Fire Department Master Plan

HANFORD, CALIFORNIA

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SECTION I: REVIEW OF CURRENT SERVICE DELIVERY

1. ORGANIZATIONAL OVERVIEW

This report includes an in-depth study of all aspects of the administrative, operational, and support service of the Hanford Fire Department located in Hanford, California as completed by the Matrix Consulting Group.

1. PROJECT INTRODUCTION AND OBJECTIVES.

The evaluation and assessment of the included a comprehensive review, analysis and discussion of the following areas:

- Community and Organizational Overview
- Management and Administrative Components
- Fire Protection, Rescue, and EMS Planning
- Personnel Management
- Emergency Incident Staffing
- Training Programs
- Capital Assets
- Fire Prevention and Public Education Programs
- Deployment Strategies and Performance
- Information Technology
- Disaster and Emergency Preparedness
- Fiscal Analysis

Using data supplied by the city, agency, information systems and GIS modeling the study serves to provide benefits and improvements in providing Fire, EMS and Rescue services to the residents of Hanford and to those who travel through and visit

the community.

The basis of the evaluation, analysis of data, and reference information is from California State law and regulations, the National Fire Protection Association (NFPA), the Center for Public Safety Excellence (CPSE), firefighter health and safety requirements, federal and state mandates and what are currently considered generally accepted best practices in providing emergency service delivery.

Each section in the report provides the reader with general information about that objective, observations, analysis, and a discussion of any significant issues or conditions that are pertinent. Matrix's observations are supported by data collected as part of reviewing documents and interviews with key department staff. Finally, specific recommendations are included to address identified issues or to take advantage of opportunities that may exist.

2. RESPONSIBILITIES AND LINE OF AUTHORITY

Governance of the Hanford Fire Department (HFD) is by the Hanford City Council. The Council is elected directly by the voters and consists of four members and one Mayor, with day-to-day oversight of the city being the responsibility of a city manager, which is hired by the city council.

Hanford Fire Department is one of several municipal services provided by the City of Hanford. The Fire Chief is the position appointed to provide overall management and direction to HFD. The Fire Chief reports to and works directly for the City Manager. The Fire Chief like all employees in Hanford is protected by Civil Service and is part of the Executive Team Bargaining Unit.

Initial interviews for this report included the City Manager, Fire Chief, Deputy Fire

Chief, Battalion Chief and line personnel. It appeared that the City Manager and all members of HFD are committed to this study. Fire personnel particularly enjoy a positive working relationship with each other.

3. CITY AND ORGANIZATIONAL OVERVIEW

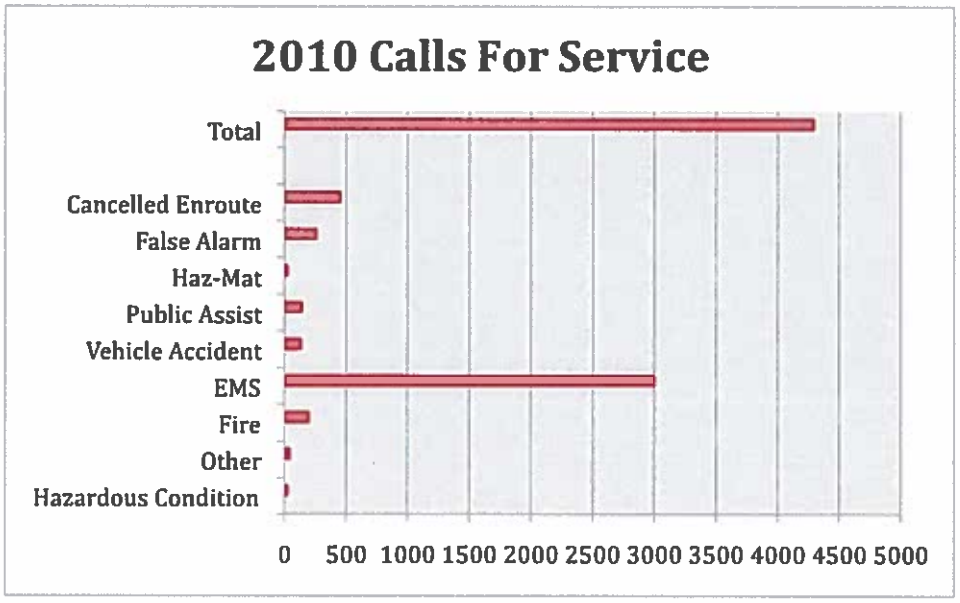
The City of Hanford was incorporated in 1891 after being settled by the Southern Pacific Railroad. Hanford is established as the County Seat for Kings County, California and is located just south and west of Fresno. According to the 2010 US Census, the population of Hanford is 53,967. The City is currently experiencing slow residential growth, but has enjoyed significant increases in both commercial and residential growth since the 2000 Census when the population was 41,686 and 1990 when the recorded population was 30,897.

The Hanford Fire Department protects roughly 16.5 square miles from 2 fire stations. A central fire station located near the historic downtown was closed upon the construction of two new stations in 1989. These stations are located in the north central and south central portions of the City with sites chosen to provide better coverage to the community as growth continued to move outward from downtown.

The Hanford Fire Department provides fire, rescue, hazardous materials response, and serves as a first responder for emergency medical service calls in the City. HFD also provides mutual aid to Kings County Fire Department, The City of Lemoore, The Naval Air Station at Lemoore, and other neighboring communities when called for assistance.

The following chart shows the 2010 calls for service for HFD. As in most communities, fire calls account for a small portion of the activity level and this is the

case in Hanford. Emergency medical service (EMS) activity accounts for the greatest workload in terms of emergency response in the community.



Of the 4,296 calls for service in 2010, 3001 (**69.9%**) were EMS related while 202 (**4.7%**) were fire related and all other call types 1,093 (**25.4%**). HFD protects a service area that can best be described as Urban. According to the 2010 United States Census Hanford has a population of 53,967 with a density of 3,253 residents per square mile. An urban setting is best described as having a population of over 30,000 and/or a density of more than 2,000 residents per square mile. Hanford clearly fits this description.

4. INSURANCE SERVICES OFFICE (ISO)

The current ISO property class rating for the City of Hanford is Class 4. The class rating is important to the community as many property insurance companies base the fire risk portion of premiums on the community's ISO rating. If Hanford improved from a Class 4 to a Class 2, insurance rates would for homeowners and businesses.

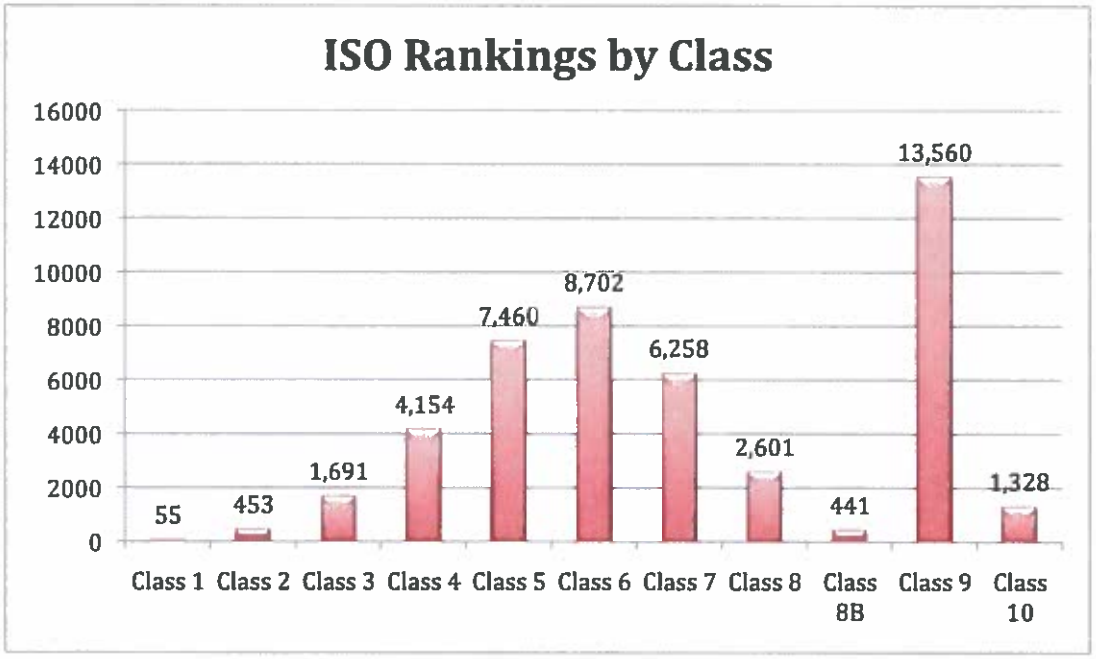
Businesses see even greater rate benefits as a community continues to improve their rating down to the optimal rating of Class 1.

According to ISO:

"Virtually all U.S. insurers of homes and business property use ISO's PPC (Public Protection Classification) in calculating premiums. In general, the price of fire insurance in a community with a good PPC is substantially lower than in a community with a poor PPC, assuming all other factors are equal." [1]

The ISO uses a 1 to 10 rating scale, with Class 1 being the best level of service and Class 10 representing no fire service being provided at all. The ISO reviews fire protection in three major categories:

- Communication (10%)
- Water Supply (40%)
- Fire Department (50%)



According to the Fire Chief, the last Insurance Services Office survey of the Hanford Fire Department occurred approximately fifteen (15) years ago. At that time ISO assigned a Class 4 rating which places HFD in an elite category.

The current ISO credit system is broken down into the following maximum percentage points [(2)].

FIRE DEPARTMENT CLASSIFICATION	MAXIMUM PERCENT
Credit for:	
ENGINE COMPANIES	10.00
RESERVE PUMPERS	1.00
PUMP CAPACITY	5.00
LADDER-SERVICE COMPANIES	5.00
RESERVE LADDER COMPANIES	1.00
DISTRIBUTION	4.00
COMPANY PERSONNEL	15.00
TRAINING	9.00
TOTAL	50.00

Several current factors would negatively impact a future ISO rating:

- Lack of an aerial device
- Lack of multi-company training drills
- Lack of training on multi-story operations
- Number of operations personnel

The ISO Fire Suppression Rating Schedule states that response areas with five buildings that are three stories or 35 feet or more in height, or with five buildings that have a Needed Fire Flow (NFF) greater than 3,500 GPM, or any combination of these criteria, should have a ladder company.

Recommendation 1: Develop an ISO improvement plan for Hanford Fire Department that focuses on maintaining the strengths of the agency while improving identified deficiencies.

Recommendation 2: Determine the effect that not having an in-service ladder company has on HFD's ISO rating.

Recommendation 3: Determine the effect that not utilizing the College of the Sequoias for regional training has on HFD's ISO rating.

It is important to note that the ISO is currently reviewing the merits of updating the content of the Fire Suppression Rating Schedule (FSRS). If the program is updated there will be an increased reference to National Fire Protection Association (NFPA) standards. Possible revisions include [3].

- Eliminating the current ISO equipment inventory and replacing it with reference to pumper and ladder equipment listed in NFPA 1901.
- Recognition of Initial Rapid Intervention Crew and Rapid Intervention Crew teams according to NFPA 1500.
- Additional emphasis on firefighter safety and training:
  - Training and credentialing for fire officers in accordance with National Incident Management System (NIMS) recommendations and NFPA 1021.
  - Training for fire apparatus drivers and operators in accordance with NFPA 1002 and 1451.
  - Reference to firefighter safety requirements.
- Recognition of automatic-aid personnel responding to first-alarm structure fires.
- Extension of full credit for automatic-aid response plans to first-alarm structure fires when the departments have satisfied the certain criteria for interoperability.

An additional key point noted is increased reference to the American Water Works Association (AWWA) standards. Possible revisions here include:

- Recognition for fire hydrants that produce flows up to 1500 GPM.
- More emphasis on hydrant inspection programs, including hydrant flow testing.

- A reference to implementation of master or strategic planning.
- Recognition of partial or full Commission on Fire Accreditation International (CFAI) accreditation through the Center for Public Safety Excellence (CPSE).
- Recognition for adoption and enforcement of model building and fire prevention codes.
- Recognition for public fire safety education programs.
- Recognition for adoption of fire department standard operating procedures via NIMS standards or FEMA publication FA-197.
- Recognition for adoption of a fire department incident management system according to NFPA 1561.

It is critical that as HFD reviews their readiness for a future ISO inspection, the contemplated changes are considered during decision-making process.

5. ORGANIZATIONAL STRUCTURE AND CHAIN OF COMMAND

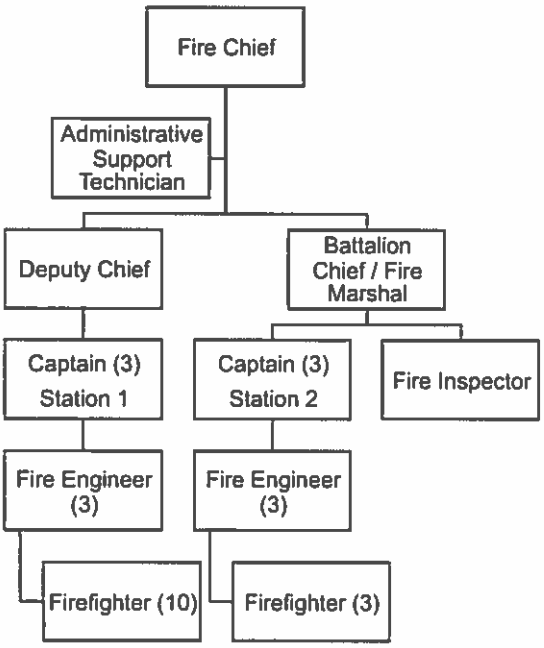
The staffing of the Hanford Fire Department by classification is shown in the table below:

Position	Number of FTE
Fire Chief	1
Deputy Chief	1
Battalion Chief / Fire Marshal	1
Fire Inspector	1
Fire Captain	6
Fire Engineer	6
Firefighter	13
Administrative Support	1
Total	**30**

As shown above, HFD utilizes 30 full-time personnel to carry out its mission; of these 25 have direct emergency response responsibility. In addition HFD uses volunteer

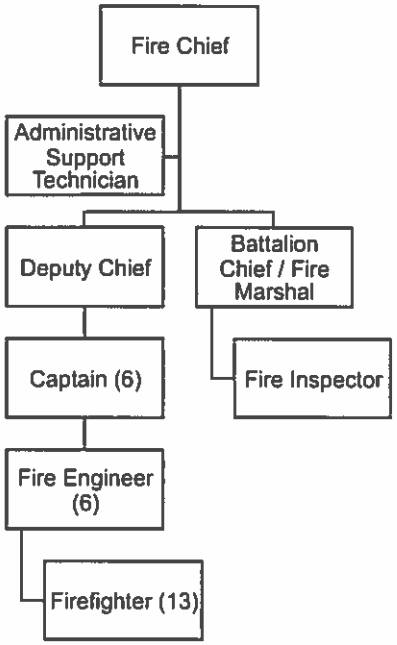
personnel who respond to provide additional support during emergency scenes, but typically are not certified to function as a firefighter.

The organizational chart that follows provides a graphical depiction of the reporting relationships of the Departmental personnel:



It is critical for fire service agencies to maintain an effective span of control as extending the span of control beyond recommended limits endangers moral and hinders effective decision-making. The typically accepted span of control for the fire service is five to seven subordinates per supervisor. Hanford Fire Department is currently maintaining an effective span of control in their reporting structure.

Recommended Organizational Structure



It should be noted that volunteer staffing is not depicted in the current organizational structure due to their limited role in the organization.

Recommendation 4: Realign reporting responsibilities so all Suppression personnel report through the chain of command to the Deputy Chief.

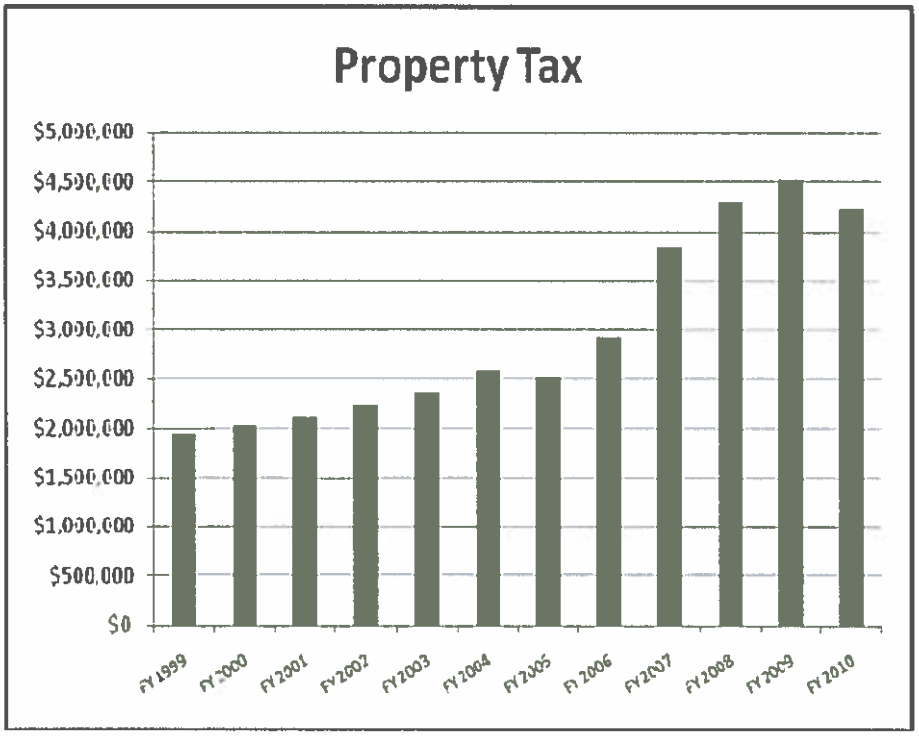
Recommendation 5: Increase training of volunteer personnel to allow them to function fully as firefighters on emergency scenes.

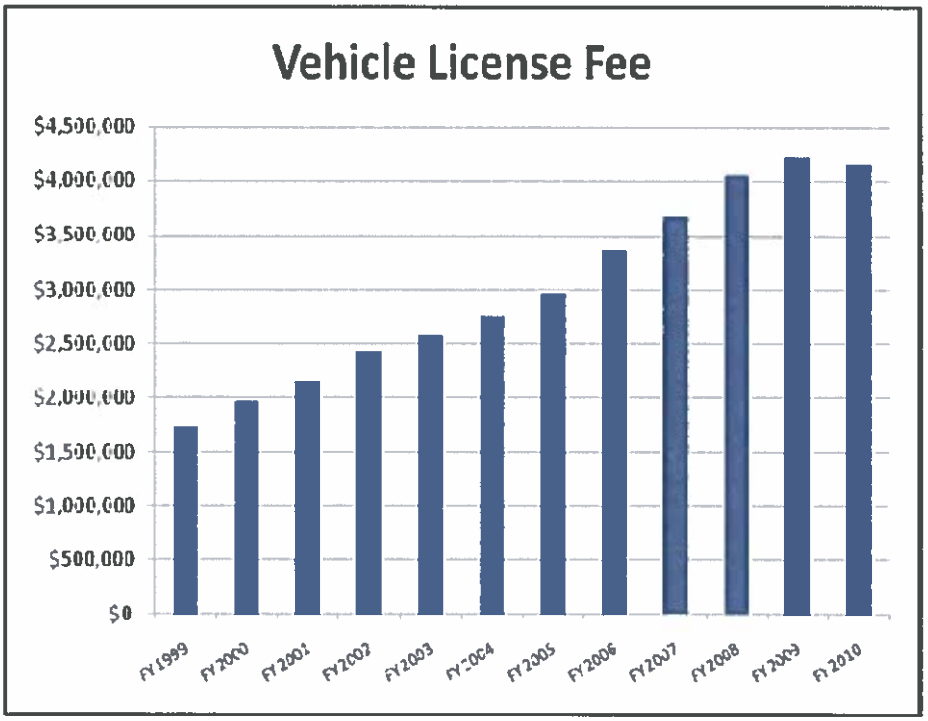
Recommendation 6: Require volunteers to commit to a minimum number of hours of service monthly and assign them to apparatus to improve staffing.

6. FINANCIAL RESOURCES

The City of Hanford operates a fiscal year from July 1 through June 30. While the City enjoyed economic growth tied to the housing sector in the early 2000's, a significant reduction in new housing starts has occurred since 2008. These depressed economic conditions have negatively affected the City's three primary sources of General Fund revenue: Sales Tax, Property Tax and Vehicle License Fees. This

reduction in General Fund revenues has affected the ability of the City to fund essential and emergency services, like fire and police protection.



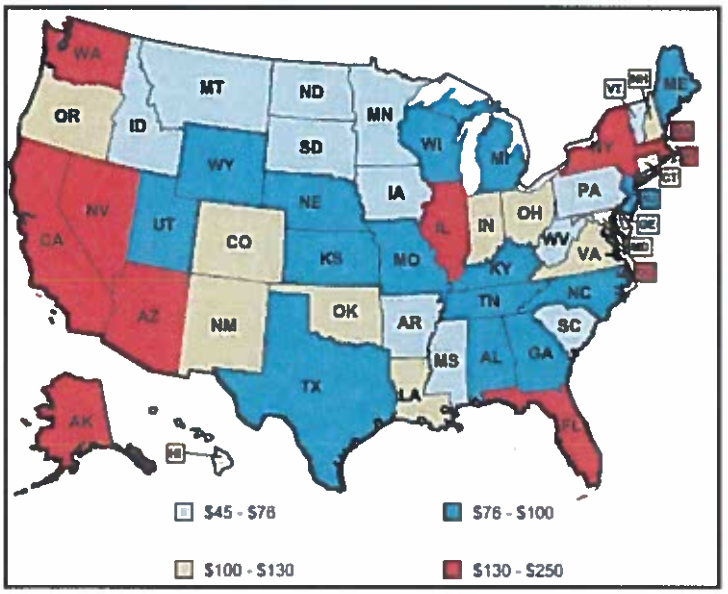


According to the City of Hanford FY 2011 – 2012 budget documents the budget for fire services in Hanford is as follows:

SUPPRESSION & EMERGENCY RESPONSE	2011 – 2012 BUDGET
Source of Funds	
General Fund	$ 3,479,350
Fees	16,550
Grants / Reimbursements	50,000
Interfund Charges	185,940
TOTAL	3,731,840

PREVENTION & INVESTIGATION	2011 – 2012 BUDGET
Source of Funds	
General Fund	$ 190,520
Fees	52,650
Grants / Reimbursements	
TOTAL	243,170

As shown above, the City of Hanford expends $3,975,010 annually to pay for personnel and expenditures related to operating the municipal fire department. With a total population of 53,967 this equates to per capita spending of $73.66 for fire protection in the City of Hanford.



The above map is for comparison purposes to illustrate the various levels of local fire protection spending per capita for all 50 states. As you can see in 2006 cities in California spent between $130-$250 per capita on fire protection, ranking it among the highest in the Country [4].

In the most recent data available (2008-09), spending on fire protection in California averaged $145.48 per capita. For that same period the City of Hanford spent $77 per capita on fire protection. The following table shows a more localized comparison of per capita spending on fire protection in 2008-09 [5].

City	Per Capita Spending
Clovis	118.00
Hanford	77.00
Fresno	117.00
Porterville	67.00*
Sanger	79.00
Selma	79.00
Tulare	104.00
Visalia	138.00
Average	**97.38**

As shown above the amount spent per capita varies from a low of $67 to a high of $138 for the comparative cities. At $77 per capita, Hanford spent 79% of the average cost for fire protection per capita or $20.38 per capita below average when compared to other municipalities in the same region as Hanford. *It is important to note that in 2009, Porterville constructed a training facility and added positions, which are not reflected in the above figures.

7. FIRE SUPPRESSION INFRASTRUCTURE

In order to deliver effective fire and rescue services there must be efficient notification of an emergency, rapid response from well-placed facilities, appropriate apparatus, sufficient staffing, and well-practiced procedures.

For the community the most visible and important service provided by the Hanford Fire Department is the response to and control of emergency events. The following emergency services are provided by HFD:

- Fire Suppression

- EMS (First Responder)
- Hazardous materials emergency response
- Emergency management for the City of Hanford
- Technical rescue and other specialized rescue services

To support the core services listed above, the Hanford Fire Department has a comprehensive training program with well-established quarterly training goals developed by the Deputy Chief of Suppression. Volunteers are also a critical component as they serve a critical support role on emergency scenes. As noted on pages 10-11, HFD would benefit from expanding the role of its volunteer force. This would lead to higher satisfaction of volunteer members and better retention.

2. MANAGEMENT COMPONENTS

The Hanford Fire Department faces challenges related to organizational growth and management in addition to the operational challenges of providing efficient and effective emergency response. The business management of a fire department always presents unique issues involving administration of financial resources, the setting of goals and objectives, internal and external communications, information management, and security. This section examines the efforts of HFD in this area and its preparation for the future as the City of Hanford and the emergency response needs of the community become more complex.

1. MISSION AND VISION STATEMENT

Having clear mission and vision statements provides members with the foundation of why the agency exists and where they are headed. While the development of these statements is important, they must be constantly communicated to ensure all personnel are operating from the same baseline information on what the purpose of the agency is so all members are working together to achieve the shared vision.

The Hanford Fire Department has adopted the following Mission Statement:

"To protect residents and visitors of Hanford from conditions that would pose a threat to life, environment, and property by utilizing aggressive prevention techniques and, when needed, respond to all emergencies in a safe, swift, and efficient manner."

While the agency does have a Mission Statement to explain why they exist, there currently is no Vision Statement to let members of the Fire Department know where they are headed.

Recommendation 7: Develop a Vision Statement for the Agency as part of the strategic planning process.

2. STRATEGIC PLANNING

The City of Hanford has completed a comprehensive strategic planning process. Components of the City Plan apply to the fire department; however, the fire department has not formally conducted a strategic planning process specific to the fire department, which involves staff from all levels of the organization. Because of a lack of strategic planning personnel are directing the majority of their efforts to immediate issues of the day and are unable to devote time to significant planning for future service delivery needs, or developing new programs and services desired by the residents and business community of Hanford. A customer-centered strategic planning process specific to the fire department could resolve much of this deficiency and give the department a clear sense of direction.

Recommendation 8: Conduct a strategic planning process, which involves both internal and external stakeholders.

3. GOALS AND OBJECTIVES

Hanford Fire Department clearly realizes the importance of developing clear goals with measurable objectives. HFD has developed specific goals with measurable benchmarks to monitor the progress towards achieving the goals. These annual goals are included as part of the annual budgeting process as are the results related to the performance achieved against the prior year goals.

4. POLICIES AND PROCEDURES

Successful organizations are typically governed by a clear set of policies and procedures, which include rules and regulations regarding expectations related to a

standard code of conduct. These policies set the boundaries for what level of performance is expected of employees as well as what behavior will and will not be accepted. The policy and procedure manual should be continually reviewed and updated to reflect changes in the organization.

Another factor to consider regarding policy and procedure manuals is their availability to all personnel. If policies and procedures are not available or training is not provided the agency faces a significant legal risk. It is critical that the agency ensures practices within the agency follow the policy or that the policy is changed to match current practices. Enforcement of policies, procedures, and rules & regulations is critical for the agency to ensure a gradual shit away from written guidelines does not occur.

The Hanford Fire Department has an adopted policy manual written and adopted in 2002 with the most recent amendments occurring in June 2011. While development of policies largely occurs by the command staff, the process is inclusive and all personnel are given the opportunity to provide input into current and proposed policies.

Our review of the manual showed that the agency clearly tracks the date the policy went into effect and any revision dates, but the Fire Chief does not sign each policy. The master policy manual is stored on the agency computer system.

Recommendation 9: Add a signature box to the header of each policy requiring the Chief's signature and date upon development and revisions to agency policies and procedure.

5. INTERNAL AND EXTERNAL COMMUNICATION

Effective internal and external communication in public safety organizations is critical for the organization to be successful. Due to the personal risk associated with the work performed communication must be clear and effective to internal stakeholders. Internal communication must occur in all directions and at all levels to be successful.

Similarly, external communication and community relations programs must be well structured. These systems can take any number of forms. In some organizations, all members are responsible for communicating with the public. In others, a specific person or group is responsible for the public information function.

Successful organizations utilize a multi-faceted approach to communication. Whether for internal or external communications, each agency must determine its own approach.

Daily shift briefings are the cornerstone to the communication process at HFD. It is in these morning briefings that events experienced by the previous shift and any departmental communication is passed between shifts and shared with members of the organization. The Chief also maintains an open door policy and remains available to personnel with questions or concerns.

Email is available to all career members of HFD and is the primary means of distributing information that needs to be consistent and reached by all members of the agency, such as memorandums.

The current chain of command is confusing to shift personnel who view "any white shirt" as their supervisor. This is largely due to the fact that while the Deputy Chief

is in charge of shift personnel, the Battalion Chief conducts performance appraisals on Captains at Station 2 (see recommendation 4).

It is equally important for agencies to spend time communicating with external stakeholders. A strong community relations program can include any number of methods to ensure the public receives information the fire department feels is important for the community.

Gaining public trust is an important task for fire departments. Hanford Fire Department like many agencies is not taking full advantage of communicating with the public. While the agency does a good job of conducting public education programs, there is no written community relation's plan and most messages about city services are left to the City of Hanford to communicate. The agency is also not surveying the community about what services are important to them to ensure that HFD is focused on providing what the community wants and expects.

Recommendation 10: Strengthen the website presence of HFD to include regular news and community communication.

Recommendation 11: Develop and implement an external communication plan that includes community groups and public surveys.

6. DECISION MAKING PROCESS

Businesses recognize that when employees are provided with the opportunity to engage in the decision-making process, the organization benefits from a higher level of commitment and ownership in the success of the organization.

For fire departments, the opportunities to delegate decision-making down through the organization are quite numerous. Chief officers (deputy and battalion chiefs) are often given the task of making staffing decisions. Company officers can be given

responsibility and/or authority for scheduling, program management, training, and station operations. Firefighters can make determinations as to patient care or station and apparatus maintenance.

The decision-making process for Hanford Fire Department is defined and participatory where appropriate. The relatively small size of the organization lends itself to a more personal and informal decision-making process. The fire chief encourages and practices communications at the most basic levels. Where command staff solicits participation, those involved should be knowledgeable of the key findings by which the decision was made. This process may go a long way in acceptance of the decision and providing a sense of worth and value in the employees, even though the final decision may not reflect their input.

7. REPORTING AND RECORDS

Records management is a critical function for any organization. A variety of uses are made of written records and, therefore, their integrity must be protected. California State Law requires that the local governments allow public access to certain fire and EMS records and data. The agency has written procedures in place to provide members information about when it is appropriate to allow public and media access to records and who is authorized to release such information.

Equally important is to ensure that records protected by the Health Insurance Portability and Accountability Act (HIPPA) are never released to the public and media. This Federal Legislation includes regulations that require all individually identifiable health care information be protected to ensure privacy and confidentiality when stored, maintained, or transmitted. Medical incident records contain protected medical

information and sufficient personal information regarding the patient to create a concern over HIPPA requirements. Hanford Fire Department currently operates as a first responder so there is limited patient information stored at the Department. The Captain responsible for EMS ensures these documents are stored in a secure location to protect this sensitive information from accidental release.

8. CRITICAL ISSUES

City and fire department officials should be aware of issues internally, which could be considered critical. This will ensure they are prepared to face the concerns of internal stakeholders. Personnel need to know that their concerns have been heard and are a priority for management to respond to where appropriate.

In order to determine which issues are critical to the organization a number of stakeholder interviews and an organization wide survey was conducted to allow the members an opportunity to voice their concerns and to express where the agency is providing exceptional service to the community.

During these processes, many employees raised similar topics as being of great concern for the department. The following issues list describes those items:

- Building inspections are not being conducted according to the established policy.
- No pre-fire planning is being conducted on commercial occupancies.
- Mandated Group 1 and Assembly inspections are not being conducted.
- No procedure is in place to ensure follow-up inspections are conducted.
- Businesses are not ranked by risk category to ensure the highest fire risk occupancies are inspected annually.
- Current staffing levels and the lack of immediate mutual aid do not allow for safe operations on fire scenes.

- Command staff routinely does not respond to critical incidents after hours and no on call system exists to let the Captains know who should respond.
- The patrol is the first vehicle removed from service when staffing level drops, but most calls for service are EMS related.
- There are no formal mutual aid agreements in place with neighboring agencies.
- Staff dislikes the current residency requirement and does not think it benefits the agency, but rather limits recruiting efforts.

3. PERSONNEL MANAGEMENT

The Hanford Fire Department uses a combination of career and volunteer personnel to accomplish the service delivery needs of the community. Command personnel, the administrative support technician, and the fire inspector accomplish the majority of administrative functions for the agency. Emergency response personnel work a 48 hour on and 96 hour off shifting pattern with nine personnel working on one shift and eight on the other two shifts. Volunteers currently have no structured schedule for station assignment. There are two civilian positions in the agency with one serving as administrative support and the other as the fire inspector. During interviews it was very clear that personnel enjoy their current scheduling pattern.

1. REPORTS AND RECORDS

Internal records and reporting systems appear to be adequate. There are some limitations with the current municipal IT network and its reliability. The agency maintains records on employment history, equipment and apparatus testing, building inspections, fire code enforcement, weed abatement, and emergency response reports.

The current records management system (RMS) is computerized and compliant with NFIRS (National Fire Incident Reporting System) standards. The agency has incident information, staff activity, and other analysis immediately available for review. The contract ambulance company maintains patient care reports.

2. OVERTIME / COMPENSATORY TIME

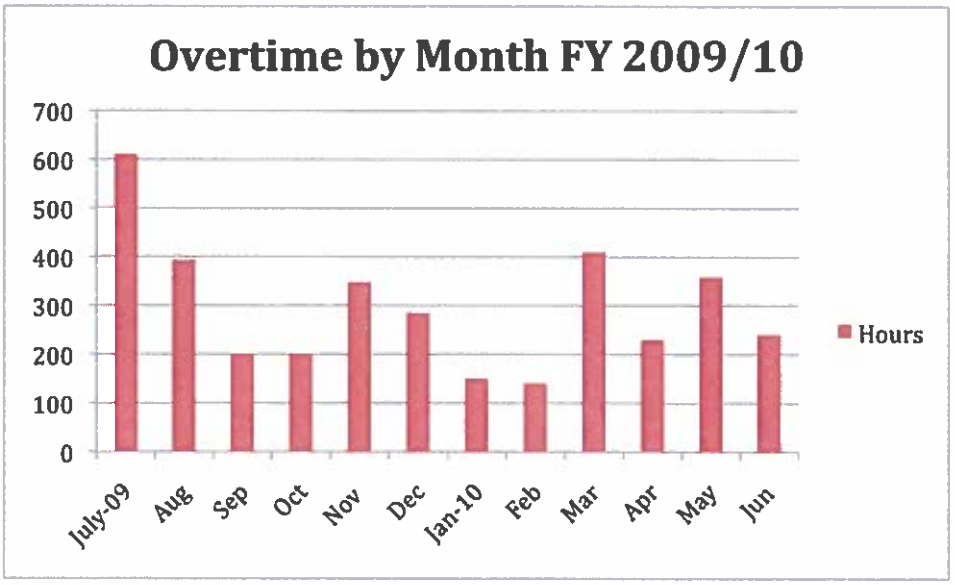
The agency works to reduce overtime by downing apparatus as scheduling of personnel falls due to vacation, sick time, and long-term leave. The current staffing of the department would allow a maximum staffing of 2 engine companies staffed by 3

personnel and 2 patrol companies staffed by 2 personnel. This staffing requires a minimum of ten personnel to achieve.

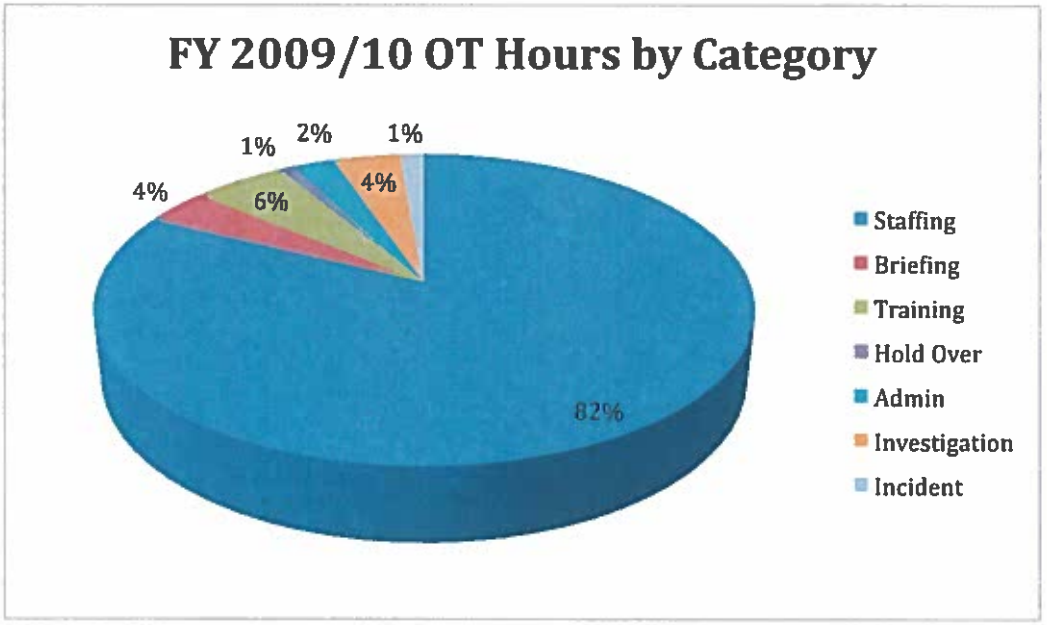
Current staffing due to vacancies and long-term leave is a maximum of nine personnel on one shift and eight on the other two shifts. This would result in the need for overtime on each shift to staff the current unit deployment effectively. Due to this staff shortage a staffing plan to down units as staffing levels falls has been implemented.

The current staffing plan calls for a minimum of seven personnel on duty each shift. The maximum staffing is nine personnel on one shift and eight on the other two shifts. Station two is staffed with a three person engine company, with current staffing levels causing the patrol at Station 2 to be taken out of service. If staffing falls below 8 the patrol at Station 1 is also taken out of service. The current staffing levels have caused the Patrol at station two to be out of service daily.

For FY 2009/10 the month with the most overtime utilized was June. March, May, and November were the next highest months in terms of overtime usage. The following chart depicts overtime usage in FY 2009/10:



Overtime to cover for minimum staffing shortages proved to be the highest category of overtime used in FY 2009/10. The following chart shows overtime by category:



Overtime to staff for minimum staffing shortages was responsible for 82% of the overtime utilized in FY2009/10.

According to the most recent MOU between the bargaining units compensatory time off can be used as a method of compensation for overtime and must be taken within the fiscal year in which the overtime was worked.

3. LABOR MANAGEMENT RELATIONSHIP

Having established labor management relations allows the organization to establish the rules and policies, which govern and organize employment. This establishes the regulations and ensures they positively affect the needs and interests of the employees and employers.

Hanford Fire Department has well established employee representation. There are currently four bargaining units representing HFD employees. The Fire Fighter unit represents line fire fighting personnel, the Fire Captain unit represents the shift supervisors, the Executive unit represents the Fire Chief and other department heads, and the General unit the remaining employees.

All Bargaining units are currently working to renew their respective Memorandum of Understanding, which currently are valid for a one-year period. The Executive unit is a newly formed bargaining unit and does not have an agreement in place with the City of Hanford.

4. DISCIPLINARY SYSTEM

The maintenance of discipline in an emergency services organization is paramount toward ensuring the agency is well run. There is a fine line between allowing members the latitude to perform functions using their best judgment and holding them

accountable for their actions. Employees should be encouraged to behave in a way that exhibits high morale and maintains a safe and healthy working environment.

The City of Hanford has published and adopted a formal, progressive disciplinary process that applies to all City employees. The memorandum of understanding with each bargaining unit further clarifies the disciplinary process and specific steps, which must be followed during employee disciplinary action.

5. RECRUITMENT AND TESTING

As is the case with all businesses, the recruitment of the right personnel is an important function for emergency service agencies. There is tremendous trust placed in public safety personnel by the community. All applicants should be assessed for those attributes considered most important to effectively perform the position for which they applied. The hiring process should be comprehensive to ensure that the personnel are both capable of performing the emergency service delivery tasks and that they will be positive ambassadors for the fire department.

The personnel department serves as the main recruiting arm of the City of Hanford. The department accepts the requests to advertise for positions and advertises at select governmental agencies as well as the Hanford Sentinel. For firefighter positions job announcements are also mailed to all fire academies in California.

The personnel department screens all applications and invites those qualified to participate in the selection process. The selection process for fire personnel includes a written examination and practical exam. Candidates that successful in the initial testing process are then invited to participate in the oral interview board.

After the testing is complete an eligibility list is created for candidates receiving a combined score of 70 or above in the oral board interviews. This eligibility list is retained for a minimum of six months and can be extended at the request of the department in six-month increments for up to two years.

The fire department is then responsible for any final interviews of candidates and conducting reference checks prior to making a conditional job offer. All firefighter personnel are required to pass a psychological examination prior to the pre-employment physical, which also includes a drug test.

Recommendation 12: Utilize medical physical assessments that follow job related standards such as are found in NFPA 1582.

6. FIREFIGHTER HEALTH AND WELLNESS

The physical demands of firefighting and emergency response activities require that members actively incorporate health and wellness into the work environment. Documentation related to the cost effectiveness of injury prevention as related to rehabilitation and work replacement is well documented.

The HFD established an occupations safety and health program for the department in 2010. The policy is focused on satisfying the requirements of NFPA 1500, Standard on Fire Department Occupational Safety and Health Program. This policy places the responsibility for safety and health on all members of the agency and tasks supervisors with enforcing the requirements of occupational safety and health.

The agency also has a fitness program, which requires daily participation for all members up through the rank of captain between the hours of 4:00 and 5:00 pm.

Recommendation 13: Train shift personnel from each shift according to the IAFC/IAFF Peer Fitness Standards to further guide the fitness and wellness program for the agency.

Recommendation 14: Allow flexibility to workout times to ensure calls for service do not preclude daily workouts.

Recommendation 15: Administer a stress test at the time of hire and periodically on incumbent employees based on age and risk factors.

4. INCIDENT STAFFING

In order for a fire department to successfully mitigate emergency situations it requires an adequate, well-trained staff of emergency service personnel to utilize apparatus and equipment effectively and efficiently. When there are too few emergency personnel at a scene the response effectiveness is reduced and the risk of injury to those responding increases.

Direct customer services in field operations are currently provided with 25 career full-time and 10 active volunteer personnel. Of the ten (10) volunteers, four (4) are trained to a level that allows them to engage in interior firefighting operations. The remaining volunteers fulfill support roles at emergency scenes. On critical calls the Fire Chief, Deputy Chief and Battalion Chief/Fire Marshal will also respond to provide command management.

There are a number of tasks, which must occur simultaneously to adequately combat different types of fires. The absence of adequate personnel to perform theses tasks requires each task to be prioritized and completed in chronological order. These fire ground tasks include command, scene safety, search and rescue, water supply, fire attack, pump operations, ventilation, back up, and rapid intervention.

An initial full alarm assignment should be able to provide personnel to accomplish the following tasks:

- Establish incident command outside of the hazard area. This will allow coordination and direction of the incoming emergency response personnel and apparatus. A minimum of one person should be dedicated to this task.
- Establish an uninterrupted water supply of at least 400 gallons per minute for 30 minutes. Once established the supply line can be maintained by the pump

operator to ensure uninterrupted water supply. A minimum of one person is assigned to this task that can then assume support role.

- Establish an effective water flow rate of 300 gallons per minute. This will be supplied to a minimum of two hand lines each operating at a minimum flow of 100 gallons per minute. Each hand line must have two individuals assigned with one serving as the attack line and the other as a back-up line.

- Provision of one support person to handle the hydrant hookup, utility control, forcible entry, and assist in deploying fire hose lines.

- Establish a search and rescue team. Each team will consist of a minimum of two personnel.

- Establish a ventilation team. Each team will consist of a minimum of two personnel.

- Establish an initial rapid intervention team (RIT). Each RIT team shall consist of a minimum of two properly trained and equipped personnel.

Critical tasking will vary depending on the size and nature of the incident. The Commission on Fire Accreditation International (CFAI) provides a sample critical tasking analysis for the number of emergency workers required for the various levels of risk [7]. The CFAI analysis is summarized in the table below showing the minimum required personnel to mitigate the initial emergency response requirements by occupancy risk:

Critical Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	4	4	4	2
Search and Rescue	4	2	2	0
Ventilation	4	2	2	0
Backup Line	2	2	2	2
Rapid Intervention	2	2	0	0
Pump Operator	1	1	1	1
Water Supply	1*	1*	1*	1*
Support (Utilities)	1*	1*	1*	1*
Command	1	1	1	1
Safety Officer	1	1	1	1
Salvage/Overhaul	2	0	0**	0
Command Aid	1	1	0	0
Operations Chief	1	1	0	0
Logistics	1	0	0	0
Planning	1	0	0	0
Staging Officer	1	1	0	0
Rehabilitation	1	1	0	0
Division Supervisors	2	1	0	0
High-rise Evacuation	10	0	0	0
Stairwell Support	10	0	0	0
Total Personnel	**50-51**	**21-22**	**14-15**	**8-9**

*Tasks can be performed by the same individual. **Task can be performed by the attack crew.

It is essential that there exist a response plan in place to be able to deliver a sufficient number of personnel to the scene to accomplish the critical tasks. Structure fires are the most labor-intensive incidents and depending on weather conditions can require additional personnel to maintain an effective operation. The majority of risks in the City of Hanford will fall into the moderate category as this risk category describes a typical single family home. As the size of structure, complexity of the incident, or life safety risks increase so does the risk category. For this reason high occupancy and unprotected structures fall into the high-risk category. This will include assemblies, schools and buildings in the historic downtown.

At current minimum daily staffing levels, HFD has seven (7) personnel available for immediate response to all emergencies. If fully staffed the daily workforce can be as high as a maximum of nine (9) personnel. As shown above this is not an effective

response force and measures must be taken to develop a system to improve incident staffing including training volunteers, requiring all command staff to respond to working fires, automatic aid with Kings County Fire, or hiring additional firefighters to staff existing apparatus.

There are two methods by which resources are typically shared by municipalities, mutual aid and automatic aid. Mutual aid is a traditional agreement where assistance is requested from surrounding jurisdictions when the size and scope of an incident or series of incidents exceeds the resources of the responsible agency. In an automatic aid agreement resources are shared by sending the closest available unit to emergency incidents regardless of jurisdictional boundaries. This ensures the timely arrival of emergency response personnel.

In order to receive credit under ISO requirements, an agency must have a written automatic aid agreement, which:

- Includes a prearranged first-alarm response according to a definite plan.
- Aid is provided 24 hours per day, 365 days a year.
- Offsets a need in the community. For example a neighboring agency's ladder company responding by an automatic aid agreement can meet the ladder requirement if it is able to cover at least 50 percent of the ladder company standard.

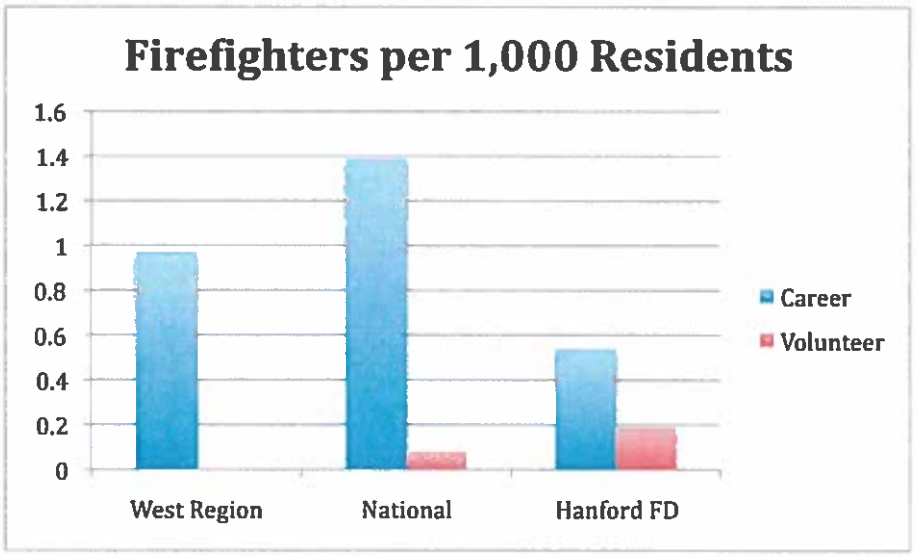
Hanford Fire Department currently operates with a countywide mutual aid agreement and has recently approved an automatic aid agreement with Kings County Fire to assist in protecting the northern portion of town.

Recommendation 16: Establish automatic aid agreements with other neighboring agencies, to assure an effective firefighting force is available to perform critical tasks for all risk levels in Hanford.

Hanford Fire Department personnel serve as first responders to emergency medical calls. The basic life support response capabilities include automatic external defibrillator (AED) capability. Transport services are provided by AMR ambulance service on a contract basis.

1. CAREER VS. VOLUNTEER

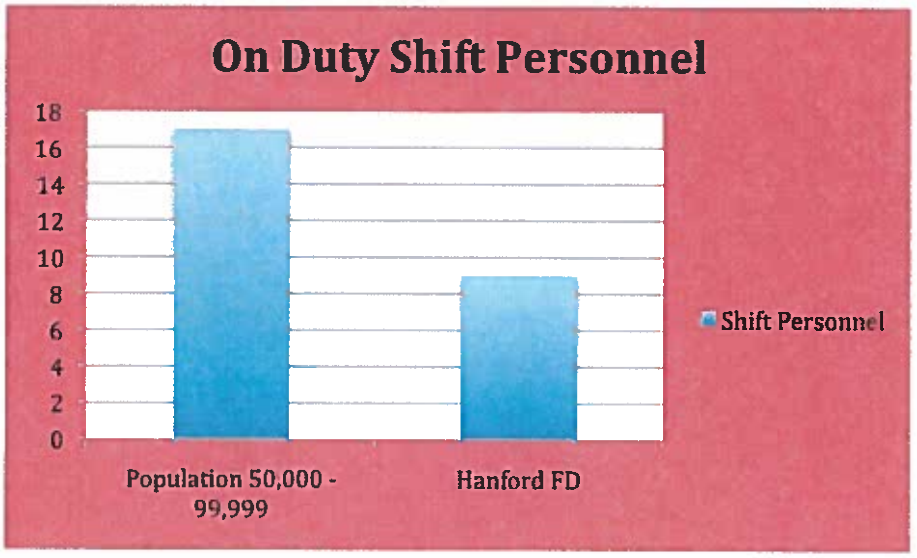
In order to effectively examine emergency staffing we must understand the available emergency service staffing for incidents. The following chart illustrates the staffing of departments in the Western region of the United States based on firefighters per 1,000 population for cities with a population between 50,000 and 99,000 [6].



As illustrated above, Hanford Fire Department has fewer career firefighters when compared to other western cities of similar size. HFD has more volunteer firefighters than the comparable figures available on a nationwide basis for similar sized cities. It is important to note that there are no comparable volunteer statistics for western cities with populations in excess of 25,000.

If Hanford Fire Department chooses to utilize volunteer firefighters to augment the career firefighters, they should plan on recruiting and training four (4) active volunteers for each full time equivalent they are planning to use to staff apparatus. Therefore if the plan is to have one volunteer fill a firefighter position per shift at each station the department would need 24 active, fully trained volunteers. Currently volunteers are required to provide eight hours of service, either at the station or on calls per quarter. The number of hours of volunteer service must be increased for them to be considered part of the effective response force.

A fire department must be able to respond and act quickly in emergency situations. The number of career firefighters who are immediately available to respond to an emergency is an important measurement of response readiness. If volunteers are used they must be staffed at a station to allow an immediate response, otherwise they should be factored as a second or third layer of emergency response. The chart below compares the average number of on-duty firefighters with the national average of on-duty firefighters in a similarly sized community.



As indicated above a typical western city with a population of 50,000 – 99,999 would employ 17 firefighters per shift. On a national level the average daily staffing is 23. Hanford currently employees nine (9) per shift, but with absences the more typical daily staffing is closer to seven (7) on duty personnel per shift.

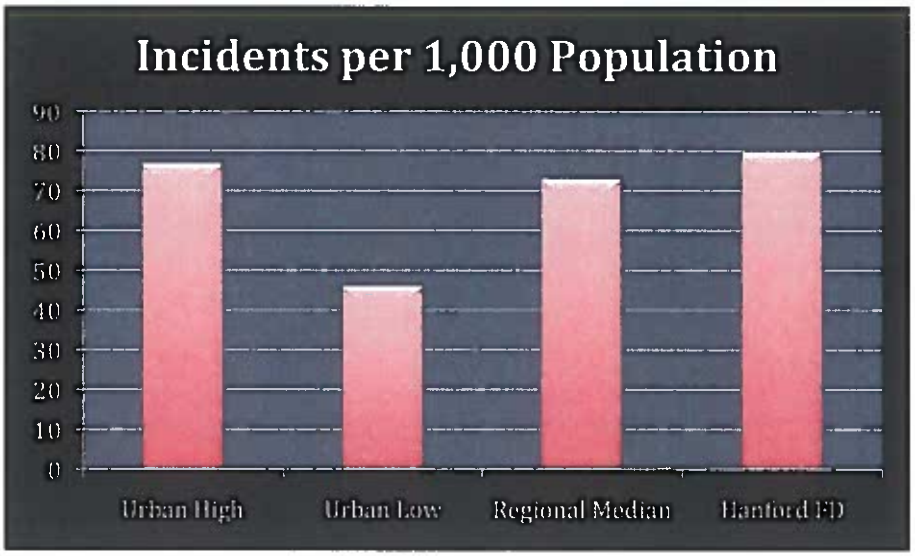
Why is this important? Work at fire ground emergency scenes can be categorized into two key areas: life safety and fire flow. Life safety relates to the number of building occupants, their location within the structure, their ability to take self-preservation action, and their status. For the responding personnel, life safety tasks include search, rescue and evacuation of victims. The fire flow component ensures there is adequate delivery of water to extinguish the fire while allowing firefighters to enter the structure or occupants to escape.

2. EMERGENCY RESPONSE ACTIVITY

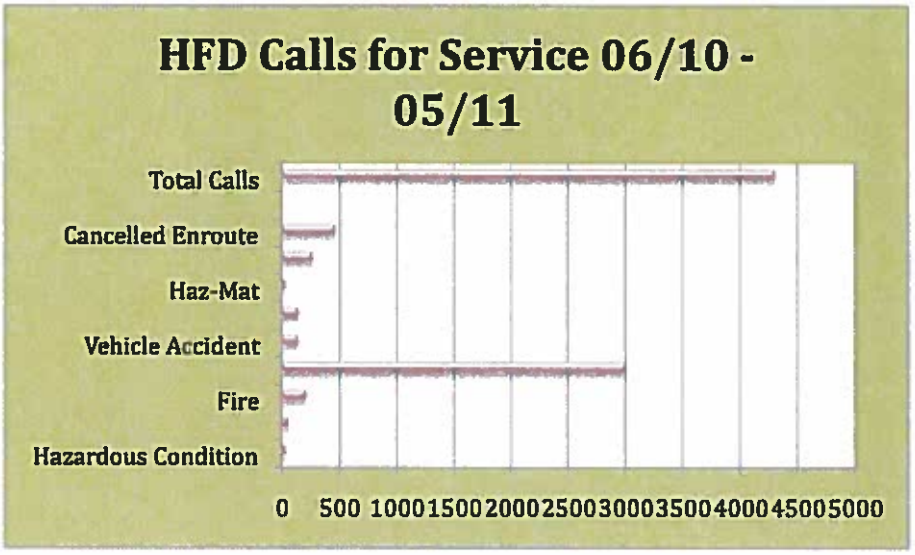
The current trend for fire departments across the country is that there is a declining number of fire calls over the past decade. As the frequency of fire calls

reduced, the workload of fire departments increased as they became increasingly responsible for more issues in communities, these include: medical calls, hazardous materials incidents, technical rescue and every type of household emergency. This has created the need for not only personnel trained as firefighters, but also who can respond to all hazards found within a community.

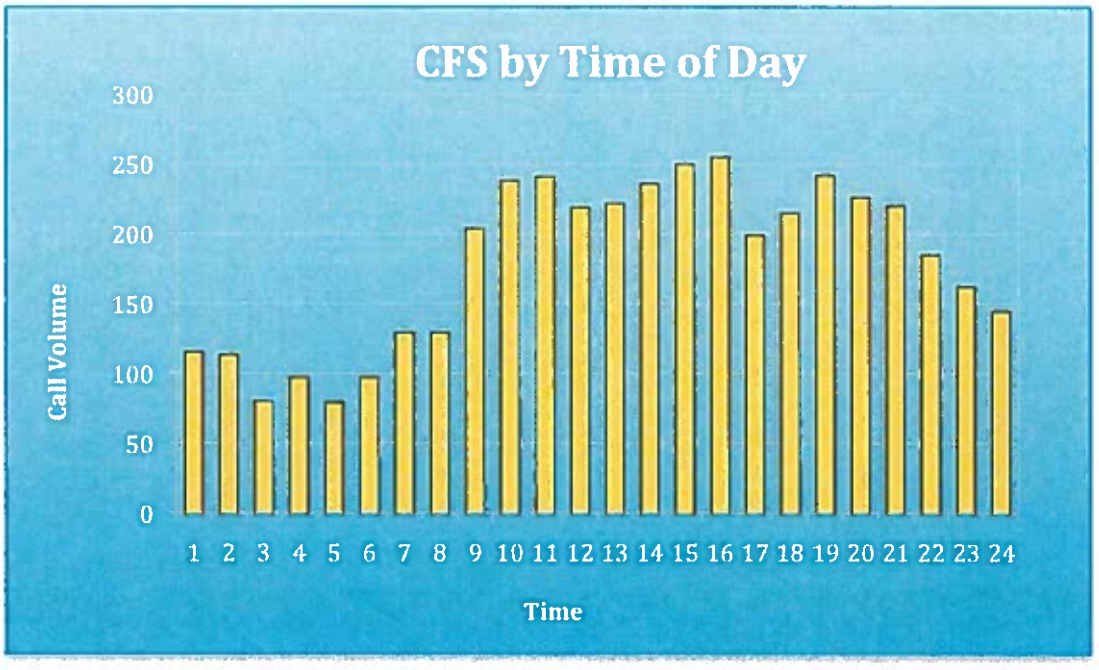
The following chart compares the total emergency responses per 1,000 population for period June 1, 2010 – May 31, 2011 in Hanford with the available national and regional information from the NFPA for they calendar year 2009. As you can see, Hanford responds at the high range in terms of calls for service as compared nationally and above the regional median for the western United States.



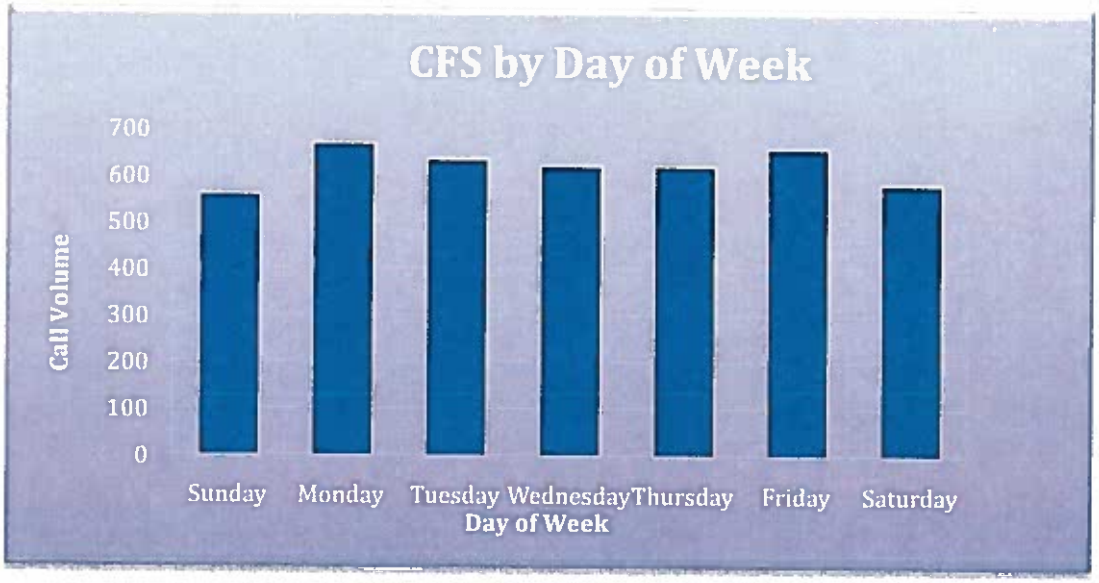
As is the case for most fire departments across the country, the majority of incidents responded to by HFD are medical related.



When calls for service are examined by time of day, Hanford Fire Department shows a trend of responding to the majority of calls between 9:00 a.m. and 9:00 p.m. The lowest demand of calls for service occurs between midnight and 6:00 a.m.



Calls for service are fairly steady in terms of service demand by day of the week. Saturday and Sunday have a slightly lower demand than weekdays.



5. TRAINING

This chapter evaluates and provides goals for the Hanford Fire Department's training program.

1. TRAINING AND SKILLS DEVELOPMENT

Firefighters operate in a complex, dangerous, and dynamic work environment. In a typical year there are over 100 fatalities and 3,000 serious injuries suffered by firefighters worldwide [6]. Effective training is a critical component to prepare personnel to meet the challenges of the various situations and work environments in which they will operate. The delivery of safe and effective emergency services depends on having a well-trained response force.

The reason it is important to establish and maintain an effective training is for firefighter safety. Given the various risks and complexity of the service area Hanford Fire Department responds to both officers and responding personnel must be trained appropriately. The city of Hanford has grown through annexation and has plans to continue to grow its residential and commercial tax-base. This will result in increased service demands for fire personnel. As the city grows, there will likely be new hazards encountered by fire personnel.

The absence of a comprehensive training program compromises the outcomes of emergency situations and places response personnel at increased risks of injury on emergency scenes. Failure to train also exposes the City of Hanford to liability action by employees. Therefore, training must be viewed as a critical function of HFD.

The training program must be designed to develop self-confidence to perform correctly when faced with stressful and hostile working conditions. The training program

should be systematic, while providing constructive feedback to trainees, firefighters and company officers. The goal of the program should focus on performance and ensuring personnel can perform at a high level when an emergency situation exists. Too often, training programs are focused on acquiring a specified number of annual training hours and the quality of the training takes a back seat to hours.

The International Fire Service Training Association (IFSTA) is regarded as the national authority of training for the American fire service. According to IFSTA an effective training program will include: continuous training of all levels of personnel in the department, a master outline or training plan, a system for evaluating the scope, depth, and effectiveness of the training program; and a method for revising the program as needed.

IFSTA continues to state that effective training programs will included the following elements.

Training Administration	Training Division Staffing
Training Schedules	Training Facilities
Training Goals and Objectives	Motivation for training
Methodology for Success	Company Operations and Performance
Varied types of Reinforcement	Member Targeted Training
Organizational Priority for Training	Peer Group Commitment to Training

2. PERISHABLE SKILLS TRAINING

All training provided to emergency personnel should be based on established standards of practice. This focus will ensure personnel will perform as they are trained in emergency situations. Hanford Fire Department has a well-established training program, which falls under the direction of the Deputy Chief of Suppression. The Chief

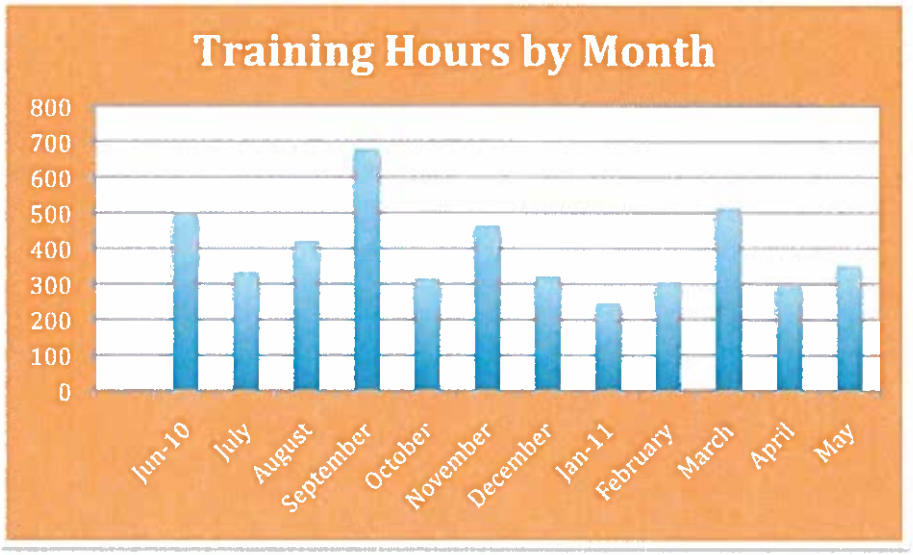
submits annual training goals as part of the budget process and the success in meeting the prior year's goal is also reported at this time.

Hanford Fire Department addresses its training program in the Department Standard Operating Procedures, Chapter 900. The chapter contains performance standards for probationary testing, company performance standards, individual performance standards, NFPA evolutions, company officer performance standards, and utilization of ground ladders.

The current training program in place at Hanford Fire Department is effective at ensuring personnel maintain their perishable skills. The training is focused on a competency-based methodology, where personnel demonstrate the ability to performed a defined skill successfully according to an established standard. The time bound component of the training adds the stress associated with performing under emergency conditions. This type of training ensures that HFD personnel will be capable of responding and providing service to the community in an effective and safe fashion.

The performance-based training requires that personnel can demonstrate that critical skills are taught and practiced. HFD has performance based training for hose evolutions, driver training, and ladder drills. It is the responsibility of the shift Captain to ensure that skills are tested and evaluated according to the quarterly training schedule developed by the Deputy Chief.

The following table shows the number of training hours for Hanford Fire Department personnel by month for the period June 2010 – May 2011.



The following chart compares the number of hours training received by career personnel as compared with the amount of training hours received by volunteers for the period of May 2010 through May 2011

As shown above, career personnel receive a much higher frequency of training when compared with the volunteer staff at HFD. It is critical for the agency to find ways to increase volunteer training for them to be an effective resource for the agency.

Recommendation 17: Develop a monthly training plan, which requires participation for volunteer staff to ensure they remain proficient in their assigned tasks.

3. TRAINING OVERSIGHT

The Deputy Chief of Suppression is responsible for the coordination and development of training at HFD. The shift Captains ensure the training is implemented according to the quarterly schedule.

Annual training goals and objectives are developed by the Fire Chief and included as part of the budget submitted to the City Manager and ultimately the City Council. The department should conduct an annual needs assessment to identify training needs and further the use of shift Captains in the development of training goals and objectives.

Recommendation 18: Develop a process where an annual needs assessment is conducted to determine training needs and shift officers are part of the planning process.

4. TRAINING FACILITIES

Hanford Fire Department does not currently have any training or drill facilities. The nearby College of the Sequoias (COS), located on 13th Avenue conducts a fire academy, which exceeds the curriculum requirements of the California State Fire Marshal's Office for Fire Fighter I certification. The College has a 2 story burn building and a single story flash over building that provides extremely realistic fire fighting situations and offers the opportunity to repeat scenarios as many times as necessary.

Developing or expanding existing relationships with the local college can provide excellent training opportunities for HFD personnel while minimizing costs associated with constructing training facilities.

Recommendation 19: Explore the opportunity for HFD personnel to train while utilizing the facilities at COS.

Recommendation 20: Explore the opportunity to conduct multi-company operational drills with nearby agencies to ensure standardized procedures are followed during incidents requiring outside aid.

Recommendation 21: Consider developing a mentoring program to prepare future company officers and command staff.

5. TRAINING RECORDS

NFPA 1401, training records states the importance of accurately recording, maintaining, and preserving training records. Hanford Fire Department is minimizing liability exposure by ensuring training records are accurate, complete, and entered timely into the records management system. Personnel training records are maintained in electronic format and are retrievable through the department's records management system.

6. CAPITAL ASSETS AND CAPITAL IMPROVEMENT PROGRAM

This chapter evaluates and provides goals for the Hanford Fire Department's capital improvement program and approaches to asset management.

1. CAPITAL IMPROVEMENT PLAN

The City of Hanford has a well-established Capital Improvement Plan (CIP). A well-planned and well-defined CIP has a significant impact on both the image and operation of a city and its capital assets.

The City of Hanford CIP covers a five-year planning horizon and is updated annually to reflect ongoing changes and make additions to the plan. The document is prepared by the Public Works Department and is based on strategic planning input from Council, submissions from other City departments, and approval of the City Manager. It is then submitted to the City Council for adoption along with the City's annual budget. Only the first year of the plan is funded with the adoption of the budget. The remaining years function as a budgeting and planning tool for future projects and program consideration.

Included in the current CIP is $60,000 for a Fire Department Master Plan in FY 2013/14 and $535,00 for expansion of fire station number one, which will enlarge the apparatus bay and fitness area and add an additional bedroom in FY 2014/15. Planned projects outside the current CIP are the construction of Fire Station 3 for $4,000,000, construction of Fire Station 4 for $4,265,000, and remodeling of the historic downtown fire station for $1,250,000.

2. FIRE STATIONS

Fire departments operate from a fixed facility response method. That is, they plan response capabilities around fire station location and the ability to respond to emergencies in a timely and effective manner. Poorly located fire stations can make the difference between containing a fire to single room as compared to losing the entire structure or saving vs. loosing a life. Station location should be researched based on call volume, response times, types of emergencies, and projected growth. The design of the station needs to meet the needs of the organization and its members. Apparatus types, number of personnel, equipment, and appropriate storage need to be fully considered as stations are planned.

Hanford Fire Department currently delivers emergency services from two fire stations. Station one serves as the administrative headquarters of the agency and is located at 350 W. Grangeville Blvd. Station two is located at 10553 Houston Ave. The agency has purchased property for the construction of two additional stations in the future at the intersections Centennial Dr. and W. Berkshire Ln. and Woodland Dr. and 12th Ave.

The following table provides a summary of HFD stations:

Facility	Year Built	Square Footage	Condition	General Appearance
Fire Station 1	1988	10,402	Excellent	Excellent
Fire Station 2	1989	5,000	Excellent	Excellent

3. FIRE APPARATUS

Well-designed and maintained apparatus are an important piece of effective emergency service delivery. Poorly maintained apparatus lessens the effectiveness of emergency personnel and effect the reliability of response. Effective service delivery relies on a combination of personnel, apparatus, and equipment.

Fire apparatus are an expensive capital expense for a municipality as they are customized to operate efficiently for a narrowly defined mission. Depending of the risks present in a community a various number of apparatus may be required for the fire department to fulfill its mission. This could include pumpers, aerial devices, hazardous materials units, recue units, and brush trucks. Due to the expense and lack of flexibility in use of these vehicles most communities try to achieve the longest possible useful life span.

As apparatus age the cost of repairs tends to rise, as does the frequency of needed repairs. This often results in apparatus being out of service and unavailable for emergency response. The downtime of vehicles is often a reason for replacement as the agency is unable to fulfill its emergency mission with the proper apparatus.

The large expense required to replace fire apparatus requires communities to plan well ahead for the cost of replacement. A defined life cycle should be established, which results in an anticipated replacement date. This allows for incremental funding to be set aside to ensure dollars are available when needed. Some communities also include apparatus as part of the CIP process to ensure capital funds are available for the purchase of these capital assets.

NFPA 1901, Standard for Automotive Fire Apparatus, is a nationally recognized industry standard that defines the requirements for new fire apparatus [8]. The current NFPA Standard calls for a life cycle of 15 years with an additional five years in reserve for both front-line engines and aerial devices. It is important to note that this is a recommendation and the actual use may dictate of different replacement schedule. For example a busy downtown metropolitan fire station may replace engines in eight to ten years while small rural volunteer agencies may keep apparatus in service for as long as 25 years.

The following table shows the current apparatus in use as front-line and reserve apparatus for HFD.

Apparatus Designation	Type	Year	Make	Condition	Staffing	Pump Capacity (GPM)	Tank Capacity
Engine 1	Pumper	1998	Ferrara	Fair	3 - 4	1250	500
Engine 2	Pumper	2004	Pierce	Good	3 - 4	1250	500
Patrol 1	Rescue/ Brush	2000	Ford	Good	2	125	450
Patrol 2	Rescue/ Brush	1995	Chevrolet	Fair	Reserve	125	250
Engine 201	Pumper 50' waterway	1987	Ford	Fair	Reserve	1250	500
Engine 202	Pumper	1990	Westates	Poor	Reserve	1250	500
Haz Mat 1	Specialty	2007	Pierce	Excellent	N/A	N/A	N/A

The current apparatus replacement schedule in use by Hanford Fire Department is 25 years; with 20 years being front-line service and 5 years in a reserve capacity.

When calculating replacement costs of vehicles it is important to consider the capital equipment that is used on the vehicle in factoring replacement costs. This capital equipment will include radios, breathing apparatus, hose, appliances, rescue tools, and ground ladders.

Recommendation 22: Review the current apparatus replacement schedule to ensure the current schedule is providing safe and reliable emergency response.

Recommendation 23: Include the cost of capital equipment when developing apparatus replacement projections.

Recommendation 24: Consider adding fire apparatus to the current City CIP planning process or develop a capital improvement plan for the Department.

4. PUMP, HOSE AND LADDER TESTING

Pump and hose testing should occur annually and be documented. The purpose of this testing is to maintain reasonable assurance for firefighter safety by testing pumps, hoses, and couplings to ensure they work as designed. Fire is especially susceptible to damage by heat, fire, and friction. Damage from chemical exposure, excessive pressure, and mold and mildew can also shorten the life of fire hose. The Department should maintain a current inventory of all fire hoses and record when each section of hose was placed into service, tested, and removed from service. The current hose testing procedures in place at HFD meet NFPA 1961 standards. Operations personnel are assigned the responsibility of conducting and recording hose and pump testing annually.

A third party vendor tests ground ladders and the aerial apparatus annually.

5. PROTECTIVE EQUIPMENT

Minimizing the buildup of contaminants on turnout gear can have a positive effect on the health and wellness of firefighting personnel by reducing their exposure to the contaminants, which collect on the gear during fire ground operations. NFPA Standards 1500, 1581, and 1971 address the health and safety risks associated with contaminated turnout gear. It is recommended that protective clothing be cleaned at a minimum of

every six months. Regular cleaning and inspection of turnout gear will extend the life of the gear and allow a longer replacement cycle for protective gear.

Hanford Fire Department has a commercial washer/extractor for the routine cleaning and maintenance of bunker gear. These extractors when used with approved cleaning solutions provide an approved method for cleaning turnout gear.

7. FIRE PREVENTION AND PUBLIC EDUCATION

As a community develops its fire prevention program, four key components should be included to support the goal of reducing the danger and incidence of fires.

- Public Education
- Code Enforcement
- Fire Suppression
- Fire Investigation

Each of these functions should work together to achieve the fire prevention goals of the community.

Having a proactive risk management program as part of the fire prevention program will provide a department with the best opportunity to minimize the losses and trauma associated with fires. The International Association of Fire Chiefs (IAFC) has defined proactive fire service as one that embraces new, proven technology and built-in protection, like automatic fire sprinklers and early detection systems, combined with aggressive code enforcement and strong public education.

The fire department should work with developers to actively encouraging the use of fire resistive construction and built-in early warning and fire suppression systems. Educating the public to recognize and minimize the risks associated with fire should also be a major focus of the department.

1. OVERVIEW

The Hanford Fire Department has a structured fire inspection and public education program in place. The purpose of these programs is clearly stated in the Fire Inspection Manual.

Fire Inspections focus on:

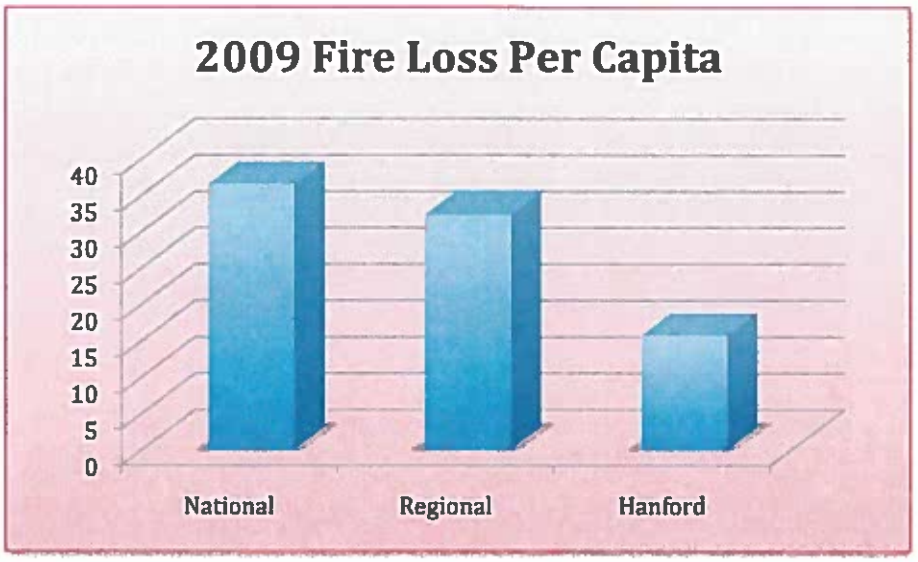
- Examining what is most likely to cause a fire and where it will start.
- Determining how occupants would escape the building in the event of a fire.
- Finding what in the building would cause the fire to spread or increase in intensity.

Public Fire Education focuses on:

- Teaching the occupants to make the building safer.
- Providing information that promotes a positive image of the fire department.
- Fostering a positive attitude about fire safety.

Annual fire loss is a valuable measurement to judge the effectiveness of the fire prevention program. The Hanford Fire Department uses fire loss as one of its service level indicators on their annual report. For the fiscal year 2009/10 the fire loss in Hanford was $840,623.00, which equates to a fire loss of $15.58 per capita. Based on this data it appears that HFD is effective with its fire prevention efforts.

The following chart compares the fire loss per capita for fire departments serving similar sized populations to HFD [9].



These numbers can be deceiving since the dollar loss associated with one large fire can change the per capita loss significantly for a single year. Through May in FY 2010/11 the fire loss in Hanford is $903,921 or $16.75 per capita, still well below the national and regional figures.

Recommendation 25: Begin tracking annual fire loss per capita and average 5-year trends to ensure your fire prevention efforts remain effective.

2. FIRE CODE ENFORCEMENT

As shown earlier, Hanford would need to employee 15 shift personnel per day to maintain an effective response force to structure fires. This would mean hiring 20 additional firefighters, which currently is not a financially viable option for the City. To reduce the risk to responding personnel, the Department must focus on preventative efforts. One of the early elements of the fire prevention program occurs during the plan review of new construction and remodels of commercial occupancies. This review examines the proposed projects to ensure they are compliant with local fire code

requirements. The more involved the fire department is in the plan review process the less potential exists for future fire protection issues in a community.

The design and construction of a building can help contain a fire. Placement of walls and exits will affect the ability of people in the building to exit in a safe and expedient manner. Regular inspection and maintenance is required of buildings and their fire protection systems to ensure they are working properly. Inspections should ensure paths to exits are clear, fire extinguishers have current inspections, fire protection systems have current inspections, fire detection systems are working properly, and emergency lighting operates.

The fire marshal oversees the fire and life safety program for the City of Hanford. This includes plan reviews for new construction and periodic site inspections during the construction process. Building permits and final certificate of occupancy permits are approved by the City of Hanford Community Development Department after the fire marshal has signed off on the fire and life safety portion. The process is well established and ensures the fire department is involved in new construction occurring in the City.

The City of Hanford has adopted the 2010 California Fire Code, Code of Regulations Title 24, Part 9. A strong component of the amendments are the requirement for fire sprinklers in many instances; including, in any new building with a total floor area exceeding 5,000 square feet. While most commercial building are required to have fire sprinklers in the International Code, over three-fourths of the fire deaths experienced in the United States each year occur in single-family homes, where sprinklers are not required. This amendment in the code is a positive step to ensure that larger homes are protected, which is bar far the most effective way to prevent the loss

of lives and property due to fire. The installation of residential fire sprinklers is becoming a trend in many communities across the country and is required in the 2009 International Fire Code.

3. OCCUPANCY INSPECTIONS

Occupancy inspections are used to locate and mitigate potential fire hazards to reduce or prevent the occurrence of fire in a community. Different types of occupancies pose different levels of fire risk and require different inspection schedules. These inspections ensure compliance with applicable codes and verify activities are being conducted in a safe manner.

Fire departments can use inspection time as an opportunity to educate the occupants while mitigating hazards that exist in the buildings. Inspections of commercial, industrial, places of assembly, and facilities open to the public are designed to identify and eliminate potential fire hazards before an emergency occurs.

NFPA standards recommend the frequency of fire safety inspection, which vary by the type of occupancy. Generally, inspections are classified by the degree of hazard with higher hazards being inspected more frequently.

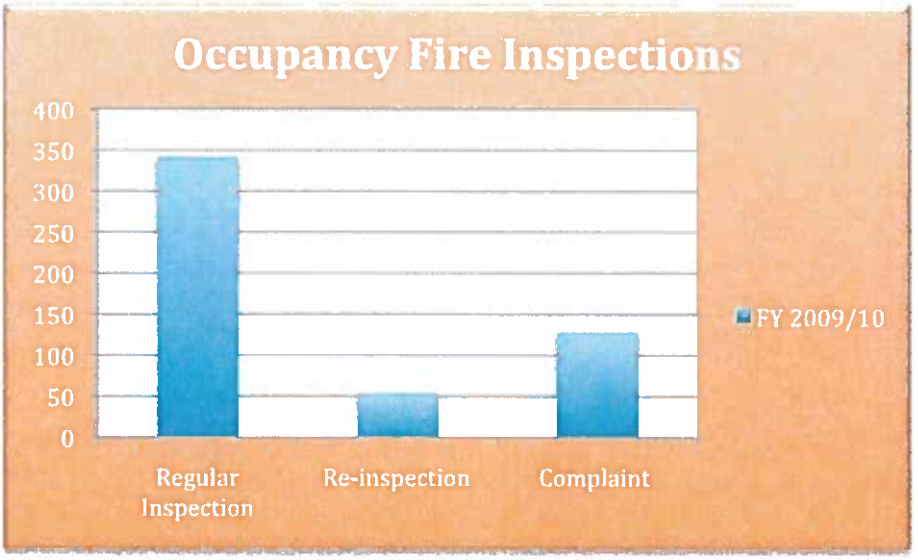
The following table illustrates the NFPA recommended frequency of inspection by hazard class and facility type:

Hazard	Example Facilities	Inspection
Low	Small stores, general offices, medical offices, non-flammable storage, and apartment common areas.	**Annual**
Moderate	Gas stations, stores larger than 12,000 square feet, restaurants, schools, hospitals, manufacturing facilities, small industrial uses, auto repair shops, storage of moderate flammables or hazardous materials.	**Semi-annual**
High	Nursing homes, large users of flammable liquids or hazardous materials, bulk flammable liquid storage facilities, facilities classified to handle "extremely hazardous substances."	**Quarterly**

During interviews with HFD personnel it became clear that while HFD recognizes the importance of conducting fire and life safety inspections on a regular basis; many occupancies in the City are not being inspected.

The current occupancy inspection program in place has inspection cycles as long as two-years for general commercial occupancies. According to the fire marshal there are approximately 2,000 businesses requiring an inspection and HFD has not prioritized their inspections based on occupancy or risk.

The following table shows the number of businesses inspected annually in Hanford in FY 2009/10.

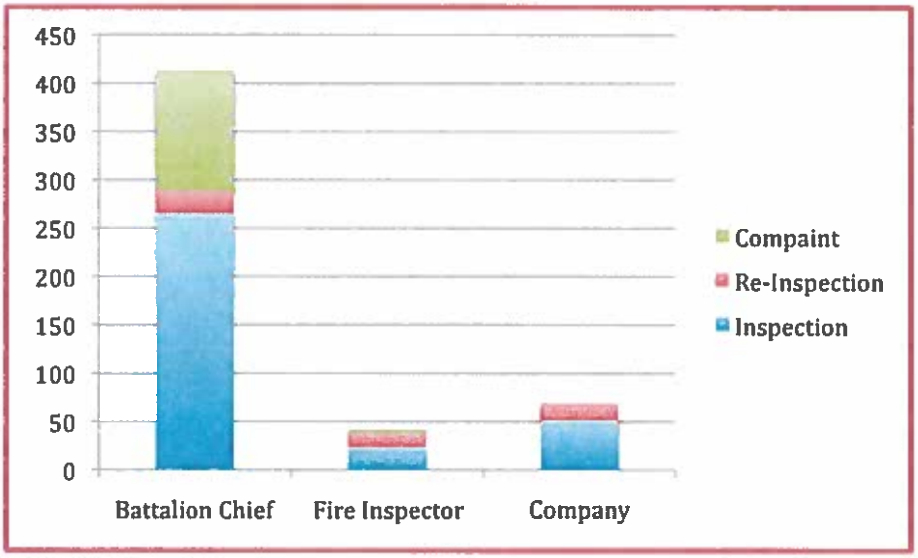


Based on this data it is clear that the majority of businesses in Hanford are not inspected on the two-year cycle currently in place. The Department should develop a goal to inspect higher risk occupancies and all occupancies with a sprinkler or detection system annually. The fire marshal and fire inspector both indicated that current workloads and other project assignments cause this failure in meeting inspection frequency.

Hanford Fire Department is using on-duty fire personnel to conduct company inspections, which is a common method for inspecting low hazard occupancies. These inspections serve several purposes including: building familiarization, pre-fire planning, training, identification of fire code violations, and public relations. If serious fire code violations are discovered those should be sent to the fire marshal for follow-up. These company inspections should occur in the first due response area to ensure personnel remain available for immediate response.

Hanford fire personnel are currently not performing any pre-fire planning activities on commercial occupancies in the City. In past years pre-fire planning was part of the promotional process so there do exist some plans, but those are dated and should be re-evaluated to determine if the data is correct.

The following table shows the inspections by person or group during FY 2009/10:



Shift personnel are trained to conduct the company inspections, but it appears that based on current workload data they could be performing more company inspections on an annual basis. In FY 2010/11 through May 22 company inspections have been performed. With appropriate daily staffing the Patrols could be assigned the hydrant maintenance duties, while Engine Companies perform company inspections.

A self-inspection program for small, low risk occupancies is another program that can be developed to reduce the workload on prevention staff. When administered properly, these programs are an effective way to address inspecting small business.

Recommendation 26: Consider *adopting the NFPA recommended inspection frequency standard.*

Recommendation 27: Formalize and schedule company inspections on a regular basis.

Recommendation 28: Develop a risk classification for commercial occupancies and pre-fire plan occupancies based on risk.

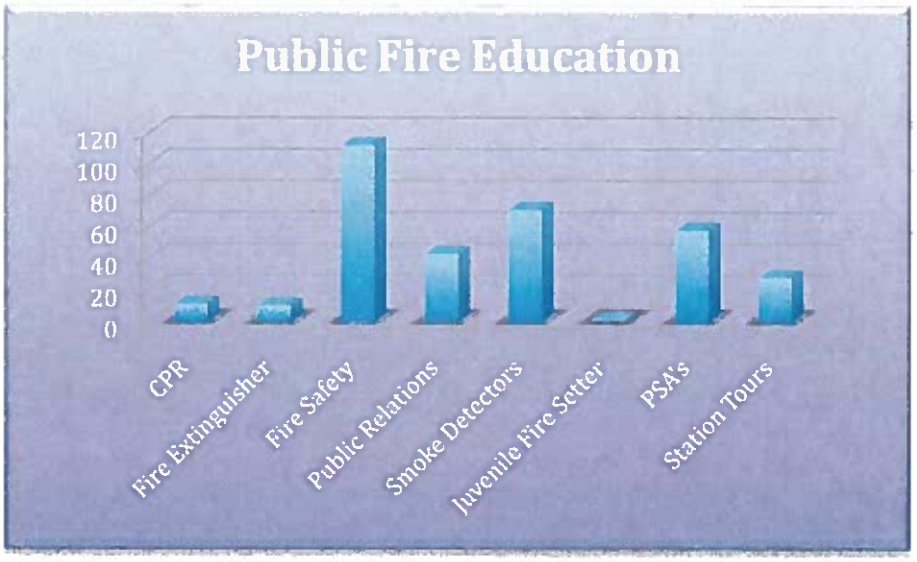
Recommendation 29: Consider establishing a self-inspection program for small, B-type occupancies.

4. PUBLIC EDUCATION PROGRAMS

Providing public fire education programs can have a very positive effect on minimizing the occurrence of fire in a municipality. Strong education provides an opportunity to minimize the effects of fire, medical emergencies, and disasters on a community.

The fire marshal schedules fire education programs, which are taught by the fire marshal and shift personnel. These include CPR classes, juvenile fire starter program, fire extinguisher training, station tours, general fire safety, residential safety inspections, distributing public safety announcement, and smoke detector installs.

The following table illustrates the fire education programs in FY 2009/10:



Hanford Fire Department places a high priority on public education, but has limited resources. The department should explore opportunities to use department volunteers to further their public education efforts.

The smoke alarm program is a very effective means to decrease fire-related fatalities. Most of the fires in the United States occur in residential occupancies. In 2009 fires caused 3,010 deaths and 17,050 injuries in the United States. This is a dramatic decline, which can be linked to smoke detector use. In 1975 less than 5% of homes had working smoke alarms; today that number is closer to 90% [(9)]. In the same time period deaths dropped from 9,000 to the current number of just over 3,000 annually. Hanford Fire Department should continue their efforts to ensure that every home in Hanford has a working smoke detector.

Recommendation 30; Evaluate opportunities for utilizing department volunteers in the fire prevention and public education efforts.

5. PUBLIC INFORMATION AND MEDIA RELATIONS

Maintaining positive public relations is the responsibility of all employees of HFD. The public information component is important in developing positive public attitudes toward the department. Establishing and maintaining a good working relationship with the news media will assist HFD in meeting their public education goals by communicating with the residents they serve.

Per HFD policy only the Chief, Deputy Chief, Battalion Chief and Captains are authorized to release information to the media. The policy does not address how relationships with local media will be developed and maintained, nor does it discuss what is releasable and what is not releasable in press releases.

Recommendation 31: Revise the current press release policy to provide guidance on what information is not to be released and how media should be handled on emergency scenes.

6. FIRE CAUSE DETERMINATION

The fire marshal is tasked with the responsibility for supervising cause and origin investigations to determine how fires start. Cause and origin investigations are a team effort between the fire marshal and shift personnel. Detectives from Hanford Police Department assist and provide law enforcement expertise when needed.

7. USE OF STATISTICAL DATA

Accurately documenting and recording the records related to emergency response provides the department an opportunity to evaluate the performance of their emergency response and prevention programs. With a coordinated data collection and analysis process in place, incident records can be analyzed to determine a number of important incident factors.

The Hanford Fire Department uses RescueNet Fire RMS system by Zoll Data Systems to record emergency response data, training information, and various other fire department activities.

Fire cause and origin information is documented in the records management system (RMS) and included in the department's NFIRS record of the incident. Capturing this information gives HFD the ability to monitor why fires are occurring in Hanford; while providing the fire marshal information to target fire prevention and public education programs toward areas of concern.

The fire department is effectively utilizing their RMS system to manage department records. During interviews it was discovered that the fire prevention division is not conducting routine analysis of the records. This analysis should occur to identify fire risk and occurrence so the findings can be correlated into the planning efforts of the department.

A well-maintained historical record serves as a valuable tool for planning and decision-making. These records provide valuable historical data for outside agencies such as the ISO when they conduct a site visit to evaluate the department's current ISO rating. The department can also use this data to produce an annual report of fire department activity.

Hanford Fire Department currently produces an annual report, which includes numerical data on activity, training hours, response time, incidents and fire loss. The report; however, does not conduct any analysis or provide statistical analysis with trends or community service level indicators. It also does not provide the reader with an indication of what the agency has implemented or improved over previous years.

Recently the department used prevention data to understand which fire management area would most benefit from a smoke and carbon monoxide detection and installation and education program.

Recommendation 32: Continue to incorporate the use of prevention data and analysis into department operations and planning activities.

Recommendation 33: Publish an annual department report containing an overview of major events, significant changes, and analysis of performance trends.

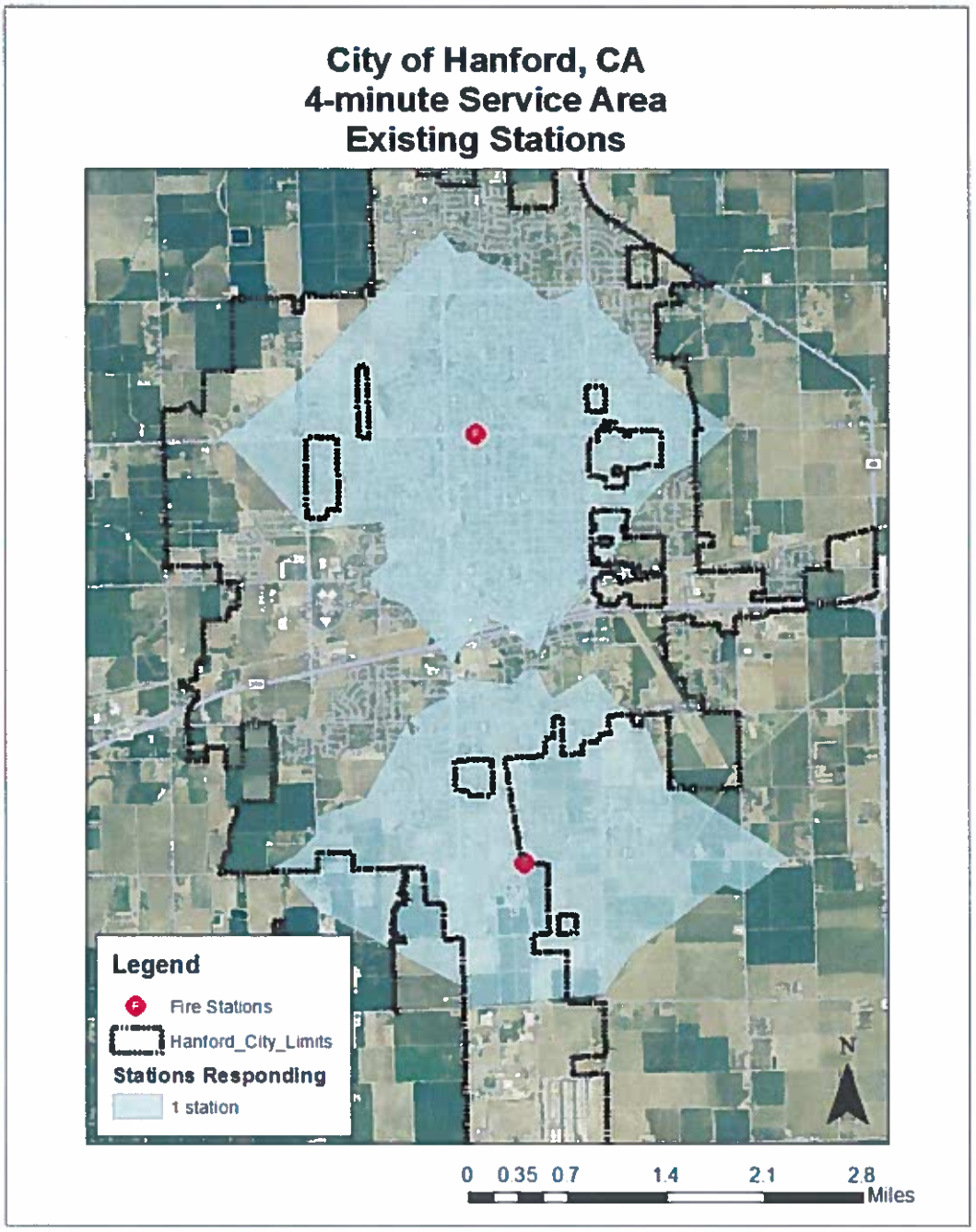
8. CURRENT DEPLOYMENT STRATEGIES AND PERFORMANCE

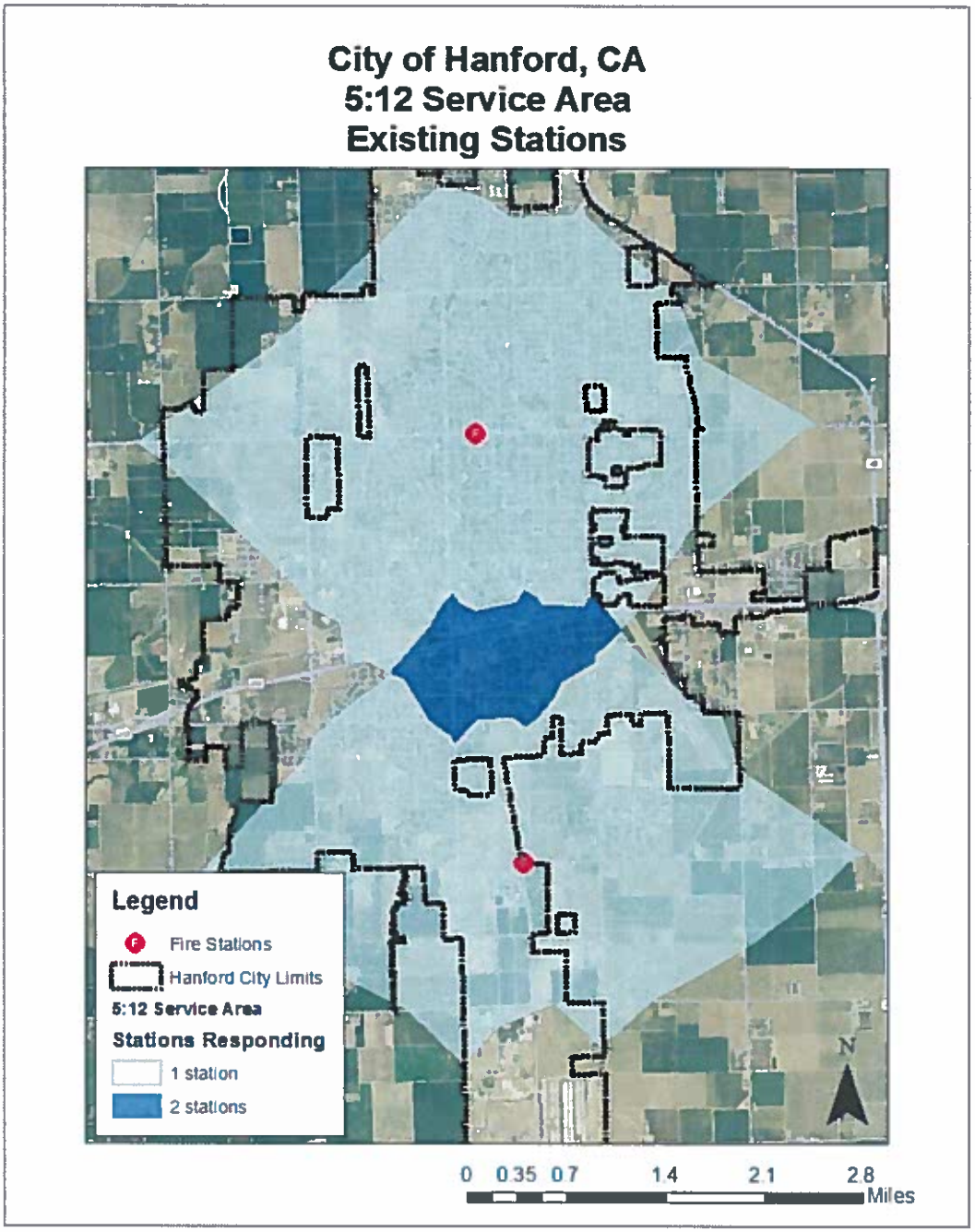
This chapter evaluates the Hanford Fire Department's system performance and deployment.

1. DISTRIBUTION ANALYSIS

Hanford Fire Department operates from two fire stations located within the city limits of Hanford. These stations are responsible for providing emergency response in a 16.5 square mile area. The current stations are located in the north central and south central portions of the City. The City has purchased land for two additional fire stations, which are to be constructed at a later date as development occurs and the tax base can support the additional infrastructure.

The following map demonstrates the travel time capability for emergency apparatus when it leaves the fire station using the current station locations. The first map indicates areas that can be reached in four-minute travel time, while the second map shows areas that can be reached in five-minute twelve-second travel time.

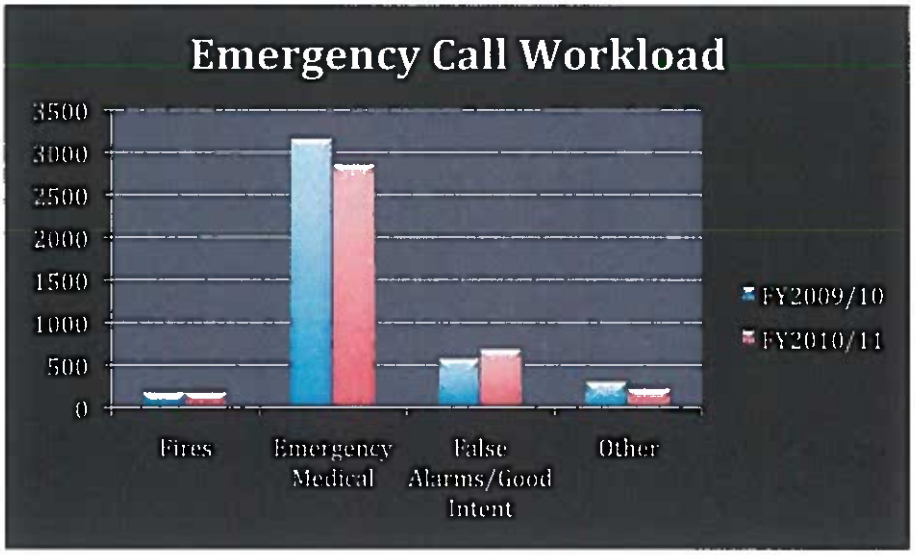

City of Hanford, CA
4-minute Service Area
Existing Stations
Legend
Fire Stations
Hanford_City_Limits
Stations Responding
1 station
N
0 0.35 0.7 1.4 2.1 2.8
Miles


City of Hanford, CA
5:12 Service Area
Existing Stations
Legend
Fire Stations
Hanford City Limits
5:12 Service Area
Stations Responding
1 station
2 stations
N
0 0.35 0.7 1.4 2.1 2.8
Miles

When examining the areas able to be reached in four minutes it is clear that many developed areas fall outside the four-minute travel area. When travel time is expanded to 5:12, much of the developed area can be reached in that timeframe. A notable exception is the extreme southern portion of the City.

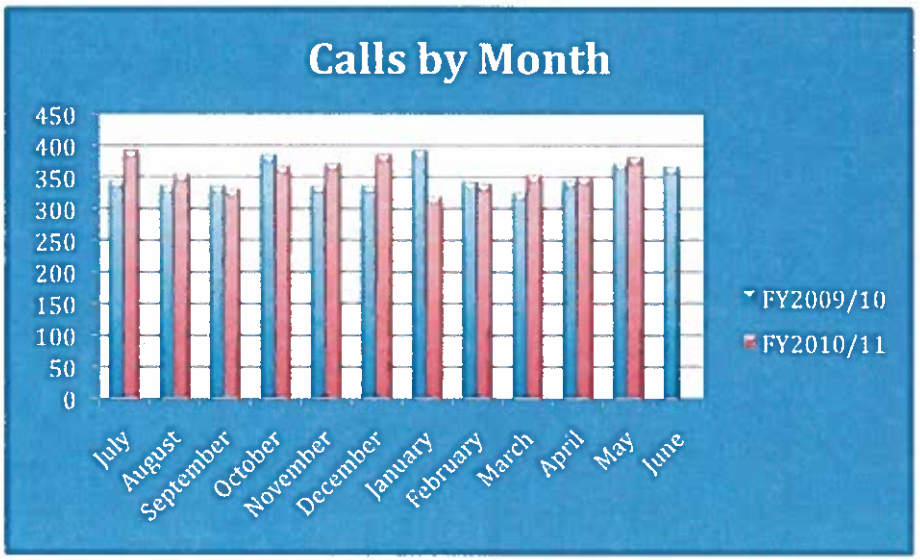
2. DEMAND ANALYSIS

Call for service data was provided for FY 2009/10 and FY 2010/11 partial. The following chart details the volume of calls by type for those periods.



The partial data for FY2010/11 (11 months) shows that total calls for service will remain fairly stable for HFD. The actual number of fire incidents appears to very stable. Medical emergency calls accounted for the majority of responses, which is typical for agencies that are first responders to EMS incidents.

A review of incidents by month will indicate if there are seasonal demands, which cause an increase in emergency service delivery.

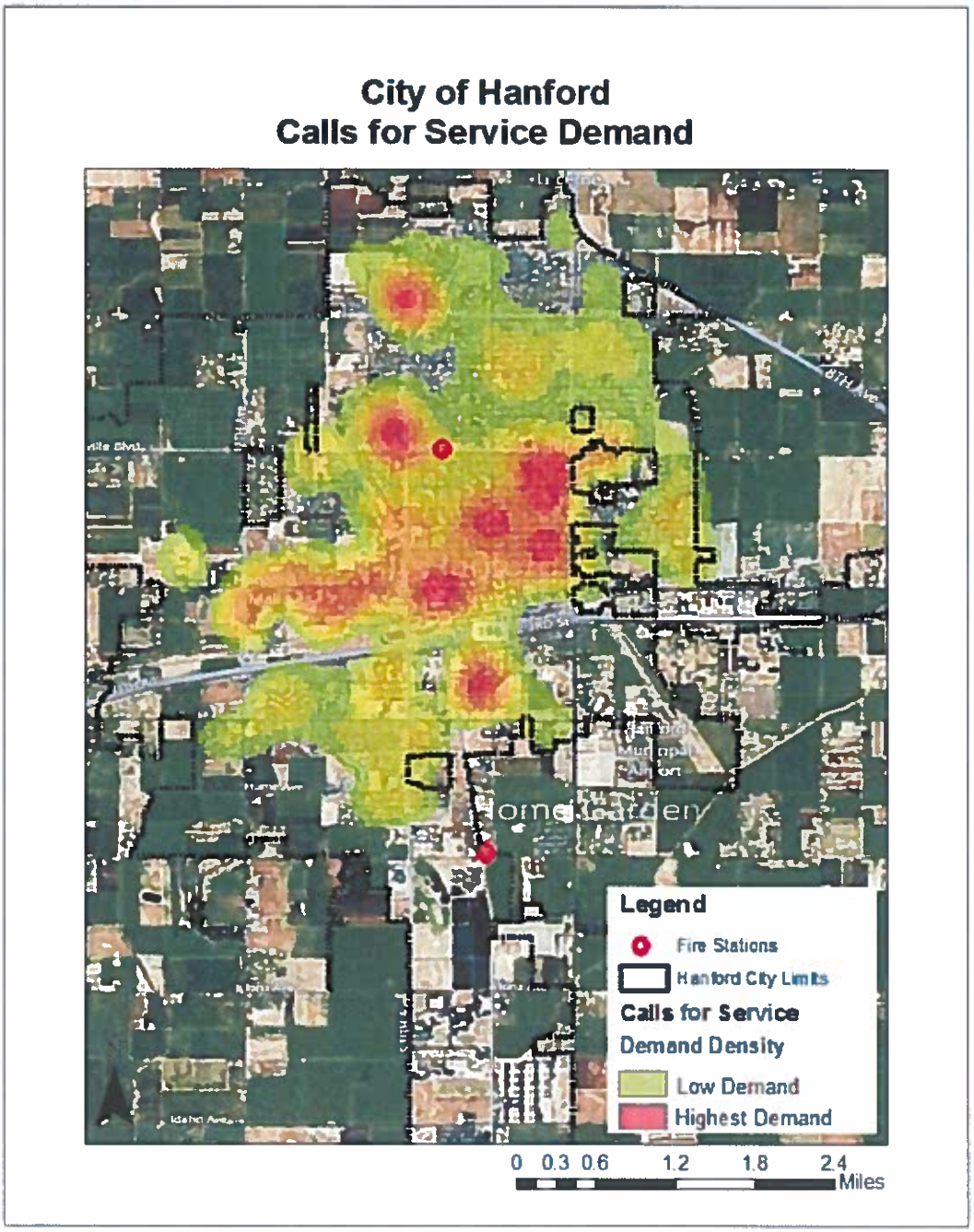


The review of calls by month indicated that call volume for the fire department is relatively stable throughout the year.

As you will recall from an earlier section the calls for service by day of week were also relatively stable with slightly higher call volume on Monday and Friday. When calls for service by hour of the day were reviewed, it showed a gradual increase in call volume beginning at 9:00 a.m. and a decrease beginning at 9:00 p.m.

A review of the geographic location of calls will allow the assessment of current station locations as compared to the call demand for fire services. This will also allow a graphic representation of which of the two additional facilities would need to be constructed first based on a call volume perspective.

The following map indicates the distribution of incidents responded to by HFD using FY2009/10 call for service data.

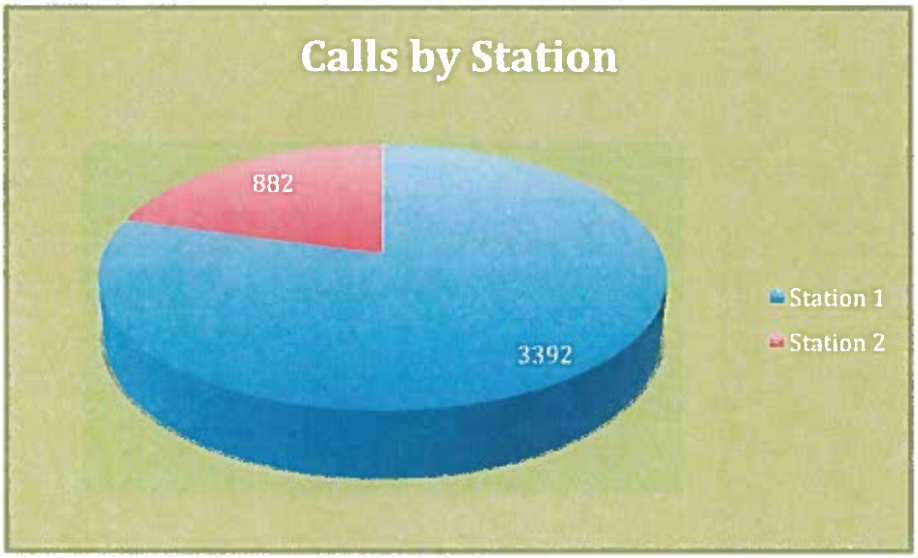


The map shows the highest volume for fire service calls exists in the center of the City. There are two smaller pockets of high call volume in the north and one just south of Hwy 198.

3. WORKLOAD AND FAILURE RATES

The workload of emergency response units can be a factor in response time performance. If a station is committed to a call, it is not available for emergency response and the other station would be required to respond out of district to handle the emergency.

The following chart shows the number of incidents responded to in FY2009/10 by each station. You can see that Station One is responding to the majority of emergency calls (79%) as compared to Station Two (21%).



Another method to review resource workload and available is to examine concurrent calls for service. This is when more than one emergency call occurs at the same time. This is important since there are limited resources available to respond to calls, available resources are quickly stretched thin and response time extend as mutual aid units must be called or the calls hold until apparatus can clear from the current emergency call.

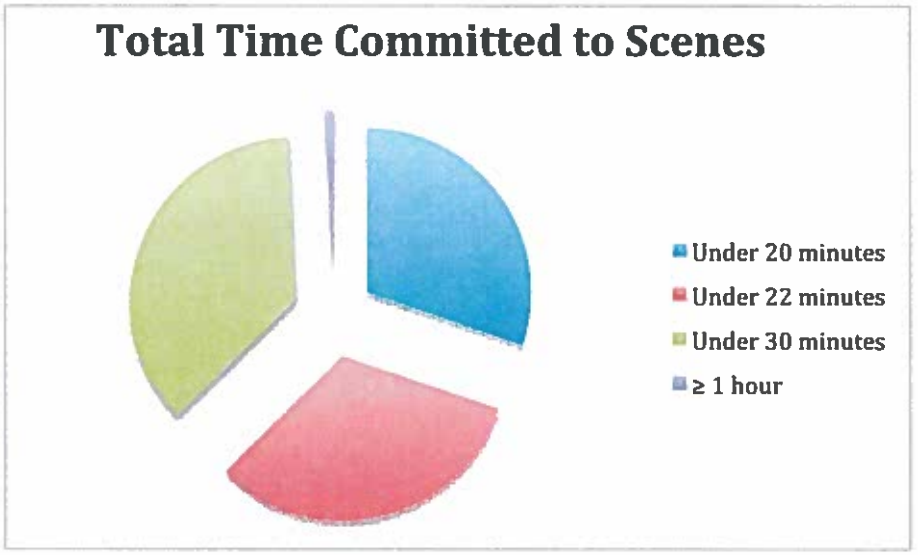
The following chart examined calls between July 1, 2009 and October 31, 2009 to see how often multiple calls were received during the same time periods.

Level	Number of Calls	Percentage
Single	1,507	95.3%
2	67	4.2%
3	7	0.04%

The majority of fire calls in Hanford happen singularly. Many of the multiple response calls involved medical calls, which only require a single unit response. As the City continues to grow it is important to measure the call concurrency issue. This is especially true if multiple fire calls are received concurrently as they require multiple unit response, which stretch resources to capacity and extend response times.

Recommendation 34: Develop response plans that provide for emergency response coverage of concurrent calls.

The following chart looks at scene times for HFD. As a first responder for EMS calls Hanford enjoys relatively short scene times. This is a good sign as emergency crews are quickly available to respond to another emergency. You can see by the chart that the vast majority of calls for service are handled with scene times less than 30 minutes. This is a very positive sign that HFD personnel handle the emergency and quickly return to service for additional assignments.



4. RESPONSE TIME STANDARDS

The primary goal of an emergency service delivery system should be to provide sufficient resources to the scene of an emergency in time to take effective action to mitigate the impacts of the situation. Rapid response is required for fires, medical calls and many other emergency situations.

5. EMERGENCY CALL DYNAMICS

The development of fires in buildings occurs in a predictable fashion. Ignition of the fire begins this sequence of events. It can take from several minutes to hours from the time of ignition until flames are visible. The smoldering stage of a fire is often one of the most dangerous as large amounts of toxic smoke can be generated.

Once flames are present the sequence continues to evolve rapidly. Flammable gases accumulate at the ceiling as combustible materials near the flame heat and ignite. Soon the gases at the ceiling reach ignition temperature and cause an event

known as flashover. Once flashover occurs, the damage caused by the fire is significant and the environment within the room becomes incompatible with human life.

Flashover can occur as soon as five to eight minutes after the appearance of flame in a typically furnished and ventilated building. This is the reason that many fire departments have a stated goal of applying water to structure fires before the fire reaches the flashover state.

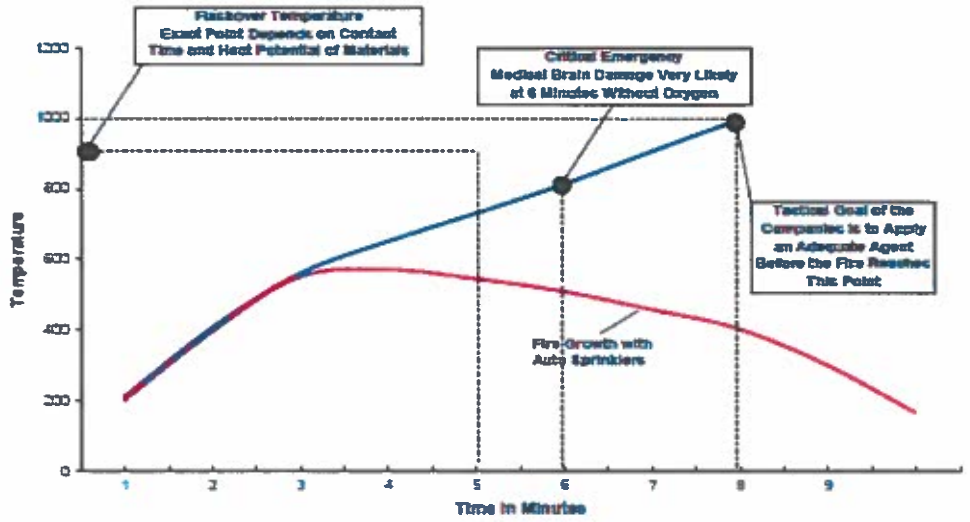
The longer the fire burns the more damage is done to the structural components of a building. Lightweight trusses and smaller wood framing is less resistive to fire than building with heavy timber construction. The weakening of the structure creates a dangerous environment for firefighters to operate.

Building contents are also made of materials, which generate a great deal of heat. The widespread use of plastics in furnishings and other building components rapidly accelerates the fire spread and increases the amount of water required to extinguish the blaze. All these factors make early application of water essential for a successful outcome.

In terms of medical events, cardiac arrest is the most significant life threat. A victim suffering from cardiac arrest has only minutes to receive definitive care if there is to be a successful resuscitation.

The chances to recover from cardiac arrest drop quickly as time progresses. This explains why the stages of medical response mirror the components described for an effective fire response. Rapid defibrillation and administration of medication has shown to improve the opportunity for successful resuscitation and ultimate survival from cardiac arrest.

The following chart illustrates the time sequences for fire and medical calls.



6. NFPA STANDARDS

The National Fire Protection Association has developed response time standards for fire departments staffed by career firefighters. It is important to note that NFPA standards are not legal mandates, but rather something to benchmark the performance of a fire department against to measure performance.

NFPA 1710 contains time performance standards for structural fire response as well as medical response.

It is recommended that the first company arrive at the scene of a structure fire within five minutes of being dispatched 90% of the time. The use of the 90th percentile allows the majority of incidents to be evaluated as compared to "average" performance. This standard allows unusually long response times to be removed from the equation, as they are not typical of agency performance. It also provides the community with a

real expectation of how long emergency response will take after they initiate a 9-1-1 call.

The standard also establishes a "company" as consisting of four personnel. This does not mean that four people must staff engine companies, but that true response time is not counted until four people have reached the scene to function as a single unit. For example, in Hanford if the Deputy Chief responds to all structure fires and the engine is staffed with three personnel, when all four members are on scene the response time would be measured.

NFPA 1710 describes the following performance as meeting the structure fire response criteria:

- Turnout time within one minute, 90 percent of the time.
- Arrival of the first "company" within five minutes of dispatch 90 percent of the time, or
- Arrival of the entire initial response assignment (all units assigned to the call) within nine minutes of dispatch, 90 percent of the time.

NFPA 1710 also has three time standards within the Standard for emergency medical response:

- Turnout time within one minute, 90 percent of the time.
- Arrival of a unit with first responder or higher capability within five minutes of dispatch, 90 percent of the time.
- Arrival of an advanced life support unit, where this service is provided by the fire department, within nine minutes of dispatch, 90 percent of the time.

The Commission on Fire Accreditation International understands the cost implications for most communities to fully comply with the above standards. For an

urban community like Hanford accreditation standards allow for a longer response time. This nationally recognized "best practice" standard is a great place to start as communities are looking to improve the performance of their fire department [7].

The benchmark performance standard (one that municipalities should strive to achieve) for fire calls is as follows:

- Dispatch of units (call processing) within 60 seconds of call, 90% of the time.
- Turnout time within 80 seconds of dispatch, 90% of the time.
- Arrival of the first unit within 4 minutes of turnout and the second unit within 8 minutes, 90% of the time.

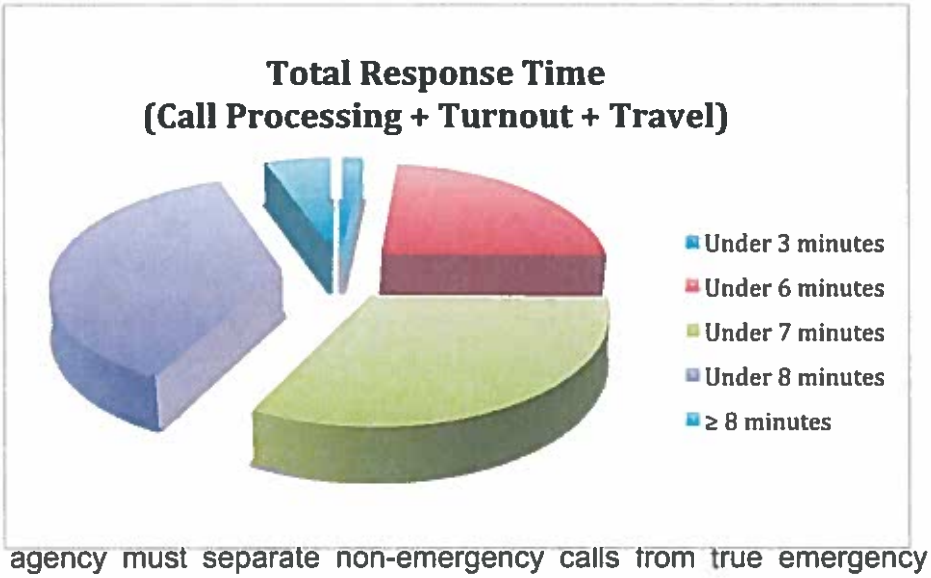
The baseline performance standard (acceptable performance to be a credible agency) for fire calls is as follows:

- Dispatch of units (call processing) within 90 seconds of call, 90% of the time.
- Turnout time within 90 seconds of dispatch, 90% of the time.
- Arrival of the first unit within 5 minutes/12 seconds (travel time) and the second unit 10 minutes/24 seconds, 90% of the time.

For EMS calls the performance standards are the same with the exception of a 60 second call processing expectation for benchmark performance.

7. HISTORICAL RESPONSE TIME PERFORMANCE

The adoption of the baseline performance expectations would require that Hanford Fire Department respond to 90% of fire and EMS calls within 8 minutes/12 seconds, total response time. The following chart shows that current performance at 8 minutes or less total response time is 87%.



An agency must separate non-emergency calls from true emergency calls to determine how well they are performing. Hanford Fire Department currently treats all calls in a single priority. It is recommended that the agency determine which calls are a true priority and require and code response and which calls are not a priority and can be responded to with normal driving conditions and obeying all traffic laws. It is well established that most fire alarm calls are false and therefore the risks to emergency response to firefighters and the public does not warrant the use of lights and sirens for these types of calls.

We will now examine each component of the response criteria to determine how well HFD is performing. Call processing is handled by the Hanford Police Department and it is recommended that HFD and HPD work together to improve dispatch performance related to call processing.

Engine One	90%	80%
Call Processing	2 minutes/2 seconds	1 minute/22 seconds
Turnout	2 minutes/16 seconds	1 minute/54 seconds
Travel	4 minutes/52 seconds	4 minutes/25 seconds

Engine Two	90%	80%
Call Processing	2 minutes/9 seconds	1 minute/27 seconds
Turnout	2 minutes/17 seconds	1 minute/49 seconds
Travel	5 minutes/35 seconds	4 minutes/41 seconds

Patrol One	90%	80%
Call Processing	2 minutes/33 seconds	1 minute/48 seconds
Turnout	2 minutes/27 seconds	1 minute/59 seconds
Travel	4 minutes/49 seconds	4 minutes/06 seconds

HFD Overall	90%	80%
Call Processing	2 minutes/9 seconds	1 minute/26 seconds
Turnout	2 minutes/18 seconds	1 minute/53 seconds
Travel	5 minutes/19 seconds	4 minutes/28 seconds

When examining the performance of HFD in terms of meeting response criteria performance standards it is clear that the agency must find a more effective procedure for dispatching calls for service and personnel must work to improve the amount of time they take from time of dispatch to call response. The department is not currently meeting either criterion from baseline or benchmark performance standards.

Engine Two has longer travel times than Engine One and Patrol One, which indicates that the agency needs to examine the response district boundaries as with minor modifications to the boundaries the agency can meet CFAI best practices travel times from the two existing stations.

Recommendation 35: Develop deployment strategies to achieve the desired level of service.

Recommendation 36: Develop a system to capture the time elements of emergency response and publicly report your performance.

Recommendation 37: Develop a deployment strategy that delivers a minimum of 13 firefighters to reported structure fires within 10 minutes/24 seconds 90% of the time.