CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Office of the City Auditor

Report to the City Council
City of San José

AN AUDIT OF THE CITY OF SAN JOSÉ FIRE DEPARTMENT'S STRATEGIC PLAN REGARDING PROPOSED FIRE STATIONS

Opportunities Exist For The San José Fire Department To Improve Upon Its Response Times For Emergency Calls And Its Use Of Equipment And Other Resources

Report 01-05
October 2001

CITY OF SAN JOSÉ, CALIFORNIA

800 N. First Street • San Jose, California 95112 • Tel: (408) 277-4601

GERALD A. SILVA
City Auditor

October 18, 2001

Honorable Mayor and Members
of the City Council
801 North First Street, Room 600
San Jose, CA 95110

Transmitted herewith is a report on *An Audit Of The City Of San José Fire Department's Strategic Plan Regarding Proposed Fire Stations*. This report is in accordance with City Charter Section 805. An Executive Summary is presented on the blue pages in the front of this report. The City Administration may submit a written response to this report under separate cover.

I will present this report to the Finance and Infrastructure Committee at its October 24, 2001, meeting. If you need additional information in the interim, please let me know. The City Auditor's staff members who participated in the preparation of this report are Mike Edmonds and Ruth Garcia Merino.

Respectfully submitted,

Gerald A. Silva
City Auditor

finaltr
GS:bh

cc: Manuel Alarcon
Del Borgsdorf
Peter Jensen
Kay Winer
Jesus Nava
Darrell Dearborn
Larry Lisenbee
Alex Gurza
Rick Doyle
Mollie Dent
Dale Foster
Dan Farnsworth
John McMillan
Ted Guerrero
Dana Reed
Gary Galasso
Cindy Keehen
Jim Seymour
Cameron Smith
Peggy Martinez
Jeffrey Clet
Susan Sakai-McClure
Tom Borden

Table of Contents

Executive Summary ..... **i**

Introduction **1**

Background 1

Budget Information 1

Call Workload 4

Equipment Deployment 4

SJFD'S Strategic Plan 7

Audit Scope, Objectives, and Methodology 9

Finding I
Opportunities Exist For The San Jose Fire Department To Improve Upon Its Response Times For Emergency Calls And Its Use Of Equipment And Other Resources **11**

The Response Time Information In The Strategic Plan Appears To Be Accurate And Reliable 12

As A Result Of Input We Provided During The Course Of Our Audit, We Project That The SJFD Will Reduce Dispatch Times By An Estimated 10 Seconds For Most Emergency Calls Transferred From The SJPD And By As Much As 42 Seconds For Certain Types Of Emergency Calls 14

SJFD's Strategic Plan 16

The Proposed Berryessa Fire Station Appears To Be Justified 19

The Proposed Blossom Hill, Yerba Buena, And Communications Hill Stations Are Proximate To Existing Fire Stations With High Core Emergency Call Volume And Number Of Calls Not Meeting The 4-Minute Travel And 8-Minute Total Reflex Time Targets 25

Adding New Fire Stations Should Be Evaluated In Concert With Other Opportunities To Enhance Upon The SJFD's Ability To Respond To Emergency Calls 30

CONCLUSION 43

RECOMMENDATIONS 44

Appendix A
Definition Of Priority 1, 2, And 3 Audit Recommendations **A-1**

Table of Exhibits

Exhibit 1
Locations Of The 31 City Of San Jose Fire Stations 3

Exhibit 2
San Jose Fire Department Call Volume From 1994–95 Through 1999-2000 4

Exhibit 3
Summary Of The Deployment Of Fire Fighting Equipment At San Jose's 31 Fire Stations 6

Exhibit 4
Total Average Time From 911 Call Ring To Fire Call Answer 14

Exhibit 5
Locations Of The 31 City Of San Jose Fire Stations And The 5 Proposed Fire Stations 18

Exhibit 6
1998-99 All Core Emergency Calls By SJFD Fire Station Sorted By The Highest To The Lowest Number Of Calls 20

Exhibit 7
1998-99 Core Emergency Travel Time Performance For Fire Stations 2, 5, 8..... 22

Exhibit 8
1998-99 Core Emergency Total Reflex Time Performance For Fire Stations 2, 5, 8..... 22

Exhibit 9
1998-99 SJFD Travel Time Performance By Responding Fire Station For Core Emergency Calls For The Geographical Area Of The Proposed Berryessa Fire Station Area 23

Exhibit 10
San Jose Fire Stations Near The Proposed Blossom Hill Fire Station Ranked By Highest Number Of Core Emergency Calls, Highest Number Of Calls Not Meeting The 4-Minute Travel Time Target, And Highest Number Of Calls Not Meeting The 8-Minute Travel Time Target..... 25

Exhibit 11
San Jose Fire Stations Near The Proposed Yerba Buena Fire Station Ranked By Highest Number Of Core Emergency Calls, Highest Number Of Calls Not Meeting The 4-Minute Travel Time Target, And Highest Number Of Calls Not Meeting The 8-Minute Travel Time Target..... 27

Exhibit 12
San Jose Fire Stations Near The Proposed Communications Hill Fire Station Ranked By Highest Number Of Core Emergency Calls, Highest Number Of Calls Not Meeting The 4-Minute Travel Time Target, And Highest Number Of Calls Not Meeting The 8-Minute Travel Time Target 28

Exhibit 13
SJFD Purchase Price And 1999-2000 Average Miles, Average Operating Costs, And Average Operating Cost Per Mile By Apparatus 40

Exhibit 14
Summary Of The Cost Of Building A New Fire Station And Using SUVs And Light Units As EMS Call Service Delivery Alternatives 42

Executive Summary

In accordance with the City Auditor's 2001-2002 Audit Workplan, we audited the San Jose Arena Management Corporation to determine whether it has complied with specific provisions of the San Jose Arena Management Agreement. We conducted this audit in accordance with generally accepted government auditing standards and limited our work to those areas specified in the Scope and Methodology section of this report.

Finding I

Arena Management And The City Of San Jose Need To Establish Formal Procedures Over The Luxury Suite Fee Process

On August 1 of each year, the San Jose Arena Management Corporation (Arena Management) is required to pay the City of San Jose (City) for Arena fees that are due. These fees include a fixed payment, Luxury Suite Net Revenues (suite revenues), and parking fees. Arena Management calculates its suite revenue payments based on an estimate of the number of suites that will be leased for the year. We found that Arena Management miscalculated the 1999-2000 suite revenue payment because it deducted too much in deemed hockey ticket proceeds. As a result, Arena Management unintentionally underpaid the City about $40,000 for the 1999-2000 suite revenue payment. It should be noted that after we discussed this underpayment with Arena Management, they promptly paid the City an additional $40,000 in June 2000. We also found that the Management Agreement allowed Arena Management to keep $111,000 of the City's revenues for nearly a year. In our opinion, both Arena Management and the City need to establish formal procedures for the Luxury Suite fee process.

RECOMMENDATIONS

We recommend that Arena Management:

Recommendation #1

Develop written procedures for calculating the annual Arena fees payment to the City and include in those new procedures estimating luxury suite revenues based upon prior years' luxury suite leasing history. (Priority 2)

We recommend that the City Manager's Office:

Recommendation #2 **Assign responsibility for reviewing and approving the annual Arena fees payment. (Priority 3)**

Finding II Arena Management Is Not Complying With All Of The Reporting Requirements In The Management Agreement

The San Jose Arena Management Agreement (Management Agreement) requires the San Jose Arena Management Corporation (Arena Management) to submit reports and financial statements to the City of San Jose (City). The purpose of these reports is to provide the City with the information it needs to monitor those Arena activities and operations in which the City has a direct financial interest. We found that Arena Management has not provided the City with the required reports and statements. As a result, the City is not receiving all of the information the Management Agreement requires to assist the City in monitoring those Arena activities and operations in which it has a direct financial interest.

RECOMMENDATIONS

We recommend that Arena Management, the Arena Authority, and the City Attorney's Office:

Recommendation #3 **Develop a mutually agreeable delivery schedule regarding the frequency of the detailed reports and records relating to the City Related Accounts. (Priority 3)**

We recommend that Arena Management:

Recommendation #4 **Provide the past and future City Income Reports and Audit Reports in accordance with the Management Agreement. (Priority 3)**

We also recommend that the City Manager's Office:

Recommendation #5 **Assign responsibility for ensuring that Arena Management submits all Management Agreement-required reports. (Priority 3)**

Finding III

The City And Redevelopment Agency Need To Resolve Possessory Interest Tax Deduction Issues

The San Jose Arena Management Agreement (Management Agreement) between the City of San Jose (City) and San Jose Arena Management Corporation (Arena Management) allows Arena Management to deduct certain possessory interest property taxes (possessory interest taxes) from the Arena fees it pays to the City. A separate agreement between the Redevelopment Agency (Agency) and the City requires the Agency to reimburse the City for possessory interest tax deductions that Arena Management deducts from its payment to the City. During our audit of Arena fees, we found that the Agency had not reimbursed the City for three years of Arena Management's possessory interest tax deductions totaling $1,521,474. Accordingly, the City Auditor recommended that the City bill the Agency for the $1,521,474. Subsequently:

- The Agency only reimbursed the City $1,086,028 of the $1,521,474 in possessory interest taxes Arena Management deducted from its 1997-1998, 1998-1999, and 1999-2000 Arena fee payments to the City because, at the time, Santa Clara County (County) had not paid the Agency all of the possessory interest taxes it was due;
- Over the last two years, the City has billed the Agency another $525,022 and $532,596 for the possessory interest taxes Arena Management deducted from its 2000-2001 and 2001-2002 Arena fee payments to the City; and
- The Agency has only reimbursed the City $497,969 of these additional billings because of questions over the amount of possessory interest taxes that the County has paid it.

Thus, as of January 1, 2002, the Agency has not reimbursed the City a total of $995,095 in possessory interest taxes that Arena Management deducted from the Arena fees it paid to the City because of questions over the amount of these monies it received from the County.

The City Auditor's Office has worked with the County to secure for the Agency all of the possessory interest taxes that Arena Management has deducted from its Arena fee payments.

In January 2002, the County paid the Agency $1,378,492 for possessory interest taxes that Arena Management had previously paid to the County. Our analysis indicates that the Agency has received all but about $37,000 of the possessory interest taxes that Arena Management deducted from its Arena fees. Therefore, the Agency should reimburse the City's General Fund approximately $958,000. In addition, the Agency, the City Attorney's Office, the City Manager's Office, and Arena Management should work together to determine how Arena Management should calculate its possessory interest tax deduction. Finally, the City needs to bill the Agency for Arena Management's possessory interest tax deductions in a more timely manner. In our opinion, the City, the Agency, and Arena Management need to resolve the possessory interest tax deduction issues in order to ensure that the City is promptly and equitably reimbursed.

RECOMMENDATIONS

We recommend that the Redevelopment Agency:

Recommendation #6 **Pay the City $958,000 for Arena Management's possessory interest tax deductions. (Priority 1)**

We also recommend that the Agency, the City Attorney's Office, the City Manager's Office, and Arena Management:

Recommendation #7 **Work together to determine how Arena Management should calculate its possessory interest tax deduction. (Priority 2)**

We also recommend that the City:

Recommendation #8 **Establish a procedure to immediately bill the Agency for Arena Management's possessory interest tax deductions when it receives Arena Management's annual Arena fee payment. (Priority 2)**

Introduction

In accordance with the City Auditor's 2001-2002 workplan, we performed an audit of the San Jose Fire Department's (SJFD) Strategic Plan regarding proposed fire stations. We conducted this audit in accordance with generally accepted government auditing standards and limited our work to those areas specified in the Scope and Methodology section of this report.

The City Auditor's Office thanks the SJFD's management and staff for their cooperation during the audit.

Background

The SJFD's mission is to serve the community by protecting life, property, and the environment through prevention and response. The SJFD is organized around a hierarchical structure with the Fire Chief as its head. The Office of the Fire Chief represents the Fire Chief and Assistant Fire Chief, Recruitment Officer, Battalion Chief for the Safety Division, and Public Information Officer. In addition, the SJFD has five Deputy Fire Chiefs, each of whom heads a bureau and reports to the Fire Chief through the Assistant Fire Chief. These five bureaus include:

- Bureau of Field Operations,
- Bureau of Support Services,
- Bureau of Administrative Services,
- Bureau of Fire Prevention, and
- Bureau of Education and Training.

Budget Information

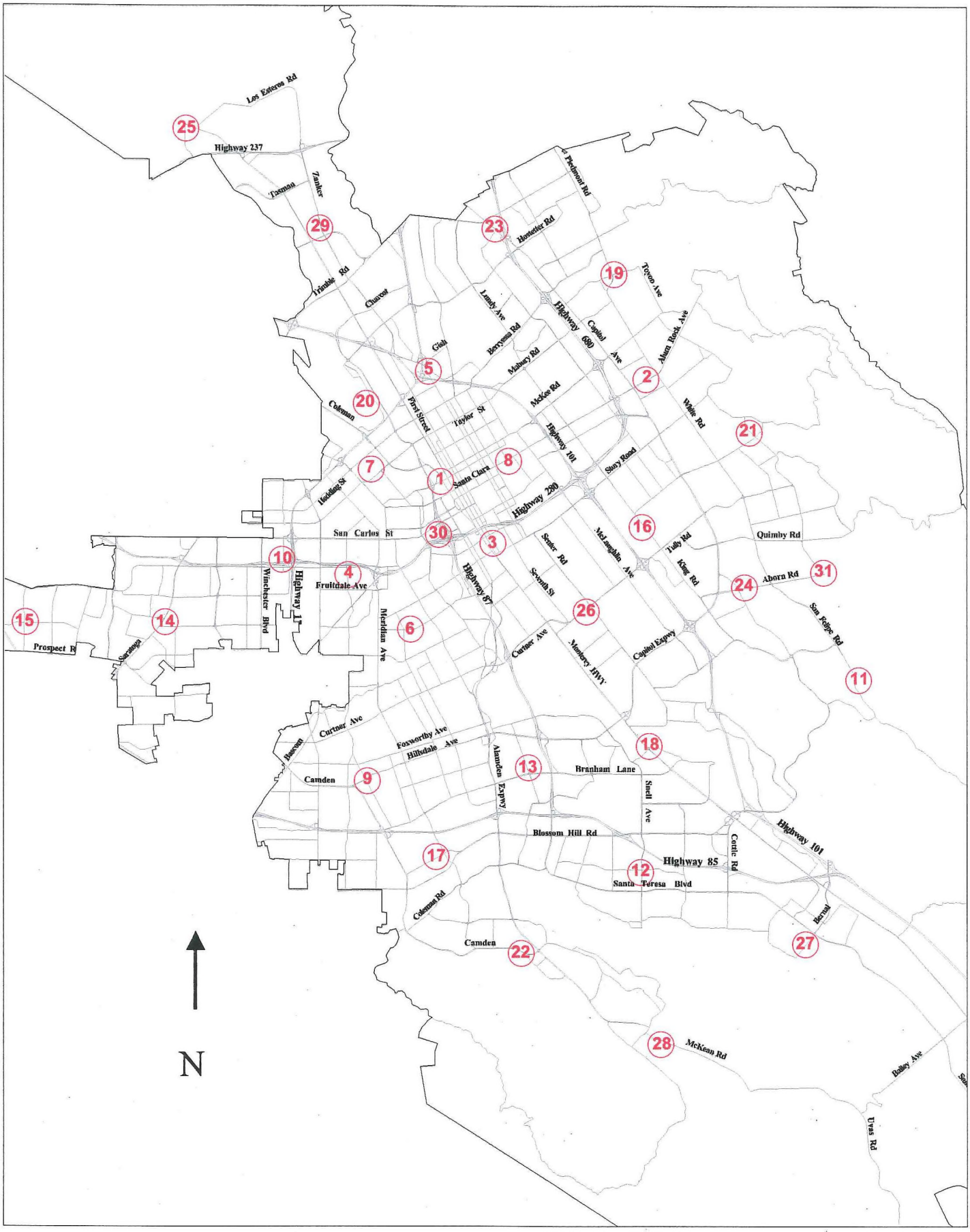
In 2001-02, the SJFD adopted operating budget totaled $91.4 million, of which $84 million or 92 percent of the operating budget was for personal services. The Bureau of Field Operations has the largest budget, $69.4 million. The other bureaus received the following operating budget appropriations: Management & Administration, $2.8 million; Support Services, $9.3 million; Fire Prevention, $6.6 million; and Education and Training, $3.4 million.

The adopted 2001-2002 Capital Improvement Projects budget was $10.4 million, of which the General Fund provided $7.6 million. The Capital Improvement Projects budget includes $2.3 million for a Truck and Engines used for training,

$1.4 million for the fire apparatus replacement reserve, $595,000 for fire apparatus lease payments, and $831,000 for fire apparatus bond payments.

The City has 31 fire stations in its service area, which covers 202 square miles including 70 square miles of wild land. Exhibit 1 shows the various fire stations within the City of San Jose.

Exhibit 1 Locations Of The 31 City Of San Jose Fire Stations



Call Workload

In 1999-2000, the SJFD responded to 55,000 emergency and non-emergency calls. Emergency calls are calls such as fire, emergency medical services, and hazardous materials responses. Non-emergency calls include public assist calls such as invalid assist, lock in or lock out, and providing lights at incident scenes to assist investigators. Of the 55,000 call workload, 72% were emergency medical calls and 4% were fire calls. Exhibit 2 shows the call volume since 1994-95.

Exhibit 2 San Jose Fire Department Call Volume From 1994–95 Through 1999-2000

	Fire Calls	% Of Total	Emergency Medical Calls	% Of Total	Other Incidents*	% Of Total	Total	% Of Total
1994-95	2,716	5%	36,943	73%	10,858	22%	50,517	100%
1995-96	3,001	6%	37,648	72%	11,554	22%	52,203	100%
1996-97	2,853	5%	38,273	72%	12,322	23%	53,448	100%
1997-98	2,466	4%	39,184	73%	12,330	23%	53,980	100%
1998-99	2,297	4%	38,426	72%	12,401	24%	53,124	100%
1999-2000	2,275	4%	40,087	72%	13,122	24%	55,484	100%

* Other incidents include all calls which do not involve fires or emergency medical services such as service calls, hazardous conditions, good intent calls, false calls, and natural disasters. Some of the other incidents are not considered emergencies.

Source: SJFD California Fire Incident Reporting System reports. These categories are based on incident closing codes, which may differ from initial dispatch codes.

Equipment Deployment

Each of the 31 fire stations is staffed with an Engine Company or an Engine and Truck Company. The Engine Companies use Engines and the Truck Companies use either a Ladder Truck, a Quint, or an Urban Search and Rescue Vehicle (USAR) apparatus, and also a Light Unit. An Engine Company is staffed with four personnel - a Captain, Fire Engineer, Paramedic/Firefighter[1], and a Firefighter. In addition, there are eleven Truck Companies assigned to select fire stations. Each

[1] The EMS contract between the County of Santa Clara and American Medical Response, Inc. (AMR) governs the protocol for responding to EMS calls in the City of San Jose. Specifically, the contract requires that two paramedics respond to all EMS calls. The SJFD responds to all EMS calls with a Paramedic/Firefighter and AMR responds with two personnel, one of whom is a paramedic. The City staffs each of the 31 fire engine companies with a Firefighter/Paramedic position.

Truck Company consists of a Captain, two Fire Engineers, a Paramedic/Firefighter[2] and a Firefighter.

Engines, Trucks, USARS, Quints and Light Units, all carry the following primary equipment as well as emergency medical equipment:

- The Engine is equipped with a pump, hoses, a water tank and ground ladders. Engines are located at all 31 fire stations.
- The Ladder Truck is equipped with ground ladders, a power-generated aerial ladder, a generator, and tools to perform ventilation, forced entry, and salvage functions. It may also carry a water tank, that may be the same size or smaller than the water tank on an Engine, and a pump and hoses. Ladder Trucks are located at eight fire stations.[3]
- A USAR also carries ground ladders, a generator, tools to perform ventilation, forced entry, and salvage functions. In addition, a USAR carries additional rescue equipment, but does not carry a water tank, pump or hoses. USARs are located at three fire stations.
- A Light Unit's primary purpose is to provide light at an incident scene at night. A Light Unit carries a light sufficient to illuminate an emergency scene, a generator and many tools. Beginning in 2001-2002, the SJFD will add rescue and patient transport capability to three Light Units.[4]

Exhibit 3 summarizes the deployment of the fire fighting equipment at San Jose's 31 fire stations.

[2] Beginning in 2001-2002, the City Council approved funding to upgrade a Firefighter position to a Paramedic/Firefighter on all eleven truck companies. Previously, four truck companies staffed a Paramedic/Firefighter position.

[3] Of these eight Ladder Trucks, six are Quint-type apparatus. A Quint is a combination aerial Ladder Truck and Engine and provides five functions – water pump, water tank, hose, ground ladder, and aerial ladder. Quints are located at six fire stations.

[4] Beginning in 2001-2002, the City will provide very limited transportation of critical patients under the Pre-Hospital Emergency Medical Services Agreement between the City and American Medical Response, Inc. for Advance Life Support First-Responder and Supplemental Transport Ambulance Services. There will be five stations that will provide this service.

Exhibit 3 Summary Of The Deployment Of Fire Fighting Equipment At San Jose's 31 Fire Stations

Fire Station	Address	Engine	Ladder Truck *	USAR	Light Unit
1	255 N Market St.	X	X*		X
2	2933 Alum Rock Ave.	X	X*		X
3	98 Martha St.	X	X		X
4	710 Leigh Ave.	X	X		X
5	1380 N 10th St.	X		X	X**
6	1386 Cherry Ave.	X			
7	800 Emory St.	X			
8	802 E Santa Clara St.	X			
9	3410 Ross Ave.	X	X*		X
10	511 S Monroe St.	X			
11	2840 The Villages Pkwy.	X			
12	502 Calero Ave.	X			
13	4380 Pearl Ave.	X		X	X
14	1201 San Tomas Aquino Rd.	X	X*		X
15	1248 Blaney Ave.	X			
16	2001 S King Rd.	X		X	X
17	1494 Ridgewood Dr.	X			
18	4430 Monterey Hwy.	X	X*		X**
19	1025 Piedmont Rd.	X			
20	1433 Airport Blvd.	X			
21	1749 Mt Pleasant Rd.	X			
22	6461 Bose Ln.	X			
23	1771 Via Cinco de Mayo	X			
24	2525 Aborn Rd.	X			
25	1590 Gold St.	X			
26	528 Tully Rd.	X			
27	6027 San Ignacio Ave.	X			
28	19911 McKean Rd.	X			
29	199 Caviglia Dr.	X	X*		X**
30	454 Auzerais Ave.	X			
31	3100 Ruby Ave.	X			

* These Ladder Trucks are Quint-type apparatus.
** The SJFD will add rescue and patient transport capabilities to these Light Units in 2001-02.

SJFD'S Strategic Plan

In 1998, the City Council directed the SJFD to develop a comprehensive Fire Protection Strategic Plan. The City selected the Emergency Consulting and Research Center (ECRC), as the consultant to develop the Strategic Plan. The scope of services for the Strategic Plan included the following:

- Analysis of emergency response data;
- Risk analysis of sectors of the city;
- Benchmarking and review of "best practices";
- Analysis of current level of service;
- Develop "standards of cover" models;
- Analysis of station locations;
- Recommend technological enhancements;
- Analyze growth and forecast resource needs; and
- Install new fire station modeling software and train SJFD personnel to use software.

ECRC noted in the Strategic Plan that "there are no outcome studies supporting one service level or standard for emergency response deployment. Public policy makers are left with the responsibility of determining the appropriate level of life-safety protection for the community. The level of protection is the result of balancing expectations, risk, and equitable distribution of resources with the cost." Among the Strategic Plan's findings were:

- On-going land use and development decisions such as high density residential, high-rise, in-fill projects, mixed use development, extensions of service area boundaries, and large campus projects all have consequences and will impact the ability of the Department to maintain current emergency service levels. Such decisions may require an adjustment to the location and concentration of emergency response resources.
- Not all areas of the City receive a level of emergency response within established performance targets for first-due companies and for additional companies when needed.
- Some areas of the City do not have the concentration of resources that may be necessary when considering risk profiles and performance targets.

- Simultaneous calls for services are resulting in longer response times in a growing number of first-due areas.
- Developing areas need additional resources to meet established performance goals.
- Traffic congestion is an impediment to emergency response performance goals.
- Responding to non-emergency public assistance requests results in companies being unavailable for higher priority calls.

Among the Strategic Plan's recommendations were the following:

- Change support systems to improve unit availability to respond:
  - Modify maintenance procedures to maximize unit availability during peak demand periods
  - Review training delivery methods to maximize unit availability during peak demand periods
  - Provide additional fully equipped apparatus for training and maintenance programs;
- Expand traffic preemption systems to improve response performance;
- Implement dispatch changes to prioritize calls for service;
- Review fire codes and consider changes such as requiring sprinklers in residential developments;
- Utilize part-time emergency response companies at peak demand periods and in areas of high simultaneous calls for service;
- Change some engines to Quint-type apparatus for more flexibility;
- Add fire stations in new growth areas; and
- Add new fire stations in developed areas when call volume or performance deterioration warrants. This may be when "part-time" companies can no longer adequately support the area.

Audit Scope, Objectives, and Methodology

The scope of this audit was to review the SJFD's Strategic Plan's proposed fire stations. Our audit objectives were to:

- Review the Strategic Plan;
- Verify the accuracy of Strategic Plan workload data;
- Explore options of improving the efficiency of emergency call answering;
- Validate the need for new fire stations as described in the Strategic Plan; and
- Explore the feasibility of using other Emergency Medical Services (EMS) service delivery vehicle and configuration options.

During our audit we:

- Obtained and reviewed the Strategic Plan 1998-99 Computer Aided Dispatch[5] (CAD) data;
- Documented telephone data computer reports;
- Obtained and reviewed telephone data for the five-month time period from December 30, 1999 through May 31, 2000; and
- Obtained and reviewed CAD data from the six-month period ended May 31, 2000.

We also interviewed officials and staff from the SJFD, several comparable fire departments, and ECRC. Additionally, we retained a computer-audit consultant to use programming techniques to verify certain data. Further, we participated in fire station site visits and ride-a-longs, and observed SJFD and San Jose Police Department Communications call takers and dispatchers in action.

The documentation we reviewed included:

- CAD Analyst software documentation;
- SJFD management reports;
- SJFD and San Jose Police Department procedures;
- SJFD fire station logs;

[5] CAD is the SJFD and the Police Department's computer system for dispatching emergency and non-emergency services.

- Memorandum of Agreement Between City of San Jose and International Association of Firefighters Local 230; and
- Various SJFD memos.

We performed limited testing and reviewed some of the general and application controls for the computer systems we relied upon during this audit to determine the accuracy and reliability of information in the various computer reports we used. We met with SJFD staff to obtain and review information regarding the accuracy and reliability of the computer generated information and observed the computer facility. We also discussed event data with station personnel and compared it with the station's log and the CAD data.

Finding I

Opportunities Exist For The San Jose Fire Department To Improve Upon Its Response Times For Emergency Calls And Its Use Of Equipment And Other Resources

In October 2001, the San Jose Fire Department (SJFD) and its consultant, Emergency Consulting and Research Center (ECRC), submitted to the San Jose City Council a Strategic Plan to identify the need for and location of new fire stations in San Jose. We reviewed the SJFD's Strategic Plan and the data upon which the conclusions in the Strategic Plan were predicated and found that:

- The response time information in the Strategic Plan appears to be accurate and reliable. However, as a result of input we provided during the course of our audit, we project that the SJFD will reduce dispatch times by an estimated 10 seconds for most emergency calls transferred from the San Jose Police Department (SJPD) and by as much as 42 seconds for certain types of emergency calls and
- Of the five proposed new fire stations in the Strategic Plan
  - The fire station proposed for the Berryessa area appears to be justified;
  - The proposed Blossom Hill, Yerba Buena, and Communications Hill stations are proximate to existing fire stations with high core emergency call volume and number of calls not meeting the 4-minute travel and 8-minute total reflex time[6] targets; and
  - The proposed Communications Hill station is part of a development agreement and the proposed North Coyote Valley station is dependent upon future growth in that area.

We predicated our aforementioned opinion regarding the proposed Berryessa fire station based upon an extensive

[6] Total reflex time is comprised of call processing, turnout and travel time intervals.

analysis of travel and total reflex time data for the geographical area of the proposed station. However, at the time of our audit, similar information regarding the geographical areas for the proposed Yerba Buena and Blossom Hill stations was not available. The City Auditor's Office could perform the same detailed analyses for these two fire stations as it did for the proposed Berryessa fire station should the SJFD provide us with the necessary geographical data and the City Council direct us to do the analyses.

While adding new fire stations is one means to improve upon the SJFD's response times to emergency calls, it is also the most costly in terms of capital costs and operating expenses. In our opinion, adding new fire stations should be evaluated in concert with other opportunities to enhance the SJFD's ability to respond to emergency calls. Specifically, these other opportunities include:

- Reducing the volume of calls to which the SJFD must respond by using an expanded medical priority dispatch system;
- Using Quint Companies to provide better truck coverage in the perimeter areas of the City; and
- Using other Emergency Medical Services (EMS) delivery vehicle and configuration options.

These other opportunities will enhance the SJFD's ability to respond to emergency calls. Further, these other opportunities will save wear and tear on costly SJFD fire fighting vehicles and equipment and help ensure that these vehicles and equipment will be available in the event they are needed to fight a fire or perform rescue type operations.

The Response Time Information In The Strategic Plan Appears To Be Accurate And Reliable

We reviewed the response time information in the Strategic Plan and it appears to be accurate and reliable. The Strategic Plan used historical 1997-98 and 1998-99 Computer Aided Dispatch (CAD) data. In addition to the historical CAD data, ECRC used an estimate of 30 seconds for the initial call handling time component on calls SJFD Communications call takers processed. This 30-second estimate was based on data from a small sample from several years ago. We verified that the initial 911 call processing 30-second average time estimate that ECRC used in the Strategic Plan's fire station location model was accurate.

The City of San Jose's Communications Center is responsible for handling 911 emergency calls. The Communications Center is staffed with both SJPD Public Safety Dispatchers (Police PSDs) and SJFD Public Safety Dispatchers (Fire PSDs). The Police and Fire PSDs are primarily responsible for call taking and dispatching.

The initial call handling component of call processing is the time interval that includes time for:

- Call ring and Police 911 call taker answer time;
- The 911 call taker to talk to the caller and determine that the call requires a SJFD response (and does not require a SJPD response);
- The 911 call taker to transfer the call to Fire Communications; and
- Call ring and Fire Communications call taker answer time.

The Strategic Plan used an estimate for this time interval because the initial call handling time data for transferred calls is on a separate telephone computer system from the Communications CAD system and the two corresponding data sets cannot be easily matched. The SJFD staff was concerned with using an average estimate based on a small sample for the initial call handling time interval in the Strategic Plan process because it is a component of total reflex time. Therefore, we used computer-assisted-auditing programming techniques to verify the average estimated time interval. Based upon this methodology we concluded that the initial call handling average processing time was indeed 30 seconds.

In order to verify the initial call handling estimate, we reviewed data for the five-month time period from December 30, 1999 through May 2000. We were not able to use the same time period the Strategic Plan used because the Police Communications staff had purged the prior initial call handling response time data because of hardware constraints.[7] We verified the 30-second average initial call processing time based on 4,345 transferred calls. We verified the total time from 911 Police Communications call ring to 911 transfer and Fire Communications call answering as follows:

[7] The Police Communications staff is no longer purging the initial call handling response time data.

Exhibit 4 Total Average Time From 911 Call Ring To Fire Call Answer

	Time From Call Ring To Police 911 Call Taker Answer	Time For Police 911 Call Taker To Talk To Caller	Time To Transfer Call Through Phone Company 911 Center	Time From Call Ring At Fire Communi-cations To Answer	Total Time From 911 Police Ring To Fire Communi-cations Answer
Average Number Of Seconds	1.9	18.4	3.1	6.7	30.2

As A Result Of Input We Provided During The Course Of Our Audit, We Project That The SJFD Will Reduce Dispatch Times By An Estimated 10 Seconds For Most Emergency Calls Transferred From The SJPD And By As Much As 42 Seconds For Certain Types Of Emergency Calls

The City of San Jose's Communications Center is responsible for handling 911 emergency calls. Accordingly, we reviewed the Communications Center process for receiving and dispatching emergency calls to which the SJFD responds. We identified two opportunities to reduce dispatch time and improve the SJFD's total reflex time to emergency calls. Specifically, we noted a duplication of effort whereby both Police and Fire Communications call takers were verifying the same information. In addition, we noted that the SJPD could reduce dispatch time to the SJFD for certain types of emergency calls.

The Police PSDs initially receive 911 calls and determine whether a police, fire, or medical response, or a combined response is required. If the event requires a police response, then the Police PSD call taker notifies the Police PSD dispatcher. If the event requires a fire or medical response, the Police PSD call taker transfers the call to the Fire PSD call taker.

During the past eighteen months the SJFD and SJPD Communications staff have worked on improving call processing and have piloted various procedural changes.

We Project That The SJFD Will Reduce Dispatch Times By As Much As 10 Seconds For Most Emergency Calls Transferred From The SJPD

In May 2000, when we reviewed the Communications Center's call processing procedures, the Police PSDs were using the following call answering procedure. When they received a 911 call, the Police PSD stated the following: "911 Emergency,"or "San Jose Emergency,"and "What is your emergency?" or "What are you reporting?" Then, the Police PSD verified the address of the location of the event and the telephone number.

If the call required a fire or medical response, then the Police PSD immediately transferred the call to the Fire PSD.

We found that upon receiving the transferred call, the Fire PSD was obtaining the same information as the Police PSD. Specifically, the Fire PSD verified the address of the location of the event and the telephone number. In our opinion, having both the Police and Fire PSDs verify the same information was an unnecessary duplication of effort that wasted valuable seconds in an emergency.

We discussed our concerns about the duplication of effort in the call answering procedures with Communications Center staff. In response to our concerns, the Communications Center has modified its initial call answering inquiries. Specifically, the Police PSDs have been directed to answer calls in the following manner after identifying the Communications Center: "Is this a police, fire, or medical emergency?" If the caller answers "fire or medical", the Police PSD immediately transfers the call to the Fire PSD, without verifying the address or telephone number.

In our opinion, the Communication Center's new call answering procedure should reduce the initial call answering time on all of the 911 emergency calls transferred to the SJFD, thereby improving the SJFD's total reflex time. Specifically, we estimate that the new call answering procedure should reduce initial call answering by an estimated 10 seconds per call. In 1999-2000, the SJFD responded to about 55,000 calls. As a result of the Communications Center's new call answering procedure, the SJFD should be able to respond to most of these calls 10 seconds faster than it would have under the previous call answering procedure. Therefore, we project that the SJFD will reduce dispatch times by as much as 10 seconds for most emergency calls transferred from the SJPD.

We Project That The SJFD Will Reduce Dispatch Times By As Much As 42 Seconds For Certain Types Of Emergency Calls

We also found that the SJFD could improve dispatch times for emergency medical calls requiring a combined SJPD and SJFD response. Traffic accidents, near-drownings, stabbings, shootings, and suicide attempts are the types of medical emergencies that require the combined response of both the SJPD and the SJFD.

As noted above, the Police PSDs initially receive the 911 call and determine whether it requires a police, fire or medical response, or a combined response. In May 2000, on medical emergencies requiring a combined response, the Police PSD

call takers were performing a complete inquiry prior to requesting SJPD and SJFD dispatches. On most of these combined calls the SJFD was dispatched on average within 70 seconds.

We noted that on other medical emergencies, the Fire PSDs pre-alerted[8] the fire stations before completing the full inquiry. For these medical emergency calls, the fire stations were pre-alerted of the event in an average of 28 seconds.

Based on our analysis, we asked the Communications Center to explore the feasibility of performing a procedure similar to pre-alerting the fire stations before completing the full inquiry on combined medical emergency calls such as traffic accidents and near-drownings. In June 2001, the Communications Center implemented a new procedure to dispatch these calls faster. We estimate that this new procedure should reduce dispatch time and the SJFD total reflex time for these calls by an average of 42 seconds per call. In 1998-99, the SJFD responded to approximately 300 core emergency traffic accidents and 11 drowning incidents that were transferred from the Police PSDs. As a result of the Communications Center's faster dispatch procedure, the SJFD should be able to respond to these types of emergencies by an average of 42 seconds faster than it would have under the previous dispatch procedure. According to the Communications Center staff, using this procedure seems to be working and they have expanded its use to all other combined events, such as shootings and stabbings. The SJFD will continue to use its scene safety procedures with the other combined events. In addition, the SJPD will also use the faster dispatch procedure when the Fire PSD call taker line is busy and the SJPD handles the call.

SJFD's Strategic Plan

As noted earlier, in 1998 the City Council directed the SJFD to develop a comprehensive Fire Protection Strategic Plan. The City selected ECRC to develop the Strategic Plan. The SJFD'S

[8] Pre-alerting is the process whereby the Fire PSD call taker notifies the fire station that an emergency medical call has been received. The Fire PSD call taker, upon verifying the address, phone number, and that the call is a medical call, will press a button that sends the preliminary event information to the Fire PSD dispatcher. The Fire PSD dispatcher then notifies the fire station both electronically (that is printed out automatically at the fire station) and over the fire station's speaker alarm system of the pre-alert. After sending the pre-alert notification to the Fire PSD dispatcher, the Fire PSD call taker continues to obtain sufficient information to determine the medical priority level of dispatch. Simultaneously, the firefighters at the fire station prepare to go enroute to the emergency. If the firefighters are ready to go enroute prior to dispatch, they do so, although without lights and sirens. Therefore, the turnout process begins during call processing.

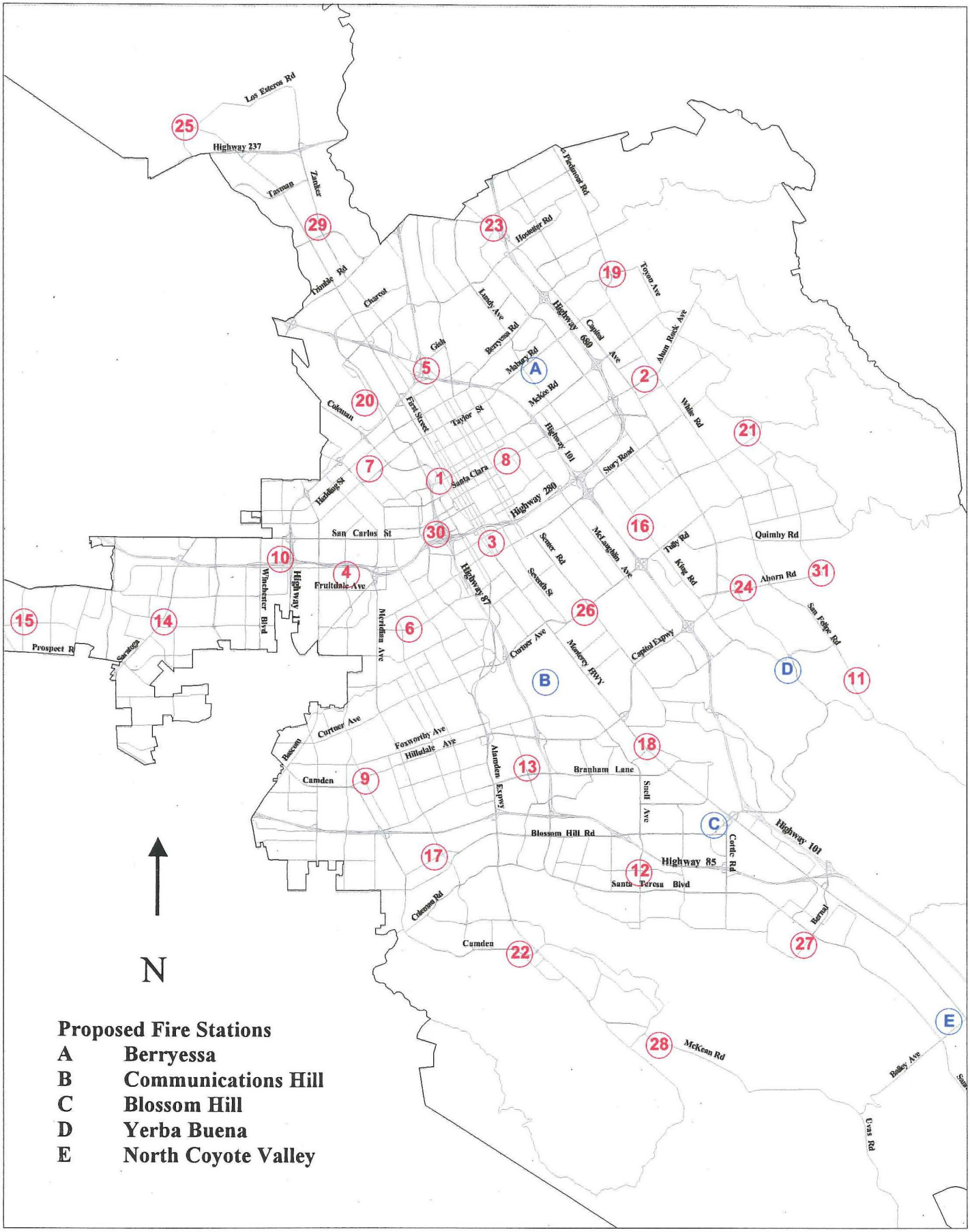
Strategic Plan identifies the need for and location of new fire stations in San Jose. The SJFD provided ECRC with historical management information, new residential and industrial development information, and the benefit of their management experience. Then, using 1997-98 and 1998-99 historical data for the highest priority emergency calls, ECRC applied fire station modeling software to project response time performance for various new fire station locations and to determine the top five proposed fire stations.

ECRC categorized the highest priority calls to determine new station locations and relocations. ECRC included the two highest priority levels of EMS calls as well as high priority fire, rescue and hazardous materials call types and called these highest priority calls "core emergencies".

The Strategic Plan projected travel response time performance to evaluate the proposed fire station locations. As stated in the Strategic Plan, "Travel time is the foundation for fire station placement". The plan further states that "to ensure that the customer's perspective was incorporated into any solutions" the total reflex time was built into all analyses. The Strategic Plan defines total reflex time as comprised of call processing, turnout and travel time intervals. The Strategic Plan goals are 80 percent compliance with a four-minute travel time target and an eight-minute total reflex time target.

ECRC proposed five new fire stations in the following Strategic Plan priority: the Berryessa area, the North Coyote Valley area at Bailey Avenue (North Coyote Valley), Communications Hill, the Blossom Hill area at Cottle Road (Blossom Hill) and Yerba Buena/Silver Creek (Yerba Buena). The proposed fire stations are shown in Exhibit 5.

Exhibit 5 Locations Of The 31 City Of San Jose Fire Stations And The 5 Proposed Fire Stations



Our review of the above five proposed stations revealed that:

- The fire station proposed for the Berryessa area appears to be justified;
- The proposed Blossom Hill, Yerba Buena, and Communications Hill stations are proximate to existing fire stations with high core emergency call volume and number of calls not meeting the 4-minute travel and 8-minute total reflex time targets; and
- The proposed Communications Hill station is part of a development agreement and the proposed North Coyote Valley station is dependent upon future growth in that area.

The Proposed Berryessa Fire Station Appears To Be Justified

Our analysis indicates that the fire station the SJFD and the Strategic Plan proposed for the Berryessa area appears to be justified. The proposed Berryessa fire station would be located in the vicinity of King and Mabury Roads. Our analysis indicates that 1) the call volume for the several other stations in that area is high; 2) the SJFD's travel and total reflex time[9] performance in the geographical area of the proposed station was significantly below its travel and total reflex time targets; 3) the projected workload for the new station is sufficiently high to justify a new station; and 4) the new station should improve the SJFD's travel and total reflex time performance in the area of the proposed station.

Our analysis indicates that the call volume for two of the fire stations nearest to the proposed Berryessa station is high. In fact, two nearby stations, 2 and 8, have the highest volume of core emergency calls in the entire City. In 1998-99, Station 2 had 1,370 core emergency calls and Station 8 had 1,127 core emergency calls.

Exhibit 6 shows the volume of core emergency calls for the 30 stations in the City.[10] The shaded stations are the stations nearest to the proposed Berryessa station.

[9] As noted on page 13, the initial call handling time data is an estimate. Therefore, all references to total reflex time are estimated. The City Auditor used a slightly different methodology from that used in the Strategic Plan in applying the 30 seconds to core emergency calls. All references to travel time are actual.

[10] The data ECRC used was taken from a period of time when San Jose had 30 fire stations and not the current 31 fire stations.

Exhibit 6 1998-99 All Core Emergency Calls By SJFD Fire Station Sorted By The Highest To The Lowest Number Of Calls

Rank	Fire Station Number	Number Of All Core Emergencies
1	**2**	**1,370**
2	**8**	**1,127**
3	14	1,073
4	26	1,054
5	16	1,003
6	18	1,000
7	1	973
8	9	970
9	24	863
10	12	838
11	4	825
12	13	796
13	3	739
14	6	734
15	**5**	**733**
16	10	679
17	**19**	**610**
18	**23**	**610**
19	21	595
20	17	529
21	30	431
22	27	386
23	29	378
24	22	376
25	7	366
26	11	364
27	15	230
28	20	137
29	28	74
30	25	54
	Total	19,917

As shown in Exhibit 6, the five stations nearest to the proposed Berryessa station rank 1st, 2nd, 15th, 17th and 18th in the volume of core emergencies Citywide.

Of these fire stations, 2, 8, and 5, have higher than average call volumes for core emergencies. The Citywide average of core emergencies during 1998-99 was approximately 664 calls per station. In 1998-99, these three stations' core emergency call volumes were 1,370 calls, 1,127 calls, and 733 calls, respectively. Moreover, the call volume for stations 2 and 8 was about twice the Citywide average.

Analysis Of The Travel And Total Reflex Time Data For The Geographical Area Of The Proposed Berryessa Station

To perform the proposed fire stations area analysis, we requested the SJFD to prepare a list of ZBBs[11] for the geographical areas of the proposed fire stations.[12] We then used ZBB information to determine the SJFD calls for service travel and total reflex time performance data for the geographical area comprising the proposed Berryessa fire station.

Our analysis revealed that the SJFD's travel and total reflex time performance in the geographical area of the proposed Berryessa station was significantly below its targets. Specifically, in 1998-99 for the geographical area of the proposed Berryessa station area, the SJFD met its travel time target for only 53 percent (425 out of 803 incidents) of the core emergency calls. Further, in this same geographic area, the SJFD achieved only 71 percent of its total reflex time target (457 out of 646 incidents[13]) of the core emergency calls.

The stations near the proposed Berryessa station also have some of the highest number of calls not meeting the travel time and total reflex time targets. Specifically, as Exhibit 7 shows, stations 2, 5, and 8 are the 3rd, 6th and 9th worst, respectively, out of the then 30 SJFD stations in terms of highest number of calls not meeting the travel time targets. Similarly, as shown in Exhibit 8, fire stations 2, 5 and 8 are the 9th, 5th, and 11th worst, respectively, in terms of the highest number of calls not

[11] A geographical unit identifier in the SJFD's CAD system. The size of a ZBB can be as small as several blocks.

[12] We did not request ZBB information for the proposed North Coyote Valley fire station because of the limited calls for service in that area.

[13] The number of incidents for which the overall response time is measured (646) is less than the number of calls for which travel time is measured (803) because the system did not record a received time for 157 calls (803-646=157). Primarily, the received time is not recorded when the call is not dialed as a "911" call. Instead, it is received directly from police or fire units, other public safety agencies, or seven digit numbers.

meeting total reflex time targets.

Exhibit 7 1998-99 Core Emergency Travel Time Performance For Fire Stations 2, 5, 8

Fire Station Number	Number Not Meeting 4-Minute Travel Time Target	Rank From Worst To Best Out Of 30 SJFD Fire Stations
2	302	3
5	279	6
8	232	9

Exhibit 8 1998-99 Core Emergency Total Reflex Time Performance For Fire Stations 2, 5, 8

Fire Station Number	Number Not Meeting 8-Minute Reflex Time Target	Rank From Worst To Best Out of 30 SJFD Fire Stations
5	147	5
2	120	9
8	113	11

The proposed Berryessa fire station seems to offer several benefits. First, it will handle some of the call volume that the nearby stations currently handle. Any significant reduction in the call volume or travel distance for these stations should improve their total reflex time, albeit by an indeterminate amount. Second, the SJFD should improve its travel times and total reflex times for calls in the geographical area of the proposed station. Finally, the proposed Berryessa Station addresses the area's geographical limitations.

Reduced Call Volume And Travel Distances

To assess the benefits of the proposed Berryessa fire station, we analyzed the SJFD's data to determine the effect the new station would have on the workload of the nearby stations. Specifically, our analysis indicates that the geographical area for the proposed Berryessa fire station is located in an area that had 803 core emergencies in 1998-99. The five fire stations nearest to the proposed fire station responded to these calls.

Exhibit 9 below shows the number of calls that each station responded to in 1998-99 located in the geographical area of the

proposed Berryessa fire station and the travel time performance

information.

Exhibit 9 1998-99 SJFD Travel Time Performance By Responding Fire Station For Core Emergency Calls For The Geographical Area Of The Proposed Berryessa Fire Station Area

Responding Station	Number Of Calls From Each Station	Number Of Calls That Met Travel Time Performance Target	Percent Of Calls Meeting Travel Time Performance Target	Number Of Calls That Did Not Meet Travel Time Performance Target	Percentage Of Calls That Did Not Meet Travel Time Performance Target
2	246	183	74%	63	26%
5	72	32	44%	40	56%
8	244	130	53%	114	47%
19	106	19	18%	87	82%
23	135	61	45%	74	55%
Total	803	425	53%	378	47%

As Exhibit 9 shows, the stations that responded to most of the 803 core emergencies within the geographical area of the proposed Berryessa station were stations 2 and 8. As noted earlier, these two stations have the highest volume of core emergencies in the City. Assuming that the existing stations would not have to respond to most of these calls should the Berryessa station be built, their respective workloads and attendant travel distances would be reduced. Any significant reduction in the call volume or travel distances for these stations should improve their travel and total reflex time performance, albeit by an indeterminate amount.

The sheer call volume for the proposed Berryessa fire station also seems sufficient to justify a new station. As noted earlier, the geographical area of the proposed Berryessa fire station would have a core emergency call volume of 803 calls annually. As such, the geographical area of the proposed Berryessa station would have ranked 12th out of the then 30 SJFD fire stations in terms of sheer core emergency call volume. Further, with 378 calls not meeting the travel time target, the geographical area for the proposed Berryessa fire station would have ranked the 2nd worst of the then 30 SJFD fire stations in terms of the number of calls not meeting the travel time target. Finally, with 189 calls not meeting the total reflex time target, the geographical area of the proposed

Berryessa fire station would have ranked the worst out of the then 30 stations in terms of the number of calls not meeting the total reflex time target.

Our analysis also indicates that the proposed Berryessa fire station should enable the SJFD to significantly improve its travel and total reflex times in the geographical area of the proposed station. As noted earlier, for 1998-99 core emergencies, in the geographical area of the proposed Berryessa fire station, the SJFD met its travel time goals only 53 percent of the time and its total reflex time goals only 71 percent of the time.

Furthermore, our analysis revealed that the first-due station responded to most of the calls in the geographical area of the proposed Berryessa fire station in 1998-99. This indicates that the poor SJFD travel time performance is not because a second- or third-due fire station responded to calls in the geographical area of the proposed station. Rather, the slow travel times in the area of the proposed Berryessa fire station are largely a function of the area's geographical characteristics.

The geographical area of the proposed Berryessa fire station is bounded in general on the east by Highway 680 and partially bounded by Highway 101 to the west. Therefore, SJFD personnel frequently must travel to the nearest freeway overpass or crossing to arrive at certain locations in the Berryessa area. By having a station within the area of these man-made geographical obstacles, the SJFD should be able to improve its travel time and overall response time for a significant number of core emergency calls.

Based upon our above analysis of available data related to the proposed SJFD fire stations, the proposed Berryessa fire station appears to be justified. The proposed Berryessa fire station is not currently funded.

The Proposed Blossom Hill, Yerba Buena, And Communications Hill Stations Are Proximate To Existing Fire Stations With High Core Emergency Call Volume And Number Of Calls Not Meeting The 4-Minute Travel And 8-Minute Total Reflex Time Targets

At the time of our audit, because of time constraints, the SJFD was only able to provide us with information regarding the ZBBs for the proposed Berryessa fire station. Absent the ZBB information, we reviewed the 1998-99 core emergency call volume, travel times, and total reflex times of the stations proximate to the proposed Blossom Hill, Yerba Buena, and Communications Hill fire stations. Therefore, our analysis of these three other proposed stations is not as detailed as our analysis of the proposed Berryessa station. We did not do an analysis for the proposed North Coyote Valley station because it is dependent upon future growth in that area. Our analysis of the proposed Blossom Hill, Yerba Buena, and Communications Hill fire stations is as follows.

Proposed Blossom Hill Fire Station

The proposed Blossom Hill fire station would be located in the vicinity of Poughkeepsie and Cottle Roads. This fire station is not currently funded. Exhibit 10 below shows the San Jose fire stations near the proposed Blossom Hill fire station ranked by the highest number of core emergency calls, number of core emergency calls not meeting the 4-minute travel time target, and the number of core emergency calls not meeting the 8-minute total reflex time target.

Exhibit 10 San Jose Fire Stations Near The Proposed Blossom Hill Fire Station Ranked By Highest Number Of Core Emergency Calls, Highest Number Of Calls Not Meeting The 4-Minute Travel Time Target, And Highest Number Of Calls Not Meeting The 8-Minute Reflex Time Target

Nearby Fire Stations	Rank By Highest Number Of All Core Emergency Calls	Rank By Highest Number Of Core Emergency Calls Not Meeting The 4-Minute Travel Time Target	Rank By Highest Number Of Core Emergency Calls Not Meeting The 8-Minute Total Reflex Time Target
12	10	7	2
13	12	11	10
18	6	2	3
27	22	17	14

As Exhibit 10 above shows, the four San Jose fire stations that surround the proposed Blossom Hill fire station are 12, 13, 18, and 27. Of these four fire stations, three of them, 18, 12, and 13 are ranked in the top 12 stations for the highest number of core emergency calls. In addition, three of these four stations, 18, 12, and 13 are ranked in the top 11 fire stations with the highest number of calls not meeting the 4-minute travel time target and 8-minute total reflex time target for all core emergencies. Further, fire stations 18, 12, and 13 are ranked in the top 10 fire stations with the highest number of core emergency calls not meeting the 8-minute total reflex time target.

Proposed Yerba Buena Station

The proposed Yerba Buena fire station would be located in the vicinity of Yerba Buena and Silver Creek Roads. The City established an improvement district in this area to pay for capital improvements required for development. As of September 2001, the Silver Creek Development Integrated Finance and Improvement District had about $9.3 million to pay for capital improvements in the area. In our opinion, the City Attorney's Office should opine on the legality of using improvement district funds to build a fire station.

We recommend that the San Jose Fire Department:

Recommendation #1:

Obtain a legal opinion on the use of the Silver Creek Development Integrated Finance and Improvement District funds for a new fire station. (Priority 3)

Exhibit 11 below shows the San Jose fire stations near the proposed Yerba Buena Station ranked by the highest number of core emergency calls, number of core emergency calls not meeting the 4-minute travel time target, and the number of core emergency calls not meeting the 8-minute total reflex time target.

Exhibit 11 **San Jose Fire Stations Near The Proposed Yerba Buena Fire Station Ranked By Highest Number Of Core Emergency Calls, Highest Number Of Calls Not Meeting The 4-Minute Travel Time Target, And Highest Number Of Calls Not Meeting The 8-Minute Reflex Time Target**

Nearby Fire Stations	Rank By Highest Number Of All Core Emergency Calls	Rank By Highest Number Core Emergency Calls Not Meeting The 4-Minute Travel Time Target	Rank By Highest Number Of Core Emergency Calls Not Meeting The 8-Minute Total Reflex Time Target
11	26	21	19
18	6	2	3
24	9	5	7
26	4	1	1

As Exhibit 11 shows, the four fire stations near the proposed Yerba Buena fire station are 11, 18, 24, and 26. Of these four fire stations, 26, 18, and 24 are ranked fourth, sixth and ninth, respectively, for the highest number of core emergency calls. These three fire stations are also ranked in the top five fire stations with the highest number of calls not meeting the 4-minute travel time target for all core emergencies. Moreover, these three stations rank in the top seven stations for the highest number of calls not meeting the 8-minute total reflex time target for all core emergencies. Further, Station 26 ranked highest for the number of core emergency calls not meeting the 4-minute travel time and 8-minute total reflex time target. It should be noted that Fire Station 24 is also near to Station 31, which opened in late 1999. Accordingly, Station 31's effect on Station 24's performance is not reflected in the rankings shown in Exhibit 11.

Proposed Communications Hill Location

The geographical area of the proposed Communications Hill fire station is bounded in general on the east by Monterey Highway, on the north by Curtner Avenue and on the west by Highway 87. Exhibit 12 below shows the San Jose fire stations near the proposed Communications Hill fire station ranked by the highest number of core emergency calls, number of core emergency calls not meeting the 4-minute travel time target, and the number of core emergency calls not meeting the 8-minute total reflex time target.

Exhibit 12 San Jose Fire Stations Near The Proposed Communications Hill Fire Station Ranked By Highest Number Of Core Emergency Calls, Highest Number Of Calls Not Meeting The 4-Minute Travel Time Target, And Highest Number Of Calls Not Meeting The 8-Minute Reflex Time Target

Nearby Fire Stations	Rank By Highest Number Of All Core Emergency Calls	Rank By Highest Number Of Core Emergency Calls Not Meeting The 4-Minute Travel Time Target	Rank By Highest Number Of Core Emergency Calls Not Meeting The 8-Minute Total Reflex Time Target
6	14	12	12
9	8	8	6
13	12	11	10
18	6	2	3
26	4	1	1

As Exhibit 12 shows, the five San Jose fire stations that surround the proposed Communications Hill station are 6, 9, 13, 18, and 26. Of these five stations, 26 and 18 are ranked fourth and sixth for the highest number of all core emergency calls. Moreover, all five stations rank in the top 14 stations for the highest number of core emergencies. Further, Station 26 ranked highest for the number of core emergency calls not meeting the 4-minute travel time and 8-minute total reflex time target.[14] In addition, four of the five stations, 9, 13, 26, and 18 are ranked in the top 11 fire stations with the highest number of calls not meeting the 4-minute travel time target. Similarly, all five stations are ranked in the top 12 stations with the highest number of calls not meeting the 8-minute total reflex time target.

Based on our analysis, the proposed Blossom Hill, Yerba Buena and Communications Hill fire stations are near existing fire stations with high call volume and with high numbers of calls not meeting travel time and total reflex time targets.

[14] See page 40 for a discussion of a service delivery alternative that could benefit Station 26.

The Proposed Communications Hill Station Is Part Of A Development Agreement And The Proposed North Coyote Valley Station Is Dependent Upon Future Growth In The Area

The proposed Communications Hill fire station is part of a development agreement. The Communications Hill Specific Plan states that in order to complete development of Communications Hill a fire station must be built. Under terms of the plan, the City will not pay to either build or equip the new fire station.

The proposed North Coyote Valley station would be located in the vicinity of Bailey Avenue and Santa Teresa Boulevard. This fire station would be developer-funded. The North Coyote Valley fire station is part of a negotiated development agreement and will not be built until certain developments occur in Coyote Valley. Currently, the workload in the area does not support a new fire station. Anticipated developments in the area include housing and industrial developments.

Additional Detailed Analyses The City Auditor's Office Could Perform

As noted above, the SJFD provided us with the ZBB information for only the proposed Berryessa station. As a result, we did not perform the same detailed analyses for the other stations that we performed on the proposed Berryessa station. Specifically, we did not evaluate the workload, travel time, and total reflex time performance for the geographic areas of the other proposed fire stations. Of the other four stations, only the proposed Yerba Buena and Blossom Hill stations should be further analyzed because the proposed Communications Hill station is part of a development agreement and the proposed North Coyote Valley station is dependent upon future growth in that area. The City Auditor's Office could perform the same detailed analyses for the Yerba Buena and Blossom Hill fire stations as we did for the proposed Berryessa fire station should the SJFD provide us with the ZBB information and the City Council direct us to do the analyses.

We recommend that the City Council:

Recommendation #2

Direct the City Auditor to perform detailed analyses on the 2000-2001 workload, travel time, and total reflex time performance for the geographic areas specific to the proposed Yerba Buena and Blossom Hill fire stations. (Priority 3)

Adding New Fire Stations Should Be Evaluated In Concert With Other Opportunities To Enhance Upon The SJFD's Ability To Respond To Emergency Calls

The Strategic Plan noted that the SJFD is not meeting its travel response time and its total reflex time targets for some sections of the City. The Strategic Plan identified a number of recommendations to address this problem, including building new fire stations. In our opinion, adding new stations should be evaluated in concert with other less expensive options to improve the SJFD's responsiveness to emergency calls.

The Strategic Plan Identified A Number Of Recommendations To Improve The SJFD's Travel Time And Total Reflex Times

According to the Strategic Plan, the first-due companies are sometimes unable to respond to emergencies within the targeted timeframes because they are unavailable at the time the emergency calls are received. ECRC identified the following four primary reasons the companies are not always available: 1) companies assigned to another incident, 2) training, 3) out of service for vehicle maintenance, and 4) replenishing supplies and equipment.

The Strategic Plan identified a number of recommendations to address these causes of unit unavailability. For instance, to address the first-due stations being unavailable because they were responding to another incident, the Strategic Plan recommends use of part-time companies on an overtime basis. Further, to address multiple fire companies training at the same time, the Strategic Plan recommended decentralizing training facilities by building additional strategically-located training towers and adding more training personnel. To address unit unavailability due to vehicle maintenance, the Strategic Plan recommended maintaining response-ready reserve apparatus, and making mechanics available at the fire stations for service, repairs, and after-hours service. Further, to reduce time spent on trips to Station 26 to replenish supplies, the Strategic Plan recommended hiring couriers for company stores and medical equipment pick-up and delivery. Finally, the Strategic Plan recommended evaluating the effectiveness and efficiency of placing frequently-requested safety and medical equipment at intermediate sites.

As noted earlier, the Strategic Plan identified additional fire stations that need to be built. We describe the Strategic Plan's proposed five fire stations beginning on page 16. Building new fire stations is the most expensive means to improve service.

Specifically, the SJFD estimates the cost of land, construction, apparatus, and tools and equipment for the proposed Berryessa fire station is approximately $4.5 million. In addition, in 2001-02 the cost of operating an Engine Company is estimated to be $1.5 million annually and the cost of operating an Engine and a Truck Company is estimated to be $3.4 million annually.

Other Opportunities To Enhance Upon The SJFD's Ability To Respond To Emergency Calls

We identified several options besides building new fire stations that the SJFD should consider in its long-term plans for improving its response time for emergency calls. These options include 1) reducing the volume of calls to which the SJFD must respond by using an expanded medical priority dispatch system, 2) using Quints to provide better truck coverage in the perimeter area of the City, and 3) using less expensive non-fire fighting apparatus that requires fewer staff to respond to lower priority EMS calls.

The Changing Role Of The SJFD

We identified these opportunities because EMS calls have become an increasingly larger component of the SJFD's workload. Moreover, in our opinion, these options are more cost-effective service delivery methods. In discussing these options, it is important to keep in mind that the role of the SJFD has expanded beyond its original mission of fire suppression and prevention. The vast majority of the SJFD's workload is responding to EMS and to other incidents such as service calls, good intent calls, and hazardous conditions incidents.

The changing role of the SJFD is consistent with that of other municipal fire departments. The changing role at fire departments is noted in the authoritative book "Managing Fire Services".

> *"The fire service has expanded beyond its original mission and moved in to other service areas that previously did not exist or were provided by other public agencies or the private sector. These services include hazardous materials response, emergency medical services, emergency management, and code administration and enforcement. … The local fire department often seemed a natural source of medical aid responsibility, because it had a sizable body of reliable, trained, and disciplined personnel, operating within an existing command structure, possessing vehicular and communications resources, operating from structural facilities located throughout the community, and holding the confidence of the public.*

> *Also, affecting this trend was the fact that most firefighting personnel were actually engaged in emergency activity for only a small percentage of their total available on-duty time."*

The changing role of the SJFD is reflected in its workload statistics. Specifically, in 1999-00, EMS calls accounted for 72 percent of classified total call volume; other incidents accounted for 24 percent of all calls; and fire calls accounted for 4 percent of the calls for service.

EMS calls and other incidents are an increasingly larger component of the SJFD's workload and fire calls are a smaller component of the workload. For example, from 1994-95 through 1999-00, EMS calls increased 8 percent, other incidents increased 21 percent, total calls increased 10 percent, and the City of San Jose's population increased by 9 percent. Conversely, during that same period, the SJFD's fire calls decreased 16 percent.

EMS Contract Requires SJFD To Respond To Medical Emergencies

The EMS contract between the County of Santa Clara and American Medical Response, Inc. (AMR) governs the protocol for responding to EMS calls in the City of San Jose. Specifically, the contract requires that two paramedics respond to all EMS calls. The SJFD responds to all EMS calls with a Paramedic/Firefighter and AMR responds with two personnel, one of whom is a paramedic.

To ensure that paramedics are available for calls, the SJFD staffing uses a paramedic trained firefighter (Paramedic/Firefighter) on each Engine. In 2001-2002, the City Council approved funding to expand Paramedic/Firefighter staffing from four Truck Companies to all eleven Truck Companies. All other firefighters are Emergency Medical Technicians –Defibrillation.[15] Prior to 2001-02, units without Paramedic/Firefighter staffing could respond to EMS calls provided that a first-due or back up unit with a Firefighter/Paramedic also responded. Because all City of San Jose responses include a paramedic, all EMS calls are

[15] EMT *(*emergency medical technician*):* A generic term referring to at least three emergency care positions:
(1) EMT (sometimes known as EMT-Ambulance), a person who has been appropriately certified as proficient in basic life support;
(2) EMT-Paramedic (sometimes know as EMT-p), a person who has been appropriately certified as proficient in advanced life support; and
(3) EMT-Defibrillation (sometimes known as EMT-d), a person who is trained and authorized to use a portable cardiac monitor and defibrillators, to analyze certain cardiac rhythms, and to apply defibrillation where appropriate.

considered to be Advanced Life Support (ALS)[16] responses.

EMS Calls Workload By Medical Dispatch Priority Level

The SJFD's Communications PSDs are trained as Emergency Medical Dispatchers[17] to use the Medical Priority Dispatch System (MPDS) to determine the response priority level for each EMS call. The premise behind the MPDS is that all 911 medical calls do not require the same level of response. In the event of an EMS call, the Fire Communications call taker uses the MPDS to ask the caller a series of questions specific to the reported medical condition or situation. The MPDS has a series of questions for each of 33 types of medical conditions or situations used to assign the severity of the EMS call. According to Dispatch Monthly magazine, using the emergency medical dispatch triage to determine the level of response: emergency, non-emergency, or no response is "an important component in reducing abuse or overcrowding of the local emergency medical system, reducing incidents (which helps conserve available resources for the fire department, ambulance provider, emergency rooms, etc.), and helping to reduce (fire department and ambulance related) accidents.

The six dispatch priorities the SJFD currently uses and the response levels are:

Omega: Omega is the lowest priority call level and does not recommend an EMS responding unit. Most often, a medical advice nurse can handle an Omega call without dispatching a unit. These calls are used primarily for persons with the lowest priority medical conditions that are not experiencing any Priority Symptoms such as abnormal breathing, chest pain, decreased level of consciousness, and severe hemorrhaging.

San Jose currently uses Omega in two instances. One instance is a fall from ground level without an injury and without Priority Symptoms. Although the SJFD responds to these calls, the incidents are treated as non-emergency and the SJFD responds within 15 minutes. An AMR ambulance is not dispatched. The other Omega call type is a poisoning with no

[16] Advanced Life Support*:* All basic life support measures, plus invasive medical procedures, including: intravenous therapy; cardiac defibrillation; administration of antiarrhythmic medications and other specified drugs, medications, and solutions; use of adjunctive ventilation devices; and other procedures which may be authorized by state law and performed under medical control.

[17] Emergency Medical Dispatchers are specifically trained and certified in interrogation techniques, pre-arrival instructions and call prioritization with a minimum of 24 hours training including techniques of airway and hemorrhage control, CPR, Heimlich maneuver, and childbirth.

Priority Symptoms. The SJFD and AMR respond without red lights and sirens. These calls are transferred to the Poison Control Center. The Poison Control Center may recommend that the SJFD cancel their response.

A (Alpha): The Alpha priority level is used for the second lowest priority medical condition. Both the SJFD and AMR respond without red lights or sirens. The EMS contract allows a 13 to 22 minute response time on Alpha calls. In 1999-00, Alpha calls accounted for approximately 11 percent of San Jose's EMS calls. Currently, the SJFD dispatches four personnel to all Alpha calls. Although the SJFD currently provides an Advanced Life Support (ALS) response, this priority level recommends only a Basic Life Support (BLS) response without red lights and sirens.[18]

B (Bravo): The Bravo priority level is the next highest priority level above the Alpha priority level. San Jose currently uses red lights and sirens on these calls. AMR responds without lights and sirens. Currently, SJFD dispatches four personnel to all Bravo calls. Although the SJFD currently provides an ALS response, this priority level recommends only a BLS response with red lights and sirens.

C (Charlie): The Charlie priority level is a higher priority call than a Bravo call. An ALS unit response is required. Both the SJFD and AMR respond with red lights and sirens. Currently, SJFD dispatches four personnel to all Charlie calls. This priority level recommends an ALS response with red lights and sirens.

D (Delta): An ALS unit response is required. The Delta priority level is a higher priority than a Charlie call. Both the SJFD and AMR respond with red lights and sirens. Currently, SJFD dispatches four personnel to all Delta calls. This priority level recommends an ALS response with red lights and sirens.

In addition to these priority levels, the SJFD began using an additional priority level in November 2000 - the E (Echo)

[18] *Basic life support:* Generally limited to airway maintenance, ventilatory (breathing) support, CPR, hemorrhage control, splinting of fractures, management of spinal injury, protection and transportation of the patient in accordance with accepted procedures.

priority level.

E (Echo): The Echo is the most urgent of all the priority levels. The SJFD and AMR ALS units respond with red lights and sirens. This dispatch determination occurs sooner than the other levels. Full use of the priority level recommends local agencies to assign the absolute closest response of any trained crew. Therefore, an effective Global Positioning System (GPS) can improve response time on these calls. GPS software is not compatible with the current CAD system, however, the SJFD and the SJPD plan to have GPS software installed with the new CAD system.

Full Implementation Of The Omega Priority Response Level Could Significantly Reduce The Number Of EMS Calls To Which The SJFD Must Respond

In the future, the SJFD could fully implement its use of the Omega priority response level to significantly reduce the number of EMS calls to which it responds. Specifically, the Omega priority response could allow the SJFD to use other resources to respond to minor non-emergency medical complaints. For instance, the City could employ a medical advice nurse to handle Omega calls over the telephone. As a result, the SJFD would not have to send out a full Engine Company or an ambulance to address these minor medical complaints. By not responding to Omega calls, the SJFD would increase the amount of time that companies would be available to respond to higher priority calls. If the City of San Jose fully implemented the Omega priority response level, we estimate that it could decrease the number of calls it responds to by 2,200 calls per year.

Reducing the number of calls to which the SJFD would respond is consistent with what some other fire departments that we contacted are doing. Several of the fire departments we contacted do not always send out their fire engine companies for minor medical emergencies. For instance, cities such as San Diego, California; Stockton, California; Austin, Texas; and Boston, Massachusetts, do not send a fire engine for some of their less urgent BLS calls. Instead, they send either a public or private ambulance. This practice improves their availability for higher priority emergency calls and reduces the wear and tear on their Engines and Trucks.

The SJFD plans to expand its use of the Omega priority response level. A requirement to expand to the Omega priority response level is accreditation by the National Academy of Emergency Medical Dispatch (Academy), a non-profit organization that oversees the dispatch system the SJFD

currently uses. The Academy recently accredited the SJFD Communications in July 2001.

Although it is now accredited, the SJFD must address other issues that will take more time before it can expand its use of the Omega priority response level. For example, the SJFD will need to implement specialized dispatch software, Pro QA, to fully implement the Omega priority response level. Pro QA software is the automated version of the MPDS. This dispatch software automatically determines the response required for medical events based on the event information the Fire PSDs enter. However, the Pro QA software is not compatible with the current CAD. Therefore the software cannot be installed until the new CAD is installed, which is projected for Fall 2003.

If the City of San Jose elects to use the Omega dispatch protocol for handling low priority non-emergency 911 calls, the City would also need the services of advice nurses. As noted above, the advice nurse would provide the callers with medical advice over the telephone. There are various ways the SJFD could avail itself of advice nurses. For example, some emergency communications dispatch centers may have nurses on staff, while others may contract with health maintenance organization medical advice call centers.

In our opinion, the SJFD should develop for City Council consideration, plans for expanding its use of the Omega priority response level. These plans should include obtaining the software necessary to fully implement the Omega priority response level, options and costs for dispensing non-emergency medical advice, and any other issues that need to be addressed.

We recommend that the San Jose Fire Department:

Recommendation #3

Develop for City Council consideration plans for expanding its use of the Omega priority response level. These plans should include: obtaining the software necessary to fully implement the Omega priority response level; options and costs for dispensing non-emergency medical advice; and any other issues that need to be addressed. (Priority 3)

Using Quints Can Provide Better Truck Coverage In The Perimeter Areas Of The City

In addition to new fire stations, the Strategic Plan addressed the equity of service throughout the City for Truck coverage. Currently, each fire station has a fire Engine Company. In addition to the fire Engines, there are eight Truck Companies located throughout the City to provide aerial ladder coverage to fight fires. The Strategic Plan recommends converting some Engine Companies to Quints to improve Truck coverage in the City.

Quints are multi-purpose response vehicles that provide flexibility to respond to both fire and medical emergencies. Specifically, Quints provide space for personnel to ride safely on the unit with all their protective equipment, carry all the engine/pumper equipment needed (such as pump, hose, nozzles and fittings), ground and aerial ladders, much of the aerial ladder truck equipment (for ventilation, forced entry, salvage and overhaul), rescue equipment, and emergency medical equipment.

The Strategic Plan recommends that the Quint Companies replace Engine Companies at three perimeter fire stations with low call volume. Specifically, the Strategic Plan recommends that Quint Companies replace Engine Companies at stations 23, 22 or 28, and 11 or 31. The Strategic Plan prefers station 22 over 28, and station 31 over 11. According to the Strategic Plan, having Quint Companies at three perimeter locations is more effective than having only an Engine Company when a station's workload does not support having both an Engine and a Truck Company.

In our opinion, Quints do provide the City with a more flexible vehicle for addressing fire emergencies because a Quint can function as either an Engine or a Truck. In fact, we found that the St. Louis, Missouri Fire Department has used Quints for the past ten years at all its 30 fire stations. This year, they replaced all of their old Quints with new Quints. The Quints in St. Louis have a 75-foot aerial ladder and carry 400 gallons of water. St. Louis also has four fire stations that have hook and ladder Quints, of these, two have 100-foot aerial ladders and two have 120-foot aerial ladders.

Although Quints can provide a more flexible response, there may be some disadvantages associated with their use. For example, replacing Engine Companies with Quint Companies may cause some San Jose Fire Fighters Union issues. In addition, a Quint is not equipped exactly the same as a Truck or

an Engine, regarding ladder sizes and hose capacities. Further, we noted that the Strategic Plan's recommendation to use Quint Companies to replace three Engine Companies would increase annual operating costs. Specifically, the SJFD recommends staffing the Quint Companies with five staff instead of the four staff that currently staff Engine Companies. To staff the three recommended Quint Companies, the SJFD would require about 10.5 additional full time equivalent (FTE) employees to address the 24 hour staffing of these vehicles. We estimate that the additional FTEs would cost approximately $1 million annually based on 2001-02 salaries and benefits.

In our opinion, the SJFD should consider another apparatus deployment alternative that could help defray the $1 million annual cost to replace the three Engine Companies with three Quint Companies. Specifically, we recommend that the SJFD reevaluate the workload of its existing Engine and Truck Companies to identify a station that could be reduced to a Quint Company. Specifically, replacing an Engine and Truck Company with a Quint Company could save 14 FTEs and about $1.3 million per year based on 2001-02 salaries and benefits. These savings could be used to offset the additional cost of staffing the Quint Companies recommended in the Strategic Plan. For instance, stations 9, 13 and 18 are Engine and Truck Companies that are relatively close (6.3 miles from Station 9 to Station 18 with Station 13 located in between) to one another. In our opinion, the SJFD should consider one of these stations for a Quint Company.

Accordingly, we recommend:

Recommendation #4

That should the San Jose Fire Department opt to convert some Engine Companies to Quint Companies, that it also reevaluate its existing Engine and Truck Companies to convert one to a Quint company. (Priority 3)

Using Other EMS Delivery Vehicle And Configuration Options

In response to the Strategic Plan, the SJFD is in the process of implementing a change to improve station availability. Specifically, for the FY 2001-2002, the City Council authorized the SJFD to spend about $271,000 to add Paramedic/Firefighters on all Truck and USAR Companies. Previously, only four of 11 Truck and USAR Companies were staffed with paramedics. Thus, the SJFD will add paramedics to seven Truck and USAR Companies. In our opinion, this

change should improve the SJFD's capability to respond to emergency calls.

We found, however, that the City should consider several other options for responding to emergency medical calls. One option is to add another Paramedic/Firefighter on selected Truck Companies on a part-time basis. Another option is to deploy a Sport Utility Vehicle (SUV) staffed with a Paramedic/Firefighter and a Firefighter at busy stations that only have an Engine Company. In our opinion, these options are cost-effective alternatives for improving SJFD response times. These options are discussed in detail below.

Placing an additional Paramedic/Firefighter on several Truck Companies on an overtime basis during peak demand hours is one option the SJFD should consider. This would have the effect of placing six persons, two of them being Paramedic/Firefighters at these stations. As noted on page 4, Truck Companies are comprised of a Fire Truck and a smaller vehicle known as a Light Unit. Placing an additional part-time Paramedic/Firefighter would allow the Truck Companies more flexibility and capability in responding to EMS calls. Currently, both a Truck and a Light Unit must respond to an EMS call. This requires two pieces of equipment and five staff. However, by adding a Paramedic/Firefighter to a Truck Company, a Paramedic/Firefighter and a Firefighter could respond to lower priority EMS calls such as the Alpha and Bravo level calls with only the Light Unit. This would mean fewer firefighters and apparatus would respond to an EMS call and an apparatus would still be available at the station to respond to other calls. We estimate the additional Paramedic/Firefighter option on an overtime basis during peak hours would cost about $116,000 annually per station to implement.

Another similar option would be to add a SUV staffed with a Paramedic/Firefighter and a Firefighter to respond to the lower priority calls such as the Alpha and Bravo level calls. According to the SJFD and other jurisdictions, two personnel are sufficient to respond to most Alpha and Bravo priority level calls. The SJFD could staff the SUV on an overtime basis during peak demand hours. This option would probably be most beneficial at some of the busier stations that only have an Engine Company. Having the SUV available should lighten the workload of the Engine Company and free up equipment and staff to respond to more significant EMS and fire calls. We

estimate the cost of this option on a pilot project basis would be about $332,000 per SUV in the first year. This includes about $100,000 for the purchase of an SUV and medical equipment and $232,000 for the overtime costs of two staff.

In our opinion, an added benefit of this option is that it would reduce wear and tear on costly SJFD fire fighting vehicles. Exhibit 13 shows the capital and the annual maintenance costs for the various types of apparatus the SJFD uses.

Exhibit 13 SJFD Purchase Price And 1999-2000 Average Miles, Average Operating Costs, And Average Operating Cost Per Mile By Apparatus

Apparatus	Apparatus And Equipment Purchase Or Lease Cost	1999-2000 Average Miles	1999-2000 Average Operating Cost	1999-2000 Average Operating Cost Per Mile
Fire Engine	$500,000	7,943	$22,969	$2.98
Fire Ladder Truck	$792,000	3,756	$15,991	$4.26
Light Unit	$242,000	5,597	$10,486	$1.87
Battalion Chief SUV	$61,000	19,179	$8,948	$0.47

As shown in Exhibit 13, the SUVs are the least expensive in terms of purchase or lease cost, annual operating cost and average operating cost per mile, while Ladder Trucks and Engines are the most expensive apparatus.

In our opinion, Stations 26 and 8 are busy stations that have only an Engine Company and would be good candidates for a pilot project to use a SUV staffed with a Paramedic/Firefighter and a Firefighter. Another reason that Stations 26 and 8 are good candidates for this pilot program is that they had the highest number of core emergencies that exceeded the four-minute travel time standard because the first-due station was not available. Specifically, during the six-month period that we reviewed, Station 26 and Station 8 had 49 calls and 44 calls, respectively, where the four-minute travel time standard was exceeded because these stations were unavailable to respond as first-due.

In further analyzing the instances when Stations 26 and 8 could not respond as first-due station, we noted several instances when Station 26's Engine Company was on a lower priority

emergency call and was unavailable to respond to more serious emergencies. Specifically, we noted an instance when Station 26's Engine Company was on a low-priority Alpha call and was unavailable to respond to a high-priority Delta call. While Station 26 was responding to an Alpha priority level call, a second-due station received another call for Station 26's service area for a Delta priority level call involving a person with breathing difficulties. It took 5 minutes and 51 seconds for the second-due Fire Engine to travel to the Delta priority level call. In this situation, if Station 26 had been able to respond to the low-priority Alpha call with a SUV then it would have been able to respond as the first-due station when the call came in for the high-priority Delta call.

The increasing demand for emergency medical services calls adversely impacts the SJFD's ability to respond to high priority emergencies in a timely manner. Specifically, when the first-due stations are not available, other stations must be dispatched. The second-due stations must travel greater distances with resultant longer travel and total reflex times. Moreover, the demand for these calls can have a spillover effect to the stations that have to respond to calls outside their service area.

According to the SJFD, there are many issues that factor in to the decision to improve emergency response performance. In some cases a new station is warranted because there is a distinct service gap and travel time is an issue. In other cases, performance has deteriorated because of a high volume of calls and concurrent calls. In these situations a secondary response unit may be utilized to reduce call demand on the primary response vehicle.

While requirements to improve service delivery can be very different depending on the nature of the problem, Exhibit 14 demonstrates the relative cost of some different approaches. Specifically, Exhibit 14 summarizes the cost of building a new station and using Light Units and SUVs to respond to lower-priority EMS calls.

Exhibit 14 Summary Of The Cost Of Building A New Fire Station And Using SUVs And Light Units As EMS Call Service Delivery Options

	Cost Of Land Building Station	Apparatus, Tools And Equipment	Annual Operating Costs	Total First Year Cost
Building New Station With A Single Engine Company/Engine And Truck Company	$4,000,000/ 5,100,000	$500,000/ $1,534,000	$1,500,000/ $3,400,000	$6,000,000/ $10,034,000
EMS Call Option Using A SUV With A Firefighter And Paramedic/Firefighter On An Overtime Basis During Peak Demand Hours	N/A	$100,000	$232,000	$332,000
EMS Call Option Using The Light Unit Requires An Additional Paramedic/Firefighter On A Truck Company On An Overtime Basis During Peak Demand Hours	N/A	N/A	$116,000	$116,000

As shown above, the SUVs and the Light Units are very cost-effective options for lower-priority EMS calls.

In our opinion, having a SUV staffed with a Paramedic/Firefighter and a Firefighter should allow the Engine Company to respond as first-due to more significant EMS and fire calls. This option should also save wear and tear on the Fire Engines and Trucks. Accordingly, we recommend that the SJFD implement a pilot project to evaluate the use of a SUV staffed with a Paramedic/Firefighter and a Firefighter or Light Units to respond to lower priority medical emergencies.

We recommend that the San Jose Fire Department:

Recommendation #5

Implement a pilot project to evaluate the use of SUVs or Light Units to respond to lower priority emergency medical calls. (Priority 3)

CONCLUSION

We reviewed the SJFD's Strategic Plan and the data upon which the conclusions in the Strategic Plan were predicated and found that:

- The response time information in the Strategic Plan appears to be accurate and reliable. However, as a result of input we provided during the course of our audit, we project that the SJFD will reduce dispatch times by an estimated 10 seconds for most emergency calls transferred from the San Jose Police Department (SJPD) and by as much as 42 seconds for certain types of emergency calls and
- Of the five proposed new fire stations in the Strategic Plan
  - The fire station proposed for the Berryessa area appears to be justified;
  - The proposed Blossom Hill, Yerba Buena, and Communications Hill stations are proximate to existing fire stations with high core emergency call volume and number of calls not meeting the 4-minute travel and 8-minute total reflex time targets; and
  - The proposed Communications Hill station is part of a development agreement and the proposed North Coyote Valley station is dependent upon future growth in that area.

We predicated our aforementioned opinion regarding the proposed Berryessa fire station based upon an extensive analysis of travel and total reflex time data for the geographical area of the proposed station. However, at the time of our audit, similar information regarding the geographical areas for the proposed Yerba Buena and Blossom Hill stations was not available. The City Auditor's Office could perform the same detailed analyses for these two fire stations as it did for the proposed Berryessa fire station should the SJFD provide us with the necessary geographical data and the City Council direct us to do the analyses.

While adding new fire stations is one means to improve upon the SJFD's response times to emergency calls, it is also the most costly in terms of capital costs and operating expenses. In

our opinion, adding new fire stations should be evaluated in concert with other opportunities to improve upon the SJFD's responsiveness to emergency calls. Specifically, these other opportunities include:

- Reducing the volume of calls to which the SJFD must respond by using an expanded medical priority dispatch system;
- Using Quint Companies to improve truck coverage in the perimeter areas of the City; and
- Using other Emergency Medical Services (EMS) service delivery vehicle and configuration options.

These other opportunities will improve the SJFD's responsiveness to emergency calls. Further, these other opportunities will save wear and tear on costly SJFD fire fighting vehicles and equipment and help ensure that these vehicles and equipment will be available in the event they are needed to fight a fire or perform rescue type operations.

RECOMMENDATIONS

We recommend that the San Jose Fire Department:

Recommendation #1 **Obtain a legal opinion on the use of the Silver Creek Development Integrated Finance and Improvement District funds for a new fire station. (Priority 3)**

We recommend that the City Council:

Recommendation #2 **Direct the City Auditor to perform detailed analyses on the 2000-2001 workload, travel time, and total reflex time performance for the geographic areas specific to the proposed Yerba Buena and Blossom Hill fire stations. (Priority 3)**

We recommend that the San Jose Fire Department:

Recommendation #3 **Develop for City Council consideration plans for expanding its use of the Omega priority response level. These plans should include: obtaining the software necessary to fully implement the Omega priority response level; options and costs for dispensing non-emergency medical advice; and any other issues that need to be addressed. (Priority 3)**

Accordingly, we recommend:

Recommendation #4 **That should the San Jose Fire Department opt to convert some Engine Companies to Quint Companies, that it also reevaluate its existing Engine and Truck Companies to convert one to a Quint company. (Priority 3)**

We recommend that the San Jose Fire Department:

Recommendation #5 **Implement a pilot project to evaluate the use of SUVs or Light Units to respond to lower priority emergency medical calls. (Priority 3)**

APPENDIX A

DEFINITIONS OF PRIORITY 1, 2, AND 3 AUDIT RECOMMENDATIONS

The City of San Jose's City Administration Manual (CAM) defines the classification scheme applicable to audit recommendations and the appropriate corrective actions as follows:

Priority Class[1]	Description	Implementation Category	Implementation Action[3]
1	Fraud or serious violations are being committed, significant fiscal or equivalent non-fiscal losses are occurring.[2]	Priority	Immediate
2	A potential for incurring significant fiscal or equivalent fiscal or equivalent non-fiscal losses exists.[2]	Priority	Within 60 days
3	Operation or administrative process will be improved.	General	60 days to one year

---

1 The City Auditor is responsible for assigning audit recommendation priority class numbers. A recommendation which clearly fits the description for more than one priority class shall be assigned the higher number. **(CAM 196.4)**

2 For an audit recommendation to be considered related to a significant fiscal loss, it will usually be necessary for an actual loss of $25,000 or more to be involved or for a potential loss (including unrealized revenue increases) of $50,000 to be involved. Equivalent non-fiscal losses would include, but not be limited to, omission or commission of acts by or on behalf of the City which would be likely to expose the City to adverse criticism in the eyes of its citizens. **(CAM 196.4)**

3 The implementation time frame indicated for each priority class is intended as a guideline for establishing implementation target dates. While prioritizing recommendations is the responsibility of the City Auditor, determining implementation dates is the responsibility of the City Administration. **(CAM 196.4)**