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Total
FMR									1	7	15	12	7	9	10	12	2	2	1	1	3		1		83
HAZARDOUS MATERIALS INCIDEN	1					1			1	2	1	4		2	4	4	2		1	1		1			25
IND/EMS				1			2	2	1	1	1	1	1	3	2		2	2							19
ISLAND FIRE										1															1
LOCK							2		5	3	3	3	4	6	4	3	6	6	2	4	5	1	1	1	59
MVA	1					1		2			1		2	1		2	1		1						12
MOTOR VEH ACC/ WITH INJURIE	5	1	1	5		1	2	5	7	4	1	3	2	6	2		5	5	2	5	7	4	3	3	79
SECOND ALARM OF FIRE																	1								1
STILL RESPONSE	12		6	3	3	6	6	12	14	25	15	28	16	13	10	22	20	18	17	15	16	12	9	5	303
STRUCTURE FIRE	1			2	1	2	1	4	7	1	6	13	6	10	12	9	11	9	19	11	14	9	5	10	163
VEHICLE FIRE	2		2		1		2	2	1	2	3	2	4	4	3	4	7	7	7	5		4	2		64
WATER RESCUE								1				1	2	2	2	1					5	1			15
Totals:	73		62		48		73		167		224		225		203		197		182		162		92		3415
		57		58		49		107		208		229		205		205		197		167		134		91	
Percent of Calls:	2%	2%	2%	2%	1%	1%	2%	3%	5%	6%	7%	7%	7%	6%	6%	6%	6%	6%	5%	5%	5%	4%	3%	3%	100%

3415 RECORDS PROCESSED

Actual CALL TYPE: Time Analysis

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

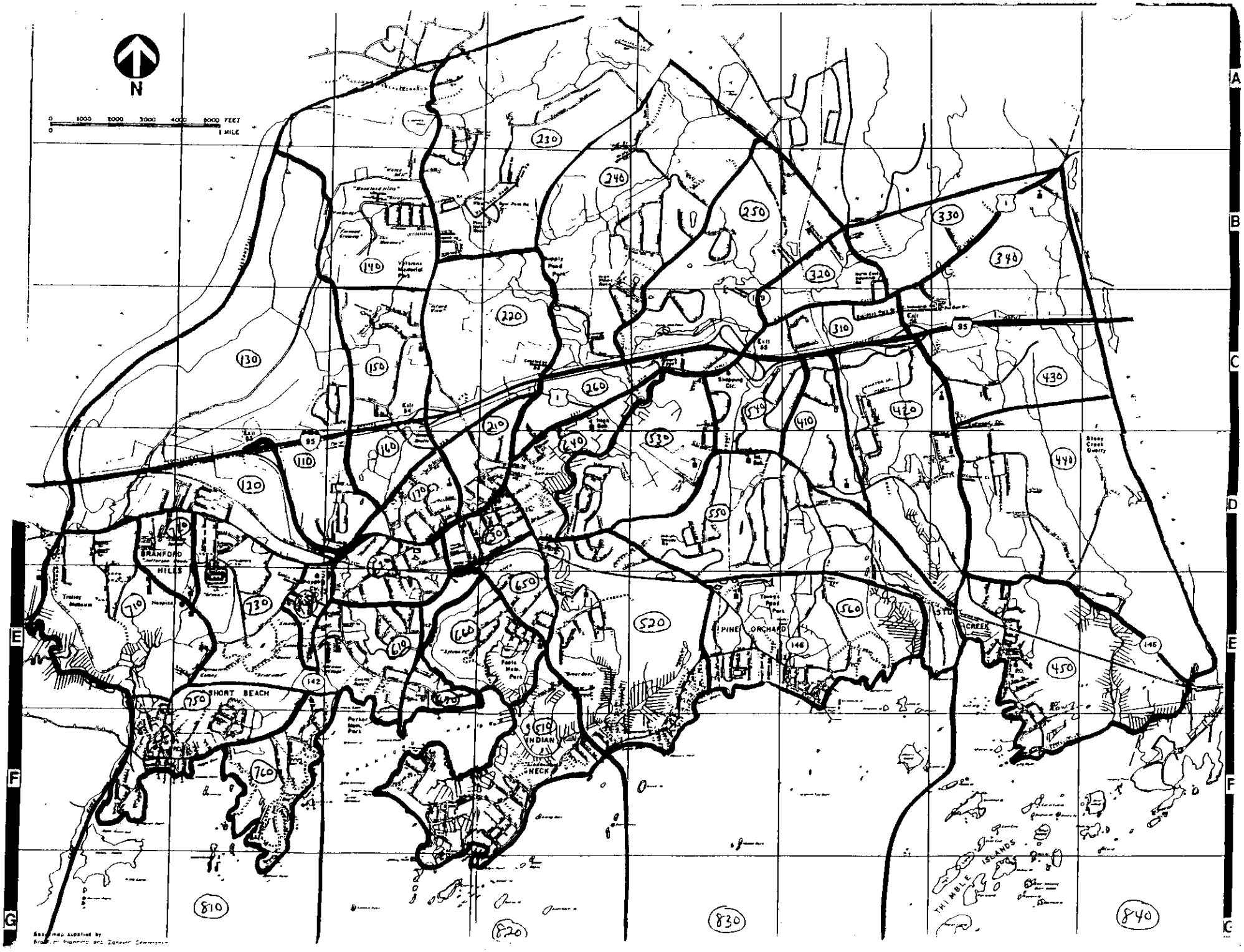
Call Type	Total Number of Calls	Average Number of Units	Average Dispatch Time (minutes)	Average Travel Time (minutes)	Average Response Time (minutes)	Total Time All Units (hours)	Average Time Per Call (minutes)	Average Time Per Unit (minutes)
All Cases - Dead on Arrival	1	2.0	.0	.0	.0	:00	.0	.0
Sudden Death/Bodies Found	15	2.4	1.5	.9	2.4	9:14	36.9	15.3
Nothing Taken	1	2.0	4.0	.0	4.0	:46	46.0	23.0
Recovered Auto	1	4.0	.0	.0	.0	1:38	98.0	24.5
Simple Assault	1	.0	.0	.0	.0	:00	.0	.0
Bomb Scare	5	2.8	8.2	6.8	15.0	5:51	70.2	25.0
0860	2	4.0	.0	.0	.0	5:00	150.0	37.5
Attempted Arson	1	9.0	25.0	9.0	34.0	1:48	108.0	12.0
Suspicious Fires	8	7.8	6.7	7.5	14.2	105:06	788.2	100.0
Criminal Mischief Private P	1	8.0	3.0	.0	3.0	5:08	308.0	38.5
Family Dispute	1	2.0	.0	.0	.0	:00	.0	.0
Driving While Intox - Alcoh	4	2.7	.5	1.0	1.5	2:39	39.7	14.4
Animal Nuisance	1	1.0	1.0	7.0	8.0	:14	14.0	14.0
Other Nuisances	5	1.6	1.2	4.2	5.4	1:44	20.8	13.0
Drug Overdose	2	3.0	1.0	3.5	4.5	2:07	63.5	21.1
Mental Cases	12	1.0	1.6	2.2	3.9	3:50	19.1	19.1
Non-MV Accident	2	3.0	1.5	3.0	4.5	23:06	693.0	231.0
Minor Juvenile Complaints	1	1.0	1.0	5.0	6.0	:23	23.0	23.0
Public Hazards	2	1.0	2.0	6.5	8.5	:39	19.5	19.5
Vacant House	1	2.0	1.0	9.0	10.0	:46	46.0	23.0
er Miscellaneous	28	2.0	15.8	2.8	18.7	18:37	39.8	19.2
i Intoxicated	3	4.6	3.0	1.0	4.0	4:10	83.3	17.8
MV Violations - Moving Vehi	1	4.0	1.0	2.0	3.0	1:56	116.0	29.0
MV Accident - Fatal	2	4.0	1.0	.0	1.0	6:22	191.0	47.7
MV Accident - Non-Fatal	111	3.6	2.3	1.1	3.4	78:20	42.3	11.5
MV Accident - Property Dama	65	3.8	.8	1.8	2.6	44:07	40.7	10.6
MV Accident - Private Prope	3	5.6	6.0	1.6	7.6	2:15	45.0	7.9
Suspicious Activity	1	2.0	.0	.0	.0	:16	16.0	8.0
License & Reg Check	1	7.0	.0	.0	.0	1:05	65.0	9.2
Traffic Duty	22	5.4	1.5	2.2	3.7	47:07	128.5	23.7
Supplementary Investigation	1	2.0	1.0	1.0	2.0	5:37	337.0	168.5
Subpoena Service	1	2.0	1.0	1.0	2.0	:26	26.0	13.0
Medical Assistance Needed	49	1.5	1.5	1.1	2.6	32:19	39.5	25.8
Medical Assistance Rendered	65	.6	.4	.8	1.3	7:09	6.6	11.0
Burglar Alarms	3	4.0	1.6	2.6	4.3	2:00	40.0	10.0
Fire Alarms - Fire	3	7.0	2.0	1.3	3.3	17:48	356.0	50.8
Fire Alarms - No Fire	20	3.8	2.5	3.5	6.0	19:28	58.4	15.1
Fire - No Alarm	2	1.5	1.0	2.5	3.5	:35	17.5	11.6
Other Alarms	3	4.6	3.0	5.0	8.0	5:42	114.0	24.4
Civil Inverstigation	1	2.0	1.0	6.0	7.0	1:16	76.0	38.0
Incident Unfounded	21	1.7	.2	.6	.9	2:50	8.0	4.5
Unable to Locate Complainan	1	1.0	.0	.0	.0	:00	.0	.0
Accident MV W/Ijuries	2	2.0	.0	.0	.0	:00	.0	.0
AFA/HI	128	6.7	1.1	2.8	4.0	167:42	78.6	11.7
AFA/LOW	83	2.0	2.0	4.6	6.6	36:13	26.1	12.7
AT FIRE	2	4.5	.5	3.0	3.5	13:11	395.5	87.8
H FIRE	24	3.1	1.4	3.3	4.8	14:51	37.1	11.7
	70	1.7	2.7	5.1	7.9	45:53	39.3	23.1
CO/EMS	9	2.8	1.1	3.8	5.0	5:45	38.3	13.2
Emergency Medical Request	1797	.6	.8	.6	1.5	234:09	7.8	12.3
EMS/TR	2	.0	.0	.0	.0	:00	.0	.0

Actual CALL TYPE: Time Analysis

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

Call Type	Total Number of Calls	Average Number of Units	Average Dispatch Time (minutes)	Average Travel Time (minutes)	Average Response Time (minutes)	Total Time All Units (hours)	Average Time Per Call (minutes)	Average Time Per Unit (minutes)
FMR	83	1.1	5.3	3.6	9.0	56:07	40.5	34.3
HAZARDOUS MATERIALS INCIDEN	25	4.4	1.4	3.7	5.1	89:20	214.4	47.8
IND/EMS	19	4.2	.6	.8	1.5	6:16	19.7	4.6
ISLAND FIRE	1	9.0	3.0	8.0	11.0	:37	37.0	4.1
LOCK	59	1.1	2.8	2.0	4.8	12:48	13.0	10.9
MVA	12	2.7	.6	1.7	2.4	6:27	32.2	11.7
MOTOR VEH ACC/ WITH INJURIE	79	3.6	1.0	2.5	3.5	110:40	84.0	23.0
SECOND ALARM OF FIRE	1	3.0	1.0	8.0	9.0	30:45	1845.0	615.0
STILL RESPONSE	303	1.6	6.0	3.8	9.8	258:58	51.2	31.5
STRUCTURE FIRE	163	7.6	1.6	2.0	3.7	577:15	212.4	27.7
VEHICLE FIRE	64	3.0	2.0	1.4	3.5	45:34	42.7	13.8
WATER RESCUE	15	3.9	1.8	4.7	6.6	24:53	99.5	25.3
Totals:	3415	1.8	1.8	1.6	3.5	2206:48	38.7	20.4

3415 RECORDS PROCESSED


N
0 1000 2000 3000 4000 5000 FEET
0 1 MILE
BRANFORD HILLS
SHORT BEACH
INDIAN NECK
PINE ORCHARD
THIMBLE ISLANDS
95
146
A
B
C
D
E
F
G

Actual CALL TYPE - By Grid

District 100 Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

Call Type	110 120 130 140 150 160 170 210 220 230 240 250 260 310 320 330 340 410 420 430 440 450 510 520 530 540 550 560 610 620 630 640 650 660 670 710 720 730 740 750 760 810 900 905 910 915 954 955 956 957	TOTAL
All Cases - Dead on Arriva	1	1
Sudden Death/Bodies Found	1 1 1 1 1 1 1 1 2 1 1 1 2	15
Nothing Taken	1	1
Recovered Auto	1	1
Simple Assault	1	1
Bomb Scare	1 1 1 1 1	5
0860	1 1 2	2
empted Arson	1 1	1
Suspicious Fires	1 1 1 1 3 1	8
Criminal Mischief Private	1 1	1
Family Dispute	1 1	1
Driving While Intox - Alco	1 1 2 4	4
Animal Nuisance	1 1	1
Other Nuisances	1 1 1 1 1 5	5
Drug Overdose	1 1 2	2
Mental Cases	1 1 1 1 2 1 1 3 12	12
Non-MV Accident	1 1 1 1 2	2

Actual CALL TYPE - By Grid

District 100 | Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

Call Type	110	120	130	140	150	160	170	210	220	230	240	250	260	310	320	330	340	410	420	430	TOTAL
	440	450	510	520	530	540	550	560	610	620	630	640	650	660	670	710	720	730	740	750	
	760	810	900	905	910	915	954	955	956	957											
Minor Juvenile Complaints																					1
		1																			
Public Hazards															1						2
																				1	
Vacant House																					1
				1																	
Other Miscellaneous				2				3	2		1		2	1			1		1		28
			1	1		1	1	1		1	1	2					1	4			
								1													
Found Intoxicated		1																			3
					1			1													
MV Violations - Moving Veh					1																1
MV Accident - Fatal	1																1				2
MV Accident - Non-Fatal	3	15	1	3	3	5	8	3	2		3	1	10	4	2	1	5	1	3		111
		2		2	2	3	2	1	4	5		4	3	1		1	1	2	2	2	
	1																				
MV Accident - Property Dam	1	5		4	5	4	4		4	1		2	1	3	4		1		2		65
			2	3	1	5				3		3						4	1	1	
	1																				
MV Accident - Private Prop						1											1				3
	1																				
Suspicious Activity																	1				1
License & Reg Check														1							1
Traffic Duty	1				1		2	4	2				1	1	3	1	1				22
			1															1		1	
							1	1													
Supplementary Investigatio								1													1
Subpoena Service													1								1
Medical Assistance Needed	2		1	1			1	2	6	2	1		1	2	1	1	2				48
	1		1	2	1	2	1		1	4	2	2		1	1	4		1			
					1																
... ical Assistance Rendere		1		1			2	5	1			2	1	1	1			3	2		65
	1	4	1	5		1	1	1	3	2	1	4	3			6	1	4	1		
					4	1	1														

Actual CALL TYPE - By Grid

District 100 Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

Call Type	110 120 130 140 150 160 170 210 220 230 240 250 260 310 320 330 340 410 420 430 440 450 510 520 530 540 550 560 610 620 630 640 650 660 670 710 720 730 740 750 760 810 900 905 910 915 954 955 956 957	TOTAL
Burglar Alarms	2 1	3
Fire Alarms - Fire	1 1 1	3
Fire Alarms - No Fire	1 2 1 1 1 1 2 1 1 2 1 1 1 1 1 2 1 1 1	20
Fire - No Alarm	2 1 1 1	2
Other Alarms	1 1 1 1	3
Civil Inverstigation	1	1
Incident Unfounded	1 1 2 1 2 1 1 2 1 1 2 1 1 1 1 1 2 1 1	20
Unable to Locate Complaina	1 1	1
Accident MV W/Ijuries	1 1 2	2
AFA/HI	1 1 4 5 8 1 10 5 8 14 2 3 1 3 13 4 1 2 1 2 1 2 15 15 2 3 2 2	127
AFA/LOW	3 1 3 1 1 2 1 2 4 1 2 1 2 3 2 1 4 1 2 10 3 2 3 2 10 2 2 3 4 1 1 1 1 3 3	83
BOAT FIRE	1	1
BRUSH FIRE	1 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 2 4 1	24
CO	1 1 1 1 1 1 3 2 6 2 1 4 1 1 1 2 2 2 2 6 1 1 2 1 1 1 2 1 1 2 3 6 3 2 6	70
CO/EMS	1 1 3 1 1 2	9
Emergency Medical Request	30 22 9 33 15 10 180 125 93 38 17 24 27 60 34 21 31 11 13 1 7 30 73 59 27 9 33 20 67 34 70 60 23 26 6 115 40 100 14 44 34 11 4 58 6 11 4 2 1	1782
[illegible]/TR	1 1	2

Actual CALL TYPE - By Grid

District 100 Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

Call Type	110	120	130	140	150	160	170	210	220	230	240	250	260	310	320	330	340	410	420	430	TOTAL
	440	450	510	520	530	540	550	560	610	620	630	640	650	660	670	710	720	730	740	750	
	760	810	900	905	910	915	954	955	956	957											
FMR	3	3			1		1	6	1		2	1	5	1	2	2	1	1			82
		1	3	2	1	2		3		3	3	13	1	2	4	1	3	6	2	2	
HAZARDOUS MATERIALS INCIDE	1	1		1		2	2		3	1			2	2	1				1		25
		1		1						1	1	1						1	1		
							1														
IND/EMS	2	1										5			2		1		1		19
				1						1						1		2	1	1	
LOCK	1	1		1	2		5	5	2	1	1		2		3	1	3				59
			2	2					3	3		5		1		2		2	2	4	
	1						2	2													
MVA				1		1															12
			1		1	1	4	2	1												
MOTOR VEH ACC/ WITH INJURI		1	1				3										1				79
		1									1	1						1	1		
			1	1	4	1	34	14	3	10						1					
SECOND ALARM OF FIRE																					1
TAL RESPONSE	6	6	2	11	4	2	23	14	5	6	4	10	11	2	2	4	4		4		299
	10	9	12	13	3	4	3	6	13	6	11	18	4	6	4	7	9	13	4	11	
	8		1			1	2	1													
STRUCTURE FIRE	2	5		2	3	3	9	8	6	3	2	5	1	4		3	3			1	163
		3	13	6	1	2	6	3	3	4	4	5	5	2		6	8	12	9	2	
	7			2																	
VEHICLE FIRE	3	3		1		3	3		3	1		2	1	1	1		2				64
		1	2	1	1	1	2			3				1				3			
							7	6	1	11											
WATER RESCUE																					7
	1		1	1											1						
	1	1				1															
Totals:	57	75	14	69	45	32	262	197	136	59	44	69	79	100	78	39	70	20	35	3	3382
	26	63	141	117	44	33	57	48	103	73	105	144	41	47	19	165	71	182	47	74	
	71	1	15	7	68	12	65	31	7	22											
Percent of Calls:	2%	2%	%	2%	1%	1%	8%	6%	4%	2%	1%	2%	2%	3%	2%	1%	2%	1%	1%	%	100%
	1%	2%	4%	3%	1%	1%	2%	1%	3%	2%	3%	4%	1%	1%	1%	5%	2%	5%	1%	2%	
	2%	%	%	%	2%	%	2%	1%	%	1%	%	%	%	%	%	%	%	%	%	%	

3382 RECORDS PROCESSED

Workload: Number of Calls

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

Hour of Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
0000-0059	16	6	8	14	10	8	11	73
0100-0159	9	6	13	7	6	5	11	57
0200-0259	11	7	8	4	10	9	13	62
0300-0359	11	8	4	6	7	5	17	58
0400-0459	6	7	8	8	8	4	7	48
0500-0559	8	9	4	8	8	5	7	49
0600-0659	14	10	14	6	15	7	7	73
0700-0759	10	17	14	25	15	14	12	107
0800-0859	12	24	23	29	29	28	22	167
0900-0959	19	32	29	32	41	34	21	208
1000-1059	25	39	26	30	39	40	25	224
1100-1159	34	38	41	30	27	28	31	229
1200-1259	34	34	37	21	32	33	34	225
1300-1359	25	43	36	27	26	22	26	205
1400-1459	27	25	37	31	34	21	28	203
1500-1559	15	28	27	27	27	42	39	205
1600-1659	27	16	26	28	30	39	31	197
1700-1759	27	30	29	26	23	30	32	197
1800-1859	18	30	30	29	23	21	31	182
1900-1959	18	30	24	18	31	19	27	167
2000-2059	20	19	22	29	18	24	30	162
2100-2159	19	15	18	17	21	22	22	134
2200-2259	12	10	14	14	10	16	16	92
2300-2359	14	12	11	14	13	10	17	91
Calls:	431	495	503	480	503	486	517	3415

3415 RECORDS PROCESSED

Workload: Duration of Calls

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

Hour of Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
0000-0059	15:42	3:14	7:53	6:49	8:03	2:51	3:52	48:24
0100-0159	3:57	:18	2:20	3:02	2:09	:18	14:26	26:30
0200-0259	8:11	15:45	5:28	:38	2:36	3:21	4:19	40:18
0300-0359	29:46	1:24	3:07	00	4:15	:17	23:25	62:14
0400-0459	1:21	5:47	6:00	:18	2:23	1:32	2:47	20:08
0500-0559	4:40	2:14	:20	1:23	1:38	00	2:07	12:22
0600-0659	3:14	3:17	26:18	:48	7:04	1:43	00	42:24
0700-0759	2:54	3:55	15:23	8:45	7:45	6:02	12:43	57:27
0800-0859	6:50	10:32	42:39	8:17	8:24	15:25	5:20	97:27
0900-0959	17:09	21:25	25:24	12:07	15:57	4:18	7:11	103:31
1000-1059	12:50	9:21	3:20	9:52	26:51	56:28	18:07	136:49
1100-1159	18:31	13:13	10:13	12:54	14:30	25:31	13:17	108:09
1200-1259	14:35	13:44	14:15	2:41	10:09	5:38	8:54	69:56
1300-1359	12:09	21:42	5:15	9:07	15:56	13:55	11:35	89:39
1400-1459	21:12	8:26	14:05	4:02	14:29	8:45	8:12	79:11
1500-1559	7:41	10:22	8:02	9:39	3:51	9:29	29:40	78:44
1600-1659	17:37	16:14	16:32	15:57	211:35	38:23	34:06	350:24
1700-1759	16:20	55:33	20:47	26:16	13:13	8:39	13:57	154:45
1800-1859	14:40	12:57	22:22	12:38	17:19	8:54	53:47	142:37
1900-1959	6:17	33:57	10:04	25:22	15:49	4:05	20:58	116:32
2000-2059	13:57	12:22	8:32	12:23	7:41	20:59	26:24	102:18
2100-2159	8:24	11:37	12:49	12:30	5:08	9:28	9:24	69:20
2200-2259	5:02	96:06	9:42	9:30	7:26	7:22	8:58	144:06
2300-2359	7:49	4:17	7:02	8:20	12:14	6:03	7:48	53:33
Totals:	270:48	387:42	297:52	213:18	436:25	259:26	341:17	2206:48

3415 RECORDS PROCESSED

Location Analysis: Time of Day

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

District	Grid	00 to 01	01 to 02	02 to 03	03 to 04	04 to 05	05 to 06	06 to 07	07 to 08	08 to 09	09 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Total
100	110	1	1		2				1	2	4	3	3	2	4	7	3	3	4	3	4	2	6	2		57
100	120		1	1		1	1	3	1	7	4	7	5	6	2	2	7	4	3	8	3	2	2	2	3	75
100	130		1						1		1		1	1	1	1	1				3	2			1	14
100	140	5		1	1	1	1	5		4	4	4	3	5	3	4	3	2	4	8	1	2	5	2	1	69
100	150	1	1	2				1	2	5	3	1	1	1	4	4	3	2	2	1	2	3	2	1	3	45
100	160		1	2		1	1			3		3	1	5	2	3	2	2	2	2		2				32
100	170	5	5	3	5	6	5	7	14	25	10	20	25	16	17	14	14	15	10	11	9	9	9	3	5	262
100	210	3	2	3		1	2	2	3	5	10	20	18	9	13	12	20	9	10	13	7	11	9	11	4	197
100	220	2			1			2	5	6	12	16	7	10	8	9	11	8	10	7	10	2	6	2	2	136
100	230	2	3	1	1	2	1	2	2	1	4	3	2	4	1	4	6	3	6	3	1	3	2	2		59
100	240			1	2	1			2	4	5	4	3	3	2		3	1	1	3	2	2	2		3	44
100	250	1	2	1	2	1	2		3	3	5	1	4	4	3	6	3	4	5	4	2	4	4	2	3	69
100	260	1	2	3	1		2	1	2	2	3	8	4	5	7	4	7	3	2	4	7	4	2	1	4	79
100	310	1	1		1	2	1	5	1	5	3	10	7	8	10	5	7	5	4	9	3	3	6	2	1	100
100	320			2	2	3	1	3	4	4	7	3	8	12	4	4	3	2	6	2	5	1	1		1	78
100	330			1			1	1		2	1		5	3	5		2	4	2		1	4	3	4		39
100	340	2	1			2	2	1	1	2	6	2	3	8	3	5	8	4	6	3	1	2	4	3	1	70
100	410			1	1			1	1	2			2	1		2		1	2	2	2	1			1	20
100	420	2	1	1	1	1			2	3	3	2	2	2	1	1	1	4	1	1	3	1		1	1	35
100	430																			1		1			1	3
100	440				3			1	1		2		3	2			2	2	2	1	1	3	3			26
100	450	2	2	1		2		2	1	2	4	3	7	3	1	4	5	6	4	3	1	4	2	1	3	63
100	510	5	1	5	2	4	3	3	6	4	5	11	13	9	8	8	5	5	10	9	10	5	3	3	4	141
100	520	4	2	3	2	1	1	3	6	4	12	5	8	8	5	4	10	3	4	5	4	4	2	11	6	117
100	530	1	3		1	1		2	2	4	5	1	1	2	1	4	1	4	2	2		2	2	2	1	44
100	540	1	2	1			2		1	1	1	1	3	1	2	1	4	2	2	2	3	1	1	1		33
100	550	1	3	1	1		1	1	2	1	3	3	3	5	5	2	2	3	2		7	3	1	1	6	57
100	560			1					1		3	4	5	3	1	4	3	3	4	1	7		3	1	4	48
100	610	3	2	2	4		3	6	4	1	11	4	5	8	2	3	3	5	6	6	6	10	4	4	1	103
100	620	4						2	1	6	2	1	4	4	3	8	5	9	5	5	3	3	3	4	1	73
100	630		1	2	1	1	1		4	2	7	12	9	2	6	9	2	10	7	8	6	7	6	2		105
100	640	6	4	2	2	1	1	3	2	3	13	8	13	13	13	8	12	7	8	6	8	4	4		3	144
100	650	1	3	2	1					1	3	3	2	3	3	1	2		4	4	3	2	3			41
100	660	3	1				1		1	1	8	2	7	5	3	3	1	1	3	3		2	2			47
100	670		1			1	1		1	1	1		3	1		2		2	1	1		1		1	1	19
100	710	3	4	4	8	4	4	1	2	6	6	14	9	10	14	10	5	12	8	6	6	10	6	6	7	165
100	720		1	2	1	2		1	4	8	1	6	3	5	1	7	4	2	8	4	1	4	2	2	2	71
100	730	4		4	1	2	1	2	6	10	11	13	8	12	15	11	13	11	11	10	15	11	6	3	2	182
100	740		1		1					5	1	2	4	3	4	3	6	3	1	3	5	3	2			47
100	750	1		2	1	4	1	3	1	4	4	5	5	3	6	6	4	5	7	3	1		4	1	3	74
100	760	1		1	1	2	2		1	2	6	5	3	3	6	1	6	10	3	3	4	2	3	4	2	71
100	810																1									1
100	900				1						4			5	1				1	1	1	1				15
100	905								1			1			1				1	1	1	1				7
100	910		1	2	1		2	4	3	6	2	7	3	5	5	9	3	4	3	3		3		1	1	68
100	915		1				1		1	1	2	1				1							2	1	1	12
100	954	5	1	2	2	1	1	2	4	7	2	2	2	2	3	2	1	4	2	3	5	4	3	2	3	65
0	955	1	1		1			1	4	1					2		1	2	4	2	1	2	2	3	3	31
100	956	1													3	1		1					1			7
100	957			1	3		1	1	2		1	1			1	2		2	3	1	2	1				22
800	820													1								3				4

Location Analysis: Time of Day

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

District	Grid	00 to 01	01 to 02	02 to 03	03 to 04	04 to 05	05 to 06	06 to 07	07 to 08	08 to 09	09 to 10	10 to 11	11 to 12	12 to 13	13 to 14	14 to 15	15 to 16	16 to 17	17 to 18	18 to 19	19 to 20	20 to 21	21 to 22	22 to 23	23 to 24	Total
800	830												1			1						1				3
840	840			1							3	2		2								2				10
XX	9999						2	1		1			1			1		3	1	1		2	1		2	16
Totals:		73	57	62	58	48	49	73	107	167	208	224	229	225	205	203	205	197	197	182	167	162	134	92	91	3415
% of Calls:		2%	2%	2%	2%	1%	1%	2%	3%	5%	6%	7%	7%	7%	6%	6%	6%	6%	6%	5%	5%	5%	4%	3%	3%	100%

3415 RECORDS PROCESSED

Location Analysis: Day of Week

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

District	Grid	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
100	110	5	15	4	10	7	6	10	57
100	120	5	11	13	13	10	12	11	75
100	130		5	3		2	2	2	14
100	140	10	9	9	10	7	12	12	69
100	150	9	5	7	6	6	6	6	45
100	160	5	5	1	3	3	8	7	32
100	170	34	42	47	32	38	32	37	262
100	210	25	23	30	30	33	26	30	197
100	220	11	20	20	19	19	31	16	136
100	230	10	10	10	6	7	9	7	59
100	240	7	7	6	5	8	4	7	44
100	250	4	10	13	10	11	6	15	69
100	260	9	10	11	12	7	15	15	79
100	310	12	20	16	12	15	10	15	100
100	320	11	19	9	5	8	19	7	78
100	330	5	4	5	3	6	10	6	39
100	340	8	7	12	12	16	7	8	70
100	410	2	4	2	6	1	2	3	20
100	420	2	6	6	8	3	5	5	35
100	430	1			1		1		3
100	440	6	2	5	2	7	3	1	26
100	450	9	10	8	6	6	12	12	63
100	510	29	21	18	19	23	14	17	141
100	520	13	13	15	14	23	17	22	117
100	530	6	10	6	3	9	4	6	44
100	540	2	6	2	5	4	5	9	33
100	550	7	12	10	6	9	4	9	57
100	560	3	6	8	8	7	8	8	48
100	610	17	12	10	13	17	10	24	103
100	620	4	3	13	11	16	13	13	73
100	630	13	10	5	16	13	10	38	105
100	640	18	17	25	19	24	23	18	144
100	650	6	5	7	8		8	7	41
100	660	4	7	12	6	11	2	5	47
100	670	1	5	1	3	2	3	4	19
100	710	19	21	32	22	28	20	23	165
100	720	12	9	11	12	11	12	4	71
100	730	18	28	36	28	32	26	14	182
100	740	4	6	7	8	7	6	9	47
100	750	8	13	9	13	12	13	6	74
100	760	9	11	6	11	13	10	11	71
100	810		1						1
100	900	1		3	1	1	6	3	15
100	905	1	2	2	1			1	7
100	910	5	8	15	15	5	11	9	68
100	915	3	3	2			2	2	12
100	954	17	7	4	10	5	10	12	65
100	955	9	4	3	4	4	3	4	31
100	956	3	2		2				7
100	957	5	2	2	2	3	3	5	22
900	820	1	1				1	1	4

Location Analysis: Day of Week

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

District	Grid	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
800	830		2					1	3
840	840	2	1		3	2	2		10
XX	9999	1	3	2	6	2	2		16
Totals:		431	495	503	480	503	486	517	3415
% of Calls:		13%	14%	15%	14%	15%	14%	15%	100%

3415 RECORDS PROCESSED

Location Analysis: Avg Time

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

District	Grid	Total Number of Calls	Average Number of Units	Average Dispatch Time (minutes)	Average Travel Time (minutes)	Average Response Time (minutes)	Total Time All Units (hours)	Average Time Per Call (minutes)	Average Time Per Unit (minutes)
100	110	57	2.0	1.2	.6	1.8	23:58	25.2	12.6
100	120	75	2.5	1.5	1.4	2.9	50:42	40.5	16.0
100	130	14	1.7	1.2	1.5	2.7	4:09	17.7	10.3
100	140	69	1.9	8.4	2.2	10.7	52:33	45.6	23.0
100	150	45	2.8	1.5	1.6	3.1	33:29	44.6	15.4
100	160	32	2.6	.5	1.2	1.7	18:38	34.9	13.0
100	170	262	1.3	1.0	.6	1.7	98:13	22.4	16.3
100	210	197	1.3	1.3	.6	2.0	75:10	22.8	16.5
100	220	136	1.4	1.0	.6	1.6	58:16	25.7	18.2
100	230	59	1.4	.9	2.1	3.1	59:30	60.5	41.0
100	240	44	2.1	3.6	6.7	10.3	40:30	55.2	25.3
100	250	69	2.8	1.3	2.2	3.6	45:30	39.5	13.7
100	260	79	2.4	1.5	1.4	3.0	50:30	38.3	15.5
100	310	100	1.9	.7	1.4	2.1	47:19	28.3	14.4
100	320	78	2.6	1.3	3.0	4.4	40:55	31.4	11.6
100	330	39	2.2	1.3	2.2	3.5	217:30	334.6	150.0
100	340	70	2.0	1.5	1.4	3.0	25:54	22.2	11.0
100	410	20	1.9	.2	1.4	1.6	6:49	20.4	10.7
100	420	35	2.1	2.5	2.9	5.5	33:15	57.0	26.2
100	430	3	3.3	.3	2.0	2.3	:22	7.3	2.2
100	440	26	2.1	1.3	3.4	4.7	24:02	55.4	26.2
100	450	63	2.3	1.8	2.6	4.5	33:46	32.1	13.4
100	510	141	2.1	1.7	1.6	3.3	54:13	23.0	10.5
100	520	117	1.7	1.1	2.0	3.1	49:27	25.3	14.1
100	530	44	1.4	1.3	1.0	2.3	14:31	19.7	13.6
100	540	33	3.0	2.1	1.5	3.7	12:21	22.4	7.4
100	550	57	1.9	.9	1.8	2.8	129:09	135.9	69.1
100	560	48	1.7	2.2	3.2	5.5	43:14	54.0	31.2
100	610	103	1.2	1.0	1.8	2.8	26:34	15.4	12.7
100	620	73	1.7	3.1	1.0	4.2	31:12	25.6	14.6
100	630	105	1.6	10.3	1.2	11.5	86:39	49.5	30.7
100	640	144	2.0	2.8	1.3	4.2	133:36	55.6	27.5
100	650	41	1.7	.6	1.3	1.9	14:18	20.9	11.7
100	660	47	1.4	1.7	1.1	2.8	20:23	26.0	17.7
100	670	19	2.1	1.0	2.8	3.8	51:34	162.8	75.4
100	710	165	1.5	.8	1.0	1.8	61:00	22.1	14.4
100	720	71	2.1	1.7	2.1	3.9	33:53	28.6	13.2
100	730	182	1.7	1.4	1.7	3.1	89:44	29.5	16.6
100	740	47	2.7	.9	1.0	1.9	65:02	83.0	29.7
100	750	74	1.6	2.2	2.6	4.8	30:49	24.9	15.4
100	760	71	2.2	1.4	2.5	3.9	35:02	29.6	12.8
100	810	1	6.0	1.0	4.0	5.0	1:23	83.0	13.8
100	900	15	.0	2.5	.5	3.0	1:04	4.2	64.0
100	905	7	.2	.1	4.0	4.1	:52	7.4	26.0
100	910	68	.0	.0	.0	.0	:00	.0	.0
100	915	12	.7	1.6	1.1	2.8	17:14	86.1	114.8
100	954	65	3.1	1.2	2.9	4.1	70:43	65.2	20.6
100	955	31	3.0	1.7	2.6	4.4	26:08	50.5	16.3
100	956	7	3.1	.5	2.4	3.0	5:44	49.1	15.6
100	957	22	3.5	1.5	2.2	3.8	34:20	93.6	26.7
800	820	4	2.7	.7	4.2	5.0	8:45	131.2	47.7

Location Analysis: Avg Time

Jul 1, 1996 @ 0:00 THRU Jun 30, 1997 @ 23:59

District	Grid	Total Number of Calls	Average Number of Units	Average Dispatch Time (minutes)	Average Travel Time (minutes)	Average Response Time (minutes)	Total Time All Units (hours)	Average Time Per Call (minutes)	Average Time Per Unit (minutes)
800	830	3	3.3	1.0	8.3	9.3	2:37	52.3	15.7
840	840	10	3.6	1.2	6.4	7.6	9:29	56.9	15.8
XX	9999	16	1.1	1.0	.5	1.5	4:48	18.0	15.1
Totals:		3415	1.8	1.8	1.6	3.5	2206:48	38.7	20.4

3415 RECORDS PROCESSED

Exhibit 7

Comparison of Branford Fire Department to Other Connecticut Towns

Branford Fire Department Study
Comparison to Other Connecticut Towns

	Branford	Naugatuck	Westport	New London	Poq. Bridge	North Haven	West Haven	West Shore	Allingtown	Torrington	East Haven	Norwich
Municipality	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes	Yes
Fire District	No	No	No	No	Yes	No	Yes	Yes	Yes	No	No	No
Population	28,000	32,000	23,000	28,000	22,000	24,000	32,000	11,000	11,000	35,000	27,000	40,000
Square Miles	20	16	21	7	22	21	4	4	2	42	13	27
Budget (millions)	$2.4 (1)	$2.1	$4.3	$5.3	$2.4	$2.1	$6.1	$4.0	$2.3	$3.3 (2)	$2.9 (3)	$3.2
1996 Responses (4)	3,366	2,200	3,100	3,647	1,800	3,959	4,260	1,612	1,588	2,200	3,700	2,500
EMS Provided	Yes	MVA Only	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
ALS Provided	Yes	N/A	N/A	No	No	Yes	N/A	No	No	N/A	No	No
EMS Calls/% of Total	2,083/62%	N/A	N/A	1,825/49%	1,080/60%	2,100/54%	N/A	1,180/60%	1,100/60%	N/A	2,200/60%	1,300/52%
EMS Transport	Yes	N/A	N/A	No	No	Yes	N/A	No	No	N/A	No	No
Paid FD Personnel	20	37	53	59	20	30	54	36	24	58	48	53
Shift Comm Rank	DC	Capt.	AC	BC	Lt.	Lt.	Capt.	Capt.	Lt.	Capt.	BC	Capt
Other Officers/Shift	0	Lt. (1)	Lt. (1)	Lt. (3)	0	0	Lt. (2)	Lt. (1)	Lt. (1)	Lt. (3)	0	Lt. (2)
Work Schedule	24/72	3's/42	10/14	3's/42	24/48	3's/42	3's/42	3's/42	24/72	3's/42	3's/42	3's/42
Paid Stations	1	2	4	3	2	1	2	2	2	2	3	3
Volunteer Stations	5	0	0	0	0	3	2	0	0	3	1	5
Active Volunteers	78	20	15	6	6	40	25	15	10	55	45	150

Notes

(1) Benefits not included in fire department budget

(2) Insurance and hydrant costs are not included in the fire department budget.

(3) Capital expenditures not included in fire department budget.

(4) Excluded motor vehicle lockouts, when the data was available.

Exhibit 8

Personnel Qualifications SOP

BRANFORD FIRE DEPARTMENT
STANDARD OPERATING PROCEDURES

PERSONNEL QUALIFICATIONS

The Branford Fire Department is made up of career and volunteer members who possess a wide variety of knowledge and experience. Insuring the safety of all fire department members operating at an emergency incident is the primary goal of our standard operating procedures. Additionally, providing consistency in performance of fire ground tasks is essential in order to insure that the public is receiving the best possible service and that procedures are performed in a manner consistent with the latest fire fighting practices is an essential part of our service delivery.

In order to attain these goals, it is required that members who are performing such tasks meet a minimum set of criteria established to assure the following:

1.) That the member is physically capable of performing critical fire ground tasks without subjecting themselves, their fellow fire fighters or members of the public to unnecessary risk(s).
2.) That members who are assigned fire ground tasks have successfully demonstrated that they possess the knowledge and psycho-motor skill competence to execute the skill(s) that they are being asked to perform on the fire ground.
3.) That members continue to be updated on the latest theories and methods used to mitigate the emergency situation.

Branford fire department members will be classified by the department into four classifications. Each classification shall have requirements that members must meet to achieve the desired classification. Once a member has achieved a classification level, the member will be required to meet specific standards in order to maintain the classification. Each member's classification will be evaluated annually. Those members who do not complete the requirements to maintain their existing classification will be re-classified. Classifications, and the requirements to obtain each class will be as follows:

<u>CLASS A FIRE FIGHTER</u> - "Class A" will be assigned to fire fighters who meet all of the physical, professional and department qualifications as identified below. Class A fire fighters shall be permitted to wear SCBA and are permitted to work as members of interior crews. The Class A rating is required in order to operate fire department apparatus (except ambulances). Members who have met the qualifying requirements for the Class A rating can apply for that rating at any time during the year using the approved department application. Upon being granted the Class A rating, the fire fighter shall have one year to complete the re-certification requirements in order to maintain the rating.

BRANFORD FIRE DEPARTMENT
STANDARD OPERATING PROCEDURES

PERSONNEL QUALIFICATIONS

Class A fire fighters will meet the following qualification standards:

Physical Qualification

Annual medical certification (NFPA 1582) *Reference 1*

Professional Qualifications

Currently certified Fire fighter I (NFPA 1001) *Reference 2*
Currently certified to Haz Mat operations level (NFPA 472) *Reference 3*
Currently certified in national incident command system *Reference 4*
Currently certified in cardiopulmonary resuscitation

Annual Department Qualifications

Participate in one "live burn" training session *Reference 5*
Participate in four structural fire fighting training sessions *Reference 5*
Participate in one infectious disease program *Reference 6*
Successfully complete department SOP training for "Class A" *Reference 7*
Active member of the Branford Fire Department
Valid Connecticut driver's license

CLASS B FIRE FIGHTER - "Class B" will be assigned to fire fighters who meet all of the physical, professional and department qualifications as identified below. Class B fire fighters shall be permitted to work as members of exterior crews, accomplishing fire ground activities that do not require the use of SCBA. Members who have met the qualifying requirements for the Class B rating can apply for the rating at any time during the year using the approved department application. Upon being granted the Class B rating, the fire fighter shall have one year to complete the re-certification requirements in order to maintain the rating.

Class B fire fighters will meet the following qualification standards:

Physical Qualification

Annual medical certification (NFPA 1582) *Reference 1*

Professional Qualifications

Currently certified Fire fighter I (NFPA 1001) *Reference 2*
Currently certified to Haz Mat operations level (NFPA 472) *Reference 3*
Currently certified in national incident command system *Reference 4*
Currently certified in cardiopulmonary resuscitation

Annual Department Qualifications

Participate in one infectious disease program *Reference 6*
Successfully complete department SOP training for "Class B" *Reference 7*
Active member of the Branford Fire Department
Valid Connecticut driver's license

BRANFORD FIRE DEPARTMENT
STANDARD OPERATING PROCEDURES

PERSONNEL QUALIFICATIONS

CLASS C FIRE FIGHTER – "Class C" will be assigned to fire fighters at the time that they are granted active membership in a Branford Fire Department company. Class C fire fighters shall be permitted to participate in limited exterior fire ground activities. Wearing of SCBA and participation in interior fire fighting operations are prohibited. Members entering the department will be automatically granted the Class C rating and will remain at this classification until they meet the requirements for and are granted class B or class A.

Class C fire fighters will meet the following qualification standards:

Physical Qualification

There are no physical requirements

Professional Qualifications

There are no professional qualification requirements

Annual Department Qualifications

Successfully complete department SOP training for "Class C" *Reference 7*
Active membership in a Branford Fire Department company

CLASS E – Class E rating is assigned to department members who have met the requirements necessary to provide emergency medical care to patients in accordance with the regulations set forth by the State of Connecticut Department of Health Office of Emergency Medical Service. The Class E rating may be assigned in addition to the Class A, Class B or Class C rating or it may be held without any other classification. Class E rating is required in order to operate a fire department ambulance.

Physical Qualification

Annual medical certification

Professional Qualifications – Basic Level Provider

Current State of Connecticut certification as an Emergency Medical Technician
Current certification in cardiopulmonary resuscitation
Currently certified to Haz Mat operations for EMS level (NFPA 473)

Professional Qualifications – Advanced Level Provider

Current State of Connecticut certification as an EMT-Paramedic
Current medical control authorization from New Haven Sponsor Hospital Program
Current certification to Haz Mat operations for EMS level (NFPA 473)

Annual Department Qualifications:

Successfully pass department SOP training for "Class E"
Participate in one infectious disease program *Reference 6*
Valid Connecticut driver's license

PROCEDURE REFERENCES

Reference 1 - Physical Requirements For Fire Fighters

OSHA 29 CFR 1910.120 (b) (1) (ii) (e)
OSHA 29 CFR 1910.134 (b) (10)
OSHA 29 CFR 1910.156 (b) (2)
OSHA 29 CFR 1910.156 Subpart L (4)
NFPA 1404 4-2.1; 4-2.2
NFPA 1500 5-3.6; 8-1.2; 8-1.3; 8-1.4; 8-2.3; 8-2.4
NFPA 1582

Reference 2 - Training Requirements For Structural Fire Fighters

OSHA 29 CFR 1910.156 (c) (1); (2); (3)
NFPA 1001
NFPA 1404 4-2.7; 4-2.8; 4-3.4; 4-4.1; 4-4.2; 4-4.3; 4-5; 4-6; 4-7; 4-8; 4-9; 4-10; 4-11; 4-12; 4-12.1; 4-12.2; 4-12.3; 4-13; 4-14
NFPA 1500 3-3.1; 3-3.2; 3-1.3; 3-1.4; 3-3.1; 3-3.2; 3-4.1

Reference 3 - Hazardous Materials Training For Fire Fighters

OSHA 1910.120 (e) (1) (ii)
(2) (ii); (iii); (iv); (v); (vi); (vii)
(3) (ii)
(6)
(8)
OSHA 1910.156 (c) (4)
NFPA 472
NFPA 1500 3-5.1; 3-5.3; 3-5.4

Reference 4 - Incident Command System Training For Fire Fighters

Superfund Amendments and Reauthorization Act of 1986
OSHA 1910.120 (q) (3)
NFPA 1500 3-3.6; 6-1.2; 6-1.6
NFPA 1561

Reference 5 - Ongoing Educational Requirements For Structural Fire Fighters

OSHA 29 CFR 1910.156 (c) (2)
NFPA 1500 3-4.2; 3-4.2.1; 3-4.2.2
NFPA 1403
NFPA 1404 5-3.6

Reference 6 - Infectious Disease Training Requirements For Members

OSHA 29 CFR 1910.1030 (g) (2) (iv)
OSHA Document 3130 "Occupational Exposure To Bloodborne Pathogens"
NFPA 1500 8-5.1; 8-5.2

Reference 7 - SOP Specific Training For Fire Fighters

OSHA 29 CFR 1910.156 (c) (4)
NFPA 1500 3-4.4; 3-4.5

Reference 8 - Training For Fire Officers

OSHA 29 CFR 1910.156 (c) (1)
NFPA 1500 3-3.5

BRANFORD FIRE DEPARTMENT
STANDARD OPERATING PROCEDURES

PERSONNEL QUALIFICATIONS

LINE FIRE OFFICER - Line fire officers are Lieutenants and Captains. Candidates for these positions are elected by the fire company members based upon the candidate's successful completion of the minimum standards required by the department. Prior to acceptance as a Branford Fire Department officer, the candidate must meet the following prerequisites:

Minimum two full consecutive years service as a Class A fire fighter
No disciplinary action within past 12 months

Line officers will meet the following qualification standards:

Physical Qualification

Annual medical certification (NFPA 1582)

Professional Qualifications

Currently certified Fire fighter II (NFPA 1002) *Reference 8*
Currently certified to Haz Mat operations level (NFPA 472) *Reference 3*
Currently certified in national incident command system *Reference 4*
Currently certified in cardiopulmonary resuscitation

Annual Department Qualifications

Participate in one "live burn" training session *Reference 5*
Participate in four structural fire fighting training sessions *Reference 5*
Participate in one infectious disease program *Reference 6*
Successfully complete department SOP training for Line Officers *Reference 7*
Active member of the Branford Fire Department
Valid Connecticut driver's license

CHIEF FIRE OFFICER – Chief fire officers are Deputy Chiefs and Assistant Chiefs. Candidates for these positions are appointed by the Chief of Department based upon the candidate's successful completion of the minimum standards required by the department. Prior to acceptance as a Branford Fire Department chief officer, the candidate must meet the following prerequisites:

Minimum four full consecutive years service as a Class A fire fighter
Minimum two full years service as a Line Fire Officer
Active "Class E" rating
No disciplinary action within past 12 months

Branford Fire Department Application For Classification
CLASS A FIRE FIGHTER

Member Name:_____ BFD ID#_____

Street Address:_____ Social Security #:_____

BFD Company: A1 R1 E2 E4 E5 E8 E9 FP CAREER UTILITY

Application Type: _____Initial _____Annual Re-certification

Attach the following documents:

_____ Copy of current valid Connecticut driver's license
_____ Copy of current hazmat operations certification
_____ Copy of current CPR certification
_____ *Copy of Fire Fighter I certification
_____ *Copy of National Incident Command System certification

*Only required for those applying for initial certification as a Class A fire fighter

Requirement	Date	Instructor
Live Burn Evolution	_____	_____
SCBA Evolution 1	_____	_____
SCBA Evolution 2	_____	_____
SCBA Evolution 3	_____	_____
SCBA Evolution 4	_____	_____
Bloodborne Pathogens	_____	_____
SOP Exam For Class A	_____	_____

I have reviewed this application. This applicant meets the department's requirement to be classified as a Class A fire fighter in accordance with the current SOP. This member is currently an active member in my company.

Signature of Company Captain _____ Date _____

Medical criteria for participation as a Class A fire fighter has been met.

Signature of Department Physician _____ Date _____

Training requirements for participation as a Class A fire fighter have been met.

Signature of Training Officer _____ Date _____

CLASS A RATING ____Approved ____Denied RECERT DATE_____

Comments (required for denied applications) should be documented on back of form.

BRANFORD FIRE DEPARTMENT
STANDARD OPERATING PROCEDURES

PERSONNEL QUALIFICATIONS

Chief officers will meet the following qualification standards:

Physical Qualification

Annual medical certification (NFPA 1582) *Reference 1*

Professional Qualifications

Currently certified Fire Officer I (NFPA 1021) *Reference 8*
Currently certified Fire Department Safety Officer (NFPA 1521)
Currently certified to Haz Mat operations level (NFPA 472) *Reference 3*
Currently certified in national incident command system *Reference 4*
Currently certified as an Emergency Medical Technician
Currently certified in cardiopulmonary resuscitation

Annual Department Qualifications

Participate in one "live-burn" evolution (NFPA 1403)
Participate in four SCBA evolutions (NFPA
Participate in one bloodborne pathogens program
Successfully complete department SOP training for Chief Officer level
Valid Connecticut driver's license

BRANFORD FIRE DEPARTMENT SOP APPROVAL

Date of Latest Revision: 2/27/97
Date of Latest Revision Approval By Chief of Department:
Date Latest Revision Becomes Effective:

Approval Signature: _____

Branford Fire Department Application For Classification

CLASS B FIRE FIGHTER

Member Name:_____ BFD ID#_____

Street Address:_____ Social Security #:_____

BFD Company: A1 R1 E2 E4 E5 E8 E9 FP

Application Type: _____Initial _____Annual Re-certification

Attach the following documents:

_____Copy of current valid Connecticut driver's license
_____Copy of current hazmat operations certification
_____Copy of current CPR certification
_____*Copy of Fire Fighter I certification
_____*Copy of national incident command system certification

*Only required for those applying for initial certification as a Class B fire fighter

Requirement	Date	Instructor
Bloodborne Pathogens	_____	_____
SOP Exam For Class A	_____	_____

I have reviewed this application. This applicant meets the department's requirement to be classified as a Class B fire fighter in accordance with the current SOP. This member is currently an active member in my company.

Signature of Company Captain _____ Date_____

Medical criteria for participation as a Class B fire fighter has been met.

Signature of Department Physician_____ Date_____

Training requirements for participation as a Class B fire fighter have been met.

Signature of Training Officer_____ Date_____

CLASS B RATING ____Approved ____Denied RECERT DATE_____

Comments (required for denied applications) should be documented on back of form.

Branford Fire Department Application For Classification

CLASS E MEMBER

Member Name:_____ BFD ID#_____

Street Address:_____ Social Security #:_____

BFD Company: A1 R1 E2 E4 E5 E8 E9 FP CAREER M2

Professional Requirements (Attach copies of each applicable certifications):

EMT Cert #_____ Expires_____

EMT-I Cert#_____ Expires_____

EMT-P Cert#_____ Expires_____

ACLS Expires_____

PALS Expires_____

Application Type: _____Initial _____Annual Re-certification

Attach copies of the following documents:

_____ Copy of current valid Connecticut driver's license

_____ Copy of current hazmat operations for EMS certification

_____ Copy of national incident command system training certification

_____ Copy of current CPR certification

Requirement	Date	Instructor
Bloodborne Pathogens	_____	_____
SOP Exam For Class E	_____	_____

I have reviewed this application. This applicant meets the department's requirement to be classified as a Class E member in accordance with the current SOP. This member is currently an active member in my company.

Signature of Captain or EMS Coordinator_____ Date_____

Medical criteria for participation as a Class E member has been met.

Signature of Department Physician_____ Date_____

Training requirements for participation as a Class E member have been met.

Signature of Training Officer_____ Date_____

CLASS E RATING ____Approved ____Denied RECERT DATE_____

Comments (required for denied applications) should be documented on back of form.

Exhibit 9

Branford Substance Abuse Policy

TOWN OF BRANFORD, CONNECTICUT
POLICY ON DRUG AND ALCOHOL ABUSE

The Town of Branford's Policy on Drug and Alcohol Abuse is designed to provide for a work environment free of drug and alcohol use and to help employees with substance abuse problems. The policy, developed after careful review of the latest medical information, the policies and experiences of other employers, and the legal considerations is as follows:

1. The use, manufacture, sale, possession, dispensing or distribution of illegal substances or the abuse of legal drugs and/or use of alcohol while at work is prohibited.

2. Alcohol may not be brought to, nor consumed on any Town property, including Town vehicles, unless specifically authorized by the Board of Selectman. Safety sensitive employees are prohibited from the use of amphetamines, cocaine, marijuana, opiates and phencyclidine at any time on or off the job and must not consume alcohol while available to perform a safety sensitive function, four hours prior to being scheduled to perform safety sensitive functions, while in the process of performing a safety sensitive function, immediately after performing a safety sensitive function, and up to eight hours following an accident or until the safety Sensitive Individual undergoes a post-accident alcohol test whichever occurs first.

3. The Town, upon initial notice of a drug/alcohol abuse problem will normally offer assistance to the employee for the treatment of such problem through our Employee Assistance Program. We encourage employees with a substance abuse problem to avail themselves of this help before disciplinary action becomes necessary. Employees, who successfully complete a rehabilitation program, who remain substance- free, and who have violated no other Town policies, will not place their employment in jeopardy. Employees who are in recovery are expected to maintain satisfactory job performance and remain committed to a rehabilitation plan. Nothing herein prevents the Town from immediately terminating an employee based on the severity of the incident.

4. Because our purpose is to serve the residents of the Town, it is essential that all employees report to work in the best possible physical condition. Being under the influence of alcohol or drugs while at work is strictly prohibited.

5. Criminal arrest for drug related offenses occurring during non-working hours, in general, will not constitute grounds for termination unless the offense is confirmed by criminal conviction. However, arrest may be grounds for other appropriate action, including but not limited to, temporary transfer and/or enrollment in a Town-approved drug treatment program.

6. The legal use of prescribed drugs is permitted on the job if such use does not impair the employee's ability to work safely and does not endanger other employees. Employees must keep all prescribed medicine in original container which identifies the drug, date of prescription, dosage and prescribing physician and must notify the their Department Head of the nature of the prescribed drug and any limitations associated with its usage.

7. As provided under Connecticut General Statutes, all Town employees are included in "reasonable suspicion" drug and alcohol testing. In addition, pre-employment drug and alcohol testing is part of the standard hiring procedure for all employees. No one shall be hired who tests positive. Safety sensitive employees shall comply with all testing procedures as mandated by the U.S. Department of Transportation regulations.

8. Under normal circumstances, the first positive alcohol and/or drug test will not result in termination of a safety sensitive or other employee. The Town of Branford reserves the right, however, to make a determination in a case-by-case basis in post-accident situations.

9. The Town will pay for pre-employment, random selection, post accident, reasonable suspicion and a first return to duty test. Employees will pay for subsequent return to duty tests, follow-up tests, and split specimen re-tests.

10. It shall be the responsibility of every employee who drives any Town of Branford vehicle or equipment to notify his or her supervisor immediately upon the suspension or loss of a driver's license resulting from an incident on or off the job.

11. Safety sensitive employees covered by the Department of Transportation regulations will not be subject to random selection drug and alcohol testing when called back to work. Reasonable suspicion and post accident testing will still apply in "call back" situations. A safety sensitive employee who self publishes an impairment in a call back situation will be referred to a substance abuse professional on the first occasion. The second time a safety sensitive individual indicates impairment, the individual will be considered to have had a positive test result and will adhere to all procedures required following a positive test. A third self disclosure will result in termination.

Violation of any of these policies, or refusing to participate in any aspect of the program as outlined, may lead to disciplinary action, up to and including termination.

Exhibit 10

Fire Station Matrix

Branford Fire Department Study
Fire Station Matrix

	Company	Location	Year Built	No. of Bays	No. of Apparatus	Well Maintained *	Generator	Street Access *
Fire Headquarters	Aerial 1	45 North Main Street	1962	10	10	7	Yes (PW)	10
	Rescue 1							
	Engine 8							
M.P. Rice Company	2	341 Main Street	1899	1	1	9	Yes-6.5kw	2
Short Beach Hose, Hook & Ladder	4	64 Shore Drive	1911	1	1	8	Yes-10kw	2
Stony Creek Rescue Company	5	School Street	1927	4	4	8	Yes-10kw	10
Indian Neck/Pine Orchard Fire Company	9/6	6 Linden Avenue	1920's	1	1	6	Yes-6.5kw	3
		Pine Orchard Road	1981	1	1	8		10

* **A rating scale of 1 to 10 was used for the Street Access and how Well Maintained a fire station is with 10 being the highest possible rating and 1 being the lowest possible rating.**

Exhibit 11

Apparatus Inventory and Replacement Master Plan

BRANFORD FIRE DEPARTMENT
OFFICE OF THE CHIEF/FIRE MARSHAL

To: Dominic Buonocore, First Selectman
Rick Belden, Finance Director
Donald Jackson, Chairman

From: Peter R. Buonome, Fire Chief/Fire Marshal

Date: September 18, 1996

Apparatus Inventory and Replacement Master Plan

Major Apparatus	Scheduled Replacment	
1976 Maxim Pumper Engine 2 (M.P. Rice)	**July, 1996**	1,000 GPM 3" Hose
1982 GMC Pumper Engine 4 (Short Beach)	**July, 1996**	Proposed Trade-In 1,000 GPM 3" Hose
1959 Maxim Pumper Engine 9 (Indian Neck)	July, 1998	Replacement will Replace Engine 1 750 GPM 3" Hose
1981 Chevy Rescue Truck Rescue 1 (Headquarters)	July, 2000	
1988 Sutphen Aerial Tower Aerial 1 (Headquarters)	July, 2006	
1991 Pierce Pumper Engine 8 (Headquarters)	July, 2009	1,250 GPM 4" Hose
1993 Sutphen Pumper Engine 5 (Stony Creek)	July, 2011	1,500 GPM 4" Hose
1995 Sutphen Pumper Engine 1 (Headquarters)	July, 2013	Transfer to Engine 9 in Year 1998 1,500 GPM 4" Hose
1966 Maxim Pumper Engine 6 (Pine Orchard)	Out of Service Pending Town Disposal Auction	
1976 Maxim Pumper Formerly Engine 5 (Stony Creek)	Out of Service Pending Town Disposal Trade-In	

The Town of Branford presently has six (6) Class A Pumpers and one (1) Aerial Tower in service. This number will not change under the proposal Replacement Plan. On or before the Year 2008 it is anticipated that a "Reserve Pumper" will be maintained for temporary replacement for pumpers which are out of service for mechanical or other reasons. This "Reserve Pumper" will come from a pumper which is replaced and in reasonable satisfactory condition.

It is anticipated that a future pumper "Quint" (combined capability of pumping and aerial rescue) may be stationed in the Industrial/Commercial Northeastern Section of Town.

The present day cost of Class A Pumpers is approximately $240,000.

The present day cost of an Aerial Tower is approximately $500,000.

The present day cost of a Heavy Rescue Vehicle is approximately $160,000.

The present day cost of a "Quint" is approximately $400,000.

Note: The average cost of living price increase for fire apparatus based upon past history is approximately 4% per year.

OPTION 1		
1996-1998	$441,340.34 *	*Cost of paying for both vehicles at contract signing
OPTION 2		
1996-1997	$243,535.17 **	**Two year package with vendor financing
1997-1998	208,972.17***	***2nd truck financing with vendor financing with trade-in (16,250)

Projected Funding for remainder of plan for fire apparatus (revolving fund)

1998-1999	$120,000.00	
1999-2000	120,000.00	
2000-2001	179,978.00	
2001-2006	115,000.00 *	*Each year to fund new Aerial Platform @ $575,000
2006-2009	104,000.00**	**Each year for funding pumper @ $316,000

Exhibit 12

Fire Apparatus Matrix

Branford Fire Department Study
Apparatus/Vehicle Matrix

Unit	Manufacturer	Type	Pump GPM Capacity	Pump Stages	Water Tank Size	Mileage	Engine Hours	2 1/2 Preconnects	1 3/4 Preconnects	4" Supply Hose	3" Supply Hose	General Condition *
Engine 1	1995 Sutphen	Pumper	1,500	Single	750	25,000	2,365	1	4	1,200	0	8
Engine 2	1997 Pierce	Pumper	1,500	Single	500	2,000	100	2	3	1,200	0	10
Engine 4	1997 Pierce	Pumper	1,500	Single	500	2,000	100	2	3	1,200	700	10
Engine 5	1993 Sutphen	Pumper	1,500	Single	750	24,000	2,230	1	3	1,200	0	8
Tac Unit 6	1997 Ford	Brush/Utility	250	Single	200	4,000		0	500' 1 1/2"	0	0	10
Engine 8	1991 Pierce	Pumper	1,500	Single	750	34,000	2,900	2	3	1,200	0	8
Engine 9	1959 Maxim	Pumper	750	Dual	500	15,000	921	0	2	0	1,200	2
Engine 10	1981 GMC	Midi-Pumper	200	High Press.	200	7,000		0	1	0	500	7
Aerial 1	1988 Sutphen	Tower/Ladder	N/A	N/A	N/A	15,000	2,173	0	0	0	0	8
Rescue 1	1982 GMC/Ranger	Rescue	N/A	N/A	N/A	75,000		0	0	0	0	5
Rescue 5	1989 GMC	Rescue	N/A	N/A	N/A	6,000		0	0	0	0	8
Reserve Engine	1976 Maxim	Pumper	1,000	Single	500	43,135	521	0	3	0	1,200	6
Car 18	1968 Ford	Brush	100	Single	150	33,500		0	0	0	0	5
Car 1	1989 Chevrolet	Wagon	N/A	N/A	N/A			0	0	0	0	4
Car 6	1988 Chevrolet	Suburban	N/A	N/A	N/A			0	0	0	0	5
Marine 5	1984 Munson	28' Boat	500	Single	N/A	N/A		2	4	0	300	7
Marine 10	1991 Avon	Inflatable Boat	N/A	N/A	N/A	N/A		0	0	0	0	8
Medic 1	1997 Ford F-350	Ambulance	N/A	N/A	N/A	9,000		0	0	0	0	9
Medic 2	1996 Ford F-350	Ambulance	N/A	N/A	N/A	54,000		0	0	0	0	8
Medic 3	1991 Ford	Ambulance	N/A	N/A	N/A	149,000		0	0	0	0	2

* **A rating scale of 1 to 10 was used for the General Condition of the vehicle or apparatus with 10 being the highest possible rating and 1 being the lowest possible rating.**

^Branford Fire Department Study
^Comparison of Actual Expenditures To Budget

		95/96 Budget	95/96 Actual Expenses	Difference	96/97 Budget	96/97 Actual Expenses	Difference	97/98 Budget
424.10-04	Secretary/Receptionist	46,330	44,228	2,102	46,330	46,649	(319)	49,148
424.10-28	Chief	46,350	46,350	0	47,740	46,821	919	47,740
424.10-29	Deputy Chief-Operations	157,715	154,824	2,891	170,846	168,685	2,161	177,032
424.1-XX	Asst Chief-Training	0	0	0	0	0	0	46,500
424.1-XX	Asst Chief-Fire Marshal	0	0	0	0	0	0	46,500
424.10.44	Firefighters	506,150	487,786	18,364	595,258	530,777	64,481	636,391
424.10-40	Medic 2 - Shifts	115,000	119,404	(4,404)	118,450	127,802	(9,352)	122,000
424.10-46	Training Coordinator	1,500	1,500	0	1,500	1,500	0	0
424.10-47	Utility Personnel	30,146	50,554	(20,408)	25,500	38,249	(12,749)	40,768
424.10-48	Deputy Fire Marshal	1,500	1,500	0	1,800	1,800	0	2,000
424.10.49	Paramedic Coordinator	35,537	37,074	(1,537)	1,250	443	807	1,250
424.10-90	Overtime	16,000	99,718	(83,718)	60,500	114,317	(53,817)	78,000
424.10-91	Vacation	72,814	56,635	16,179	69,259	55,751	13,508	68,732
424.10-92	Holidays	53,120	51,657	1,463	59,047	47,094	11,953	60,820
424.10-92	Sick Pay	32,200	71,249	(39,049)	41,415	67,481	(26,066)	46,562
424.10-94	Educational Incentive	4,143	1,864	2,279	7,300	5,237	2,063	3,000
424.12-07	Board Clerk	1,800	1,800	0	1,860	1,710	150	1,860
424.13-00	Longevity	8,125	8,117	8	7,800	7,275	525	7,955
424.15-00	Accrued Payroll Expense	4,218	0	4,218	5,203	0	5,203	5,462
424.10-37	Dispatchers	27,025	27,424	(399)	0	0	0	0
424.10-43	EMT On Shift	10,800	5,250	5,550	0	0	0	0
Total Personnel Services		**1,170,473**	**1,266,934**	(96,461)	**1,261,058**	**1,261,591**	**(533)**	**1,441,720**
424.30-00	Administrative Expense	650	118	532	650	557	93	850
424.32-01	Physicals & Innoculations	6,000	5,289	711	12,600	18,170	(5,570)	10,500
424.33-03	Contract Services-Amb Billing	0	0	0	0	0	0	50,000
424.40-01	Building Repair	10,400	10,400	0	10,400	9,055	1,345	9,450
424.40-02	Building Rental	11,000	11,000	0	6,000	6,000	0	7,000
424.41-01	Service Contracts	10,150	9,598	552	10,275	9,885	390	12,875
424.41-03	Equipment Repairs & Maint	56,000	54,662	1,338	46,000	92,991	(46,991)	53,550
424.41-05	Replacement Equipment	5,300	5,299	1	5,300	5,290	10	7,635
424.41-09	Hose Replacement	3,000	2,999	1	3,800	3,799	1	6,800
424.41-13	C.M.E.D.	34,000	34,765	(765)	39,489	39,489	0	40,741
424.42-01	Telephone	17,000	17,000	0	17,000	20,000	(3,000)	19,600
424.42-02	Electricity & Utilities	30,000	26,988	3,012	30,000	26,636	3,364	30,000
424.42.09	Water-Mains & Hydrants	307,361	307,575	(214)	308,434	323,673	(15,239)	335,239
424.54-01	Membership & Dues	500	194	306	600	595	5	790
424.58-00	Training & Education	15,000	15,053	(53)	17,000	20,287	(3,287)	25,400
424.58-02	Uniform & Clothing Allowance	6,000	6,001	(1)	6,000	5,826	174	6,000
424.58-03	Volunteer Officer Stipend	4,350	4,350	0	4,300	4,300	0	4,900
424.58-04	Fire Prevention/Investigation	1,000	569	431	2,000	1,780	220	2,850
424.58-05	Volunteer Company Allowanc	10,000	10,000	0	8,750	8,750	0	10,500
424-58-06	Stewards	5,400	5,399	1	5,600	5,823	(223)	5,600
424.61-01	Operating Supplies	17,500	15,671	1,829	19,500	20,031	(531)	22,300
424.62-01	Postage Expense	2,200	1,097	1,103	2,200	772	1,428	2,200
		0	0	0	0	2,140	(2,140)	
Total Non-Personnel		**552,811**	**544,027**	**8,784**	**555,898**	**625,849**	**(69,951)**	**664,780**
424.70-07	Portable Radios/Pagers	17,500	17,209	291	30,625	29,752	873	3,500
424.70-08	Ambulance Fund	30,000	30,000	0	38,000	38,000	0	30,000
424.70-09	New Apparatus-Fire Equipt	68,000	68,000	0	90,000	90,000	0	125,000
424.70-10	Breathing Apparatus	9,827	9,285	542	10,400	9,792	608	12,500
424.70-11	Volunteer Equipment	10,000	10,000	0	14,500	14,517	(17)	16,000
424.70-13	GX-7 Suits	4,000	4,000	0	5,200	5,207	(7)	5,200
424.70-15	Exhaust Systems	21,500	31,714	(10,214)	0	0	0	5,800
424.70-16	Fire Police	600	403	197	1,650	1,580	70	1,650
424.70-51	New Copier	0	0	0	5,285	4,919	366	0
424.70-52	LifePak Cardiac Monitor	0	0	0	16,000	15,535	465	0
424.70-54	OSHA Decon Sink/Table	0	0	0	2,400	2,251	149	0
424.70-55	Fire Alarms	0	0	0	10,990	11,025	(35)	0
424.70-56	Locking Access System	0	0	0	1,550	1,595	(45)	1,275
424.70-58	Defibrillator	0	0	0	7,500	2,470	5,030	4,500
424.70.94	Station 9 Addition	0	0	0	0	0	0	23,600
424.70-85	Marine 5 Radar	0	0	0	0	0	0	1,500
424.70-XX	Marine 5 Fire Pump	0	0	0	0	0	0	0
424.70-XX	Ambulance Garage Renovatio	0	0	0	0	0	0	0
424.70-86	Generator -Repeater Site	0	0	0	0	0	0	2,900
424.70-87	Replacement Boiler- Hdq.	0	0	0	0	0	0	31,000
424.70-88	Engine 4 Generator	0	0	0	0	0	0	5,400
424.70-89	Dive Team Equipment	0	0	0	0	0	0	1,500
424.70.90	Suburban Command Vehicle	0	0	0	0	0	0	43,000
424.70-12	Overhead Doors	12,000	11,923	77	0	0	0	0
424.70-14	Automatic Door Opener-Hdq.	1,600	1,398	202	0	0	0	0
Total Capital Expenditures		**175,027**	**183,932**	**(8,905)**	**234,100**	**226,643**	**7,457**	**314,325**
	Other	0	9,000	(9,000)	0	0	0	0
	Departmental Total	**1,898,311**	**2,003,893**	**(105,582)**	**2,051,056**	**2,114,083**	**(63,027)**	**2,420,825**

Exhibit 13

Fire Department Purchases/Payment Flowchart

Purchases & Payments Flowchart

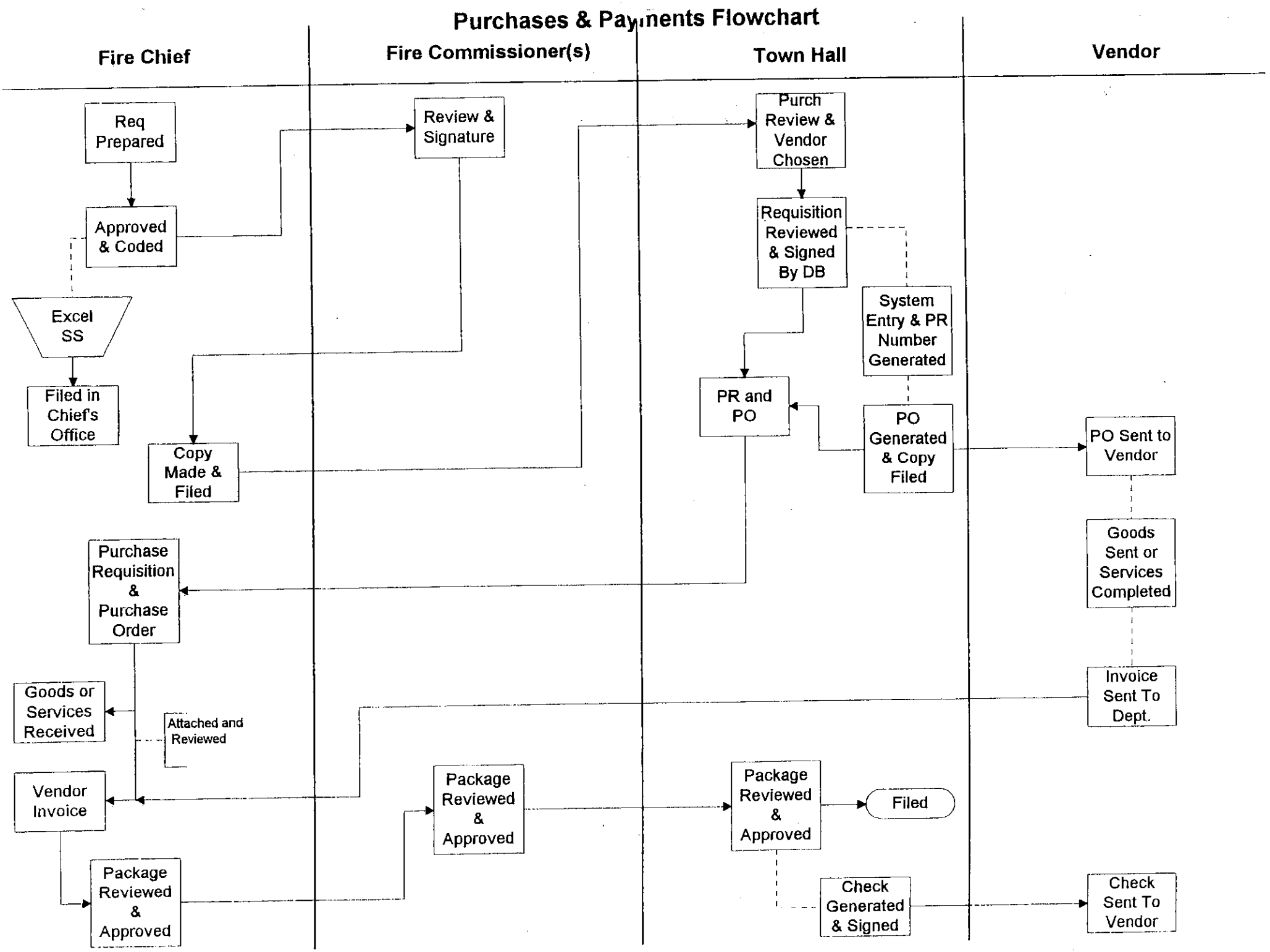


Exhibit 14

Comparison of Fire Department Spending to Budget

Exhibit 15

Purchases From Major Vendors

Exhibit 16

Fire Marshal Survey

09/02/97

Branford Fire Department Study
Major Vendor Purchases

Vendor Name	Type of Purchases	Fiscal 1995/1996	Fiscal 1996/1997
AA Auto Parts	Vehicle maintenance items	1,413	1,334
Advanced Overhead Door	Overhead door repairs	291	1,824
Amatrudo's Fire Apparatus Repair	Pump and other app maint	13,377	28,460
BT Summit, Inc.	Supplies	645	3,145
Dancer Industrial Electric	Radio maintenance	2,075	3,093
Firematic Supply Company	Rescue tool maintenance	0	1,172
Industrial Safety Supply	Protective equipment	19,401	30,558
Moore Medical Corp.	EMS supplies & equipment	3,473	5,872
New Haven County Fire Extinguisher	Fire extinguisher svc	349	863
Printko Film Ltd.	Photography supplies	76	436
Shipman's Fire Equipment	Fire & protective equipment	1,258	1,788
Shoreline Fire Equipment	Fire & protective equipment	1,632	404
Torrello Tire Company	Apparatus maintenance	10,608	14,985
Total Purchases From Major Vendors		**54,598**	**93,934**
Accounts To Which The Above Were Charged			
Physicals & Innoculations	424.32-01	5,289	18,170
Building Repairs	424.40-01	10,400	9,055
Service Contracts	424.41-01	9,598	9,885
Equipment Repairs & Maintenance	424.41-03	54,662	92,991
Replacement Equipment	424.41.05	5,299	5,290
Hose Replacement	424.41-09	2,999	3,799
Uniform & Clothing Allowance	424.58-02	6,001	5,826
Fire Prevention/Investigation	424.58-04	569	1,780
Operating Supplies	424.61-01	15,671	20,031
Breathing Apparatus	424.70-10	9,285	9,792
Volunteer Equipment	424.70-11	10,000	14,517
GX-7 Suits	424.70-13	4,000	5,207
Fire Police	424.70-16	403	1,580
Total Actual Purchases Per Year		**134,176**	**197,923**
Percent of Total Purchases From Major Vendors		**40.69%**	**47.46%**

FIRE MARSHAL SURVEY

FIRE MARSHAL	BARGAINING UNIT	RANK	CHAIN/COMMAND	VEHICLE	HOURS	O.T.	ANNUAL PAY
EAST HAVEN	Y	DC	THIRD	24HR	8 TO 4	1 1/2	52M
P.B.F.D.	Y	FM	-------	24HR	40HRS	1 1/2	47M
WESTPORT	N	FM	-------	24HR	40HRS(3)	-------	(1)
NEW LONDON	Y	FM	-------	24HR	40HRS	1 1/2	47M
W. HAVEN CTR.	N	DC	SECOND	24HR	40HRS	-------	48M
NORWICH	Y	DM	-------	DAYS	8 TO 4	STRAIGHT	48K
TORRINGTON	Y	FM	-------	24HR	40HRS	(2)	48M
NAUGATUCK	N	DC/FM	SECOND	24HR	35HRS	-------	50M

(1) FM SALARY NOT AVAILABLE - INSPECTORS SALARY = 62M
(2) STRIGHT FOR OVER 40 NON EMERGENCY - EMER. 1 1/2 - MIN 3 HRS
(3) 40HRS ARE FLEXIBLE, NOT ALWAYS 8-4, ETC.