Performance Audit of Emergency Medical Services Resources at the San Francisco Fire Department

Prepared for the

Board of Supervisors
of the City and County of San Francisco

by the

San Francisco Budget and Legislative Analyst

June 10, 2014

BOARD OF SUPERVISORS

BUDGET AND LEGISLATIVE ANALYST

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June 10, 2014

Honorable London Breed,
Chair, Government Audit and Oversight Committee
and Members of the Board of Supervisors
City and County of San Francisco
Room 244, City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

Dear Supervisor Breed and Members of the Board of Supervisors:

The Budget and Legislative Analyst is pleased to submit this *Performance Audit of Emergency Medical Services (EMS) Resources at the San Francisco Fire Department.* In response to a motion adopted by the Board of Supervisors on March 4, 2014 (Motion No. M14-027), the Budget and Legislative Analyst conducted this performance audit, pursuant to the Board of Supervisors powers of inquiry as defined in Charter Section 16.114 and in accordance with U.S. Government Accountability Office (GAO) standards, as detailed in the Introduction to the report.

The purpose of the performance audit was to evaluate the allocation of resources to emergency medical services.

The performance audit contains three findings and 15 recommendations directed as appropriate to the Fire Chief, the Director of Emergency Management, and the Mayor. The Mayor's proposed FY 2014-15 budget includes (1) add three ambulance shifts per day, resulting in 16 new Emergency Medical Service (EMS) positions, and (2) replace 5 ambulances per year, in order to fully comply with the State's requirement that the San Francisco Fire Department respond to a minimum of 80 percent of emergency medical calls, consistent with the Budget and Legislative Analyst's recommendations.

The Executive Summary, which follows this transmittal letter, summarizes the Budget and Legislative Analyst's findings and recommendations.

The Fire Chief and the Director of Emergency Management have provided written responses to our performance audit which are attached to this report, beginning on page 36. In total, these departments agree or partially agree with 13 of our 15 recommendations, or 87 percent. The Fire Department disagrees with 2 of our 15 recommendations, or 13 percent, as described below.

- The Fire Chief disagrees with Recommendation 1.4, which states that the Fire Chief should re-allocate overtime hours to EMS to ensure that all scheduled ambulances can be sent out in service to respond to medical calls. In her response, the Fire Chief points out the challenges in getting Fire Department staff to volunteer for overtime and the logistical difficulties of scheduling overtime with rolling shift schedules in EMS.

  However, as shown in Exhibit 13 on page 17 of our report, the Fire Department's allocation of overtime to EMS has declined by 4,709 hours or 20.6 percent from 22,881 hours in FY 2010-11 to an estimated 18,172 hours in FY 2013-14. The Mayor's proposed FY 2014-15 budget includes funding for one new EMS Operations Chief, which will provide the Fire Department additional capacity to manage the logistical difficulties of scheduling EMS overtime.

- The Fire Chief also disagrees with Recommendation 2.3, which states that the Fire Chief should evaluate the impact of cross-training all new uniformed employees in order to increase the Department's flexibility in responding to EMS and suppression calls. The Chief notes in her response that due to existing language in the MOU, the Fire Department cannot detail cross-trained employees on ambulances.

  However, as noted on page 26 of our report, given the successful integration of EMS and suppression that has occurred in other jurisdictions, such as the city of Phoenix where 43 percent of uniformed staff are cross-trained firefighter-paramedics, the Fire Department should re-evaluate whether cross-training new employees would increase the Department's flexibility in responding to the Department's particular mix of EMS and fire suppression calls. Fire engines are often the first responder to emergency medical calls. Currently, Basic Life Support (BLS) engines are staffed with firefighters cross-trained as emergency medical technicians and Advanced Life Support (ALS) engines are staffed with at least one firefighter cross-trained as a paramedic. Increasing the number of firefighters who are cross-trained as paramedics will increase the Fire Department's flexibility in dispatching engines or ambulances to emergency medical calls

We would like to thank the Fire Chief and the Director of Emergency Management and their staffs for their cooperation during this performance audit.

Respectfully submitted,

Severin Campbell
Budget and Legislative Analyst's Office

cc: President Chiu
Supervisor Avalos
Supervisor Campos
Supervisor Cohen
Supervisor Farrell
Supervisor Kim
Supervisor Mar
Supervisor Tang
Supervisor Wiener
Supervisor Yee
Mayor Lee
City Administrator
Clerk of the Board
Jon Givner
Kate Howard
Controller
Director of Emergency Management
Fire Chief
President, San Francisco Fire Commission

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Executive Summary

The Board of Supervisors directed the Budget and Legislative Analyst's Office to conduct a performance audit of the San Francisco Fire Department, through a motion (M14-027) approved on March 4, 2014. The performance audit evaluated the allocation of resources to emergency medical services (EMS) at the San Francisco Fire Department.

Most Fire Department responses to emergency calls are for emergency medical services

The San Francisco Fire Department (SFFD) operates 43 fire stations throughout San Francisco ("the City"), divided into 2 divisions, as well as 3 stations located at the San Francisco International Airport. In addition, the Department operates Station 49, which deploys ambulances throughout the City.

Emergency medical calls total 76.9 percent and fire suppression calls total 23.1 percent of all emergency calls. The number of medical calls has increased by 21.7 percent from 2007 through 2013 while the number of fire suppression calls has increased by 5.5 percent, as shown in Exhibit I below. Both fire engines assigned to the fire stations as well as ambulances respond to emergency medical calls.

Exhibit I: Suppression versus Medical Calls, 2007-2013

Year	Suppression Calls	Medical Calls	Total Calls
2007	26,379	76,298	102,677
2008	27,205	81,689	108,894
2009	25,689	76,368	102,057
2010	26,853	87,356	114,209
2011	27,827	90,420	118,247
2012	28,666	91,034	119,700
2013	27,843	92,875	120,718
Increase	1,464	16,577	18,041
Percent	5.5%	21.7%	17.6%

Source: Fire Department Data

The State has granted the City the right to an Exclusive Operating Area to respond to emergency medical calls, but the City has not met the State's requirement to respond to a minimum of 80 percent of emergency medical calls

The California Health and Safety Code allows Local Emergency Medical Services Agencies (LEMSAs)[1] to establish an Exclusive Operating Area (EOA) with approval of the State's Emergency Medical Service (EMS) Authority to restrict the number of ambulance and Advanced Life Support (ALS) service providers that operate within their jurisdictions in order "to develop system-wide coordination and predictable response initiated from emergency calls received through a central dispatch facility".

San Francisco operated under an Exclusive Operating Area from 1981 until 2008, which was rescinded by the California EMS Authority in 2008 and re-established in January 2012. Although the EOA agreement between the City and the California EMS Authority requires the Fire Department to respond to a minimum of 80 percent of all emergency medical calls, the Fire Department has not achieved this minimum requirement since re-establishment of the EOA. In fact, in contrast to the State's requirement to respond to a minimum of 80 percent of all medical calls, in 2012 and 2013, the Fire Department only responded to 69 percent and 73 percent of emergency medical calls, respectively, as shown in Exhibit II below.

Exhibit II: City versus Private Ambulance Responses, 2007-2013

Calendar Year	City Ambulance Responses	Private Ambulance Responses	Total Ambulance Responses	City Market Share	Private Market Share
2007	83,378	1,442	84,820	98%	2%
2008	86,485	3,539	90,024	96%	4%
2009	76,709	10,900	87,609	88%	12%
2010	72,774	21,688	94,462	77%	23%
2011	70,194	27,704	97,898	72%	28%
2012	68,329	30,453	98,782	69%	31%
2013	73,051	27,325	100,376	73%	27%

Source: Fire Department Data

In order for San Francisco to maintain its Exclusive Operating Area as designated by the State, the SFFD must increase its response to all medical calls to at least 80 percent. The recommendations that follow identify several key operational areas where

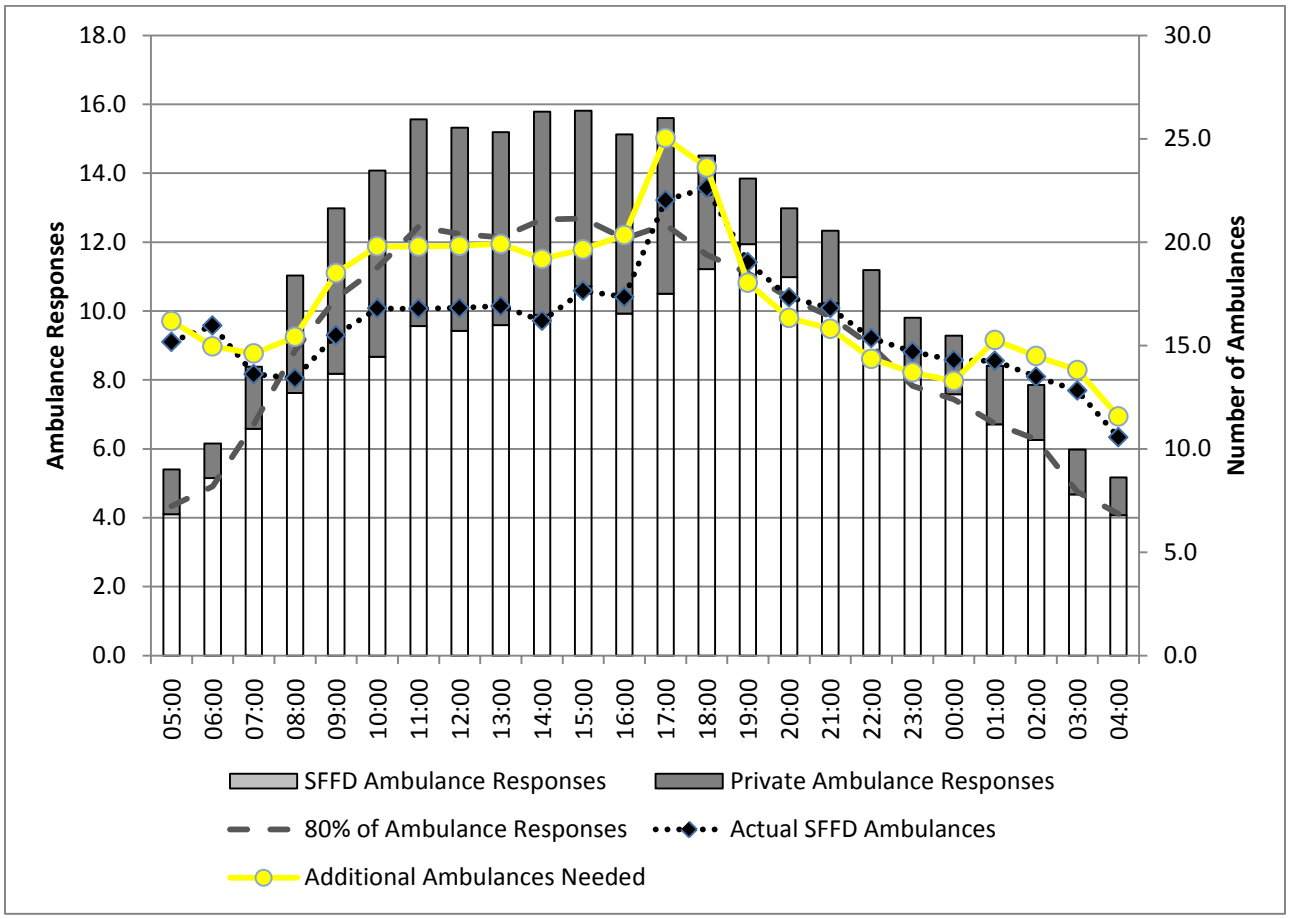
[1] The California Health and Safety Code provides for the establishment of LEMSAs, which share the governance of the county's emergency medical services with the State's EMS Authority. The State Emergency Medical Services Authority oversees adherence to EMS standards by creating rules and regulations, defining the scope of practice and reviewing and approving local EMSA Plans. LEMSAs design, manage, and regulate local EMS systems by establishing and overseeing implementation of local protocols within the state's scope of practice that govern the provision of EMS services by private and public entities. In San Francisco, the Local EMS Agency is located in the Department of Emergency Management (DEM).

significant efficiencies should be achieved. Additional ambulance shifts, as described below, would result in a clear and measurable increase in SFFD's response to EMS calls. The increase in ambulance shifts should be implemented in concert with the other recommendations in this report that will also create additional efficiencies to enable the SFFD to achieve reduced costs and improved patient care.

Need for additional ambulance shifts

The SFFD's inability to meet the Exclusive Operating Area market share threshold of 80 percent is the result of insufficient ambulance shifts during the 12-hour shift from approximately 6:30am to 6:30pm. In order to comply with the State's requirement of 80 percent, the SFFD would need to add three ambulance shifts during that time, which would require the addition of 16 FTEs. The figure below shows current average responses at every hour of the day, as well as current average ambulance demand and the estimated number of additional ambulance shifts needed to reach the State's 80 percent requirement.

Exhibit III: Projected Ambulance Shifts Needed



In order to place three additional ambulances in service, the SFFD would need to hire an additional 16 FTEs. The SFFD cannot add additional ambulance shifts by re-assigning existing resources from fire suppression, even though fire suppression calls make up only 27.1 percent of all calls, because fire suppression staffing is mandated by Proposition F, approved by San Francisco voters in November 2005. Proposition F requires the Fire Department to "maintain and operate firehouses and emergency apparatus at the same location and to the same extent as existed on January 1, 2004" and requires all fire stations to remain open 24 hours a day, seven days a week. By permanently locking into place the City's 2004 emergency response system, this legislation constrains the SFFD's ability to adjust staffing and service delivery according to changes in demand.

Additional Staffing Considerations

To meet the State's 80 percent requirement, the SFFD must increase the number of ambulance shifts during the day. In addition, the SFFD should implement the other recommendations related to staffing that will further improve operational efficiency and allow the SFFD to meet the State's minimum requirements under the EOA, including:

- Increasing the overtime allocation for EMS to ensure that all scheduled ambulance shifts are able to be in service: Currently, if a paramedic calls in sick, his/her partner will not be reassigned to an ambulance but will work the shift at Station 49, stocking ambulances or providing other administrative assistance.

- Improved logistics at Station 49: Ambulances are stocked and cleaned by paramedics and emergency medical technicians (EMTs) before and after shifts. Other EMS providers have adopted the use of civilian staff to perform these duties, which has increased the amount of shift time that ambulances are actually in service and responding to calls.

- Increasing supervision in EMS: The SFFD has reduced the number of management positions in the EMS division, despite the increased number of EMS calls. The reduction of the number of field rescue captains, in particular, is a direct violation of the City's Administrative Code, as adopted by the Board of Supervisors.

In addition to adding ambulance shifts, the SFFD needs to implement policies and practices both to reduce the number of emergency medical calls and to respond more efficiently to calls

Accurately Triaging 911 Calls

The Department of Emergency Management's 911 call center handles all emergency fire, police and medical calls. For most emergency medical calls, acuity cannot always be determined precisely over the phone due to the limited availability of information. In order to minimize the occurrence of adverse outcomes, the Department of Emergency Management's computer assisted dispatch system (like most other EMS dispatch systems) essentially defaults to a Code 3 designation, which is the highest acuity, when determinants are ambiguous. Additionally, first responders are often able to stabilize patients or improve the situation such that hospital transport codes downgrade from Code 3 to Code 2. As a result, only a small proportion of medical calls that are dispatched as Code 3 actually result in Code 3 hospital transport. The proportion of medical calls that are transported to hospitals as Code 3 (with lights and sirens) has ranged from 2007 through 2013 only between 4.0-4.6 percent, as shown in Exhibit IV below.

Exhibit IV: Ambulance Transports to Hospital by Code

Year	Medical Calls	% Code 3	% of Medical Calls Transported Code 3
2007	75,688	64%	4.0%
2008	80,838	65%	4.2%
2009	80,136	64%	4.3%
2010	86,873	63%	4.5%
2011	93,763	65%	4.6%
2012	89,941	50%	4.4%
2013	92,117	51%	4.2%

Source: San Francisco Fire Department

In 2012, the Medical Directors at the Fire Department and the Department of Public Health designed and conducted the Fire Response Pattern Revision Project. The project's goals were to better align resources with call type and improve safety by reducing inappropriate "lights and sirens" responses to medical calls when less urgent responses would not compromise health outcomes. The SFFD should continue to monitor its Fire Response pattern and make revisions as determined appropriate by medical direction.

Improve System-wide Coordination

Although San Francisco's five-year strategic plan for EMS operations, approved by the San Francisco Health Commission in January 2013, specifically calls for "developing a

system status management plan" (or system-wide ambulance deployment plan), this plan has not been created. This system-wide ambulance deployment plan would increase coordination between City and private ambulance providers regarding ambulance needs.

In addition to developing a system-wide deployment plan for EMS, the San Francisco Local EMS Agency (the Department of Emergency Management) should take additional steps to improve coordination and response times, including:

- Reconvene the 911 Provider Committee: This body was brought together to confirm levels of service by the three ambulance providers (the City, King American and AMR) and to create a standing body for discussions regarding changing service needs.
- Expand use of Automated Vehicle Locator Devices for vehicle posting: The City invested in Automated Vehicle Locator devices for its ambulance and advanced life support (ALS) engine fleet, in order to improve dispatch and response times. Because private ambulance providers have not invested in the devices, the system is not yet fully operational and ambulance assignments for private providers must still be made manually by 911 dispatch.

Replace Aging Ambulance Fleet

According to the San Francisco Fire Commission, in Resolution 2009-05, due to the City's topography and the high volume of calls, the useful life span of the City's ambulances is 10 years. Of the SFFD's current fleet of 43 ambulances, the SFFD operates 23 ambulances, or over 53 percent of its current fleet, that have exceeded that 10-year life span, according to SFFD vehicle inventory information.

The Fire Commission's 2009 vehicle replacement policy provides for five replacement ambulances per year. Despite the fact that the Board of Supervisors appropriated the funds requested by the SFFD to authorize 16 ambulances in the Fire Department's FY 2012-13, FY 2013-14, and FY 2014-15 budgets, not even one of these 16 ambulances has been purchased to date. As a result, the SFFD takes the existing aging ambulances out of service regularly for repairs, reducing the number of units available to respond to calls. According to SFFD staff, SFFD did not submit a requisition to the Office of Contract Administration for the purchase of 10 of the 16 ambulances until November 7, 2013, and has still not submitted a requisition to purchase the remaining six ambulances.

As shown in Exhibit V below, if SFFD funds five new ambulances in each of the next five fiscal years from FY 2014-15 through FY 2018-19, the SFFD's ambulance fleet will have service replacement dates of ten years or less by FY 2019-20.[2]

Exhibit V: Ambulance Replacement Plan, FY 2014-15 through FY 2018-19

Fiscal Year	Ambulance in Service for 12 Years	Ambulance in Service for 11 Years	Ambulance in Service for 10 Years or Less	Replacement Ambulances Approved in Prior Years' Budgets [a]	Total
FY 2014-15	7		20	14	**41**
FY 2015-16		3	31	7	**41**
FY 2016-17		8	28	5	**41**
FY 2017-18	5		33	5	**43**
FY 2018-19		4	34	5	**43**
FY 2019-20			39	4	**43**

[a] As noted above, the Board of Supervisors previously appropriated funds to replace 16 ambulances placed in service from 1999 through 2003, of which 14 ambulances were appropriated in the Department's FY 2012-13 and FY 2013-14 budgets and 2 were appropriated in FY 2014-15. The Mayor's proposed FY 2014-15 budget includes an additional 5 ambulances.

Cross-Training New Uniformed Employees

Although the SFFD took initial steps to fully merge its suppression and EMS functions, as demonstrated through its early efforts to cross-train firefighter-paramedics, the subsequent EMS reconfiguration resulted in a reduction in the number of fully cross-trained firefighter-paramedics (H3L3s) and the re-establishment of single function paramedics and EMTs.

Given the successful integration of EMS and suppression that has occurred in other jurisdictions, notably the City of Phoenix where all paramedics and EMTs are firefighters, engineers or captains and 43 percent of uniformed staff are cross-trained firefighter-paramedics, the SFFD should re-evaluate whether cross-training new employees would increase the SFFD's flexibility in responding to the Department's particular mix of EMS and fire suppression calls.

[2] Assumes that new ambulances are purchased and placed into service the year following the appropriation.

Patient Care Alternatives to EMS

While call volume for Emergency Medical Services (EMS) increased by 21.7 percent between 2007 and 2013, a significant number of calls came from frequent users in a relatively small geographic area served by Fire Stations #1 and #3, located in the Tenderloin and South of Market neighborhoods. These frequent callers depend on EMS for the treatment of drug and alcohol abuse, for psychiatric and other behavioral health services, and for the treatment of cardiovascular disease and trauma.

Nationally, local jurisdictions have begun implementing alternative models of care, including Community Paramedicine, to provide more appropriate and efficient care for these high users, and to reduce reliance on traditional EMS services for non-emergency needs.

San Francisco developed one of the first such programs in 2004, called the HOME Team, through which a Fire Department paramedic and a DPH clinician formed a mobile unit that conducted targeted outreach to this population. Although that program has ended, DPH continues to expand efforts to reach this high user population and target treatment for chronic inebriates and the mentally ill in order to reduce reliance on hospital resources.

Support for these efforts should continue, and the SFFD should work closely with DPH and other providers to enhance capacity to target high users and reduce impacts and costs on the City's EMS system.

Introduction

The Board of Supervisors directed the Budget and Legislative Analyst's Office to conduct a performance audit of the San Francisco Fire Department, through a motion (M14-027) approved on March 4, 2014.

Scope

The performance audit of the San Francisco Fire Department (Fire Department) evaluated the allocation of resources to emergency medical services.

Methodology

The performance audit was conducted in accordance with Government Auditing Standards, 2011 Revision, issued by the Comptroller General of the United States, U.S. Government Accountability Office. In accordance with these requirements and standard performance audit practices, we performed the following performance audit procedures:

- Conducted interviews with executive, management and other staff at the Fire Department, the Department of Emergency Management and the Department of Public Health.
- Reviewed reports and studies regarding Fire Department staffing and emergency medical service delivery.
- Reviewed federal regulations, San Francisco Administrative Code provisions, San Francisco Civil Service rules, policies, procedures, memoranda, and other guidelines governing the Fire Department.
- Completed a survey of select fire departments throughout the United States to compare emergency medical service delivery.
- Conducted reviews of (a) staffing levels; (b) overtime allocations; (c) 911 call dispatch data; (d) policies and procedures; (e) financial reports; and (h) other data pertinent to the audit objectives.
- Submitted a draft report, with findings and recommendations, to the San Francisco Fire Department on May 15, 2014; and conducted an exit conference with the Chief of the Fire Department on June 2, 2014.
- Submitted the final draft report, incorporating comments and information provided in the exit conference, to the Fire Department on June 5, 2014.

San Francisco Population Trends

Growth in the city's population, and in the City's homeless population, is often cited as one of the reasons for the increased demand in emergency medical services. Between 2000 and 2013, the City's population grew by 7.8 percent

Exhibit 1: San Francisco Population Growth, 2000-2013

	2000	2010	2012	2013	Percentage Growth (2000-2013)
Resident Population	776,733	805,235	827,420	837,442	7.8%

Source: U.S. Census

San Francisco also has one of the highest daytime commuter populations when compared with other cities of a similar size. According to the 2006-2010 American Community Survey (ACS), the resident population during that time averaged 789,172, but the daytime population reached 951,627, when accounting for commuters. The daytime population was 21 percent higher than the resident population during that period.

San Francisco's homeless population has increased as well. The total homeless count increased by 15 percent between 2007 and 2013. The number of homeless people counted on the street as part of the San Francisco Homeless Population Count increased by 56 percent during the same period.

Exhibit 2: San Francisco Homeless Population Trends, 2007-2013

Location	2007	2009	2011	2013	Percent Change 2007-2013
Street	2771	2709	3106	4315	56%
Shelter	1497	1516	1479	1626	9%
Transitional Housing and Treatment Center	1266	1257	796	720	-43%
Resource Centers and Stabilization	321	540	347	347	8%
Jail	400	394	317	93	-77%
Hospitals	122	98	169	126	3%
Rehabilitation Facilities			241	123	
TOTAL	**6377**	**6514**	**6455**	**7350**	**15%**

Source: 2007-2013 San Francisco Homeless Population Count

EMS Call Volume Trends

Since 2007, the total number of 911 calls in San Francisco has increased by more than 18,000. 16,577 (or 92 percent) of these calls were for emergency medical services, as shown below.

Exhibit 3: Suppression versus Medical Calls, 2007-2013

Year	Suppression Calls	Medical Calls	Total Calls
2007	26,379	76,298	102,677
2008	27,205	81,689	108,894
2009	25,689	76,368	102,057
2010	26,853	87,356	114,209
2011	27,827	90,420	118,247
2012	28,666	91,034	119,700
2013	27,843	92,875	120,718
Increase	1,464	16,577	18,041
Percent	5.5%	21.7%	17.6%

Source: Fire Department Data

The number of medical calls has increased by 21.7 percent since 2007, while the number of suppression calls has increased by 5.5 percent over the same period.

Proposition F

In November 2005, San Francisco voters passed Proposition F (also known as the "Neighborhood Firehouse Protection Act"), which established new baseline service level requirements for San Francisco firehouse operation. These service levels were codified in the San Francisco Administrative Code (Section 2A.97) requiring the Fire Department to "maintain and operate firehouses and emergency apparatus at the same location and to the same extent as existed on January 1, 2004" and requiring all fire stations to remain open 24 hours a day, seven days a week. By permanently locking into place the City's 2004 emergency response system, this legislation constrains the City's ability to adjust staffing and service delivery according to changes in the market and demand. The Fire Department's budget for suppression has increased by 44 percent from FY 2007-08 to FY 2013-14, as shown in Exhibit 4 below, which is significantly higher than the 17.6 percent increase in emergency calls during the same period.

Exhibit 4: Increase in the Fire Department's Budget for Suppression, FY 2007-08 to FY 2013-14

Fiscal Year	Fire Suppression Budget
FY 2007-08	$194,620,762
FY 2008-09	$210,264,365
FY 2009-10	$233,483,000
FY 2010-11	$241,211,585
FY 2011-12	$253,486,682
FY 2012-13	$275,128,440
FY 2013-14	$280,824,516
Increase	$86,203,754
Percent	44%

Source: Annual Appropriation Ordinance

In order to meet minimum staffing levels required by Proposition F, the Fire Department increased the use of suppression overtime by nearly 100 percent in the five-years from FY 2009-10 to FY 2012-13, as shown in Exhibit 5 below.

Exhibit 5: Annual Overtime Costs for Uniformed SFFD Suppression

DIVISION	FY 09-10	FY 10-11	FY 11-12	FY 12-13	Increase	Percent
Suppression	$18,787,462	$25,674,869	$30,525,046	$37,478,628	$18,691,166	99%
Fire Prevention	685,625	837,097	809,439	999,060	313,435	46%
Fire Investigation	100,665	97,965	120,126	79,541	(21,124)	-21%
Communications	272,408	223,698	288,630	291,620	19,212	7%
Administration	698,877	594,899	593,901	773,166	74,289	11%
Other	503,244	307,129	309,531	474,294	(28,950)	-6%
TOTAL	$21,048,281	$27,735,657	$32,646,673	$40,096,309	$19,048,028	90%

Source: Fire Department

According to Section 2A.97 of the City's Administrative Code:

> In addition to the apparatus housed within each neighborhood firehouse as of January 1, 2004, as listed above, the Fire Department shall maintain and operate 24 hours per day the following: an arson/fire investigation unit; no fewer than four ambulances; and four Rescue Captains (Medical Supervisors). The Chief of the Department shall determine which station will house those units.

As such, the City has 43 fire stations in a 49 square mile area, divided into 2 divisions, as well as 3 stations located at the San Francisco International Airport, requiring a daily

suppression staffing level of 297 employees. In addition, the Department operates Station 49, which deploys 43 ambulances throughout the City.

Additionally, the MOU with firefighter union Local 798 sets minimum staffing requirements for engines of one officer (defined as a captain or lieutenant) and 3 firefighters and for trucks of one officer and 4 firefighters. Local Emergency Medical Services Agency policy requires an Advanced Life Support (ALS) unit to have at least one paramedic on board. Thus the San Francisco Fire Department's engines designated as ALS have one cross-trained firefighter and two regular firefighters in addition to an officer.

Because medical calls make up 77 percent of all calls, most of the work of the Fire Department's suppression division consists of emergency medical response.

EMS Merger and Dynamic Deployment Model

In 1997, following a study commissioned by the Department of Public Health (DPH), the City's Emergency Medical Services (EMS) functions relocated from DPH to the Fire Department. This move combined DPH's Advanced Life Support services with the Fire Department's Basic Life Support Services to create a fire-based EMS system. Mirroring a nationwide trend, this merger sought to improve the response rate of EMS services while more effectively using Fire Department resources.

From 1997-2005, the Department initiated several strategies to improve the effectiveness of the merger:

Classification Changes:

- H1 (Fire Rescue Paramedic): this classification was created for the paramedics that transferred from DPH to the Fire Department. H1s were placed on 24-hour shifts on ambulances, which were moved into fire stations (having been dynamically deployed before the merger).
- H3 (Firefighter/Paramedic): As the merger proceeded, the Fire Department conducted paramedic trainings for H2 firefighters. H2s who completed training successfully were promoted to the H3 firefighter-paramedic class. These H3s would be placed either on ambulances or Advanced Life Support (ALS) engines.

Cross-training:

- In addition to cross-training H2 Firefighters to become Paramedics, the Department soon began cross-training the H1 Paramedics who had transferred from DPH. These cross-trained H1s were promoted to H3. Approximately 150 former DPH paramedics became H3 Firefighter/ Paramedics.

- Between 2000 and 2002 the Department hired Firefighter/Paramedics from outside the Department, known as "lateral hires". The Department has not hired laterals since 2002.

Reconfiguration

In 2005, following several reports critical of the effectiveness of the merger (noting low morale, deteriorating response times, an internal culture clash between fire suppression and EMS, and high attrition), the Fire Commission addressed concerns by authorizing a reconfiguration of the Department. This included the reestablishment of "single function" Emergency Medical Technicians (EMTs) and paramedics, and returned ambulances to dynamic deployment, technically based at Station 49 but deployed throughout the City.

Dynamic Deployment and Station 49

Dynamic deployment refers to the ambulance dispatch strategy of estimating demands and stationing ambulances accordingly at locations throughout the City to increase their mobility and ensure the fastest response times. Although initially the Department intended to maintain 4 ambulances "statically deployed" at fire stations, and the Administrative Code requires that the Department maintain 4 static ambulances, since 2009, all City ambulances have been dynamically deployed out of Station 49.

H3 "Deep Class" Classification

As part of the reconfiguration, the Department amended the H3 classification to include three levels: H3 Level 1 for EMTs; H3 Level 2 for Paramedics; and H3 Level 3 for Firefighter/Paramedics. This "deep class" allows for advancement within a classification, typically occurring between Levels 1 and 2 through "bump ups" from the EMS Chief. To move up to H3 Level 3, however, employees must receive cross-training or hire in to the department "laterally" (from another Fire Department).

According to the Department of Human Resources[1], "the bundling of the EMT/Paramedic/ Firefighter positions into the H3 deep class provides a seamless transition for the employee and operational flexibility for the SFFD as employees matriculate through the EMS education process. The H3 deep class also establishes a classification that traces a logical career path from entry as a transport EMT to a fully cross-trained firefighter/paramedic."

This reconfigured fire-based EMS system continues to operate as of May 2014.

EMT Certification

Since 1989, all Fire Department employees have been required to maintain Emergency Medical Technician certification.

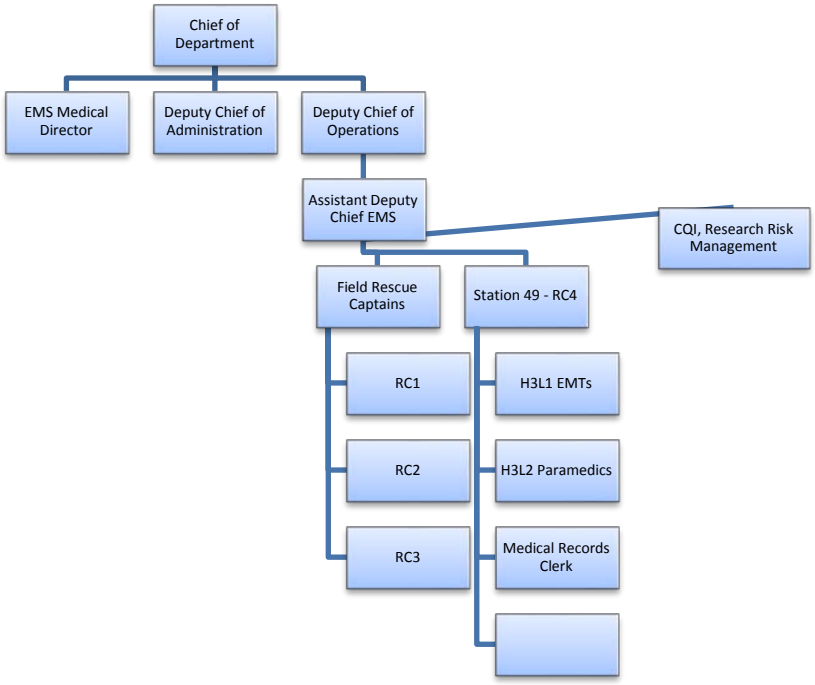
[1] 2006 Report

SFFD Emergency Services Division

Under the direction of the EMS Chief, the SFFD Emergency Services Division oversees the operation of Station 49, from which all 43 ambulances are now dynamically deployed. In addition, the EMS Chief oversees field rescue captains, Department CQI (continuous quality improvement) and Research, as well as clinical oversight of paramedic-firefighters based at the City's station houses.

The organization chart below details the EMS division.

Exhibit 6: SFFD EMS Division 2014 Organization Chart



As of July 2, 2013, the Department had 321 actual employees in the Emergency Medical Services division, out of 378 authorized positions, as shown in the table below.

Exhibit 7: Authorized vs Actual EMS Staffing Levels, 2007-2013

	H1			H3			H33			H53		
Year	**Auth.**	**Act.**	**Var.**	**Auth.**	**Act.**	**Var.**	**Auth.**	**Act.**	**Var.**	**Auth.**	**Act.**	**Var.**
2007	16	22	(6)	301	309	(8)	31	23	8	1	1	0
2008	14	13	1	329	329	0	32	23	9	1	1	0
2009	12	11	1	333	313	20	32	22	10	1	1	0
2010	12	9	3	333	301	32	32	20	12	1	1	0
2011	12	4	8	333	296	37	32	22	10	1	1	0
2012	12	4	8	333	283	50	32	22	10	1	1	0
2013	12	4	8	333	292	41	32	24	8	1	1	0

Source: Fire Department Data

Financial Resources

Receiving resources almost exclusively from the City's General Fund, the Fire Department has the fifth largest City departmental budget for FY 2013-2014. The table below details projected expenditures at the Fire Department for fiscal years 2013-14 and 2014-15.

Exhibit 8: SFFD Budgeted Expenditures for FY 2013-14 and 2014-15

Expenditures/Uses	**FY 2013-2014**	**FY 2014-2015**
Administration & Support Services	$32,757,108	$33,533,276
Custody	1,621,500	2,555,500
Fire General	1,455,251	1,358,000
Fire Suppression	280,824,516	290,638,070
Prevention & Investigation	12,618,199	13,171,984
Training	4,238,337	4,332,854
Subtotal	$333,514,911	$345,589,684
Work Orders	100,000	-
Total	$333,614,911	$345,589,684

As shown in the table below, the Fire Department's percentage of the total annual City budget has remained fairly static, representing between 4.2 percent and 4.4 percent of the City's budget in the past seven years.

Exhibit 9: Fire Department Budget as a Percentage of Total City Budget, FY 08-09 through FY 14-15

Year	FIRE Budget	TOTAL City Budget	% of Total Budget
2008-09	277,713,069	6,531,467,931	4.3%
2009-10	282,494,416	6,586,787,453	4.3%
2010-11	289,107,737	6,562,658,343	4.4%
2011-12	301,252,668	6,833,766,939	4.4%
2012-13	326,072,813	7,354,311,247	4.4%
2013-14	333,614,911	7,908,801,656	4.2%
2014-15	345,589,684	7,931,751,102	4.4%

SFFD Revenues

Ambulance response and transport provides the Department with one of its few opportunities to generate revenue. As shown in Exhibit 10 below, actual FY 2012-13 revenues of $20.3 million were $9.2 million less than budgeted revenue of $29.5 million. The shortfall in revenues in FY 2012-13 was due to fewer than budgeted ambulance responses ($3.2 million shortfall) and the associated billings, and a delay in receiving a federal Ground Emergency Medical Transportation (GEMT) payment, which is a supplemental Medi-Cal payment for ambulance services ($6.0 million shortfall).

Exhibit 10: EMS Budgeted and Actual Revenues and Account Detail

Year	2008-09	2009-10	2010-11	2011-12	2012-13
Budgeted	$19,460,412	$21,025,100	$21,093,841	$22,350,458	$29,516,312
Actual	19,872,545	20,950,322	20,781,954	20,997,352	20,294,557
Difference	($412,133)	$74,778	$311,887	$1,353,106	$9,221,755
# of Accounts	57,574	52,994	50,603	47,811	50,168
% of Billed Accounts Collected	33%	27%	25%	25%	23%

Source: Fire Department

The City regained the Exclusive Operating Area (EOA) in 2012, and the Department projected that it would be billing a larger number of accounts than in fiscal years 2010-11 and 2011-12. In fact, it billed a similar number of accounts in FY 2012-13 as before the return of the EOA.

The GEMT payment in FY 2012-13 would have included funds for transports provided to Medi-Cal beneficiaries between June 30, 2010 and June 30, 2012. The first payment is now projected to arrive prior to the end of FY 2013-14 and will include the period from July 1, 2010 through June 30, 2013. This first payment will not be for the entire $6 million, as a portion of the accounts remain to be approved. In the future, the Department anticipates receiving $3 million annually from the GEMT program.

The Fire Department budgeted $31.1 million in ambulance revenues in FY 2013-14, based on an estimated 58,000 ambulance responses and transports, or 8,000 more than actual ambulance responses and transports in FY 2012-13. According to the Controller's FY 2013-14 Six-Month Budget Status Report, ambulance revenues will fall short of the budget by $4.1 million.[2]

San Francisco Local Emergency Medical Services Agency

The California Health and Safety Code Section 1797.200 provides for the establishment of local (County) Emergency Medical Services Agencies (LEMSAs), which share the governance of emergency medical services with the State's Emergency Medical Services Authority. Health and Safety Code Section 1797.200 requires that each LEMSA identify a medical director "to assure medical accountability throughout the planning, implementation and evaluation of the EMS system".

The State Emergency Medical Services Authority establishes and oversees adherence to EMS standards by creating rules and regulations, defining the scope of practice and reviewing and approving local EMSA Plans. LEMSAs design, manage, and regulate local EMS systems by establishing and overseeing implementation of local protocols within the state's scope of practice that govern the provision of EMS services by private and public entities.

In San Francisco, EMS providers include hospital emergency and specialty care departments, First Response (SFFD), ambulance providers (SFFD and private providers), 911 Dispatch (Department of Emergency Management's Division of Emergency Communications), Training Centers and Continuing Education. Each provider has a medical director who consults with the San Francisco EMSA medical director in implementing services and monitoring continuing quality improvement (CQI) and adherence to protocols. In addition to the Fire Department, the City has two other ALS ambulance providers: King American and American Medical Response (AMR)[3].

In most counties, the LEMSA is either a stand-alone entity or is located in the County's Department of Public Health. San Francisco's Local EMS Agency was located at the

[2] According to the Controllers Six-Month Budget Status Report, these projections assume receipt of $6.0 in budgeted prior year GEMT ambulance fee reimbursement.

[3] There are also two non-911 ALS ambulance providers serving the City: Pro-Transport 1 and Bayshore.

Department of Public Health until 2009 when it was transferred to the Department of Emergency Management (DEM). The purpose of the transfer was to locate EMS administratively with the rest of the City and County's emergency preparedness and response enterprise. The Department of Public Health continues to provide medical direction for the San Francisco Local EMS Agency through the EMS Medical Director. The Health Commission provides public oversight.

911 Dispatch

The Department of Emergency Management, Division of Emergency Communication provides San Francisco EMSA's 911 dispatch service. The Dispatch Center is a combined 911 call-taking and dispatch center for Police, Fire, and Emergency Medical Services. The Advanced Medical Priority Dispatch System (AMPDS) is the computer-aided dispatch system used to prioritize and triage calls and response using determinants that accord with EMSA policy. The system guides call-takers with systematized caller interrogation questions, pre-arrival instructions, and protocols that match the dispatcher's evaluation of injury or illness severity with vehicle Medical dispatch standards. Responses to Code 2 or non-life threatening calls are dispatched without "lights and sirens"; responses to Code 3 or life threatening calls are dispatched with lights and sirens.

911 Dispatch staff are civilians trained and certified in emergency medical dispatch. With few exceptions, staff members do not have EMT or paramedic experience and are instead trained to adhere to a set of dispatch protocols in dispatching responses and making fixed staff posting assignments for private ambulance providers and dynamically deployed SFFD ambulances, and truck and engine first responders. In addition to approximately 140 civilian dispatchers, the call center is staffed by 1 rescue captain and 2 lieutenants from the Fire Department, who provide subject matter expertise. Dispatch personnel rotate through different assignments taking calls for EMS, Fire and Police. Two EMS-specific assignments include the Fleet Seat and HOT seat positions. The Fleet Seat position manages the entire ambulance fleet (including private ambulances) by assigning vehicles to specific posts to ensure adequate coverage of the City based on historic demand trends. The HOT seat assigns vehicles to specific calls.

Automated Vehicle Location

Fire Department ambulances trucks and engines are equipped with Automated Vehicle Locator devices, a GPS-based system that allows the Fleet Seat staff at the dispatch center to monitor vehicle locations. The AVL system is in full use only in SFFD ambulances. The City's two private ambulance providers are not equipped with AVL. SFFD engines and trucks are equipped with AVL but the system is not live.

Response Pattern Revision Project

A 2012 FRES (Fire Response) Pattern Revision Project designed and conducted by EMS Medical Director and the Fire Department's EMS Medical Director resulted in a reduction of Code 3 responses from 64 percent of total EMS calls in 2007 to 50 percent in 2012. The goal of the project was to better align resources with call type. A review of the revisions found no instances of compromised patient care or response delays.

Exclusive Operating Area

California Health and Safety Code Section 1797.224 allows LEMSAs to establish an Exclusive Operating Area (EOA) with approval of the State's EMS Authority to restrict the number of ambulance and ALS service providers that operate within their jurisdictions in order "to develop system-wide coordination and predictable response initiated from emergency calls received through a central dispatch facility". The Code Section further states:

> "No competitive process is required [to select service providers] if the local EMS agency develops or implements a local plan that continues the use of existing providers operating within a local EMS area in the manner and scope in which the services have been provided without interruption since January 1, 1981."

In 2008, the California EMS Authority rescinded the EOA under which San Francisco had operated since 1981 based on its assessment that the manner and scope of service provision had changed. This assessment was based on information provided to the Authority in the City's EMS Plan. The most important of the changes involved the distribution of 911 calls among providers.

Because transporting patients via ambulance provides an important source of revenue, exclusive rights to the market offer significant value to the City. As such, the City determined in 2010 that it would reapply for the EOA designation, which it successfully secured in January 2012. The Authority reinstated San Francisco's EOA for 911 emergency responses provided that the providers (City and private) maintain "a substantially similar market share of the distribution of 911 calls in the system as they have historically handled, including 10-20 percent of the calls being handled by the two private providers" and a minimum of 80 percent of the calls handled by the City. As shown below, the San Francisco Fire Department is currently not achieving that response level, covering instead approximately 73 percent of the market.

Exhibit 11: City versus Private Ambulance Responses, 2007-2013

Year	City Ambulance Responses	Private Ambulance Responses	Total Ambulance Responses	City Market Share	Private Market Share
2007	83,378	1,442	84,820	98%	2%
2008	86,485	3,539	90,024	96%	4%
2009	76,709	10,900	87,609	88%	12%
2010	72,774	21,688	94,462	77%	23%
2011	70,194	27,704	97,898	72%	28%
2012	68,329	30,453	98,782	69%	31%
2013	73,051	27,325	100,376	73%	27%

Source: Fire Department

1. EMS Staffing and Ambulance Deployment

- **The City's inability to meet the Exclusive Operating Area market share threshold of 80 percent is the result of insufficient ambulance shifts during the 12-hour shift from approximately 6:30am to 6:30pm. In order to increase market share, the City would need to add three ambulance shifts during that time, which would require the addition of 16 FTEs.**

- **The EMS Division's inventory management and controls are inefficient. Paramedics and EMTs clean and stock ambulances at the start of their shifts, reducing the amount of time the vehicles are in the field.**

- **According to the City's Administrative Code, the Department is required to maintain four static ambulances based at firehouses. The Department transitioned all of its ambulance fleet to dynamic deployment, as of September 2009, and as such, is currently in violation of the Administrative Code.**

- **The Department does not provide sufficient coverage for sick leave in the EMS Division. Because the Department does not use overtime to backfill positions below certain thresholds, scheduled ambulances are unable to be deployed to respond to calls.**

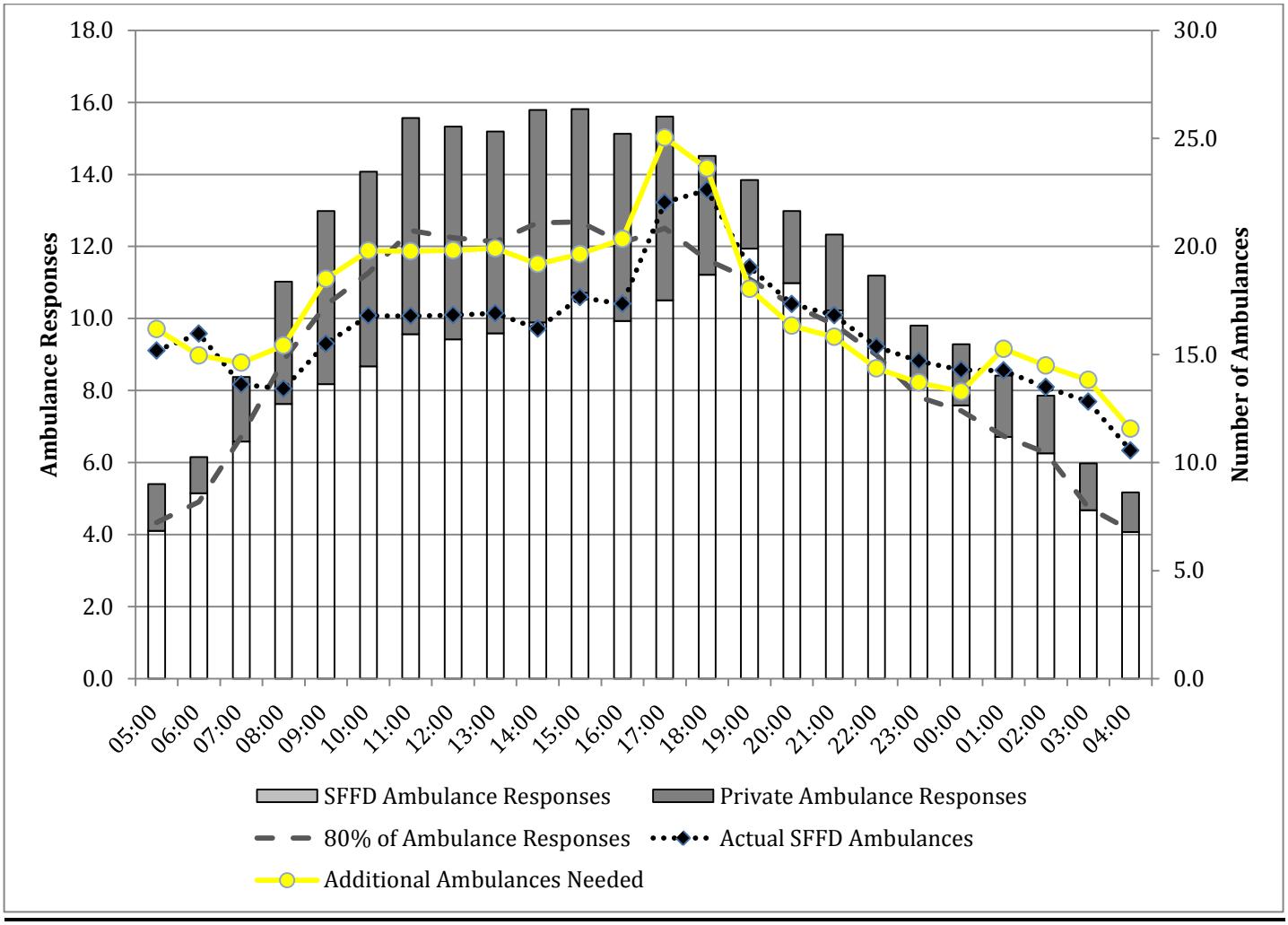
- **The span of control in the EMS Division currently exceeds San Francisco's LEMSA policy guidelines. In addition, the Department has reduced the number of EMS Section Chiefs.**

There are Not Enough Daily Ambulance Shifts to Meet the EOA Requirement to Respond to 80% of Medical Calls

In order to determine the additional number of ambulance shifts needed to increase the City's market share of emergency medical call responses to the 80 percent threshold, the Budget and Legislative Analyst's team tabulated six months of daily operations data from 2013. We calculated the average ambulance demand at every hour of the day to estimate the average 80 percent market share for that hour. We then calculated the average number of City responses at every hour of the day, and determined how many more responses would be necessary to meet the 80 percent threshold. Finally, we

determined the average number of additional ambulance shifts needed to meet that goal throughout the course of the day. The results are shown below.

Exhibit 1-1: Projected Ambulance Shifts Needed



As shown above, from approximately 6:30am to 6:30pm, the City does not have enough ambulances in service to respond to 80 percent of emergency medical calls. On average, during that period, the City would need an additional 3 ambulance shifts to provide sufficient coverage.

In order to put these additional ambulances in service, the Department would need to hire an additional 16 FTEs[1]. Assuming that the Department would hire a combination of EMTs and Paramedics, the estimated cost of these additional

[1] Scheduling one 12-hour ambulance shift over a 7-day week requires 2.1 ambulances and 4.2 FTEs. To account for 27% absences due to vacations, sick leave and other time off, the Department would need to hire 5.33 FTEs per ambulance, or approximately 16 FTEs for three ambulance shifts.

positions would be approximately $2,432,304 for Fiscal Year 2014-15, at $152,000 for 16 employees.

Additional one-time costs for an academy are estimated at $261,748, as per estimates provided by the Department in Fiscal Year 2012-13.

EMS Division Lacks Inventory Controls and Management

The EMS Division currently does not have staff dedicated at Station 49 to manage ambulance supplies and inventory, and the responsibility for stocking ambulances in preparation for shifts falls to EMTs and paramedics. According to the Department, following a 2012 study it completed to track the time required to prepare an ambulance for service at the beginning of a shift, "cutting the deployment time from 30 minutes to 10 alone could result in a 1-3% increase in market share."

To address this logistical challenge, other ambulance providers (particularly those in the private sector) rely on non-uniformed employees to prepare ambulances for service by cleaning and restocking the units. According to the Department, "this can reduce the logistics gap from 60 minutes down to 20 minutes, meaning more time on the street to answer calls for service."

Based on a review of the Department of Human Resources Classification and Compensation database, a comparable existing City classification for this function would be Storekeeper (1934), at an annual salary starting at $47,034.

City Ambulance Deployment Currently Violates the Administrative Code

According to Proposition F and the City's Administrative Code Section 2A.97, the Fire Department must maintain a minimum of four static ambulances based at firehouses:

> "In addition to the apparatus housed within each neighborhood firehouse as of January 1, 2004, as listed above, the Fire Department shall maintain and operate 24 hours per day the following: an arson/fire investigation unit; no fewer than four ambulances; and four Rescue Captains (Medical Supervisors). The Chief of the Department shall determine which station will house those units."

However, since September 2009, all City ambulances have been dynamically deployed, as shown in the table below.

Exhibit 1-2: Total Static and Dynamic Ambulances, 2007-2010

	Static	Dynamic	Total
2007	20	23	43
2008	9	34	43
2009	4	39	43
2010	0	43	43

The Department should review the Administrative Code requirements, and assess the effectiveness of the current deployment model. If it finds that full dynamic deployment remains the most effective staffing model for EMS, the Department should work to amend the Administrative Code.

The Department Does Not Provide Sufficient Coverage for EMS Sick Leave

When an EMS employee calls in sick, the Department typically assigns that employee's partner to EMS 03, rather than using overtime to backfill the position in order to send the unit out to respond to calls. EMS 03 is the assignment reference for solo EMS staff (EMTs and Paramedics) who do not get reassigned to another ambulance, but spend shifts at Station 49 assisting with restocking and cleaning ambulances or other EMS equipment.

Typically, the Department does not fill ambulances using overtime hours, unless there are more than 3 ambulances down. As shown in the table below, the Department's allocation for overtime for EMS has declined since 2010-11.

Exhibit 1-3: Overtime Hours and Costs for EMS, 2008-2015

Year	Hours
2008-09	18,747
2009-10	21,710
2010-11	22,881
2011-12	18,569
2012-13	16,993
2013-14 (projected through June 30)	18,172

Source: Fire Department

In order to increase the City's market share and comply with the EOA requirement, the Department should consider re-allocating overtime hours to

EMS employees in order to ensure that all scheduled ambulances can be deployed.

Span of Control

EMS Management Staff Reductions

As noted in the Introduction to this report, the number of medical calls has increased by 21.7 percent since 2007. While this increase in demand for services has resulted in a substantial increase in the EMS division's workload, supervision and management in the EMS Division have not kept pace. In fact, the EMS Division has undergone a reduction in management staff at the H43 EMS Section Chief level since 1997, eliminating positions in Field Operations, Special Operations and CQI/Risk Management.[2]

The elimination of the Operations Section Chief position was recommended in the 2002 Budget Analyst's audit of the Fire Department as part of a comprehensive set of recommendations intended to support the Department's efforts to merge functions. Since then, as noted throughout this report, the Department has moved away from the original merger design to a "reconfigured" department. In this current hybrid state of merged services and separated operations, the need for an Operations Section Chief to support the EMS Division should be reconsidered.

Reassignment of Paramedic Supervisor (H33 Rescue Captain)

The EMS Division has reduced the number of Rescue Captains in the field by one position from four to three by reassigning one Rescue Captain to Station 49. Before the reassignment, there was a rescue captain assigned roughly to each of four City quadrants.

San Francisco Local Emergency Medical Services Agency Policy 2052 specifies that the paramedic supervisor staffing ratio "shall be one on-duty paramedic field supervisor for every 10 on-duty ALS response or transport vehicles in order to maintain a reasonable span of control and availability for a field response." Currently, three H33 Rescue Captains supervise the response and transport of 54-64 vehicles, for a span of control of approximately 1 supervisor to 20 vehicles.

In addition, the City's Administrative Code Section 2A.97 requires the Department to "maintain and operate 24 hours per day…four Rescue Captains (Medical Supervisors)." In 2009, the Department reassigned one of the four Rescue Captains from Station 43 to provide overall operational support for all

[2] CQI/Risk Management is currently being overseen by an H33 EMS Captain

ambulances deployed out of Station 49. Because duties at Station 49 are operational rather than clinical in focus, the Department should evaluate the need to replace the fourth Rescue Captain assignment in the field, or otherwise come into compliance with San Francisco LEMSA policy.

Conclusion

The Fire Department does not staff sufficiently to meet EMS needs. As noted, the Department has fallen below the 80 percent EOA threshold since 2010, despite increased staffing levels. While overall call volume has increased, the number of medical calls to which the Department responds has decreased. This reduction in responses can be attributed to a combination of factors, including: limiting the use of overtime to backfill positions unless more than three ambulances are "down" from a shift; reduced EMS supervision in the field; and lack of logistics support at Station 49, reducing the time that ambulances are available to respond to calls. If the Department wants to increase its market share of ambulance transports, it should review the impact of all of these factors on performance to determine the most efficient and effective way to increase transports.

Recommendations

The Chief of the Fire Department should:

1.1 Add 3 ambulance shifts, through the hiring of 16 EMS employees, in order to bring the Department into compliance with the terms of the Exclusive Operating Area

1.2 Evaluate hiring non-uniformed staff to prepare ambulances for service in order to maximize the time that EMS employees spend in service.

1.3 Review the standards for ambulance deployment in the Administrative Code to determine whether to return 4 ambulances to static deployment or to have the Administrative Code amended to reflect a fully dynamic deployment model.

1.4 Re-allocate overtime hours to EMS to ensure that all scheduled ambulances can be sent out in service to respond to medical calls.

1.5 Evaluate the current level of field supervision and management for the EMS Division to determine whether to increase staffing or to have the Administrative Code amended to reflect a reduced level of field supervision.

Costs and Benefits

The estimated annual salary and benefit costs to hire 16 new EMS positions to staff 3 additional ambulance shifts are $2,432,304. These costs would be partially offset by an estimated increase in ambulance billings ranging from $630,000 up to $1.7 million[3].

The Department would incur one-time costs of $261,748 to conduct an academy for the 16 new positions.

The benefit of implementing these recommendations is ensuring compliance with the State EMSA requirements for maintaining the Exclusive Operating Area.

[3] This assumes that the Department is able to bill and collect an additional 1,500 to 4,000 accounts.

2. Improving Operational Efficiency and System Coordination

- **Challenges in determining the acuity of emergency medical calls result from the limited availability of complete, accurate incident information. In 2013, while 51 percent of all medical calls were recorded as Code 3 (life-threatening), only 4 percent were actually transported to hospitals as such.**

- **San Francisco's Local Emergency Management Services Agency (LEMSA) currently lacks a system-wide deployment plan, which would provide clear direction to all ambulance providers in the system so that market share can be more effectively managed. This plan cannot be created until the City confirms its commitment to maintaining the EOA.**

- **The Department launched an effort to install Automated Vehicle Locator (AVL) devices in ambulances in order to improve the dispatch process. However, because the private ambulance providers have not installed the AVL devices on their vehicles, the utility of this technology has yet to be maximized.**

- **Over half of the City's current ambulance fleet has aged beyond the useful life span. As a result, vehicles are frequently taken out of service for repair, limiting the Department's ability to attain its market share of ambulance transports.**

- **At the start of the merger of the EMS and suppression services, the Department encouraged uniformed employees to be cross-trained, in order to increase the flexibility of the Department's service response. This effort was aborted during the reconfiguration, but has proven to be a successful model in other jurisdictions.**

The Department Should Continue to Monitor Triage of 911 EMS Calls

For most emergency medical calls, acuity cannot always be determined precisely over the phone due to the limited availability of information. In order to minimize the occurrence of adverse outcomes, the Department of Emergency Management's computer assisted dispatch system (like most other EMS dispatch systems) essentially defaults to a Code 3 designation when determinants are ambiguous. Additionally, first responders are often able to

stabilize patients or improve the situation such that hospital transport codes downgrade from Code 3 to Code 2. As a result, only a small proportion of medical calls that are dispatched as Code 3 actually result in Code 3 hospital transport. Despite a 22 percent increase since 2007 in the number of medical calls, the proportion of medical calls that are transported to hospitals as Code 3 (with lights and sirens) has ranged only between 4.0-4.6 percent.

Exhibit 2-1: Ambulance Transport to Hospital by Code

Year	Medical Calls	% Code 3	% of Medical Calls Transported Code 3
2007	75,688	64%	4.0%
2008	80,838	65%	4.2%
2009	80,136	64%	4.3%
2010	86,873	63%	4.5%
2011	93,763	65%	4.6%
2012	89,941	50%	4.4%
2013	92,117	51%	4.2%

Source: San Francisco Fire Department

Fire Response (FRES) Pattern Revision Project

The reduction in the percentage of Code 3 calls seen in Table XX.6 is the result of a 2012 project designed and conducted by the Medical Directors at the Fire Department and the Department of Public Health. The project's goals were to better align resources with call type and improve safety by reducing inappropriate "lights and sirens" responses to medical calls when less urgent response would not compromise health outcomes. A review of the results of the revisions to call determinants found no instances of compromised patient care or response delays. The Fire Department should continue to monitor its Fire Response pattern and make revisions as determined appropriate by medical direction.

Improve System-wide Coordination

Create a System Deployment Plan

After a year of consultation with stakeholders, the San Francisco EMSA produced a five-year strategic plan to improve EMS operations in the City. This plan was submitted to the EMS Advisory Committee on January 3, 2013 for final review; it received unanimous approval. The San Francisco Health Commission also unanimously approved the Plan on January 15, 2013.

Notably, in the "System Coordination and Standardization" recommendations, as part of the "System Management Workgroup", the Plan specifically calls for "developing a system status management plan". To date, this plan has not

been created. This plan would provide clear direction to City and private ambulance providers regarding ambulance needs, and would help the City to attain its market.

Because the SF EMSA cannot currently mandate the service level commitments of private ambulance providers, 911 dispatch (and in particular, the "Fleet Seat") has to assume that any private ambulance's availability is limited. In situations where a private ambulance and a City ambulance are equidistant to an incident, the private ambulance is more likely dispatched in order to ensure long-term coverage. In part because of this, the City continues to struggle to meet its 80 percent market share requirement.

Reconvene 911 Provider Committee

The City created a 911 Provider Committee in 2012, following notification from the State that the EOA had been reinstated. The purpose of this committee was to confirm levels of service by the three providers (the City, King American, and AMR) and to create a standing body for discussions regarding changing needs related to supply and demand. This Committee has been on hiatus since 2013, due to ongoing uncertainty regarding the City's commitment to maintaining the EOA. It should be reconvened to take up the issue of a system-wide deployment plan among other issues affecting the EMS system.

Expand Use of Automated Vehicle Locator Devices for Vehicle Posting

Fire Department ambulances trucks and engines are equipped with Automated Vehicle Locator devices, a GPS-based system that allows dispatchers that make ambulance posting assignments to monitor ambulance locations. The AVL system is in full use only in SFFD ambulances. The City's two private ambulance providers are not equipped with the system although both providers have location systems that allow their dispatchers to monitor the location of their ambulances. SFFD engines and trucks are equipped with AVL but the system is not live in them.

DEM management estimates implementation costs for private ambulances at approximately $5,000 an ambulance. The Department of Emergency Management is planning to collect data on medic to follow incidents, surge points and the Fire Department's meeting of the 80percent ambulance response requirement. In addition to this data, the Fire Department and DEM should also determine whether full implementation of the AVL—making it live on engines and trucks and private ambulances—would reduce response times by allowing it to assign ambulances more efficiently and would increase the SFFD's ability to achieve and maintain an 80 percent market share as required by the EMS Authority.

City's Aging Ambulance Fleet

According to the San Francisco Fire Commission, in Resolution 2009-05, due to the City's topography and the high volume of calls, the useful life span of the City's ambulances is 10 years. Of the current fleet of 43 ambulances, the Department operates 23 ambulances that have exceeded that 10-year life span, according to Fire Department vehicle inventory information. As the vehicles surpass their useful life span, repair costs increase significantly—in some cases, in excess of the costs of replacing the vehicle.

The exhibit below shows the mileage and repair costs for the City's ambulances with over 10 years of service, as of February 2014.

Exhibit 2-2: SFFD Ambulance Fleet in Service Over 10 Years

Year Purchased	Unit #	Mileage as of February 2014	Repair Costs Since 2000	Number of Years In Service
2003	92	116,291	$139,189	11
	79	141,557	$146,031	11
	75	132,322	$122,117	11
	RM	141,336	$146,686	11
	RM	153,513	$108,987	11
	85	153,574	$140,934	11
	52	144,939	$122,336	11
	58	148,650	$106,486	11
	65	153,541	$123,159	11
	60	191,124	$144,569	11
	59	174,132	$136,466	11
2001	99	162,518	$105,340	13
	64	176,152	$118,328	13
	70	205,117	$158,590	13
	53	148,650	$114,241	13
2000	74	135,342	$162,800	14
1999	56	201,627	$158,219	15
	61	149,328	$153,095	15
	92	151,120	$176,971	15
	79	157,266	$133,488	15
	75	153,773	$121,109	15
	RM	149,410	$168,768	15
	RM	222,586	$182,062	15

As of February 2014, the average mileage for these 23 ambulances was 159,299 and the average repair costs were $162,554. Since Fiscal Year 2012-13, the Department has received approval for the replacement of 16 ambulances.

Exhibit 2-3: Replacement Ambulances Approved, 2012-2015

Year	# of Replacement Ambulances Approved
FY 2012-13	5
FY 2013-14	9
FY 2014-15	2
Total	16

To date, none of these vehicles has been purchased. As a result, the Department must take these vehicles be out of service regularly for repairs, reducing the number of units available to respond to calls. Although the Department does not currently track the number of ambulances out of service on a daily basis, Department officials note that as many as one-third of the ambulance fleet may require servicing at any one time. This makes it difficult for the Department to deploy the 33 ambulances per day that the Budget and Legislative Analyst recommends in Section 1 of this report as the necessary daily deployment to respond to 80 percent of medical calls.

The Fire Commission's 2009 vehicle replacement policy provides for five replacement ambulances per year. Despite the fact that the Board of Supervisors appropriated the funds requested by the SFFD to authorize 16 ambulances in the Fire Department's FY 2012-13, FY 2013-14, and FY 2014-15 budgets, not even one of these 16 ambulances has been purchased to date. As a result, the SFFD takes the existing aging ambulances out of service regularly for repairs, reducing the number of units available to respond to calls. According to SFFD staff, SFFD did not submit a requisition to the Office of Contract Administration for the purchase of 10 of the 16 ambulances until November 7, 2013, and has still not submitted a requisition to purchase the remaining six ambulances.

Based upon equipment cost estimates provided by the Department during the budget process for FY 2013-14, one new ambulance costs approximately $175,000 or $875,000 for 5 vehicles. As shown in the exhibit below, if the Department funds five new ambulances in each of the next five fiscal years from FY 2014-15 through FY 2018-19, the Department's ambulance fleet will have service replacement dates of ten years or less by FY 2019-20.[1]

[11] Assumes that new ambulances are purchased and placed into service the year following the appropriation.

Exhibit 2-4: Ambulance Replacement Plan, FY 2014-15 through FY 2018-19

Fiscal Year	Ambulance in Service for 12 Years	Ambulance in Service for 11 Years	Ambulance in Service for 10 Years or Less	Replacement Ambulances Approved in Prior Years' Budgets [a]	Total
FY 2014-15	7		20	14	**41**
FY 2015-16		3	31	5	**39**
FY 2016-17		8	28	5	**41**
FY 2017-18	5		33	5	**43**
FY 2018-19		4	34	5	**43**
FY 2019-20			39	4	**43**

[a] As noted above, the Board of Supervisors previously appropriated funds to replace 16 ambulances placed in service from 1999 through 2003, of which 14 ambulances were appropriated in the Department's FY 2012-13 and FY 2013-14 budgets and 2 were appropriated in FY 2014-15. The Mayor's proposed FY 2014-15 budget includes an additional 5 ambulances.

Increasing the Number of Cross-Trained Firefighter-Paramedics

The merger of fire suppression and EMS to create fire-based EMS systems has occurred throughout the United States, requiring departments to change staffing and deployment models for ambulance and fire suppression vehicles.

While the Department took initial steps to fully merge its suppression and EMS functions, as demonstrated through its early efforts to cross-train firefighter-paramedics (discussed in the Introduction to this report), the subsequent EMS reconfiguration resulted in a reduction in the number of fully cross trained firefighter-paramedics (H3L3s) and recreation of single function paramedics and EMTs.

Given the successful integration of EMS and suppression that has occurred in other jurisdictions, notably the City of Phoenix where all paramedics and EMTs are firefighters, engineers or captains and 43 percent of uniformed staff are cross-trained firefighter-paramedics, the Department should re-evaluate whether cross-training new employees would increase the Department's flexibility in responding to the Department's particular mix of EMS and fire suppression calls.

Conclusion

If the Department wants to meet the EOA requirement and provide 80 percent of the EMS market share, there are several opportunities to create efficiencies that would likely result in an increased market share. These include replacing aging ambulances, fully implementing the Automated Vehicle Locator technology and working to improve triage protocol to reduce the number of miscoded EMS calls. In addition, the Department of Emergency Management, in its capacity as the SF EMS Agency, can improve system-wide coordination by developing a System Deployment Plan and restoring the 911 Provider Committee to improve communications among providers and ensure that resources are properly aligned with demand.

Recommendations

The Mayor should:

2.1 Replace 5 ambulances per year for FY 2014-15 through FY 2018-19 to ensure sufficient ambulances to respond to emergency medical calls.

The Chief of the Fire Department should:

2.2 Support continued efforts to monitor and improve triage protocol for EMS dispatch and report annually to the Board of Supervisors on the results during the review of the Department's budget.

2.3 Evaluate the impact of cross-training all new uniformed employees in order to increase the Department's flexibility in responding to EMS and suppression calls.

The Executive Director of Emergency Management should:

2.4 Ensure that the Deputy Director of Emergency Management develops an EMS System Deployment Plan, reflecting the level of service commitment (i.e. market share) that the City will provide in ambulance response.

2.5 Restore the 911 Provider Committee in order to engage all ambulance providers in ongoing discussions about service needs and delivery in order to provide the highest level of patient care, including the full

implementation of the Automated Vehicle Locator system and report to the Budget and Finance Committee on these options by June 2015.

2.6 In collaboration with the Chief of the Fire Department, evaluate whether full implementation of the AVL would reduce response times by allowing more efficient dispatch of ambulances, and if so, consider ways to bring the private ambulance providers into the system.

Costs and Benefits

The Department would incur estimated annual costs of $875,000 to replace five ambulances per year. Because the replacement of five ambulances per year conforms to the Department's vehicle replacement policy, the Department would incur new costs only if the Department's total vehicle replacement costs exceed the FY 2013-14 budget of $5,045,305 (which includes $3,163,709 in annual lease financing payments and $1,881,596 in annual operating budget expenditures).

The benefit of implementing these recommendations is ensuring compliance with the State EMSA requirements for maintaining the Exclusive Operating Area.

3. Beyond the Emergency Room: Alternatives to Emergency Medical Services

- **While call volume for Emergency Medical Services (EMS) increased by over 20 percent between 2007 and 2013, a significant number of calls came from frequent users in a relatively small geographic area served by Fire Stations #1 and #3. These frequent callers depend on EMS for the treatment of drug and alcohol abuse, for psychiatric and other behavioral health services, and for the treatment of cardiovascular disease and trauma.**

- **Community Paramedicine programs have expanded nationwide. These programs address EMS care gaps that are identified through a community-specific health care needs assessment and reduce reliance on EMS services for non-emergency treatment needs.**

- **In 2004, the Fire Department, Department of Public Health (DPH), and Human Services Agency (HSA) developed one of the first Community Paramedicine programs in the country, called the Homeless Outreach and Medical Emergency (HOME) team. The HOME team consisted of a Fire Department paramedic and a DPH psychosocial clinician that formed a mobile unit to conduct outreach to frequent EMS callers.**

- **DPH currently operates programs that serve as alternatives to hospitalization, including the SF Homeless Outreach Team (SFHOT), the Sobering Center and the Dore Urgent Care Clinic. The City has received permission from the state to allow EMS transports to the Sobering Center, rather than an emergency room, to provide targeted treatment to chronic inebriates and reduce reliance on hospital resources.**

- **In order to ensure that the SFHOT Team can target the high users of EMS, DPH relies on the 911 call data. Currently, the Department of Emergency Management (in its capacity as the SF LEMSA) cannot provide this information, and has deferred that responsibility to the Fire Department. Until DEM can resume this role, the Fire Department should ensure that DPH receives the information in a timely manner.**

Alternatives to Traditional EMS Expand Nationwide

Cities across the country have adopted Community Paramedicine as a community-based, collaborative model of medical care that leverages the skills of paramedics and EMS systems to address care gaps identified through a community-specific health care needs assessment, in collaboration with other health and social service providers. Community Paramedicine programs can

address both pre-hospital or post-hospital care gaps, reducing reliance on EMS services for non-emergency treatment needs. They can also be designed to target specific populations, such as frequent EMS callers, providing transport to patients with specified conditions not requiring emergency care to alternative care locations, such as a mental health facility, sobering center, urgent care clinic, or primary care physician's office. These programs have been recognized for their success in improving health outcomes for patients and reducing costs to local healthcare and EMS systems.

Examples of Community Paramedicine Efforts in the US

Denver CARES

The City of Denver operates a Community Paramedicine program called Comprehensive Addictions Rehabilitation and Evaluation Services (CARES). CARES consists of a 100-bed, non-medical, clinically managed treatment facility that allows for the safe detoxification of inebriates. CARES operates an emergency service patrol (ESP) which picks up inebriates throughout the city and transports them to the facility. The ESP responds to more than 10,000 calls annually. CARES also provides transitional residential treatment for substance dependent men and women. Patients can stay for 30 to 120 days and access services such as individual and group counseling, alcohol and drug education, relapse prevention, life skills training and referrals to ongoing social services.

Fort Worth MedStar

In 2009, MedStar, a private EMS provider in Fort Worth that serves 880,000 residents and has approximately 112,000 EMS responses annually, began an EMS Community Health Program (CHP), with an initial focus on individuals who use EMS frequently and as a health care safety net. The main goals of the CHP are to navigate patients toward more appropriate non-emergency department health care options, to reduce unnecessary 911 responses and EMS transports that strain an already-overloaded EMS system, and to reduce overall health care costs.

Concentration of San Francisco 911 Medical Calls by Location and Population

An overall increase in call volume is often cited as a challenge for the Fire Department (SFFD) in meeting the 80 percent market share requirement of the Exclusive Operating Area (EOA). Between 2007 and 2013, the call volume for emergency medical services in San Francisco increased by 21.7 percent, as shown in the table below.

Table 3-1: Increase in EMS Calls, 2007-2013

Year	2007	2008	2009	2010	2011	2012	2013	Total Change 2007-2013
Calls	76,298	81,689	76,368	87,356	90,420	91,034	92,875	
Increase	n/a	5,391	(5,321)	10,988	3,064	614	1,841	16,577
% Increase		7.1%	-6.5%	14.4%	3.5%	0.7%	1.5%	21.7%

Source: San Francisco Fire Department

Notably, roughly 25 percent of the calls during this time period came from a relatively small geographic area, and were served by units from two stations, Stations #1 and #3, located in the Tenderloin and SOMA, respectively.

Although patient-level data is unavailable, officials at the Fire Department and the Department of Public Health state that a significant portion of the services and transports provided by these stations serves repeat callers, or "high users." According to an analysis conducted by the Department of Public Health (DPH) over a six-month period in 2008, the high users depend on emergency medical services for drug and alcohol abuse treatment, for psychiatric and other behavioral health services, as well as the treatment of cardiovascular disease and trauma.

Alternatives Models in San Francisco

San Francisco has already developed programs and allocated resources to support efforts targeting high users of emergency departments. Three[1] of these programs, offering more intensive treatment options to improve health outcomes for these populations, are discussed below.

SF HOME Team

In 2004, staff at the Fire Department (SFFD), Department of Public Health (DPH), and Human Services Agency (HSA) developed one of the first Community Paramedicine programs in the country. The program, known as the Homeless Outreach and Medical Emergency (HOME) team, focused on the identification and treatment of a small number of chronic inebriates that frequently called 911, resulting in extensive use of emergency department resources at high uncompensated healthcare costs.

The HOME Team was led by a roving pair of clinicians—one paramedic and one psychosocial clinician from DPH—that formed a mobile unit conducting

[1] A fourth program, the Dore Urgent Care Center, provides emergency treatment and shelter for clients experiencing psychiatric emergencies.

outreach, engagement, assessment, intervention, and treatment linkage. The paramedic retained a position in SFFD as a uniformed paramedic and drove a visibly-marked, fully-equipped paramedic vehicle that was a smaller, more maneuverable version of the larger ambulances.

The HOME Team was funded for approximately five years at an amount of $150,000 annually. Between 2004 and 2006, San Francisco General Hospital estimated a total of $12.9 million in annual uncompensated charges associated with 225 frequent EMS users. Following implementation of the HOME Team, from 2007-2009, costs for this group of high users were estimated to have dropped by 44.6 percent to roughly $6 million per year.

SF HOT Team

The Department of Public Health currently operates a Homeless Outreach Team (SFHOT) that provides two types of service: First Response/Targeted Outreach and Stabilization Care Management.

As part of the First Response/Targeted Outreach effort, DPH employs an Engagement Specialist Team (EST) that operates 24/7 and responds to requests for outreach and intervention from 311, Care Coordinators, Police, Fire, and Urgent/Emergent facilities (hospitals, Sobering Center, Psychiatric Emergency Services, and Dore Urgent Care Center).

The Engagement Specialist Team responds within two hours to a call and determines whether an individual can be cleared for transport and moved to and/or from urgent/emergent facilities. The EST also conducts searches for high-risk homeless individuals, performs wellness checks, and attempts to engage these individuals into services and other resources. Individuals identified as being high-risk are often referred to the Stabilization Care Management Teams.

SFHOT also provides short-term Stabilization Care Management for 480 high-risk[2] homeless individuals. The purpose is to stabilize individuals from the street into shelters and SROs within six to twelve months, remove personal barriers to their attaining permanent housing, secure and place them into permanent housing, and assess and serve as care coordinators for SF Health Network members who are high-risk and high-cost individuals and are unable to engage into the system.

In May 2014, the Board of Supervisors appropriated $1.3 million in new General Fund monies to enhance SFHOT and DPH staff to provide increased services.

[2] High-risk homelessness includes the following characteristics: homeless for more than three years; experiencing complex medical, psychiatric, and substance abuse tri-morbidity; using a high number of urgent/emergent care services; and unable to navigate the health and human services system on their own.

Sobering Center

The Sobering Center, originally known as the McMillan Stabilization Program, was started in 2003, after DPH examined the impact of chronic inebriates on public resources and individual health. The Center receives intoxicated clients from the streets and emergency departments by ambulance, police, and Mobile Assistance Patrol (MAP) van services operated by a local nonprofit organization. Bed availability at the Sobering Center is monitored through a citywide online system, which allows emergency responders to view real-time supply. The City received permission from the State allowing San Francisco EMS providers to transport patients to the Sobering Center during a one-year pilot program. During the pilot year, over 3,000 patients were seen at the Center, and over half of those were transported from the EMS system or from hospital emergency departments. After the pilot year, the State granted the City permission to continue transporting patients to the Sobering Center. As shown in the table below, approximately 40 percent of clients were transported to the Sobering Center via ambulance between 2009-2011, thus diverting ER admissions.

Table 3-2: Source of Sobering Center Referrals, 2009-2011

Referring Party	2009	2010	2011
Ambulance	1128 (43.6%)	1448 (44.5%)	1878 (36.3%)
Mobile Assistance Patrol (MAP)	1033 (40.4%)	1227 (37.7%)	1991 (38.5%)
Police	167 (6.5%)	286 (8.8%)	393 (7.6%)
Transfer from Emergency Department via MAP	71 (2.7%)	116 (3.6%)	599 (11.6%)
Other	189 (7%)	177 (5.4%)	314 (6%)

Source: Smith-Bernardin, Shannon and Michelle Schneiderman. "Safe Sobering: San Francisco's Approach to Chronic Public Inebriation." Journal of Health Care for the Poor and Underserved, 2012.

Operating costs for the Sobering Center are approximately $1 million annually and come from the San Francisco General Hospital's General Fund appropriation. The daily operating cost for this 24/7 operation is less than $2,700, which makes it comparable to the cost of a single ambulance transport and emergency department visit (which combined ranges from $1,850 to $3,800). With an average census of 10 to 14 clients a day, the cost avoidance to the City is substantial.

Need for Improved Data-Sharing Between Fire Department and DPH

To enable the treatment of high users through alternative service programs, DPH has requested patient information, which would be kept confidential, from the Department of Emergency Management (DEM). There have been delays in the transmittal of the data, as DEM has been working to establish a Local Emergency Medical Information System (LEMSIS). The California EMS Authority is now requiring all local EMS Agencies to adopt the use of the National Emergency Medical Services Information System (NEMSIS) by January 1, 2015. Once that adoption is complete, the Department of Emergency Management will be able to provide high user patient information to DPH. DEM has asked the Fire Department to provide the patient information to DPH in the interim period. The Department of Public Health needs timely information to target the highest users every month. There is currently a 6-month delay in the receipt of monthly patient information from SFFD.

Conclusions

Alternatives to the use of emergency medical services for chronic inebriate and indigent populations have been widely recognized for their ability to reduce medical costs and make available emergency equipment and personnel for critical calls. Community Paramedicine programs are being implemented in other states, such as Texas and Colorado, as well as in a pilot program in 13 community locations in California.

Having launched its own Community Paramedicine pilot program in 2004, San Francisco continues to operate several programs that provide alternatives to hospitalization for high users of EMS through the Department of Public Health. The City should continue to support these efforts, and the Fire Department should work closely with DPH and other providers to enhance capacity to target high users and reduce impacts and costs on the City's EMS system.

Recommendations

The Chief of the Fire Department should:

3.1 Continue to work with the Department of Emergency Management and the Department of Public Health to explore alternatives for providing non-emergency services in settings other than an Emergency Department or

other hospital setting and report to the Budget and Finance Committee on these options at the June 25, 2014 Budget and Finance Committee meeting.

3.2 Consider reinstating funding for the HOME Team or develop a new Community Paramedicine program and report to the Budget and Finance Committee at the June 25, 2014 Budget and Finance Committee meeting on the process for evaluating implementation of a Community Paramedicine program.

3.3 Ensure that all data requests from DPH regarding high users are provided in a timely manner, until the Department of Emergency Management is able to assume responsibility for this function (currently projected for January 2015).

The Mayor should:

3.4 Continue to support the expansion of alternative medical treatment models for high users, including the Dore Urgent Care Clinic, SFHOT, and the Sobering Center.

Costs and Benefits

Implementation of these recommendations will increase efficiencies in EMS operations, and will improve the treatment of the chronic health conditions of the City's highest users of EMS services.

Savings from the implementation of these recommendations could be approximately $3 million per year, based on the results of the SF HOME Team from 2007-2009.

Audit of EMS Resources at the San Francisco Fire Department

Recommendation Priority Ranking

Based on the management audit findings, the Budget and Legislative Analyst has made 15 recommendations which are ranked based on priority for implementation. The definitions of priority are as follows:

Priority 1: Priority 1 recommendations should be implemented immediately.

Priority 2: Priority 2 recommendations should be completed, have achieved significant progress, or have a schedule for completion prior to December 31, 2014.

Priority 3: Priority 3 recommendations are longer term and should be completed, have achieved significant progress, or have a schedule for completion prior to June 30, 2015.

	Recommendation	Priority	Department Response	Department Implementation Status/Comments
	The Chief of the Fire Department should:			
1.1	Add three ambulance shifts, through the hiring of 16 EMS employees, in order to bring the Department into compliance with the terms of the Executive Operating Area (EOA).	1	Partially Agree	The Department agrees with the Budget Analyst's recommendation to hire additional personnel in order to meet the increased demand for EMS services by the public. However, the Department does not agree that the 16 additional FTEs are sufficient to bring the City in compliance with the 80% market share level mandated by the EOA. The overarching issue is an insufficient level of resources in the City's ambulance system as a whole. This is a City-wide issue, not solely a Department issue. There is an insufficient level of resources in the 911 ambulance system overall to handle current demand for services, both private and Departmental resources. The market share is only one part of the equation. There are other operational issues that currently exist in the system, such as response times, medic to follow/zero ambulances, and workload issues, all of which are a concern. The hiring of 16 additional FTEs

				can begin to address these, but will not solve all of the problems nor bring the Department into complete compliance with the terms of the EOA. The audit does not address these topics.
1.2	Evaluate hiring non-uniformed staff to prepare ambulances for service in order to maximize the time that EMS employees spend in service.	2	Agree	Any increased ambulance availability that would result from hiring additional personnel to assist with EMS logistics would be beneficial to the Department, and would represent an opportunity to increase call volume and improve inventory controls. However, while the Department agrees that any improvements in logistics would have a positive result in ambulance operations, there is a cost associated with that, and additional funding would need to be added to the Department's budget. The Analyst report suggests exploring a non-uniform class to assist in this process. This classification, at top step with benefits, would cost approximately $82,000. The Department's EMS operation is a 24-hour/7-day logistical operation, and the need would be greater than one 40-hour position to assist in logistics at all times. After further review, the Department believes that sharing the three 1934 Storekeepers in the Bureau of Equipment Unit, co-located with Station 49, is not a viable option. The necessary changes in shift to cover a 24-hour operation, increased workload and possible modified work duties would result in changes in working conditions and potential "out-of-class work," which would trigger labor relations issues that may not have a favorable outcome for the Department. The Department is exploring technological improvements to inventory tracking that result in improvements in both EMS and Fire Suppression logistics. Additionally, if funded in the future, the Department would consider more appropriate classifications that could be dedicated to Station 49 logistics.

1.3	Review the standards for ambulance deployment in the Administrative Code to determine whether to return four ambulances to static deployment or to have the Administrative Code amended to reflect a fully dynamic deployment model.	2	Agree	Due to the call volume that ambulance units typically handle, the Department has long determined that 24-hour, staffing of static ambulances at stations was not a tenable model; thus, the creation of the dedicated ambulance tier in 2006. Moreover, Local 798 MOU specifically provides 10- to 12-hour shifts for L1s and L2s. It would be an MOU violation if the Department staffed according to the Admin Code. Therefore, the Department would support an amendment to the Admin Code to include the option for a dynamic deployment model.
1.4	Re-allocate overtime hours to EMS to ensure that all scheduled ambulances can be sent out in service to respond to medical calls.	2	Disagree	There is a mechanism for overtime for Station 49, and members who volunteer do work overtime. However, the Department does not get a good number of volunteer sign-ups. Additionally, since Station 49 members are not at one work location for 24 hours, it is difficult to assign mandatory OT once they have gone home. Besides, the staffing deficiencies among Station 49 members are due, in part, to the absenteeism rate of this group, which is proportionally higher than their Suppression counterparts. The Department has placed some members (both from EMS and Suppression) on sick leave restriction to attempt to curb this behavior pattern. OT hours in Suppression are not an allocation, but rather the function of fulfilling minimum staffing levels on any given shift. The Department could not simply "re-allocate" Suppression overtime hours without their being a negative impact to mandatory staffing levels. In addition to not having a sufficient number of people to work overtime shifts, there are logistical issues that come along with the scheduling of EMTs and Medics that are inherent in a dynamic schedule, and that make overtime allocation much more difficult than in Fire Suppression. In suppression, all members work an identical 24 hours shift. In the dynamic ambulance model, shift times fluctuate, further reducing the pool of employees that are available to work.

1.5	Evaluate the current level of field supervision and management for the EMS Division to determine whether to increase staffing or to have the Administrative Code amended to reflect a reduced level of field supervision.	2	Agree	The ratio of 1 EMS Supervisor to 20 vehicles includes ALS engines. Practically speaking, using the average # of 20 ambulances on peak hours and three RCs, the effective ratio would be 1 EMS Supervisor to 6.67 or 7 ambulances. The Department has been forced over the last 10 years to defund or has suffered outright budget cuts of H43 EMS Section Chief positions. The Department recognizes the importance of this rank, particularly the Operations Section Chief position, which was recently restored in the Department's FY 14-15 budget. Having an additional management staff dedicated to EMS Field Operations would help to move the system forward. This Section Chief would be able to devote time to reviewing, analyzing, improving, implementing and monitoring staffing models, unit utilization, time on task and other critical EMS Operations issues.
	The Mayor Should:			
2.1	Replace five ambulances per year for FY 2014-15 through FY 2018-19 to ensure sufficient ambulances to respond to emergency medical calls.	1		
	The Chief of the Fire Department should:			
2.2	Support continued efforts to monitor and improve triage protocol for EMS dispatch and report annually to the Board of Supervisors on the results during the review of the Department's budget.	1	Agree	The Department supports the review of current code level assignments and ambulance deployment protocols with DEM. This is something the Department is always reviewing for improvements. The Department's goal would be to maximize the use of its ambulance fleet for "true" Code 3 calls and reduce transport and in-hospital time for calls that do not warrant such time and service. In that way, those unit hours could be re-directed toward achieving the 80% EOA market share and focus on the critical, Code 3 calls.

2.3	Evaluate the impact of cross-training all new uniformed employees in order to increase the Department's flexibility in responding to EMS and suppression calls.	3	Disagree	The MOU provision below does not allow the flexibility that this recommendation suggests: 18.4 The Department shall not detail any employee in the rank of H2 or H3 Level III to replace any H3 Level I or Level II employee or to work on an ambulance for all or any portion of an 8-hour shift or a 10-hour shift except in exigent circumstances (i.e., situations when off-duty employees are recalled). In addition, there are significant costs, as new employees that were cross-trained in fire suppression would most likely be considered H3 Level 3 classification, which is a tier that is significantly more costly than the Level 1 and 2 employees.
	The Director of Emergency Management should:			
2.4	Ensure that the Deputy Director of Emergency Management develops an EMS System Deployment Plan, reflecting the level of service commitment (i.e. market share) that the City will provide in ambulance response.	2	Agree	This has been and remains a critical step in compliance with the exclusivity terms authorized by the state EMS Authority. Development of the Plan was put on hold pending demonstrable commitment on the part of the City to provide sufficient resources necessary to meet the obligation.
2.5	Restore the 911 Provider Committee in order to engage all ambulance providers in ongoing discussions about service needs and delivery in order to provide the highest level of patient care, including the full implementation of the Automated Vehicle Locator system and report to the Budget and Finance Committee on these options by June 2015.	2	Partially Agree	Reconvening of the 911 Provider Committee is a key step in development of an inclusive System Status Management Plan and coordinating the ongoing efforts of all the 911 providers. Implementing 100% utilization of AVL will require a significant financial investment. Currently the private providers are not using compatible technology. Unless the City intends to procure the technology for the private providers this will require DES and DEC to develop a policy and equipment standards. DES will need sufficient lead time to work with providers, and for providers to include the investment in their capital planning budgets. Providers will then need to procure, install, test and implement the AVL equipment. DEC will need

				to determine how integration of the private providers into the CAD will impact daily operations. This will also require an investment in technological support and in development of policy and procedures for dispatch. While we believe this is a worthwhile goal, it is important to note that the project is complex, and requires more than purchase and installation of new AVL equipment. It is unrealistic to believe this could all be accomplished and implemented by June 2015. DES will begin working with stakeholders in the new fiscal year to develop and strategy and plan.
2.6	In collaboration with the Chief of the Fire Department, evaluate whether full implementation of the AVL would reduce response times by allowing more efficient dispatch of ambulances, and if so, consider ways to bring the private ambulance providers into the system.	2	Partially Agree	The Fire department already uses AVL in the dispatch of their ambulances. DEC operations fall under the purview of DEM. While we are always collaborative with our colleagues in the Fire Department, decisions regarding dispatch practices and the private providers will be made by the respective service providers and DES in our capacity as the Local EMS Agency.
	The Chief of the Fire Department should:			
3.1	Continue to work with the Department of Emergency Management and the Department of Public Health to explore alternatives for providing non-emergency services in settings other than an Emergency Department or other hospital setting and report the Budget and Finance Committee on these options at the June 25, 2014 Budget and Finance Committee meeting.	1	Partially Agree	The Department with continue working with DEM and the Department of Public Health to explore alternatives for non-emergency services. However, the provision of these services is governed by California Health and Safety Code (HSC 1797.52, 1797.218), which currently limits paramedic scope of practice to emergency care in the pre-hospital setting and requires that patients under the care of a paramedic be transported only to an acute care hospital. The Department continues to support alternate destinations, such as the San Francisco Sobering Center, but it is the authority of the Local EMS Agency to definite receiving destinations and the California State EMS Agency to define paramedic scope of practice.

3.2	Consider reinstating funding for the HOME Team or develop a new Community Paramedicine program and report to the Budget and Finance Committee at the June 25, 2014 Budget and Finance Committee meeting on the process for evaluating implementation of a Community Paramedicine program.	2	Partially Agree	Current state regulations do not allow for Community Paramedicine programs unless approved by the California State EMS Agency. The California State EMS Agency is exploring Community Paramedicine pilot projects through the Office of Statewide Health Planning and Development (OSHPD), with an exemption of California Health and Safety Code (HSC 1797.52, 1797.218). As of May 2014 the state is evaluating proposals but has not approved any Community Paramedicine program to be implemented. If and when these regulations are adopted the Department will work with LEMSA and DPH in a collaborative manner to develop these programs.
3.3	Ensure that all data requests from DPH regarding high users are provided in a timely manner, until the Department of Emergency Management is able to assume responsibility for this function (currently projected for January 2015).	1	Agree	The Department agrees that this is an important priority. As noted on the report, the responsibility for this data lies with DEM. Due to issues with the date, the Department has been providing this data to DPH until these issues can be resolved. However, the Department only has access to the patient data of the patients it treats, meaning that approximately 27% of patient data is not transmitted to DPH.
	The Mayor should:			
3.4	Continue to support the expansion of alternative medical treatment models for high users, including the Dore Urgent Care Clinic, SFHOT and the Sobering Center	1		

JOANNE HAYES-WHITE
CHIEF OF DEPARTMENT

EDWIN M. LEE
MAYOR

SAN FRANCISCO FIRE DEPARTMENT

CITY AND COUNTY OF SAN FRANCISCO

June 9, 2014

Severin Campbell
San Francisco Board of Supervisors
Budget and Legislative Analyst's Office

RE: Performance Audit Emergency Medical Resources at the San Francisco Fire Department

Dear Ms. Campbell:

Thank you for the opportunity to review the draft performance audit report and for the changes that were made to the final draft based on the Fire Department's (Department) feedback at the June 2, 2014 exit conference. We appreciate the collaborative discussion and look forward to the inclusion of the Department's formal response to the audit findings and recommendations to the final report.

As you are aware from the Department's initial matrix response and our exchange at the exit conference, the Department concurred with nine of the 11 audit recommendations, with two being partial agreements with qualifications. Although the enclosed final matrix response details the Department's position in each recommendation, we would like to highlight in this letter the items that we believe are most critical.

Recommendation 1.1 asserts that the hiring of 16 full-time equivalent (FTE) positions to staff three additional ambulance shifts would bring the Department to compliance with the Exclusive Operating Agreement's (EOA) required market share of 80%. While the Department understands how the Audit Team arrived at this number, our belief is the methodology did not fully capture all the necessary factors for such analysis. The Department reiterates that the increase in uniformed ambulance personnel would not equate to a surge in call volume, which appears to be the basis for the Audit Team's claim of the resulting increased market share. A multi-dimensional analysis that includes Department operational considerations of response times, medic to follow/zero ambulances, unit utilization and workload issues, as well as private ambulance resources and response patterns, would yield the most meaningful number of new hires that would bring the Department to the required market share.

The Department agrees with Recommendation 1.2 that civilian personnel dedicated to EMS logistics would be valuable in potentially realizing savings through better inventory control and revenue by allowing ambulance crews to improve "out-the-door" time at the beginning of each shift. However, since any new position requires approval and funding, the Department is unable to implement this item on its own. This is likewise true for Recommendations 1.5 regarding EMS supervision and 2.1 concerning ambulance units, where resources are lacking, not by the Department's choice, but by the shortage or absence of funding.

Finally, the Department's disagreement with Recommendations 1.4 and 2.3 is due to the inaccurate statement in 1.4 and statutory and cost limitations for 2.3. The reference to re-allocation of overtime in 1.4 suggests the existence of overtime allocation and the misappropriation of such. The Department underscores the fact that overtime in Suppression is a necessary response to meet minimum staffing levels. Moreover, there is a parallel overtime policy and procedure for ambulance personnel. However, the Department has difficulty securing volunteers. Additionally, mandatory overtime is more challenging to implement due to the shorter shifts and dynamic work location.

The Department cannot explore 2.3 because MOU provisions preclude flexibility in assignment to ambulance units of cross-trained Firefighter Paramedics, unless in exigent circumstances. It would require a revision of MOU language during open bargaining to explore this proposal. Additionally, advancement to Level 3 Firefighter Paramedic from Level 1 EMT or Level 2 Paramedic is extremely cost prohibitive since the salary difference would be over 20%.

I trust that the Audit Team appreciates the dialogue, including differences in opinion, as an avenue for learning. I compliment the Audit Team for their thorough research and painstaking effort to analyze and interpret data for the purpose of the report. We will continue to discuss the findings and recommendations toward enhancing the state of the Department's EMS Division.

Sincerely,

Joanne Hayes-White
Chief of Department

Enclosure

Edwin M. Lee
Mayor

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Division of Emergency Communications
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SAN FRANCISCO DEPARTMENT OF EMERGENCY MANAGEMENT

Anne Kronenberg
Executive Director

June 9, 2014

Amanda Guma, Senior Manager
Harvey M. Rose Associates, LLC
1390 Market Street, Suite 1150
San Francisco, CA 94102

Dear Ms. Guma,

The Department of Emergency Management reviewed the Budget Analyst's June 2014 audit recommendations of EMS Resources at the San Francisco Fire Department. We appreciate being invited to participate in the review process and the efforts your staff took to understand the complexities of this topic. We have provided responses to the three audit recommendations you requested in the attached matrix. In addition I wanted to comment on a few items detailed in the report that didn't specifically fall under the recommendations.

Page 23 of the report suggests that dispatchers preferentially assign calls to private ambulances (when City ambulances are in equal proximity) because the 911 dispatcher assumes that any private ambulance's availability is limited. We heard this statement in the past, and because it is against DEMs policy of dispatching the closest resource we investigated. We found there is no evidence to show the allegation is true or is a practice among Division of Emergency Communication (DEC) personnel. Dispatchers assign the closest resources as determined by the CAD, which relies on location data (fixed post and actual location via AVL if available). If you know of specific instances of not complying with this policy, please forward them and we will investigate the specific instance and follow up appropriately.

Restoration of the 911 Provider Committee and development of a comprehensive System Status plan are priorities of the Division of Emergency Services (DES) in their capacity as the Local EMS Agency. DEM will begin implementation of recommendations 2.4 and 2.5 later this summer if the Board of Supervisors approves the proposed SFFD EMS funding contained in the Mayor's budget proposal.

While we believe the EMS system would be enhanced if private ambulances installed AVL transmitters, the cost of the installation and the complex integration of additional resources into the CAD needs to be realistically scoped and evaluated. I am instructing DES staff to begin a

dialogue with the private providers and DEC to determine the feasibility and timeline of this proposal. This project would have a financial impact to both the City and the private providers. We need to understand the costs involved, and the alternatives to improve integration of the private ambulances into the 911 system. DEM will begin working with the providers directly early in the fiscal year to scope, plan and implement this proposal.

Again, I appreciate the Budget Analyst's effort to assess the EMS system and develop improvement recommendations.

Sincerely,

Anne Kronenberg
Executive Director