



CITY AND COUNTY OF SAN FRANCISCO
OFFICE OF THE CONTROLLER

Ed Harrington
Controller

Monique Zmuda
Deputy Controller

To: Clerk of the Board of Supervisors
From: Ed Harrington, Controller
Date: April 28, 2004
Subject: A Review of San Francisco's Fire and EMS Functions

I am transmitting with this letter the review of San Francisco's Fire and EMS functions that was requested in Board resolution 558-03.

I want to say at the outset that every staff person in the Fire Department, from the Chief to the individual firefighters and paramedics that we interviewed, has been helpful, courteous, and generous with their time and expertise. We have enjoyed working with them and learning about the critical public service that they provide. Firefighters and paramedics serve this community with dedication, skill and courage. That has never been in question, and is not at issue in this report.

As you will see, our review found that there are substantial reductions that could be made in the San Francisco Fire Department, and efficiencies that would reduce its workload. Implementing these changes would allow the City to decrease its daily fixed staffing, hire fewer firefighters, and reduce spending. Given the retirements and staff shortages in the Fire Department, we do not believe that anyone would have to be laid off to accomplish these efficiencies. Nonetheless, some firefighters, department managers and others will undoubtedly feel that the suggested changes threaten parts of the Department that they value. In the end, the City leadership and the citizens will have to make many difficult decisions given San Francisco's budget challenges, and changes in the Fire Department may be among them.

In brief, this report shows that:

- San Francisco has more fire stations per square mile than any comparable community—41 stations in 48 square miles. Some of these fire stations make fewer than three responses per day—with a probability is that at least one is a medical call and one a false alarm. Last year the City had 309 actual "working fires", and less than 11% of all responses were fire or smoke-related. We have reviewed coverage areas and travel times from nearby fire stations and believe that some stations can be removed immediately from service or have the number of vehicles and staff reduced without harm to response times. This could save approximately \$13 million in the 2004-2005 budget year.

- The number of calls is inflated due to false alarms from call boxes and commercial alarms, and these alarms are responded to with an engine and a truck, though the likelihood is that the need is medical. Also, the number of "Code 3" medical calls, and the resources sent to them (a fire engine, sometimes two, along with an ambulance) can be reduced by better call screening and other measures. If steps are taken in these two areas, the number of units and stations and their placement can again be evaluated. It is likely this could save an additional \$6 million in the not too distant future.
- The merger of emergency medical services into the Fire Department has outstanding issues that must be addressed to make for a smooth running operation with respect for all employees and we offer suggestions for improvement in that area.
- Firefighters in San Francisco work substantially fewer hours than firefighters in other large California communities. If we were to increase our workweek from 48 hours to the 48.7 hours that was formerly used in San Francisco, or the 52 in Oakland or the 56 in Los Angeles, San Jose, Fremont, Santa Rosa, and Richmond, we could save between \$2.9 million and \$16.6 million annually.

Since 61% or more of Fire calls are medical in nature, these suggested savings should also be evaluated in the larger picture of medical care in the City. A fire station costs between \$2.0 million and \$5.4 million annually to pay for staff alone. As noted above, some stations have only two calls per day and 12 stations have five or fewer calls per day. At the same time, there are city health clinics that see 54 patient visits on average per day and cost an average of \$2.5 million annually and these services are at risk of being cut for budget purposes. We should not allow the placement of this health care component in the Fire Department to stop us from considering and evaluating it as part of the whole.

Consultative Processes and Thanks

The Controller established an Advisory Group of a Fire Commissioner, Fire Department command staff, union representatives, and community stakeholders to serve as a sounding board and early recipient of our information, data and draft recommendations (see appendix A for their names). We also conducted a peer meeting with the fire chiefs of Baltimore, Boston, Seattle and Oakland. We hope that these efforts have served to vet the issues and recommendations contained in our report and made the analysis more thoughtful and considered. We are grateful for the time and effort of these individuals. While they were consulted, neither the advisory group members, nor the other chiefs, were asked to endorse this report or its recommendations.

Many other organizations and individuals were also tremendously helpful with the preparation of this report. The Controller's Office would like to thank:

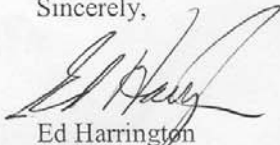
- San Francisco Fire Department staff, particularly station firefighters, paramedics and firefighter/ paramedics who gave their time and attention to this project.
- The Fire Chief and Fire Department managers who were open to, and thoughtful about, a collaborative process.

Fire/EMS Review
April 28, 2004

- The San Francisco County Transportation Authority for performing and explaining the travel time analysis.
- The Department of Telecommunications and Information Services' Geographic Information Systems group for producing maps.
- Emergency Communications Department staff for providing explanations and information related to dispatch data.
- Staff and management from the cities around the country who responded to our requests for information.

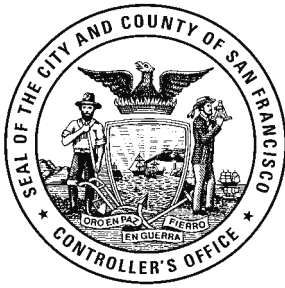
If we can answer any questions or provide additional information, please feel free to contact Peg Stevenson or me at 554-7500.

Sincerely,



Ed Harrington
Controller

cc: Mayor Gavin Newsom
Matt Gonzalez, President Board of Supervisors
Members of the Board of Supervisors
Fire Chief Joanne Hayes-White
Public Health Director Mitch Katz
Members of the Fire Commission
Members of the Health Commission
Controller's Review Advisory Group members



CITY & COUNTY OF SAN FRANCISCO
OFFICE OF THE CONTROLLER

A REVIEW OF THE SAN FRANCISCO FIRE-EMS SYSTEM

APRIL 28, 2004

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A – Methodology

B – Applicable Local, State and National Standards

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A REVIEW OF THE SAN FRANCISCO FIRE-EMS SYSTEM

Purpose

In response to a Resolution (No. 558-03) that was authored by Supervisor Gonzalez, joined by then-Supervisor Newsom, and passed by the Board of Supervisors, the Controller conducted an evaluation of the City's fire and medical rescue needs. The resolution requested a report and recommendations in time for use in the FY 2004-2005 budget process, comparing services of "other large urban areas in numbers of employees, costs and facilities." The resolution further specified a review of these areas: staffing, deployment, station number and location, response time, dispatch practices, and time allocated to fire prevention and suppression.

This review is based on analysis of dispatch data, travel time analysis and identification of station coverage areas, comparisons to other jurisdictions, review of expert materials, and interviews. As a result of this effort, we have four broad findings and recommended areas for change in the San Francisco Fire Department.

Structure

The Controller's findings and recommendations from its review of the City's fire and EMS system are presented in this section. Appendices provide a methodology description (Appendix A), an introduction to the Fire Department's physical system (Appendix B) and a summary of applicable standards and guidelines (Appendix C). Appendices D, E and F provide the detailed information behind each of the findings and recommendations.

The Fire Department was the subject of an extensive management audit conducted by the Board of Supervisors' Budget Analyst in 2002, and recommendations from that report have been implemented or are still being addressed by the Fire Department. The Controller's Office purposefully did not cover issue areas that had been part of the Budget Analyst's audit, focusing instead on a high-level analysis of San Francisco's systems as specified in the resolution. However, to provide context, Appendix G lists the audit's recommendations and the current status of those recommendations. Finally, during this review the Controller's Office encountered ideas and concerns that were out of this project's scope but which may be useful to the City and the Fire Department—we will refer them to the Department, and keep them as options for further study.

Finding 1

The Number And Location Of Stations, Station Coverage Areas, Demand For Service And The System's Workload, Would Permit Fire Department Reductions.

1A. San Francisco has more fire stations per square mile than any other jurisdiction we surveyed.

The jurisdictions shown in the table below are comparable to San Francisco in one or more key ways such as population, topography, and housing stock. The City has the most stations, at 0.86 per square mile—over 50% more than Baltimore, which provides emergency services in fundamentally the same way as San Francisco, including doing all medical transport of patients to hospitals.

Table 1: Jurisdiction Comparisons

	San Francisco	Baltimore	Boston	Portland	Seattle	Vancouver
Population	776,733	651,154	589,141	529,121	563,374	545,671
Area (sq.mi.)	48	81	48	134	84	44
Density	16,633	8,058	12,165	3,939	6,717	12,544
Altitude Range (feet)	925	490	330	1,073	521	490
Housing built before 1959 (%)	74.6%	73.7%	72.7%	60.5%	58.9%	n/a
Number of Stations	41	41	35	29	33	20
Stations per sq. mi.	0.86	0.51	0.72	0.22	0.39	0.45

Sources: U.S. Census data, Official websites of each jurisdiction.

1B. Some stations and units have very low numbers of responses—on the order of only two or three of any type of call (suppression or medical) per 24-hour day.

Table 2 below lists all fire stations in order from fewest to most responses per day. Demands on stations vary widely, from an average of two per day to 50 at Station 1 in the Tenderloin. As shown, some stations are very busy, others much less so. Response numbers are shown for the whole station, so stations with more than one unit (engine, truck, medic, other) are in a sense less busy on a per-unit basis than the station average suggests.

All stations have an engine, and some also have a ladder truck and/or a medic unit. An engine has an officer and three firefighters, many of whom are trained Emergency Medical Technicians (EMT). On an Advanced Life Support (ALS) Engine, one of the firefighters is a Firefighter/Paramedic, with a significantly higher level of medical training than an EMT. A truck has five staff people, and a medic unit two—one an EMT and one a Firefighter/Paramedic. See Appendix E for details on Fire Department staffing.

Table 2: Stations and Average Responses Per Day FY 2003-2004

Station Number	Location	Average Responses Per Day	Units with Fixed Staff at Station	Annual Station Salary and Benefit Cost for All Units
Station 20	Laguna Honda	2	Engine	\$1,962,047
Station 24	Upper Market	2	Engine	1,962,047
Station 26	Twin Peaks	2	Engine	1,962,047
Station 39	St Francis Wood	3	Engine	1,962,047
Station 34	Outer Richmond	3	Engine	1,962,047
Station 23	Outer Sunset	3	Engine	1,962,047
Station 22	Inner Sunset	3	Engine	1,962,047
Station 37	Potrero Hill	3	Engine	1,962,047
Station 25	Bayview	4	ALS Engine, Medic	3,011,554
Station 44	Excelsior	5	Engine	1,962,047
Station 33	Ingleside	5	Engine	1,962,047
Station 35	South of Market	5	Engine, Fire Boat	2,652,070
Station 42	Silver Heights	6	ALS Engine	2,029,025
Station 19	Park Merced	6	ALS Engine, Truck	4,448,847
Station 16	Marina	8	Engine, Truck	4,381,868
Station 40	Inner Sunset	8	ALS Engine	2,029,025
Station 21	Haight	9	Engine	1,962,047
Station 28	North Beach	12	ALS Engine, Medic	3,011,554
Station 06	Castro	13	ALS Engine, Medic, Truck	5,431,375
Station 32	Holly Park	14	Engine, Medic	2,944,575
Station 09	Potrero Hill	14	ALS Engine, Medic, Truck	5,431,375
Station 31	Richmond	14	Engine	1,962,047
Station 29	Potrero Hill	14	ALS Engine, Medic	3,011,554
Station 14	Richmond	15	ALS Engine, Medic, Truck	5,431,375
Station 41	Nob Hill	17	ALS Engine, Medic	3,011,554
Station 12	Cole Valley	17	ALS Engine, Medic, Truck	5,431,375
Station 02	Downtown	18	Engine, Truck	4,381,868
Station 18	Sunset	18	ALS Engine, Medic, Truck	5,431,375
Station 10	Laurel Heights	19	ALS Engine, Medic, Truck	5,431,375
Station 38	Fillmore	20	Engine, Medic	2,944,575
Station 17	Bayview	21	ALS Engine, Medic, Truck	5,431,375
Station 11	Mission	22	ALS Engine, Medic, Truck	5,431,375
Station 43	Excelsior	22	ALS Engine, Medic	3,011,554
Station 15	Ocean View	23	ALS Engine, Medic, Truck	5,431,375
Station 08	South of Market	27	ALS Engine, Medic, Truck	5,431,375
Station 05	Western Addition	29	Engine, Medic, Truck	5,364,396
Station 36	Western Addition	33	ALS Engine, Medic	3,011,554
Station 13	Downtown	33	ALS Engine, Medic, Truck	5,431,375
Station 07	Mission	37	ALS Engine, Medic, Truck	5,431,375
Station 03	Tenderloin	44	ALS Engine, Medic, Truck	5,431,375
Station 01	Tenderloin	50	ALS Engine, Medic, Truck	5,431,375

Sources: SFFD, Computer Aided Dispatch data, FY 02/03 and Controller's payroll data.

1C. Among the fixed staffed units (engines, medics and trucks), trucks have the lowest workload of the three unit types, and – compared to each other – there are trucks that have very low workloads.

Table 3 shows only those stations with trucks, in order from least to most busy (of the truck companies). A truck is staffed with five people—an officer and four firefighters, at an average salary and benefit cost of \$2.4 million a year. In addition to their workload seeming low, San Francisco has a higher than average number of trucks, with 2.3 units per 100,000 population, than the jurisdictions we surveyed. The City could make a reduction of at least one truck company and still be above the average. Alternatively, San Francisco could reduce staffing on some trucks from five to four, as is done in several cities, especially in low density areas, to reduce the redundancy and cost of truck operations.

Table 3: Responses for Engine & Truck Units

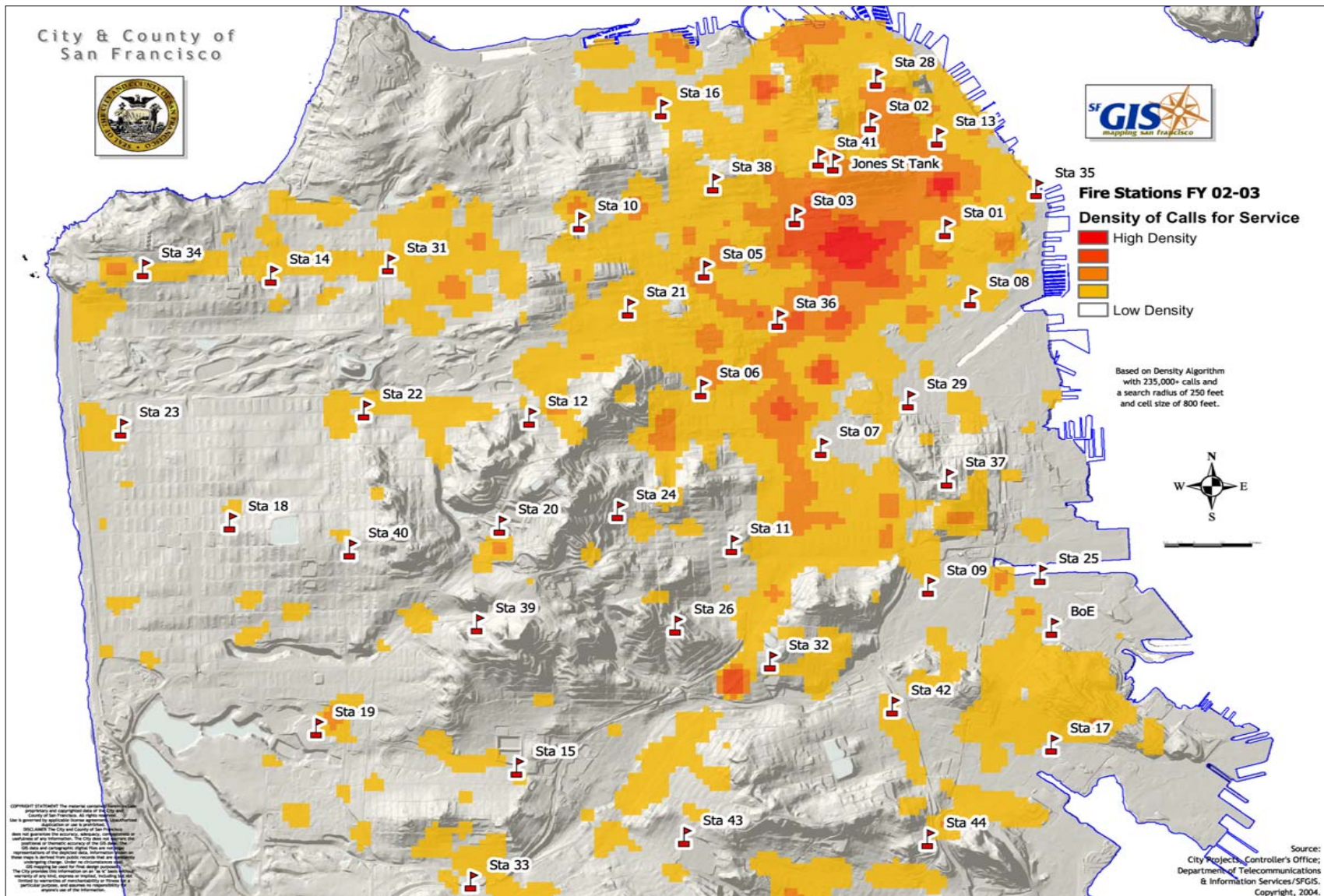
Stations with Trucks	Neighborhood	Unit	Average Daily Truck Responses	Engine Type	Average Daily Engine Responses
Station 19	Park Merced	Truck	2	ALS Engine	4
Station 18	Sunset	Truck	2	ALS Engine	6
Station 14	Richmond	Truck	2	ALS Engine	5
Station 12	Cole Valley	Truck	3	ALS Engine	5
Station 16	Marina	Truck	3	Engine	5
Station 09	Potrero Hill	Truck	4	ALS Engine	5
Station 10	Laurel Heights	Truck	4	ALS Engine	7
Station 11	Mission	Truck	4	ALS Engine	7
Station 08	South of Market	Truck	4	ALS Engine	7
Station 06	Castro	Truck	4	ALS Engine	8
Station 17	Bayview	Truck	4	ALS Engine	7
Station 15	Ocean View	Truck	4	ALS Engine	6
Station 02	Downtown	Truck	5	Engine	6
Station 13	Downtown	Truck	5	ALS Engine	8
Station 05	Western Addition	Truck	6	Engine	11
Station 07	Mission	Truck	6	ALS Engine	11
Station 01	Tenderloin	Truck	9	ALS Engine	19
Station 03	Tenderloin	Truck	10	ALS Engine	19

SFFD, Computer Aided Dispatch data, FY 2002/03

1D. The City's demand for emergency services is concentrated downtown and along major transportation corridors.

As shown in the map below and demonstrated in the station call table above, the City's need for Fire/EMS services is concentrated in the downtown area and along busy travel routes. This is also the case with at least one key indicator of need for fast medical response—cardiac events. See Appendix D for a map showing where cardiac events are concentrated in the City.

Map 1: Calls for Service with Stations and Topography



SFFD, Computer Aided Dispatch data, FY 2002/03

1E. The number and proximity of stations in San Francisco would allow for some units to be placed out of service and still provide quick response time for emergencies.

Based on a travel time analysis performed by the San Francisco County Transportation Authority (SFCTA), the service areas of several of the lowest volume stations and units can be covered by nearby stations within the local and national response time standard of five minutes (including one minute of time to get out of the station and four minutes of travel time). This is true even under conservative assumptions such as that vehicles are traveling at the speed limit during the most congested times of day.

Appendix D contains maps showing what is covered within a five minute response time given the current station configuration in San Francisco, and a map showing how coverage would change, again for a five minute response time, if that particular station were removed, for each of the 41 stations within City limits.

The example below shows this analysis for Station 8 in the South of Market area. Map 2 shows the current 5-minute coverage area for Station 8 and its surrounding stations—the areas that can be reached in 5 minutes (one minute to get out of the station and four minutes of travel time) are shown in a lighter color while areas that take longer to reach are darker.

Map 2: Existing 5-minute Response Coverage with Station 8



Source: San Francisco County Transportation Authority, 2004

Map 3 shows the same coverage area but shows it as if Station 8 were removed. Comparing the two maps shows that the region is still covered from other nearby stations within five minutes except for the area circled.

Map 3: 5-minute Response Coverage without Station 8



Source: San Francisco County Transportation Authority, 2004

It is important to note, as stated above, that the SFCTA travel-time analysis assumes rush hour traffic, traveling the speed limit, obeying all traffic rules, and congestion levels as measured in the year 2000 (when the City was more congested than today).

Finding 1: Summary of Recommendations

Combined analysis of demand, workload and travel/response times shows that the Fire Department should consider closing stations and/or units with low call volume and good coverage from nearby stations and units.

Taken together, these analyses point to good candidates for reductions:

- Stations 20, 24 and 26 average only two responses per day each and the areas served are within rapid travel time distance of each other and of other nearby stations.
- The areas surrounding Station 18, Station 23 and Station 40 are relatively low volume per unit and can be served by units based in one or more of those and/or nearby stations.
- Trucks 10 and 14 average only two and four responses per day and serve proximate areas.
- Under some reduction scenarios, the City might also want to change nearby units to have a paramedic on board—i.e. convert Basic Life Support (BLS) engines to Advanced Life Support (ALS) engines or replace engine units with medics to better meet the need for emergency medical service (see next section-Finding 2).
- Annual fixed staffing costs are approximately \$1.96 million for each engine company and \$2.4 million for each truck company. If the City reduced its fleet by three engines and two truck companies, it would save approximately \$10.8 million in annual personnel costs. Closing stations would allow the City to also save operating and maintenance costs associated with the station site. Alternatively, some jurisdictions, including Oakland, have chosen not to close stations, but to staff them on a rotating basis. This may have some advantages in terms of flexibility and meeting community concerns, but the City would not be able to reduce operating and maintenance costs associated with the site itself.
- The stations and units listed above are possible configurations. Should the department wish to consider other configurations for change, the criteria for considering the units or stations to be closed, rotated out of service, or converted should be publicly discussed and include analysis that incorporates this information.

Finding 2

The City's emergency services workload is primarily medical, is heavier during certain times of day, and can be significantly reduced by eliminating certain types of wasteful responses. Dispatch, deployment and staffing changes are necessary to better match the Fire Department to the City's needs.

2A. San Francisco's need for emergency service has become primarily medical, not fire suppression, in nature.

There are many reasons for the changing Fire Department workload—better building codes, fire safety standards, and changes in the City's demographics have all contributed to fewer structure fires and increased demand for emergency medical services. In the most recent fiscal year there were 300 “working fires”—less than one per day on average. Fire-related calls (anything fire or smoke related) are approximately 11% of the Department's workload. Citywide, 61% of Fire Department calls are for medical assistance. If street box alarms were not part of the suppression workload (see below) the medical proportion would be higher—approximately 67%. Table 4 shows how the numbers of total responses, suppression responses, and alarms break down.

Table 4: Understanding Medical v. Suppression

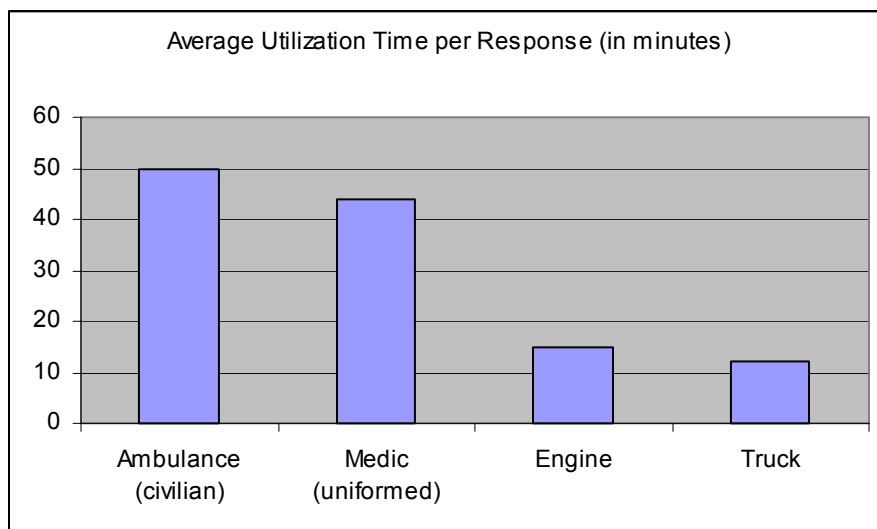
Total Annual Responses	Breakdown by Response Type			
	Medical	Suppression	Other	
226,221 100%	138,171 61%	84,773 37%	3,276 1%	
<div>↓</div>				
Total Annual Suppression	Breakdown of Suppression			
	Suppression Alarm	Suppression Fire	Suppression Other	
84,773 100%	46,958 55%	23,964 28%	13,851 16%	
<div>↓</div>				
Total Annual Alarms	Breakdown of Alarms			
	Street Box	Commercial	Residential	Other
46,958 100%	22,070 47%	16,435 35%	6,809 15%	1,644 4%

SFFD, Computer Aided Dispatch Data, FY 2002/03,

2B. Medical units' calls are of longer duration than that of engines or trucks and represent a significant workload.

The chart below shows the utilization times for different units in the San Francisco Fire Department, showing responses by medic units averaging 44 minutes and engine and truck responses much less—only 12 to 15 minutes. In large part this is by design. Engines are the first response to calls, many of which are medical, and they go back in service again as soon as possible after the ambulance/medic arrives so they can be available for the next emergency. Nonetheless, the time per call represents a measure of the Fire Department's significantly higher workload related to medical, not fire, events.

Chart 1: Average Utilization Time

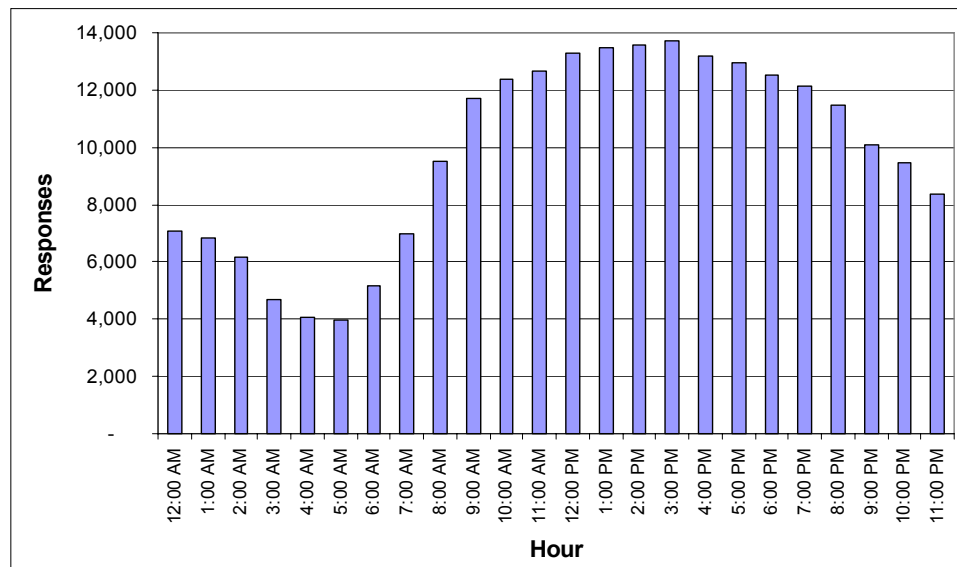


SFFD, Computer Aided Dispatch Data, FY 2002/03,

2C. Workload varies by time of day, with the peak hour at 3 pm., but the Fire Department's staffing is mostly constant.

This is true citywide—by station, downtown, and in the neighborhoods. While the City has a few units—specifically four civilian ambulances—that have 10-hour shifts permitting peak-load staffing, the vast majority of Fire Department units and staff work on 24-hour shifts, and fixed staffing is constant around the clock.

Chart 2: Fire Department Responses by Time of Day. Peak Hour is 3 pm.



SFFD, Computer Aided Dispatch Data, FY 2002/03,

2D. At 24% of the total suppression workload and with an 85% false rate, street box alarms severely skew the City's view of, response to, and cost of providing emergency service. Reducing the number of alarms, and the amount of resources sent to them, would significantly decrease the SFFD's suppression workload.

Within suppression calls for service, approximately one fourth are for street box alarms—over 20,000 responses per year citywide. However, 85% of those alarms are false, and of the ones that are not false, fully 80% are calls for medical attention. This means that a truck and an engine, with nine people total, at a minimum cost of approximately \$500 per hour, are responding to alarms that are almost always false and are fire-related only 3% of the time.

Other cities (Las Vegas and Seattle, for example) have removed street box alarms because of the high false alarm rate, and with the view that widespread phone service and cell phones in particular have greatly diminished the need for them. New York City replaced its street boxes with boxes that have a speaker so that dispatchers can attempt to confirm the need for emergency response. Street boxes in San Francisco may be more needed in certain areas of the City or by particular groups of people—those without their own phone, with limited English, etc. Nonetheless, the City should consider removing street boxes, and/or installing deterrent devices that have been proven to reduce the incidence of false alarms. Finally, because when they are not false they are usually medical, street box alarms should be responded to with a medic unit or ambulance, rather than full suppression resources.

2E. Similar to street box alarms, a high 88% of commercial alarms are false and represent 23% of the total suppression workload.

As with street box alarms, the City provides a full suppression response—an engine and a truck—to commercial alarms. As other cities, including Las Vegas, have done, the SFFD should require that unless a water sensor is triggered, commercial alarms must be verified by private

commercial monitoring companies or through other methods before responding. Alternatively, or in addition to, requiring call verification, the Fire Department should augment its enforcement of fines for false alarms.

2F. Combined, 92% of Fire Department calls are dispatched as highest priority or Code 3, which is high both historically for the SFFD and above the norm for jurisdictions using the same dispatch system.

High Code 3 dispatching means that the great majority of calls units are dispatched with multiple units and full lights and sirens. The wear and tear, risk, and workload that this practice represents can be significantly reduced through better identification of calls that are appropriately handled in a less urgent Code 2 mode and with a smaller response team.

Many surveyed jurisdictions use the same dispatch system as San Francisco—Medical Party Dispatch System (MPDS)—because of the specificity of call categorization it offers. MPDS is designed to use determinant codes to tailor how a call is coded and what units will respond to it, with the goals of moving inappropriate calls entirely out of the EMS system and responding to the remainder with the most appropriate resources. Since 1992, Montreal has steered 6-8% of total calls out of its EMS system into other services, and other cities are following suit. The City could remove many non-emergency calls from the response loop by developing methods to refer them to appropriate entities such as Mobile Assistance Patrol (MAP) vans, advice nurses, and social service agencies. A review of the determinant codes being used in the City's dispatch system is necessary to accomplish these changes.

2G. The San Francisco Emergency Medical Services Agency (SFEMSA) and the Fire Department could change staffing requirements and response approaches to conserve paramedic time, increase unit availability, and reduce costs.

San Francisco currently requires that two paramedics respond to all Code 3 medical calls. Because the Fire Department places its paramedics on separate units—one on a two-person medic unit and one on a four-person engine—this typically means that two units, and sometimes three, including one or two engines plus a medic unit or ambulance, with up to ten people in total, are dispatched to the scene.

The Department should consider new approaches to fixed staffing and to response modes. For example, stations with both an Advanced Life Support engine and a medic unit could be staffed with two H3 Firefighter/ Paramedics, an officer, and an H2 Firefighter, and switch apparatus depending on the call type. San Jose, Phoenix, Houston, and Los Angeles have tried this and other “task force” staffing configurations to better match fixed staff to service needs.

If, as noted above, dispatch can be improved enough to increase the number of Code 2 medical calls, San Francisco could dispatch two EMTs to Code 2 calls rather than two paramedics. The City could also reduce the number of paramedics required to respond to Code 3 medical calls from two to one. Guidelines for emergency medical services set by the National Fire Protection Agency (NFPA) permit these different types of responses.

Medical directors and paramedics in San Francisco have expressed their preference for two paramedics, stating that it allows for better decision-making and other kinds of critical support at the scene. However, the City needs to be explicit that it is making a choice to pay for this level

of service at every emergency medical call, relative to other possible uses of both paramedic time and the City's limited financial resources for health care or any other public purpose.

2H. Varying medical transport systems, and different vehicle types, are used both in San Francisco and in other cities to meet the need for emergency medical service and can be considered as methods to change SFFD workload and cost.

Transport of patients to hospitals is a considerable drain in paramedic unit availability that some jurisdictions address by privatizing transport in part or in whole. According to a Journal of Emergency Medical Services (JEMS) survey, while almost 97% of cities used their fire departments to provide first response, 38% used predominantly private transport providers. Some jurisdictions, such as Oakland and San Jose, contract out all transport. Other cities, such as Seattle, perform advanced life support level transport but contract out the less serious (basic life support) transports.

San Francisco could consider these and alternative approaches, which include new vehicle types. San Jose and Oakland, for example, use medical SUVs in some instances as a first responder to calls that do not require transport. The table below shows the different approaches in several jurisdictions comparable to the City. Jurisdictions without medic units typically provide emergency medical response with paramedics on fire engines, with the private ambulance responding for assistance and transport. For San Francisco, a further analysis of service impacts, cost and contracting implications is necessary to consider these options.

Table 7. Transport Systems, Comparison Jurisdictions

City	Performs Transport	Description of Transport	Medic units/100,000 population
Baltimore	Yes	Baltimore Fire Dept. provides all transport.	3.4
San Francisco	Yes	San Francisco Fire Dept. provides all transport	2.4
San Diego	Some	Transport by San Diego Medical Services Enterprise (SDMSE), LLC, a partnership between San Diego Fire and Rescue and Rural Metro	2.4
Milwaukee	Some	Advanced Life Support (ALS) service provided through Milwaukee County; Basic Life Support (BLS) transport by private company	1.5
Seattle	Some	ALS transport by Seattle Fire Dept.; BLS by private company	1.2
San Jose	No	Transport by private company; San Jose has a few units that can respond if private ambulance is unavailable	0.6
Oakland	No	Transport by private company	no medic units
Vancouver, BC	No	Transport by private company	no medic units
Boston	Yes	Boston Emergency Medical Services, located within the Public Health Department, provides all transport	3.4
Portland	No	Transport by private company	no medic units

Controller's Office phone survey. March-May 2004.

2I. The City's dispatch system and staffing practices do not take full advantage of the City's civilian-staffed ambulances.

San Francisco currently has four ambulances staffed by Fire Rescue Paramedics (H1s). H1s differ from Firefighter/ Paramedics (H3s) in that they have less suppression training and work four 10-hour shifts per week. These units have advantages for maximizing emergency medical capability in that they provide peak-time coverage and are flexibly deployed in busy areas, often relieving the need for engine responses to medical calls. The computerized dispatch system does not currently include ambulances among the vehicles it recommends for dispatch. Rather, either individual dispatchers may remember to dispatch these ambulances or ambulance staff themselves listen in on the radio and volunteer to take calls.

At a minimum, the Fire Department should reconfigure the Computer Aided Dispatch (CAD) System to recognize these ambulances. In addition, an ambulance is sometimes out of service and one staff person underutilized because their partner in a two-person team is sick, on vacation, or otherwise unavailable. The City should make ambulance partner assignments flexible, including permitting uniformed firefighter/paramedics to staff an ambulance to maximize the use of this resource.

Finding 2: Summary of Recommendations

The Fire Department should, through reducing certain types of wasteful responses, substantially reduce its workload. It should also make overall changes to better match its operations to the City's needs. The City's needs are primarily medical and are greater in the daytime. Emergency medical capability is the resource that most needs to be maximized.

In order to better meet the City's need for emergency services, the Fire Department should reduce suppression resources that are in relative oversupply and reallocate these resources to increase a medical and paramedic capacity that is stretched thin. Among the near term options to achieve this are:

- Removing street alarm boxes, and installing false alarm deterrent devices on any boxes that are retained;
- Decreasing the response to street box alarms by sending a medic unit rather than full suppression resources;
- Requiring commercial alarm verification;
- Improving call triage and Emergency Communications Department systems to reduce Code 3 dispatches;
- Changing the required number of EMTs or paramedics for different types of medical calls, based in part on reduced numbers of Code 3 responses; and
- Creating one or more ways to accomplish peak load staffing.

These changes would make it possible to further reduce engine and truck units because they would result in a much lower call volume. In addition:

- The City should consider, over the long term, new ways to deliver services, including possibly contracting for transport services and otherwise maximizing the availability of its medic units, ambulances, and paramedic staff.
- The Department should consider new approaches to fixed staffing. For example, stations with both an Advanced Life Support engine and a medic unit could be staffed with two H3 Firefighter/ Paramedics, an officer, and an H2 Firefighter, and switch apparatus depending on the call type. San Jose, Phoenix, Houston, and Los Angeles have tried this and other "task force" staffing configurations to better match fixed staff to service needs.

Finding 3

Issues of management, staffing and culture still outstanding following the merger of San Francisco's fire and emergency medical services are affecting the City's ability to provide high quality, efficient emergency medical services to citizens.

3A. San Francisco is experiencing a culture gap between firefighters and paramedics, a common phenomenon in emergency services.

Several indicators, including our interviews with line staff in the Fire Department and the lack of emergency medical experience in its management ranks point to ongoing difficulties in merging the City's Fire and EMS functions. Other cities have experienced similar issues, particularly those cities that historically provided emergency medical services through a separate civilian organization.

In simple terms, the gap arises when firefighting is valued over and dominates EMS. Combined with a workload that is increasingly medical, this imbalance creates stress on multiple fronts. In San Francisco it results in quantifiable problems like high attrition rates and inconsistencies in promotions, decision-making and command authority. Impacts are also felt in less apparent ways—a poor working environment eventually affects performance and therefore the quality of patient care.

The Fire Department needs to address this situation in three broad ways: first, equalizing and emphasizing the EMS function in areas such as training, promotion, staffing, incident command, and protocol. Second, the department needs to communicate a new department-wide culture to all staff throughout the organization, and to employ team-building strategies to unite the two sides of the house. Third, unprofessional behavior and incidents of harassment or disruption of the smooth flow of station work should be met with discipline that includes reassignment to other stations and other actions up to and including termination. As originally planned in the merger, the City's Emergency Medical Services Agency (EMSA), which is the oversight body at Public Health, should also conduct periodic discussion meetings with all Fire Department staff and formal evaluations of the merger, and convey the results to both departments and to the Fire and Health Commissions.

3B. San Francisco has an urgent need for trained paramedics and for medical experience in the management ranks that is being affected by high attrition rates and other factors.

The H3 Firefighter/Paramedic class is capable of performing all staff functions for the Fire Department—individuals are fully qualified paramedics, and have been trained in fire suppression functions. The City needs to train, attract and retain people in this and the promotional H33 Rescue Captain classification. As shown in the table below however, high attrition rates make it difficult to meet fixed staffing requirements and growing medical service needs. Related to this issue, current SFFD practice does not use Firefighter/Paramedics who are promoted to command positions for paramedic functions on engines or medic units, despite the fact that the City pays them a premium if they retain their paramedic license. Changing this

practice would let the City benefit from their presence and expertise, and offer more options for relieving, backfilling, or rotating paramedics.

Table 8: Appointments v. Voluntary Separations, FY 1996-1997 to Date

Class	Appointments	Separations ⁽¹⁾	% of Appointments Separated
H2 Firefighter	228	16	7%
H3 Firefighter/Paramedic	159	26	16%
H20 Lieutenant	7	0	0%
H30 Captain	7	0	0%
H33 Rescue Captain	8	3	38%
(1) Separations include only those changes where an employee requested a transfer or resigned with satisfactory service.			

CCSF PeopleSoft System. January 31, 2004.

3C. Hiring methods should be adjusted to place a priority on emergency medical skills.

The City needs to hire staff to address its largely medical workload. Emphasis should be placed on hiring H3 Firefighter/Paramedics and on cross-training H2 Firefighters who are willing to promote. Practices from other cities that can be put into place in San Francisco include requiring an EMT license for entrance to the Fire Academy. This requirement would establish the expectation that all employees are expected to participate in the medical mission of the department and would yield H2s who have demonstrated interest in EMT work. The Department could also offer points on the firefighter entrance exam to applicants with a paramedic license, with a requirement that they complete the probationary period, accept a promotion to H3, and agree to maintain their paramedic license for some period.

3D. Current training and promotional practices make it difficult for the Fire Department to bring people with emergency medical expertise into the command ranks.

There are a number of obstacles to promotions of paramedics. For example, promotion to Lieutenant requires that a candidate complete all apparatus rotations, including four months of service on an engine and four months on a truck, as well as tests on each apparatus. H3s have difficulty completing the rotation because there are few truck assignments available to them, and they are often pulled off to meet minimum staffing requirements on ALS engines and medic units. The department should broaden the opportunities for H3s and for paramedic rescue captains to complete such training as soon as possible.

Another barrier is that the City has not given a promotional exam for the Lieutenant rank in seven years—since before the merger. The SFFD should concentrate maximum effort on resolving union issues with this process in order to both make current provisional Lieutenants permanent and create the opportunity for current H3s to move into the command structure.

These situations are only examples—over the longer term the SFFD must structure promotional opportunities so that the command staff includes more people who have expertise in the medical work of the Department.

3E. Scheduling and assignment practices can be changed to make paramedic work more flexible and attractive.

There is no evidence in medical literature proving that quality of paramedic care suffers from long work hours. However, staff interviews reveal that some paramedics find 24-hour shifts exhausting. With the average total response time of 44 minutes per call, a medic unit spends a greater portion of the day working than an engine or truck and has less time for rest, meals, drills, maintenance, etc. The Department might attract and retain paramedics better if it offered an alternative shift of 10 or 12 hours, which would also permit peak-load staffing for busy times of day. In stations that house both an ALS engine and a medic unit, paramedics could spend twelve hours of each watch on each apparatus to distribute the workload. This approach is used in the Norfolk, Virginia Fire-Rescue Department.

Finding 3: Summary of Recommendations

The Fire Department has operational and management practices that threaten the success of its medical mission. The Department should take steps to improve the work environment and demonstrate its commitment to emergency medicine. The Fire Department should:

- Work to address the cultural issues in the organization through training programs targeted to these problems, regular communication from the Chief and management, changes in protocol to value paramedic personnel and medical work, and discipline where indicated;
- Change hiring and promotional practices to emphasize experience and interest in performing emergency medical functions;
- Create opportunities for current H3 Firefighter/Paramedics to complete their apparatus training and be eligible for testing and promotion;
- Resolve issues blocking the Lieutenants' exam, and schedule it as soon as possible; and
- Create one or more ways for flexible staffing of paramedic shifts, offering options other than the standard 24-hour shift.

Finding 4

The Fire Department's costs are driven by the cost of its fixed staffing and, in addition, San Francisco has practices that make its apparatus and personnel costs higher than that of other cities. Budget savings will require personnel-related changes.

4A. Fixed staffing drives the Fire Department's costs.

Over 80% of the Fire Department's costs are for salaries and fringe benefits. Each apparatus is staffed with certain classifications, as shown in the table below.

Table 9: Staff and Average FY 2002-2003 Annual Cost by Type of Unit

Unit Type	Max Staff	Staff 1	Staff 2	Staff 3	Staff 4	Staff 5	Average Annual Cost	Average Annual Cost Incl 25% Benefits
Truck	5	H20/H30	H2	H2	H2	H2	\$1,935,857	\$2,419,821
ALS Engine	4	H20/H30	H2	H2	H3	-	1,623,220	2,029,025
BLS Engine	4	H20/H30	H2	H2	H2	-	1,569,637	1,962,047
Division Chief	2	H50	H10	-	-	-	1,112,378	1,390,472
Medic Unit	2	H2	H3	-	-	-	786,023	982,528
Fire Boat	1	H110 or H120					552,019	690,023
Ambulance	2	H1	H1	-	-	-	707,139	883,924
Battalion Chief	1.4	H40	0.4 H10	-	-	-	785,516	981,895
Rescue Captain	1	H33	-	-	-	-	445,703	557,129

Notes:
Engines: ALS engines have an H3, and BLS engine have an H2 EMT.
Engines and trucks: Each station has at least three officers: one captain and two lieutenants. Each truck and engine has an officer. The cost attributed to Staff 1 on a truck or engine is 33% captain and 66% lieutenant.
Medic: Medic unit cost assumes "1 & 1" (i.e. one H3 and one H2) staffing.
Fire Boat: Uses the average between the H110 and H120 salary.
Chiefs: The Department operates with six H10s on duty at all times. Costs assume division chief units always have an H10 and battalion chiefs have an H10 in 4 out of 10 cases.

Sources: Fire Department, Controllers payroll data

4B. Each fixed position requires multiple full time equivalents.

Twenty-four/seven staffing means that each full time position on an apparatus or in a Fire Department facility requires approximately 4.5 people, including some relief factor for vacations, illness, etc. Average costs per fulltime equivalent (FTE) for each job shown include overtime and premium pay.

Table 10: Cost of Fixed Staff Positions, FY 2002/03

Job Class	Job Class Title	Average/ FTE	Relief Factor	Avg*Relief Factor	Average Annual Cost Incl 25% Benefits
H 1	Fire Rescue Paramedic	78,571	4.5	\$353,570	\$441,962
H 2	Firefighter	81,382	4.5	366,220	457,775
H 3	Firefighter/Paramedic	93,290	4.5	419,803	524,754
H 10	Chief's Operator (now Incident Support Specialist)	94,842	4.5	426,787	533,484
H 20	Lieutenant	100,175	4.5	450,789	563,487
H 30	Captain	113,634	4.5	511,355	639,194
H 33	EMS Captain	99,045	4.5	445,703	557,129
H 40	Battalion Chief	136,622	4.5	614,801	768,501

Sources: Fire Department, Controller's payroll data

4C. San Francisco's cost per hour for its firefighter staff is higher than average.

The table below compares San Francisco's compensation and hours worked for firefighters to that of other California jurisdictions and to Boston and New York. Many California jurisdictions have higher compensation rates, but the relatively shorter workweek in San Francisco makes the City's per hour cost of staff higher by comparison. Some east coast cities, including Boston and New York, have 40 or 42-hour workweeks, but firefighter pay is lower to compensate for the shorter hours.

Table 11: Firefighter Compensation & Hours in California, Boston, and New York

Agency	Title	Total Compensation Biweekly	Average Hours Worked Per Week	Rate Based on Hours Paid
Oakland	Firefighter	\$ 3,726	52	\$ 36
San Jose	Firefighter	3,941	56	35
Los Angeles	Firefighter	3,352	56	30
Santa Rosa	Firefighter	3,309	56	30
Fremont	Firefighter	3,894	56	35
Richmond	Firefighter	4,023	56	36
New York	Firefighter	2,642	40	33
Boston	Firefighter	2,587	40	32
	<i>Average</i>	\$ 3,434	52	\$ 33
San Francisco	H-2 Firefighter	\$ 3,756	48	\$ 39
	<i>Difference</i>	8.6%	-7.3%	14.8%

Source: CCSF Employee Relations Division. Salary Comparison, April 2004.

As shown in Table 11, San Francisco's compensation per hour is nearly 15% higher than the average of the other jurisdictions surveyed. An increase in the firefighter workweek length would bring San Francisco nearer the California norm, generate significant budget savings, and decrease the need to staff fixed positions with overtime. In addition, this approach could allow the City to reduce or postpone hiring and scheduling Fire Academy classes to replace retiring firefighters in fiscal year 2004-2005. Because it would make more hours available with the existing workforce, a workweek change would otherwise be among the most administratively efficient ways for the Fire Department to reduce costs. Options ranging from 48.7 hours to 56 hours are being discussed as part of ongoing negotiations with the Firefighter's union over the current contract. If the City moved to a 48.7-hour workweek, it would generate savings of approximately \$2.9 million annually, a 52-hour workweek, savings of approximately \$11.3 million annually, and a 56-hour workweek, savings of approximately \$16.6 million annually.

Finding 4: Summary of Recommendations

Its fixed staffing drives the Fire Department's costs, and its pay rate per hour worked is consistently higher than other California jurisdictions. Budget reductions will require changes to one or more personnel factors.

The Fire Department has some options for reducing its fixed staffing, as discussed above. Many of these will require negotiating changes to labor contracts, and/or conducting meet and confer processes with unions. Options include:

- Reducing staff from five to four on some trucks;
- Creating peak load staffing options and reducing overall staff and units during less busy times of day;
- Increasing San Francisco's firefighter workweek to bring San Francisco nearer the average of other cities' per-hour cost;
- Changing staffing approaches and vehicle types, including options such as "task force" staffing, and/or changing, in consultation with the Department of Public Health Emergency Medical Services Agency, the response modes for emergency medical services (Code 2/3 and changing the number of paramedics, EMTs, and apparatus sent to each call).

In addition, implementation of recommendations from Findings 1 and 2 above would result in substantial reductions in the Department's workload, further allowing for reductions in units, fixed staffing, and spending.

Implementation

The Fire Department and the City can use the findings in this report to make changes that will have near and longer-term budget impact.

Given its existing workload and current physically redundant system, the Fire Department can make significant reductions now without impacting its ability to meet its mandated response times. These changes including closing or rotating engine units and stations out of service, closing truck units, and reducing staffing on some trucks.

The Controller also notes that there are ways, such as through better dispatching practices and reduction of wasteful responses to false alarms, that the Fire Department could reduce its suppression workload by up to 40%. With this drop in workload, the Controller believes that the Fire Department can make significant system changes that would allow for further reductions.

The following chart (Chart 3) shows how the process could work and the associated budgetary savings, including a possible savings of \$13 million in the upcoming fiscal year.

Chart 3: Fire Department Reductions, Timeline and Impact

Summary of proposed SFFD changes by phase, time frame and impact.											
Excludes any pending changes in SFFD workweek.											
Phase 1: Reduce now				Phase 2: Work smarter to reduce workload				Phase 3: With reduced workload, 2nd reduction			
Analysis shows that, with the existing workload, there is enough redundancy in the system from low workload at certain stations/ companies as well as duplicative coverage that reductions can be made now without impacting response time standards.				SFFD workload can be significantly reduced by removing wasteful or avoidable suppression response to false alarms and over-dispatched Code 3s.				With a 42% reduction in related to alarms and dispatching practices, SFFD will have the flexibility to determine whether to reduce engines or trucks, and where in the City to deploy -- either dynamically or on a fixed basis -- an appropriate suppression fleet that can meet the true needs of the City.			
Timeframe: Budget Year 04/05				Timeframe: Budget Year 04/05				Timeframe: Budget Year 05/06			
FTE Levels (current) Suppression: 1393 Includes H2, H20, H30. Excludes the 43 FTEs for Battalion Chiefs. Medical: 293 Includes H1, H3 and H33. Excludes 1 FTE for EMS Chief.				FTE Levels (after Phase 1 reduction) Suppression: 1267 Medical: 293				FTE Levels (after workload reduction and 2nd reduction) Suppression: 1213 Medical: 293			
Here's How				Here's How				Here's How			
<div>Close 3 engine companies</div> <div>Stations 18, 20 & 24 or 26.</div> <div>FTE reduction: 54</div> <div>Cost reduction: \$5.9 M</div>				<div>Reduce suppression Code 3s from 100% to a goal of 80%.</div> <div>Because Code 3 suppression calls are responded to by an engine and truck, assume a 10% reduction in suppression workload.</div>							

APPENDICES

Appendix A

Methodology

PROJECT PROCESS

To conduct this review, the Controller's project team gathered extensive data from the Fire Department, its Emergency Medical Services (EMS) section, and from the Emergency Communications Department (ECD). Interviews were conducted with, and information collected from, San Francisco City and County staff, independent experts and citizen activists. The Controller also collected data from, and conducted phone interviews with, Fire Departments in selected large urban jurisdictions. The Controller reviewed key reports and information from trade and industry periodicals, academic institutions, regulatory agencies and professional associations.

As described in Appendix F, staff from the Controller's Office interviewed a number of station line staff, including firefighters, paramedics and firefighter/paramedics. The project team also met with Fire Department senior staff on numerous occasions throughout the project. ECD staff also provided expert input and data. Staff from the Department of Telecommunications and Information Services provided data, Geographic Information Systems analysis, and input. Finally, the San Francisco County Transportation Authority provided travel time analysis and expertise.

The Board of Supervisors resolution requesting this review urged the Controller to "involve independent experts and community stakeholders in the evaluation process." To that end, the Controller formed an advisory group that included Fire Department command staff, community organizations, and a variety of other stakeholders. The advisory group met six times over the life of the project. While the group was an integral part of the process it was not asked to approve or endorse the analysis or findings; instead, the group provided ideas, informed discussion and thoughtful input throughout the process. We are very grateful for their time and effort. Members were:

Name	<u>Representing/Organization</u>
Margaret Brodtkin	Coleman Advocates for Youth
John Brown	Emergency Medical Services Director, Health Department
Kelly Dalrymple	for Daniel Sullivan, Emergency Communications Department
Bruce Fisher	Human Services Network
Joanne Hayes-White	Fire Chief
Amy Laitinen	for Board President Matt Gonzalez
Julian Low	for the Mayor's Office
John Meade	for Josie Mooney, San Francisco Labor Council
Gabe Metcalf	for Jim Chappell, San Francisco Planning and Urban Research
Stephen A. Nakajo	Fire Commission President
Tom O'Connor	for John Hanley, Firefighters Local 798
Jaime Rossi	for Lee Blitch, San Francisco Chamber of Commerce

Other Fire Department staff who attended and capably assisted the advisory group included department managers and staff Glenn Ortiz-Schuldt, Gary Massetani, Fred Sanchez, Marshall Isaacs, Dave Anderson and Bill Storti. Michael Petrie from the

Department of Public Health/Emergency Medical Services Agency was also a part of the meetings.

SCOPE AND ASSUMPTIONS

In simple terms, this report focuses on design: in other words, if the City could design and reconfigure its Fire/EMS system and infrastructure based on today's needs, what would it look like? The analysis is limited to the contiguous San Francisco city limits; the stations at the San Francisco Airport and Treasure Island are not part of the analysis. It was discussed in the January 28, 2004 Advisory Group meeting that this analysis would not duplicate the Board of Supervisors Budget Analyst's audit of the Fire Department from 2002; as a result, issues such as overtime and civilianization were not re-reviewed.

The recommendations in this report are made under several key assumptions. First, the analysis assumes no dramatic change in the availability of preventive health and social services that could reduce the need for emergency medical services. Increased primary health care, substance abuse treatment, and housing for homeless would all reduce the pull on EMS resources. Although we recommend that ECD continue efforts to divert calls from the EMS system through better triage, the funding and design of health and social welfare programs is outside the scope of this analysis. Anecdotal evidence also suggests that calls for service have increased with expanded use of cellular phones. We do not address this issue.

The second major assumption is that Emergency Medical Services (EMS) will remain a part of the Fire Department. EMS was moved from the Department of Public Health and merged into the Fire Department in 1998, following in the footsteps of many other jurisdictions that sought to improve response times by taking advantage of existing fire department infrastructures—stations and the vehicles and staff they contain. Some staffing and deployment efficiencies of the former EMS system, such as peak load staffing and dynamic deployment (flexible assignment of staff and equipment as opposed to fixed station-based assignment—see Appendix E), have been largely lost, but can in many cases be addressed within the current structure. The merger precipitated cultural conflict among firefighters and paramedics, creating a work environment that contributes to difficulty in recruiting and retaining paramedics. We provide recommendations that would mitigate these problems, all under the assumption that the Fire Department and EMS will remain merged. These recommendations are described in the body of the report and in Appendix F (Merger).

Finally, while we recommend exploring it, we assume San Francisco will not contract out EMS transport services. Transport is a considerable drain in paramedic unit availability that some jurisdictions address by privatizing transport in part or in whole, and has a major impact on staffing and deployment patterns. According to the Journal of Emergency Medical Services (JEMS) survey, while almost 97% of cities used their fire departments to provide first response, 38% used predominantly private transport providers. We have not quantified the net financial impact of contracting, but believe it could be sizeable based on average private sector wages and staffing patterns of large cities. We will discuss other transport models to illustrate their effects on staffing and deployment and suggest improvements to the current system in San Francisco.

COMPARISON JURISDICTIONS

The resolution stated that the evaluation would “benefit from comparisons to other large urban areas in numbers of employees, costs and facilities providing emergency fire and rescue services.”

The Controller interviewed, by phone, a member or members of the senior staff from the Fire Departments in the cities listed below. Information was collected in three broad subject areas: 1) physical system and stations, 2) staffing, and 3) merging Fire and EMS functions (if a jurisdiction had not merged, how their two disciplines go about working together).

The Controller also matched comparison cities across a range of demographic and geographic factors, reviewed cities in the International City/County Management Association (ICMA) data group, and considered feedback from the Advisory Group. Seattle, Baltimore, Boston and Vancouver received additional consideration because they are known for their best practices in other areas of governance.

The Controller also identified and used cities with older housing and internal natural barriers such as bodies of water, hills, and open space, such as Seattle, Baltimore, and Vancouver, British Columbia. The Fire Department also identified Boston as similar to San Francisco in population density and physical characteristics. Selected cities were used for comparisons of staff, stations, equipment, budget and other measures of size, configuration and cost: this applies to several of the cities in California, for example.

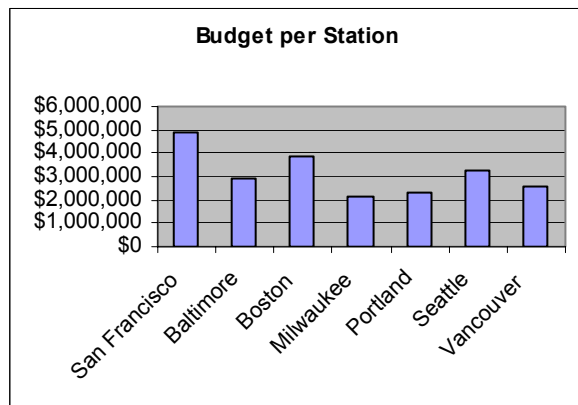
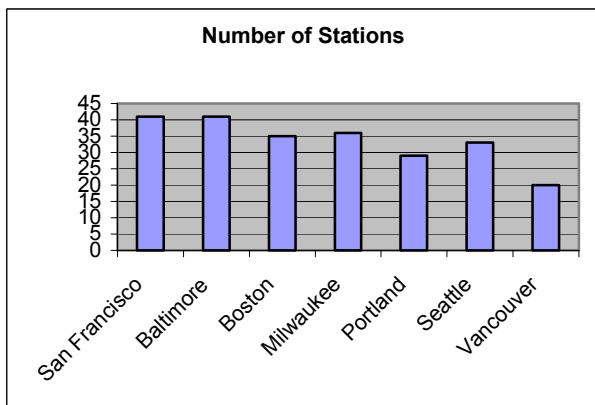
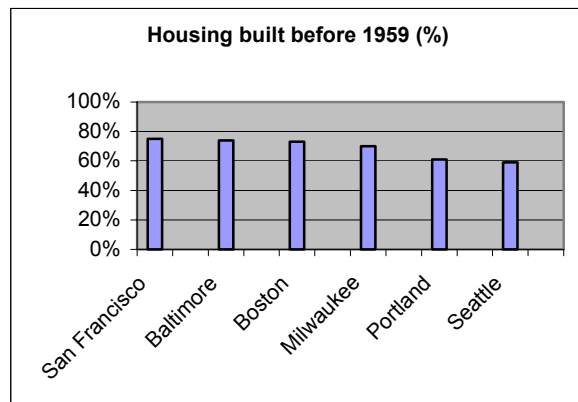
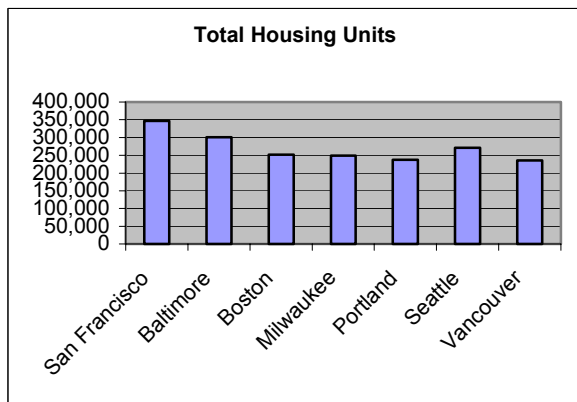
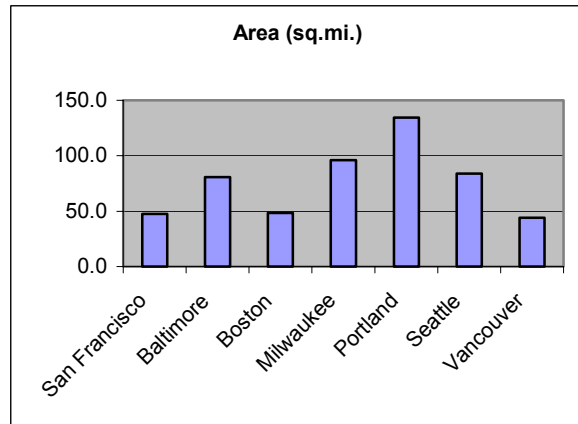
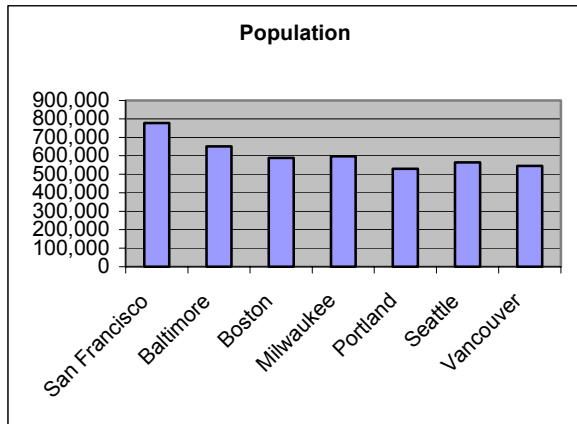
Finally, professional literature and information from the San Francisco Fire Department and other cities indicates that merged fire and emergency medical services is the preferred model, with advantages in service, coverage, flexibility, and patient outcome. The Controller searched for cities that have been most successful in this effort.

Following the logic described above, the Controller selected the following cities for comparative purposes:

- Baltimore
- Boston
- Las Vegas (for innovative practices)
- Milwaukee
- Oakland (for staffing & compensation comparisons)
- Portland
- San Diego (for staffing & compensation comparisons)
- San Jose (for staffing & compensation comparisons)
- Seattle
- Vancouver B.C.

The following graphs show how SFFD compares—in certain basic respects—to a set of the comparison jurisdictions:

GRAPHS A1: SFFD Jurisdiction Comparison, Basic Information



Appendix B Standards

National Guidelines

Response Times

The National Fire Protection Agency (NFPA) develops, publishes, and disseminates more than 300 codes and standards intended to minimize the possibility and effects of fire and other risks.

These codes serve as guidelines and jurisdictions are not required to adopt them. According to FY 2002 data from the International City Manager's Association (ICMA), of the cities surveyed with populations over 100,000, on average 68% of emergency fire calls were responded¹ to within 5 minutes. Response rates vary widely, with Berkeley arriving at 100% of its emergency fire calls in under 5 minutes, and—for example—Orlando, Florida, arriving in 5 minutes about 55% of the time. According to this same survey, San Francisco responds in 5 minutes for over 90% of fire emergency calls. Again, this is to illustrate that there are NFPA national standards that are widely accepted: what varies, however, is whether or not they are adopted (some jurisdictions do not) and, when they are adopted, how closely jurisdictions come to actually meeting them.

The tables below outline the NFPA's standards for response times:

Table B1: NFPA Guidelines, Response Times

Fire Suppression Incident		Emergency Medical Incident	
First Arriving Engine Company Total Response Time ²	Full First Alarm Assignment Total Response Time	First Responder Unit Total Response Time	Advanced Life Support (ALS) Unit Total Response Time
5 minutes	9 minutes	5 minutes	9 minutes
90% Achievement Rate	90% Achievement Rate	90% Achievement Rate	90% Achievement Rate

Staffing Standards

The National Fire Protection Agency (NFPA), a division of FEMA, provides the following staffing standards:

Table B2: NFPA Suppression Unit Staffing Standards

Unit	NFPA Standard	San Francisco
Engine companies	4 personnel	4 personnel
Truck companies	4 personnel	(N/A see tactical hazards)
Engine/truck company – tactical hazards ³ (footnote on next page)	5 or 6 personnel	5 personnel

¹ The ICMA report defines response times as “from dispatch to arrival.”

² Total response time includes a 1-minute turnout time. Turnout time is the time beginning when units acknowledge notification of the emergency to the time that units are en route to the emergency.

Table B3: NFPA EMS Staffing Standards

Type of Unit or Staff	NFPA Standard	San Francisco
Firefighters that respond to emergency incidents	First responder/AED [*] training	74% of H2s have EMT license.
ALS level response	2 paramedics and 2 EMTs	2 paramedics and at least 1 EMT

^{*} Automated External Defibrillator

Jurisdictions use national staffing and deployment standards as guidelines rather than formal policies. San Francisco's standards meet NFPA guidelines, and are tailored to reflect recent modifications in deployment after the implementation of the Rapid Paramedic Response System. The response model changed from basic life support (BLS) first response and advanced life support (ALS) ambulances staffed with two paramedics to ALS engine first response and ALS ambulances staffed with one paramedic. The City does not currently staff or deploy BLS ambulances.

Deployment

For suppression deployment of initial full alarm assignment, the NPFA recommends

- 1 person dedicated to incident command outside of hazard area
- 1 water supply line operator
- 2 personnel operating attack and backup lines
- 1 support person for each attack and backup line
- Minimum of 1 victim search and rescue team (2 personnel)
- Minimum of 1 ventilation team (2 personnel)
- Initial Rapid Intervention Crew (minimum of 2 personnel)

For EMS system components, the NPFA recommendation is that:

The minimum level of training for all fire fighters that respond to emergency incidents shall be to the first responder/AED (Automated External Defibrillator) level. (The level of basic life support, including the ability to operate an AED.)

For EMS deployment and capability, the NPFA recommendation is that:

Personnel deployed to ALS emergency responses shall include a minimum of 2 members trained at the EMT-Paramedic level and 2 members trained at EMT-Basic level

³ In jurisdictions with tactical hazards, high hazard occupancies, high incident frequencies, geographical restrictions, or other pertinent factors as identified by the authority having jurisdiction, engine and ladder companies are staffed with a minimum of 5 or 6 on-duty personnel.

Local Standards

The California Health and Safety Code 1797.220 grants authority to the medical director of the local EMS agency to establish policies and procedures to assure control of the medical EMS system. For San Francisco, the local agency is the San Francisco Emergency Medical Services Agency (SFEMSA) under the Department of Public Health.

The DPH Policy 4000 requirements include:

Table B4: DPH Response Time Requirements

	Total Response Time Interval			
AMPDS Determinant	BLS & AED On Scene	ALS On Scene	Transport On Scene	Percent Achievement
Code 3: Echo, Delta, Charlie ⁴	5 minutes	10 minutes	12 minutes	90% of call instances
Code 2: Bravo, Alpha	NA	20 minutes	20 minutes	90% of call instances

Total response time includes a 1-minute turnout time. Turnout time is the time beginning when units acknowledge notification of the emergency to the time that units are en route to the emergency.

DPH standards also relate to staffing:

Table B5: San Francisco DPH EMS Agency Policies

Policy #	Before 2004	After 2004
2120	All ALS units require two paramedics	ALS transport will have a minimum of one paramedic and one EMT. Apparatus intended for ALS response only will have a minimum of one paramedic.
2130	BLS ambulances will be staffed with two EMTs	BLS ambulances will be staffed with two EMTs.
2150	First responder: one EMT required per responding unit.	First responder: one EMT per responding unit. SFFD may staff first response apparatus with ALS equipment and at least one paramedic.

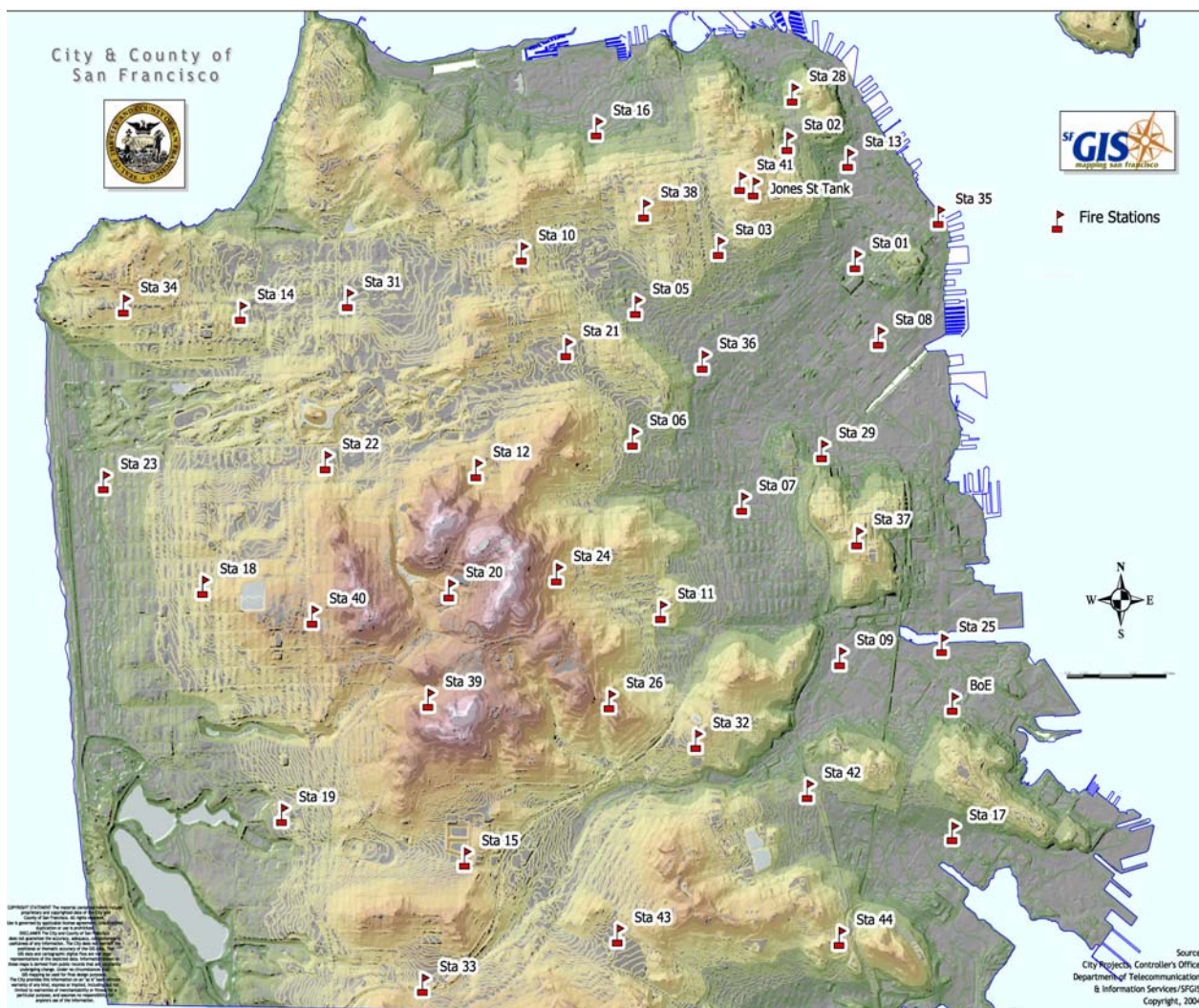
⁴ Life Threatening. The response times listed here are the same as EMDAC (Emergency Medical Directors Association of California) response standards, which SFEMS has targeted as a performance goal.

Appendix C

Basic Physical Resources

Excluding Treasure Island and the Airport, San Francisco has 41 permanently staffed fire stations located through City limits. Although the system has evolved over the years to accommodate the City's expansion and growth, the current station configuration has not substantively changed since the 1970s.

Map C1: Stations, Topography



San Francisco's network of fire stations includes medical and suppression staff members organized into companies associated with types of vehicles. The main types of permanently staffed vehicles are engines, medics and trucks.

Table C2: Stations and Fixed Staff Companies

Station	Neighborhood	Engine	Medic	Truck
Station 01	Tenderloin	Engine 01 (ALS)	Medic 01	Truck 01
Station 02	Downtown	Engine 02		Truck 02
Station 03	Tenderloin	Engine 03 (ALS)	Medic 03	Truck 03
Station 05	Western Addition	Engine 05	Medic 05	Truck 05
Station 06	Castro	Engine 06 (ALS)		Truck 06
Station 07	Mission	Engine 07 (ALS)	Medic 07	Truck 07
Station 08	South of Market	Engine 08 (ALS)	Medic 08	Truck 08
Station 09	Potrero Hill	Engine 09 (ALS)	Medic 09	Truck 09
Station 10	Laurel Heights	Engine 10 (ALS)	Medic 10	Truck 10
Station 11	Mission	Engine 11 (ALS)		Truck 11
Station 12	Cole Valley	Engine 12 (ALS)	Medic 12	Truck 12
Station 13	Downtown	Engine 13 (ALS)	Medic 13	Truck 13
Station 14	Richmond	Engine 14 (ALS)	Medic 14	Truck 14
Station 15	Ocean View	Engine 15 (ALS)	Medic 15	Truck 15
Station 16	Marina	Engine 16		Truck 16
Station 17	Bayview	Engine 17 (ALS)	Medic 17	Truck 17
Station 18	Sunset	Engine 18 (ALS)	Medic 18	Truck 18
Station 19	Park Merced	Engine 19 (ALS)		Truck 19
Station 20	Laguna Honda	Engine 20		
Station 21	Haight	Engine 21		
Station 22	Inner Sunset	Engine 22		
Station 23	Outer Sunset	Engine 23		
Station 24	Upper Market	Engine 24		
Station 25	Bayview	Engine 25 (ALS)		
Station 26	Twin Peaks	Engine 26		
Station 28	North Beach	Engine 28 (ALS)	Medic 28	
Station 29	Potrero Hill	Engine 29 (ALS)	Medic 29	
Station 31	Richmond	Engine 31		
Station 32	Holy Park	Engine 32	Medic 32	
Station 33	Ingleside	Engine 33		
Station 34	Outer Richmond	Engine 34		
Station 35	South of Market	Engine 35		
Station 36	Western Addition	Engine 36 (ALS)	Medic 36	
Station 37	Potrero Hill	Engine 37		
Station 38	Fillmore	Engine 38	Medic 38	
Station 39	St Francis Wood	Engine 39		
Station 40	Inner Sunset	Engine 40 (ALS)		
Station 41	Nob Hill	Engine 41 (ALS)	Medic 41	
Station 42	Silver Heights	Engine 42 (ALS)		
Station 43	Excelsior	Engine 43 (ALS)	Medic 43	
Station 44	Excelsior	Engine 44		
Total		41	20	18
Advanced Life Support (ALS) capable		23	20	0

Other than trucks, engines and medics there are a number of specialized units that are not permanently staffed. They "draw" staff from the companies listed above, and include hazardous material response vehicles, cliff and surf rescue units, mini-pumpers and others.

The system also has a pump station for the Fire Department's auxiliary water supply (Jones Street Tank) that has a staff person and a vehicle that responds to major fires. The Department's Bureau of Equipment (BOE) is permanent staffed and responds to major events,

providing replacement oxygen and other supplies. Four ambulances staffed by non-firefighter paramedics are based out of BOE. The Fire Department's upper management responds to events and have their own vehicles. Finally, the City's fire system is "static": this means that units and staff are permanently assigned to a station, and, as a rule, they respond from that station at all times. There are two exceptions: The first is the Department's senior management, that responds to incidents—in a management and oversight capacity and depending on their purview—throughout battalions, divisions or on a City-wide basis. The second exception to is the City's four ambulances (distinct from the Fire Department's 20 medic units); these ambulances "rove" in the downtown area predominantly, are on 10 hour shifts and are staffed by paramedics rather than firefighter/ paramedics.

Fire stations have areas of responsibility for which they are the "first responder." This means that, within that geographic area, that particular station and its units—unless they are out on another call—will be dispatched first to a call within that region. The first responder regions are roughly, but not entirely, associated with optimal response times.

Map C3: Stations and First Responder Areas





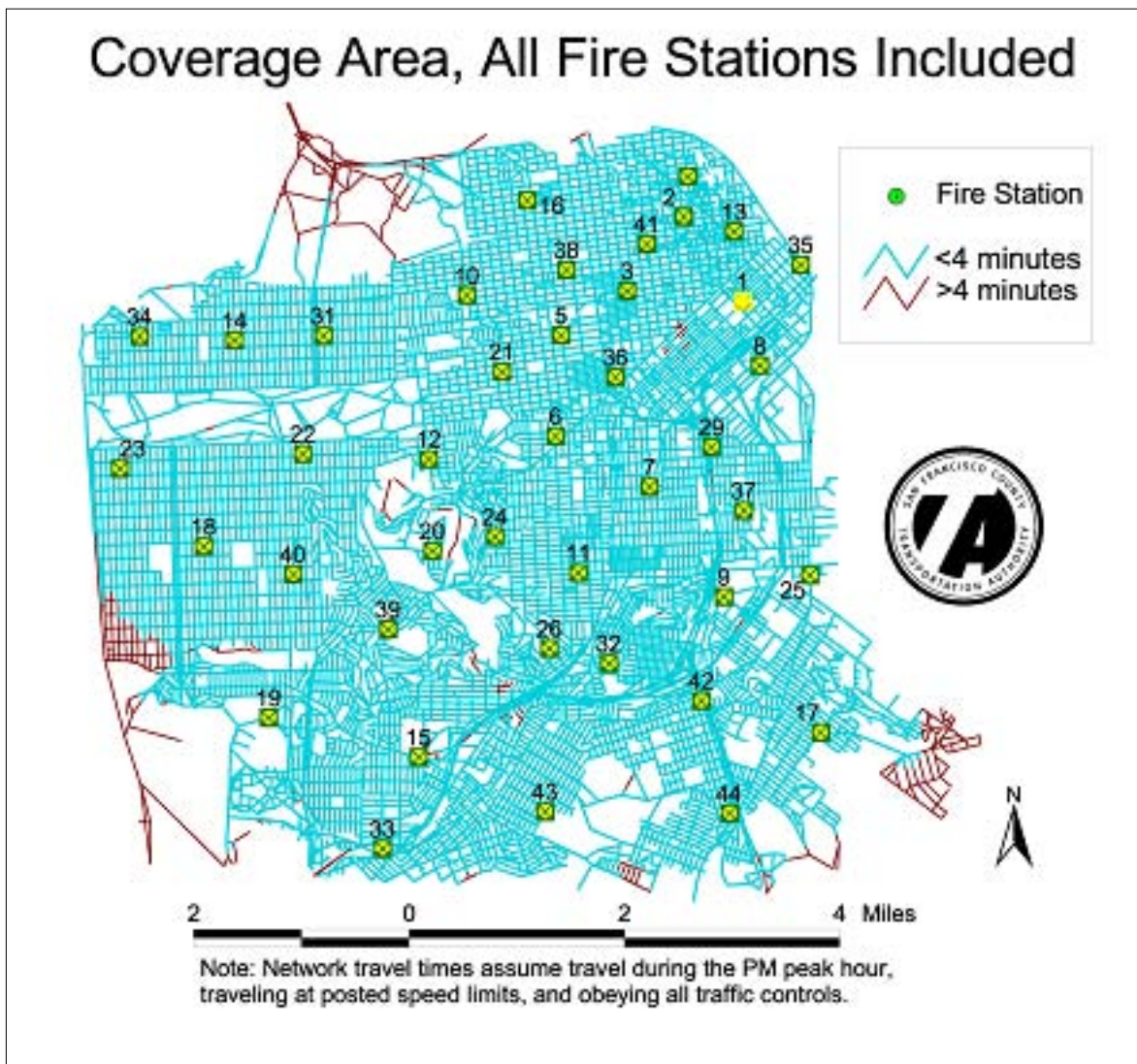
CITY AND COUNTY OF SAN FRANCISCO
OFFICE OF THE CONTROLLER

Ed Harrington
Controller
Monique Zmuda
Deputy Controller

APPENDIX D ERRATA

The travel time maps in Appendix D of this report beginning with page 17 contain an error. Fire Station 25 is incorrectly shown west of its actual location. Its correct location is 3305 3rd Street and Marin Street in the Islais Creek area.

We do not believe that this affects the analysis given the overlapping response time coverage in the region that is demonstrated. However the Controller's Office apologizes for the error. Below is a corrected version of Map D15 showing all stations and coverage areas.



Appendix D

Demand and Workload

Demand and Workload

The San Francisco Fire Department's workload is created by "incidents"—a call from the public seeking assistance. For the Fire Department, workload is their response or responses to those incidents. A response is each action taken by the Fire Department in reaction to an incident: for example, a truck, engine, medic unit and/ or special unit is responding to a call for assistance. For every one incident there can be one or many responses, depending on incident type, complexity and/ or severity. Simply put:

*An Incident leads to a Response or Responses
Total Responses = Workload.*

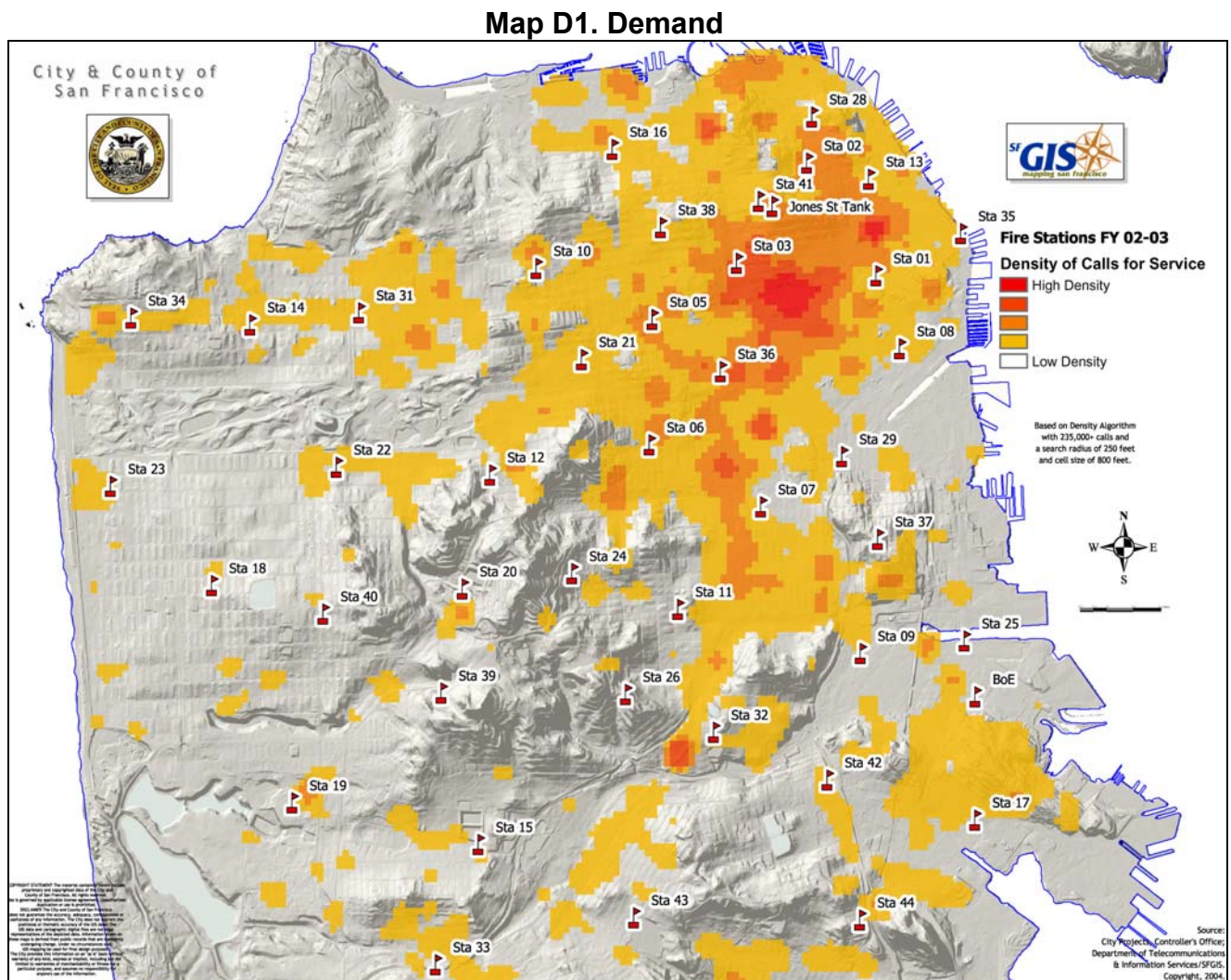
The Fire Department handles incidents of many types: medical emergencies, alarms, hazardous materials, surf rescue, technical rescues, and—of course—fires. In FY 02/03 the SF Fire Department responded to 108,000 incidents with 235,000 responses. The 235,000 total includes responses of many types: For example, the total responses include those made from facilities that are not fire stations--the Bureau of Equipment and Jones Street Tank. It also includes responses made by management—for example, Division Chiefs and Battalion Chiefs--and responses made by specialized units that do not have fixed staff (hazardous material units, surf rescue units, and others). Finally, the total responses include responses made by the City's ambulances and private ambulance companies.

The majority of the Fire Departments responses—226,000 out of the total 235,000—were made from neighborhood fire stations by units that include fixed staffed units—engines, trucks and medics—as well as any special units or management units that are posted from stations. Of the 226,000 responses made from fire stations, the major fixed staff company types performed a total of 192,000 responses: engines (91,000 responses), trucks (30,000 responses) and medics (71,000 responses).

Data

To analyze demand and workload, this report uses FY 02/03 data provided by the Fire Department from the City's Computer Aided Dispatch (CAD) system showing all responses by the Fire Department within that fiscal year. This report excludes the Airport and Treasure Island. The numbers were reviewed with both station-level staff as well as Fire Department management for general accuracy. Finally, comparison information was gathered from the nine jurisdictions listed in Appendix A.

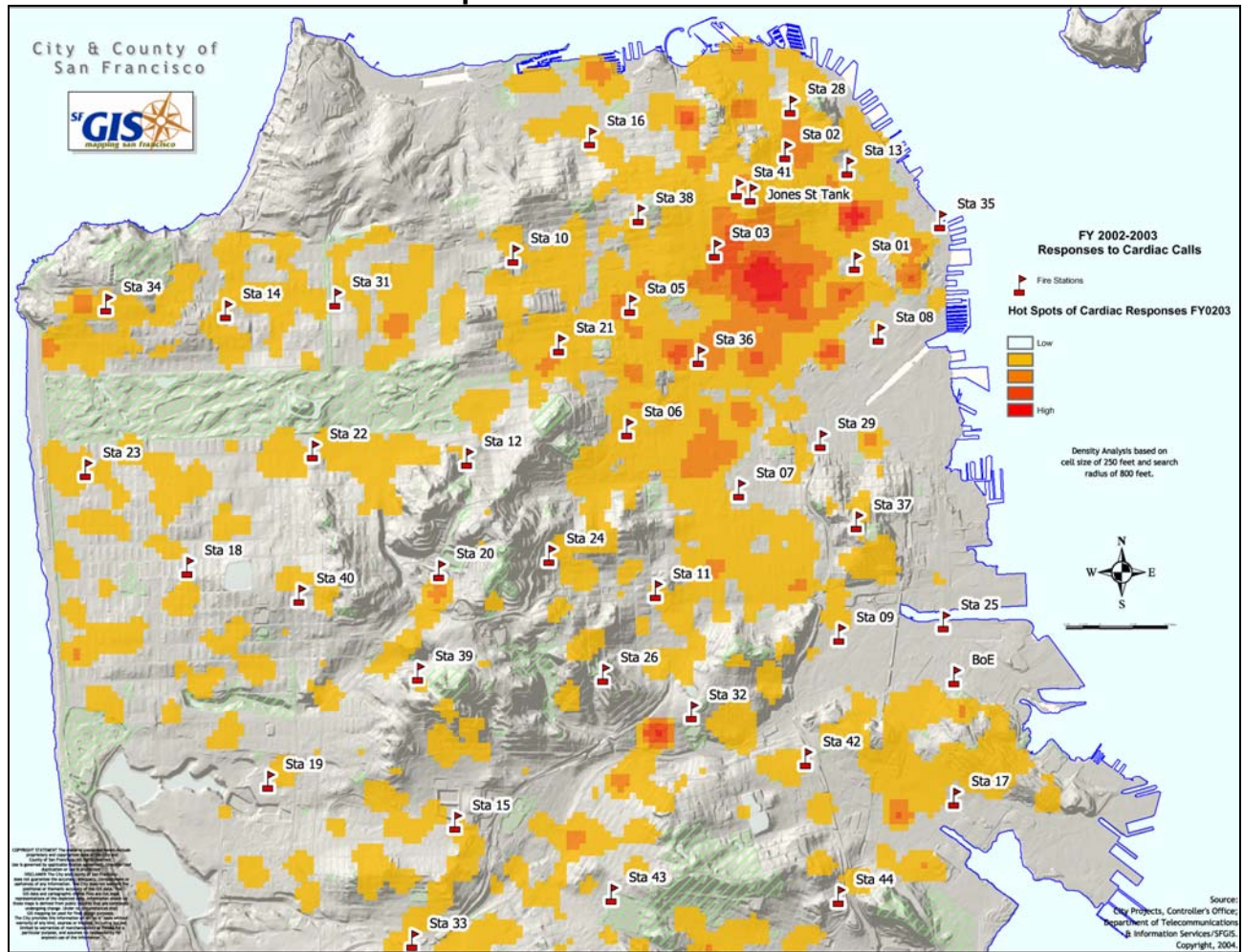
Map D1 shows the incident density for the City of San Francisco. As expected, it shows that demand occurs throughout the City, but that it increases in more densely populated areas and along major transportation corridors.



SFFD, Computer Aided Dispatch Data, FY 2002/03

Cardiac events are often seen as a good indicator for medical incidents because they demanding immediate, full emergency attention. Map D2 shows that cardiac events, like demand in general, occur throughout the City but are concentrated downtown.

Map D2. Cardiac Demand



SFFD, Computer Aided Dispatch Data, FY 2002/03

WORKLOAD

In FY 02/03, the Fire Department responded to 108,000 incidents for a total of approximately 235,000 responses. The bulk—226,000 or 96%—was provided by neighborhood fire stations.

As part of our analysis we reviewed what is included under the suppression call type (called “call nature” by the Fire Department). We found that *suppression*, as a category, includes a number of response types not related to fires; *medical*, as a category, includes medical responses only, of varying severity.

Table D3. Suppression Classification Codes

Category and subcategories	Definition
Suppression	
Alarm	Includes street box, commercial, medical, and residential alarms.
EMS_3	Medical incident for which a first responder only is dispatched—generally an engine or rescue squad.
Fire	Anything related to fire or smoke: working fires, smoke in building, grass fires, vehicle fire.
Investigation	An incident for which initial caller information suggests that an on-scene investigation is necessary. May require a response from one or more companies.
Other	Call type information is not available to otherwise classify the incident
Service	Incidents, generally of low severity, to which the department responds to provide a service. Generally requires only one company, but may require additional resources.
Technical	Incidents requiring specialized training and / or equipment. These incidents will always require multiple responders.
Medical	
ALS	Advanced Life Support
BLS	Basic Life Support

SFFD, Computer Aided Dispatch Data, FY 2002/03

Table D4 breaks down, by station, the workload by medical versus suppression. Medical responses (61% of the total) are categorized as ALS or BLS, per dispatch codes (described in the table above). Suppression calls (37%), however, are broken down by alarms and fire (or, more accurately, fire-related) because alarms and fire-related is the bulk of the suppression workload; the remaining suppression types are grouped as “service.” Finally, a small percentage of the overall workload is “other” (1%); these are not responses, per se, but rather that the unit is out of service for a time on an administrative and/ or maintenance related run.

Table D4: Summary by Station, Medical v. Suppression Breakdown

Station	Neighborhood	Responses	% of City wide	Medical	%					Suppr.	%					Misc. (1)	%
						ALS	%	BLS	%			Alarm	%	Fire	%		
Station 01	Tenderloin	18,100	8%	11,098	61%	8,898	80%	2,200	20%	6,865	38%	4,252	62%	1,937	28%	676	10%
Station 02	Downtown	6,425	1%	1,154	18%	1,032	89%	122	11%	5,188	81%	3,625	70%	1,010	19%	553	11%
Station 03	Tenderloin	15,936	7%	10,296	65%	8,076	78%	2,220	22%	5,501	35%	3,700	67%	999	18%	802	15%
Station 05	Western Addition	10,699	5%	6,317	59%	4,681	74%	1,636	26%	4,267	40%	2,259	53%	1,482	35%	526	12%
Station 06	Castro	4,595	2%	2,105	46%	1,894	90%	211	10%	2,434	53%	1,430	59%	607	25%	397	16%
Station 07	Mission	13,474	6%	7,982	59%	6,102	76%	1,880	24%	5,337	40%	2,387	45%	2,334	44%	616	12%
Station 08	South of Market	9,945	4%	5,346	54%	3,703	69%	1,643	31%	4,487	45%	3,079	69%	958	21%	450	10%
Station 09	Potrero Hill	4,997	1%	1,928	39%	1,635	85%	293	15%	2,967	59%	1,494	50%	1,057	36%	416	14%
Station 10	Laurel Heights	6,925	3%	4,480	65%	3,247	72%	1,233	28%	2,357	34%	1,328	56%	570	24%	459	19%
Station 11	Mission	7,850	3%	4,271	54%	3,759	88%	512	12%	3,372	43%	1,638	49%	1,142	34%	592	18%
Station 12	Cole Valley	6,200	3%	4,392	71%	3,117	71%	1,275	29%	1,711	28%	915	53%	445	26%	351	21%
Station 13	Downtown	12,139	6%	8,376	69%	6,286	75%	2,090	25%	3,529	29%	2,454	70%	641	18%	434	12%
Station 14	Richmond	5,648	3%	4,223	75%	3,167	75%	1,056	25%	1,334	24%	602	45%	355	27%	377	28%
Station 15	Ocean View	8,371	4%	5,190	62%	3,863	74%	1,327	26%	3,052	36%	1,638	54%	887	29%	527	17%
Station 16	Marina	2,791	1%	895	32%	793	89%	102	11%	1,854	66%	1,192	64%	302	16%	360	19%
Station 17	Bayview	7,566	4%	4,837	64%	3,613	75%	1,224	25%	2,652	35%	1,484	56%	708	27%	460	17%
Station 18	Sunset	6,429	4%	5,036	78%	3,742	74%	1,294	26%	1,320	21%	485	37%	333	25%	502	38%
Station 19	Park Merced	2,356	1%	1,172	50%	1,035	88%	137	12%	1,132	48%	556	49%	287	25%	289	26%
Station 20	Laguna Honda	580	0%	249	43%	229	92%	20	8%	291	50%	102	35%	109	37%	80	27%
Station 21	Haight	3,455	1%	1,005	29%	899	89%	106	11%	2,390	69%	1,263	53%	759	32%	368	15%
Station 22	Inner Sunset	1,201	1%	698	58%	618	89%	80	11%	472	39%	138	29%	181	38%	153	32%
Station 23	Outer Sunset	1,169	1%	737	63%	663	90%	74	10%	421	36%	122	29%	130	31%	169	40%
Station 24	Upper Market	582	0%	265	46%	250	94%	15	6%	299	51%	90	30%	103	34%	106	35%
Station 25	Bayview	1,337	0%	558	42%	490	88%	68	12%	752	56%	286	38%	301	40%	165	22%
Station 26	Twin Peaks	697	0%	348	50%	306	88%	42	12%	323	46%	87	27%	114	35%	122	38%
Station 28	North Beach	4,464	2%	3,358	75%	2,268	68%	1,090	32%	1,034	23%	585	57%	254	25%	195	19%
Station 29	Potrero Hill	5,238	3%	4,159	79%	2,659	64%	1,500	36%	997	19%	499	50%	343	34%	155	16%
Station 31	Richmond	5,140	2%	3,362	65%	2,923	87%	439	13%	1,631	32%	665	41%	529	32%	437	27%
Station 32	Holly Park	4,982	3%	3,949	79%	2,808	71%	1,141	29%	948	19%	418	44%	308	32%	222	23%
Station 33	Ingleside	1,876	1%	1,081	58%	972	90%	109	10%	763	41%	423	55%	189	25%	151	20%
Station 34	Outer Richmond	1,037	0%	547	53%	499	91%	48	9%	466	45%	168	36%	128	27%	170	36%
Station 35	South of Market	1,891	1%	766	41%	696	91%	70	9%	1,096	58%	747	68%	196	18%	153	14%
Station 36	Western Addition	11,926	6%	7,622	64%	5,633	74%	1,989	26%	4,173	35%	2,433	58%	1,205	29%	535	13%
Station 37	Potrero Hill	1,220	0%	525	43%	471	90%	54	10%	656	54%	321	49%	203	31%	132	20%
Station 38	Fillmore	7,398	3%	4,111	56%	2,764	67%	1,347	33%	3,192	43%	1,783	56%	976	31%	433	14%
Station 39	St Francis Wood	929	0%	510	55%	462	91%	48	9%	394	42%	144	37%	101	26%	149	38%
Station 40	Inner Sunset	2,835	1%	1,436	51%	1,284	89%	152	11%	1,320	47%	584	44%	475	36%	261	20%
Station 41	Nob Hill	6,141	3%	4,734	77%	3,262	69%	1,472	31%	1,337	22%	595	45%	491	37%	251	19%
Station 42	Silver Heights	2,016	1%	1,282	64%	1,167	91%	115	9%	713	35%	277	39%	248	35%	188	26%
Station 43	Excelsior	7,957	5%	6,823	86%	5,370	79%	1,453	21%	1,019	13%	342	34%	378	37%	299	29%
Station 44	Excelsior	1,703	1%	948	56%	869	92%	79	8%	727	43%	368	51%	189	26%	170	23%
Total		226,221		138,171		106,205		31,966		84,773		46,958		23,964		13,851	
Average		5,518		3,370		2,590		780		2,068		1,145		584		338	
Percent of total		100%		61%		47%		14%		37%		21%		11%		6%	
(1) Includes remaining classification codes of EMS 3, investigation, service, technical and other.																	

(1) Includes remaining classification codes of EMS_3, investigation, service, techical and other.

SFFD, Computer Aided Dispatch Data, FY 2002/03

The next three tables (D5, D6 and D7) show just those responses performed by the three major fixed staff unit types—engines, trucks and medics.

Table D5 shows that the workload for engines is, on average, more than half medical (57%): this makes sense given the engines' current role as medical first responders. Further, for those engines that are Advanced Life Support (engines with a firefighter/paramedic as one of its four fixed staff members) more of the workload would be expected to be medical. While the average workload for an engine is 2,227 responses per year, Table D5 also shows that workload by engines varies enormously: For example, Engine 01 at Station 01 (at 7000 responses a year) handles almost 12 times the workload of Engine 20 (600 responses a year).

**Table D5: Summary by Station and Engines Only
Medical v. Suppression Breakdown**

STATION	Neighborhood	ENGINE	Responses	Breakdown					
				Medical	%	Suppression	%	Other	%
Station 01	Tenderloin	Engine 01 (ALS)	6,916	4,256	62%	2,623	38%	37	1%
Station 02	Downtown	Engine 02	2,042	956	47%	1,064	52%	22	1%
Station 03	Tenderloin	Engine 03 (ALS)	6,943	4,532	65%	2,355	34%	56	1%
Station 05	Western Addition	Engine 05	3,843	2,316	60%	1,502	39%	25	1%
Station 06	Castro	Engine 06 (ALS)	3,017	1,905	63%	1,076	36%	36	1%
Station 07	Mission	Engine 07 (ALS)	4,100	2,554	62%	1,507	37%	39	1%
Station 08	South of Market	Engine 08 (ALS)	2,467	1,440	58%	999	40%	28	1%
Station 09	Potrero Hill	Engine 09 (ALS)	1,934	1,242	64%	656	34%	36	2%
Station 10	Laurel Heights	Engine 10 (ALS)	2,491	1,473	59%	982	39%	36	1%
Station 11	Mission	Engine 11 (ALS)	2,519	1,669	66%	826	33%	24	1%
Station 12	Cole Valley	Engine 12 (ALS)	1,826	1,162	64%	636	35%	28	2%
Station 13	Downtown	Engine 13 (ALS)	2,951	1,463	50%	1,452	49%	36	1%
Station 14	Richmond	Engine 14 (ALS)	1,998	1,478	74%	490	25%	30	2%
Station 15	Ocean View	Engine 15 (ALS)	2,079	1,338	64%	712	34%	29	1%
Station 16	Marina	Engine 16	1,691	817	48%	848	50%	26	2%
Station 17	Bayview	Engine 17 (ALS)	2,668	1,553	58%	1,093	41%	22	1%
Station 18	Sunset	Engine 18 (ALS)	2,202	1,677	76%	498	23%	27	1%
Station 19	Park Merced	Engine 19 (ALS)	1,563	1,022	65%	515	33%	26	2%
Station 20	Laguna Honda	Engine 20	573	247	43%	286	50%	40	7%
Station 21	Haight	Engine 21	1,932	893	46%	1,013	52%	26	1%
Station 22	Inner Sunset	Engine 22	1,201	698	58%	472	39%	31	3%
Station 23	Outer Sunset	Engine 23	1,169	737	63%	421	36%	11	1%
Station 24	Upper Market	Engine 24	582	265	46%	299	51%	18	3%
Station 25	Bayview	Engine 25 (ALS)	1,307	558	43%	723	55%	26	2%
Station 26	Twin Peaks	Engine 26	687	338	49%	323	47%	26	4%
Station 28	North Beach	Engine 28 (ALS)	1,907	955	50%	915	48%	37	2%
Station 29	Potrero Hill	Engine 29 (ALS)	1,721	813	47%	869	50%	39	2%
Station 31	Richmond	Engine 31	1,724	1,036	60%	663	38%	25	1%
Station 32	Holy Park	Engine 32	1,617	797	49%	785	49%	35	2%
Station 33	Ingleside	Engine 33	1,876	1,081	58%	763	41%	32	2%
Station 34	Outer Richmond	Engine 34	1,015	546	54%	447	44%	22	2%
Station 35	South of Market	Engine 35	1,688	764	45%	899	53%	25	1%
Station 36	Western Addition	Engine 36 (ALS)	4,520	2,644	58%	1,838	41%	38	1%
Station 37	Potrero Hill	Engine 37	1,220	525	43%	656	54%	39	3%
Station 38	Fillmore	Engine 38	2,082	972	47%	1,080	52%	30	1%
Station 39	St Francis Wood	Engine 39	929	510	55%	394	42%	25	3%
Station 40	Inner Sunset	Engine 40 (ALS)	1,823	1,350	74%	433	24%	40	2%
Station 41	Nob Hill	Engine 41 (ALS)	2,520	1,316	52%	1,182	47%	22	1%
Station 42	Silver Heights	Engine 42 (ALS)	2,016	1,282	64%	713	35%	21	1%
Station 43	Excelsior	Engine 43 (ALS)	2,251	1,470	65%	755	34%	26	1%
Station 44	Excelsior	Engine 44	1,695	947	56%	720	42%	28	2%
Total			91,305	53,597		36,483		1,225	
Average			2,227		57%		41%		2%

SFFD, Computer Aided Dispatch Data, FY 2002/03

Table D6 shows that, as expected, the workload for medic units is overwhelmingly medical (95%). This table also shows that workload by medics varies but not as widely as the engine workload: For example, Medic 03 at Station 03 handles twice as many calls (5,200 responses a year) as Medic 28 (2,500). The average workload for a medic unit is 3,703 responses a year, making it the fixed staff unit with the highest workload and over twice the workload of the average truck.

**Table D6: Summary by Station and Medic Units Only
Medical v. Suppression Breakdown**

STATION	Neighborhood	MEDIC	Responses	Breakdown					
				Medical	%	Suppression	%	Other	%
Station 01	Tenderloin	Medic 01	5,103	4,897	96%	155	3%	51	1%
Station 02	Downtown								
Station 03	Tenderloin	Medic 03	5,237	4,995	95%	206	4%	36	1%
Station 05	Western Addition	Medic 05	3,939	3,753	95%	152	4%	34	1%
Station 06	Castro								
Station 07	Mission	Medic 07	4,803	4,564	95%	208	4%	31	1%
Station 08	South of Market	Medic 08	3,757	3,609	96%	124	3%	24	1%
Station 09	Potrero Hill	Medic 09 -- partial yr only, not used for av	432	403		25		4	
Station 10	Laurel Heights	Medic 10	3,062	2,878	94%	149	5%	35	1%
Station 11	Mission								
Station 12	Cole Valley	Medic 12	3,340	3,135	94%	167	5%	38	1%
Station 13	Downtown	Medic 13	3,344	3,180	95%	127	4%	37	1%
Station 14	Richmond	Medic 14	2,799	2,633	94%	127	5%	39	1%
Station 15	Ocean View	Medic 15	3,702	3,502	95%	155	4%	45	1%
Station 16	Marina								
Station 17	Bayview	Medic 17	3,291	3,110	95%	153	5%	28	1%
Station 18	Sunset	Medic 18	3,372	3,201	95%	140	4%	31	1%
Station 19	Park Merced								
Station 20	Laguna Honda								
Station 21	Haight								
Station 22	Inner Sunset								
Station 23	Outer Sunset								
Station 24	Upper Market								
Station 25	Bayview								
Station 26	Twin Peaks								
Station 28	North Beach	Medic 28	2,557	2,403	94%	119	5%	35	1%
Station 29	Potrero Hill	Medic 29	3,517	3,346	95%	128	4%	43	1%
Station 31	Richmond								
Station 32	Holy Park	Medic 32	3,360	3,152	94%	159	5%	49	1%
Station 33	Ingleside								
Station 34	Outer Richmond								
Station 35	South of Market								
Station 36	Western Addition	Medic 36	5,028	4,814	96%	175	3%	39	1%
Station 37	Potrero Hill								
Station 38	Fillmore	Medic 38	3,252	3,065	94%	164	5%	23	1%
Station 39	St Francis Wood								
Station 40	Inner Sunset								
Station 41	Nob Hill	Medic 41	3,621	3,418	94%	155	4%	48	1%
Station 42	Silver Heights								
Station 43	Excelsior	Medic 43	3,276	3,108	95%	138	4%	30	1%
Station 44	Excelsior								
Total			70,792	67,166		2,926		700	
Average			3,703		95%		4%		1%

SFFD, Computer Aided Dispatch Data, FY 2002/03

Table D7 shows that the workload for trucks is, as expected, almost all suppression related (87%). This table also shows that truck workload varies almost as widely as the engines' workload: For example, Truck 01 at Station 01 handles almost four times as many calls (3,201 responses a year) as Trucks 14, 18 and 19. At an average of 1,654 responses a year, trucks are on average the fixed staff unit with the lowest workload.

**Table D7: Summary by Station and Trucks Only
Medical v. Suppression Breakdown**

STATION	Neighborhood	TRUCK	Responses	Breakdown					
				Medical	%	Suppression	%	Other	%
Station 01	Tenderloin	Truck 01	3,201	215	7%	2,964	93%	22	1%
Station 02	Downtown	Truck 02	1,837	140	8%	1,686	92%	11	1%
Station 03	Tenderloin	Truck 03	3,756	769	20%	2,940	78%	47	1%
Station 05	Western Addition	Truck 05	2,056	234	11%	1,803	88%	19	1%
Station 06	Castro	Truck 06	1,556	179	12%	1,357	87%	20	1%
Station 07	Mission	Truck 07	2,091	113	5%	1,952	93%	26	1%
Station 08	South of Market	Truck 08	1,411	175	12%	1,219	86%	17	1%
Station 09	Potrero Hill	Truck 09	1,315	108	8%	1,184	90%	23	2%
Station 10	Laurel Heights	Truck 10	1,372	129	9%	1,226	89%	17	1%
Station 11	Mission	Truck 11	1,386	138	10%	1,232	89%	16	1%
Station 12	Cole Valley	Truck 12	1,034	95	9%	908	88%	31	3%
Station 13	Downtown	Truck 13	1,965	174	9%	1,759	90%	32	2%
Station 14	Richmond	Truck 14	851	112	13%	717	84%	22	3%
Station 15	Ocean View	Truck 15	1,609	178	11%	1,406	87%	25	2%
Station 16	Marina	Truck 16	1,100	78	7%	1,006	91%	16	1%
Station 17	Bayview	Truck 17	1,607	174	11%	1,406	87%	27	2%
Station 18	Sunset	Truck 18	834	155	19%	666	80%	13	2%
Station 19	Park Merced	Truck 19	793	150	19%	617	78%	26	3%
Total			29,774	3,316		26,048		410	
Average			1,654		11%		87%		2%

SFFD, Computer Aided Dispatch Data, FY 2002/03

Workload by Call Type (Medical v. Suppression): Alarms

In San Francisco a significant portion of the overall workload for suppression units (engines and trucks)—49% of suppression's workload, in fact—is due to alarms. All alarms, like all suppression dispatches, are typically responded to with both a truck and an engine and are dispatched as highest priority (Code 3). As shown in Table D8, Battalion Chiefs and Division Chiefs also frequently respond to alarms.

Table D8: Alarms by Unit Type

Unit Type	Responses	%
Medic Unit	106	0%
Battalion Chief	8,604	18%
Division Chief	5,145	11%
Engine	14,731	31%
Misc (1)	52	0%
Truck	18,320	39%
Grand Total	46,958	100%

(1) includes units that are non-fixed staff or other

San Francisco has 7 alarm types:

- Alarm Outside Building
- Auxiliary Box Alarm (street box alarms associated with a school or a building)
- Box Alarm Activation (street box alarms)
- Commercial Building Alarm
- Pier Box Alarm
- Residential Building Alarm
- Vicinity Box Alarm

Per data received from the Fire Department and the Department of Telecommunications and Information Services (DTIS), 87% of street box alarms are false. Also per data received from the Fire Department, 88% of commercial alarms are false. Anecdotally, Department staff indicated that the number of false alarms could be higher if different outcome codes were consistently used by SFFD when doing outcome reports. SFFD staff and management also estimated that, of those calls that are not false, 80% are medical.

A high-level of suppression resources are sent to alarms even though they are often false. To put it simply, alarms are responded to with an engine and a truck—and, per Table D8—often a Division Chief or Battalion Chief: this is a total of 9 to 10 people and 3 vehicles. For example, this means that for street boxes—with a 88% false rate and with true calls 80% medical—9 to 10 firefighters respond to these alarms even though they are fire related just 3% of the time.

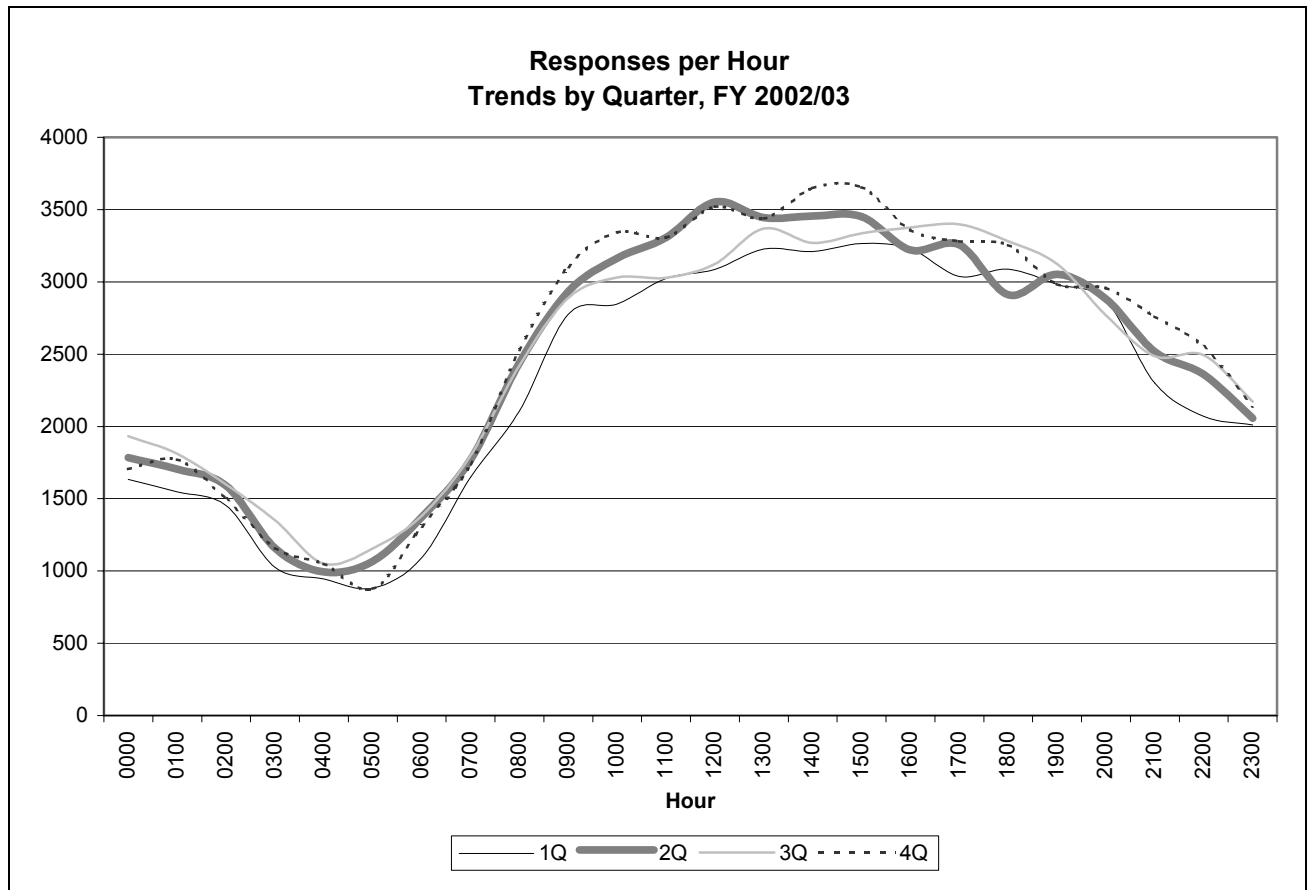
Table D9. By Station, Breakdown of Alarms by Type

Station	Responses	Alarm Responses	% of total workload	Street Box Alarms	% of alarm total	Commercial Alarms	% of alarm total	Residential Alarms	% of alarm total	Other (auxiliary, pier, vicinity and outside)	% of alarm total
Percent false, if available (1)		87%		88%		Not available		Not available			
Station 01	18,100	4,252	23%	2,126	50%	1,979	47%	115	3%	32	1%
Station 02	6,425	3,625	56%	1,059	29%	1,771	49%	68	2%	727	20%
Station 03	15,936	3,700	23%	2,042	55%	1,407	38%	224	6%	27	1%
Station 05	10,699	2,259	21%	1,149	51%	768	34%	333	15%	9	0%
Station 06	4,595	1,430	31%	660	46%	537	38%	213	15%	20	1%
Station 07	13,474	2,387	18%	1,771	74%	496	21%	105	4%	15	1%
Station 08	9,945	3,079	31%	911	30%	2,058	67%	95	3%	15	0%
Station 09	4,997	1,494	30%	275	18%	685	46%	448	30%	86	6%
Station 10	6,925	1,328	19%	533	40%	552	42%	239	18%	4	0%
Station 11	7,850	1,638	21%	987	60%	442	27%	199	12%	10	1%
Station 12	6,200	915	15%	367	40%	394	43%	149	16%	5	1%
Station 13	12,139	2,454	20%	1,021	42%	1,383	56%	39	2%	11	0%
Station 14	5,648	602	11%	285	47%	196	33%	94	16%	27	4%
Station 15	8,371	1,638	20%	250	15%	974	59%	264	16%	150	9%
Station 16	2,791	1,192	43%	609	51%	347	29%	234	20%	2	0%
Station 17	7,566	1,484	20%	1,230	83%	197	13%	55	4%	2	0%
Station 18	6,429	485	8%	259	53%	121	25%	73	15%	32	7%
Station 19	2,356	556	24%	167	30%	197	35%	129	23%	63	11%
Station 20	580	102	18%	35	34%	27	26%	30	29%	10	10%
Station 21	3,455	1,263	37%	322	25%	702	56%	233	18%	6	0%
Station 22	1,201	138	11%	49	36%	54	39%	34	25%	1	1%
Station 23	1,169	122	10%	76	62%	17	14%	27	22%	2	2%
Station 24	582	90	15%	24	27%	29	32%	37	41%	-	0%
Station 25	1,337	286	21%	211	74%	63	22%	11	4%	1	0%
Station 26	697	87	12%	34	39%	15	17%	37	43%	1	1%
Station 28	4,464	585	13%	365	62%	191	33%	25	4%	4	1%
Station 29	5,238	499	10%	277	56%	195	39%	22	4%	5	1%
Station 31	5,140	665	13%	168	25%	338	51%	135	20%	24	4%
Station 32	4,982	418	8%	339	81%	46	11%	32	8%	1	0%
Station 33	1,876	423	23%	295	70%	57	13%	19	4%	52	12%
Station 34	1,037	168	16%	75	45%	55	33%	18	11%	20	12%
Station 35	1,891	747	40%	429	57%	298	40%	14	2%	6	1%
Station 36	11,926	2,433	20%	947	39%	1,269	52%	176	7%	41	2%
Station 37	1,220	321	26%	206	64%	83	26%	28	9%	4	1%
Station 38	7,398	1,783	24%	286	16%	1,082	61%	410	23%	5	0%
Station 39	929	144	16%	38	26%	31	22%	75	52%	-	0%
Station 40	2,835	584	21%	123	21%	308	53%	133	23%	20	3%
Station 41	6,141	595	10%	198	33%	252	42%	73	12%	72	12%
Station 42	2,016	277	14%	233	84%	22	8%	21	8%	1	0%
Station 43	7,957	342	4%	190	56%	55	16%	33	10%	64	19%
Station 44	1,703	368	22%	258	70%	81	22%	27	7%	2	1%
Total	226,221	46,958		20,879		19,774		4,726		1,579	
Average	5,518	1,145	20%	509	47%	482	35%	115	15%	39	4%
% of total	100%	21%		44%		42%		10%		3%	
(1) Percent false for street box alarms and commercial alarms provided by DTIS in review with SFFD management. Data used: CFIRS/ NFIRS SFFD Database.											

Workload by Time of Day

Chart D10 shows that the Fire Department's workload varies by time of day but is consistent by season. Peak time throughout the year is 3 to 4 pm.

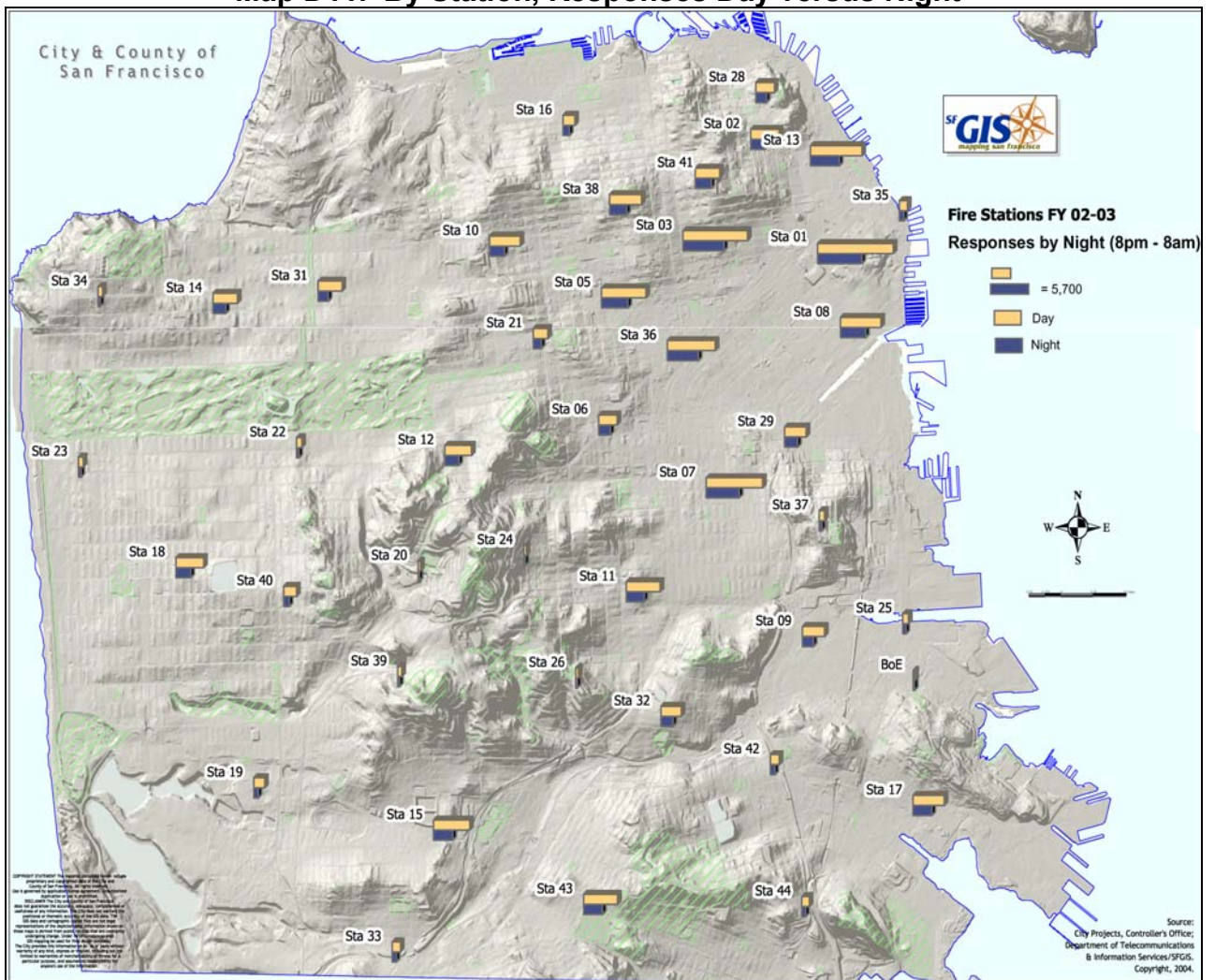
Chart D10. Workload by Time of Day



SFFD, Computer Aided Dispatch Data, FY 2002/03

Map D11 illustrates that, by station, workload continues to be heavier by day than at night:

Map D11. By Station, Responses Day versus Night



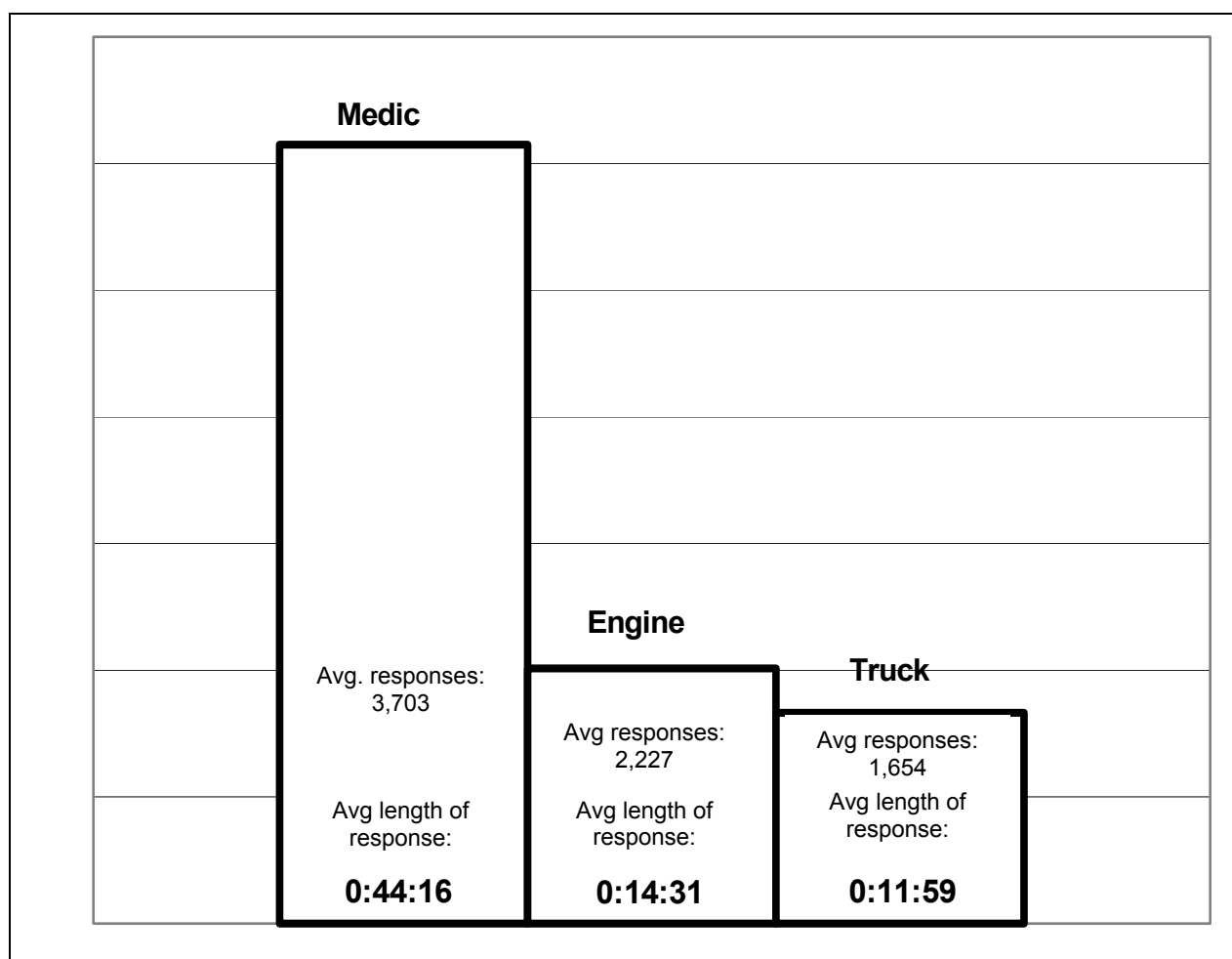
SFFD, Computer Aided Dispatch Data, FY 2002/03

Comparing the Average Workload and Unit Utilization Time

The number of responses understates the workload differences among medic, engine and truck units. Unit utilization time is the length of time spent on a call. The graph below shows that medic units, on average, spend almost 45 minutes for each call. Engines calls, on the other hand, last 15 minutes while truck calls last 12 minutes.

This means that even if a medic unit and an engine go out on the same number of calls per day, the medic's workload is 3 times that of the engine. But in fact, and as shown in Tables D5, D6 and D7, medic units go out on 1.7 times the number of responses as engines. Therefore, the average total medic workload is 5 times as high as the average engine workload. Using the same logic, the average medic workload is 8 times that of the average truck.

Chart D12: Average Unit Utilization Time per Response



SFFD, Computer Aided Dispatch Data, FY 2002/03

Workload by Dispatch Type (Code 3 v. Code 2)

Almost all of the calls handled by the Fire Department responses are dispatched as Code 3. Table D13 shows that—for all SFFD responses, include those not done by fire stations--100% of suppression calls are dispatched as Code 3 responses and 82% of medical responses are Code 3, for a total of 89% combined. Table D14 shows that, for just those responses made from fire stations, 92% of calls are dispatched at Code 3.

Table D13: Call Nature by Priority Code, FY 02/ 03

	Code 2		Code 3		Total	
Medical	25,855	18%	119,920	82%	145,775	100%
Other	-	-	4,000	100%	4,000	100%
Suppression	83	0%	85,514	100%	85,597	100%
	25,938	11%	209,434	89%	235,372	

*Consolidation of original CAD codes (1,2,3,A,B,C,E) into Code 2 and 3 done per guidance by Fire EMS management: Code 3 and E are equal to Code 3; all others are Code 2.

SFFD, Computer Aided Dispatch Data, FY 2002/03

Dispatching calls at Code 3 means that these calls receive full medical and suppression responses: for medical calls, this means two paramedics must be on scene. As previously described, one paramedic rides on the medic unit and the other on the ALS engine: for Code 3 medical responses this means that both units, the medic unit and the engine, are dispatched, with a total of six people on scene.

Table D14: Station, Code 3 Dispatches

Station	Responses	% at Code 3
Station 01	18,100	92%
Station 02	6,425	99%
Station 03	15,936	91%
Station 05	10,699	88%
Station 06	4,595	99%
Station 07	13,474	90%
Station 08	9,945	87%
Station 09	4,997	97%
Station 10	6,925	86%
Station 11	7,850	84%
Station 12	6,200	84%
Station 13	12,139	87%
Station 14	5,648	85%
Station 15	8,371	88%
Station 16	2,791	99%
Station 17	7,566	88%
Station 18	6,429	86%
Station 19	2,356	99%
Station 20	580	99%
Station 21	3,455	99%
Station 22	1,201	99%
Station 23	1,169	98%
Station 24	582	99%
Station 25	1,337	99%
Station 26	697	98%
Station 28	4,464	81%
Station 29	5,238	76%
Station 31	5,140	96%
Station 32	4,982	81%
Station 33	1,876	99%
Station 34	1,037	98%
Station 35	1,891	99%
Station 36	11,926	88%
Station 37	1,220	99%
Station 38	7,398	85%
Station 39	929	99%
Station 40	2,835	99%
Station 41	6,141	81%
Station 42	2,016	99%
Station 43	7,957	87%
Station 44	1,703	99%
Total	226,221	92%
Average		average

In areas that do not have an ALS engine (see Table D5), a regular BLS engine with four firefighters is dispatched to the Code 3 medical calls, waits until the ALS Engine arrives, and then the ALS engines waits for the medic unit to arrive. This means that for certain code 3 medical calls in neighborhoods without BLS engines or medics, three units respond with a total of 11 people on scene at one point or other.

For Code 3 suppression calls, an engine and a truck are dispatched. Fires and reports of smoke are dispatched as Code 3 suppression calls. Street box alarms are also dispatched as Code 3.

Travel Time Analysis and Coverage Area Maps

Stations and their companies are strategically located in order to be able to reach emergencies in the surrounding area quickly. The time it takes to respond is called “response time.” In San Francisco, the “response time clock” starts when the dispatch is received and acknowledged at the station. The clock stops when the unit tells dispatch that it is on on-scene (in front of the building or other location).

Per Appendix D, a primary goal for both medical and suppression calls is a response time of five minutes. The SFFD standard for turn out time (the time from acknowledging the call to leaving the station) is one minute. To make a 5-minute response time, therefore, there is only four minutes available for travel. This logic was confirmed in a March 5, 2004, meeting of the Advisory Committee.

The Controller’s Office asked the San Francisco County Transportation Authority (SFCTA) to provide travel time analysis for areas reachable in four minutes from each station. It is important to note that this mapping is conservative: it shows “worst case” speed for a SFFD vehicle--rush hour traffic, obeying all traffic laws, going the speed limit, stopping at all stop signs and stop lights. This logic was also confirmed at the March 5, 2004, Advisory Committee.

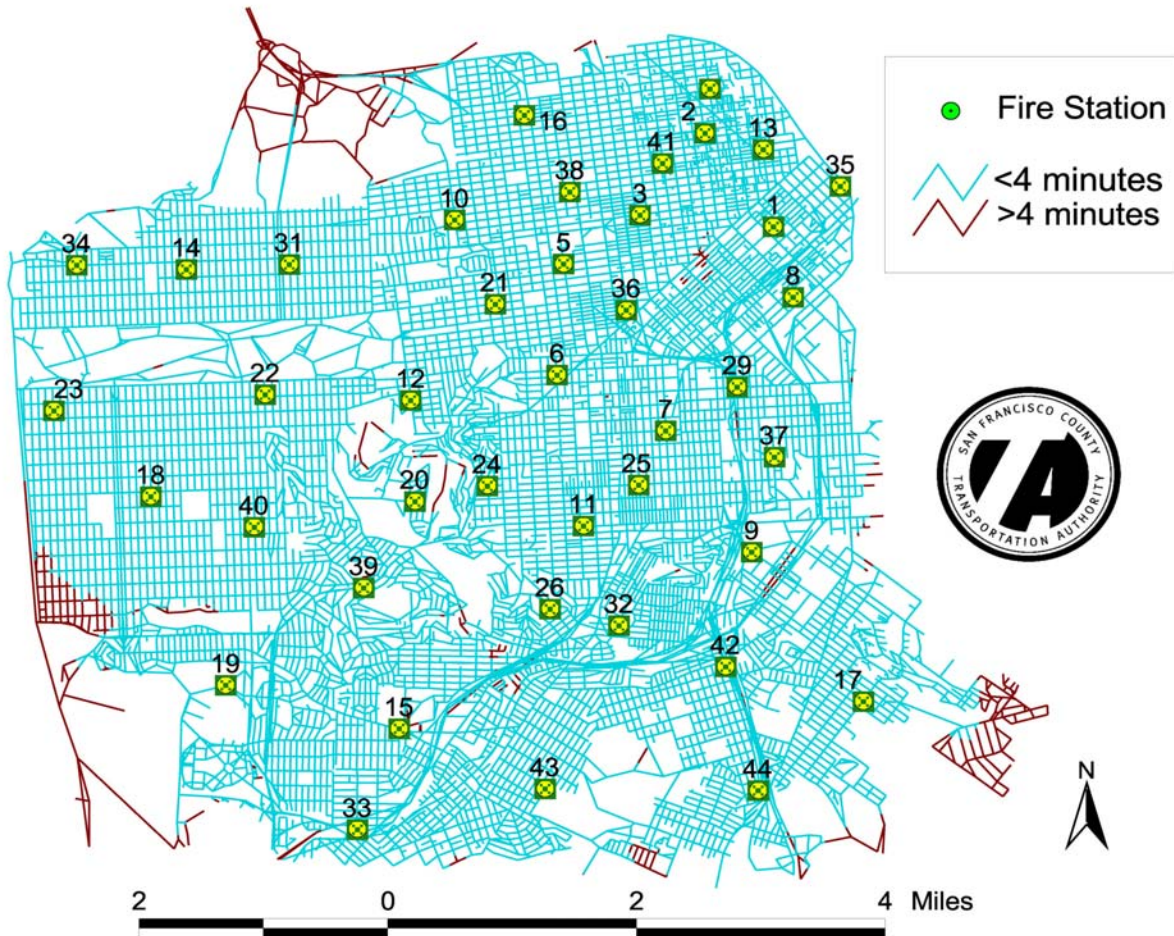
The first map, Map D15, shows all the stations in San Francisco and the area surround the station that can be reached in a 4-minute travel time (which equals a 5-minute response). Subsequent maps (D16 through D56) show the coverage if one particular station—a different station in each map—were removed. We did this to determine whether the coverage areas for certain stations or units could be covered by nearby stations.

As described in the white paper section of this report, we recommend closure of low volume units that have coverage from nearby stations, such as are Truck 14 and Engine 18. We also recommend closure of extremely low volume stations 20 and 24 or 26. Therefore, Maps D28 (Station 14), D32 (Station 18), D34 (Station 20), D38 (Station 24), and D40 (Station 26) may be of particular interest. However, all the maps warrant review and consideration.

Finally, arrows indicates areas on each map, if any, where there could be a change in the Fire Department’s ability to met its responds time goal of five minutes if that station was removed.

Map D15: 5-Minute Coverage - All Existing Stations

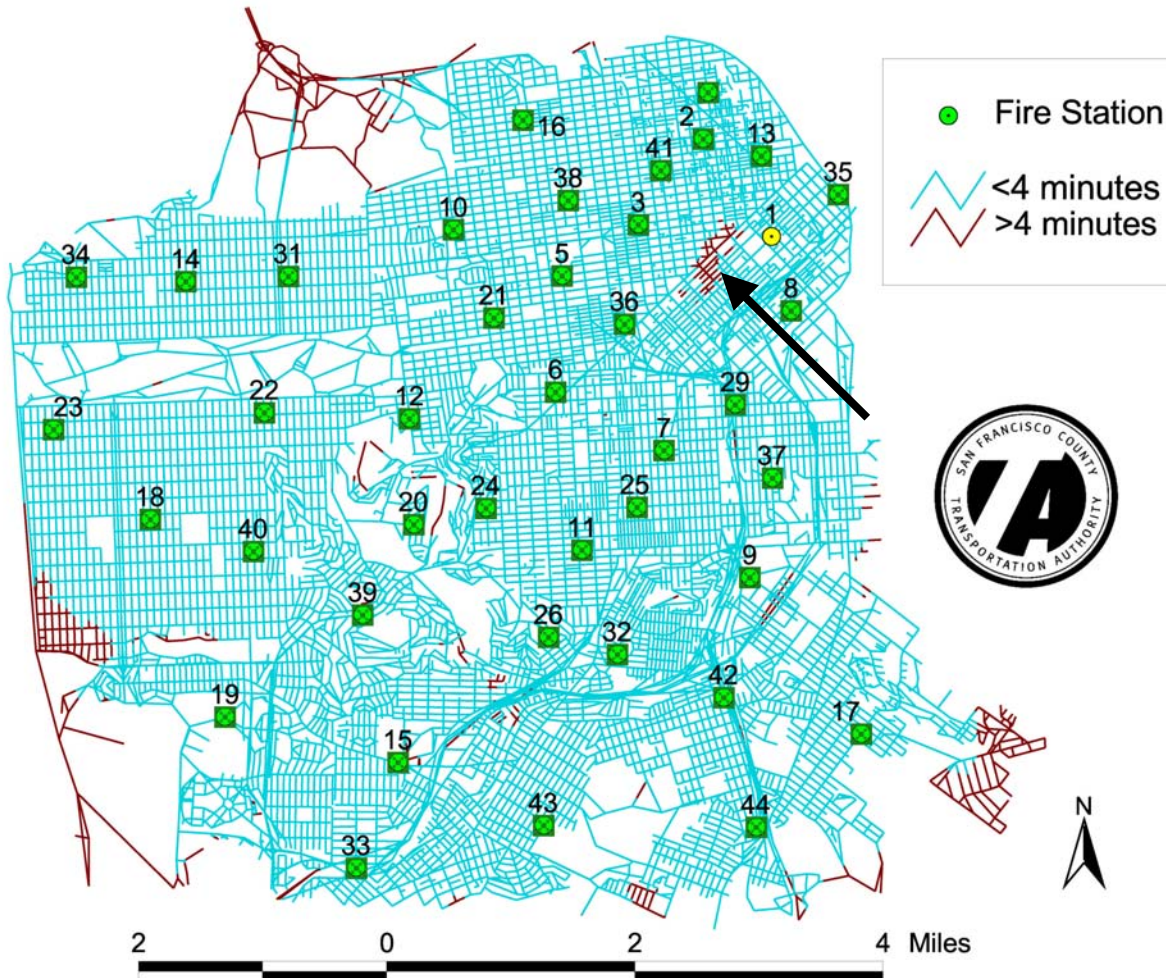
Coverage Area, All Fire Stations Included



Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

Map D16: 5-Minute Coverage With Station 1 Removed
(Arrow shows area with coverage change.)

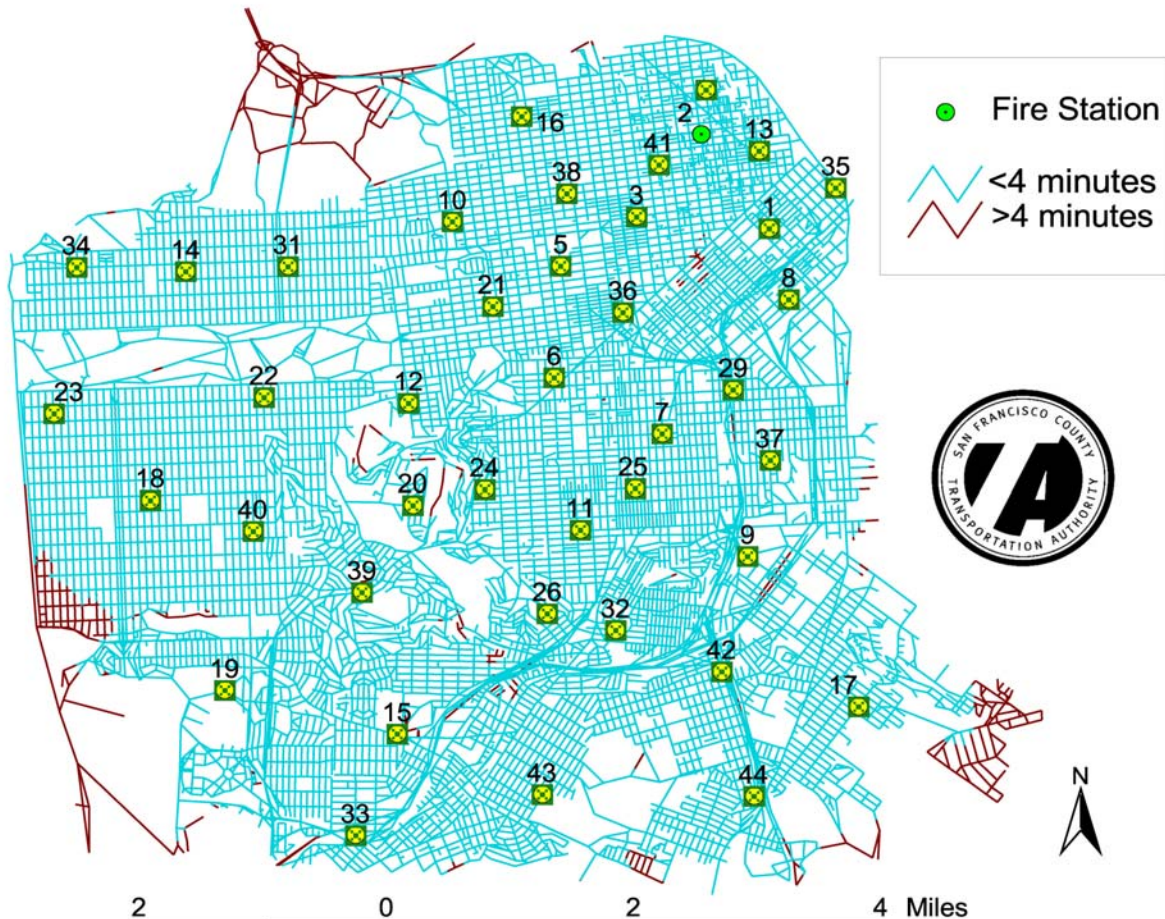
Coverage Area, Fire Station 1 Removed



Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

Map D17: 5-Minute Coverage With Station 2 Removed
(No change in coverage.)

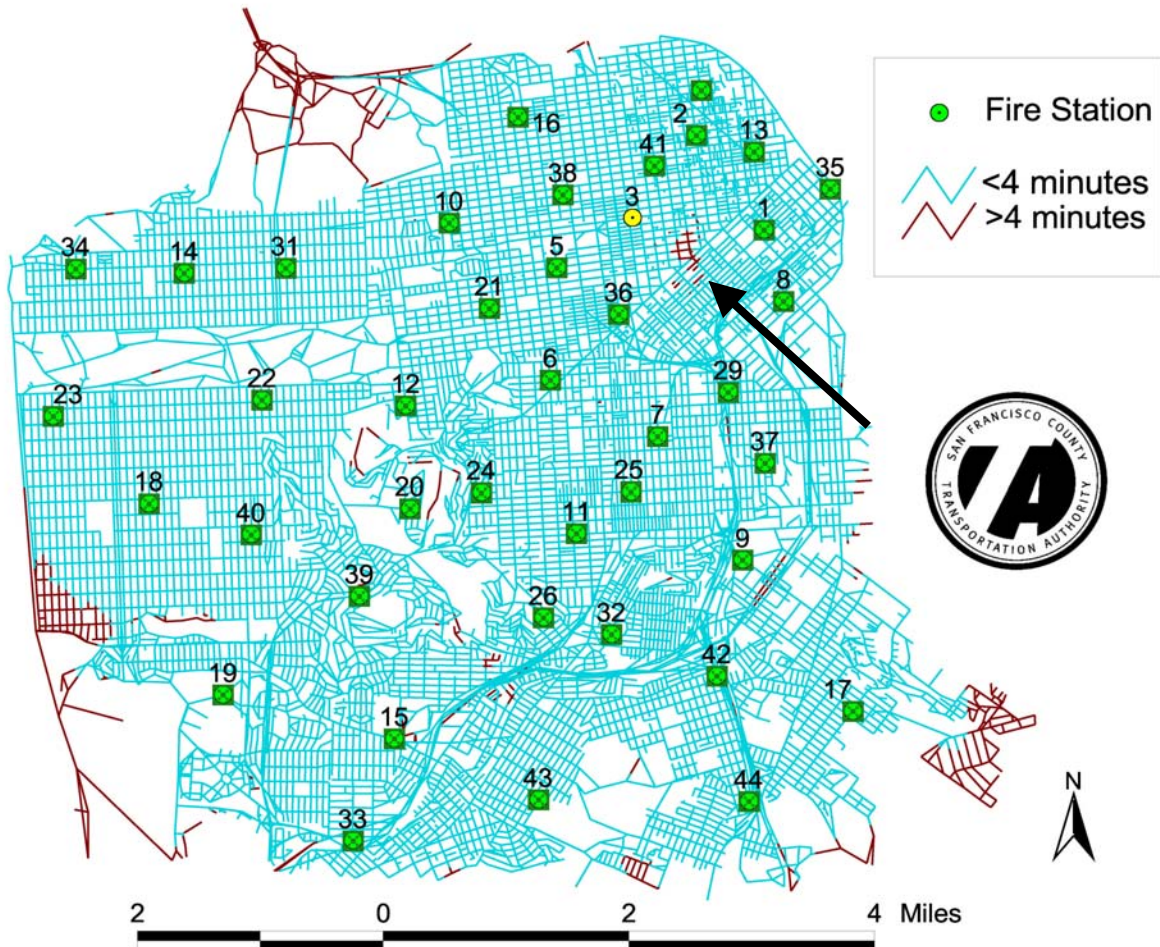
Coverage Area, Fire Station 2 Removed



Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

Map D18: 5-Minute Coverage With Station 3 Removed
(Arrow shows area with coverage change.)

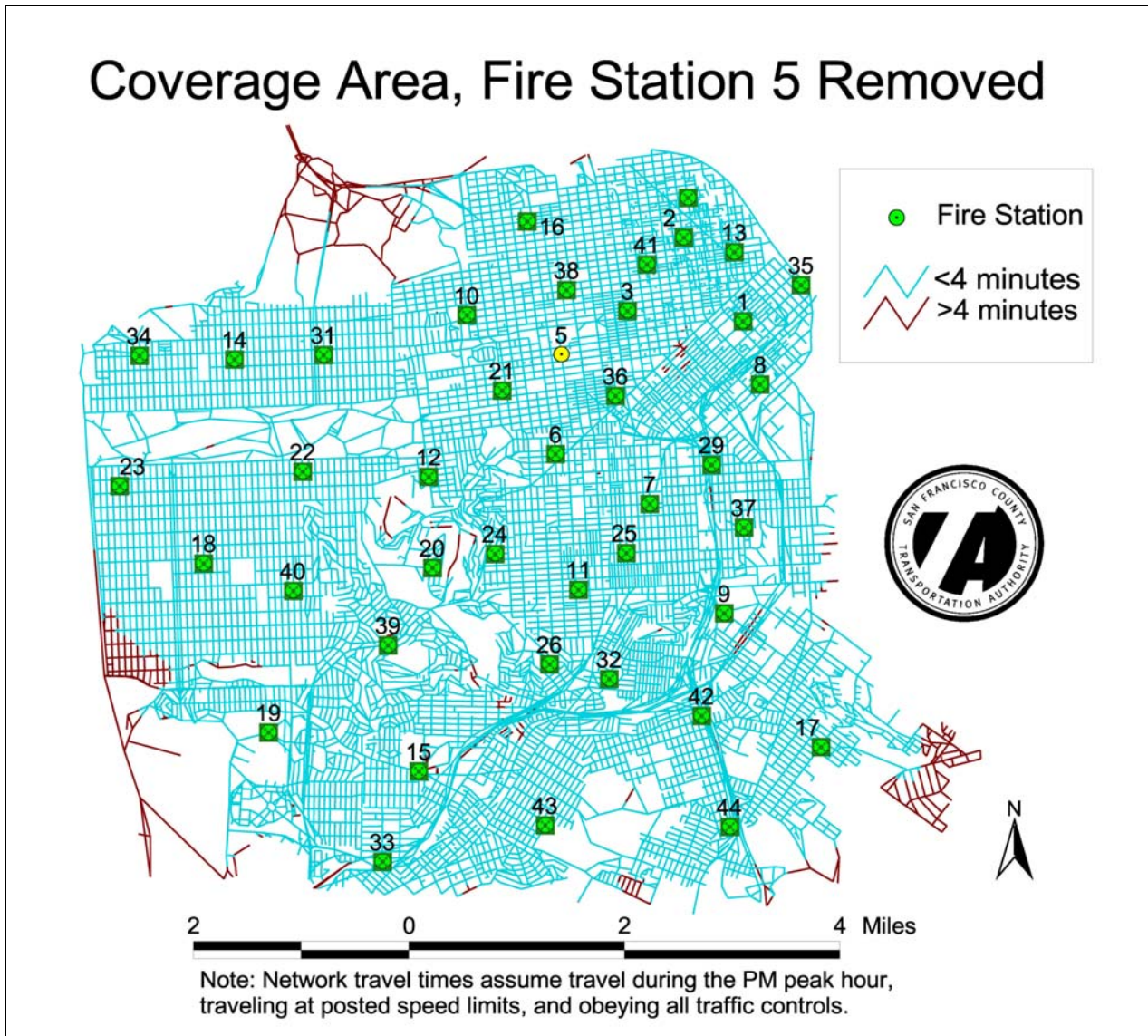
Coverage Area, Fire Station 3 Removed



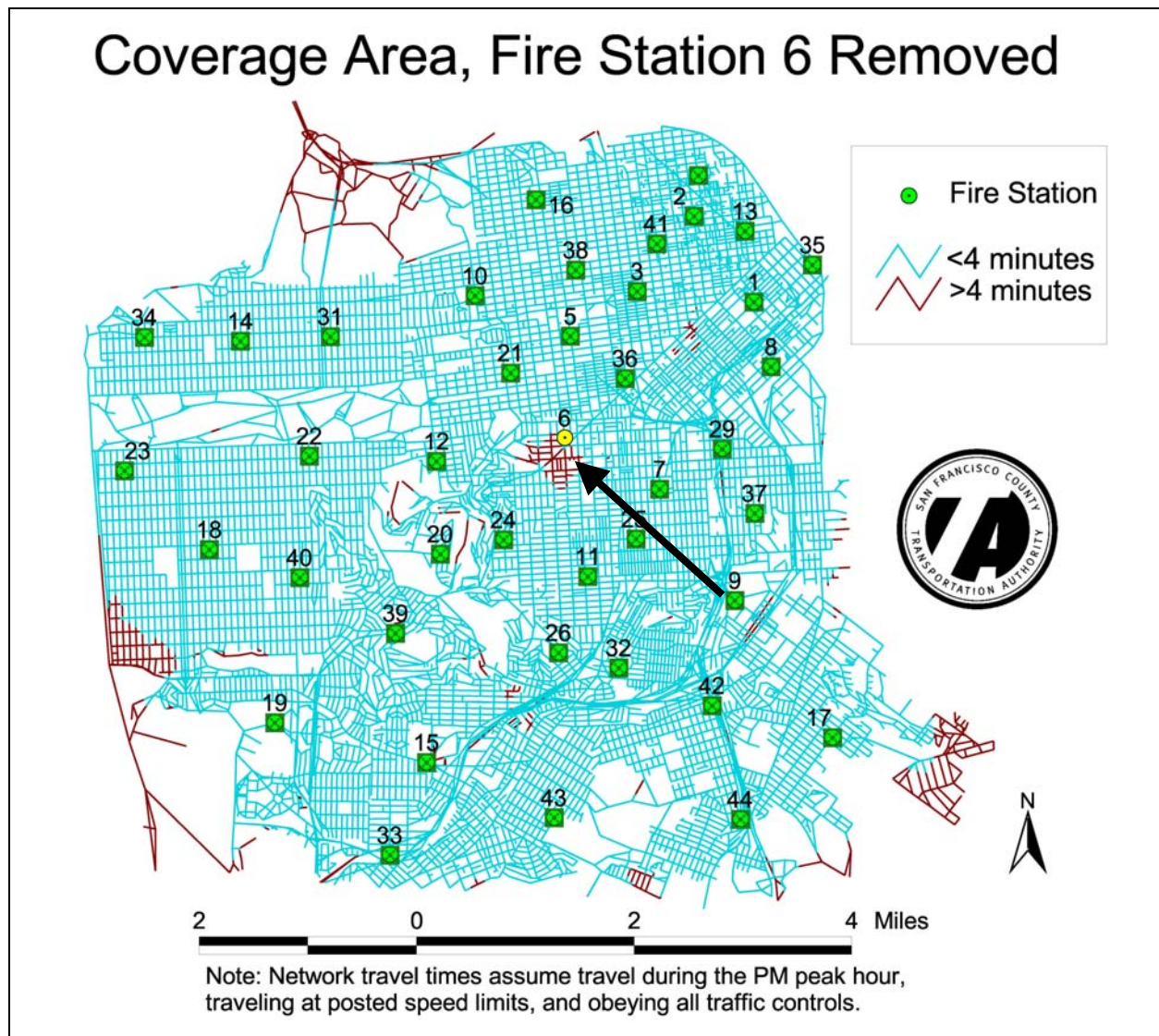
Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

Note: There is no Fire Station 4

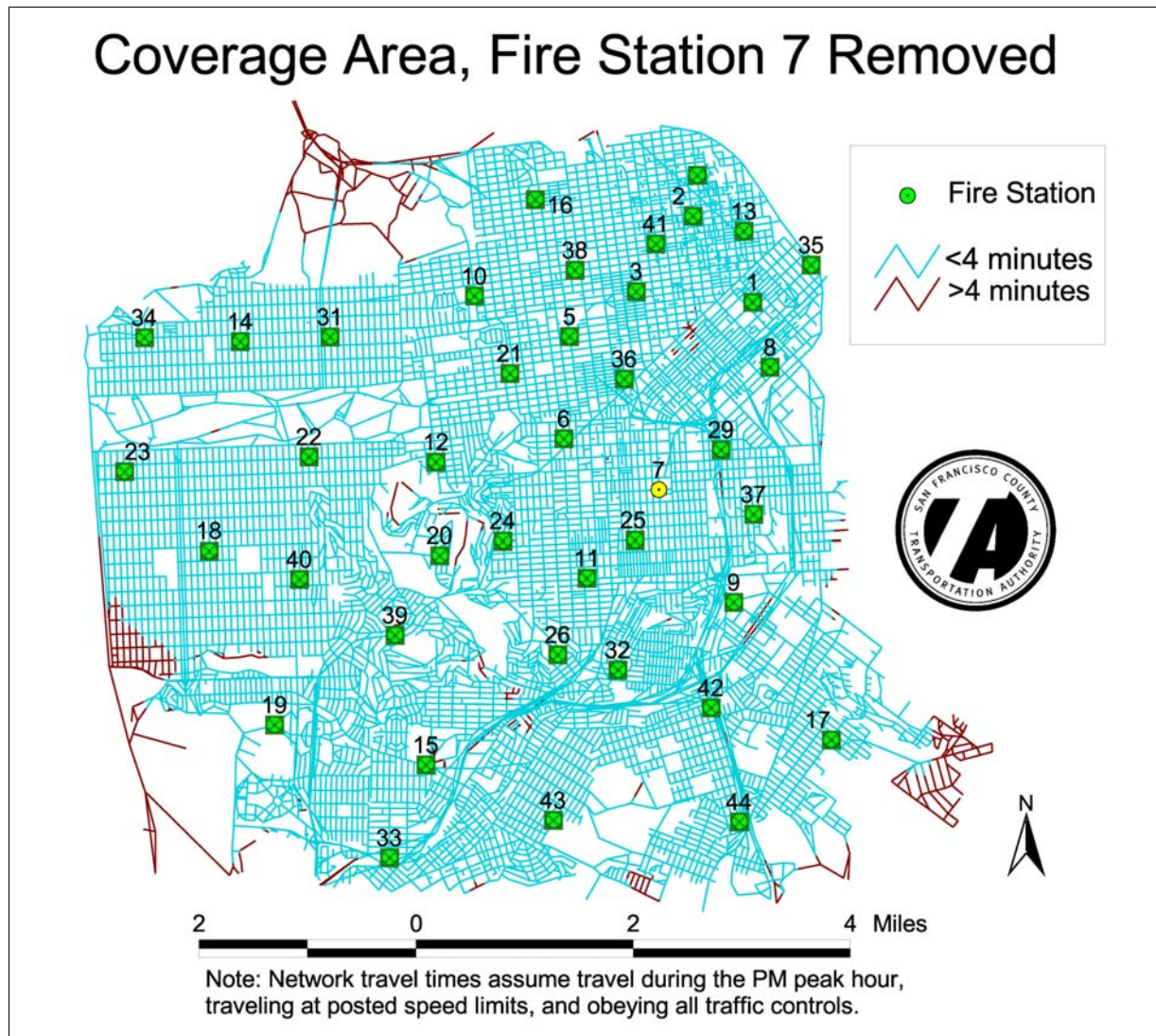
Map D19: 5-Minute Coverage With Station 5 Removed
(No change in coverage.)



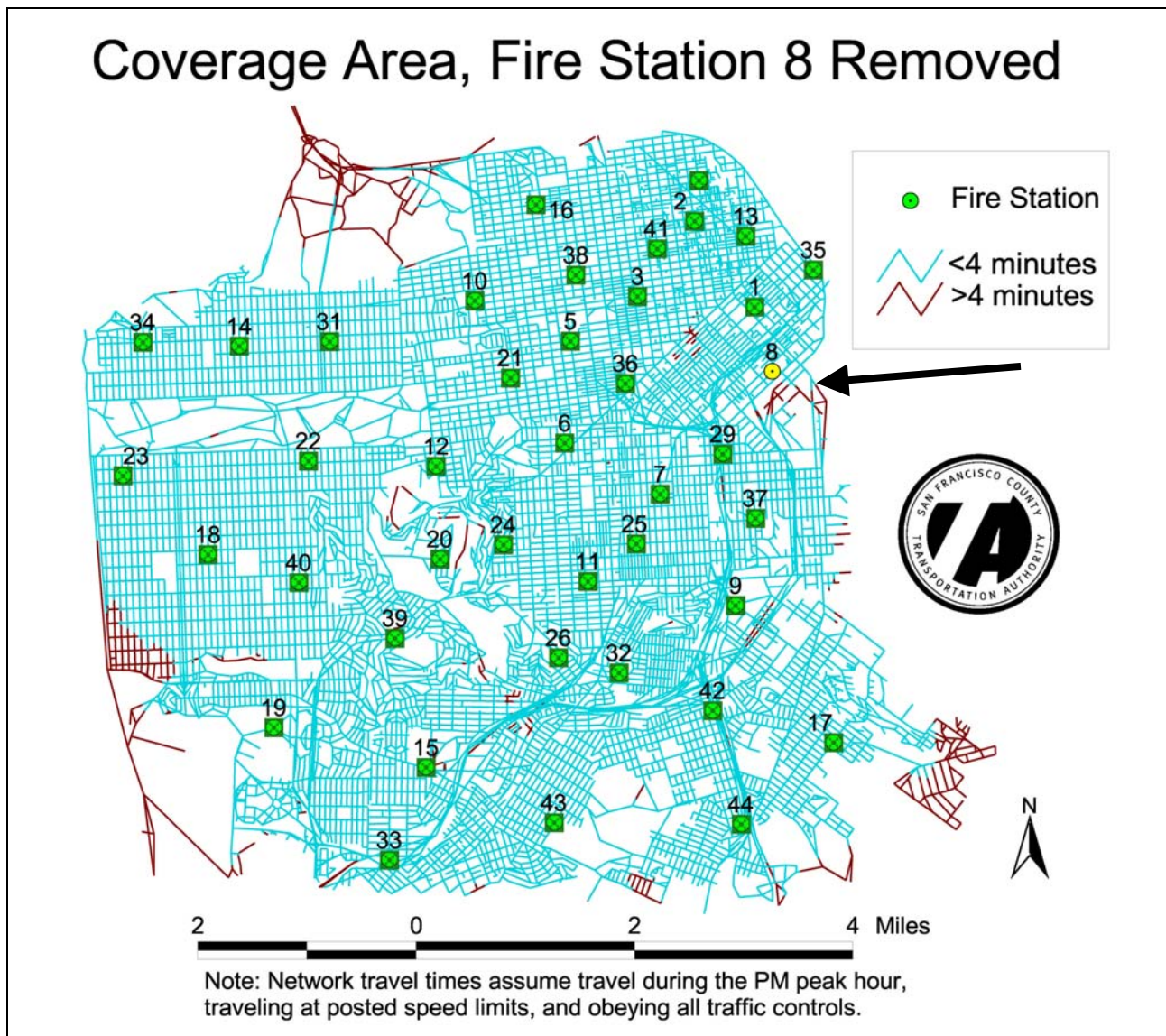
Map D20: 5-Minute Coverage With Station 6 Removed
(Arrow shows area with coverage change.)



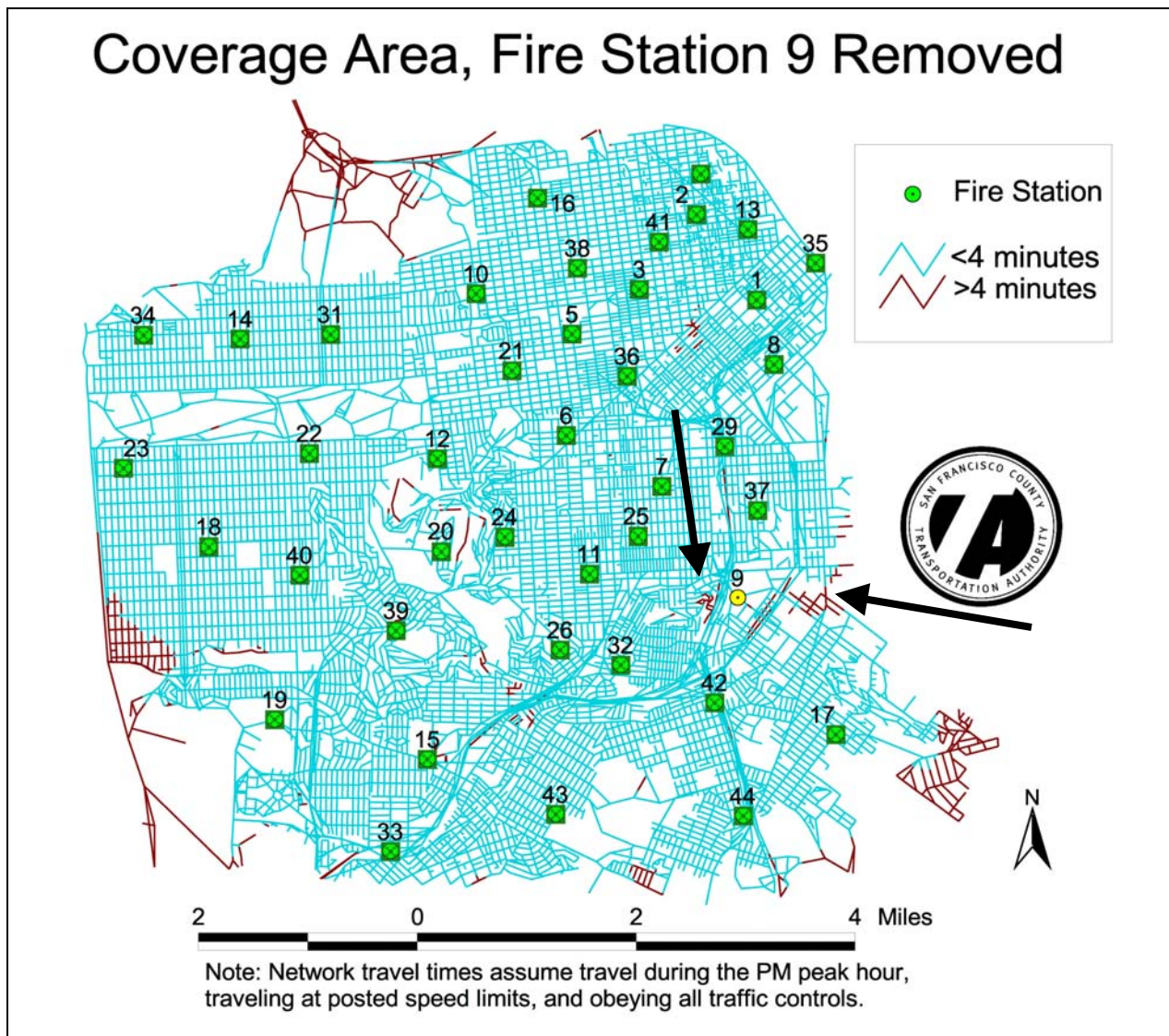
Map D21: 5-Minute Coverage With Station 7 Removed
(No change in coverage.)



Map D22: 5-Minute Coverage With Station 8 Removed
(Arrow shows area with coverage change.)

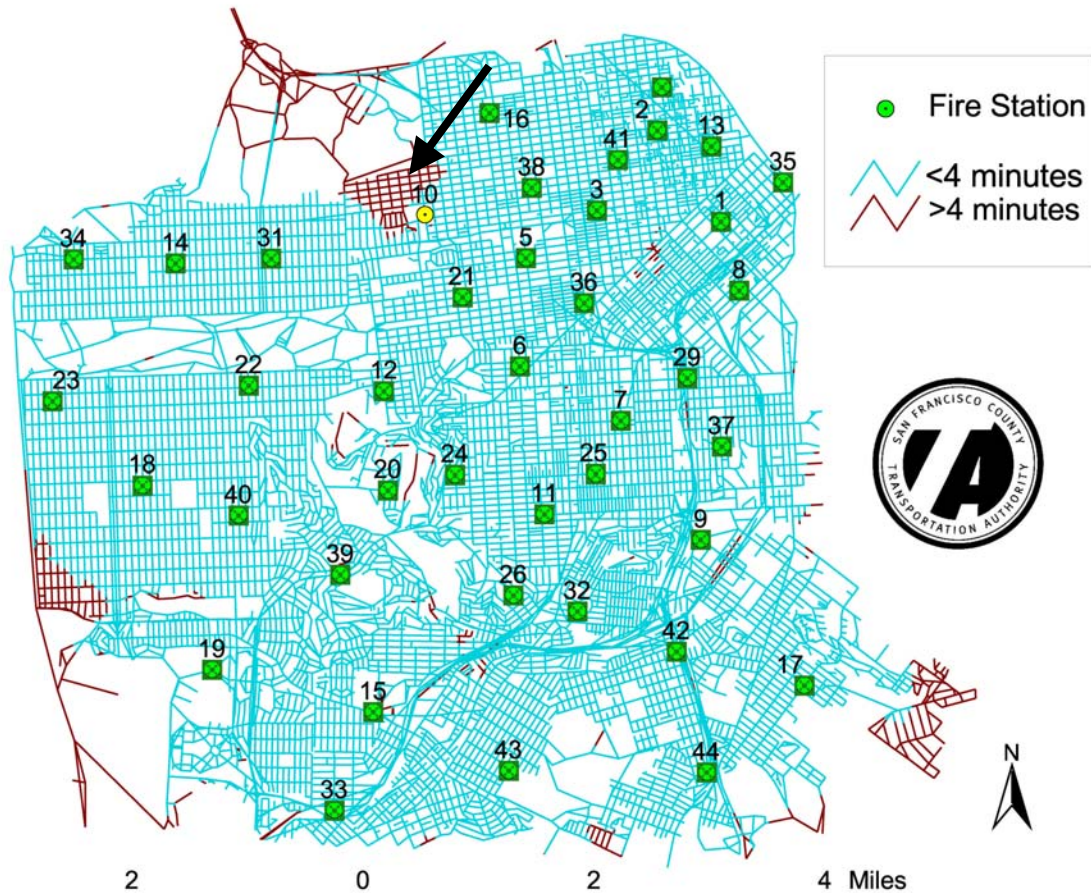


Map D23: 5-Minute Coverage With Station 9 Removed
(Arrows show area with coverage change.)



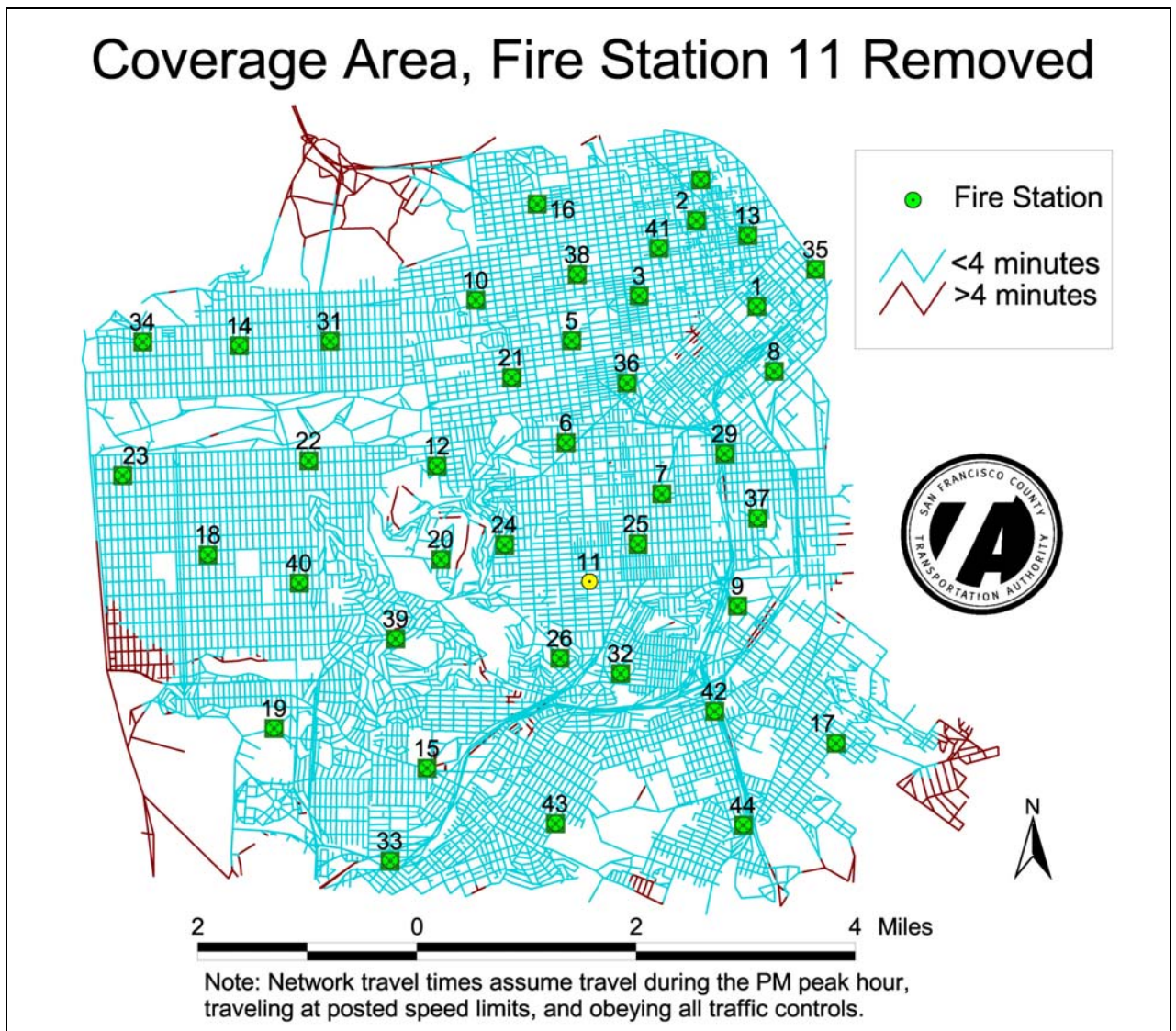
Maps D24: 5-Minute Coverage With Station 10 Removed
(Arrow shows area with coverage change.)

Coverage Area, Fire Station 10 Removed



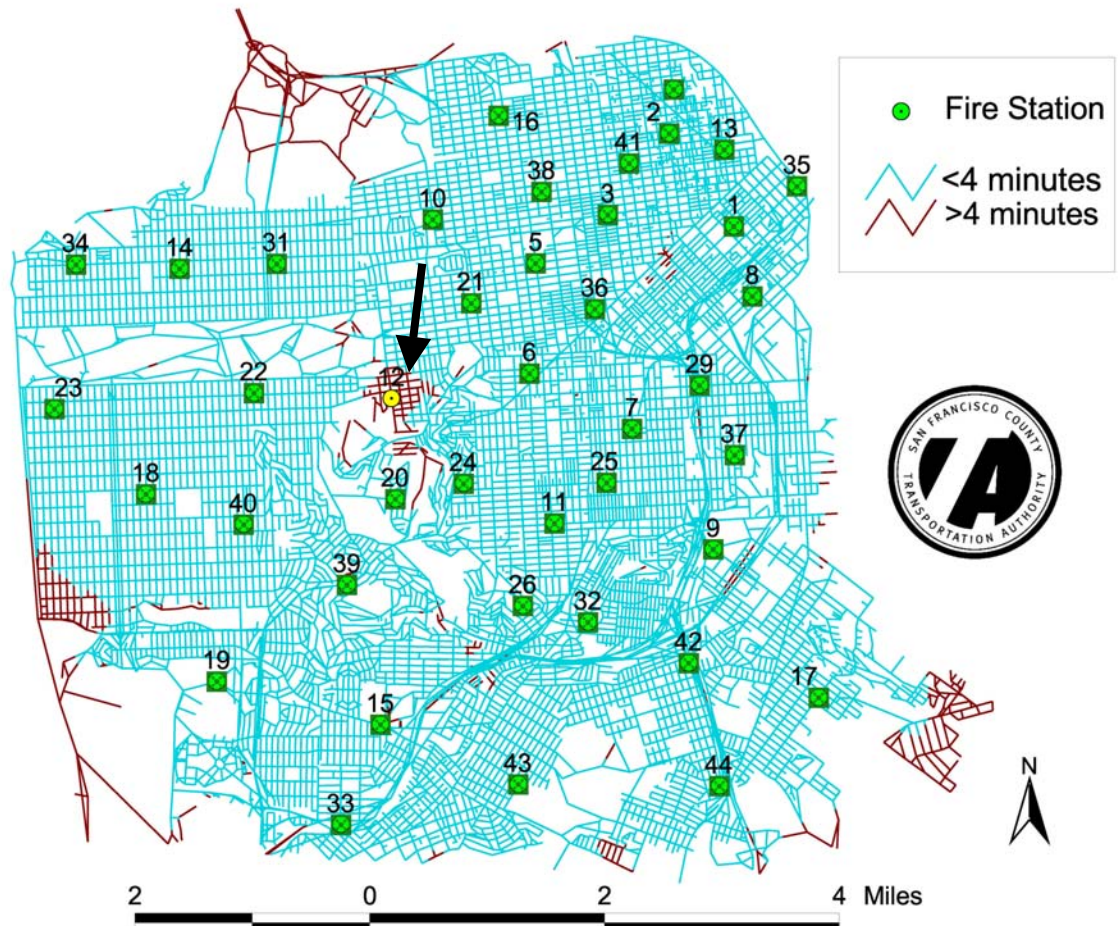
Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

Maps D25: 5-Minute Coverage With Station 11 Removed
(No coverage area change.)



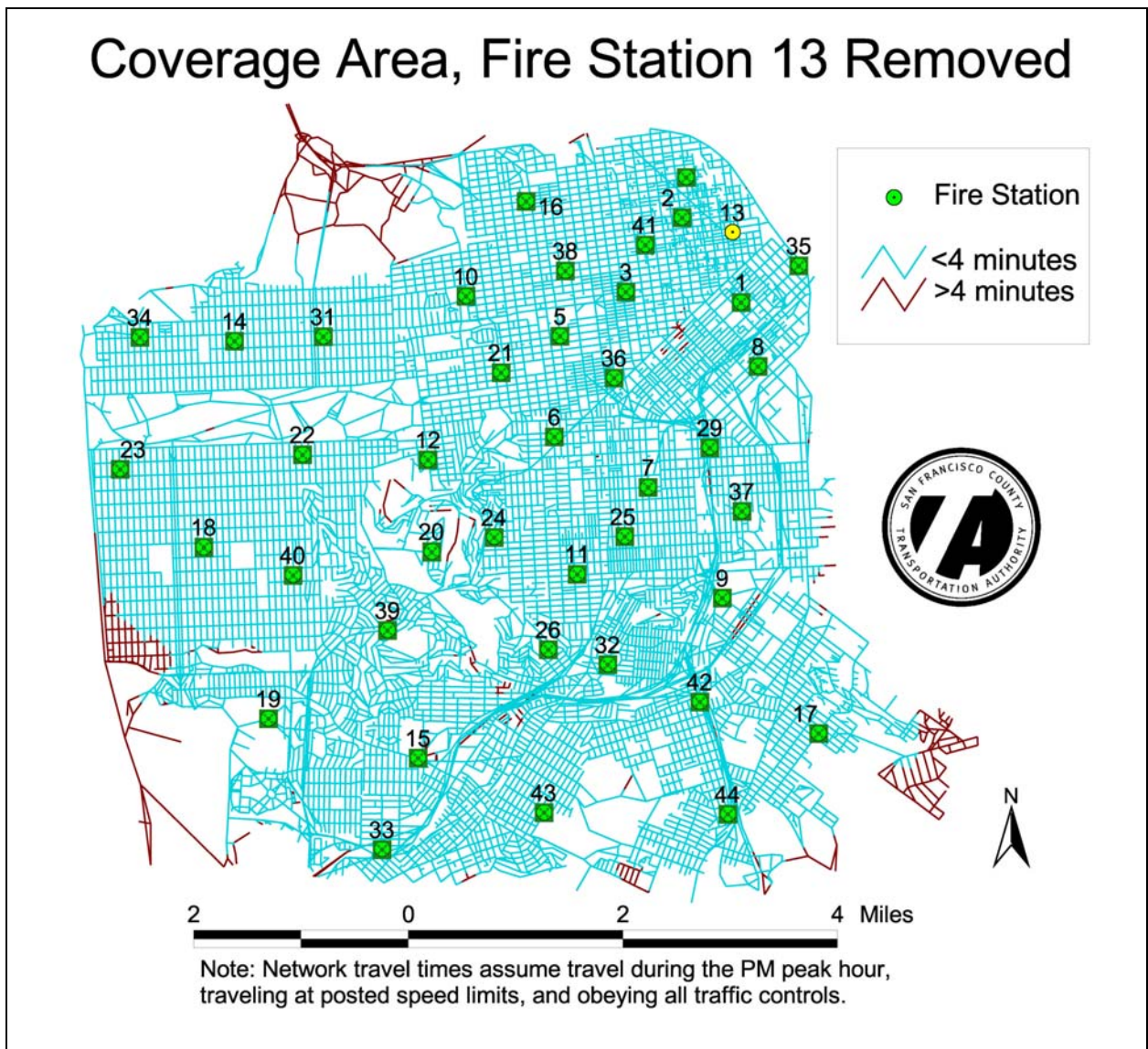
Maps D26: 5-Minute Coverage With Station 12 Removed
(Arrow shows area with coverage change.)

Coverage Area, Fire Station 12 Removed

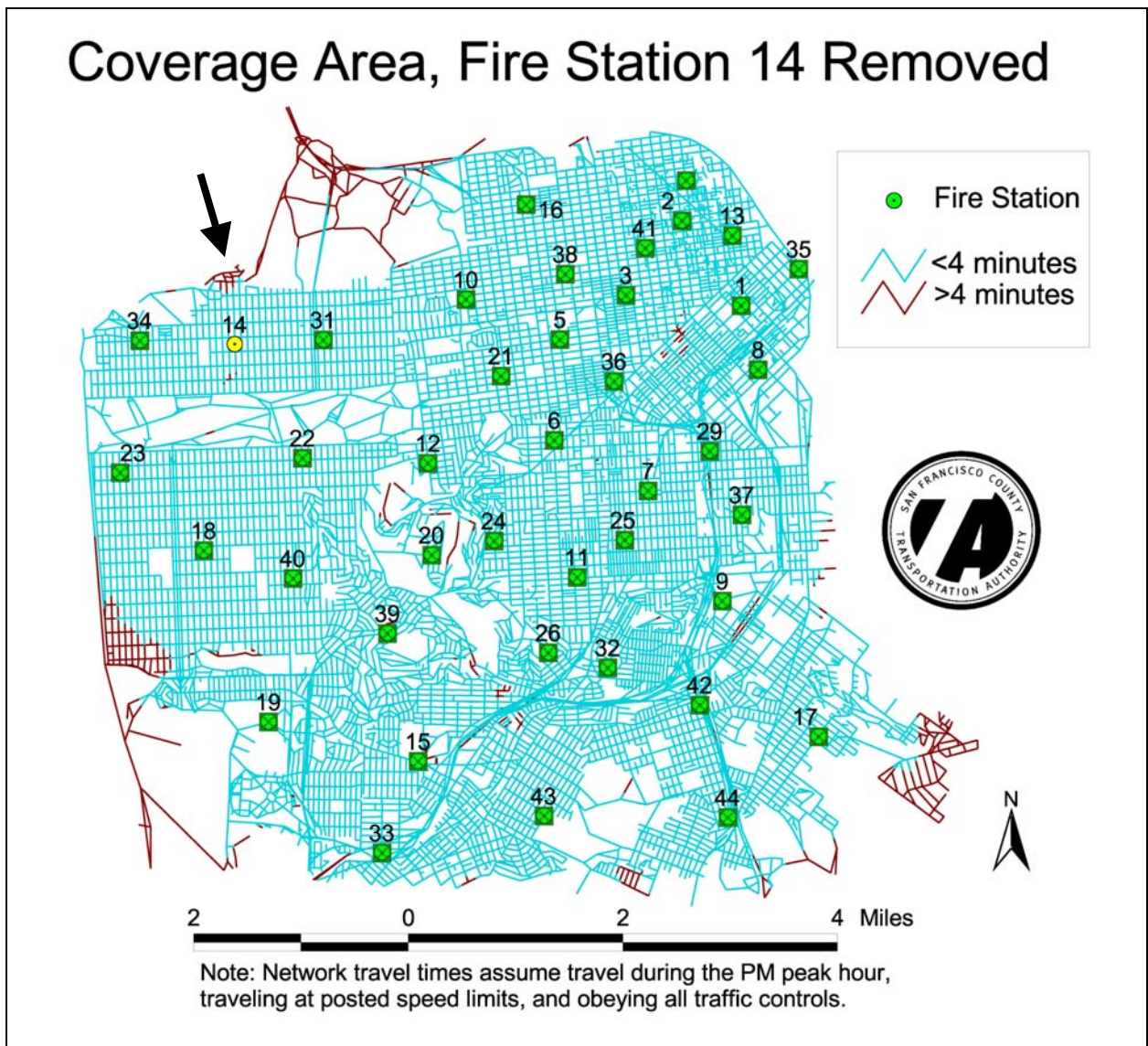


Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

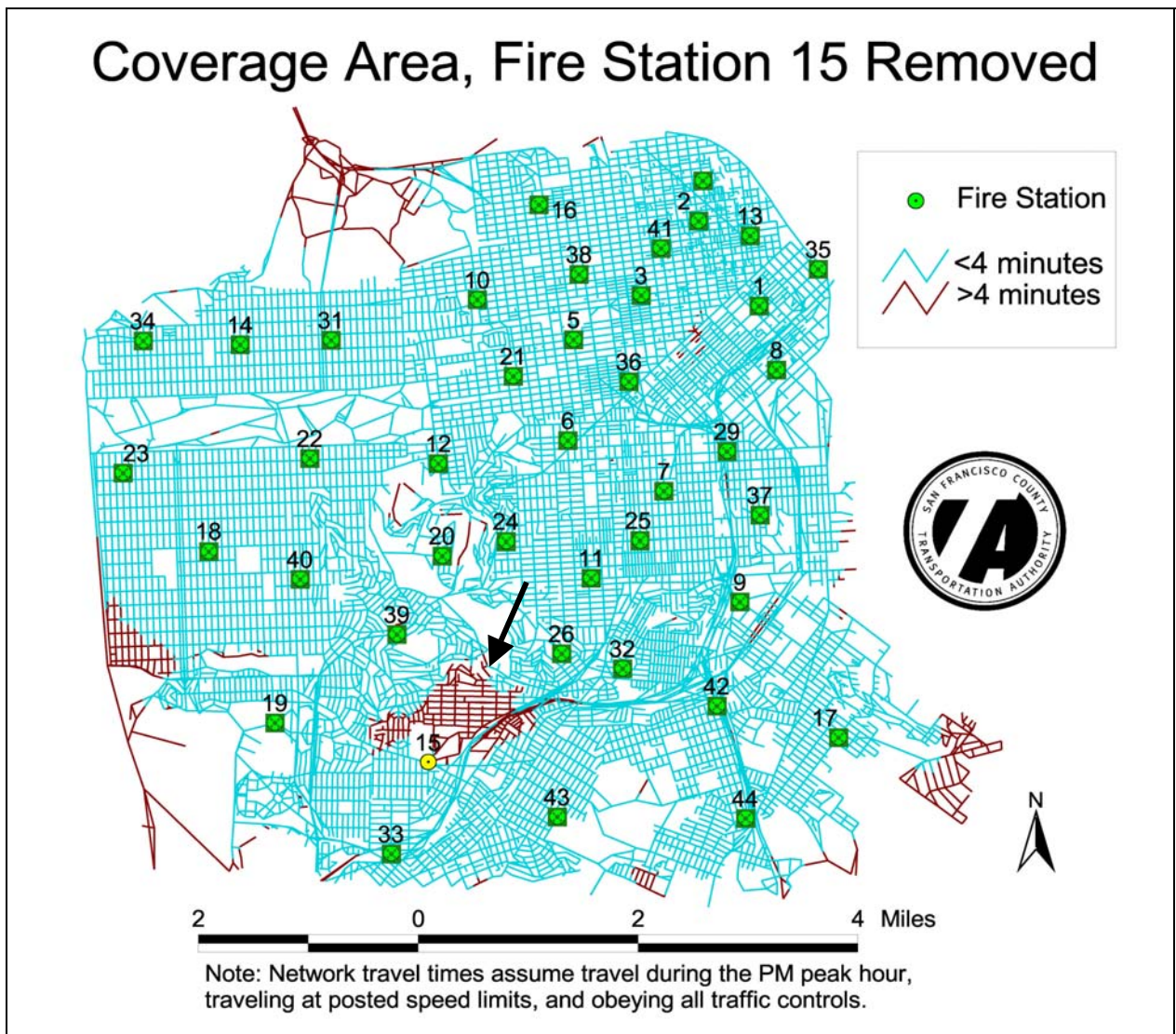
Maps D27: 5-Minute Coverage With Station 13 Removed
(No coverage area change.)



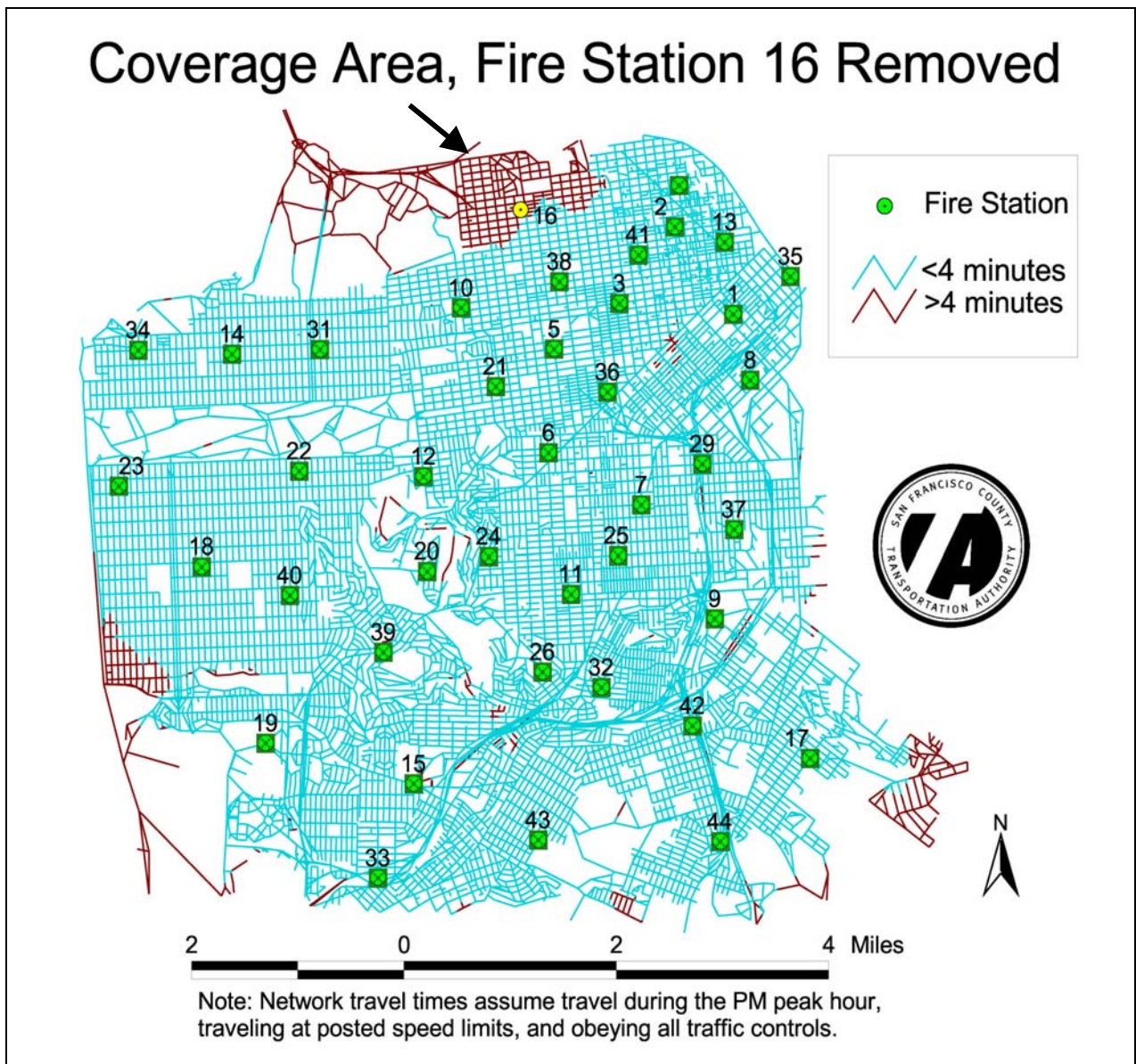
Maps D28: 5-Minute Coverage With Station 14 Removed
(Arrow shows area with coverage change.)



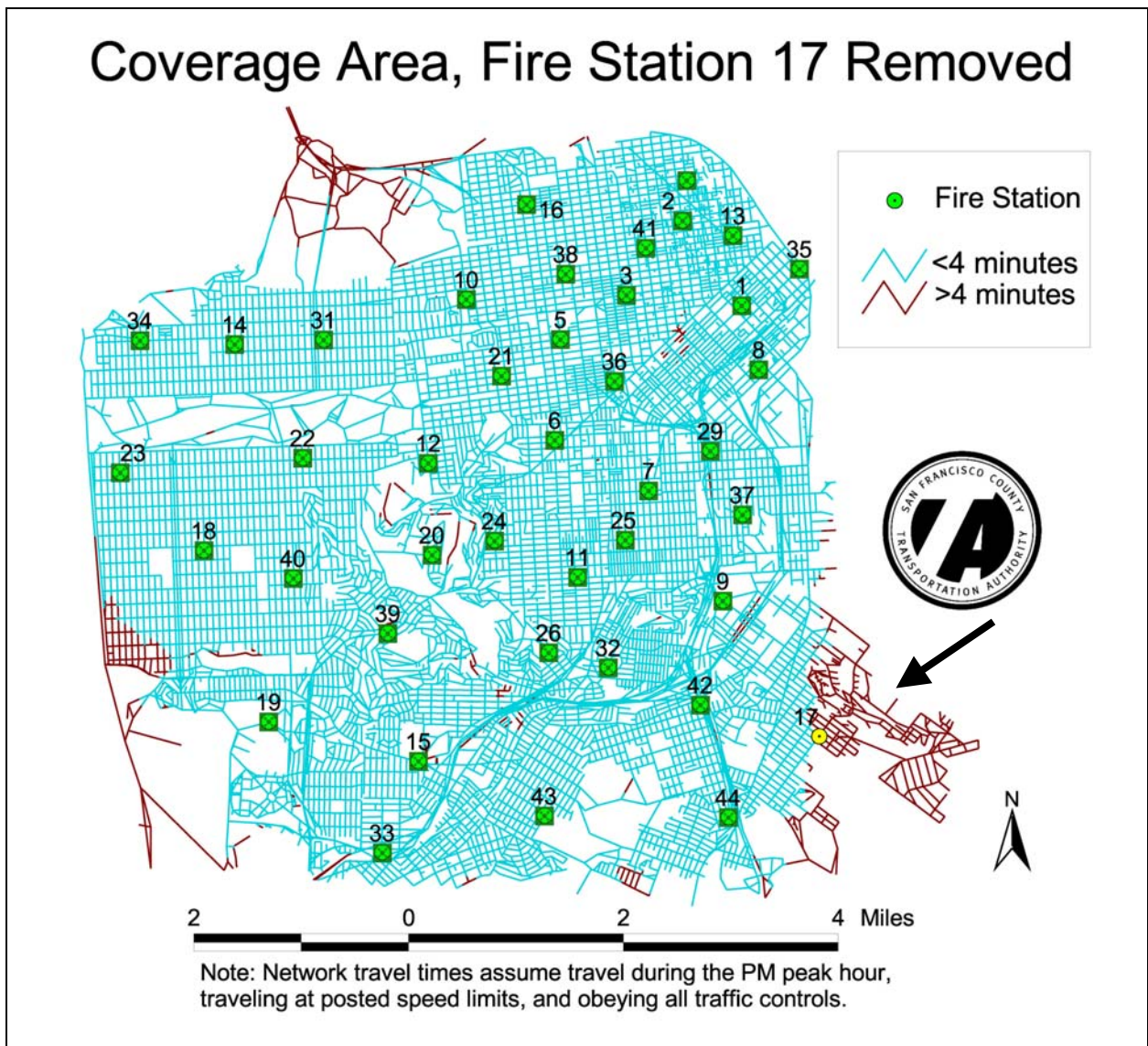
Maps D29: 5-Minute Coverage With Station 15 Removed
(Arrow shows area with coverage change.)



Maps D30: 5-Minute Coverage With Station 16 Removed
(Arrow shows area with coverage change.)

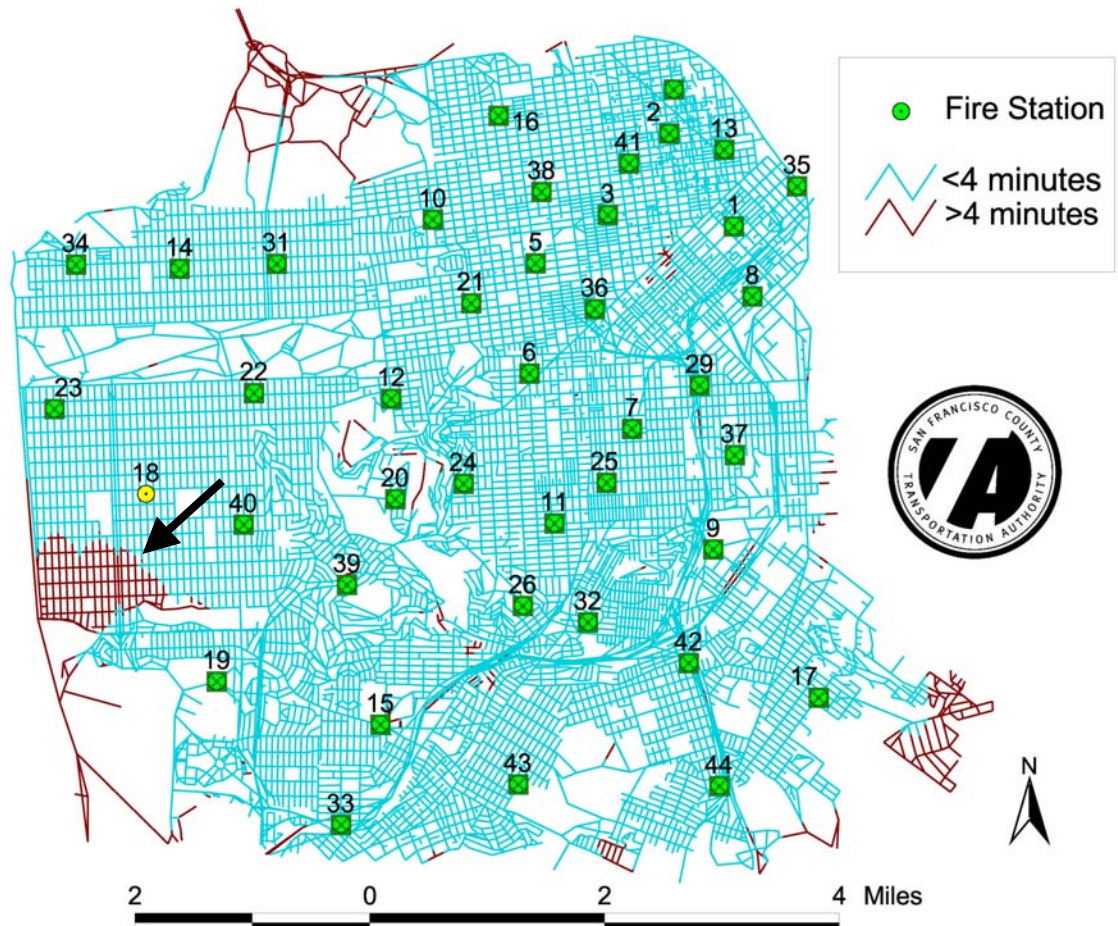


Maps D31: 5-Minute Coverage With Station 17 Removed
(Arrow shows area with coverage change.)



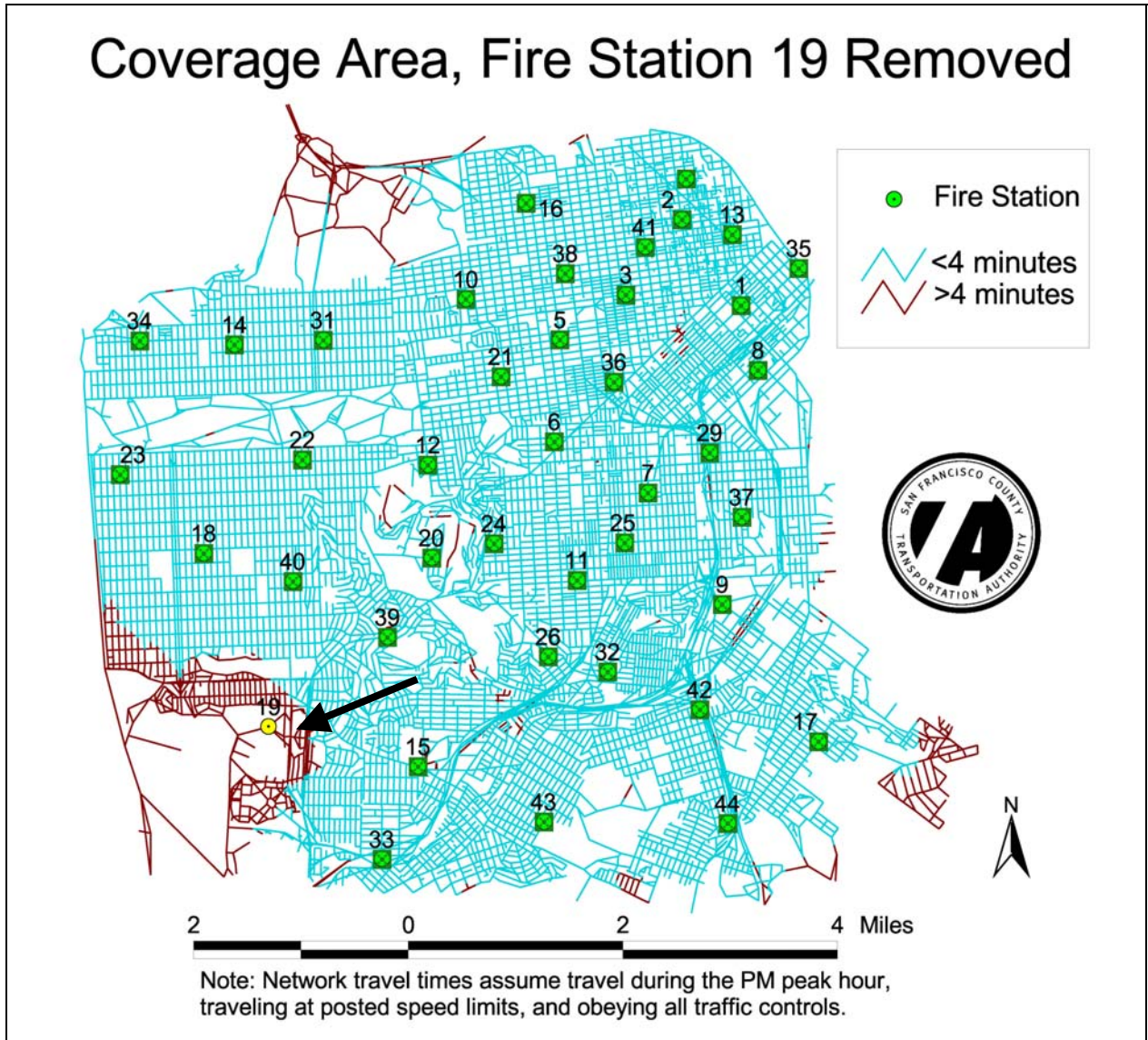
Maps D32: 5-Minute Coverage With Station 18 Removed
(Arrow shows area with coverage change.)

Coverage Area, Fire Station 18 Removed

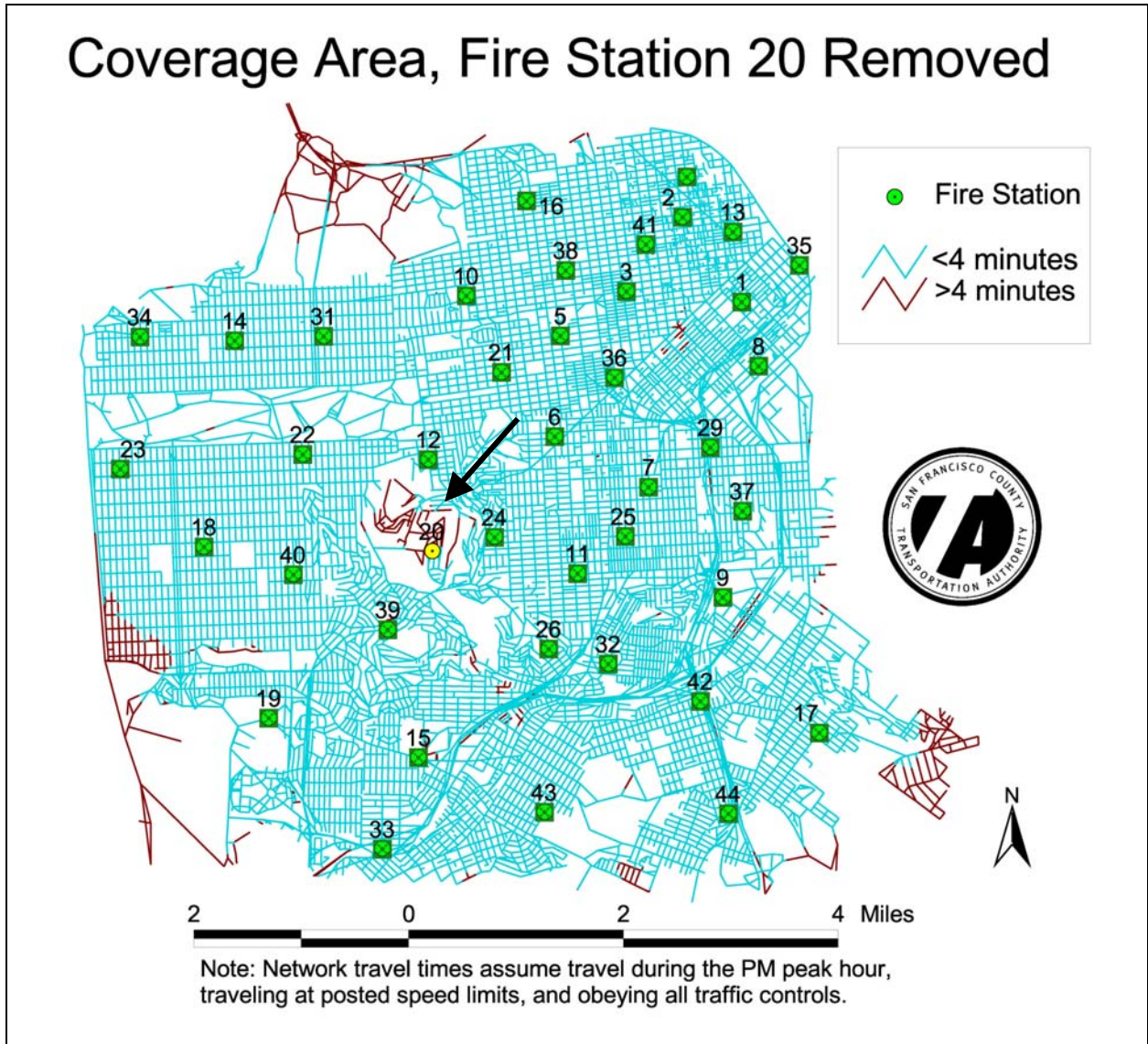


Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

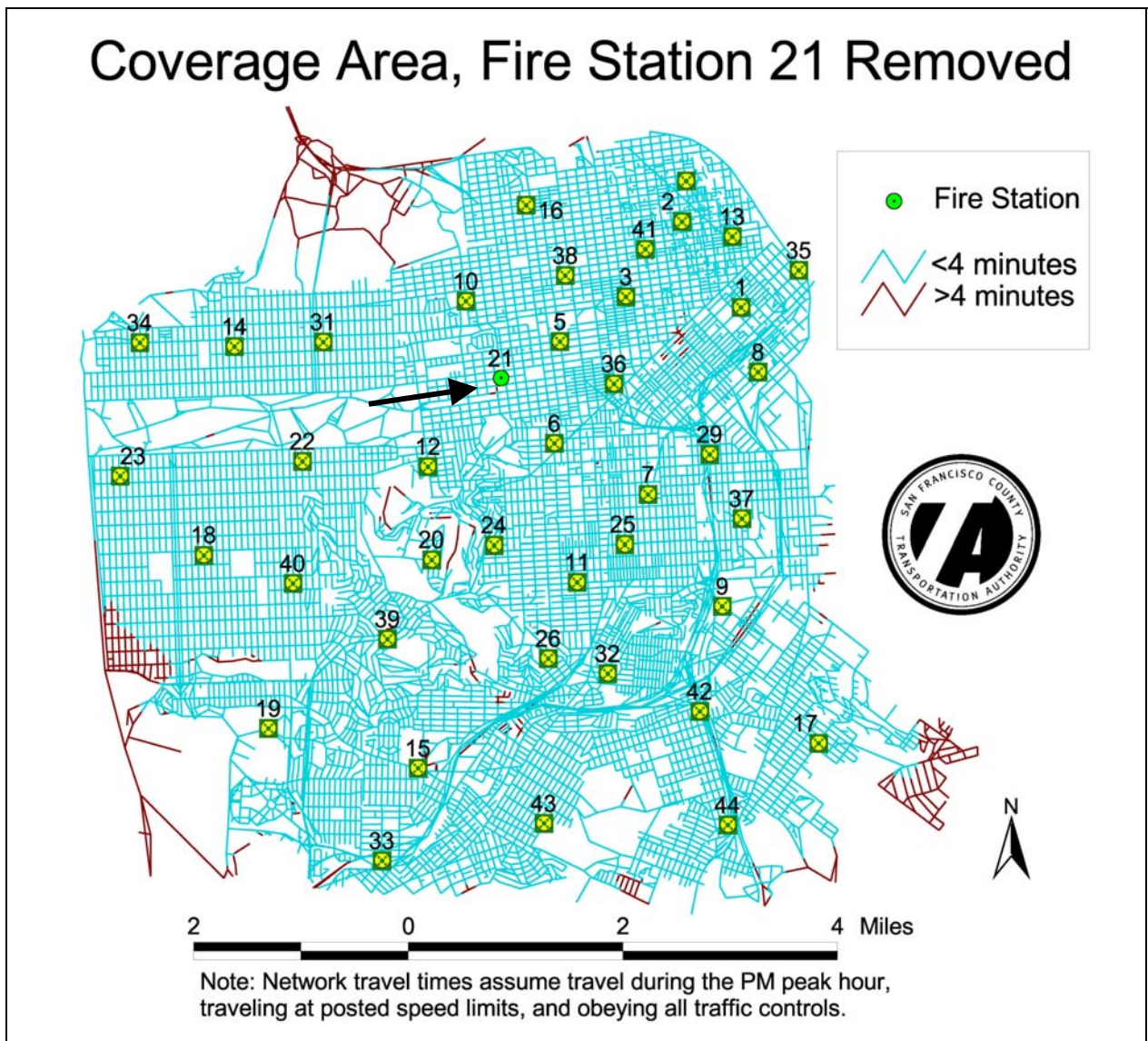
Maps D33: 5-Minute Coverage With Station 19 Removed
(Arrow shows area with coverage change.)



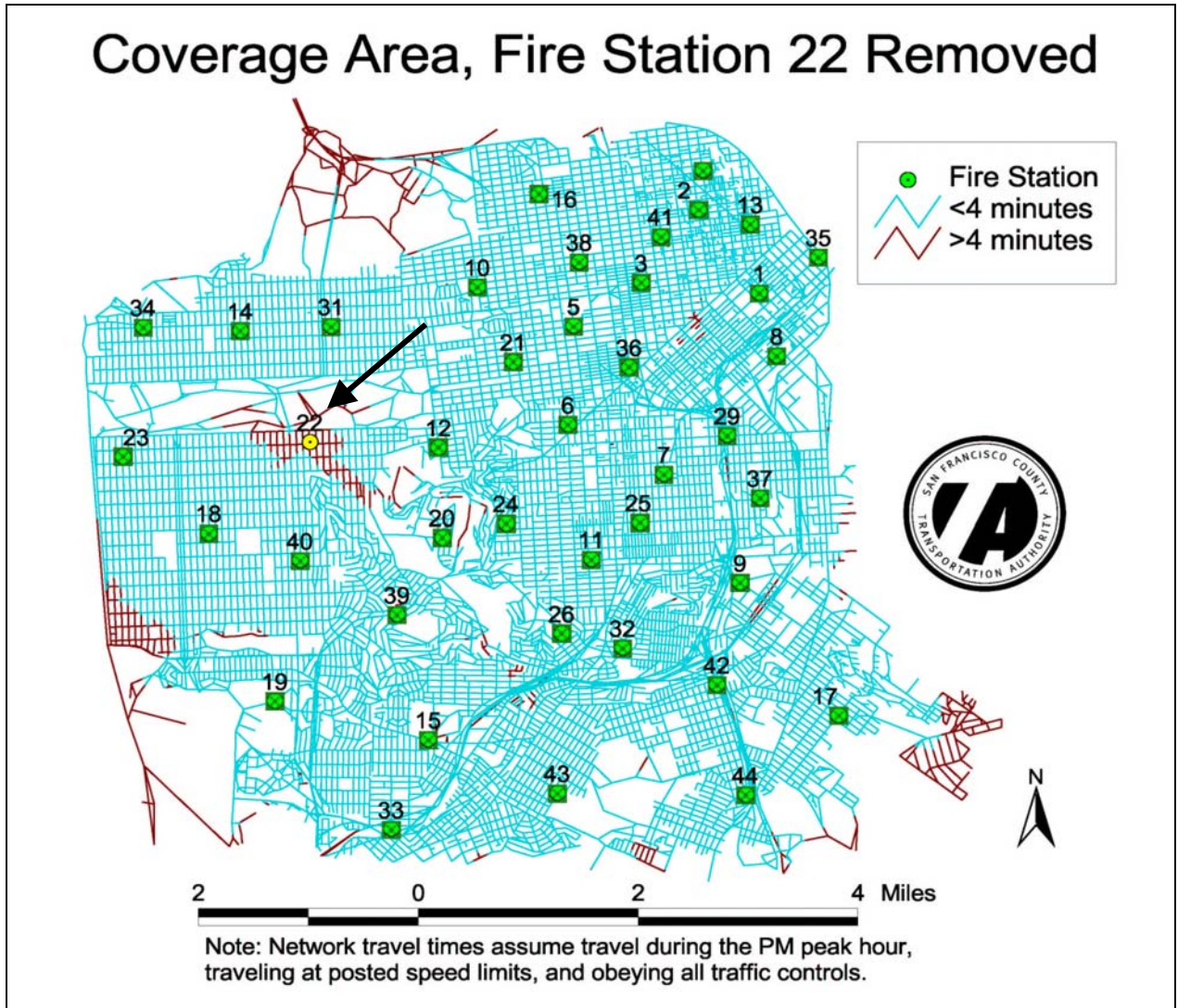
Maps D34: 5-Minute Coverage With Station 20 Removed
(Arrow shows area with coverage change.)



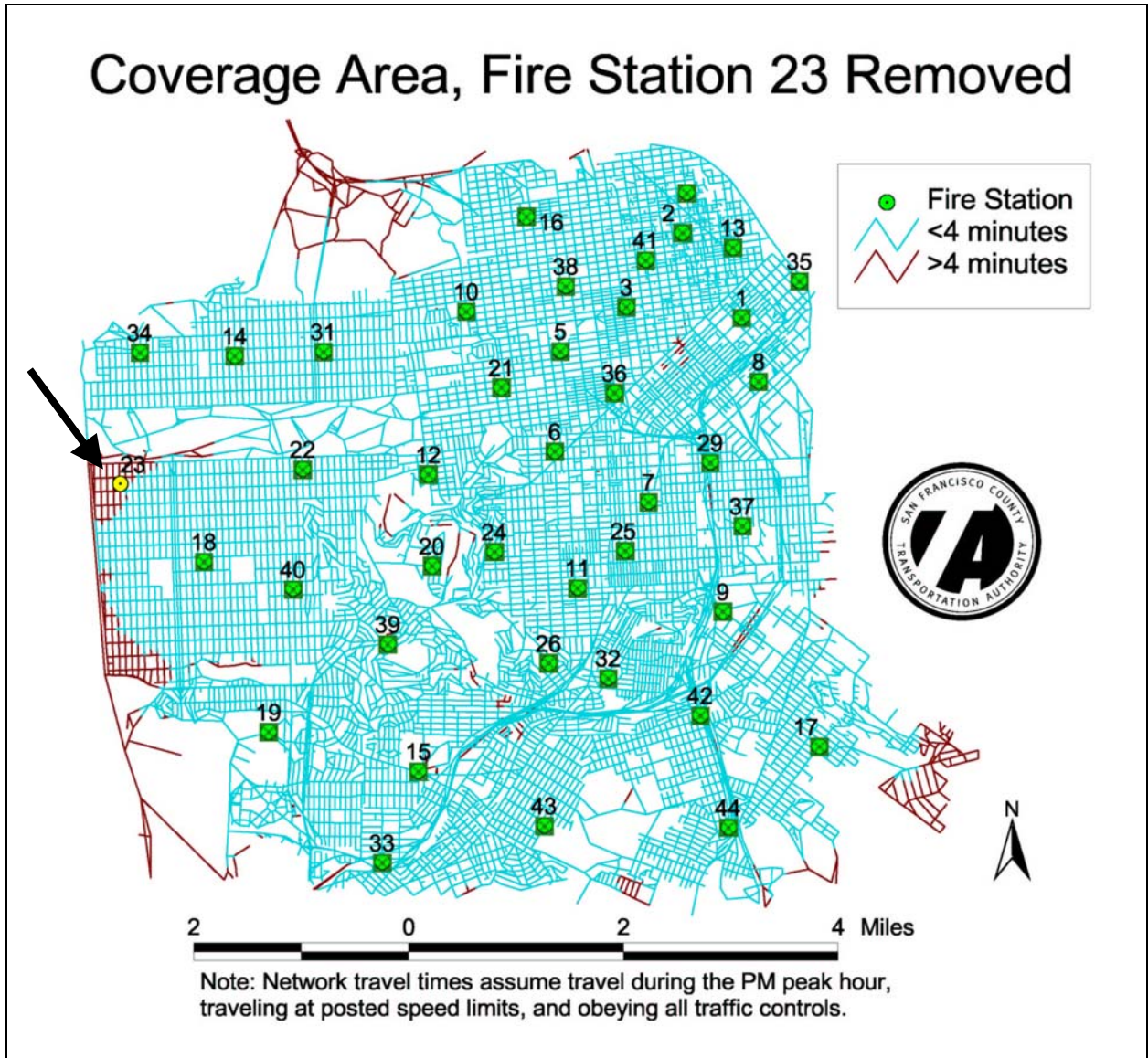
Map D35: 5-Minute Coverage With Station 21 Removed
(Arrow shows area where coverage changes.)



Map D36: 5-Minute Coverage With Station 22 Removed
(Arrow shows area where coverage changes.)

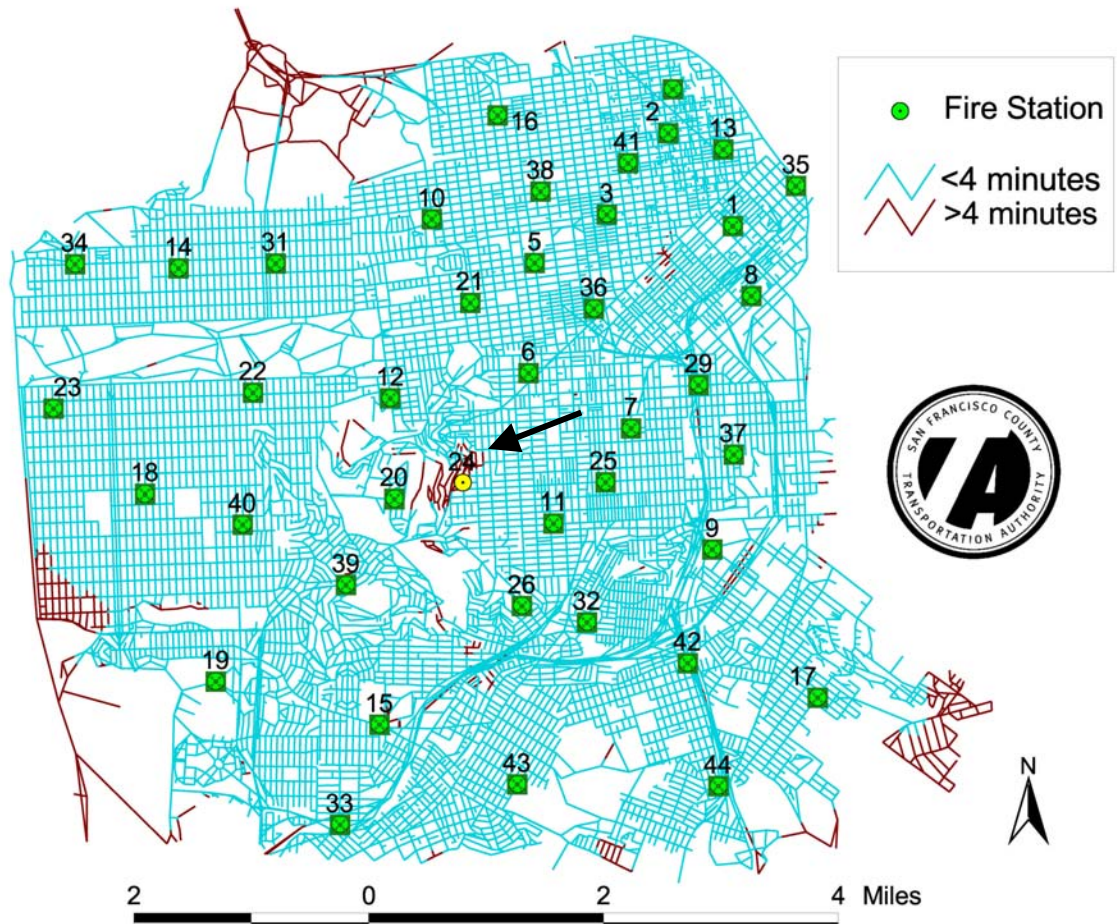


Map D37: 5-Minute Coverage With Station 23 Removed
(Arrow shows area where coverage changes.)



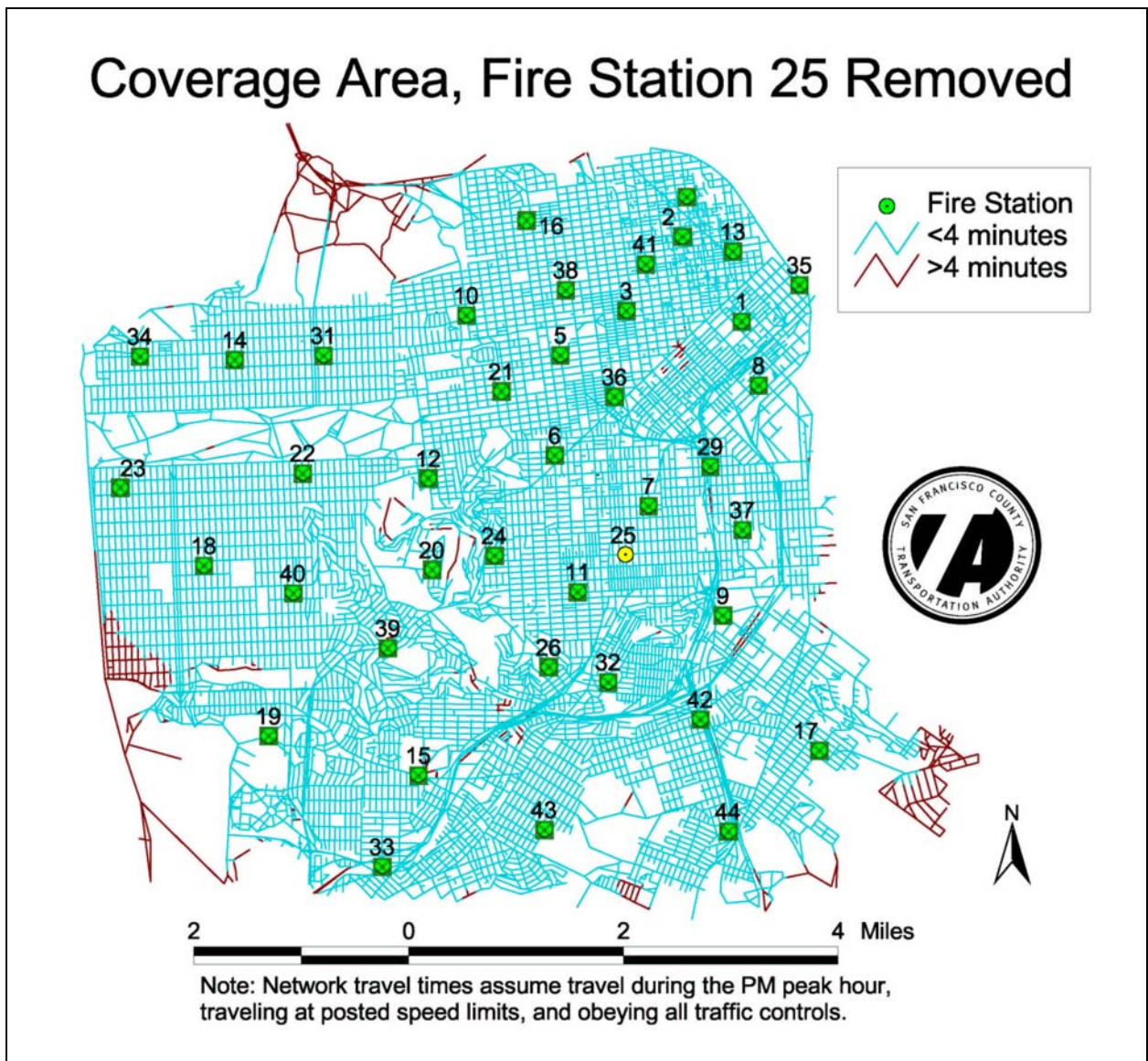
Map D38: 5-Minute Coverage With Station 24 Removed
(Arrow shows area where coverage changes.)

Coverage Area, Fire Station 24 Removed



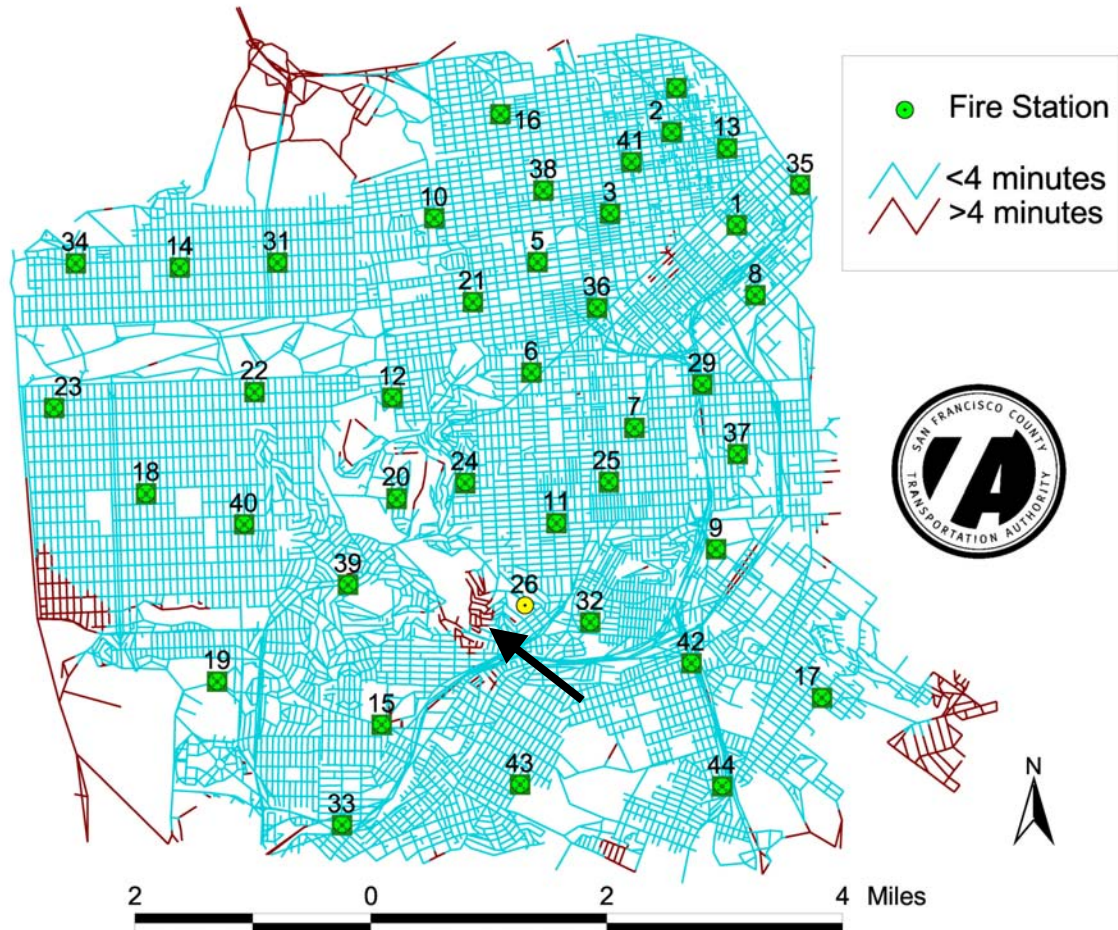
Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

Map D39: 5-Minute Coverage With Station 25 Removed
(No change in coverage area.)



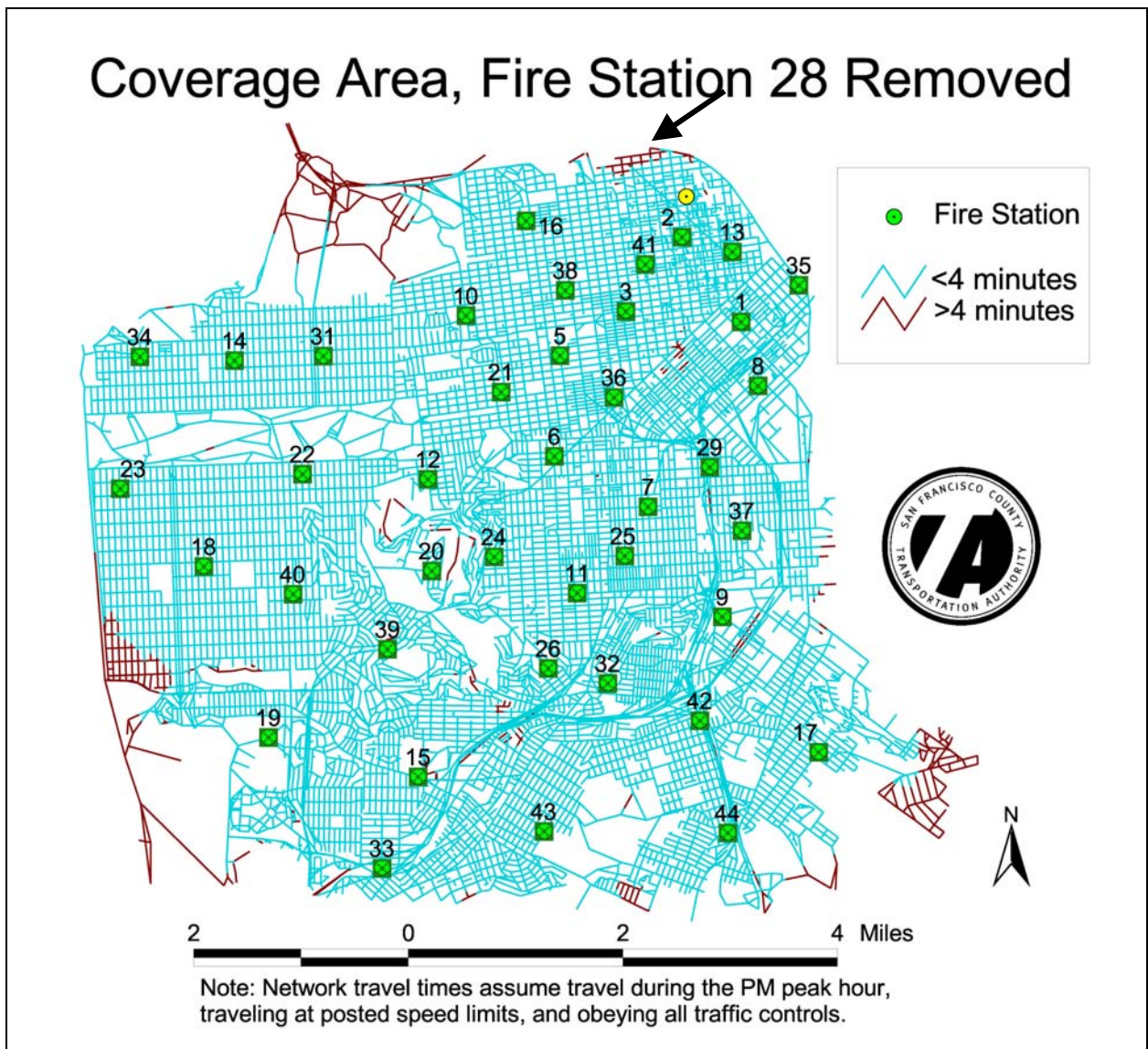
Map D40: 5-Minute Coverage With Station 26 Removed
(Arrow shows area where coverage changes.)

Coverage Area, Fire Station 26 Removed

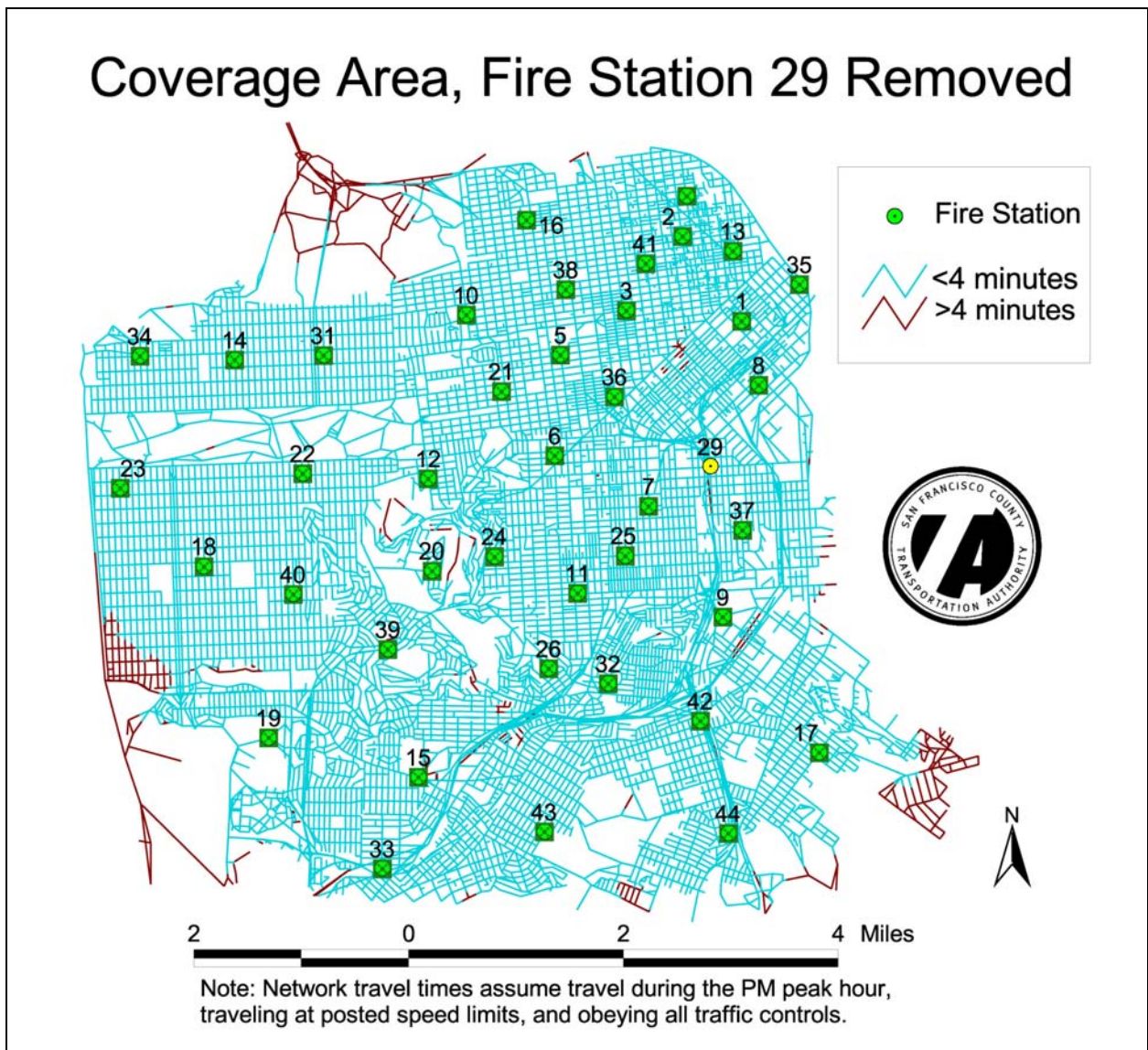


Note: Network travel times assume travel during the PM peak hour, traveling at posted speed limits, and obeying all traffic controls.

Map D41: 5-Minute Coverage With Station 28 Removed
(Arrow shows area where coverage changes.)

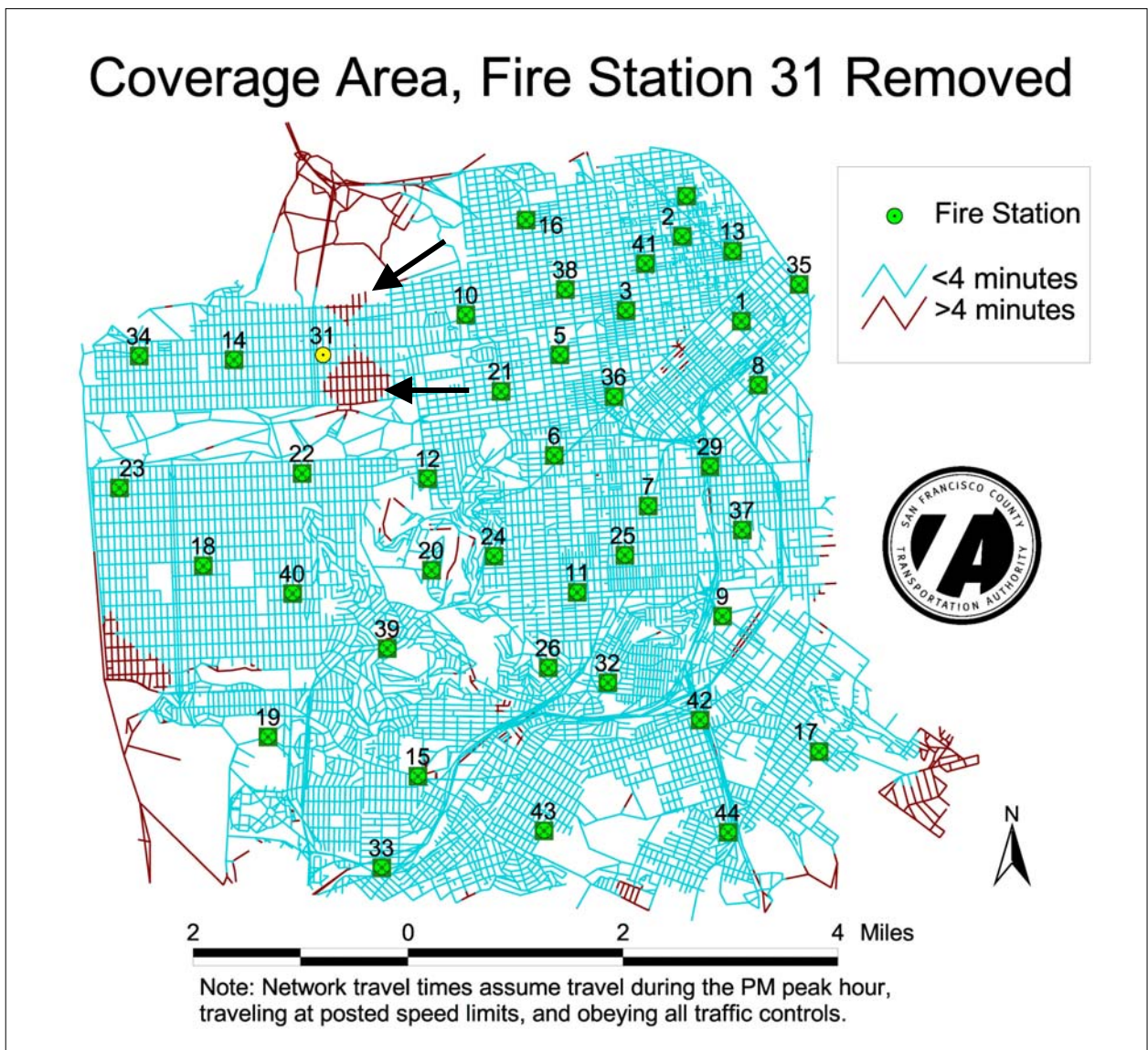


Map D42: 5-Minute Coverage With Station 29 Removed
(No coverage change.)

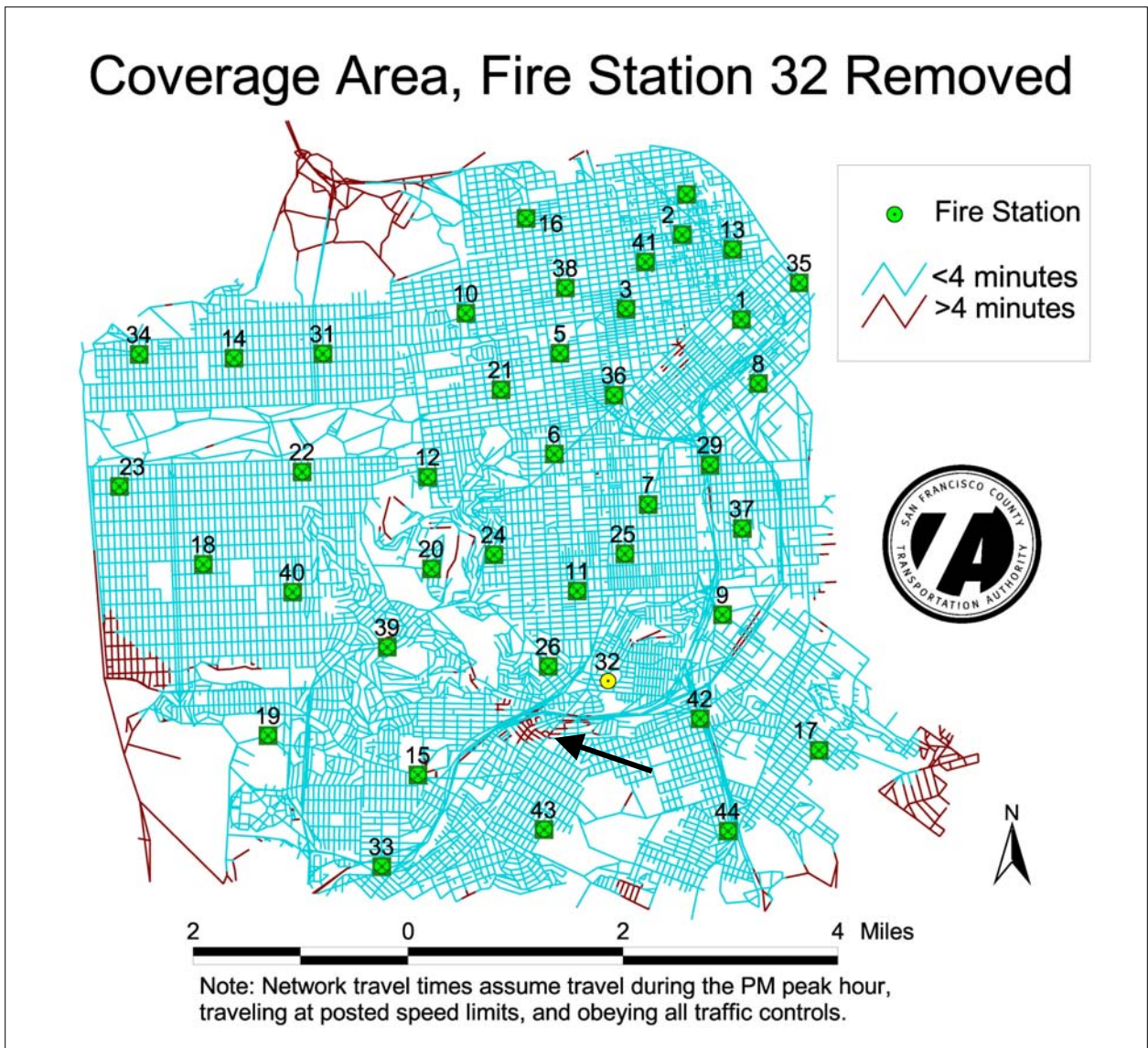


Note: There is no Station 30.

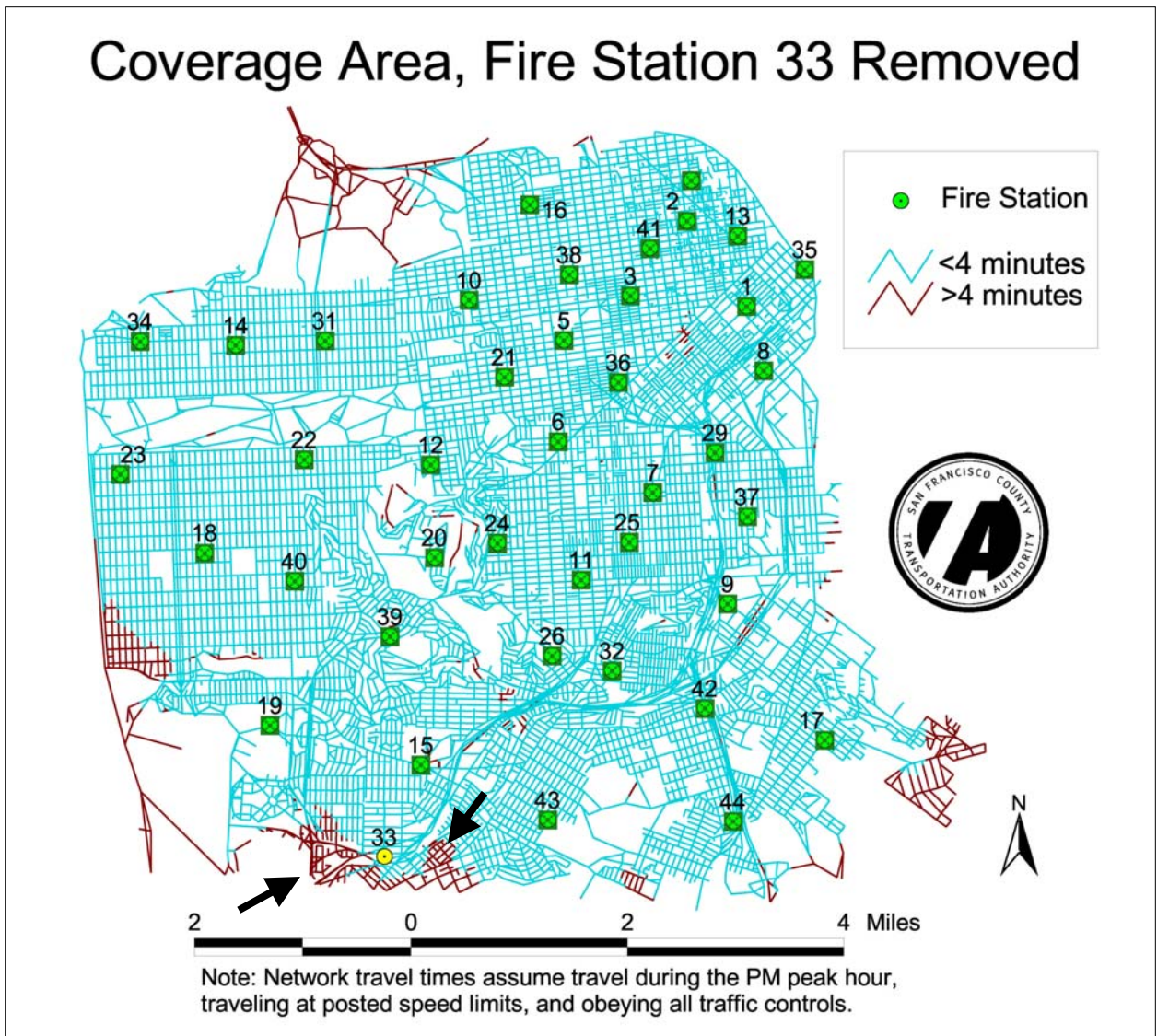
Map D43: 5-Minute Coverage With Station 31 Removed
(Arrow shows area where coverage changes.)



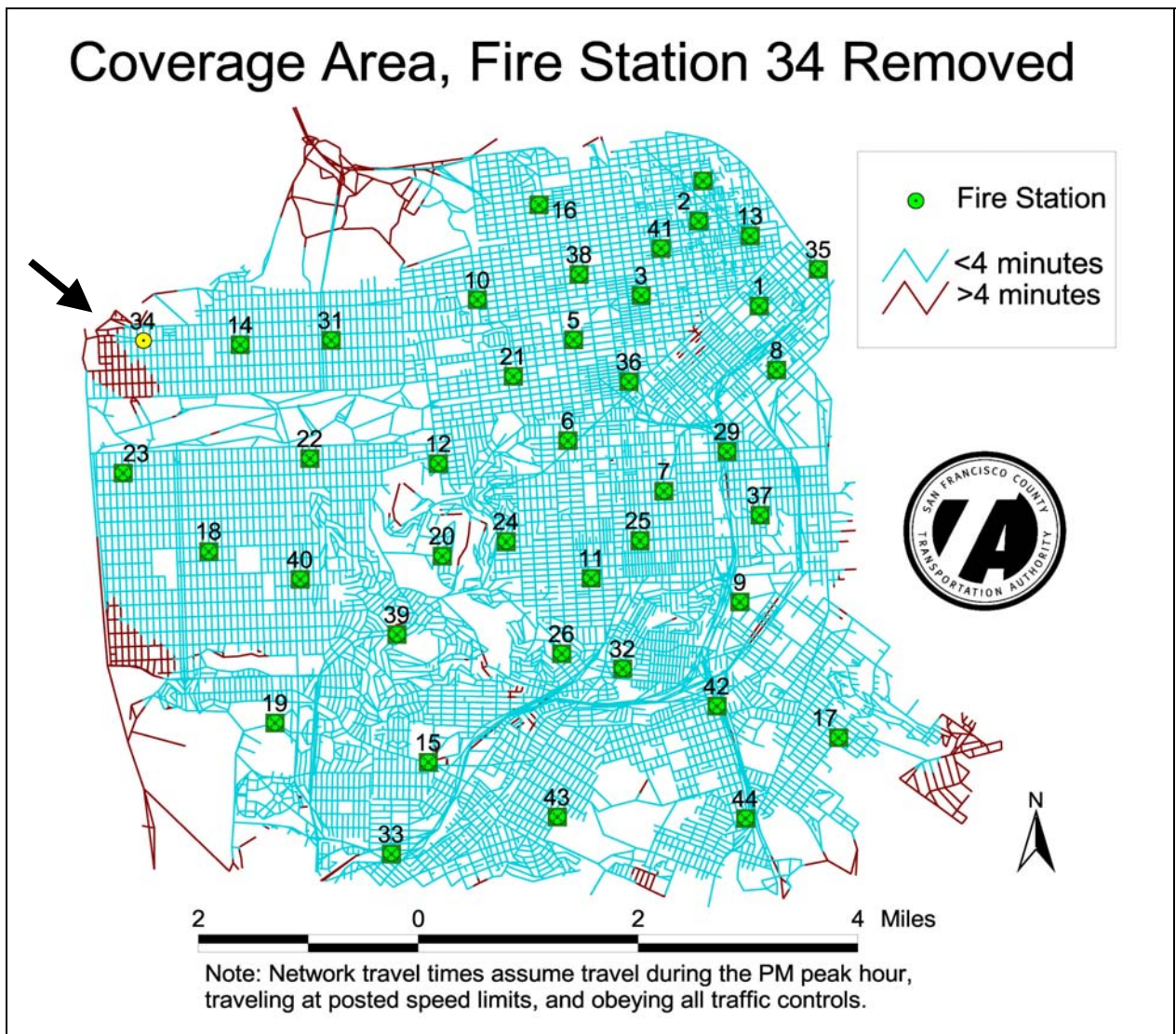
Map D44: 5-Minute Coverage With Station 32 Removed
(Arrow shows area where coverage changes.)



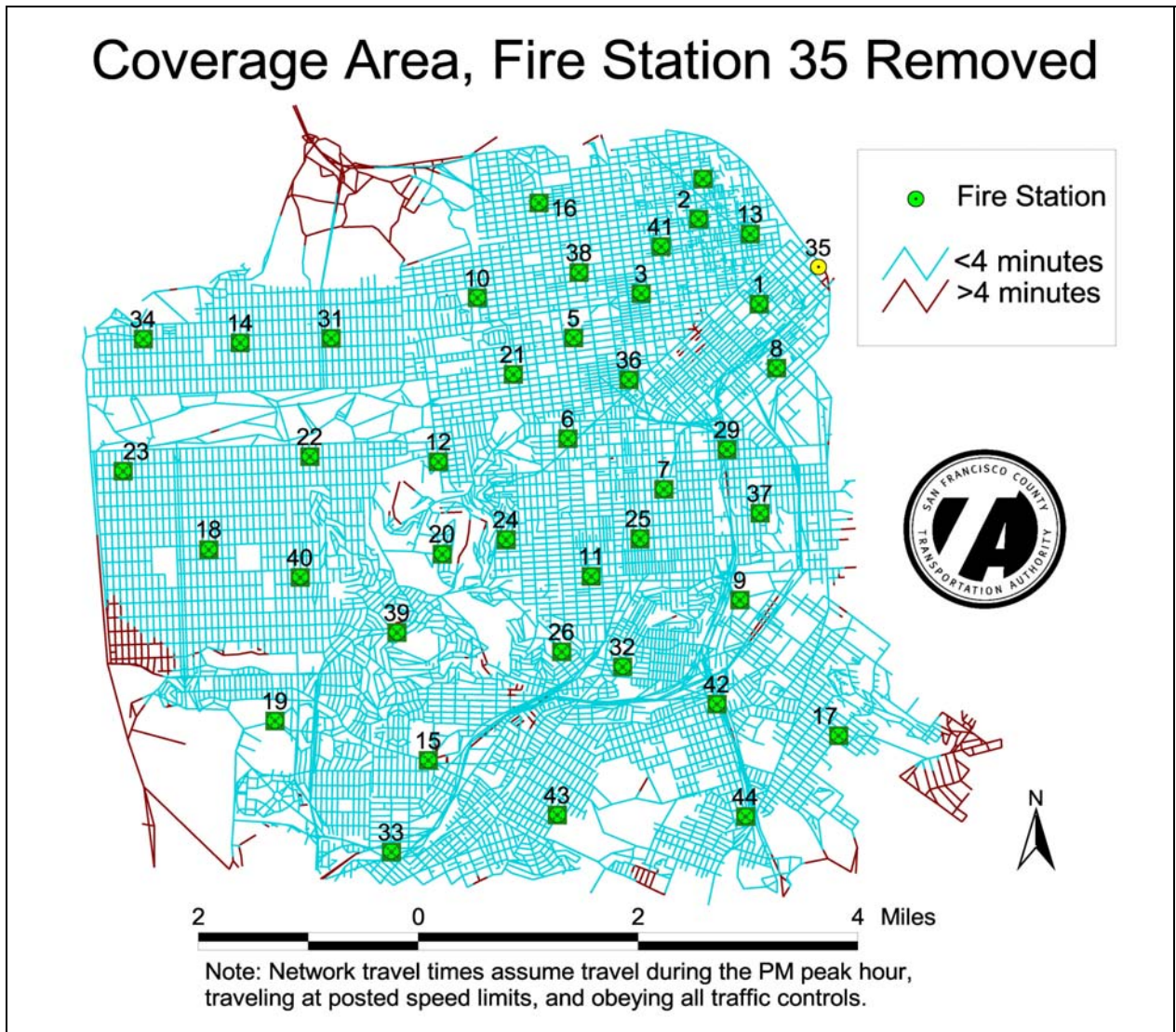
Map D45: 5-Minute Coverage With Station 33 Removed
(Arrow shows area where coverage changes.)



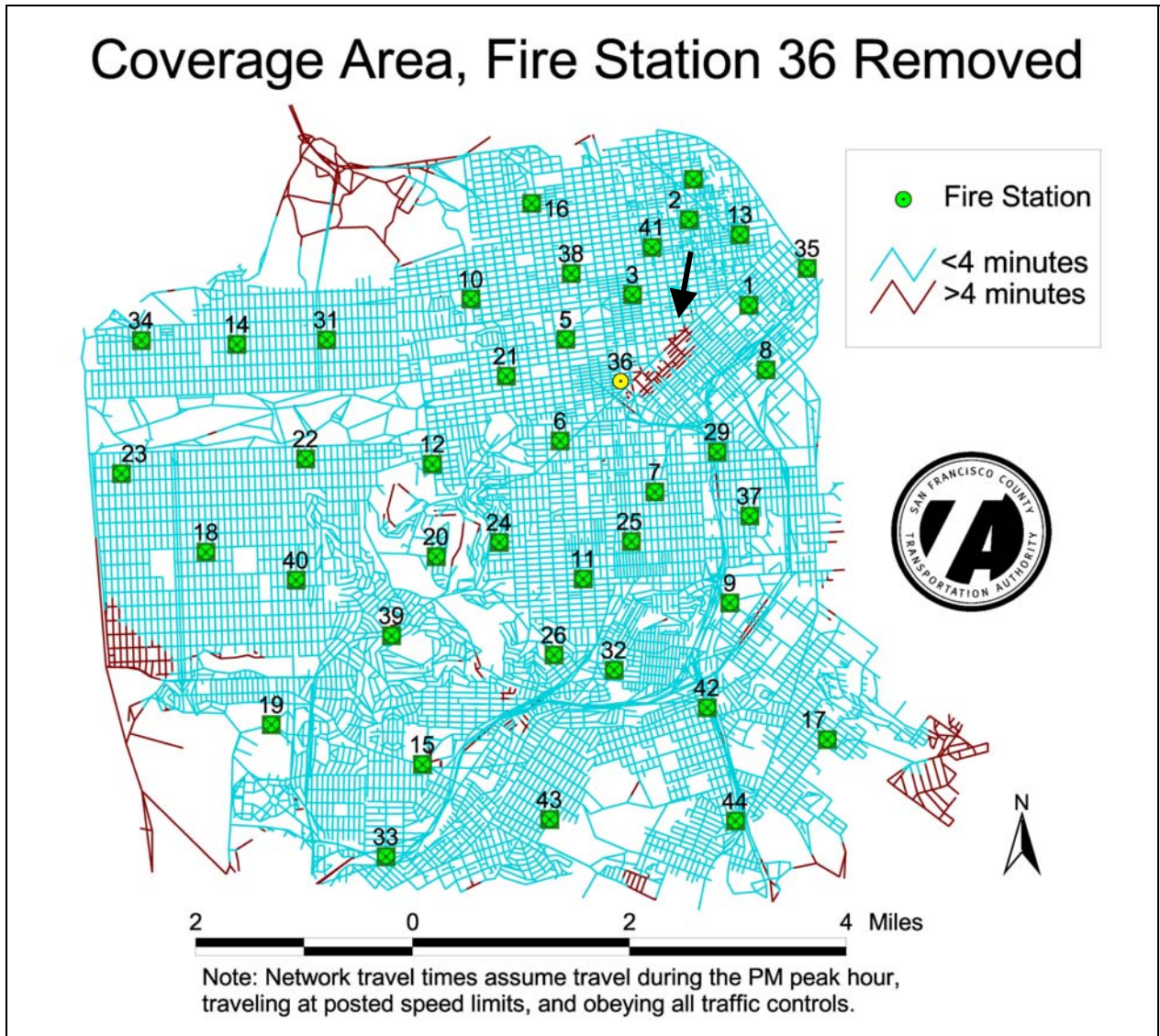
Map D46: 5-Minute Coverage With Station 34 Removed
(Arrow shows area where coverage changes.)



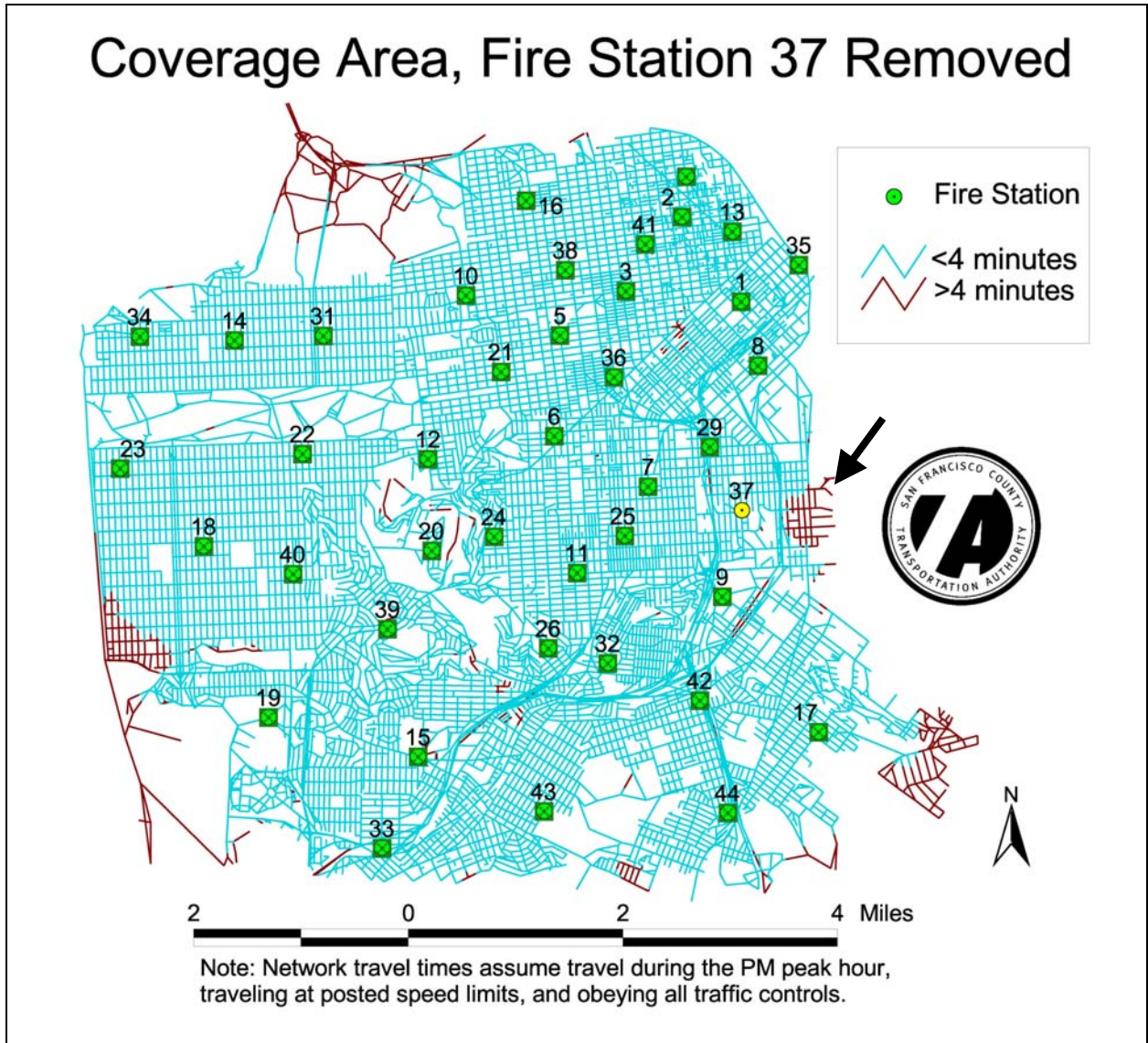
Map D47: 5-Minute Coverage With Station 35 Removed
 (Arrow shows area where coverage changes.)



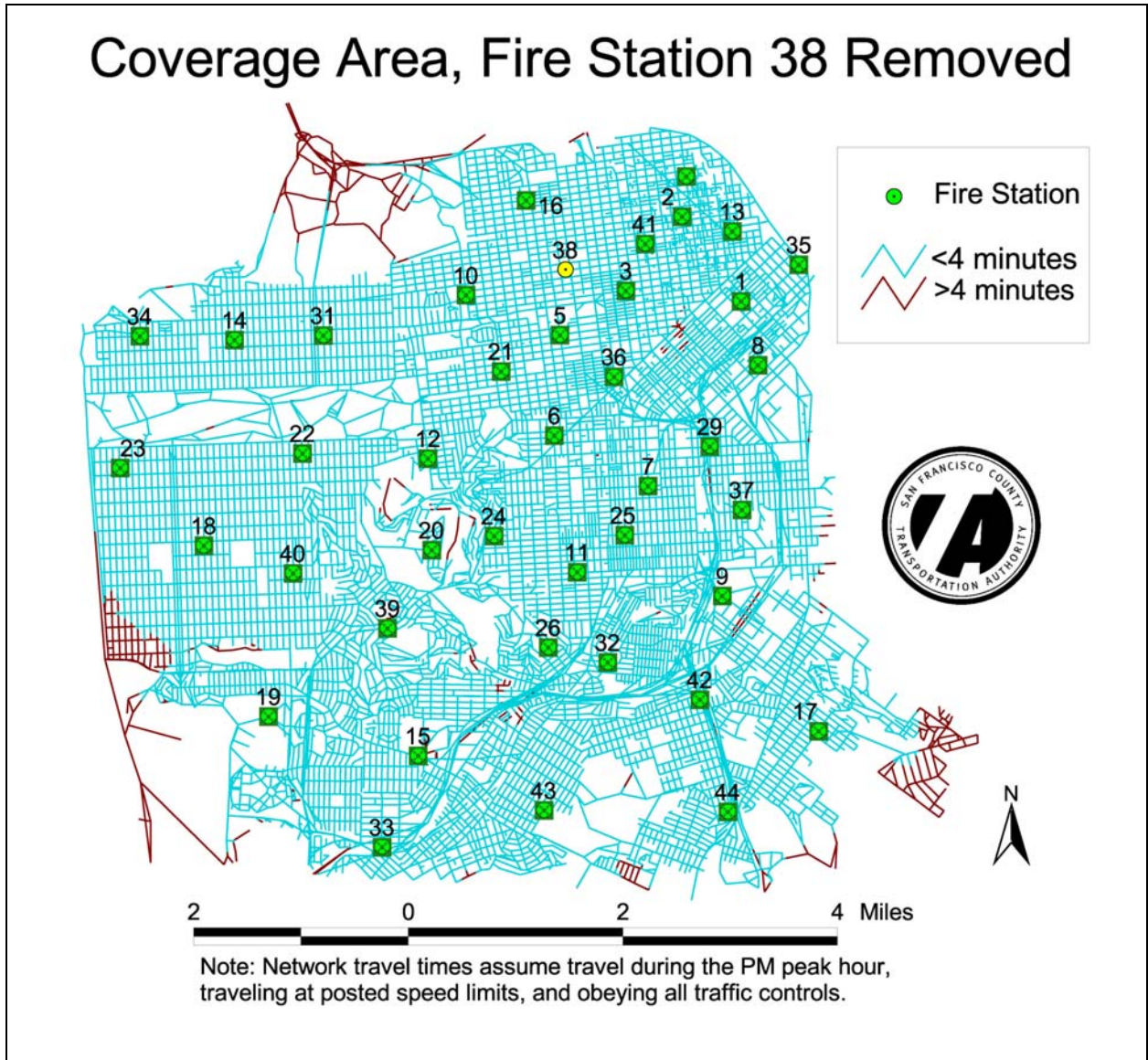
Map D48: 5-Minute Coverage With Station 36 Removed
(Arrow shows area where coverage changes.)



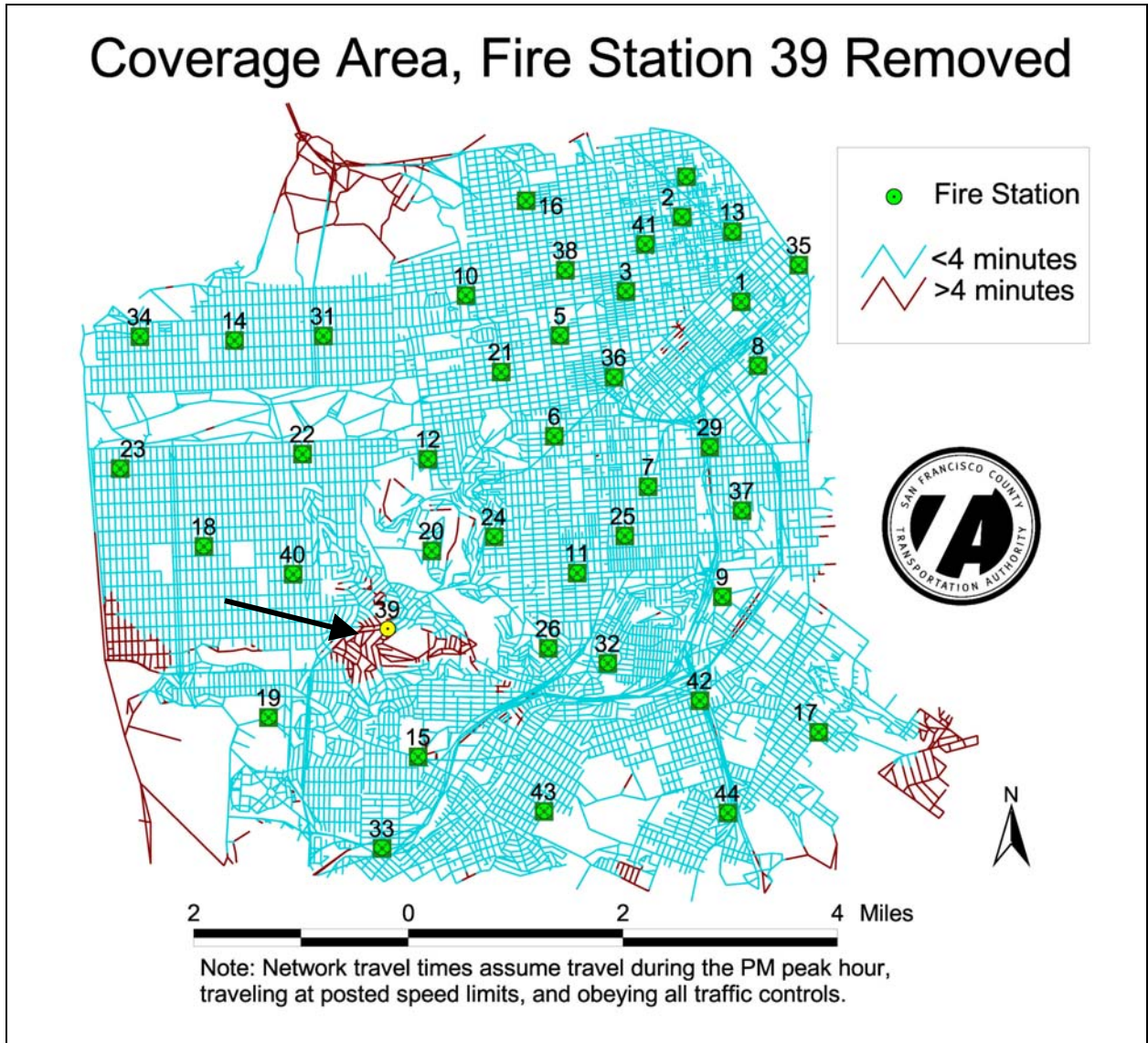
Map D49: 5-Minute Coverage With Station 37 Removed
 (Arrow shows area where coverage changes.)



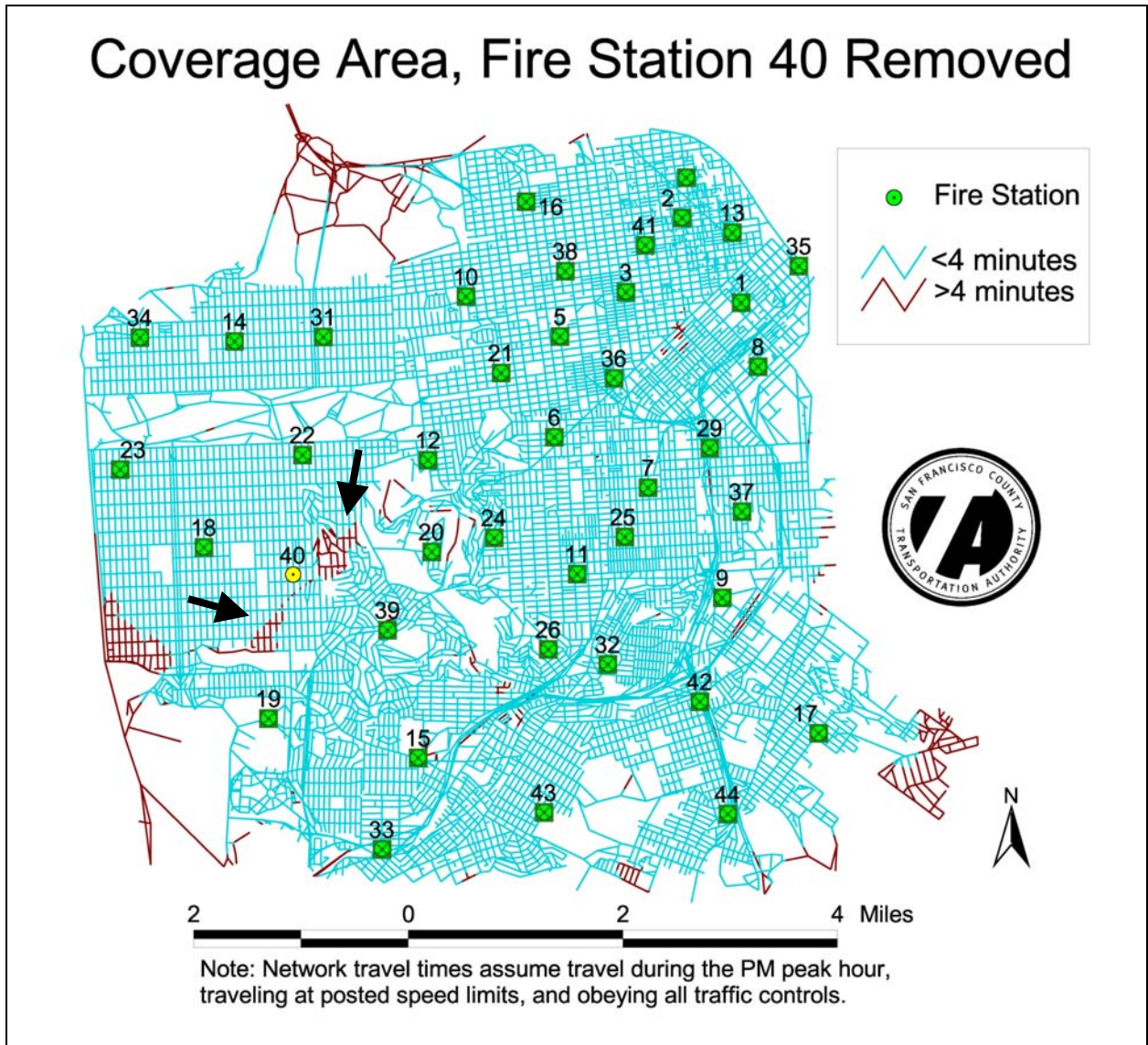
Map D50: 5-Minute Coverage With Station 38 Removed
(No change in coverage.)



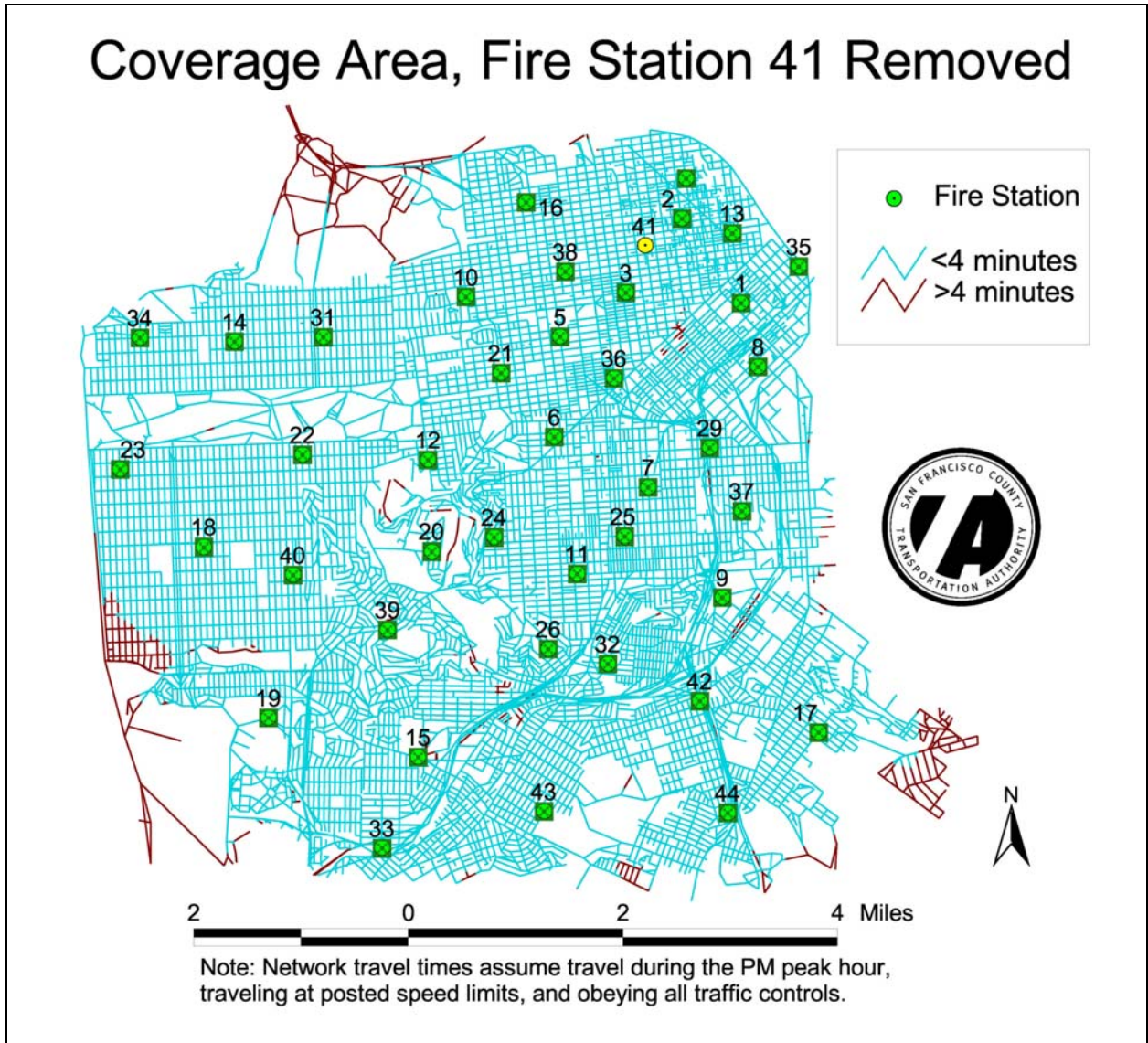
Map D51: 5-Minute Coverage With Station 39 Removed
 (Arrow shows area where coverage changes.)



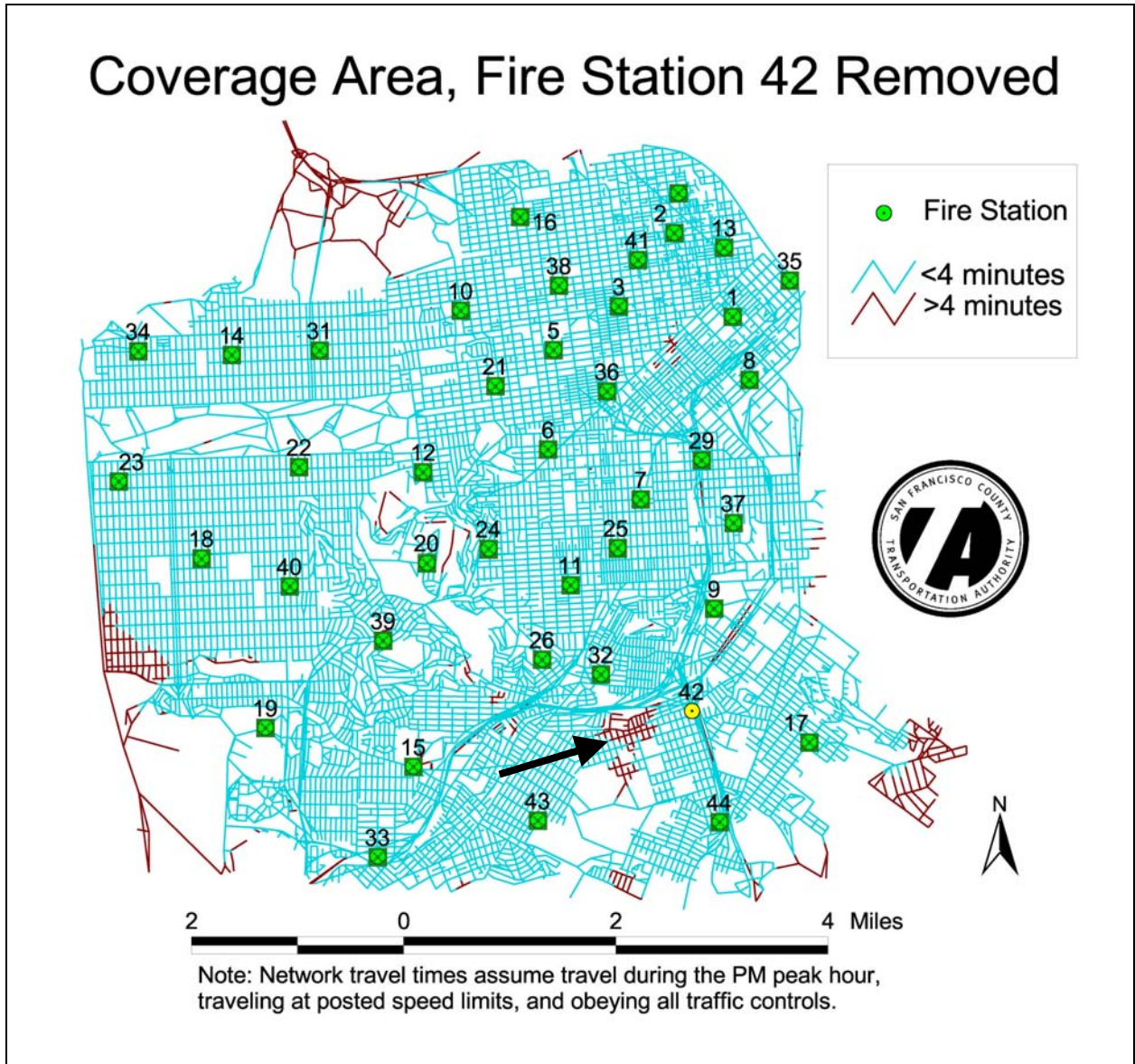
Map D52: 5-Minute Coverage With Station 40 Removed
(Arrows show area where coverage changes.)



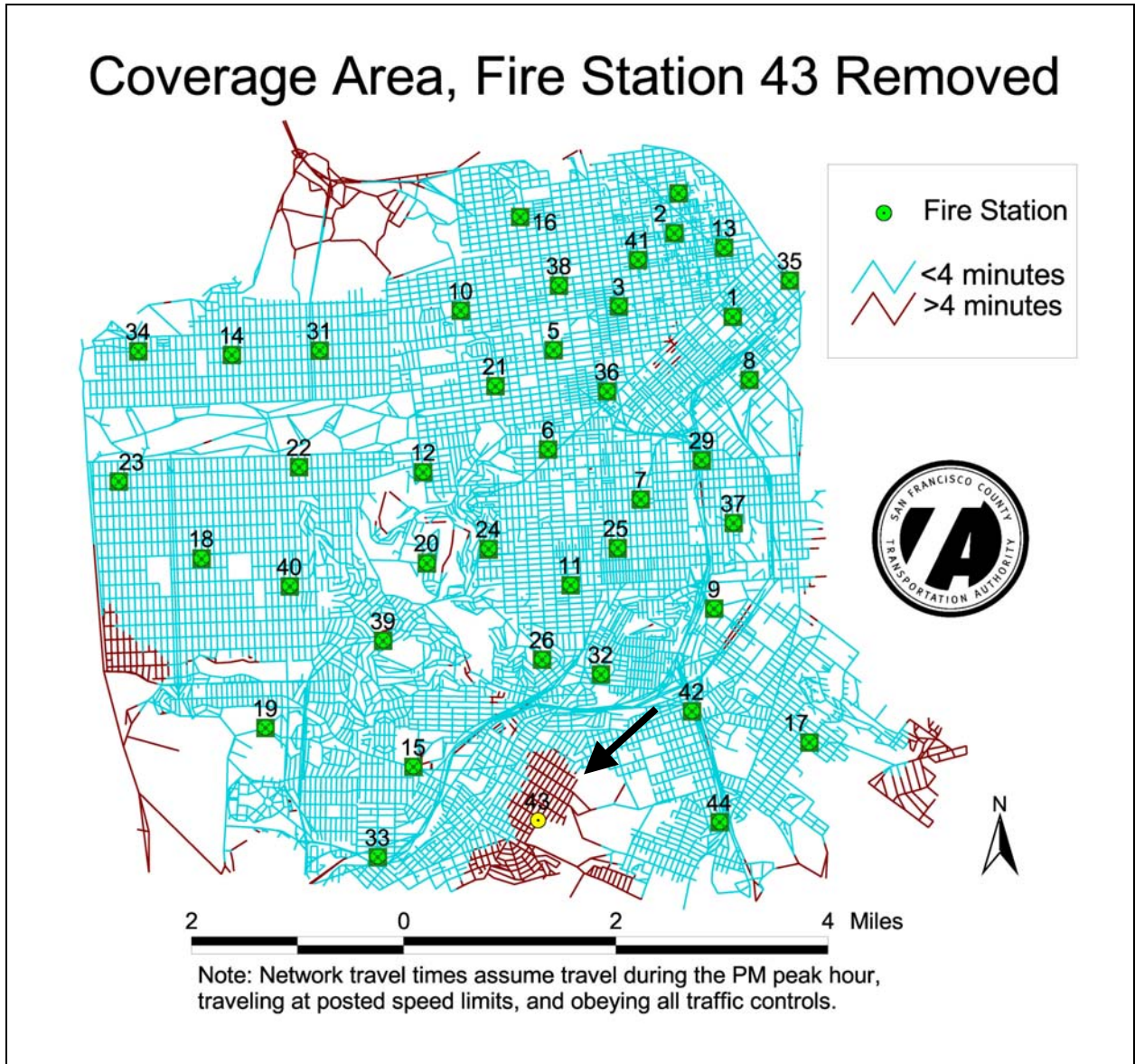
Map D53: 5-Minute Coverage With Station 41 Removed
(No change in coverage areas.)



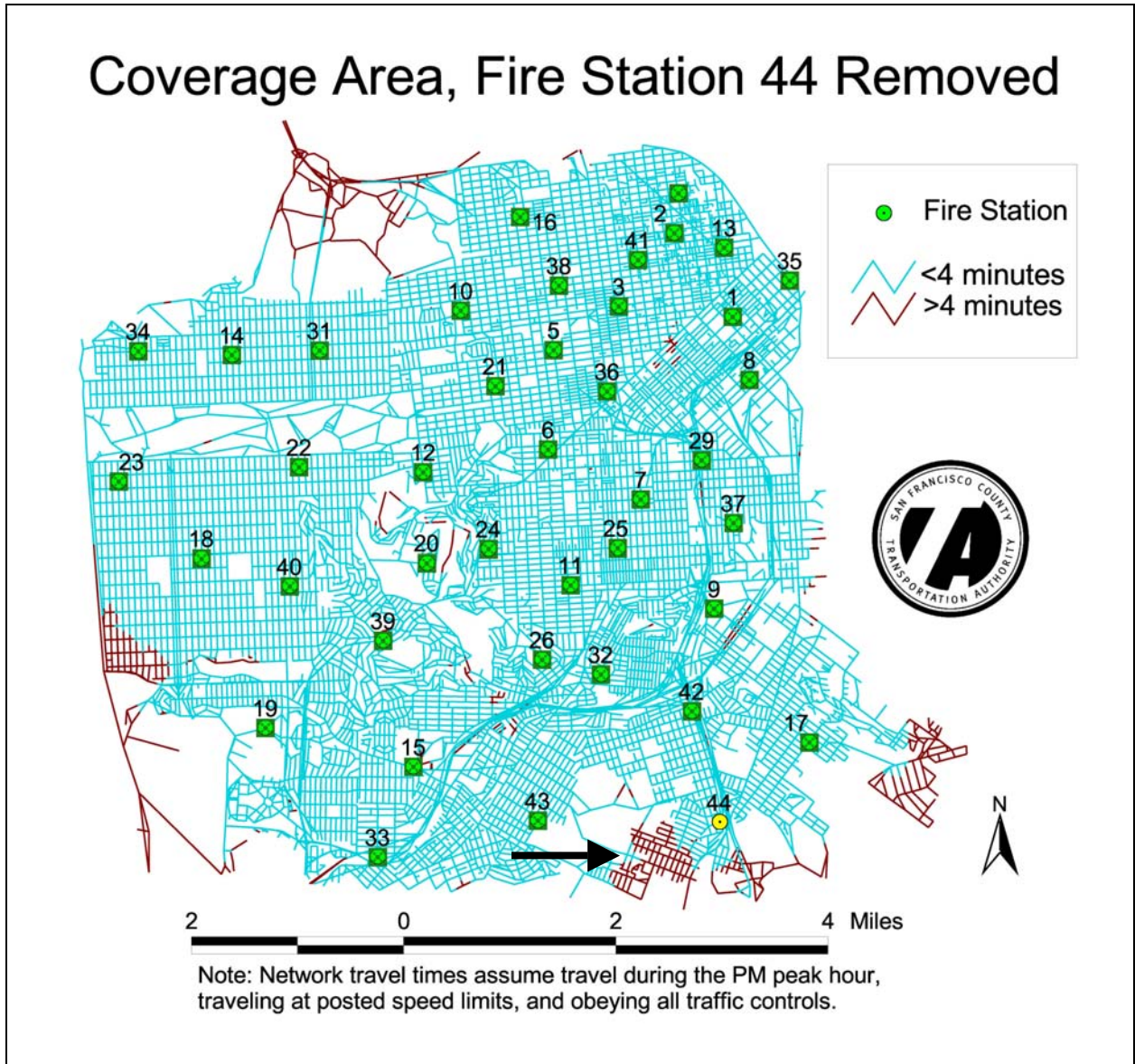
Map D54: 5-Minute Coverage With Station 42 Removed
(Arrow shows area where coverage changes.)



Map D55: 5-Minute Coverage With Station 43 Removed
(Arrow shows area where coverage changes.)



Map D56: 5-Minute Coverage With Station 44 Removed
 (Arrow shows area where coverage changes.)



Appendix E Staffing

SFFD Job Classifications

Fire Department employees provide a combination of fire suppression and emergency medical services (EMS). The vast majority of line level staff fall into two job classifications: firefighter (“H2’s” in the City classification codes) and firefighter/paramedic (H3). There are also a small number of fire rescue paramedics (H1). Table E1 below describes the distinguishing characteristics and training for each class.

Table E1: Line Staff Job Classifications

Job Class	Distinguishing Features	Training/Licenses
H1 Fire rescue paramedic	This is the entry/journey level paramedic classification. It is distinguished from the H3 Firefighter/Paramedic class by its primary duties as a paramedic attendant, ambulance dispatcher and ambulance driver.	Must have valid CA state paramedic (EMT - P) license. Most H1s are former Department of Public Health employees who received 120 hours of basic fire suppression training.
H2 Firefighter	An H2 Firefighter is distinguished from an H1 Fire Rescue Paramedic in that the H1 performs advanced life support tasks, but does not perform interior fire attack tasks. The H2 Firefighter is distinguished from the H3 Firefighter Paramedic in that the H3 performs advanced life support tasks.	Must successfully complete a physical ability test and instruction at the Fire Academy, which includes EMT-I licensure.
H3 Firefighter/paramedic	This is the journey level in the firefighter and paramedic class series. H3 Firefighter/Paramedic is distinguished from the H1 Fire Rescue Paramedic class by its dual responsibility for firefighting and paramedic functions.	Must have valid CA state paramedic (EMT-P) license. Some H3s are former H2s who completed paramedic training; others have been hired laterally from outside the department.

Training and Licensure

The level of EMS service a person can provide depends on his or her licensure. EMTs perform basic life support (BLS) functions including CPR, use of automated external defibrillators (AEDs), patient transport and basic first aid. Paramedics are licensed to provide advanced life support (ALS), which includes advanced airway management, intubation, advanced cardiac monitoring, manual defibrillation, establishment and maintenance of intravenous access, and drug therapy. Staff with ALS level licenses can perform all BLS level functions.

H2 firefighters perform the full range of fire prevention and suppression functions. Since 1989, in accordance with national standards,¹ all new H2 firefighter hires have also been required to obtain Emergency Medical Technician (EMT-I) licensure. Many incumbents participated in EMT training offered by the Department through 1997, and for new recruits, 120 hours of EMT training are included in the 17-week Fire Academy schedule, so that today, 74% of H2s are EMT-I certified. Payroll records indicate that approximately 1,155 H2 FTEs were employed in FY 2002-2003.

In FY 1999-2000, the City began hiring into the H3 firefighter/paramedic job class. H3s are trained to provide the full range of both suppression and emergency medical functions. In 1997, the City created a paramedic-training academy for H2s. For a variety of reasons, the academy graduated only a very small number of H3s, and today, most H3s are "lateral hires," that is, individuals who received their paramedic training and licensure before entering City employment. Payroll records indicate that approximately 244 H3s were employed in FY 2002-2003.

H33 paramedic captains also hold paramedic licenses. H20 lieutenants and H30 captains are required to have EMT-I licenses. While some incumbents may hold paramedic licenses, they are not assigned to perform EMS tasks or maintain licensure, so their paramedic capacities go largely unused.

Table E2 below shows the percent of non-paramedic staff holding EMT-I licenses as of March 2004.

Table E2: Percent of Non-Paramedic Staff with EMT Licenses (March 2004)

Job Class	Title	Certified	Total	% Certified
H2	Firefighter	834	1,125	74%
H20	Lieutenant	111	147	76%
H30	Captain	32	49	65%
H40	Battalion Chief	9	30	30%
H50	Assistant Chief of Dept.	-	2	0%
H51	Assistant Deputy Chief II	3	4	75%

Table E3 below shows the percent of non-paramedic staff holding paramedic licenses as of March 2004.

¹ National Fire Protection Agency, FEMA: The minimum level of training for all fire fighters that respond to emergency incidents shall be to the first responder/AED level.

**Table E3: Percent of Non-Paramedic Staff with
Paramedic Licenses (March 2004)**

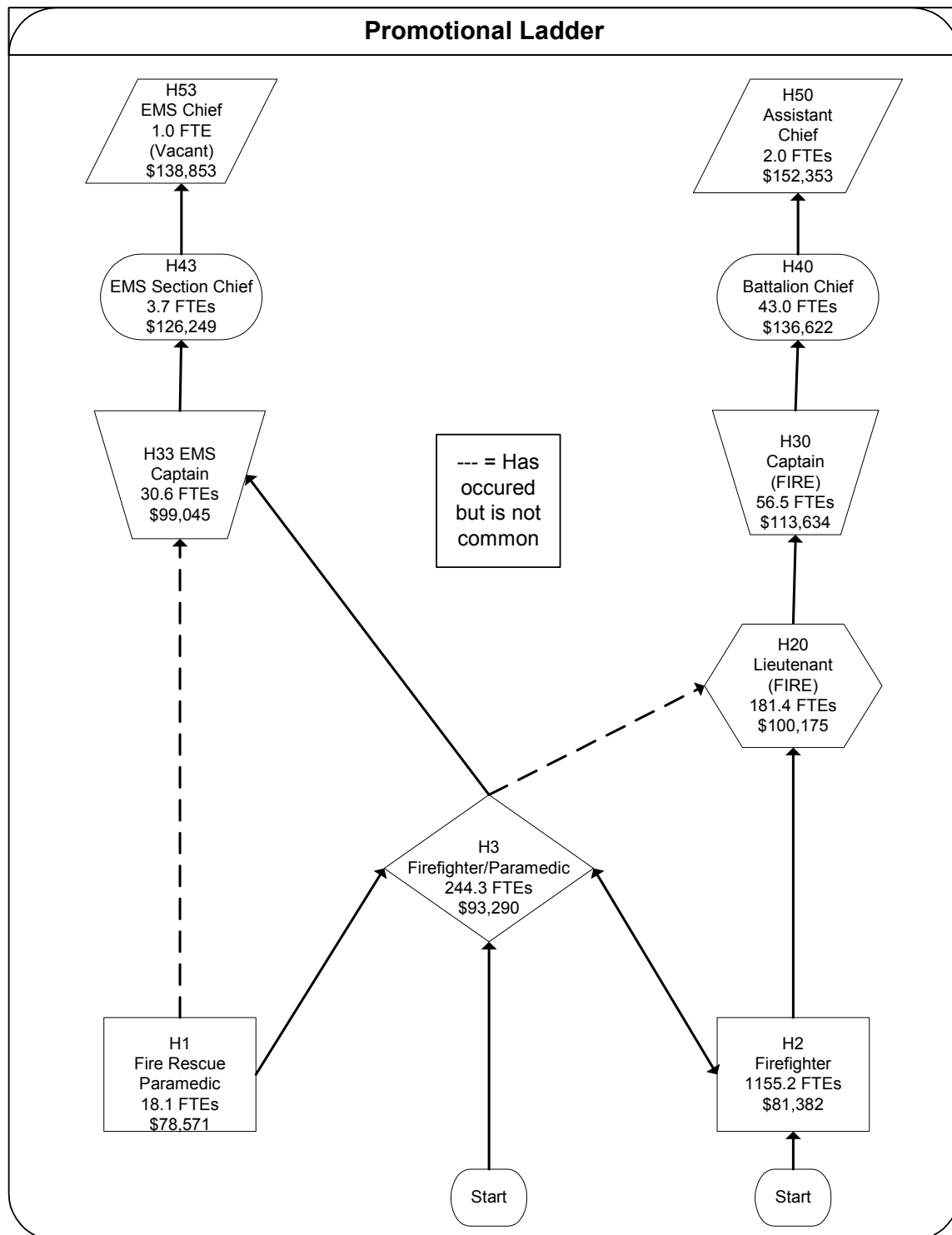
Job Class	Title	Certified	Total	% of Total
H2	Firefighter	19	1,125	2%
H20	Lieutenant	4	147	3%
H30	Captain	-	49	0%
H40	Battalion Chief	1	30	3%
H50	Assistant Chief of Dept.	-	2	0%
H51	Assistant Deputy Chief II	-	4	0%
0150	Deputy Chief of Department	-	2	0%
0140	Chief of Department	-	1	0%

Advancement

Chart E4 shows the career track for H2 and H3 positions with FY 2002-2003 average annual salaries and FTE counts at each level. There was no one appointed to the H53 EMS Chief rank during FY 2002-2003. The position was filled by an acting H43 EMS Section Chief, but has now been filled with an H53. The table shows the annual base salary the H53 would have earned.

The SFFD promotional structure is roughly split into two parallel tracks: an EMS track shown below on the left hand side and a suppression track on the right. Solid lines indicate the path that most employees follow; a dashed line between two ranks indicates that the move is possible but not common. H2s move into the H20 and then H30 ranks. H3s typically become H33s, although they may also test into the H20 rank. There are two positions at the H43 and one at the H53 level. There is no EMS equivalent to the H20 rank. H2s can earn a paramedic license and become an H3. Conversely, the City's agreement with Local 798 states that employees who transfer from H2 to H3 may reinstate as H2s after five years of continuous service in the H3 rank.

Chart E4: SF Fire Department Career Paths



EMT certification is required for promotion beyond the H2 job class. As stated above, incumbents in place before the implementation of the EMT-I requirement are exempt from this rule.

Promotion to H20 also requires that all apparatus rotations be complete, including four months of service on an engine and four months on a truck, as well as written and manipulative tests on each apparatus. The most challenging piece is for H3s to complete the truck rotation because there are few truck assignments available to them and they are often pulled off the truck to meet minimum staffing requirements on ALS engines and medic units.

According to SFFD staff, the Department does not currently have a complete list of H3s who have completed both rotations and passed all of the tests and are therefore certified as fully cross trained, however the following have completed truck testing:

- 45, or 100% of the H3s who were formerly H2s;
- 15-30, or 10-20% of the 94 H3s who were formerly paramedics at DPH; and
- 0 of the lateral H3 hires.

Apparatus (Company) Staffing

The Department deploys many types of apparatus. The most commonly used are engines, trucks, and medic units. The apparatus descriptions below are paraphrased from materials provided by the Department.

Engine Each of the City's 41 stations has an engine. Engines are staffed with one officer (H20 lieutenant or H30 captain), one driver (H2), one EMT (H2), and either a paramedic (H3) if it is ALS or a firefighter (H2) if it is BLS. Each day the City staffs between 21 and 26 ALS engines depending on H3 availability. Engines carry water and hose to extinguish fires as well as medical equipment and defibrillators. They are the first responders to Code 3 medical calls.

Truck: There are 18 trucks. Trucks are staffed with one officer (H20 lieutenant or H30 captain), one driver (H2), one tiller (H2), one EMT (H2), and one firefighter (H2). Trucks carry ladders and other equipment and are used in fire suppression to provide ladder access, rescue and ventilation.

Medic Unit: There are 19 medic units, or ambulances. Each unit is typically staffed "1 & 1", that is, with one paramedic (H3) and a firefighter (H2) with EMT licensure. Paramedics in training must riding with an experienced paramedic, or preceptor, for 12 months, so some medic units will have two paramedics (H3). They provide ALS treatment and patient transport, and also carry some fire-fighting equipment to provide medical and rescue support at fires and other emergencies.

In addition to these three basic unit types, ambulances and rescue captains can also provide ALS level medical services:

Ambulances: The Department staffs between one to two ambulances per day, based on staffing availability. These are the 90 series units – 91, 92, 93, and 94. Each ambulance has two H1 paramedics for two ten-hour shifts per day, similar to the way ambulances were staffed when housed in the Department of Public

Health. They provide ALS treatment and medical transport, primarily in the downtown area, and carry less suppression equipment than medic units.

Rescue captain: There are four rescue captain units, each staffed by a single H33 rescue captain. Rescue captains are the medical division commanders at rescue and fire calls, and are dispatched to the highest acuity ALS calls, including cardiac arrest, choking, stabbing or shooting, anaphylactic shock, second alarm fires, and mass casualty incidents. They also self-dispatch to incidents to monitor service quality.

The Department has a number of apparatus that it staffs at all times with certain ranks of employees. Table E5 below, provided by the Department, shows fixed post staffing in effect for fiscal year 2002-2003. Note that for FY 2003-2004, the daily staff on duty has been reduced by one battalion, one engine, and six H10 incident support specialists for a total of 338. Table E6 includes these modifications.

Table E5: Fiscal Year 2002-2003 Count of Personnel by Apparatus

Type	Number	Number of Personnel	Total
Engine	42	4	168
Truck	19	5	95
Hose tender	1	2	2
Heavy rescue	2	4	8
Medic units	19	2	38
Fire boat	3	1	3
Rescue captain	4	1	4
Battalion chief	10	2	20
Division chief	2	2	4
Arson	1	2	2
Equipment	1	2	2
King Fisher alarm	1	1	1
Mobile air	1	1	1
Jones Street tank	1	1	1
		Total Personnel	350

Table E6: Fiscal Year 2003-2004 Count of Personnel by Apparatus

Type	Number	Number of Personnel	Total
Engine	41	4	164
Truck	19	5	95
Hose tender	1	2	2
Heavy rescue	2	4	8
Medic units	19	2	38
Fire boat	3	1	3
Rescue captain	4	1	4
Battalion chief	9	1.4	13
Division chief	2	2	4
Arson	1	2	2
Equipment	1	2	2
King Fisher alarm	1	1	1
Mobile air	1	1	1
Jones Street tank	1	1	1
		Total Personnel	338

Fixed staffing drives SFFD costs. Table E7 below shows average FY 2002-2003 actual compensation (i.e., including premiums and overtime but not including benefits) by job class and estimated total funds needed to fill a fixed post given a relief factor of 4.5. Table E8 shows the number and job class of employees assigned to each type of apparatus, and the estimated cost of staffing each unit around the clock, given the cost of each post in Table E7.

Table E7: Average FY 2002-2003 Compensation and Fixed Position Cost

Job Class	Job Class Title	Average/ FTE	Relief Factor	Avg*Relief Factor	Average Annual Cost Incl 25% Benefits
H 1	Fire Rescue Paramedic	78,571	4.5	\$353,570	\$441,962
H 2	Firefighter	81,382	4.5	366,220	457,775
H 3	Firefighter/Paramedic	93,290	4.5	419,803	524,754
H 10	Chief's Operator (now Incident Support Specialist)	94,842	4.5	426,787	533,484
H 20	Lieutenant	100,175	4.5	450,789	563,487
H 30	Captain	113,634	4.5	511,355	639,194
H 33	EMS Captain	99,045	4.5	445,703	557,129
H 40	Battalion Chief	136,622	4.5	614,801	768,501

Since the main apparatus types of engines, medic units and trucks have fixed staff of specific types, staffing costs by unit can be identified.

Table E8: Staff and Average Annual Cost by Type of Unit

Staff and Average FY 2002-2003 Annual Cost by Type of Unit								
Unit Type	Max Staff	Staff 1	Staff 2	Staff 3	Staff 4	Staff 5	Average Annual Cost	Average Annual Cost Incl 25% Benefits
Truck	5	H20/H30	H2	H2	H2	H2	1,935,857	2,419,821
ALS Engine	4	H20/H30	H2	H2	H3	-	1,623,220	2,029,025
BLS Engine	4	H20/H30	H2	H2	H2	-	1,569,637	1,962,047
Division Chief	2	H50	H10	-	-	-	1,112,378	1,390,472
Medic Unit	2	H2	H3	-	-	-	786,023	982,528
Ambulance	2	H1	H1	-	-	-	707,139	883,924
Battalion Chief	1.4	H40	0.4 H10	-	-	-	785,516	981,895
Rescue Captain	1	H33	-	-	-	-	445,703	557,129
<p><u>Notes:</u></p> <p>Engines: ALS engines have an H3, and BLS engine have an H2 EMT.</p> <p>Engines and trucks: Each station has at least three officers: one captain and two lieutenants. Each truck and engine has an officer. The cost attributed to Staff 1 on a truck or engine is 33% captain and 66% lieutenant.</p> <p>Medic: Medic unit cost assumes "1 & 1" (I.e. one H3 and one H2) staffing.</p> <p>Chiefs: The Department operates with six H10s on duty at all times. Costs assume division chief units always have an H10 and battalion chiefs have an H10 in 4 out of 10 cases.</p>								

The ambulances are put in service only when there is adequate staff available, and are not included in minimum staffing requirements. Each ambulance is staffed with a pair of H1 partners. If one partner is out, the unit goes out of service and the remaining partner becomes the third person on another ambulance or stays off the ambulance and performs other work. The ambulances are not programmed into the CAD system, so their deployment depends on dispatchers' awareness of their availability and the H1s ability to intercept radio calls.

A number of units, including a battalion chief vehicle and three rescue captain units, are deployed only for special events. Several other units carry specialized equipment to perform technical rescues, provide water supply at large fires, and respond to mass casualty and hazmat incidents. These are cross-staffed only when needed by companies taken off of permanently staffed units, and do not require fixed post staffing.

Retention

Table E9 below compares appointments made between Fiscal Year 1996-1997 and Fiscal Year 2003-2004 (through January 31, 2004) and voluntary separations made during the same time. In this case, voluntary separation is defined as transfers made at the request of the employee or resignations made with satisfactory service; it does not include those who retired due to age or

medical reasons or who were terminated for cause. The intent is to see how many employees chose to leave their appointments to either pursue other jobs in the City or to leave City service.

There have been more separations than appointments from class H1, because new recruits are being hired into classes H2 and H3. While no H20 lieutenants have separated, 7% of H2s appointed have separated. In contrast, 16% of H3s and 38% of H33s have separated, indicating a higher level of voluntary separation among paramedic-certified classes.

**Table E9: Appointments vs Voluntary Separations
Fiscal Year 1996-1997 to Date**

Class	Appointments	Separations (1)	% of Appointments Separated
H 1	3	4	N/A
H 2	228	16	7%
H 3	159	26	16%
H 20	7	0	0%
H 30	7	0	0%
H 33	8	3	38%
(1) Separations include only those where employee requested a transfer or resigned with satisfactory service.			

Compensation

The City's difficulty in attracting and retaining enough paramedics does not seem to stem from low compensation (see table E10 for compensation by class). Table E10 below compares FY 2002-2003 base wage and actual compensation between H2s and the three paramedic classes.

Table E11 analyzes compensation by component and whether a firefighter (H2) is lower or higher than other job classes. As a whole firefighter/paramedics are paid more than firefighters. The table indicates, however, that firefighters do make much more than fighter/paramedics in premium pay.

Table E12 compares San Francisco's compensation and hours worked for firefighters to that of other California jurisdictions and to Boston and New York. Many California jurisdictions have higher compensation rates, but the relatively shorter workweek in San Francisco makes the City's per hour cost of staff higher by comparison. Some east coast cities, including Boston and New York, have 40 or 42-hour workweeks, but firefighter pay is lower to compensate for the shorter hours.

Table E10: Average FY 2002-2003 Compensation by Job Class

Class	Job Class Title	Union	FTEs	BasePay	OT	Premiums	Total	Average Total/FTE
H 1	Fire rescue paramedic SEIU 790		18	1,323,978	22,328	74,668	1,420,973	78,571
H 2	Firefighter	798	1,155	79,555,110	3,328,145	11,127,742	94,010,996	81,382
H 3	Firefighter/paramedic	798	244	19,932,534	1,231,978	1,630,057	22,794,570	93,290
H 20	Lieutenant (Fire Dept)	798	181	15,088,179	889,948	2,188,928	18,167,055	100,175
H 30	Captain (Fire Dept)	798	56	5,292,276	247,154	877,194	6,416,624	113,634
H 33	Captain, EMS	798	31	2,597,864	180,967	254,058	3,032,889	99,045

Table E11: Comparison of Average FY 2002-2003 Compensation Components of Classes H1 and H3 to H2

Class	Avg Base Pay/FTE	H2 BasePay was	Avg.OT /FTE	H2 OT pay was	Avg Premiums /FTE	H2 Premiums were	Avg Total/FTE	H2 total comp was
H 1	73,207	-6% lower	1,235	57% higher	4,129	57% higher	78,571	3% higher
H 2	68,868	0%	2,881	0%	9,633	0%	81,382	0%
H 3	81,576	-18% lower	5,042	-75% lower	6,671	31% higher	93,290	-15% lower
H 20	83,198	N/A	4,907	N/A	12,070	N/A	100,175	N/A
H 30	93,723	N/A	4,377	N/A	15,535	N/A	113,634	N/A
H 33	84,839	N/A	5,910	N/A	8,297	N/A	99,045	N/A

Table E12: Firefighter Compensation Survey

Agency	Title																
		<u>Max Base</u> <u>Biweekly</u>	<u>Max</u> <u>Train. &</u> <u>Educ.</u>	<u>Holiday</u> <u>Pay</u>	<u>Max Long.</u> <u>/ Ret.</u>	<u>EMT Pay</u>	<u>Uniform</u>	<u>EPMC</u>	<u>Benefits</u> <u>(Health &</u> <u>Dental)</u>	<u>Total</u> <u>Comp</u> <u>Biweekly</u>	<u>Sched.</u> <u>Hours</u>	<u>Holiday</u> <u>Hours</u>	<u>Vacation</u> <u>Hours</u>	<u>Actual</u> <u>Hours</u> <u>Worked</u>	<u>Avg.</u> <u>Hours</u> <u>Worked</u> <u>Per Week</u>	<u>Rate</u> <u>Based on</u> <u>Hours</u> <u>Worked</u>	<u>Rate</u> <u>Based</u> <u>on</u> <u>Hours</u> <u>Paid</u>
Oakland	Firefighter	3,257	-	196	-	-	20	-	252	3,726	2,704	-	312	2,392	52	\$ 41	\$ 36
San Jose	Firefighter	3,216	35	181	-	96	19	-	393	3,941	2,912	-	288	2,624	56	\$ 39	\$ 35
Los Angeles	Firefighter	2,549	76	-	210	160	26	25	305	3,352	2,912	156	300	2,456	56	\$ 35	\$ 30
Santa Rosa	Firefighter	2,498	100	144	-	-	-	225	342	3,309	2,912	-	240	2,672	56	\$ 32	\$ 30
Fremont	Firefighter	2,799	101	138	162	28	17	252	396	3,894	2,912	-	295	2,617	56	\$ 39	\$ 35
Richmond	Firefighter	2,862	72	153	258	-	23	258	398	4,023	2,912	26	312	2,574	56	\$ 41	\$ 36
New York	Firefighter	2,079	77	88	77	-	-	-	321	2,642	2,080	-	180	1,900	40	\$ 36	\$ 33
Boston	Firefighter	1,800	-	112	224	-	4	-	447	2,587	2,080	-	96	1,984	40	\$ 34	\$ 32
	Average	2,632	58	127	116	35	14	95	357	3,434	2678.00	23	253	2,402	52	\$ 37	\$ 33
San Francisco	H-2	2,845	171	199	57	142	-	-	342	3,756	2496	-	240	2,256	48	\$ 43	\$ 39
	Difference	7.5%	66.2%	36.4%	-104.4%	75.0%	NA	NA	-4.5%	8.6%	-7.3%	NA	-5.4%	-6.5%	-7.3%	14.3%	14.8%
Rates effective 1/31/04 Survey conducted by the Department of Human Resources Employee Relations Division											Total Hourly rate is based on compensation for hours actually worked (deduct VA and Holidays)						

Premiums

Approximately \$17.7 million in premium pay was paid to sworn staff in FY 2002-2003, representing 9.1% of all compensation paid. As mentioned above, a large portion of the gap in base pay and overtime between H2s and H3s is made up by the premiums earned by H2s for being assigned to operate apparatus or perform EMT duties on engines or medic units, and for performing the duties of a higher rank. The \$17.7 million breaks down as follows:

- \$6.4 million: education incentive premium of 6% paid to employees either with a degree in a related field or 10 years of experience
- \$5.7 million: 6% premium paid to suppression staff for working on legal holidays
- \$2.1 million: for performing the duties of a higher rank (i.e. "like work like pay")
- \$2.0 million: 5% premium for serving as the designated EMT or driver on an apparatus
- \$1.5 million: other

Relatively little of this pay is geared toward incenting employees to pursue or use paramedic skills. Paramedics do receive an 8% premium for any hours performing paramedic or EMS training. The amount paid in FY 2002-2003 was approximately \$34,000. H20 lieutenants and H30 captains can earn a \$26.50 biweekly premium if they hold a paramedic license. However, since paramedic tasks are not included in the job duties of either rank, the City derives little benefit from either the licensure or the premiums paid.

Jurisdictional Comparisons

Staffing decisions are based on overall system configuration. With regard to EMS system configuration, cross-trained fire department personnel provide first response in over 97% of the 200 largest U.S. cities. However, the way in which cities deliver services, including first responder and transport services, varies considerably.

Patient Transport Models

Transport consumes large amounts of paramedic time. Many cities address this by privatizing all or part of transport. Within our survey jurisdictions, for example, Oakland, Portland, San Jose, and Vancouver all have completely privatized transport. At the other end of the spectrum, with San Francisco, Baltimore and Boston have entirely public medical transport. Some cities steer the middle course by sharing transport with a private provider. Seattle and Milwaukee have public ALS transport and private BLS transport, and San Diego has created a limited liability corporation with a private provider for this function. Table E13 below shows how jurisdictions in our Controller's survey have a number of ambulances that reflects their choices of transport.

Table E13: Transport Models by Survey Jurisdiction

City	Performs Transport	Description of Transport	Medic units/100,000 population
Baltimore	Yes	Baltimore Fire Dept. provides all transport.	3.4
San Francisco	Yes	San Francisco Fire Dept. provides all transport	2.4
San Diego	Some	Transport by San Diego Medical Services Enterprise (SDMSE), LLC, a partnership between San Diego Fire and Rescue and Rural Metro	2.4
Milwaukee	Some	Advanced Life Support (ALS) service provided through Milwaukee County; Basic Life Support (BLS) transport by private company	1.5
Seattle	Some	ALS transport by Seattle Fire Dept.; BLS by private company	1.2
San Jose	No	Transport by private company; San Jose has a few units that can respond if private ambulance is unavailable	0.6
Oakland	No	Transport by private company	no medic units
Vancouver, BC	No	Transport by private company	no medic units
Boston	Yes	Boston Emergency Medical Services, located within the Public Health Department, provides all transport	3.4
Portland	No	Transport by private company	no medic units

In 2000, the SFFD's EMS Division conducted an analysis of urban/ metropolitan fire-based EMS systems in the US. That analysis found that each system design has operational, legal, and financial advantages and disadvantages. At the time of the survey of fire/EMS transport systems on 24-hour shifts, 24% (or 5 of 21) respondents operated two-tiered (i.e. both ALS and BLS level) ambulance systems, including Los Angeles, Chicago, Houston, Milwaukee and Cincinnati (Milwaukee now only operates ALS ambulances). BLS ambulances are staffed by firefighter/EMTs and predominantly handle transport. In a city such as San Francisco, with a relative shortage of paramedics and abundance of firefighter/EMTs, this system has the advantage of spreading the workload among all staff.

Another 24% of departments operated only ALS tier ambulances, and used private BLS ambulances for transport, including Columbus, Milwaukee, Seattle, Tucson, and Long Beach. This frees up ALS units to respond to more calls, reduces the number of paramedics needed, and uses paramedics' skills only on ALS level cases. Seattle, known for its high quality paramedic training program and excellent cardiac arrest outcomes, prefers this model because it allows paramedics to spend all of their time on the most acute cases, and therefore retain more of their higher level skills than they would if they spent a lot of time on transport. Seattle has a unique EMS system. None of its engines is ALS capable. It has seven ambulances staffed with two paramedics each, who respond to and transport ALS level calls. A private contractor handles BLS calls and transport. Again, this model is geared toward reducing paramedics' workload and keeping ALS units available to respond to calls. It requires a relatively small staff of paramedics.

Over half, or 52% of departments in the EMS Operations survey operated single-tier—all ALS transport systems for both treatment and transport. This system is both simple and safe, as all patients receive the highest possible level of care. It also reduces potential legal liability that can arise from determining when to provide different levels of care. It requires hiring and retaining a large cadre of paramedics. Baltimore does not prioritize calls—all are considered ALS. A twist on this approach is Portland, which provides a single level of response (ALS) and no transport. Each of its 29 engines is ALS, but it has no ambulances; private ambulances are dispatched at the same time as first responders.

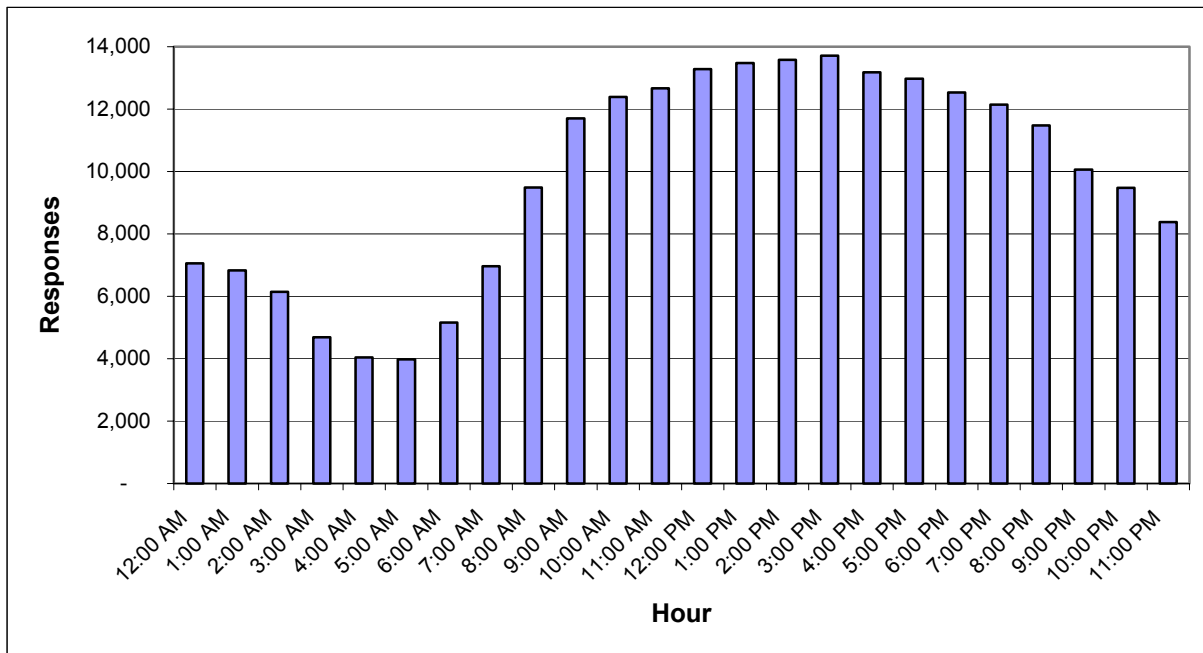
Some jurisdictions are shifting paramedics from ambulances or medic units to SUVs, sometimes called squad cars or quick response vehicles, which are used in Houston. Two paramedics in these vehicles are dispatched at the same time as a BLS ambulance. If it turns out to be a BLS level call, the ambulance crew handles transport and the paramedic goes back in service. If the patient requires ALS transport, one paramedic rides in the ambulance, and both units are out of service. Staff at the Milwaukee Fire Department stated that the department had looked into using SUVs as a way to reduce minimum staffing but did not pursue the idea after resistance from employees and their union.

Dynamic vs Static Deployment

Aside from the four ambulances, equipment in San Francisco is statically deployed. Units are assigned to a particular station and typically dispatched from that station to the surrounding area. The number of staff remains fixed throughout the day, regardless of call volume. Each of the 41 stations has an engine, and each engine has an area in which it is “first due.” If the engine is in service (i.e. not out on a call or otherwise occupied and thus unavailable for dispatch), it will automatically be dispatched to an incident in its first due area. All other units are similarly deployed from their stations, and with the same number of staff at all times of day.

The four ambulances are not assigned to or deployed out of a particular station. They move from one call to the next without returning to a base between calls. They are staffed by two H1s working four ten-hour shifts per week. Each ambulance is staffed for a maximum of two 10-hour shifts per 24 hours; they are not deployed during the times of day with the lowest call volumes, from 2 to 6 am. Table E14 below shows the number of responses during FY 2002-2003 that occurred in each hour of the day. There were 6,000 or fewer responses between 2 and 6 am. Responses climbed steadily beginning at 7 am until they peaked at approximately 13,500 at 3 pm, and then decline steadily to approximately 7,000 at midnight. Dynamically deployed units such as the ambulances that can be staffed during peak hours offer a very efficient way of staffing for the workload.

Chart E14 FY 2002-2003 Responses by Hour



One third or seven of 21 respondents in the EMS Operations Section survey use flexibly deployed ambulances on 8-12 hour long shifts during the busy daytime hours. In most cases, they are staffed by paramedics working overtime. San Francisco has an advantage in that its ambulances do not depend on paramedic overtime to function. There are, however, some adjustments that would make our ambulance units more efficient and effective. They are discussed below.

Two-Paramedic Deployment

The CAD system recommends deployment of apparatus according to the type and severity of a call. Of particular interest is the deployment of Code 3 medical calls, as they comprise the bulk of the paramedic workload. Tables summarizing CAD system data in the Station Location and Coverage Appendix illustrate that a high percentage of medical calls—and all other calls—are categorized as Code 3.

The local Emergency Services Agency in the Department of Public Health requires two paramedics to be dispatched to every Code 3 medical incident. According to the Department, the CAD instructs dispatchers to send the closest BLS unit (generally a BLS engine) as well as the closest ALS engine. The closest medic unit or ambulance is also sent to meet the two-paramedic requirement. In addition, life-threatening medical calls (cardiac arrest, choking, stabbing or shooting, anaphylactic shock) will receive a rescue captain. Code 2 medical calls receive a single medic unit or ambulance.

Truck Staffing

All jurisdictions surveyed by Controller's staff deploy trucks with either four or five personnel, as shown in Table E15. Like San Francisco, Milwaukee and San Jose have five personnel on each truck. Oakland has five personnel on three trucks that serve the two high-density areas (downtown and a cluster of high rise medical buildings), and four on its four other trucks. The five remaining jurisdictions all staff trucks with four personnel.

A review of the Chicago Fire Department prepared in June 1999 offers several reasons why truck companies should be staffed by five personnel, including the City's high concentration of high-rise commercial and residential buildings, its weather extremes, and the speed and thus effectiveness of having more hands to accomplish the many tasks at a fire.

Table E15: Truck Staffing by Jurisdiction

City	Count	Min. Staffing
Baltimore	19	4
Boston	22	Not available
Milwaukee	16	5
Oakland	7	5,4
Portland	9	4
San Diego	17	4
San Francisco	18	5
San Jose	11	5
Seattle	11	4
Vancouver, BC	6	4

Shift Length

There is currently no evidence in medical literature proving that quality of paramedic care suffers from long work hours. However, staff interviews reveal that some paramedics find 24-hour shifts exhausting. Unit utilization data in Appendix D confirms that the average total response time for a medic unit is 44 minutes while responses for engines and trucks last 15 minutes or less, on average.

As Table E16 below, excerpted from the 2002 JEMS (*Journal of Emergency Medical Services*) survey shows, 84% of cities have 24-hour shifts for their first responders, largely because 97% of these cities have fire department-based emergency response, and 24-hour shifts are the traditional staffing scheme in these departments. However, only 43% of cities have 24-hour shifts for their transport teams. Fully 82% offer shifts of twelve or fewer hours to some portion of their response teams.

**Table E16: 2002 JEMS Survey
Shift Length for First Responders and Transport Teams**

Shift Length (hrs)	First Responders	Transport Teams (1)
8	4%	23%
10	3%	16%
12	7%	43%
14	1%	5%
16	1%	3%
24	84%	43%

(1) Total >100 because some cities have multiple shift length alternatives

Appendix F

Fire-EMS Merger Issues

Merger Background and General Issues

In the mid-1990's the director of the Department of Public Health (DPH) commissioned a reconfiguration study to look at the City's Fire and Emergency Medical Services (EMS) functions. The study concluded that these two organizations should unite to realize an economy of scale and take advantage the most available emergency resource, fire infrastructure. The study was also partly driven by the fact that the paramedic service was not meeting response time goals, and that a conflict existed in that DPH was both the provider and the regulator of emergency medical services in San Francisco.

The Fire and Health Commissions each approved the transfer of the DPH Paramedic Division into the Fire Department beginning July 1997. The process was led by a Steering Committee consisting of members from the Fire Department, DPH, San Francisco General Hospital, and the Mayor's Office, which set forth an implementation plan consisting of five steps:

1. Cross training and preparation for the transfer of function
2. Deployment of increased number of ambulances
3. ALS engine deployment
4. One Paramedic/One EMT ambulance trial
5. Full deployment (December 1999).

The Steering Committee produced a report, *Optimizing the Configuration of San Francisco's Emergency Medical Services* in February of 1997. The plan's stated intention was to improve patient care with the use of existing resources and without diminishing fire suppression capability. The Emergency Medical Services Agency (EMSA) at DPH was to conduct regular and open meetings for all interested staff to discuss any merger-related issues and were tasked with formally evaluating the merger at six months, one year, and periodically thereafter.

The Controller's review found that issues and attitudes remaining from the merger process have a negative impact on the Fire Department's work. While the infrastructure work was largely completed, successful merger of firefighters and paramedics as a working team has not yet been achieved. In sum, some staff still treat fire suppression and emergency medical work as separate silos and express their views both by lack of cooperation in work tasks and through personal behavior, affecting morale and performance. We received verbal expression of this during our interviews, and there are other sources, such as Firefighters Local 798's newsletter, an anonymous publication (the Gurney Gazette) that came out in response to Local 798's articles, and a published article by a firefighter/paramedic who left the department that reflect the conflicts in some firehouses. Firefighter/paramedics have been made to feel that they are not wanted at the stations and some firefighters have no problem admitting that is true. While many stations and individuals work well together, other stations have a reputation for a bad working environment, and harassment is considered the most common reason for H3 turnover. Addressing workload issues may help—staff agree that the greater workload for paramedics results in their not being as present in the stationhouse to socialize, assist with meal preparation and perform house chores which are critical to building the team in a fire station.

Staff Interviews

To gain feedback on issues related to the current state of the Fire/EMS merger we interviewed paramedics, firefighters, and firefighter/paramedics. Within the firefighter/paramedic classification, we interviewed former firefighters who cross-trained to become firefighter/paramedics and firefighter/paramedics who were lateral hires from other jurisdictions. In addition to asking a general question about the merger, we asked all interviewees for their thoughts as to what specifically was not working and what could be done to improve the working environment.

Chart F3: Merger Opinion

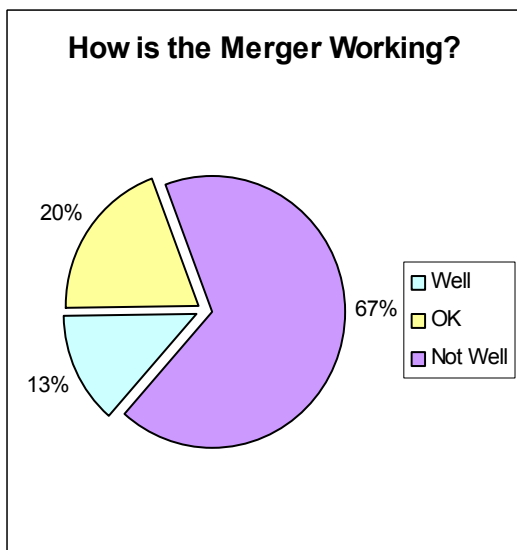
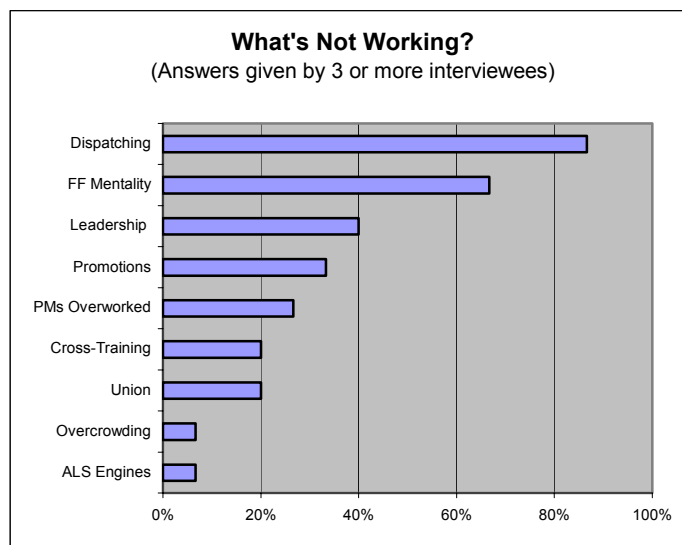


Chart F4: Merger Issues



Source: Staff Interviews

Four issues within the SFFD seem to be of the most concern to those interviewed:

1. Too many calls are being dispatched as Code 3 calls.
2. Traditional firefighter “macho” mentality results in low morale for the firefighter/paramedics.
3. Lack of leadership in the Department.
4. Human resources issues such as long-term failure to administer promotional tests and lack of a promotional track for paramedics.

Where issues raised by the staff interviews were also indicated by our quantitative or best practices research, they have been discussed in the body of the white paper. However, we also want to draw attention to a number of other issues raised in our interviews. The majority of interviewees—including most of those who thought the merger was not proceeding well—agreed it is possible to “fix” the merger and make improvements in the process and the work environment. Interviewees recommended the following:

Allocate resources to coincide with call volume. Several staff members proposed a change from the existing static shift-staffing model to a peak-load staffing model, which would place resources on duty according to the projected demand for each time period. This change in system deployment would reduce workload for firefighter/paramedics and improve morale and overall smoother functioning. Staff members would also like the City to consider more dynamic deployment.

If peak-load staffing is not an option, have firefighter/paramedics split time on an ambulance and an engine during their 24-hour shift. Firefighter/paramedics suggested that this change would improve the attrition rate in that classification. Per Appendix E (Staffing), there is an obvious problem with firefighter/paramedic turnover. Currently, the vast majority of firefighter/paramedics spend their 24-hour shift either on a medic unit or on an ALS engine. As a result of this, staff members expressed concern over increased stress levels and fatigue. The average daily call volume day puts a serious burden existing medical personnel. The department should immediately address the issue of paramedic overload by implementing peak load staffing, ambulance/engine mid-shift switch-off or with another appropriate solution.

Department leadership is needed. Staff stated that there was a lack of communication from the top down regarding the merger and how the merger would affect their workload and day-to-day operations. Staff stated that the existing culture within the Fire Department is a result of management from previous administrations not taking corrective action against the parties creating a hostile work environment. In addition to not preparing for change, command staff, including stationhouse leadership, has failed to support establishing a new joined culture. Command staff should communicate a new department-wide culture to all staff. New policies clearly stating combined mission and vision should be adopted and conveyed. Continued harassment or exclusion of any staff from full involvement in stationhouse life should be met with immediate corrective action by command staff. The department should employ team-building strategies to more closely unite the two sides of the house.

Promotional tracks should be designed so paramedics can access them. As discussed previously, currently there are no promotions for the H 20 Lieutenant position being offered and many Lieutenants are in provisional status. This has a negative impact on morale of both firefighters and firefighter/paramedics. Firefighters are agitated because the H3 lateral hires are recent hires (less than three years) but qualify to compete for the Lieutenant position. H3 laterals are impacted because they have not been given the opportunity to complete the required truck apparatus training necessary to qualify for promotion. In addition, H33 rescue captains (paramedic supervisors) were to be cross-trained after the H3s finished the process. Due to the delays in H3 training, the H33s have not yet been afforded the opportunity for full suppression cross-training.

Appendix G

Budget Analyst's 2000-2002 Audit of the Fire Department: Actions by the Department

In January 2002, the Board of Supervisor's Budget Analyst issued recommendations pursuant to a two-year management audit of the San Francisco Fire Department. The audit, when issued, included a response from the department that addressed each of the recommendations.

To determine the status of the Budget Analyst's recommendations, the Controller met with EMS Chief Glenn Ortiz-Schuldt to provide information the Department's actions on audit recommendations to date. He indicated that, in some cases, the Department took action on the recommendation even though they disagreed in principle.

The following table notes each recommendation, the Department response and action status at the time of the audit report issuance, and the Department response or action status as of February 2004.

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
1.1.1 Eliminate the EMS Administration Section.	Fire Chief	Disagree	Completed (Did not agree with recommendation, nevertheless accomplished by disbursing responsibilities to other department staff.)
1.1.2 Delete 1.0 FTE Classification H-43 EMS Administration Section Chief position, and 1.0 FTE Classification 1426 Senior Clerk Typist position.	Fire Chief	Disagree	Completed
1.1.3 Transfer responsibility for emergency medical services electronic data collection and reporting, the Continuous Quality Improvement Program, and risk management to the proposed Strategic Policy, Planning and Analysis Unit.	Fire Chief	Disagree	Other (No funding)
1.1.4 Delete 2.0 FTE Classification H-33 Rescue Captain positions.	Fire Chief	Disagree	Not Intended
1.1.5 Transfer \$221,321 in savings from the deleted H-33 Rescue Captain positions to fund civilian positions in the proposed Strategic Policy, Planning and Analysis Unit, who would perform data management and CQI functions.	Fire Chief	Disagree	Not Intended
	Note: Dept states throughout the audit response that they are developing a strategic 5 year plan addressing many audit recommendations (including ones the dept disagrees with) to be used for preparation of the FY 04-05 budget		
1.1.6 Transfer the responsibility for the emergency medical service billing and revenue collection function, related medical records management, and the administration of fee amendments to the Division of Finance.	Fire Chief	Disagree	Not Intended (New RFP coming)
1.1.7 Transfer 1.0 FTE Classification 2112 Medical Records Technician position and the 1.0 FTE Classification 2110 Medical Records Clerk position to the Division of Finance.	Fire Chief	Disagree	Not Intended
1.1.8 Transfer the responsibility for tracking, disbursing, and maintaining emergency medical services equipment and supplies to the Bureau of Equipment.	Fire Chief	Further Analysis	Completed
1.1.9 Transfer the 1.0 FTE H-3 Fire Fighter Paramedic position, responsible for biomedical equipment, to the Bureau of Equipment.	Fire Chief	Disagree	Completed
1.2.1 Re-distribute functions in the Management Services Division as follows:			

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
A. Transfer four of the five Investigative Services functions to the Human Resources Division (as described in this report).	Fire Department	Further Analysis	Not Intended
B. Transfer the Records Unit to Arson.	Fire Department	Agree to be effective by FY02-03	Other (Records = Completed Medical Records = Not Intended)
C. Transfer Mail & Reproduction to Support Services.	Fire Department	Agree to be effective by FY02-03	Completed
D. Transfer the Neighborhood Emergency Response Team Training Program to the Division of Training.	Fire Department	Disagree	Completed
E. Combine Community Affairs with Public Information	Fire Department	Disagree	Completed
F. Transfer the Assignments Office to the Deputy Chief of Operations (CD2).	Fire Department	Disagree	Completed
1.2.2 Eliminate the Management Services Division,	Fire Department	Further Analysis	Completed
1.2.3 Prepare a new General Order that delineates the authority of the Chief of Department to designate various staff on an as-needed basis to conduct internal affairs investigations.	Fire Department	Disagree	Not Intended
1.2.4 Eliminate one position of H51 Assistant Deputy Chief II	Fire Department	Disagree	Completed
1.2.5 Convert Assignments Office uniform positions to civilian positions, in accordance with the recommendation in Section 2.3 of this report,	Fire Department	Disagree	In Progress
1.2.6 Follow provisions of the new MOU pertaining to the use of limited duty personnel, especially in the Mail and Reproduction Unit to ensure appropriate work assignments and measures to prevent abuse.	Fire Department	Dept unclear as to intent of this recommendation	Completed
1.3.1 Prepare a request to the Mayor and the Board of Supervisors for the number of positions and funding necessary to form a Strategic Policy, Planning and Analysis Unit which reports to her directly (Alternative 4), as described in this report.	Fire Chief	Dept concurs in principal with recommendation	Other (No funding)

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
1.4.1 Transfer the EMS Academy Section and the EMS In-service Training Section to a renamed Division of Fire and Medical Training during FY 2001-2002.	Fire Chief	Disagree	Completed
1.4.2 Recruit widely for the new Director of Fire and Medical Training position, advertising for someone with both fire suppression and emergency medical services training experience.	Fire Chief	Further Analysis	Completed
1.4.3 Restructure the Division of Fire and Medical Training during FY 2001-2002 to integrate training and education functions for fire suppression and emergency medical services, and to reduce the number of direct reports to the Director of Fire and Medical Training by FY 2002-2003.	Fire Chief	Disagree	Completed
1.4.4 Direct the Director of Fire and Medical Training to (a) work with the new Strategic Policy, Planning and Analysis Unit to ensure that appropriate performance measures are developed for all training courses delivered by the Division of Fire and Medical Training, and (b) monitor all training managers' performance against those performance measures.	Fire Chief	Agree expected to be complete by January 2003	Not Intended
1.5.1 Develop a set of specifications regarding desired land area, improvements and other special features of a site to accommodate a combined training facility.	Fire Department	Agree projected completion January 2003	Completed
1.5.2 Evaluate possible administrative changes and resource-sharing opportunities that can be implemented to achieve improved cost effectiveness in training.	Fire Department	Dept concurs in principal with recommendation expected to be complete by January 2003	Completed
1.5.3 Work closely with the Department of Real Estate (DRE) to identify and obtain a site within the City and County of San Francisco that generally meets the newly developed specifications.	Fire Department	Agree	Completed
1.5.4 Working with the Department of Real Estate and design consultants, prepare a cost benefit budanalyst of alternatives for centralizing training and present it to the Fire Commission prior to forwarding it to the Mayor and	Fire Department	Agree scheduled to be completed by January 2003	Completed

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
Board of Supervisors.			
1.5.5 Include all aspects of the alternative development opportunities, including offsetting financial benefits to be derived from the sale or transfer of the Folsom Street property to another City agency, reduced lease costs and potential operational benefits to be derived from the combined facility.	Fire Department	Agree	Completed
1.5.6 Submit the completed budanalyst of alternatives to the Fire Commission within one year of the date of this report.	Fire Department	Agree expected to be complete by January 2003	Completed
1.6.1 Direct the new Division of Fire and Medical Training, with support from the new Strategic Policy, Planning and Analysis Unit, to:			
Develop a recruitment process, which recruits applicants with prior EMT or paramedic training, and/or advanced science education, and which gives preference to applicants with advanced education qualifications.	Fire Chief	Agree completed as of audit response	Completed
Incorporate external review panels into the recruitment process.	Fire Chief	Agree completed as of audit response	Completed
Expand the Cadet Program course content to include paramedic experience.	Fire Chief	Agree completed as of audit response	Completed
Expand Classification H-2 Fire Fighter recruits" field probation experience to include an ambulance assignment.	Fire Chief	Agree completed as of audit response	Completed
Develop formalized career development programs for staff.	Fire Chief	Agree completed as of audit response	Completed

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
1.6.2 Review the deadlines for recruitment diversity goals to ensure that the Fire Department has sufficient Classification H-3 Fire Fighter Paramedics to meet its service obligations.	Fire Chief	Agree	In Progress
1.6.3 Analyze future paramedic training options so that the Fire Department can prepare a cost benefit comparison between an in-house EMS Academy and utilizing paramedic training provided by other public and private sector agencies.	Fire Chief	Agree, Further Analysis expected to be complete by July 2002	Other (City College Agreement)
1.6.4 Analyze the costs and benefits of requiring staff to undertake their cross-training off-duty.	Fire Chief	Agree expected to be complete by July 2003	Completed
1.7.1 Create a comprehensive Safety Program to ensure that activities pertaining to sick leave, disability pay, workers compensation and limited duty are properly coordinated with other Departmental activities-such as recruitment, training and financial management-and administered to reduce the impact on overtime and optimize the use of limited duty.	Fire Department	Agree scheduled to begin July 2002	Completed
1.7.2 Establish practicable targets through and in cooperation with the Safety Program for the use of sick leave, disability pay and limited duty assignments in the Department's staffing model.	Fire Department	Further Analysis	Completed
1.7.3 Utilize its current authority to initiate Industrial Disability Retirements, as appropriate.	Fire Department	Agree anticipated having a policy in place by July 2002	Completed
1.7.4 Participate more directly with the Department of Human Resources Workers Compensation Division in the careful review of all retiree claims to ensure in a timely manner that they meet the legal requirements for acceptance and are not improperly approved due to inattention or carelessness.	Fire Department	Agree (but dept is unable to comply as recommendation is outside operations & authority of the dept) issue to be forwarded to DHR-WCD	Other (See note previous cell)

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
1.7.5 Assist in the vigorous scrutiny of all new industrial injury claims by active uniformed personnel for assurance of adequacy before acceptance.	Fire Department	Agree	Completed
1.7.6 Continue working with the Department of Human Resources Workers Compensation Division to enhance the Fire Department's information system applications for purposes of a comprehensive safety program, tracking claims and more effectively dealing with industrial injuries and illnesses.	Fire Department	Agree	Completed
1.7.7 Establish two positions (H30 Captain or equivalent civilian and 6137 Assistant Industrial Hygienist) to manage a comprehensive and strategic industrial safety program that addresses the full range of human and environmental factors in a proactive and systematic way.	Fire Department	Further Analysis	Completed (In part)
1.7.8 Convert uniform positions to civilian positions where appropriate to reduce disability pay exposure (please refer to Section 2.3 of this report).	Fire Department	Further Analysis	In Progress
1.7.9 Vigorously enforce the Department's existing policy of a one-year limit on limited-duty assignments.	Fire Department	Agree completed as of audit response	Completed
1.7.10 Work cooperatively with the Department of Human Resources and establish internal procedures to monitor sick leave use against the Pilot Incentive Wellness Program to validate its effectiveness.	Fire Department	Agree completed as of audit response	Completed
1.8.1 Prepare a written policy and set of procedures that cover management of the Department's apparatus.	Fire Department	Agree expected to be in place January 2003	Completed
1.8.2 Prepare a strategic and updated comprehensive Vehicle Maintenance and Replacement Plan, implement a related Program for all Department vehicles, and ensure Department-wide compliance with the plan. This plan should be updated annually to reflect inventory changes and budgetary actions.	Fire Department	Agree anticipated completion of plan by January 2002 in time for use in prep of FY 03-04 budget	Completed

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
1.8.3 Develop information tracking systems to monitor vehicle depreciation, value, usage hours, mileage, costs of maintenance, repairs and accidents and all other relevant information in a centralized database to ensure that inventories are accurate and can be effectively used to manage the entire fleet as well as facilitate the Controller's compliance with requirements of the Governmental Accounting Standards Board (GASB) Statement No. 34.	Fire Department	Agree expected to be complete by January 2003	Completed
1.8.4 Develop a system to ensure that Department vehicles and apparatus receive the proper preventive maintenance.	Fire Department	Agree expected to begin January 2003	Completed
1.8.5 Rotate passenger vehicles in order to smooth out utilization rates.	Fire Department	Agree	In Progress
1.8.6 Evaluate whether the Department has too many passenger vehicles and if so, work with the Purchaser's Office to properly dispose of the excess. If the reverse is true, make certain that the Plan addresses and includes justification for additional needs.	Fire Department	Agree	Completed
1.8.7 Explore alternative funding strategies for vehicle replacement and include a recommendation in the Plan.	Fire Department	Agree anticipated completion of project by January 2003	Completed
1.8.8 Evaluate vehicle assignments to determine the appropriateness of assigning vehicles to on-call personnel who reside a substantial distance from the City.	Fire Department	Agree	Completed
1.8.9 Review and reach a clear understanding with the Purchaser's Central Shops on the circumstances under and the extent to which the Department will be able to contract directly with outside vendors for apparatus maintenance.	Fire Department	Agree completed as of audit response	Completed
1.8.10 Follow the recommendation in another section of this report to civilianize positions of uniformed personnel in the Bureau of Equipment that function primarily as mechanics.	Fire Department	Disagree	Not Intended

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
1.8.11 Include in the training regimen for the head of the Bureau of Equipment classes in professional fleet management.	Fire Department	Agree	Completed
1.9.1 Prepare policies and procedures to cover a comprehensive strategy for management of vehicular accident data, and coordinate with other appropriate units within the Department to reduce cost and liability.	Fire Department	Agree	Completed
1.9.2 Utilize the Department's PeopleSoft system as the data storage and reporting tool to track vehicular accidents.	Fire Department	Agree	Completed
1.9.3 Incorporate the vehicular accident program into a broader Department-wide Safety Program.	Fire Department	Agree	In Progress
1.9.4 Incorporate issues from analyses of accident data into specific training sessions and procedures.	Fire Department	Agree	Completed
1.10.1 Develop a formal policy and set of procedures to provide for a rolling Comprehensive (Five-Year) Capital Improvement Plan, that includes a section detailing the major facilities maintenance activities scheduled for the next fiscal year.	Fire Department	Agree	Completed
1.10.2 Review the City's procurement procedures with the Purchaser's Office to determine the possibility of modifying the limitations on vendor selection by departments.	Fire Department	Agree anticipated formal policies by July 2002	Completed
1.11.1 Jointly develop a prioritized list of defects and desired enhancements to the CAD/AIS, and work with the Department of Telecommunications and the CAD/AIS contractors to obtain the full-required functions of those systems.	Fire Department & Emergency Communications Department	Agree	Completed
1.11.2 Jointly develop and execute a plan to obtain full functioning of the AVL system to assist in dispatching medical units.	Fire Department & Emergency Communications Department	Agree expected to be fully functional by January 2003	Completed
1.11.3 Adopt a plan for developing the complete operational capability of supplying Fire Prevention information to units responding to emergency incidents. The plan should be submitted to the Mayor and to the	Fire Department	Agree	In Progress

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
Board of Supervisors.			
1.12.1 Allocate funding required to replace uniformed members of the Fire Department with civilians to staff Fire/EMS Dispatch in a manner that facilitates the schedule proposed by the ECD.	Mayor & BOS	Agree	In Progress (Currently transitioning to civilian)
1.12.2 Recruit and train sufficient civilian trainees to staff the Fire/EMS Dispatch function in accordance with the planned schedule.	Emergency Communications Department	Agree	In Progress
1.12.3 If feasible, train all Call Evaluators to process Fire/EMS calls for assistance.	Emergency Communications Department	Agree	Completed
1.12.4 Procure the Clawson medical dispatch system and place it into operation as soon as possible.	Emergency Communications Department	Agree	Completed
1.12.5 In conjunction with the Fire Department, ensure that CBD protocols are adhered to.	& Fire Department	Agree	Completed
1.12.6 In conjunction with the Fire Department, develop a signed Interdepartmental Agreement concerning Fire/EMS Dispatch operations.	Emergency Communications Department & Fire Department	Agree	Completed
1.12.7 In conjunction with the ECD, ensure that CBD protocols are adhered to.	Emergency Communications Department & Fire Department	Agree	Completed
1.12.8 Develop a Fire/EMS Dispatch operating procedure that covers such topics as departmental rules and regulations, personnel management, dispatch policies, and operational procedures.	Fire Department	Agree	In Progress
1.12.9 In conjunction with the ECD, develop a signed Interdepartmental Agreement concerning Fire/EMS Dispatch operations.	Fire Department	Agree	Completed
2.1.1 Conduct an analysis of the Department's command structure, as discussed in this report.	Fire Commission	Agree	Completed
2.1.2 Reduce the number of Fire Suppression Divisions by one, from three to two, each commanded by a 40-hour workweek Division Commander.	Fire Chief	Disagree	Completed (In part)

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
2.1.3 Request adequate staff for each of the two Divisions to provide the planning, coordinating, directing, and controlling required to effectively deploy the Divisions.	Fire Chief	Disagree	Not Intended
2.1.4 Consider replacing the three 24-hour Division Chiefs with a single Watch Commander.	Fire Chief	Disagree	In Progress
2.1.5 As a longer-term operational objective, evaluate whether the assignment function could be performed more economically using suppression staff.	Fire Chief	Disagree	Completed
2.1.6 Delete one excess Battalion Chief Position.	Fire Chief	Disagree	Completed
2.1.7 Consider reducing the number of Fire Suppression Battalions from ten to six.	Fire Chief	Disagree	Not Intended
2.1.8 Place a high priority on correcting the shortcomings evidenced in the Fire Department's responses to the questions listed in Attachment 2.1.1.	Fire Chief	Agree	
2.1.9 Evaluate its force structure in the light of its current mission so as to better align that structure with its current mission.	Fire Chief	Agree	In Progress
2.1.10 Transfer the Special Operations Section to the Deputy Chief of Operations.	Fire Chief	Agree	Completed
2.2.1 Continue use of the different automated staffing models to calculate the overall relief factor and FTEs required for all fixed-post positions in Suppression, Emergency Medical Services and the Radio Group;	Fire Department	Agree in principal	
2.2.2 Utilize all leave categories in calculating the relief factor.	Fire Department	Further Analysis	
2.2.3 Utilize historical data from the Daily Average Absence Report, based on averages covering the previous four year period.	Fire Department	Agree in principal	Completed
2.2.4 Separately track and report on attendance and leave usage for personnel in Emergency Medical Services and in the Radio Group.	Fire Department	Agree in principal department to formalize tracking & reporting criteria by December 2002	Completed

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
2.2.5 Prepare written procedures that describe construction and application of the models sufficient for other Finance staff to appropriately and correctly make use of them.	Fire Department	Agree in principal	
2.2.6 Work with staff in the Assignments Office and Human Resources Division to ensure accuracy of leave data captured in the Department's automated system.	Fire Department	Agree in principal	Completed
2.3.1 Convert the following uniform positions to civilian positions:		Disagree (see below for specifics) but will review positions and proceed with an analysis of civilianizing positions)	
H-2 Firefighter in the Bureau of Equipment to 1952 Purchaser;	Fire Department	Disagree	Not Intended
Seven H-2 Firefighters in the Bureau of Equipment to seven 7381 Automotive Mechanic,	Fire Department	Disagree	Not Intended
H-30 Captain in Facilities Renovation to 7262 Maintenance Planner;	Fire Department	Disagree	Not Intended
Five H-20 Lieutenants in Bureau of Assignments to five 1203 Personnel Technicians;	Fire Department	Disagree	In Progress
Twenty-four H-4 Inspectors in Bureau of Fire Inspection to twenty-four 6281 Inspectors;	Fire Department	Disagree	Not Intended
H-18 Coordinator of Community Affairs to 1314 Public Relations Officer	Fire Department	Disagree	Completed
H-20 Lieutenant in Neighborhood Emergency Response Training to 1314 Public Relations Officer	Fire Department	Disagree	Not Intended
2.3.2 Convert the H-40 Battalion Chief in Bureau of Assignments to H-20 Lieutenant.	Fire Department	Disagree, Further Analysis	Completed
2.3.3 Classify all new Bureau of Equipment and MIS positions that are requested in the FY 2002-2003 budget as civilian positions.	Fire Department	No increases to BOE or MIS positions currently considered.	Other (See note previous cell)
2.4.1 Annually review its committees and workgroups and reduce or eliminate committees that do not perform a function or do not produce a work product consistent with the Department's mission, and restructure or eliminate committees that have compensatory time or work product expenditures exceeding projected expenditures.	Fire Department	Agree	Completed

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
2.4.2 Develop written guidelines, outlining the reasons for committee members to attend meetings or perform committee work in off-duty status, require Department Chief approval of workgroup and committee work plans with members participating in off-duty status, and require the appropriate Deputy Chief approval for any additional committee and workgroup compensatory time and overtime expenditures prior to accrual.	Fire Department	Agree	Completed
2.4.3 Report compensatory time and overtime expenditures for committee and workgroups, including Division of Training compensatory time and overtime expenditures for drill preparation and performance, as part of the FY 2002-2003 budget review, including a written explanation of why the committee, workgroup, or drill preparation and performance could not be performed in on-duty status.	Fire Department	Agree	Completed
2.4.4 Meet and confer with the respective employee organizations to implement Rules and Regulations Section 418, to pay compensatory time for attending committee and workgroup meetings or conducting committee and workgroup work at the regular rate of pay and not at time-and-a-half.	Fire Department	Further Analysis	Completed
2.4.5 Implement a payroll procedure to pay firefighters for exchanged watch hours actually worked and to deduct pay for firefighters exchanging the watch.	Fire Department	Disagree	In Progress
2.4.6 Meet and confer with the Fire Fighters Union to increase the overtime limit for watch exchanges from the current MOU limit of 96 hours per pay period to the Federal Fair Labor Standards Act (FLSA) limit of 159 hours per 21-day tour.	Fire Department	Disagree	In Progress (Issue in current reopener)
3.1.1 Improve its data collection processes with regard to (1) actual revenue collected, and (2) actual volume of activity by valuation category or by actual hours of service provided, depending on the fee. BFP should, at a minimum, attempt to collect revenue data and volume of activity data with existing technology.	Fire Chief direct Bureau of Fire Prevention	Agree	Completed

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
3.1.2 Adopt a standardized cost allocation methodology that clearly identifies direct and indirect costs associated with providing fire prevention services and is consistent with cost accounting principles promulgated by State and Federal agencies with expertise in this area, such as the State Controller's Office and the Federal Office of Management and Budget. The BFP should also improve the documentation of its cost allocation methodology and fee-setting methodology. Each category of the cost allocation plan should clearly identify which fire prevention services it covers. A clear explanation of how each fee was calculated should also be provided.	Fire Chief direct Bureau of Fire Prevention	Agree	Completed
3.1.3 Direct the CFO to prepare the cost allocation plan and the fee rates, based on data provided by BFP operational personnel. The final work product should then be jointly reviewed by the CFO and BFP management.	Fire Chief direct Bureau of Fire Prevention	Agree	Completed
3.1.4 Use actual productive hours, as opposed to total hours for which employees are paid, when determining hourly rates that form the basis for hourly fees.	Fire Chief direct Bureau of Fire Prevention	Further Analysis	In Progress
3.1.5 Ensure that the hourly rates that form the basis for the fees are appropriately weighted to reflect time spent by given classifications of employees. Ensure that pre-and post-meeting time spent on inspections or meetings is accounted for in the fee setting.	Fire Chief direct Bureau of Fire Prevention	Agree	In Progress
3.1.6 Provide a written report annually to the Controller as specified in the San Francisco Fire Code. The BFP should review its costs, fees, and collections annually, as allowed by the Fire Code, and propose adjustments accordingly.	Fire Chief direct Bureau of Fire Prevention	Agree	Completed
3.1.7 Review the categories of fire prevention service for which fees are not currently charged, and seek policy input from the Board of Supervisors to determine whether it might be appropriate and fiscally responsible to charge for some of the services which currently receive fee waivers.	Fire Chief direct Bureau of Fire Prevention	Disagree	In Progress
4.1.1 Restructure the residual EMS Division as a smaller EMS Unit, eliminate the Classification H-43 EMS Operations Section Chief position, and create a new Classification 1824 Principal Administrative Analyst position.	Fire Chief	Disagree	Other (Restructure = Completed Elimination = Not Intended)

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
4.1.2 Convene a working group in FY 2001-2002 through FY 2002-2003 to establish a completely integrated chain of command with appropriate emergency medical services oversight mechanisms by FY 2003-2004.	Fire Chief	Agree	Completed
4.1.3 Once the integrated chain of command has been established, transfer emergency medical service policy development, implementation, and evaluation functions, and sufficient staffing resources, to the new Strategic Policy, Planning and Analysis Unit.	Fire Chief	Disagree	In Progress
4.2.1 Deploy sixteen 24-hour ambulances and seven 10-hour ambulances when implementing the One and One Response Program. We recommend that the Department deploy 13 of the sixteen 24-hour ambulances as ALS ambulances and that the Department consider deploying three of the sixteen 24-hour ambulances as BLS ambulances.	Fire Department	Disagree	In Progress
4.2.2 Meet and confer with the respective employee organizations to implement 10-hour shifts for covered employees assigned to 10-hour ambulances.	Fire Department	Disagree	Other (No internal decision made regarding this recommendation)
4.2.3 Submit quarterly reports to the Emergency Medical Services Agency (EMSA) and the Fire Commission, evaluating the performance of the One and One Response Program, including ALS response times, number of ambulance and engine dispatches compared to number of medical events, workload distribution by ambulance, and attrition of paramedic staff.	Fire Department	Agree	Completed
4.2.4 Submit an annual report to the Board of Supervisors, as part of the annual budget review, evaluating the costs and benefits of the One and One Response Program, including sick leave and overtime use, ALS response times, and number of dispatches compared to number of medical events.	Fire Department	Agree	Intended

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
4.3.1 Work with AIS to monitor the completeness and accuracy of PCRs for billing purposes and have a supervisory Fire Department employee periodically sample and review incomplete PCRs. If patterns of EMS personnel who consistently do not collect accurate, complete data become evident, sanctions should be imposed and such personnel should be trained and coached. The Department should strive to make the collection of patient billing data a key part of employee performance.	Fire Department	Agree	Completed
4.3.2 Direct AIS to provide training on collecting accurate and complete patient billing data. Such training should focus on specific problem areas that AIS notes in its continuous reviews of PCRs.	Fire Department	Agree	Completed
4.3.3 Direct AIS to conduct on-site (at the Fire Department) research as soon as a PCR is identified as "Incomplete Address." Such research may aid in collecting more complete patient billing data and classifying fewer accounts as non-billable. Further, the Department's contract with AIS should specify precisely the steps that AIS will take with regard to subsequently researching accounts that lack sufficient billing information. The contract should require that AIS document each research step it takes.	Fire Department	Further Analysis	Completed (Research = Completed Onsite = Not Intended)
4.3.4 Negotiate agreements with hospitals receiving patients that stipulate that the hospitals will provide patient billing data to the Fire Department upon request as permissible by law.	Fire Department	Agree	Intended
4.4.1 Direct AIS to transfer non-billable accounts of more than \$300 to BDR if they remain uncollected by AIS 90 days after the provision of EMS service.	Fire Department	Agree	Other (Parts in FD control = Completed)
4.4.2 Direct AIS to transfer non-billable accounts of \$300 or less to BDR if they remain uncollected by AIS 90 days after the provision of EMS service. As noted previously, the City Attorney advises that the transfer of such accounts is allowable and BDR notes that it has accepted such accounts in the past from other departments.	Fire Department	Agree	Other

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
4.4.3 Direct AIS to transfer billable accounts of more than \$300, which are currently transferred to BDR, on a more timely basis. Such transfers should occur if such accounts remain uncollected by AIS 90 days after the first billing. Exceptions to the 90 day rule should be allowed for (1) accounts for which AIS anticipates payment from a third-party, but such payment has not yet been received; and, (2) accounts for which a third-party has denied the claim, whereby AIS should be allowed an additional 90 days to bill the patient for the balance.	Fire Department	Disagree	Other
4.4.4 Direct AIS to transfer billable accounts of \$300 or less to BDR if such accounts remain uncollected by AIS 90 days after the first billing. The exceptions described in 4.4.3 should also apply to these accounts. As noted previously, the City Attorney advises that the transfer of such accounts is allowable and BDR notes that it has accepted such accounts in the past from other departments.	Fire Department	Agree in part	Other
4.4.5 Enter into an ALS provider agreement with the local EMS agency, as required by the California Code of Regulations.	Fire Department	Agree	In Progress
4.5.1 Modify accounting procedures to ensure that both billable and non-billable EMS charges are reflected in the accounts receivable balance. This is consistent with fundamental principles of accounting with regard to recording accounts receivables and revenues. Establish written policies and procedures with regard to such accounting.	Fire Chief	Further Analysis	Completed
4.5.2 Modify accounting procedures to ensure that the revenue recognized is appropriately offset by an allowance account based on the amount the Department expects to collect. This is consistent with fundamental principles of accounting with regard to recording accounts receivables and revenues. Establish written policies and procedures with regard to such accounting.	Fire Chief	FA	Completed
4.5.3 Ensure that the appropriate segregation of duties exist between staff who make entries in the accounting records.	Fire Chief	Agree	Completed

BUDGET ANALYST RECOMMENDATIONS	ACTION RECOMMENDED FOR:	SFFD Response:	SFFD Action:
4.5.4 Ensure that the Department receives daily deposit summaries directly from the bank.	Fire Chief	Agree	Completed
4.5.5 Establish criteria for the classifying accounts as uncollectible and provide for periodic audits of such accounts by the Department.	Fire Chief	Agree	Completed
4.5.6 Conduct monthly reconciliation of accounting records, AIS" records, and bank records to detect and address inconsistencies in a timely manner. Establish written policies and procedures with regard to such reconciliations.	Fire Chief	Agree	Completed
4.6.1 Lock supply lockers that contain medical supplies and pharmaceuticals. Keys should always be available in case supplies are needed. However, they should be accessible only through fire station management, or a representative designated by management.	Fire Department	Agree	Completed
4.6.2 Implement sign-out sheets, similar to those used by the Department for controlled substances, for the removal of medical supplies and pharmaceuticals from the fire station supply lockers. Such sign-out sheets should require two signatures for the removal of supplies and should provide sufficient detail with regard to the unit and crew removing the inventory.	Fire Department	Agree	Completed
4.6.3 Begin monitoring the usage of medical supplies and pharmaceuticals, through the recommended sign-out sheets and through the pending computerized inventory management system. Irregularities should be reported to management and appropriately researched and addressed.	Fire Department	Agree	Completed

Source: Budget Analyst Report and SFFD Staff Interview