

**Staffing Study of the
Hermosa Beach Fire Department
HERMOSA BEACH, CALIFORNIA**

matrix 
consulting group
721 Colorado Avenue, Suite 101
Palo Alto, CA 94303
v.650.858.0507 f.650.858.0509

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1. INTRODUCTION AND EXECUTIVE SUMMARY

The City of Hermosa Beach retained the Matrix Consulting Group to conduct an assessment of the staffing of the Fire Department. The project team conducted this staffing study the Fire Department during the Spring and Summer of 2007. The scope of work for the study included the following elements:

- A thorough review of current operations, management, services and costs associated with the Hermosa Beach Fire Department.
- Analytical determination of the most appropriate levels of service and service delivery in the City.
- Evaluation of alternative staffing and deployment options and estimated costs savings.

In order to conduct this Study, the Matrix Consulting Group project team engaged in the following activities:

- Interviewed senior executive staff to understand financial and human resources issues facing the City.
- Interviewed Department management.
- Conducted small group interviews with line personnel within the Fire Department.
- Collected data describing operations, workload, deployment, scheduling, use of leave, apparatus, station location, etc.
- Developed a descriptive profile of the Fire Department describing current operations, service levels, staffing, deployment, stations, etc. This was reviewed by HBFD staff and City Management to ensure its accuracy.

Collectively, these steps were intended to provide the project team with a full understanding of the current methods of service delivery by HBFD, its operations and the environment within which services are provided. This approach is further intended to ensure that all participants have had opportunities for input into the study process.

Executive Summary

The analysis and supporting documentation contained within this report are extensive. This Executive Summary is intended to provide a brief synopsis of those results. The paragraphs, below, provide a summary of our findings, recommendations with fiscal and operational impacts.

Section	Finding	Recommendation	Fiscal Impact
2.2	There is a substantial need to enhance the management / supervisory ability of the Department to meet basic operational and customer service needs.	Immediately fill the vacant Assistant Fire Chief position with a focus on skills, knowledge and abilities that relate to safety and training functions within the Fire Department.	(\$0) Budgeted Position
3.2	Analysis of the current response capabilities in the city of Hermosa Beach shows that the current station network is well designed to provide a high level of service. This network includes the inter-dependency between the City and its neighbors.	The Fire Department should continue to operate with the objective of obtaining a number of the performance goals set forth in NFPA 1710 and other national consensus documents. This should include response times and response objectives for unit responses (timing and the number of personnel).	None
3.3 (2)	Utilization of a single person engine company is not an optimal utilization of human resource capacity	The City should adopt alternative deployment and staffing strategies as recommended in this report.	See below
3.4	The existing staffing configuration of the Hbfd does not meet the structure fire response goals articulated within consensus standards for the relative hazards found within the community.	The City of Hermosa Beach should increase minimum staffing to 7 people deployed in a 4-person company and a 3-person company. This will require the creation of 3 additional Officer positions within the Fire Department.	\$505,796
4.1	There are significant impacts on service delivery caused by a relatively high level of concurrent calls for service.	Alternative deployment and staffing strategies should consider the impact of simultaneous call demand.	See below

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Section	Finding	Recommendation	Fiscal Impact
4.4	There are opportunities to expand the utilization of the Reserve Program to enhance value to the City.	The HBFD should expand the current Reserve Program to include the ability of its members to provide administrative support and create the opportunity to provide the 4 th person staffing on the second work team recommended in this report. The BLS transport capacity should be maintained and where possible, expanded to ensure 24-hour/day – 7/day week coverage with the BLS transport capability.	Minimal as costs are already reflected in the budget.
5.3	Based training reports for 2006 it appears that HBFD are meeting training targets specified by ISO and consensus standards	Continue documentation of training	None
5.3(1)	Notwithstanding the sufficiency of hours, there are issues which need to be addressed to ensure the Hermosa Beach Fire Department is meeting the training goals and objectives.	<p>The Department should implement the following actions:</p> <ul style="list-style-type: none"> • Ensure that all company officers are trained in the Fire Instructor or other instruction methodologies. State Certification is recommended. • Develop a mechanism for ensuring training needs are identified from all post-incident briefings and ensure training is developed to meet those needs. • Provide for Chief Officer review of training records and provide formal evaluation of training on at least a quarterly basis. Captain/Officers should be held accountable for the performance of the personnel under their supervision. <p>This should be done within the context of the recommendations above, specifically, the appointment of an Assistant Chief with focus on Training and Safety.</p>	Unknown but minor in the context of the recommendations.

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Section	Finding	Recommendation	Fiscal Impact
6.2	Based On Fire Prevention Reports And Data Current Inspection Loads Are Too Great To Be Handled Solely By Engine Company Personnel	Recommendation: The City of Hermosa Beach should obtain dedicated Fire Prevention expertise either through the hiring of a Fire Prevention Specialist or contracting for these services.	\$ 78,000/year

The City of Hermosa Beach identified several issues and study questions to be addressed by this study. The exhibit that follows provides a brief summary and location reference for each of those questions.

Study Question	Summary Response	Location Of Analysis
Are current staffing levels and deployment safe?	<p>The utilization of an engine company staffed with 1-person is not the optimal use of this resource.</p> <p>The City currently does not enjoy the benefit of meeting the NFPA response goal of 15 people within 8 minutes response time.</p> <p>The City enjoys exceptional initial response times to calls for service.</p> <p>The City has an unusually high incidence of simultaneous calls for service creating an unusual service demand.</p>	Section 3 – Pages 16-23
Should the city continue to staff the second engine with one firefighter or should staffing on the first due engine be raised to four personnel?	<p>No. the city should adopt an alternative deployment scheme.</p> <p>It is recommended that 3 additional firefighters be hired to provide a 4-person crew and a 3-person crew that can "jump staff" appropriate apparatus as needed.</p>	Page 45
Could the Departments reserve force be more effectively utilized than they are today? In what way(s)?	Yes. There are several areas in support of operations that the reserve personnel can be utilized.	Page 55

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Study Question	Summary Response	Location Of Analysis
Does the workload of 2000+ calls for service annually make the fire Department "busy" by comparison to other similarly sized South Bay and So Cal Departments?	No. The demand for services is essentially within the median range of comparison cities.	Page 24
Is the Department effectively delivering on its commitments to training and safety? Are there opportunities to improve in this area?	<p>The Department maintains documentation of meeting minimum training requirements.</p> <p>There are articulated concerns about the consistency and degree of training actually received.</p> <p>There is a demonstrated lack of consistency, evaluation and centralized control of the training function.</p>	Section 5 – Page 68
Should the city consider adding additional full-time paid personnel to Eng 12 to provide for safer fireground ops and enhance the Departments overall ability to serve the city and its residents? Would this improvement sufficiently address the Department's ability to manage multiple incidents and maintain a safer span of control?	Yes. This should be done in conjunction with alternative deployment strategies that essentially result in one 4-person company and one 3-person company that can jump staff rescue 11 and engine 12.	Page 55
Does the current Department organizational make-up meet local industry standards for fire prevention and related responsibilities?	The current configuration does not meet industry recognized best practices and the workload presented by the number of commercial occupancies exceeds that level that can be reasonably serviced utilizing shift based personnel.	Section 6 – Page 76
Would reorganization of the RFF program into an Ambulance Operator A/O program, with focus of BLS transport, better serve the Department and the city's ability to generate transport revenue?	No. This would provided no additional benefit to the city and reduce the flexibility of deployment and response configurations.	Page 59

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Study Question	Summary Response	Location Of Analysis
Has the reorganized transport service and additional transport fees generated enough revenue to fund all or most of the costs of enhancing services through additional staffing?	The reorganization efforts in the transport program can reasonably be credited with generating approximately \$156,000 in FY2006 in enhanced revenue. Additional revenues can be obtained from more effectively billing for ambulance services at the ALS rate when appropriate.	Page 64

2. ANALYSIS OF THE SUPPORT / ADMINISTRATIVE STAFFING AND ORGANIZATION OF THE FIRE DEPARTMENT

This chapter discusses the project team's findings and recommendations related to the management staffing and organization of the Fire Department. The focus on this chapter of the report is on the following three primary questions:

- Is the organization and overall management staffing of the Fire Department appropriate given spans of control, types of services, size of the organization, etc.?
- Are appropriate tasks and functions being carried out at levels that provide satisfactory levels of customer satisfaction and community service?

The first section in this chapter, addresses the overall management organization and staffing of the Fire Department. The second section addresses the potential for civilianization.

1. THE ORGANIZATIONAL STRUCTURE OF THE FIRE DEPARTMENT RELIES HEAVILY ON SHIFT BASED PERSONNEL TO CARRY OUT ADMINISTRATIVE FUNCTIONS INCLUDING TRAINING AND FIRE PREVENTION ACTIVITIES.

The current administrative organizational structure of the Hermosa Beach Fire Department provides for a Fire Chief, Assistant Fire Chief and Administrative Assistant working standard 40-hour weeks while all other employees are primarily suppression / rescue personnel working a 56-hour work week on a 24-hour schedule. The Assistant Fire Chief position has been vacant for some time and was vacant during the time period during which this study was conducted. While some functions can be adequately managed and implemented utilizing shift personnel, there is a universal need to provide consistency of management and administration over all of these functions.

In evaluating the efficacy of the administrative structures, the Matrix Consulting Group utilizes a series of formal criteria. The paragraphs, that follow, describe those criteria as well as describe what is meant by each of them:

- **Consistency of Action:** Are decisions and actions consistent across shifts and in multiple interactions with customers?
- **Mandated Programs:** Are the programs that are mandated upon the Fire Department (i.e. safety, blood borne pathogens, etc) effectively and consistently managed? Are certification and training requirements adequately kept so as to ensure required certifications do not lapse?
- **Ability to complete work or provide adequate access during normally scheduled work week:** Do the requirements of the function, including customer expectations allow the work to be conducted effectively without employees being forced to work overtime (or outside their normal schedule) to achieve effective results?
- **Connection of Actions:** Do the units exhibit an organizational dependency on one another? Would it be more difficult for one unit to do its work if there were some separation / attachment?
- **Administrative Paper Flow:** Is there an immediate need for the units to be attached organizationally to ensure the smooth flow of critical paperwork (for example, payroll making its way to Finance is not a justification for having every unit attached to Finance).
- **Span of Control:** Does the span of control for each major element in the organization mirror that of peers in the organization? Is there a similar level of responsibility within similar levels in the organization?

Each of these criteria, individually, would not provide enough information to make a decision about the appropriate placement of an organizational unit. As a group, however, they provide the information required by the project team to come to conclusions about the current organizational structure and to make recommendations for any improvements. The exhibit, which follows, shows the project team's assessment of the current organizational structure relative to these criteria:

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Function	Consistency of Action	Mandated Programs	Ability to Complete Work	Connection of Actions	Paper Work	Span of Control	Observations and Alternatives
Management and Supervision	√			√	√		<ul style="list-style-type: none"> • Each shift is run by a Captain. • Asst. Chief Position is currently vacant leaving day to day control to the Fire Chief across shifts • Captains are responsible for 2 apparatus and 2 ambulances and are, at times of the day, the only officers on duty within the jurisdiction. • Battalion Chief/Chief officer is a function of Automatic Aid. It is not reciprocal at this point in time.

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Function	Consistency of Action	Mandated Programs	Ability to Complete Work	Connection of Actions	Paper Work	Span of Control	Observations and Alternatives
Fire Prevention	√						<ul style="list-style-type: none"> Fire Prevention and Development review is the responsibility of a line Captain who makes himself available on unscheduled days to meet customer demands. This position answers directly to the Fire Chief in the current organization.
Construction, Maintenance and Equipment	√		√	√	√		<ul style="list-style-type: none"> Line Fire Captain is responsible for equipment and facilities. Department does utilize regional purchasing efforts and research where practical. Functions are largely support and routine in nature. Capital planning is a budgetary function, specifications are handled at the line level.

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Function	Consistency of Action	Mandated Programs	Ability to Complete Work	Connection of Actions	Paper Work	Span of Control	Observations and Alternatives
Training				√	√		<ul style="list-style-type: none"> In the absence of the Asst. Chief position, Training is coordinated by a line Captain. Shift Captains responsible for assuring training is accomplished on each shift. This includes Reserve Training and Medical Continuing Education. Training records are automated. Mandated training is recorded and tracked. However, many staff indicate that actual training conducted is minimal.

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Function	Consistency of Action	Mandated Programs	Ability to Complete Work	Connection of Actions	Paper Work	Span of Control	Observations and Alternatives
Safety	√	√	√	√	√		<ul style="list-style-type: none"> • Department rarely has the ability to have a dedicated Safety Officer except for during the largest of incidents. • Safety program is in place. However, implementation of some training is lacking due to lack of time and focus. • Limited staffing and personnel planning makes sending personnel to off-site professional development very problematic.

The following paragraphs summarize the project team's findings:

- **Management and Supervision:** Shift supervision is undertaken by a single Captain on each shift. This Captain is responsible for 4 apparatus (including the BLS transport unit) with a span of control of 7:1. In addition, the Captains positions are responsible for functional specialties which include fire prevention, training and representing the Department at regional fire agency meetings, all of which require their absence from the principle work place. The Department does not provide an on-duty Battalion Chief and relies on an Automatic Aid agreement with Manhattan Beach to provide for incidents requiring this level of supervision.
- **Fire Prevention:** This function is currently the responsibility of a line Captain. As such, the nature of these duties requires extensive availability on "days off" and customer service access is limited by both work schedules and demands of emergency response availability. There has been significant disagreement between the Building Department and the Fire Department with respect to code interpretation issues that, most likely, could have been somewhat mitigated by a consistent and on-going professional relationship between individuals within these Departments.
- **Construction, Maintenance and Equipment:** This is a functional area is currently the responsibility of a line Captain. There has historically been a breakdown between equipment specifications, needs identification and the budget process that provides the resources for these identified needs.
- **Training:** Each Shift Captain is responsible for implementing training based upon a training schedule provided by the Captain assigned the functional responsibility of training. Training records are entered, however, there is no current ability to evaluate the effectiveness of this training on a systematic basis. The lack of a consistent over-site of the training function across three shifts – normally seen in the assignment of a training officer at the Deputy Chief level or above – creates a situation that results in a certain lack of consistency in the training function.
- **Safety:** The Department has made substantial efforts at improving this critical aspect of operations. However, the lack of dedicated resources outside of a shift scheduled Captain has made continued improvement in this area very difficult. This is caused by the inability to consistently attend professional development meetings owing to shift scheduling as well as the lack of resources to implement and review adherence to new policies and/or procedures.

The project team has identified the need to provide additional management/supervisory positions within the Department as described in the following section.

2. THERE IS A SUBSTANCIAL NEED TO ENHANCE THE MANAGEMENT AND SUPERVISORY ABILITY OF THE DEPARTMENT TO MEET BASIC OPERATIONAL AND CUSTOMER SERVICE NEEDS.

A review of the findings in the preceding sections shows the following conclusions can be drawn:

- Almost all Departmental functions are the responsibility of shift-based Fire Captain positions.
- This leads to a lack of consistency and formal oversight of critical functions related to training and safety.
- In order to meet normal job demands as well as customer service expectations, this type of work alignment requires personnel to work beyond their normally assigned shift or results in significant delays in processing this type of functional work.

The project team identified the following alternatives to address these findings:

- **Option 1:** Consolidate the administration and leadership (i.e. Fire Chief) position with the Police Department resulting in a Public Safety Administration. The existing Fire Chief position would transition to Assistant Chief with direct responsibility for operations and training.
 - Generates salary savings from eliminating the Fire Chief position. These savings total approximately \$172,854 in salaries and \$51,857 in benefit costs for a total annual savings of approximately \$224,711.
 - Provides for greater operational integration in public safety events.
 - Results in significant inter-organizational issues which are often difficult to overcome.
 - This model has a history with the City. Reversion to this model will result in inevitable comparisons with the previous efforts (which have been discontinued) and successful full implementation would be doubtful.
- **Option 2:** Maintain the budgeted organizational structure. Immediately fill the Assistant Chief position with responsibility for Training and Safety. This has the following impacts:
 - There are no impacts on the existing budget as this position has been budgeted, but not filled.

- This would provide for consistency of review, over site and command. It would allow for representation of the City at the Chief Officer level at Fire Agency meetings and events.
- It would provide a layer of review and appeal to the Fire Chief for disciplinary matters.
- Provides for more ready availability of Fire Department management for customer service concerns and needs.

Given these findings, the Matrix Consulting Group recommends that the City pursue the immediate filling of the Assistant Chief position and maintaining the existing management structure of the Fire Department.

Recommendation: Immediately recruit and fill the Assistant Fire Chief position with special emphasis on training and safety functions.

3. ANALYSIS OF OPERATIONS AND STAFFING OF THE FIRE DEPARTMENT

This chapter is focused on the issues of deployment and staffing. Current service levels and staffing as well as alternative deployment of personnel of the Hermosa Beach Fire Department are evaluated.

1. DEPLOYMENT AND STAFFING DECISIONS SHOULD ONLY BE MADE ONCE A COMMUNITY HAS SELECTED SERVICE LEVEL OBJECTIVES.

The adoption of performance standards for fire and EMS response is a critical first step in the evaluation of service levels and staffing alternatives. While there are national standards that can be used to evaluate fire and EMS service delivery, each community must identify the key risks and necessary level of protection it needs based on its own unique circumstances. Once these performance standards are established a community can assess its performance and determine if current resources support the desired level of service.

As a starting point, the project team examined the Fire Department's response network using the National Fire Protection Association's recommended standard 1710 "Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments (2004 Edition)." It is important to take a moment to describe this source of performance standard guidance.

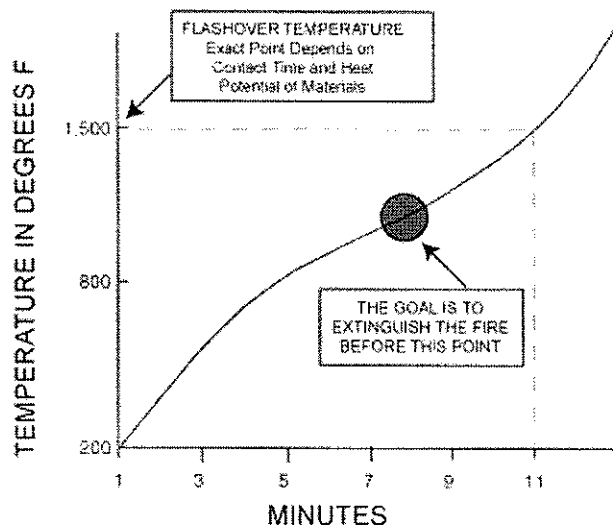
(1) The National Consensus Standards for Fire and EMS Service Delivery Are Based on Research Into Fire Behavior and Cardiac Survival.

The standards promoted for fire rescue and EMS have their basis in research that has been conducted into two critical issues:

- What is the critical point in a fire's "life" for gaining control of the blaze?
- What is the impact of the passage of time on survivability for victims of cardiac arrest?

The exhibit, that follows, shows the typical "flashover" curve for interior structure fires. The point of "flashover" is critical because it defines when all of the contents of a room become involved in the fire. This is also the point at which a fire changes from "room and contents" to a structure fire – involving a wider area of the building.

Generalized Flashover Curve



Note that this graphic depicts a fire from the moment of inception – not from the moment that a fire is detected or reported. This demonstrates the criticality of early detection and fast reporting and dispatch of responding units. This also shows the critical need for a rapid (and sufficiently staffed) initial response – by quickly initiating

the attack on a fire, "flashover" can be averted. The points, below, describe the major changes that occur at a fire when "flashover" occurs:

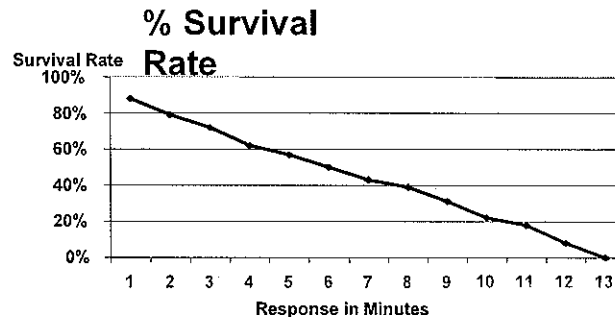
- It is the end of time for effective search and rescue in a room involved in the fire. It means that likely death of any person trapped in the room – either civilian or firefighter.
- After this point in a fire is reached, portable extinguishers can no longer have a successful impact on controlling the blaze. Only hand-lines will have enough water supply to affect a fire after this point.
- The fire has reached the end of the "growth" phase and has entered the fully developed phase. During this phase, every combustible object is subject to the full impact of the fire.
- This also signals the changeover from "contents" to "structure" fire. This is also the beginning of collapse danger for the structure. Structural collapse begins to become a major risk at this point and reaches the highest point during the decay stage of the fire (after the fire has been extinguished).

It should be noted that not every fire will reach flashover – and that not every fire will "wait" for the 8-minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashover. These options include:

- Application of portable extinguisher or other "fast attack" methodology.
- Venting the room to allow hot gases to escape before they can cause the ignition of other materials in the room.
- Not venting a room – under some circumstances this will actually stifle a fire and prevent flashover from occurring.

Each of these techniques requires the rapid response of an engine company that can safely initiate these actions. Under most circumstances, this requires at least three firefighters on-scene. However, many agencies wait to have at least two firefighters outside the structure to back up a two-person interior attack team.

The second issue to consider is the delivery of cardiac and other emergency medical first response. The exhibit, below, demonstrates the survivability of cardiac patients as a timeline:



This graph shows the results of extensive studies of the survivability of patients suffering from cardiac arrest. This is the most-often studied issue due to the ease of evaluating the outcome (a patient either survives or does not) from a cardiac arrest. This research results in the recommended standard of provision of basic life support within four minutes of notification and the provision of advanced life support within 8 minutes of notification. The goal is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch and travel time) and ALS within 10 minutes. This is the foundation for the two-tier system which has been implemented in the City of Hermosa Beach. Further descriptions of practical research into these issues are summarized in the section that follows.

(2) The National Fire Protection Association 1710.

The topic of “appropriate” deployment and response to fires and other emergencies has been on the forefront of consideration in the fire service and among policy makers and municipal managers for the past several years. The intense focus has resulted from the development and promulgation of a document called NFPA 1710

(for short – the full title is: “Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments (2004 Edition).”

What NFPA 1710 Is:

- A recommended standard of service for fire, EMS and other Fire Department activities.
- A tool for local policy makers to use when evaluating their own service delivery network.
- A standard that should be considered against the current response capabilities of the local fire / rescue / EMS service.

What NFPA 1710 Is Not:

- A law, a regulation or a requirement for cities and other municipalities to follow.
- Something that needs to be fully implemented immediately.

What NFPA 1710 Recommends:

- Dispatch handling times equal to one (1) minute or less.
- En route times (reaction times) equal to one (1) minute or less.
- Travel times for the initial arriving unit (or for the delivery of BLS level care in an EMS system) of four (4) minutes or less.
- Travel times for a full structure fire response (defined below) or for an ALS response (also defined below) in eight (8) minutes or less.
- The standard for fire can also be met if four (4) firefighters are on-scene in four (4) minutes or less.
- An ALS response is defined in the standard as at least four people, at least two (2) of whom should be paramedics and two (2) of whom are at the EMT–basic level.
- In the case of Hermosa Beach, utilizing their current response plan (including Automatic Aid units), an initial full structure fire response is defined as a total of 15 people. This is arrived at as follows:

- One (1) incident commander.
 - One (1) supply line with an Engineer/Operator to ensure water flow.
 - Two (2) attack lines of two (2) people plus one (1) support person (for a total of six people).
 - One (1) search and rescue team of at least two (2) people.
 - One (1) ventilation team of at least two (2) people.
 - One rapid intervention team (RIC) comprised of at least two (2) people. This team can be formed from other staff on scene until a dedicated RIC arrives. This would reduce the staffing required on the first response to 13 people.
 - If in use, one (1) aerial operator should be assigned to maintain control of the aerial unit.
- Please note that a structure fire response is different in each community due to the level of risk, population density, type of hazard, etc. As a result, the project team utilized response protocols established by Hermosa Beach Fire Department for a structure fire response. This protocol calls for 2 Hermosa Beach engines (4 personnel total), 1 Hermosa Beach Rescue Ambulance (2 Personnel) 1 Manhattan Beach Engine (3 Personnel) 1 ladder truck from Redondo Beach (4 personnel each), and 1 Battalion Chief from Manhattan Beach. As a result, total personnel responding to a structure fire in Hermosa Beach is 14 firefighters.
 - Goal should be to achieve these response times and staffing levels at a minimum of 90% of applicable calls for service.
 - Engine / aerial companies should be a minimum of four (4) people:
 - NFPA 1710 recognizes explicitly that there are many ways to achieve this.
 - Standard does not require that four (4) people arrive on the scene in the same unit.
 - Could use, for example, a Department with many two-person units that provide this level of coverage (i.e., all calls receive two units minimum).

The project team's approach to this analysis using a GIS model enables us to consider the various elements of these standards. Specifically, the model was programmed to determine the areas in which the network could travel in four and eight

minutes. Once these calculations were performed, the model was then able to determine the number of calls that could be reached in these time periods.

2. ANALYSIS OF THE CURRENT RESPONSE CAPABILITIES IN THE CITY OF HERMOSA BEACH SHOWS THAT THE CURRENT STATION NETWORK IS WELL DESIGNED TO PROVIDE A HIGH LEVEL OF SERVICE.

The project team utilized two methods for assessing performance against these targets. The first approach uses actual call for service data to evaluate performance against the recommended standards. The second approach utilizes a GIS model which determines the theoretical capabilities of the system based on fire station location and current and alternative staffing. The first section, that follows, provides current and historic workload information and discusses actual performance during calendar 2006.

(1) Actual Performance against Recommended Standards

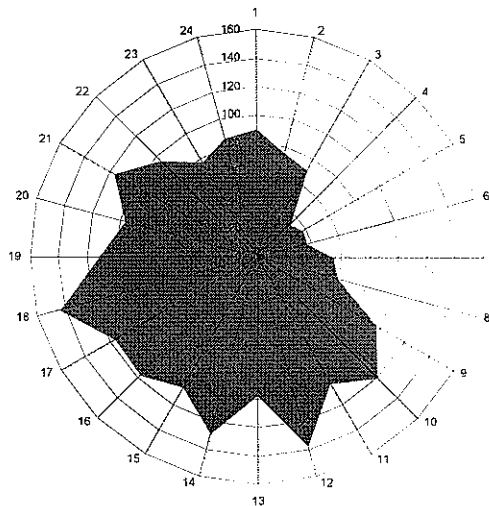
The project team gathered detailed call for service data for the year June 2004 May 2005 to evaluate the Department performance against the response targets. Initially, the project team documented the current workload and call risk. As shown in the table below, the Hermosa Beach Fire Department responds to approximately 2,252 calls for service/year.

**Hermosa Beach Fire Department
CY 2006 Calls for Service by Type**

Call Description	Number of Calls
Fires	103
EMS/Rescue	1,541
Hazardous Conditions	80
False Alarm – Good Intent	293
False Alarm – Malicious	86
Service Calls	106
Other	6
TOTAL	2,252

As shown above, the Hermosa Beach Fire Department responded to 2,252 calls for service during the one year period, January 1, 2006 through December 31, 2006. Approximately 1,540 calls for service, or 68% of total calls for service were EMS in nature, compared to approximately 103 or 5%, which were fire related. The next graph, on the following page looks at the temporal distribution of calls for service over the same period:

**Hermosa Beach Fire Department
January 1, 2006 to December 31, 2006 Calls for Service
By Hour of Day**



The following points highlight the information above:

- The Hermosa Beach Fire Department responded to 2,252 incident during the this period for an average of 6.2 calls for service per day.
- On an hourly basis, the HBFD's workload ranged from a low of approximately 33 calls for service during the hour of 2:00 a.m. to 6:00 a.m., to a high of 140 calls for service during the hours of 6:00 p.m. to 7:00 p.m.

The project team next evaluated actual Department performance against the response times outlined in the previous section. The first table, below, shows average

response times and fractile performance for dispatch processing, reflex time, travel time, and total response time:

Performance Target	Performance
Average Response Time (Min.)	2.8 minutes
Percentage Less than 5 Minutes (Reflex + Travel)	96%

The following points highlight the information above:

- The Department is responding to 96% of emergency calls for service in less than five minutes (turnout plus drive time).
- Average travel time was just under 2.8 minutes for all calls for service (including emergency and non-emergency because call priority was not available in the data set from Hermosa Beach).

In summary, the Hermosa Beach Fire Department is meeting / exceeding travel time elements of response time performance. As almost 70% of calls for service are EMS related, this is an exceptionally high level of service to the community. Because of this very high level of service and because of the small land area of the City, the project team conducted an analysis of the feasibility of removing the Hermosa Beach Fire Station and attendant staffing from the current response system that includes the resources of the Cities of Redondo and Manhattan Beach – to assess the base feasibility of contracting for service with these cities. This analysis is discussed in the following section of the report that discusses the GIS modeling for this project.

(2) Comparative Call for Service Demand

The project team gathered detailed call for service data from several other jurisdictions for purposed of determining the relative work load on the staff of the HBFD. The jurisdictions were selected based upon approximately comparability either by geography or number of stations. The project team cautions against utilizing comparative data solely for purposes of decision making as there are several variables

that ultimately need to be considered. However, for purposes of call demand the following jurisdictions were utilized for comparison:

- City of Solana Beach
- City of Del Mar
- City of El Segundo
- City of Redondo Beach
- City of Manhattan Beach
- City of San Marino
- City of South Pasadena

The following table summarizes various elements of comparison for these entities:

Community	Stations	Daily Staffing	Population	Battalion Chief?	Ambulance ?	Call Volume
Solana Beach	1	6	14,500	Staff	No	3,213
Del Mar	1	4*	5,000	No	No	1,854
El Segundo	2	18	16,473	Yes	Yes	2,796
Redondo Beach	2	21		Yes	Yes	5,136
Manhattan Beach	2	9		Yes	Yes	2,820
San Marino	1	8	14,500	Yes	Yes	1,612
South Pasadena	1	8	25,824	Yes	Yes	1,913
Hermosa Beach	1	6	19,500	No	Yes	2,022
*Includes 1 Reserve normally scheduled						

As it relates to demand for services, the following table summarizes the relative demands placed upon these fire response systems:

Comparison of Absolute Call Volume

Community	Call Volume
Redondo Beach	5,136
Solana Beach	3,213
Manhattan Beach	2,820
El Segundo	2,796
<i>Hermosa Beach</i>	2,022
South Pasadena	1,913
Del Mar	1,854
San Marino	1,612
Average	2,671

The table above reveals that in terms of total number of calls for service received, the HBFD is fifth in a comparison universe of eight agencies. It's 2,022 calls for service is approximately 25% below the mean of the comparison group of 2,671. The project team then conducted a comparison on a call/station basis as some members of the comparison group had 2 or more fire stations in their network.

The table below summarizes the comparison of Hermosa Beach FD calls for service on a per-station basis:

Comparison of Call Volume on a Per-Station Basis

Community	Call Volume/Station
Solana Beach	3,213
Redondo Beach	2,568
<i>Hermosa Beach</i>	2,022
South Pasadena	1,913
Del Mar	1,854
San Marino	1,612
Manhattan Beach	1,410
El Segundo	1,398
Average	1,999

The data above reflects that HBFD is again approximately in the mid-range of call demand when examined on a per-station basis. From this perspective, the relative demand for service experienced in Hermosa Beach is about 1% greater than the mean of the population examined.

As a further method of evaluation, the project team then next evaluated the relative impacts of service demand from an “on-duty personnel” perspective. The table which follows summarizes the demand for service in each jurisdiction relative to the number of personnel on duty each day:

Comparison of Call Volume on a Per On-Duty Personnel Basis

Community	Call Volume/On-Duty Personnel
Solana Beach	536
Del Mar	464
Hermosa Beach	337
Manhattan Beach	313
Redondo Beach	245
South Pasadena	239
San Marino	202
El Segundo	155
Average	311

These data suggest that on a call/on-duty person basis, the HBFD is in the upper third of the comparison agencies. Its 337 calls/on-duty personnel is approximately 8% higher than the sample average and 38% below the activity level of the most active jurisdiction in the study.

Based upon the combination of these data the project team believes that while the activity levels caused by demand for services is moderate to high, they are not unreasonable or unusual for a contemporary fire service organization.

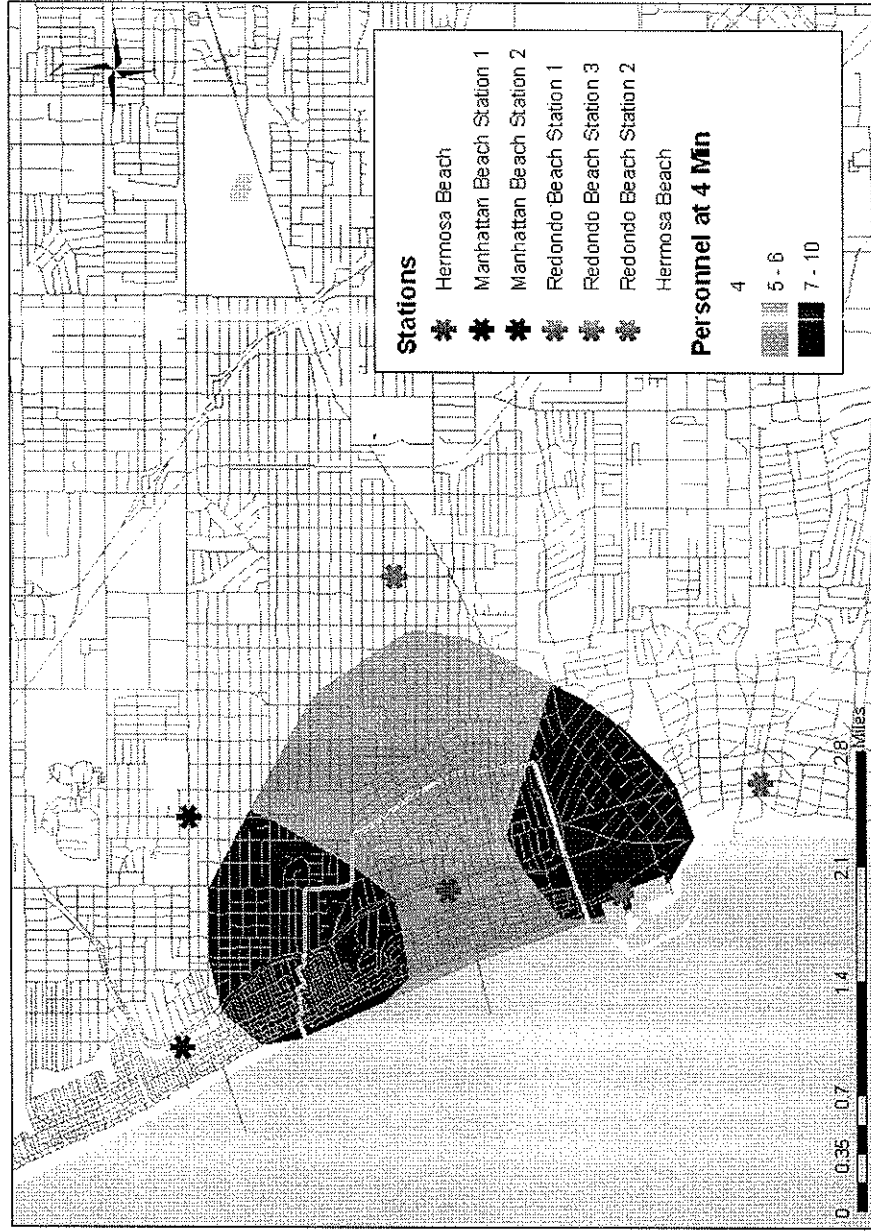
(3) Modeled Performance Against Recommended Standards

The Matrix Consulting Group has developed a GIS model that illustrates the areas of a City that can be covered by fire companies from the current fire station location as well as from other fire stations located in neighboring communities. This model also determines how many personnel can reach a specific area of a city within a specified time-frame. The model then plots actual calls for service against these

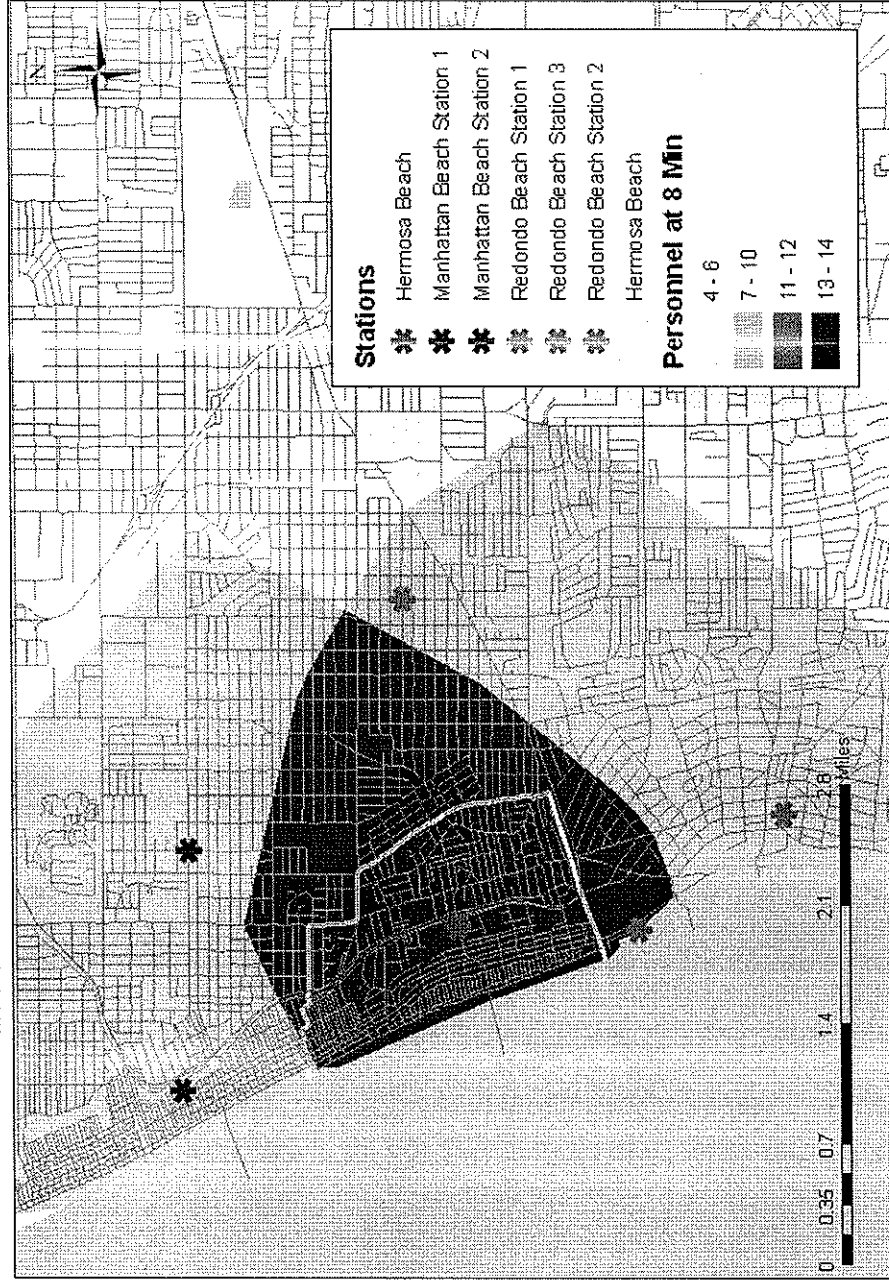
coverage areas to determine what proportion of calls can be reached by what level of personnel overlap. Calls are plotted based on address information contained in the CAD database.

The maps on the following pages show the current response coverage by unit overlap based on the 4-minute drive time target for initial response. They also show the areas of the City where a full structure fire response can travel within eight (8) minutes. These maps are based upon the current response network that includes the automatic aid units from Redondo and Manhattan Beach Fire Departments. A full response consists of 2 Hermosa Beach Engines (with a total of 4 personnel), 1 Engine from Manhattan Beach (with 3 personnel), 1 ladder truck (with 4 personnel) from Redondo Beach, 1 medic unit (with 2 personnel) from Hermosa Beach and a Battalion Chief from Manhattan Beach.

City of Hermosa Beach, California
Potential Mutual Aid Responders and Hermosa Beach Station Personnel at 4 Minutes



City of Hermosa Beach, California
Mutual Aid Responders from Manhattan Beach and Redondo Beach Stations
and Current Personnel at Hermosa Station at 8 Minutes



In addition to the maps above, two sets of statistics were generated. The first shows the number of actual calls for service during June 1, 2004 to May 31, 2005 that are projected to receive a response within 4 minutes. The number of calls reached within this time is also shown by the number of units capable of responding:

Current Staffing – Hermosa Beach Station Included
Percentage of Calls with Personnel Arriving within 4-Minutes

Staff	Percent of Calls
3 or more	100%
4 or more	100%
8 or more	100%
10 or more	29%
12 or more	0%
Total Calls	100%

The following points summarize the information above:

- As shown above, the Hermosa Beach Fire Department is projected to be capable of reaching 100% of all calls for service within four minutes of drive time or less.
- In sum, the Department is projected to be capable of meeting and exceeding the 90% fractile performance target for four minute drive time for the first responding unit. This is confirmed by the analysis of actual response data in the previous section.

The next table shows the number of calls projected to be reached by a full structure fire response (3 engines, 1 ladder truck, 1 medic unit, and 1 Battalion Chief) within eight minutes or less. These statistics are shown in the table, below:

Current Staffing
Percentage of Calls with Personnel Arriving within 8-Minutes

Staff	Percent of Calls
14 or Fewer Personnel	100%
15 or More Personnel	0%

The following points highlight the information above:

- Given the current response configuration the entire area of the City can be covered by a first alarm response within 8 minutes.
- The current full first alarm response has a maximum of 14 Firefighters currently operating. Given the necessity of an aerial device/Truck company the NFPA response goal is a minimum of 15 personnel.
- None of the current responses receive staffing consistent with the response goals of NFPA 1710 for a full first alarm response.

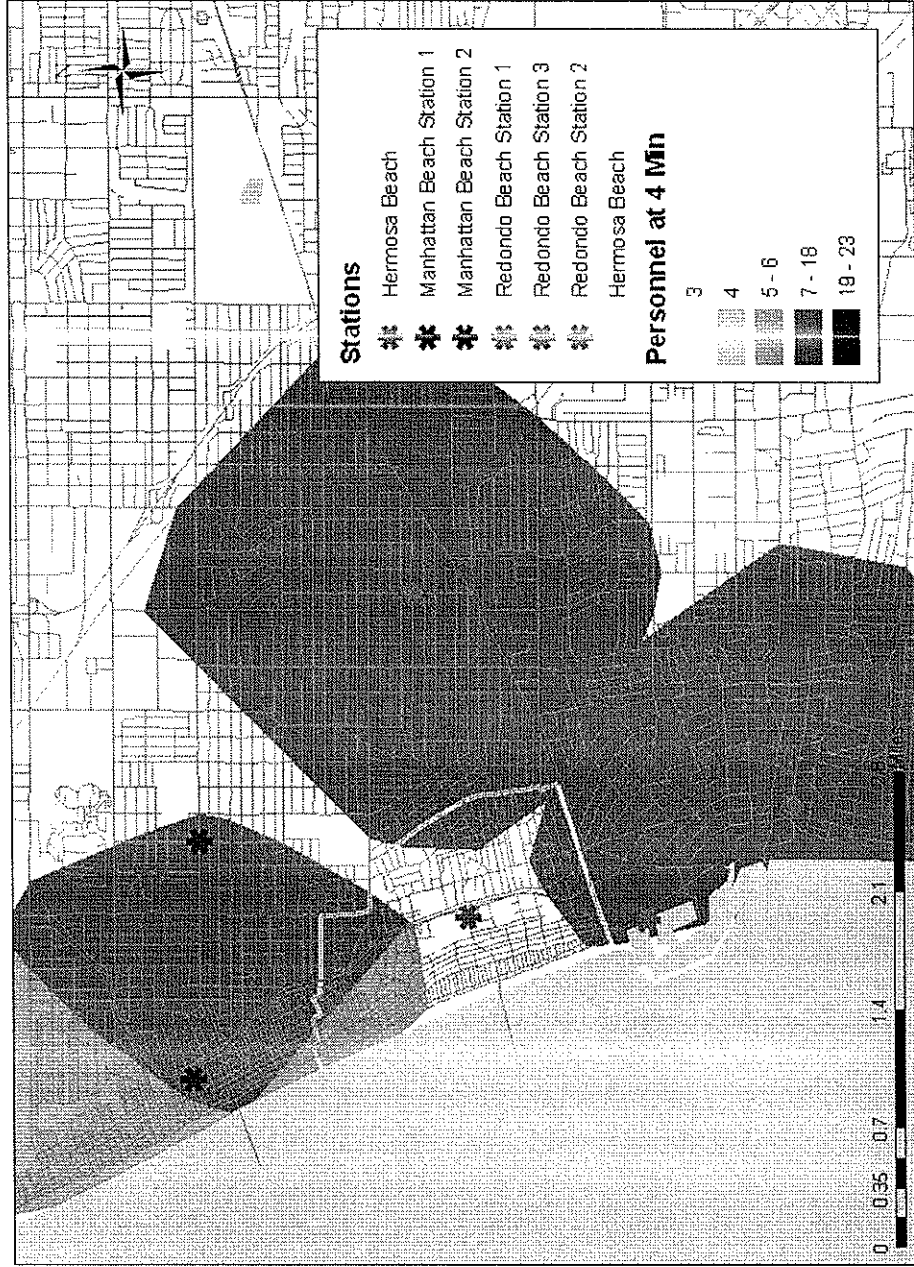
Overall, despite underperforming the 90% structure fire response performance target (by one person), the Hermosa Beach Fire Department is capable of providing a high level of structure fire response coverage to the City utilizing regional resources on an Automatic Aid basis. The next sub-section details the analysis of the need for a fire station within Hermosa Beach given the current response network configuration.

(4) Modeled Performance with the Removal of Hermosa Beach Fire Station from the Response Network.

Given the high level of response that is available within the relatively small geographic area of the City, the project team conducted a feasibility analysis to determine the need of any fire station within the current boundaries of the City of Hermosa Beach.

A GIS model was developed which does not include the current resources provided by the Hermosa Beach Fire Department and utilizing the resources of the cities of Manhattan and Redondo Beach. The map that represents this modeling is found on the following page.

City of Hermosa Beach, California
Potential Responders from Manhattan Beach and Redondo Beach Stations at 4 Minutes



The table, below, provides the baseline data of the impact on response times of removing the Hermosa Beach Fire Station:

**4-Minute Response Time Performance with
The absence of the Hermosa Beach Fire Station**

Staff	Percent of Calls
3 or more	40%
4 or more	36%
8 or more	20%
10 or more	0%
12 or more	0%
Total Calls	100%

The following points highlight the information above:

- In the absence of resources from the Hermosa Beach fire station facility, substantial portions of the City cannot be adequately served, even if all other fire stations in the region are considered (not just those utilized for automatic aid currently).
- Less than 36% of calls would receive a minimum of 4-personnel within a 4-minute response time. This would be non-compliant with the response goals of NFPA 1710 and a significant degradation from current service levels.

Given this level of performance, the project team concludes that it is necessary for the City of Hermosa Beach to maintain a fire station and associated resources within its boundaries. The next section discusses the impact of alternative staffing of units on response time performance.

3. ANALYSIS OF THE CURRENT APPROACH TO LINE STAFFING

The project team next evaluated the Hermosa Beach Fire Department's current approach to staffing line units. During the period of this analysis, the Fire Department had vacancies in up to 6 of its 18 budgeted line positions. This resulted in numerous call backs and force-work situations that made it impossible to evaluate the normal processes for managing overtime and personnel schedules within the Fire Department.

The first subsection, below, describes current staffing of front line fire and EMS apparatus.

(1) Current Approach to Staffing Front Line Units

This subsection discusses the project team's evaluation of current staffing of firefighting and EMS operations staffing. The table below shows the current allocation of positions for each front-line piece of apparatus.

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	3	9	3
Engine 12	0	3	0	3	1
Rescue 11	0	0	6	6	2
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	3	6	9	18	6

As shown above, there are a total of 18 positions within the Firefighting Division of the HBFD (excluding Chief positions). This includes 3 officer positions, 6 Engineer positions, and 9 Firefighter Paramedic positions. This does not include any factor for the impacts of vacation, sick leave, bereavement, training, etc. (i.e., if someone is sick or a position is vacant, it must be filled using overtime).

Typical staffing configurations utilize Engine 11 staffed with 3 people, Engine 12 staffed with 1 person and the Rescue/Medic Unit staffed with 2 personnel. Rescue 12 is staffed with Reserve Firefighter personnel at a BLS level of service. When it is determined that an ALS level of service is not required, Rescue 12 can be utilized to transport the patient to the hospital, leaving paramedic transport capability available in the City.

(2) Utilization of a Single Person Engine Company Is Not an Optimal Utilization of Human Resource Capacity.

As described above, the current deployment of the HBFD utilizes an engine company staffed with a single person. While this provides some advantages of flexibility with respect to crew movement and pumping capacity, it is not consistent with contemporary practices and, in the view of the project team, is not an effective utilization of this resource capacity.

This situation is compounded by the fact that even at full staffing and utilizing Automatic Aid Units, the HBFD cannot deliver a number of personnel consistent with NFPA 1710 staffing goals. The added pumping capacity is of limited value in the absence of the staffing needed to carry out the tasks necessary in conducting fire suppression operations.

With this issue identified, the project team sought to develop the feasibility of alternative staffing strategies. This was done within the context of maintaining or improving service levels, meeting established response goals and minimizing cost impacts where feasible.

4. THE EXISTING STAFFING CONFIGURATION OF THE HBFD DOES NOT MEET THE STRUCTURE FIRE RESPONSE GOALS ARTICULATED IN NFPA 1710 FOR THE RELATIVE HAZARDS FOUND WITHIN THE COMMUNITY

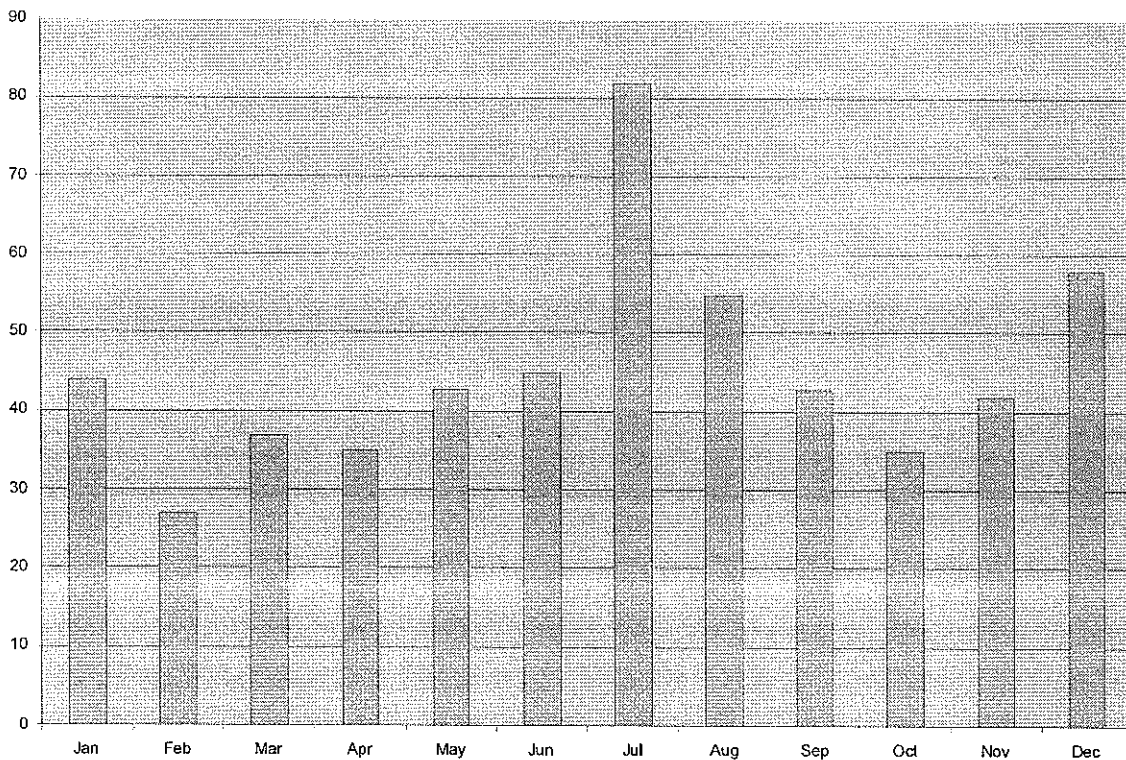
This section presents the project team's analysis of the impact of alternative staffing models based upon the unique needs presented by the City of Hermosa Beach.

(2) The Impacts of Simultaneous Calls for Service.

One of the primary variables that must be considered in the development of a realistic and sustainable response plan is the demands placed upon the response system by simultaneous calls for service. This is an especially critical variable when

dealing with single station jurisdictions as found in Hermosa Beach as a single call often depletes a substantial portion of the on-duty work force, requiring the jurisdiction to either rely in neighboring cities or have a call back system for employees in place. In the socio-economic environment found in Southern California, it is not uncommon for employees of jurisdictions to live in areas which require a substantial commute to work. This is especially true in Southern California beach communities and makes it very difficult to design an effective "call back" system for employees.

The project team conducted an analysis of the simultaneous calls for service experienced by the HBFD. The chart below summarizes the results of this analysis:



The following points highlight the information above:

- Simultaneous calls for service range from a high of 82 in the month of July, to a low of 27 in the month of February. The average for the year is 45.5 on a

monthly basis. If July is removed from the analysis because of its high variability, the average simultaneous calls/month is 42.2.

- The HBFD runs, on average, 1.45 simultaneous calls for service/day.

This is a relatively high demand for simultaneous services and indicates that this is a variable that requires significant consideration in staffing and deployment models recommended.

(2) A Variety of Alternative Staffing Plans Were Considered.

Based upon the analysis of current station location and response goal performance, the project team conducted an analysis of various alternative staffing configurations. The most viable of these options are summarized by the list below:

- Redeployment of existing personnel to a staffing plan that is represented by a 4-Person staffing level on Engine 11 and a 2-Person Staffing level on Rescue 11. Maintaining the Reserve Staffing configuration on Rescue 12.
- Redeployment of existing personnel to 2 Engine Companies staffed with 3 full-time personnel and 1-Reserve Firefighter creating 2, 4-person companies. ALS ambulance services would be contracted. This would require creation of 3 additional officer level positions.
- Redeployment of existing resources in a staffing plan that would create 2 3-Person crews "jump staffing" various apparatus resources as needed.
- Additional Personnel would be hired to staff at a level of 1 4-person crew, and 1 3-person crew which would be flexibly deployed to meet response needs.

The remainder of this section discusses the project team's evaluation of these options.

(3) There Were Two Staffing Scenarios Considered But Not Chosen for Recommendation.

The project team considered the variety of staffing options described in the section above within the framework of the decision matrix developed for this project.

The sub-section which follows discusses two options that were evaluated, but not recommended for implementation.

(3.1) Redeployment of Existing Personnel to a Staffing Plan that Is Represented by a 4-Person Staffing Level on Engine 11 and a 2-Person Staffing Level on Rescue 11. Maintain the Reserve Staffing Configuration on Rescue 12.

This sub-section outlines one of the options identified and evaluated by the project team relative to effective deployment strategies for the HBFD. The first option considered is the simple redeployment of existing resources. This involves shutting down Engine 12 and staffing on a basis of 4-people on Engine 11 and 2-people on Rescue 11. The impacts of this option against the decision matrix adopted for this study is shown by the table that follows:

Alternative Deployment of Existing Resources

Maintain or Enhance Service Levels	Meet Response Performance Goals	Minimize Cost Impacts/Efficiency
		X

As stated earlier, the single person staffing of an engine in a suburban / urban environment is not the optimal utilization of that human resource and also poses a potential safety hazard both during emergency responses and otherwise.

While this staffing scenario would alleviate the challenges presented by a engine company staffed with a single individual, there are several disadvantages which are summarized below. The disadvantages of this model include:

- The City would still not meet the response goals of NFPA 1710 for a full-first alarm assignment including a truck company (i.e., the 15th person is still missing) even when neighboring community resources are considered.
- Additional, on-duty supervision and relevant skills for assuming needed administrative functions would not be achieved.
- Wear and tear on apparatus is not minimized as an Engine is required to respond to all emergency calls for service, compared to alternatives discussed later in this

report that allow for single ambulance responses with a minimum staffing of 3-people.

- If simultaneous multiple calls for service (i.e. Rescue and Engine 11 are committed on a high acuity patient and another call for service is received) the City would be reliant on automatic/mutual aid working in conjunction with its R12 BLS capacity. As stated above, the City of Hermosa Beach has an unusually high volume of simultaneous calls for service.

The advantages of this model are summarized below:

- Cost increases are minimized as no new personnel are required. In fact cost savings can occur as an existing Engineer position can be transitioned to a Firefighter position.
- Service levels are essentially maintained with the flexibility to meet a secondary call for service as long as it does not occur while a primary call still has units committed.

No additional GIS modeling is necessary for this model as the staffing levels remain exactly as they are today. Thus, the current response maps and data presented earlier in this report serve to describe the response performance of this deployment scheme. The staffing and deployment of this alternative is summarized by the tables that follow:

Current Staffing Configuration

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	3	9	3
Engine 12	0	3	0	3	1
Rescue 11	0	0	6	6	2
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	3	6	9	18	6

Alternative Staffing Configuration (Existing Resources Option 1)

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	6	12	4
Engine 12	0	0	0	0	2
Rescue 11	0	0	6	6	
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	3	3	12	18	6

The table above reflects the deployment of existing personnel in the form of a 4-Person company and a 2-Person Medic Rescue unit. The project team next evaluated the cost/saving impacts associated with this staffing plan. This staffing plan assumes:

- Conversion of three Engineer positions (Currently on Engine 12) into Firefighter positions.
- Shortages or vacancies will be covered by overtime as is the current practice.
- Top-Step Engineer and Top-Step Firefighter salary ranges are utilized.

Based on the above, the following costs are expected under the first alternative staffing plan:

**Cost Impacts of Transitioning to 4-Person/2-Person
Alternative Staffing Plan Using Existing Staff Resources**

Position	# Positions	Current	Top-Step Salary	Benefits	Total Cost
Firefighter	3	0	\$63,636	\$35,636	\$297,816
Engineer	0	3	\$76,128	\$42,631	(\$356,278)
Total					(\$58,462)

As shown, above, the annualized net cost savings of implementing this staffing and deployment model would be approximately \$58,462. Based upon the fact that this level of staffing does not allow the HBFD to meet response goals of NFPA 1710 and the option does not fully address the challenges created by the simultaneous call for service demand, the project team does not believe this provides a viable option for the City of Hermosa Beach or the Fire Department.

(3.2) Redeployment of Existing Personnel to Two Engine Companies Staffed with Three Fulltime Personnel and One Reserve Firefighter To Creating Two 4-person Companies.

This section outlines an additional staffing option identified and evaluated by the project team. This option utilizes the current Reserve Program to provide for 4-person staffing on Engine 11 and Engine 12. This would necessitate the commitment of the existing staff on Rescue 12 to the staffing of engine apparatus. The impacts of this option against the decision matrix adopted for this study is shown by the table that follows:

Alternative Deployment of Existing Resources

Maintain or Enhance Service Levels	Meet Response Performance Goals	Minimize Cost Impacts/Efficiency
	X	

While this staffing scenario would alleviate the challenges presented by an engine company staffed with a single Firefighter, while providing staffing consistent with recognized standards, the fiscal impact created by the absence of the HBFD current transport capability is significant. As discussed in the EMS Transport Revenue analysis later in this report, transport revenue represents approximately \$471,500 in revenue to the City. The City would become reliant on other, neighboring jurisdictions or a private contract service to provide emergency ambulances services. Given the total revenue available it would be financially improbable that a private company would be able to dedicate an ambulance to service in the Hermosa Beach corporate limits, therefore response times would also be negatively impacted in comparison to those now experienced. The advantages and disadvantages of this staffing scenario are summarized below:

The disadvantages of this model include:

- The City would lose substantial revenue opportunities from the ambulance transport program (i.e. approximately \$471,500/year).
- Wear and tear on apparatus is not minimized as an Engine is required to respond to all emergency calls for service, compared to alternatives discussed below that allow for single ambulance responses with a minimum staffing of 3-people.
- The City would be reliant on a contract for services in an environment that would not financially support either a full time ALS unit or a full-time BLS unit.
- Expansion of current reserve program would be necessary to continue to operate R-12 capacity while staffing on engines would most likely require additional staffing resources for program management.

The advantages of this model are summarized below:

- Additional officer positions would provide supplemental resources for more effective management of functional areas of responsibility and more effective fire ground supervision.
- Response goals consistent with NFPA 1710 are met.
- The City can provide essentially reciprocal levels of automatic aid response while maintaining fire suppression resources within the City.
- Provides additional promotional opportunities within the HBFD

The staffing and deployment of this alternative is summarized by the tables that follow:

Current Staffing Configuration

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	3	9	3
Engine 12	0	3	0	3	1
Rescue 11	0	0	6	6	2
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	3	6	9	18	6

Alternative Staffing Configuration
Reserve Staffing to 4-Person Companies
Using Current Fulltime Staff Resources

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	3 / 3 Reserve	9	3
Engine 12	3	3	3 / 3 Reserve	9	3
Rescue 11	0	0	0	0	0
Rescue 12	0	0	0	0	0
TOTALS	6	6	6 / 6 Reserve	18	6

The table above reflects the deployment of existing personnel in the form of 2-Engine Companies staffed with 3-Full-time firefighters (Captain, Engineer and Firefighter positions) and a single Reserve Firefighter constituting 4-Person companies. The project team next evaluated the cost/saving impacts associated with this alternative staffing plan. This staffing plan assumes:

- The City utilizes the existing Captain position as the second officer. However, City may choose to create a Lieutenant position between Engineer and Captain. This would differentiate shift/station management responsibilities (Captain) from company supervision (Lieutenant) and provide for some, marginal, cost savings.
- Shortages or vacancies will be covered by overtime.
- Top-Step Firefighter to Bottom-step Captain salaries are used for all calculations.

The City of Hermosa Beach finance staff estimates that the fiscal impact of converting three positions to Captain would total \$161,086 (this includes promoting three personnel from Engineer to Captain and three personnel from Firefighter to Engineer). In addition to this however, the City must assume revenue losses of approximately \$471,500 in transport revenue as the capacity to staff ambulances would no longer exist. Therefore, the total, first year cost of this alternative would be \$632,586. This cost would escalate on an annual basis.

Based primarily upon the substantial total cost of this opportunity, the project team does not feel that it is an appropriate recommendation for implementation.

(4) There Are Two Practical Alternatives to the Existing Staffing Plan.

The Matrix Consulting Group identified two practical alternatives for consideration. These include the following:

- **Option 1:** Redeploy the existing personnel from the current 3 / 1 / 2 configuration to a 3 / 3 configuration using both engine companies. EMS response would be handled by a 3-person crew leaving their engine at the station to take one of the ambulances out. This would require converting a firefighter position to Captain (or Lieutenant). Most responses would be handled by a single crew – preserving another 3-person response for initially responding to fires and / or to respond to EMS calls. Since this does not add any personnel to the system, the HBFD would still not be able to deliver (with mutual aid) 15 personnel as the initial response to a structure fire.
- **Option 2:** Redeploy existing personnel and add one more fire officer. This would provide for the ability to staff a 4-person engine and a 3-person engine. This additional staff person would go towards the HBFD's ability (with mutual aid) to deliver 15 firefighters to the scene of a structure fire within eight minutes of drive time to more than 90% of calls in the City. As in the prior scenario, staff would jump-staff the most appropriate piece of apparatus for the call –engine or ambulance.

The next sub-section describes and discussed the first of these alternatives.

(4.1) The First Alternative Requires no Additional Personnel.

This section outlines options identified by the project team relative to effective deployment strategies for the HBFD. The first option considered is the simple redeployment of existing resources. The impacts of this option against the decision matrix adopted for this study is shown by the table that follows:

Alternative Deployment of Existing Resources

Maintain or Enhance Service Levels	Meet Response Performance Goals	Minimize Cost Impacts/Efficiency
X		X

As stated earlier, the single person staffing of an engine in a suburban / urban environment is not the optimal utilization of that human resource and also poses a potential safety hazard both during emergency responses and otherwise.

The project team believes that a more effective deployment scheme would involve the utilization of the existing 6-personnel on duty to form 2, 3-person companies that can be utilized to cross- staff the variety of units available to them to respond as appropriate. This would require the creation of 3-officer level positions from the existing ranks so that each "company" would have an officer supervising the on-duty work crew. In the event of a medical aid, 3-Personnel would respond utilizing R11, leaving 3-Personnel (with supervision) to staff E11 for a secondary call. When combined with the availability of the reserve staffed R12, a full-secondary capability exists within the City. In the event of a fire, both crews could respond on E11 and E12 respectively, providing 2-staffed engines immediately upon the fire ground.

The advantages of this model are summarized below:

- Costs are minimized while supervision levels are enhanced.
- Wear and tear on apparatus is minimized and the ambulance can respond alone on all except the most critical of cases (i.e. approximately 5% of call volume) since crews would be jump-staffing to the most appropriate unit type for each call.
- Promotional opportunities are created in a small workforce.
- A high degree of flexibility is maintained for variable responses throughout Hermosa Beach.
- Cost increases are minimized as no new personnel are required.

The disadvantages of this model include:

- The City would still not meet the response goals of NFPA 1710 for a full-first alarm assignment including a truck company (i.e., the 15th person is still missing).
- The City would not meet the four-minute response criteria in the majority of instances by virtue of the fact that the responding EMS unit is staffed with 3-personnel. This might require either the presence of the reserves or the second 3-person unit at least initially on many calls.

No additional GIS modeling is necessary for this model as the staffing levels remain exactly as they are today. Thus, the current response maps and data presented earlier in this report serve to describe the response performance of this deployment scheme. The staffing and deployment of this alternative is summarized by the tables that follow:

Current Staffing Configuration

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	3	9	3
Engine 12	0	3	0	3	1
Rescue 11	0	0	6	6	2
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	3	6	9	18	6

Alternative Staffing Configuration (Existing Resources)

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	3	9	3
Engine 12	3	3	3	9	3
Rescue 11					
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	6	6	6	18	6

The table above reflects the deployment of existing personnel in the form of 2, 3-person companies that can be utilized on any appropriate unit. The project team next

evaluated the cost impacts associated with this alternative staffing plan. This staffing plan:

- Creates three new Fire Officer Positions.
- Assumes that the City utilizes the existing Captain position as the second officer. However, City may choose to create a Lieutenant position between Engineer and Captain. This would differentiate shift/station management responsibilities (Captain) from company supervision (Lieutenant) and provide for some, marginal, cost savings.
- Shortages or vacancies will be covered by overtime.
- Top-Step Firefighter to Bottom-step Captain salaries are used for all calculations.

As noted previously, the finance staff of the City of Hermosa Beach has estimated the cost of this conversion of three new Captain positions to be \$161,086 (this includes converting three Engineers to Captain and three Firefighters to Engineer).

(4.2) Impact of Alternative Staffing to Response Capabilities

This sub-section outlines options identified by the project team relative alternative staffing scenarios and their effectiveness in meeting the addition of one (1) person to the on-duty staffing of the HBFD. The impacts of this option against the decision matrix adopted for this study is shown by the table below:

Alternative Deployment with Existing Resources

Maintain or Enhance Service Levels	Meet Response Performance Goals	Minimize Cost Impacts/Efficiency
X	X	X

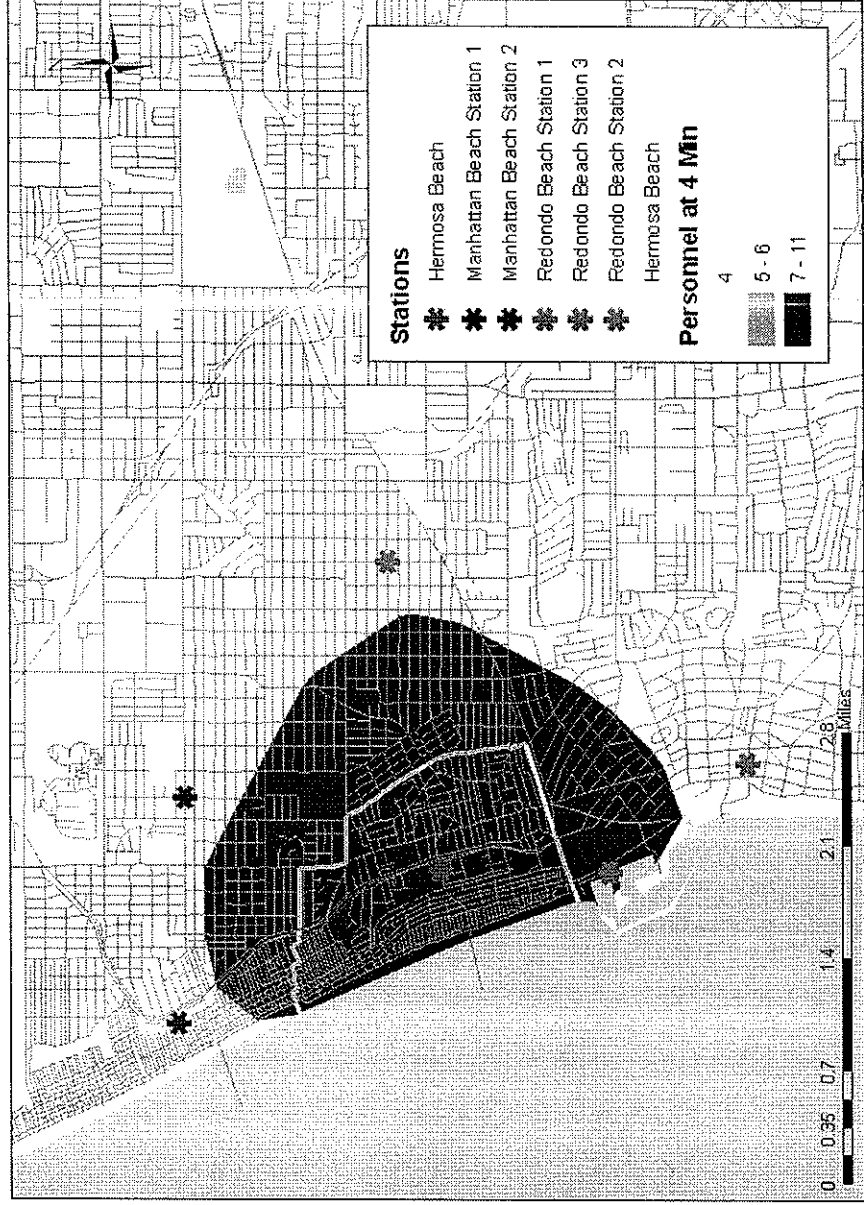
This option creates the addition of 1-additional firefighter/shift. The practical result of this would be the creation of a second officer (Captain) position on each shift and a total of 7-personnel/day on-duty staffing.

This alternative was evaluated for several reasons including:

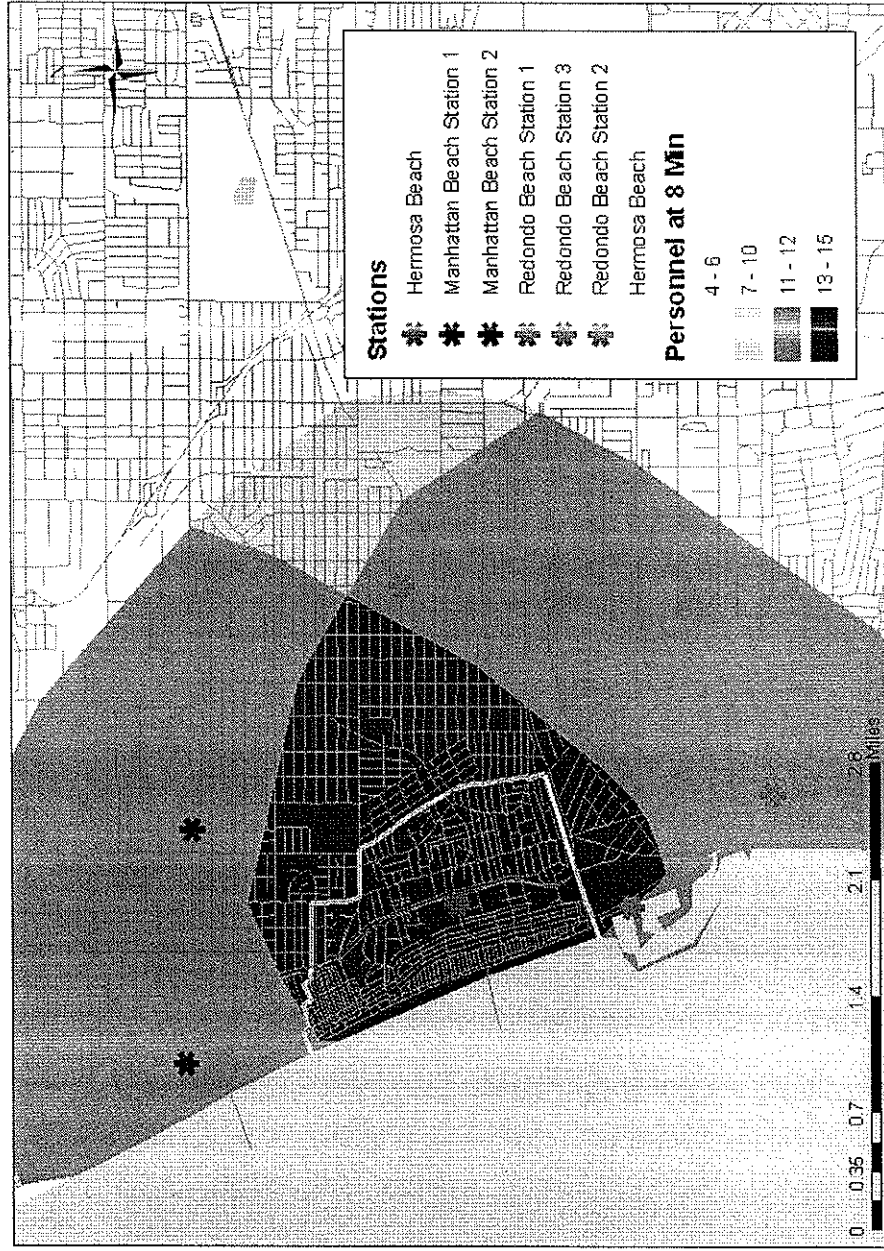
- As shown in the previous section, the current level of staffing is unable to deliver 15 personnel within 8-minutes response time to structure fires.
- The current practice of staffing an Engine company with 1 person is not considered a good use of this resource.
- The system requires substantial redundancy to meet the demands created by the relatively high occurrence of simultaneous calls for service.
- All of the decision criteria appear to be met by this option at a relatively minimal cost.

Utilizing the same methodology identified in the previous section, the project team generated GIS maps which illustrate the response capabilities under the modified system. The maps that follow show four minute initial response capabilities and eight minute structure fire response capabilities under the proposed system:

City of Hermosa Beach, California
Potential Mutual Aid Responders and Hermosa Beach Station with 7 Personnel at 4 Minutes



City of Hermosa Beach, California
Potential Mutual Aid Responders and Hermosa Beach Station with 7 Personnel at 8 Minutes



Once again, statistics were generated for each analysis to describe the response capabilities under the alternative staffing configuration. The first table, below, shows the number of calls projected to be reached within four (4) minutes or drive time, by unit overlap:

Alternative: 7-Person Minimum Staffing
Percentage of Calls with Personnel Arriving within 4-Minutes

Staff	Percent of Calls
3 or more	100%
4 or more	100%
8 or more	29%
10 or more	29%
12 or more	0%
Total Calls	100%

The following points highlight the information above:

- As with the current system, the Fire Department can be expected to respond to all calls for service within a 4-minute travel time with this increased level of staffing.
- The primary advantage of this staffing model occurs when there is the need to meet the demands of simultaneous calls for service.

In summary, under the alternative staffing arrangement, performance on the four minute initial response target does not change. The next table provides statistics on response performance against the eight (8) minute structure fire response target:

7-Person Minimum Staffing
Percentage of Calls with Personnel Arriving within 8-Minutes

Staff	Percent of Calls
Less than 15	1%
15 personnel	99%
Total	100%

As shown above, approximately 99% of all calls for service are projected to receive a full structure fire response within eight (8) minutes of drive time. Response

capabilities now reflect an ability to meet NFPA 1710 response goals given the first alarm response criteria of the HBFD throughout the entire City of Hermosa Beach.

This method of staffing also presents the Department with the opportunity to deploy an alternative staffing model that can be contrasted and compared by the table below:

Current Staffing Configuration

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	3	9	3
Engine 12	0	3	0	3	1
Rescue 11	0	0	6	6	2
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	3	6	9	18	6

Alternative Staffing Configuration

Unit	Officer Positions	Engineer Positions	FF Positions	Total Positions	Daily Minimum
Engine 11	3	3	6	12	4
Engine 12	3	3	3	9	3
Rescue 11	0	0			
Rescue 12	0	0	2 Reserve FF	0	0
TOTALS	6	6	9	21	7

This reflects a method of deployment where the HBFD would staff Engine 11 with 4-personnel on an on-going basis. Rescue 11 and Engine 11 would be cross staffed as a stand-alone company with an officer, engineer and firefighter. The advantages of this model are summarized below:

- Rescue 11 could operate as a stand alone unit approximately 90% - 95% of the time. This would result in a full, 4-person company still available to respond to second calls either on an engine, in another ambulance unit, on in conjunction with R12 when staffed. This would reduce wear on fire apparatus.
- The staffing configuration of the second company would be consistent with the response goals of NFPA 1710 with an officer supervising that company. This would be especially useful during firefighting and rescue operations.

- The Fire Department would achieve a smaller and more realistic span of control during day to day operations.
- The City would receive a full first alarm assignment consistent with the response goals of NFPA 1710.
- The proposed model would provide promotional opportunities that are not common in small Departments such as Hermosa Beach.

The following section describes the fiscal impact of this alternative in the City of Hermosa Beach. The project team next evaluated the cost impacts associated with the alternative staffing plan. This staffing plan:

- Creates three new Fire Officer Positions.
- Assumes that the City utilizes the existing Captain position as the second officer. However, City may choose to create a Lieutenant position between Engineer and Captain. This would differentiate shift/station management responsibilities (Captain) from company supervision (Lieutenant) and provide for some, marginal, cost savings.
- Shortages or vacancies will be covered by overtime.
- Mid-step salaries are used for all calculations.

The finance staff of the City of Hermosa Beach have estimated the cost of this approach to be as follows:

- \$161,086 to convert three new Captain positions (includes cost of promotions to both Captain for three and Engineer for three).
- \$344,710 to provide for three new Firefighters.
- The total cost estimated by City staff is \$505,796.

Given that this model meets all of the decision criteria and provides the flexibility consistent with the alternative staff plan utilizing existing resources, the project team believes that this expense is justified.

Recommendation: The City of Hermosa Beach should increase minimum staffing to 7 people deployed in a 4-person company and a 3-person company. This will

require the creation of 3 additional Officer positions within the Fire Department at an annual cost of approximately \$505,796. This would also require the promotion of three Firefighters to Engineer.

7. THE EXISTING RESERVE PROGRAM COULD BE EXPANDED TO PROVIDE ADDITIONAL SUPPORT TO FIREFIGHTING AND RESCUE OPERATIONS.

The HBFD currently utilizes a "Reserve Firefighter" program to augment full time staffing. The Reserve program provides the community with augmented service capability while the program offers well-qualified pre-employment firefighter candidates obtain the necessary experience, education, and training needed to prepare themselves for a full-time career in the fire service. The Department seeks to staff the reserve program with a minimum of two reserves per day. The primary role of the Reserve Firefighter is to staff the Basic Life Support Ambulance in the response system.

(1) Utilization of Reserve Firefighters

Reserve firefighters work one 24-hour shift per week, under the direction of the Reserve Coordinator and the on duty Captain. Reserves that are assigned to the BLS Rescue, respond on all calls and assist full-time personnel. During a emergency medical aid, reserves may assist by performing such tasks as: taking vital signs, assisting with CPR, giving the patient oxygen, etc. These basic medical tasks allow the full-time Paramedics to increase the level of "Advanced Life Support "care. If the medical aid is "Basic Life Support", and the patient needs to be taken to the hospital, the reserves assigned to the BLS ambulance, will transport the patient and provide EMT care if needed. This allows the ALS rescue (full-time paramedics) to be immediately available in the event that the next call for service is an "Advanced Life Support" emergency. Other duties include: Assisting with fire ground operations, cleaning and maintaining the station and equipment, participate in training drills, observing and

assisting full-time personnel with fire inspections, assisting with fire education and station tours.

On a national level, reserve and/or volunteer firefighters make up about 80% of the total universe of firefighters today. Volunteer/Reserve/Part-Paid programs are much more common in suburban and rural environments than in metropolitan areas. However, it is not uncommon to see reserve programs similar to that in Hermosa Beach. In fact, the City of Del Mar in San Diego County, utilizes a reserve program to maintain minimum staffing levels on its engine company.

(2) Current Minimum Requirements for Reserve Program

The following summarizes the current requirement of candidates for the Reserve Firefighter Program:

- Class "C" California drivers license.
- High School Diploma or equivalent.
- California State Fire Marshal Approved Firefighter I Academy Certification.
- E.M.T. 1A certification or higher.
- CPR Card (Health Care Provider Card).
- Completion and proof of either the "L.A. / O.C. Chiefs' Physical Abilities Test", or the "Candidate Physical Ability Test" (required within one year of appointment).
- CA Ambulance drivers license.
- CA DMV driving record print out (within 30 days of appointment).
- Ability to work one 24 hour shift per week.

A review and comparison of these requirements reveals that they are comprehensive and consistent with, or exceed, standards established throughout the State of California for Reserve or Part-Paid programs. Particularly noteworthy are the

entry level requirements to have completed Firefighter I Certification and achieve certification of physical ability.

(3) Current Impacts of the Reserve Program

The current program provides an additional staffing level of approximately 2 people per day. It provides the capacity necessary to run the BLS transport program within the City of Hermosa Beach which provides more ready availability of the ALS resources. Additionally, it is important to note that the availability of the Reserve Firefighters does have an impact on ISO evaluations. Credit is given for additional staffing on both the first due engine (E11) and the second due engine (E12) in the most recent ISO grading.

Training and program coordination also presents an impact on the current organization. Program Coordination is currently the responsibility of a line Fire Captain. This presents the same challenges identified for the majority of functional areas managed from a shift based supervisor.

The Department has been very conservative in the utilization of the Reserve Firefighter personnel. This is owing to a variety of factors including concerns regarding liability, training levels, and potential of displacement of full-time positions. As a result, the Reserve Firefighters are currently utilized on EMS calls (in the BLS transport and support capacity) and in exterior support operations on the fireground.

(4) Examination of Potential Transition of the Reserve Program into an Ambulance Operator Program.

The City has requested an evaluation of the potential of transitioning the existing Reserve Firefighter Program to an Ambulance Operator Program. The fundamental difference between the two programs involves the utilization of personnel. In the current configuration, Firefighter candidates are offered on the job training and experience necessary to obtain State of California Firefighter I Certification.

In the Ambulance Operator program, personnel would be utilized in the single function of providing BLS level ambulance transportation services. This program could be staffed with personnel selected and trained by HBFD or could be contracted through a private firm. The project team considered this program within the framework of the decision matrix utilized for the various considerations in this project. The table below summarizes the impacts of these proposed changes on the various elements of that matrix:

Alternative to Reserve Firefighter Deployment (Ambulance Operator Program)

Maintain or Enhance Service Levels	Meet Response Performance Goals	Minimize Cost Impacts/Efficiency

As can be seen from the table above, a change from the existing Reserve Firefighter Program to an Ambulance Operator Program does not offer the City any substantial benefits within the context of the evaluation matrix.

- Service levels would not be enhanced as the program would be maintained but would result in either continuation of an on-going training and certification program or contract expenses for personnel not currently experienced. The inability to utilize Reserve Firefighter personnel in either suppression or support roles would constitute a reduction in current levels.
- Response goals would not be further enhanced as additional personnel/staffing levels would not be achieved.

- Costs would not be reduced as current costs would continue or additional costs would be borne by contracting for ambulance operations personnel. There would not be additional revenue generation opportunities unless the City made the ambulance resource available for interfacility medical transports.

Advantages of this approach would be a reduction in the amount of effort required in the training and coordination of the Reserve Firefighters. However, this is countered by the ability to utilize the marginal labor benefits enjoyed by the presence of these essentially entry level firefighters.

The project team does not believe that the transition of the existing Reserve Firefighter Program to an Ambulance Operator Program would provide the City with any additional benefits not currently realized by the present Reserve Firefighter Program.

(5) Review of Operations and Discussion of Alternatives

The current Reserve Program offers a unique opportunity for the City to achieve augmented levels of service at minimal cost. Additionally, it provides the opportunity to train and evaluate potential future full-time employees of the City and/or neighboring jurisdictions. Given the high standards for entry, the project team believes that this is a valuable program that could provide enhanced value to the City.

The project team considered several options for expanded roles for the Reserve Program. These included:

- Fire Prevention Inspection Responsibilities
- Additional administrative/front office support
- Community Hazard Mitigation/Enforcement
- Additional Fire Suppression Responsibilities/Supplemental Staffing

These options were considered against a decision matrix which evaluated current capacity of the organization to train, organizational capacity to manage, needed maturity levels relative to likely reserve firefighter candidates, needed skill levels and relative risk. The table below represents the results of this analysis:

Decision Matrix – Potential for Reserve Expanded Tasking

Tasking	Ability to Train	Ability to Manage	Maturity/Experience	Needed Skills	Relative Risk
Fire Prevention Inspections	X	X			
Administrative Support	X	X	X		X
Community Enforcement					
Fire Suppression Supp. Staffing	X	X	X	X	X

The analysis summarized by the table above, indicates that the greatest “fit” between the existing capacity and competencies of the organization and the attributes of the Reserve employees themselves will be in enhanced supplemental staffing and enhanced administrative support. In as much as Reserves already accompany full-time crews on inspections and fire inspection practices are part of the continuing education curriculum, this is a potential, but lower priority opportunity. Additionally, in some instances, effective inspection practices require a degree of conceptualization and sophistication that would not normally expected to be found in entry level employees. As such, minimally supervised inspection practices are not recommended at this time.

- **Administrative Support** – As reported in earlier sections of this report, the administrative staff of the Department is minimal. In the absence of the administrative assistant, the front office is, at times, left unattended. Additionally, Shift Captains spend substantial parts of their day in filing and record keeping (report writing) activities. These functions could obviously be supported by reserve firefighter employees who would, in turn, receive a broader

understanding of the complexities involved in managing a fire service organization.

- **Supplemental Staffing** - The presence of on-duty Reserve Firefighters presents an opportunity to further supplement the response capabilities of the HBFD. Currently reserve firefighters are utilized primarily to staff and operate R12 (the BLS ambulance in the City). This is a good utilization of their skills and capacities and should be continued. However, in the proposed staffing model recommended above, the Department will have, essentially, 3-work groups: A 4-Person Company, a 3-Person Company and a 2-Person Reserve Company staffing R12. The Reserve Firefighter program could evolve into a model where a 4th person is added to the existing 3-person company and that position becomes a dedicated Reserve position. If this were to occur the following the position would be required to have additional standards. These would include:
 - A minimum of 1,100 hours of field experience (Firefighter I Certification).
 - Completion of physical ability certification.
 - Satisfactory completion of additional oral board.
 - Satisfactory progress reports over the initial year of service.

This position would provide for additional professional growth opportunities for the program while providing the Department with an enhanced staffing model and attendant flexibility in response. This could be accomplished within the current training framework and as such, would have minimal financial impact on the organization.

Recommendation: The HBFD should expand the current Reserve Program to include the ability of its members to provide administrative support and create the opportunity to provide the 4th person staffing on the second work team recommended in this report. The BLS transport capacity should be maintain and where possible, expanded to ensure 24-hour/day – 7/day week coverage with the BLS transport capability.

4. REVENUE ANALYSIS OF THE AMBULANCE TRANSPORT SERVICE OF THE CITY OF HERMOSA BEACH

This section of the Hermosa Beach Staffing Study deals with the project team's assessment of the revenue associated with ambulance transport services. To conduct this assessment, the project team obtained actual revenue received as well as comprehensive billing material. Interviews were conducted with financial staff of the City and personnel from the Whitman Group who are the contractors for billing services for the City.

(1) Impacts of Changes to the Transport Services from a Revenue Perspective

The City made substantial changes to its billing practices effective September 1, 2005. These included an increase in ambulance transport user fees/rates and a contract for the billing function to an outside EMS/Medical Billing Service. The table below summarizes the trend in revenue to the City from ambulance transport services:

Ambulance Transport Revenue

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
Total Net Revenue	\$142,164	\$171,069	\$211,703	\$304,405	\$471,468
Billing Costs				\$15,048	\$30,329
Net Revenue				\$289,357	\$441,139

There are multiple variables at work in the revenue experienced by the City of Hermosa Beach. Primary among these variables are rates and rate increases, the impact of Cost of Living escalation, call volume increases and effectiveness of the billing and collection functions. For purposes of analysis it is not necessarily relevant which of these variables contribute to the overall change in revenues. A straight line projection

of the overall growth rate in revenue between FY2002 and FY2004 would yield an average growth in revenue of approximately 22%/year. The table below illustrates the straight-line trend projection of this rate of growth absent the changes implemented in the reorganization of the program in 2005:

Straight-Line Revenue Projections from 2002 Base (No Re-org)

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
Total Net Revenue	\$142,164	\$171,069	\$211,703	\$258,278	\$ 315,099

The table above reflects a model that suggests that ambulance transport revenue could be expected to rise to a level of \$315,099 in FY 2006 in the absence of other changes. Given that in FY 2006 the actual revenue received was \$471,468, there is approximately \$156,000 in annual revenue that can be associated with changes affected upon either the billing practices or operational policies of the ambulance transport program in September, 2005.

(2) There Are Opportunities to Increase Revenues Through Changes in Billing Practices

There are several different levels at which Medicare can be billed for ambulance services. The two categories of primary relevance to the City of Hermosa Beach are ALS-Emergency (Advanced Life Support) and BLS-Emergency (Basic Life Support). The table below summarizes the current billing practices for the HBFD transport program as they relate to these billing categories for calendar year 2006:

Summary of Charges 2006

	Total Bills	Charges
ALS Emergency	350	\$275,027
BLS Emergency	572	\$448,103

As can be seen from the data above, 61% of the charges being generated by the current system are BLS-Emergency. The table below summarizes the current Medicare rates in the Hermosa Beach area for these respective charges:

Medicare Approved Rates

	Medicare Rate
ALS-E	\$450
BLS-E	\$379

Medicare allows ambulance transport companies to bill at ALS Emergency Rates under certain circumstances, many of which are met by the system design of the Hermosa Beach Fire Department. With proper documentation of patient evaluation, calls may be billed at ALS-Emergency rates if calls are appropriately dispatched as ALS level calls (i.e. a paramedic is dispatched for evaluation and treatment).

In discussions with Fire Department and billing personnel, the primary reason for such a substantial level of BLS level billing in Hermosa Beach is because of the absence of proper documentation and understanding of the limitations of such a system. While it is impossible to determine the exact extent of the additional revenue that could be generated, there is clearly significant opportunity for improving the revenue from this program without additional rate increases by merely taking advantage of current opportunities to bill more calls at the ALS-Emergency rate.

Recommendation: The City should work with its billing contractor to establish the needed policies, procedures and protocols to meet the requirements for ALS billing on a higher percentage of calls for service. The billing contractor is incentivized to assist the City in maximizing City revenue because such action will also maximize the contractor's revenue.

5. ANALYSIS OF THE TRAINING FUNCTION OF THE DEPARTMENT

This section of the Hermosa Beach Staffing Study deals with the project teams assessment of the Training Function. To conduct this assessment, the project team obtained training plans and documents, training reports showing personnel hours utilized for training, as well as conducting interviews with various personnel.

1. THE PROJECT TEAM UTILIZED A COMPARISON OF HBFD TRAINING FUNCTIONS WITH A LIST OF BEST MANAGEMENT PRACTICES IDENTIFIED FOR THE CONTEMPORARY FIRE SERVICE.

Any evaluation of program activities must have established guidelines and benchmarks to make the evaluation meaningful. In an effort to provide a context for the project teams observations and analysis, the Training efforts of the Hermosa Beach Fire Department were compared with Best Management Practices identified through our work throughout the Country. A summary of the project teams observations and analysis is contained in the table that follows:

Performance Target	Strengths	Potential Improvements
Annual training schedule clearly outlining training expectations by subject and hours devoted to each. Documented performance standards to be met by response personnel by position and type of unit to provide a basis for company training and proficiency assessment.	The Training Officer develops monthly training plans consisting of multi-company Continuing Professional Training, special team training, Company Monthly School, and individual training requirements for firefighters in Field Training. The Training Officer has proficiency standards for company-level training.	Company officers are responsible for reporting training hours for personnel There is not a method of evaluation implemented to assess effectiveness of training

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Performance Target	Strengths	Potential Improvements
Central monitoring of actual training provided and completed by companies to include centrally maintained training records to document training provided and completed by all staff.	<p>Training records are automated and reports/queries can be generated</p> <p>The Training Officer maintains records of all outside training approved/attended.</p>	There is no central review of training proficiency or the effectiveness of training across shifts.
The Department maintains and supports an integrated program of leadership development that includes supervisory training, leadership and management skills and expectations and a mentoring program		<p>There is no current officer development program in the Department.</p> <p>No mentoring program exists.</p> <p>Professional Development is reliant on external schools and personal initiative.</p>
Multi-company training drills and proficiency testing in fire ground skills.	Multi-company drills are scheduled on an annual basis consistent with ISO guidelines	Training Grounds are difficult to access and adequate space for regional, multi-company drills is difficult to locate and utilize.
<p>Sufficient dedicated staff to develop, distribute, and ensure compliance with annual (or more frequent) master training schedule. Also, central maintenance/monitoring of training records.</p> <p>Provision of training videos and other self-teaching materials for use in station level training.</p>		<p>Shift Captains are responsible for implementing training from schedule.</p> <p>No evidence of Computer Based Training (CBT) or extensive use of videos noted.</p>
The availability of a training facility which enables training in a wide range of hazards and scenarios. The ability to conduct live-fire exercises. Capacity for multiple class-room training evolutions. Sufficient parking for multi-company training.		Closest regional training facility requires relatively extensive travel and backfilling of personnel.
The effectiveness of training is measured, evaluated and reported on in a systematic manner.	Records are currently maintained for most centrally scheduled training. A robust Fire RMS system exists with capability of tracking fire training activities.	There is no universal review of training or an evaluation of the effectiveness of training delivered.

The sections that follow discuss the project teams findings with respect to the operations of the training function in the HBFD:

2. THE TRAINING FUNCTION IS THE RESPONSIBILITY OF A LINE CAPTAIN WITH SHIFT SUPERVISION RESPONSIBILITIES

Under the current plan of organization, the training responsibilities fall under a shift Fire Captain who is designated the functional tasks associated with management of the training function.

Because of this plan of organization, there is minimal cross-shift oversight or quality control of the training activities. This structure also makes it difficult to provide quality improvement efforts as the training function is managed on a peer-to-peer basis in an organization that is otherwise subject to command and control methods. As noted in the Best Management Practices, a centralized approach to evaluation and quality improvement is needed in the training function.

These findings are consistent with the recommendations of the this study that the Assistant Fire Chief position be immediately filled with a focus on implementing training and safety programs and activities.

Recommendation: The City of Hermosa Beach should immediately fill the Assistant Fire Chief position with a focus on training and safety skills, knowledge and abilities. This is an existing, budgeted position, so there will be no fiscal impact from implementing this recommendation.

3. THE CITY RELIES ON EXTERNAL SCHOOLS FOR CRITICAL FUNCTIONS SUCH AS LEADERSHIP DEVELOPMENT.

The Fire Department currently does not provide leadership development opportunities within its ranks and on an on-duty basis. Additionally, continuing education in mandated areas such as respiratory protection, blood borne pathogens, and hearing conservation are required on an annual or semi-annual basis. The current staffing configuration (compounded by multiple long term absences) have made it very difficult for personnel to attend professional development opportunities.

Leadership and supervisory development are critical issues in a labor intensive area such as community fire protection and should be a priority investment. Multiple sources within the Fire Department communicated an uneasiness with the current state of training, certification and management of the mandated programs noted above. These are critical issues which the project team feels can begin to be addressed by the focus of a Chief Office position as already recommended in this report.

4. BASED ON TRAINING REPORTS FOR 2006 IT APPEARS THAT HBFD STAFF ARE MEETING TRAINING TARGETS SPECIFIED BY ISO

The project team collected summary training reports for HBFD personnel, for CY 2006. These reports shows, by individual, the total number of training hours completed for company level training, multi-company training, etc. The following table summarizes the number of training hours received, as reported in these reports, which includes training for full time personnel only:

	Total	Avg./Day/Person	Target	Variance
2006 Training Hours for all HBFD Sworn Personnel	7,137	3.26	2.0	+1.26 hrs/day

As shown above, the average number of training hours HBFD personnel engaged in per day was 3.26.. This equates to 2,757 more hours than the objective of 2 hours/person/day for training hours on average.

As previously shown, the line personnel in the HBFD are engaged in a high number of training hours on a shift by shift basis, which has resulted in training hours objectives being met. However, there still remains the issue of quality assurance and evaluation of the effectiveness of this training. There are two primary management issues that may relate to this and can be summarized by the following:

- Training hours are adequately recorded because it is the presence of the training-hour rather than the quality of the training that is evaluated.
- Individual and company-level training is not being conducted on a consistent, regular and formalized basis.
- There is no formal feedback mechanism to identify training needs based upon actual emergency scene experience or "lessons learned" from sentinel events occurring in other jurisdictions.

It is most likely that a combination of these elements are resulting in a general feeling of dis-satisfaction with the training within the Fire Department. As a result, the Fire Department should address the following issues:

- Ensure that all company officers are trained in the Fire Instructor or other instruction methodologies. State Certification is recommended.
- Develop a mechanism for ensuring training needs are identified from all post-incident briefings and ensure training is developed to meet those needs.
- Provide for Chief Officer review of training records and provide formal evaluation of training on at least a quarterly basis. Captain/Officers should be held accountable for the performance of the personnel under their supervision.

By addressing these issues, the Department will facilitate not only more effective training, but also the perception of some employees that the current training is minimal and could be implemented with increased effectiveness and focus..

Recommendation: The Department should implement the following actions:

- **Ensure that all company officers are trained in the Fire Instructor or other instruction methodologies.**
- **Develop a mechanism for ensuring training needs are identified from all post-incident briefings and that training is developed to meet those needs.**
- **Provide for Chief Officer review of training records and provide formal evaluation of training on at least a quarterly basis. Captain/Officers should be held accountable for the performance of their personnel.**

This should be done within the context of the recommendations above, specifically, the appointment of an Assistant Chief with focus on Training and Safety.

6. ANALYSIS OF THE PREVENTION FUNCTION OF THE DEPARTMENT

This section of the Hermosa Beach Staffing Study deals with the project teams assessment of the Fire Prevention Function. To conduct this assessment, the project team obtained fire prevention records and reports and conducted interviews with various personnel.

1. THE PROJECT TEAM UTILIZED A COMPARISON OF HBFD PREVENTION FUNCTIONS WITH A LIST OF BEST MANAGEMENT PRACTICES IDENTIFIED FOR THE CONTEMPORARY FIRE SERVICE.

Any evaluation of program activities must have established guidelines and benchmarks to make the evaluation meaningful. In an effort to provide a context for the project teams observations and analysis, the Fire Prevention efforts of the Hermosa Beach Fire Department were compared with Best Management Practices identified through our work throughout the Country. A summary of the project team's observations and analysis is contained in the exhibit that follows:

Performance Target	Strengths	Potential Improvements
Dedicated fire specialists to review new construction / remodeling plans for conformance with the City's fire related codes and ordinances.	<ul style="list-style-type: none"> • Plan reviews are conducted either by the Fire Chief or line Captain assigned to Fire Prevention/Development functions. 	<ul style="list-style-type: none"> • Provision of dedicated level of service either through employment of Fire Prevention Inspector or contract for fire prevention services.
Field inspection of new construction and fire systems by trained fire specialists is integrated with other construction inspections and successful completion required before issuance of occupancy permit.	<ul style="list-style-type: none"> • HBFD Utilizes Fire Chief or Line Captain for new construction inspections. 	<ul style="list-style-type: none"> • Provision of dedicated level of service either through employment of Fire Prevention Inspector or contract for fire prevention services.

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Performance Target	Strengths	Potential Improvements
<p>Require sprinklering in all new commercial/industrial occupancies and residential units. Retrofit required for commercial/industrial remodels exceeding 50% of value or square footage.</p>	<ul style="list-style-type: none"> • City has adopted restrictive sprinkler ordinance. • In change of existing occupancy, sprinkler protection required. • If total square footage of additions exceeds sprinkler requirement, entire facility must be sprinklered. 	<ul style="list-style-type: none"> • Sprinkler protection not required of all new development and not required in all new residential development.
<p>Fire prevention specialists located and work in conjunction with other development review staff to provide customer convenience for applications and application instructions.</p>	<ul style="list-style-type: none"> • HBFD Utilizes Fire Chief or line Captain for new construction inspections. 	<ul style="list-style-type: none"> • Provision of dedicated level of service either through employment of Fire Prevention Inspector or contract for fire prevention services.
<p>Fire prevention staff participate as member(s) of application review teams and pre-application conferences for major projects to ensure fire safety considerations addressed for all major projects.</p>	<ul style="list-style-type: none"> • HBFD Utilizes Fire Chief or line Captain for new construction inspections. There has been substantial conflict between the Fire Chief and Chief Building Official with respect to occupancy determination in the past. 	<ul style="list-style-type: none"> • Provision of dedicated level of service either through employment of Fire Prevention Inspector or Contract for Fire Prevention Services..
<p>At minimum, annual inspection of high risk occupancies by specialist fire inspectors.</p> <p>Scheduled annual fire safety inspections of all risk commercial/industrial occupancies by engine / truck companies. Central coordination by fire prevention staff to ensure engine/truck company inspections are completed.</p>	<ul style="list-style-type: none"> • HBFD Utilizes Fire Chief or line Captain for new construction inspections. 	<ul style="list-style-type: none"> • Fire companies conduct Assembly occupancy inspections and return the inspection form to Fire Inspectors.
<p>Is the process designed for full cost recovery with prevention and plan reviews?</p>	<ul style="list-style-type: none"> • The City does not charge permit fees for inspections especially related to high activity areas such as public assembly areas.. 	<ul style="list-style-type: none"> • Permit and related fees are contributed to the general fund and are not directly attributable to the cost of service. To the best knowledge of the project team, the City has not conducted a cost attribution analysis and set fees accordingly.

2. BASED ON FIRE PREVENTION REPORTS AND DATA, CURRENT INSPECTION LOADS ARE TOO GREAT TO BE HANDLED SOLELY BY ENGINE COMPANY PERSONNEL

The project team collected summary occupancy information for the City of Hermosa Beach. These reports show that that total number of commercial occupancies within the City of Hermosa Beach is approximately 863. The following table summarizes the theoretic workload represented by this number of commercial occupancies:

	Total Occupancies	Number of Inspectable Days	Avg. Time/Inspection	Inspections/Day Needed
Fire Prevention Activity	863	250	60 min	3.45

As shown above, the average number of inspections required per inspectable day (i.e. Monday – Friday for 50 weeks/year) is 3.45 to meet the need to provide an inspection on an annual basis. This does not include new development activities or citizen inquiries or complaints. As each inspectable occupancy averages approximately 1 hour to effectively inspect and process, this results in a service demand in commercial inspections of 3.45 hours/day. This is not a realistic expectation for suppression based personnel given emergency response and training demands.

As noted in the best practices assessment, some form of dedicated fire prevention function is consistent with the project team’s identified best practices. This is best achieved through retention of a full time fire prevention specialist. Many cities meet this level of service by contracting a personal services contract with fire prevention specialists. This minimizes expenses while providing the ability to provide service levels consistent with a high degree of experience and expertise. These contracts can be done with individuals, engineering firms or neighboring communities.

Recommendation: The City of Hermosa Beach should obtain dedicated Fire Prevention expertise either through the hiring of a Fire Prevention Specialist or contracting for these services. Similar programs in the region cost approximately \$78,000 per Inspector per year for the salary / wages of such a contract position.

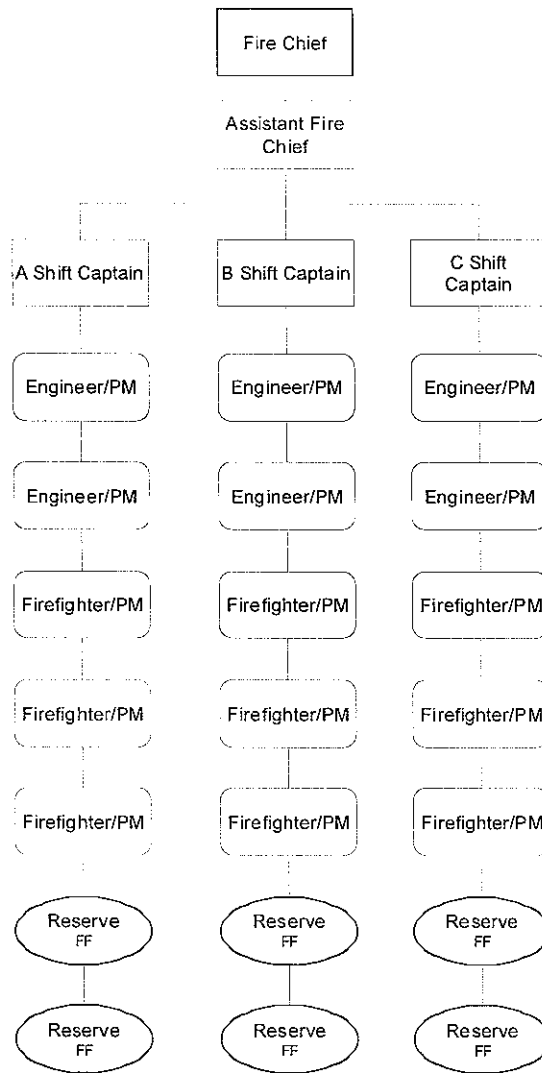
APPENDIX: PROFILE OF THE HERMOSA BEACH FIRE DEPARTMENT

1. INTRODUCTION

The City of Hermosa Beach Fire Department provides Fire, Rescue and Emergency Ambulance Transportation services to the 1.3 square miles of the City of Hermosa Beach and its 20,000 residents. The Department provides services with 1 front-line apparatus (55-foot ladder/pumper combination) staffed with 3-people, a second engine staffed with 1-Driver/Operator, an ALS Rescue/Ambulance staffed with 2-Firefighter/Paramedics and an additional BLS ambulance staffed with members of a Reserve Firefighter Program. Daily staffing is currently 6 full-time personnel, with an additional 2-reserve firefighters staffing the BLS transport unit (R12). The Department operates on a 3 platoon, 24-hours duty shift which results in a 56-hour workweek.

2. ORGANIZATION

The plan of organization for the Fire Department is presented in the following chart:



3. STAFFING

In the table, which follows, a summary is provided of the Fire Department staffing and key elements of how staff are scheduled and deployed.

Function	Staffing by Classification		Key Elements of Staffing and Scheduling
Administration	Fire Chief (Uniformed)	1.0	<p>FIRE CHIEF</p> <ul style="list-style-type: none"> • Provides overall administrative direction for the Fire Department • Directly supervises Assistant Chief (vacant). Various A/C responsibilities now shared among Shift Captains who currently report directly to Fire Chief. • Statutory Fire Marshal for the City. • Supervises • Responds to multiple alarms and simultaneous incidents during standard working hours. <p>ASSISTANT FIRE CHIEF</p> <ul style="list-style-type: none"> • Provides direct operational supervision to Shift Captains. • Responds to appropriate emergencies and provides Incident Command • Responsible for administrative services including review and construction of policies and procedures.
	Assistant Fire Chief (Vacant)	1.0	

CITY OF HERMOSA BEACH, CALIFORNIA
Staffing Study of the Fire Department

Function	Staffing by Classification		Key Elements of Staffing and Scheduling
Operations	Fire Captain Fire Engineer Firefighter/Paramedic (all uniformed)	3 6 9	<p>FIRE CAPTAIN</p> <ul style="list-style-type: none"> • Respond to requests for emergency services. • Supervises 7 personnel on each shift. • Responsible for various administrative/functional areas, including: <ul style="list-style-type: none"> - Administrative Services - Equipment/Logistics - Facilities and Apparatus - Disaster Preparedness - Fire Prevention Inspections and Plan Reviews • Ops personnel perform PIP (Pre-Incident Planning) of target hazards. • Participates in physical fitness at the stations on a voluntary basis. • Interacts with the public via station tours, neighborhood meetings and other community events. <p>FIRE ENGINEER</p> <ul style="list-style-type: none"> • Operates and maintains apparatus, equipment, station and grounds • Acts as officer as necessary • Respond to requests for emergency services. • Ops personnel perform PIP (Pre-Incident Planning) of target hazards. • Participates in physical fitness at the stations on a voluntary basis. • Interacts with the public via station tours, neighborhood meetings and other community events. <p>FIREFIGHTER/PARAMEDIC</p> <ul style="list-style-type: none"> • Respond to requests for emergency services. • Ops personnel perform PIP (Pre-Incident Planning) of target hazards. • Participates in physical fitness at the stations on a voluntary basis. • Interacts with the public via station tours, neighborhood meetings and other community events.

4. SUMMARY OF OPERATIONS

The table, which follows, provides a summary of the programs and services provided by the Operations Division. Key workload and service level indicators are also provided.

Function	Description of Services	Workload and Service Levels																		
Administration	<ul style="list-style-type: none"> • Provide leadership and management to operations division. • Coordinate scheduling and staffing on daily basis. • Manage large incidents and emergency operation. 	<p>Asst. Chief Position currently vacant.</p> <p>Single Administrative Assistant for the Department.</p>																		
Operations	<ul style="list-style-type: none"> • Responds to requests for emergency services from 1 stations utilizing 4 pieces of front-line, staffed apparatus • Currently 1 Advanced Life Support (ALS) and 1 Basic Life Support (BLS) ambulance levels of EMS care • Provide minor and routine maintenance of facilities and apparatus. 	<ul style="list-style-type: none"> • Responded to 2,203 requests for service in 2006: <table border="0" style="width: 100%;"> <tr> <td>Medical Aid/Rescue</td> <td style="text-align: right;">1,540</td> </tr> <tr> <td>Good Intent/Alarms</td> <td style="text-align: right;">293</td> </tr> <tr> <td>Special Service</td> <td style="text-align: right;">106</td> </tr> <tr> <td>Fires</td> <td style="text-align: right;">103</td> </tr> <tr> <td>Hazardous Conditions</td> <td style="text-align: right;">80</td> </tr> <tr> <td>Other</td> <td style="text-align: right;">6</td> </tr> </table>	Medical Aid/Rescue	1,540	Good Intent/Alarms	293	Special Service	106	Fires	103	Hazardous Conditions	80	Other	6						
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		<ul style="list-style-type: none"> • These calls for service have resulted in 5,937 apparatus/equipment responses in 2006: <table border="0" style="width: 100%;"> <tr> <td>- E 11</td> <td style="text-align: right;">1,652</td> </tr> <tr> <td>- R 11</td> <td style="text-align: right;">1,425</td> </tr> <tr> <td>- A 12</td> <td style="text-align: right;">1,343</td> </tr> <tr> <td>- E 12</td> <td style="text-align: right;">223</td> </tr> </table> <ul style="list-style-type: none"> • The following apparatus responses from neighboring jurisdictions were recorded in 2006: <table border="0" style="width: 100%;"> <tr> <td>- E 21</td> <td style="text-align: right;">341</td> </tr> <tr> <td>- E 22</td> <td style="text-align: right;">305</td> </tr> <tr> <td>- R 21</td> <td style="text-align: right;">437</td> </tr> <tr> <td>- R 62</td> <td style="text-align: right;">36</td> </tr> <tr> <td>- T 61</td> <td style="text-align: right;">81</td> </tr> </table>	- E 11	1,652	- R 11	1,425	- A 12	1,343	- E 12	223	- E 21	341	- E 22	305	- R 21	437	- R 62	36	- T 61	81
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Emergency Medical Transportation Services	<ul style="list-style-type: none"> • Responds to requests for emergency medical services utilizing 1 ALS ambulance and 1 BLS level ambulance. • Provides Quality Assurance efforts (primarily on a complaint or anomaly basis) 	<ul style="list-style-type: none"> • In 2006 generated the following transports: <table border="0" style="width: 100%;"> <tr> <td>- ALS Level</td> <td style="text-align: right;">337</td> </tr> <tr> <td>- BLS Level</td> <td style="text-align: right;">546</td> </tr> <tr> <td>- Total Transports</td> <td style="text-align: right;">883</td> </tr> </table> <ul style="list-style-type: none"> • Generated \$692,933 in revenue in 2006. • Collection Rate is approximately 70.75%. 	- ALS Level	337	- BLS Level	546	- Total Transports	883												
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Calls for Service by Hour

0:00	91	4.1%
1:00	76	3.4%
2:00	70	3.2%
3:00	33	1.5%
4:00	37	1.7%
5:00	36	1.6%
6:00	54	2.5%
7:00	59	2.7%
8:00	96	4.4%
9:00	120	5.4%
10:00	102	4.6%
11:00	139	6.3%
12:00	97	4.4%
13:00	128	5.8%
14:00	106	4.8%
15:00	117	5.3%
16:00	116	5.3%
17:00	144	6.5%
18:00	112	5.1%
19:00	96	4.4%
20:00	116	5.3%
21:00	96	4.4%
22:00	77	3.5%
23:00	86	3.9%
	2,204	100.0%