Leaders at the Core of Better Communities

Part 2
Operational Assessment Report
Police
Lake Havasu, Arizona

Submitted by:
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ICMA Background

The International City/County Management Association (ICMA) is the premier local government leadership and management organization. Since 1914, ICMA's mission has been to create excellence in local governance by developing and advocating professional local government management worldwide. ICMA provides an information clearinghouse, technical assistance, training, and professional development to more than 9,000 city, town, and county experts and other individuals throughout the world.

ICMA Consulting Services

The ICMA Consulting Services team helps communities solve critical problems by providing management consulting support to local governments. One of ICMA Consulting Services' areas of expertise is public safety services, which encompasses the following areas and beyond: organizational development, leadership and ethics, training, assessment of calls for service workload, staffing requirements analysis, designing standards and hiring guidelines for police and fire chief recruitment, police/fire consolidation, community-oriented policing, and city/county/regional mergers.

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Executive Summary

The Lake Havasu City Police Department (LHPD) is well managed, dedicated, and well trained. The members are professional, possess a wealth of experience, and maintain unquestioned credentials and integrity. They also are committed to wanting to help, providing a high level of specialized services to the citizens of and visitors to Lake Havasu City, Arizona.

Administrative

The department excels in areas such as crime scene investigations, human resources management, criminal investigations, and especially citizen involvement. There has been a consistent effort to improve the operations of the agency, particularly since the appointment of the current chief of police in 2006. These improvements include the extensive leadership training for the command staff with the FBI in Quantico, Virginia, the West Point Leadership Command, and the future application process for the Commission on Accreditation for Law Enforcement Agencies (CALEA).

The CALEA program does the following:

- Increases the law enforcement agency's ability to prevent and control crime through more effective and efficient delivery of law enforcement services to the community it serves
- Establishes standards that address and reduce liability for the agency members
- Provides the agency with recognition of excellence and accountability as well as an opportunity to receive insurance-premium discounts in relation to such achievements
- Establishes standards that make an agency and its personnel account to the constituency they service
- Implements standards that do not conflict with national standards.

This level of professionalism is further demonstrated in the appearance of the uniformed forces. It is clear that the officers are expected to pay close attention to their appearance, and we note that this commitment to uniform presence is continued throughout the ranks, including the chief of police.

The LHPD also has increased the involvement by the patrol officers in preliminary and secondary investigations as well as significant internal management procedures designed to increase accountability. This is clearly a department of which the city's residents and elected officials can be proud.

Communications-Data Analysis

The current computer-assisted dispatch and records management system (CAD/RMS) is incapable of producing the types of information to allow for data-driven decision-making within the department. This prevents police managers from accurately monitoring agency activities on a real-time basis. It also prevents elected officials from having accurate and timely reporting on issues such as response times, calls for service workloads, and officer-initiated activities. Additionally, the department lacks expertise in the area of public-safety information systems management, which is critical in creating a modern CAD/RMS.

The department also is experiencing some issues and concerns regarding the onboard computers for the police units. The police administration advises that the system fails while in operation due to inadequate and unreliable wireless data coverage. When the system fails, officers are unable to complete reports and query any of the local, state, or federal databases. They have to drive to find an area included in the 25 percent of the city that has wireless coverage in

order to complete their work. This is frustrating for them. The breakdown sometimes forces the police officers to rewrite the reports at their headquarters on an in-house computer system. The program is counterproductive and effects loss productivity to the high-visibility patrol function. ICMA staff identified two specific areas in need of immediate and significant improvement: operation and management of the CAD/RMS and operation of the 900-MHz system that drives the onboard computers in the police units

Patrol

ICMA staff found that the staffing levels within the patrol division were slightly higher than other departments reviewed measuring the calls for service (CFS) versus the time spent on each incident compared to unobligated/directed patrol, writing reports, and administrative responsibilities. The present conditions allow the officers to perform at a higher level of service to the community. This is reflected in the excellent response times.

In 2008, the patrol function worked 10-hour shifts, which wasted valuable personnel resources and limited flexibility to assign personnel in patterns. In 2009, the chief of police established 12-hour shifts, which have compressed levels of staffing, effecting a higher level of staffing for each tour of duty. ICMA commends both the city and the LHPD administrations for implementing this new schedule. It will reduce overtime and has allowed the department to utilize staff in the marine function, which is essential during boating season (March to October).

I. Introduction

This study was authorized by the City of Lake Havasu to review operations and staffing of the Lake Havasu City Police Department. Our work focused on the internal performance of the police department as well as detailed data analysis of three main areas: workload, deployment, and response times. These three areas are almost exclusively related to patrol operations, which constitute by far the majority of the police department's personnel and financial commitment. However, in our operations review, we consider all aspects of the police department.

We applied broadly accepted contemporary concepts and principles of organization and management. We recognize that there is no one right way to organize a police department and that every department must be structured to meet the specific needs of the community it serves; however, certain principles of organization have been proven valid over time. They include:

- Tasks, similar or related in purpose, processes, methods, or clientele, should be grouped together in one unit or more under the control of one person.
- Each task should be clearly and concisely made the duty of an individual; responsibility for planning, execution, and control should be definitively placed on designated individuals.
- Each individual, unit, and situation should be under the immediate control of one, and only one, individual, thus achieving the principle of unity of command.
- Each assignment or duty should carry with it the authority necessary to fulfill the responsibility.
- Lines of demarcation between the responsibilities of units should be clearly drawn by a precise definition of the duties of each;
- Rank should increase one step at each level of the organization's structure and be consistent with the duties and responsibilities assigned to the position
- Personnel who supervise others should hold supervisory rank;
- Qualified civilian employees should staff functions that can be performed by non-sworn personnel.

- Nontraditional or highly specialized functions should be established only if a demonstrated and ongoing need exists.

These principles, coupled with the corporate knowledge of the community possessed by the chief and other LHPD command personnel, should guide the development of an appropriate table of organization and the operational policies necessary for the direction of the LHPD.

The LHPD must be structured to perform its essential functions efficiently and effectively, within its fiscal restraints, consistent with the nature and particular needs of the community it serves. ICMA will identify positions that should be funded to provide a recommended level of police service to the city without compromising officer safety. The timetable to implement these recommended changes is the responsibility of the city.

We thank the officers and civilians of the LHPD for their assistance in completing this project. In particular, we commend Chief Doyle and his administrative staff (Captain Fiumara and Captain Pederson) for their enthusiasm and exceptional cooperation with the ICMA staff regarding documentation requests and the overall project.

II. Overview

Our data analysis was hampered by a series of issues regarding the manner in which the dispatch center operates and collects calls-for-service information and the limitations of the current CAD/RMS. ICMA believes that the current technology linking the dispatch and records systems precludes the department and the city from having readily available data in an easily understood format. This is critical to the proper management of a data-driven law enforcement agency.

ICMA describes these issues in detail later in this report and makes recommendations on how to improve this aspect of the police operation. However, even with the limitations created by these data issues, ICMA was able to develop a comprehensive analysis of police data.

With regard to the internal functions of the agency, ICMA had no such difficulties. The police department was able to provide ICMA with detailed information about all aspects of department operations, and each member of the agency with whom we met was very forthcoming and helpful.

ICMA was particularly struck by the caliber of management and organization within the LHPD. It is clear from our discussions and onsite visits that the agency has a clear sense of mission; members of the department share that vision, and there is a strong commitment to the best practices and service to the community. ICMA believes that the LHPD is one of the better law enforcement agencies that we have had an opportunity to review.

Despite the high level of performance of LHPD officers and management, ICMA believes that with the present economic climate, significant staffing and deployment levels must be addressed without affecting the level of service provided to the public, police officer safety, or citizen satisfaction. Data and an analysis of staffing levels are provided later in the report.

Recommendations

The ICMA's report should act as a blueprint for both the city and police administrations. The city should have periodic meetings with the LHPD

administration to ensure that ICMA recommendations are implemented and followed up in a timely fashion.

III. Operations Analysis

The department comprises 96 full-time sworn officers, one part-time officer, 31 full-time civilians, and 19 part-time civilians. ICMA notes that the senior management staff is slightly lean: the chief of police and two police captains. Conversely, the department has put significant responsibility and authority in the middle management of the organization. The five lieutenants have broad authority over a wide range of both line and staff functions. ICMA believes that this approach is not only cost-effective but also helps to build management skills within middle management. However, as the community grows, the department should grow, and ICMA believes that it may be necessary to reconfigure or restructure the department somewhat so that it can be divided into three distinct divisions composed of the staff and line functions (i.e., patrol, investigations, administrative/support functions).

A. Patrol

The patrol unit is the core of the police department, and it is the most visible component. ICMA staff found that the patrol officers were well trained, enthusiastic, and closely in touch with their assigned patrol areas. There appears to be the sense of personal responsibility for assigned patrol areas that is critical for effective community policing.

There are only two patrol lieutenants responsible for management of the patrol function. The lieutenants also have additional staff responsibilities. There are four squads, broken into A and B units with alternate work schedules. Other operational units—including the K-9

unit, the traffic unit, the special assignment unit (SAU), the street crimes unit (SCU), and the power squad—work within the patrol function responsibility.

ICMA believes that the patrol division lieutenants should be working, as the CFS dictate the highest volume of deployment. This is significant, as the present conditions dictate that a captain and one of the lieutenants work days. The other patrol lieutenant works nights; however, on many shifts, the patrol officers are supervised by sergeants only after 4 p.m.

The department has the staff and the means to redeploy the patrol lieutenants. The new 12-hour tour of duty will ensure that the patrol lieutenants are observing a greater cross-section of patrol function during their tour of duty. This new procedure will also allow the police administration to flex the lieutenants' hours for upcoming and/or future special events.

B. Investigations

The criminal investigation function is vested with the responsibilities ordinarily associated with non-uniformed investigations and patrol activity. The investigators conduct follow-up on information gathered by the uniformed patrol force. The investigators should also be the point of contact working closely with investigators from county, state, and federal agencies.

Assigning cases to a single person as the principal investigator is a typical circumstance with the LHPD. While assigning more than one person to a case is not precluded, the action is designed to place accountability for each case (CALEA).

A lieutenant is in command of criminal investigations and assisted by two sergeants. One sergeant is in charge of seven detectives assigned to the criminal investigations. Five detectives are assigned to investigations, one detective is assigned to property and evidence management control, and one detective is assigned crime scene investigations. The detectives work four 10-hour tours of duty providing investigative coverage Monday through Friday. They split the workload, with half of the detectives working Monday through Thursday and the other half working Tuesday through Friday. The lieutenant assigned to the investigations occasionally assists with case investigations.

In 2008, investigations handled 543 cases, clearing almost 61 percent of the cases, while patrol was assigned 890 cases to assist on investigations. The crime scene investigators were responsible for 11 automatic fingerprint identification system (AFIS) hits and one DNA hit involving a homicide case.

The other criminal investigations sergeant is assigned to the special investigations bureau (SIB) and is assisted by four detectives. The SIB handles approximately 98 percent of the narcotic cases. In 2008, the SIB controlled 227 cases while handling controlled buys, adult and juvenile arrests, search warrants, and trash runs.

The total number of incidents reported to the Arizona Law and Public Safety Uniform Crime Report (UCR) in 2007 was coded to be 1,952 Part 1 crimes. Part 1 crimes are the most serious offenses and include murder, rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. In 2008, Lake Havasu coded 1,495 crimes, a decrease of 23 percent. ICMA commends the rank and file of the LHPD for their efforts in controlling crime.

In reviewing other police departments' benchmarks, we found that the usual workload analysis for a detective is based on 80 to 120 cases per detective annually, based on the Part 1 crimes of the UCR. A traditional number of investigators assigned to investigations is about 10 to 12 percent of the patrol function; however, this number is arbitrary and not linked to practical data. The patrol function presently consists of 54 officers. (*Source:* "What Every Chief Executive Should Know: Using Data to Measure Police Performance," by Jon M. Shane.)

ICMA found the criminal investigation function to be particularly goal-oriented, with a focus on long-range planning, which assisted the department in fully understanding the investigative workload. It is also able to identify the most productive methods for follow-up on investigations. Such an approach is highly productive and is illustrated by the low crime rate and the increased solvability and clearance rate from 2007 to 2008.

The LHPD should be recognized for its proactive approach to policing and crime solving. Further, the criminal investigation function has identified specific target investigations with the SIB instituting proactive activities. Therefore, instead of simply reacting to criminal activities, there is a thoughtful plan, which all members of the investigation function participate in when developing.

Recommendations

The police administration should periodically review the caseload versus the UCR and patrol formula percentage to ensure that enough investigative personnel are assigned to the criminal investigation function. The police administration should also consider having detectives work on weekends.

C. Crime Statistics and the Uniformed Crime Report

The police administration composes an annual COMPSTAT report providing vital information regarding the UCR, CFS, traffic citations, crime rates, and clearances. The report is an impeccable document, providing the reader with the essential statistics to fully understand the actions of the LHPD.

D. Crime Scene Technology

ICMA was particularly impressed by the quality of the crime scene investigators (CSI). They demonstrated a high degree of training, expertise, and enthusiasm and are particularly successful in identifying suspects through latent print work using AFIS and DNA.

E. Human Resources Management

The department demonstrates high sensitivity to recognizing performance and commitment from both sworn and civilian members of the department as well as to acknowledging the 13 active citizen volunteers. The awards, appreciations, and commendations help to build the *esprit de corps* clearly visible within the agency and go beyond just formal recognitions. They signal to members of the department their important contributions to the community and, at the same time, recognize the inherent danger in policing.

ICMA knows that an individual officer's appearance sends a strong message to the public that he or she encounters (victims and perpetrators alike). It is clear that the agency leadership also understands the importance of a public image that matches its professional performance.

F. Citizen Involvement

ICMA was particularly impressed by the close interaction between the police department and the volunteer population of the community. Of special interest is the retired senior volunteer patrol squad, where the 13 senior volunteers provide thousands of hours of service to the city under the coordination of a police department. The seniors participate with data entry, handicapped parking, transportation to juvenile hall an hour away, and other miscellaneous activities. They logged more than 1,665 hours in 2008.

Many police agencies publically promote the concept of community policing with little actual substance. It is clear that in the LHPD, there is a true partnership with the community that is an integral part of the agency's strategy.

G. Communications Center

The communications unit is a well-designed modern facility providing dispatch services to the city. The civilian dispatchers assigned to the unit appear to be professionally trained. During our visit, they interacted well with citizens both over the phone and visiting the facility in person. The communications center is secure.

This unit is responsible for managing the CAD/RMS. It is here that ICMA believes the opportunity exists to greatly improve data management. This will give police managers, as well as city officials, a greater understanding of information relating to CFS, deployment, and response times.

H. Equipment and Facilities

The city has invested heavily in equipment for its police department. The new police station is particularly well designed, clean, and properly maintained, providing the right mix of security and accessibility. In speaking with the officers, we felt it was clear that they have a great deal of pride in their department, the building, and the assigned equipment.

ICMA noted that equipment is properly stored and well identified. There is an adage in law enforcement that “a police facility is a tool, not just a shelter.” The facility meets the needs of the agency well into the distant future. The police vehicles, which are stored outside under a canopy, appear highly maintained, clean, well equipped, and properly marked for visibility and safety.

ICMA noticed the absence of in-patrol unit recording devices, which would provide state-of-the-art levels of protection for officers and citizens. The city should explore the feasibility of purchasing and installing these units.

IV. Data Analysis

All information in this preliminary report was developed directly from data recorded in the department’s dispatch center. The purposes of this report are to provide the city with our preliminary findings and to allow the police department to review and bring to our attention any dispatch information that may be inconsistent with other internal records of the agency.

The first section of the report, concluding with Table 8, uses the call and activity data for the entire year. For the detailed workload analysis

and the response time analysis, we used two four-week sample periods: August 2007 (August 1 to 28) and February 2008 (February 1 to 28).

A. Workload Analysis

The police data supplied by the police department was quite thorough; very few time fields were missing. In our analysis, we encountered a few data issues, and we made a number of assumptions to deal with them. These issues and assumptions include:

- A small but significant percentage of calls involving patrol units (8.2 percent) had zero time on-scene. Most of these were traffic-related calls or investigations (which include building checks).
- The computer software generated a large number of call categories (226 for 2007 to 2008), which we reduced to fewer than 15 categories for our tables and fewer than 10 categories for our figures.
- There were 31 different disposition codes. There were clear codes for false alarms, but other forms of canceled calls were not as easy to determine.

Our study team has previously dealt with similar problems with CFS data. To identify calls that were canceled en route, we assumed zero time on-scene to account for a significant portion of them. Any call with an on-scene time of less than 30 seconds was labeled *zero on-scene*. We also distinguished between patrol-initiated and other-initiated data.

Before describing the workload analysis, we briefly review the data received. In the period from July 2007 to June 2008, there were

approximately 74,000 calls for service. Of these, 67,000 included a patrol unit as either the primary responder or a secondary unit. When focusing on the two four-week periods, we analyzed 5,916 August calls and 4,703 February calls. In addition, when analyzing workloads and response times, we ignored calls with incorrect or missing time data. The inaccuracies included elapsed times that were either negative or exceeded 8 hours. For the entire year, we excluded only 200 calls from our analysis.

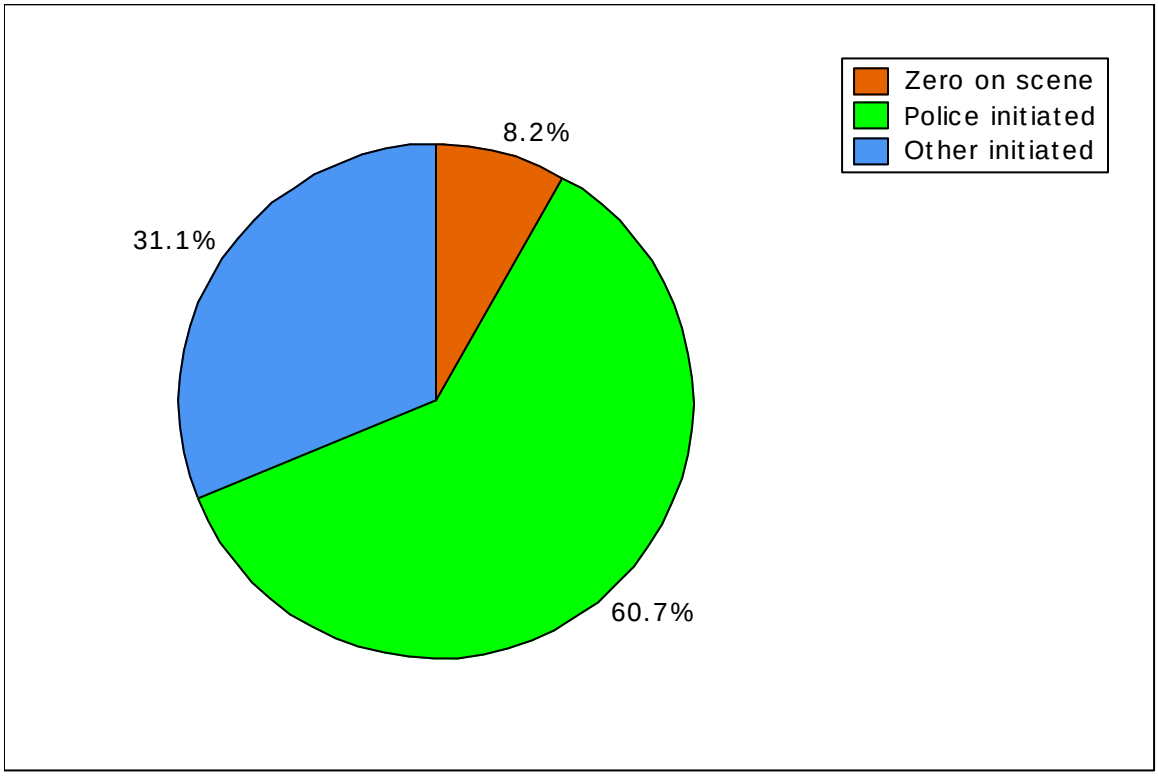
From July 2007 to June 2008, the police department reported 184 calls for service per day. As mentioned, about 8.2 percent of these calls show no officer time spent on the call.

Below, we show two types of data: activity and workload. The activity levels are measured by the average number of calls per day, broken down by the type and origin of the calls and categorized by the nature of the calls (crime, traffic, etc.). Workloads are measured in average work-hours per day. Activity levels show calls indicating when a patrol unit was out of service. The tables below use 17 call categories. For our graphs, they have been consolidated to 10 distinct categories. We show our categories immediately below.

Table categories	**Figure categories**
Accidents	Traffic
Traffic Enforcement	
Alarm	Investigations
Check/Investigation	
Animal Calls	General Noncriminal
Miscellaneous	
Assist Other Agency	Assist Other Agency
Crime—Persons	Crime
Crime—Property	
Directed Patrol	Directed Patrol
Disturbance	Suspicious Incident
Suspicious Person/vehicle	

Juvenile	Juvenile
Out of Service—Administrative	Out of Service
Out of Service—Personal	
Prisoner—Arrest	Arrest
Prisoner—Transport	

Figure 1. Percentage of Calls per Day by Initiator



Note: Percentages are based on a total of 66,816 calls.

Table 1. Calls per Day by Initiator

Initiators	Total Calls	Calls per day
Zero On-Scene	5,472	15
Police-Initiated	40,573	110.9
Other-Initiated	20,771	56.8
Total	66,816	182.6

Note. Table excludes 200 calls with incorrect or missing response time data.

Observations:

- About 8.2 percent of the calls reported involved zero on-scene time and are included in these numbers as well as the next figure and table. Later, we exclude calls with zero on-scene time, missing category information, and recording a unit as out of service.
- The data records include a large number of patrol-initiated activities: 111 per day, or about 61 percent of all activities. These include records of administrative activities such as briefings, breaks, and report writing.
- There was a total of 183 calls per day, or 7.7 per hour.

Figure 2. Percentage of Calls per Day by Category

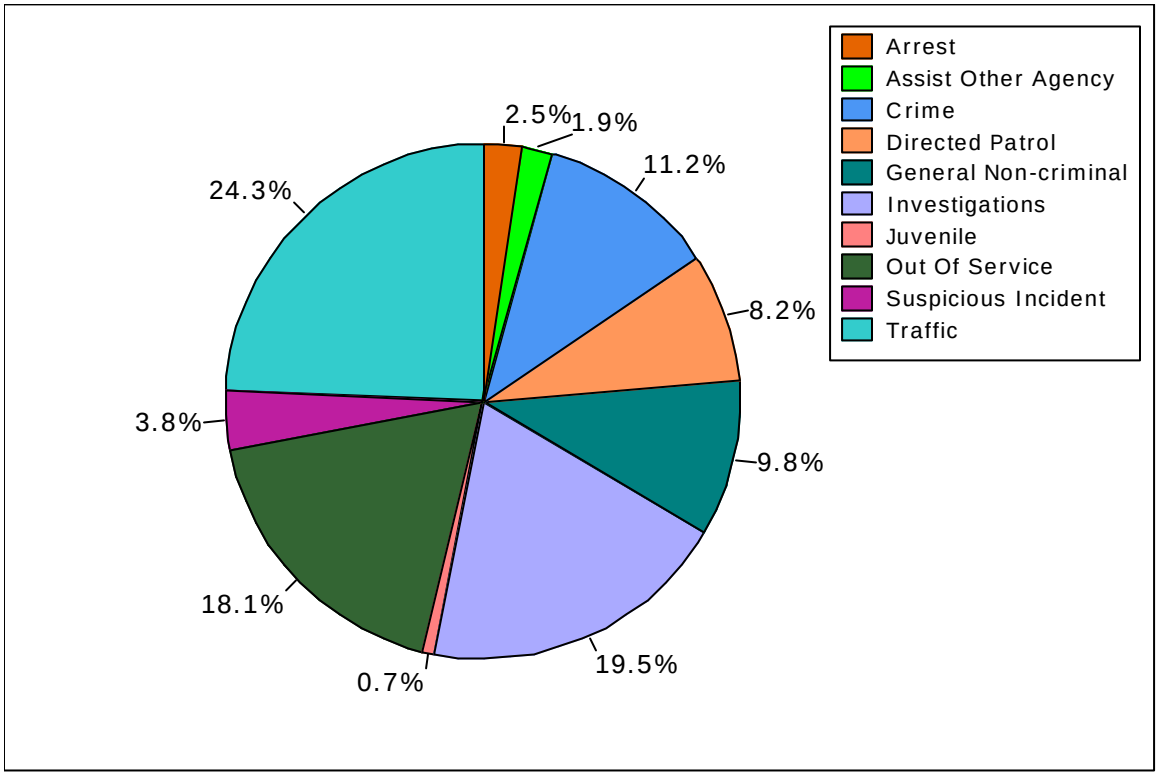


Table 2. Calls per Day by Category

Category	Total Calls	Calls per Day
Accidents	1,440	3.9
Alarm	1,828	5
Animal Calls	372	1
Assist Other Agency	1,248	3.4
Check/Investigation	11,227	30.7
Crime—Persons	2,622	7.2
Crime—Property	4,873	13.3
Directed Patrol	5,473	15
Disturbance	1,394	3.8
Juvenile	468	1.3
Miscellaneous	6,160	16.8
Out of Service—Administrative	6,606	18
Out of Service—Personal	5,513	15.1
Prisoner—Arrest	1,557	4.3
Prisoner—Transport	87	0.2
Suspicious Person/Vehicle	1,161	3.2
Traffic Enforcement	14,787	40.4
Total	**66,816**	**182.6**

Observations:

- Four categories accounted for 73 percent of activities.
- Twenty-four percent of calls were traffic-related.
- Twenty percent of calls were investigations.
- Eleven percent of calls involved crimes.
- Eighteen percent of calls were out-of-service activities.

Figure 3. Percentage of Nonzero In-Service Calls per Day by Category

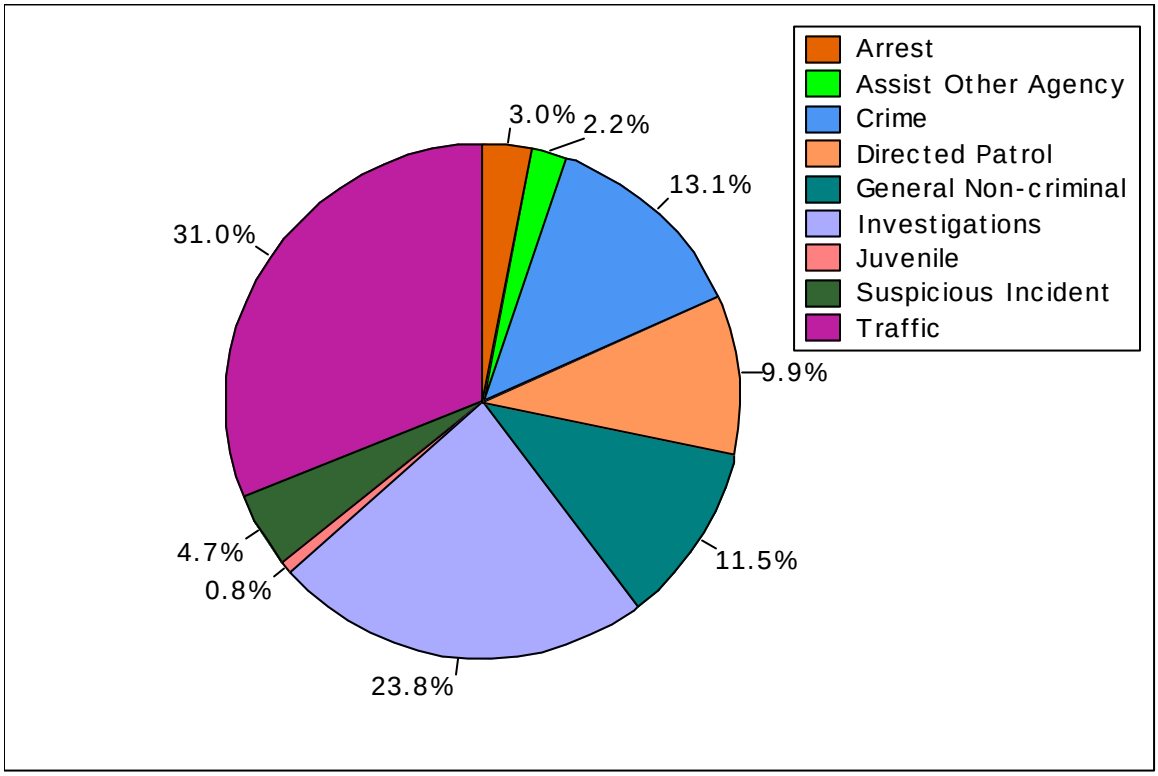


Table 3. Nonzero In-Service Calls per Day by Category

Category	Total Calls	Calls per Day
Accidents	1,360	3.7
Alarm	1,571	4.3
Animal Calls	337	0.9
Assist Other Agency	1,099	3
Check/Investigation	10,348	28.3
Crime—Persons	2,342	6.4
Crime—Property	4,232	11.6
Directed Patrol	4,977	13.6
Disturbance	1,260	3.4
Juvenile	402	1.1
Miscellaneous	5,419	14.8
Prisoner—Arrest	1,465	4
Prisoner—Transport	64	0.2
Suspicious Person/Vehicle	1,097	3
Traffic Enforcement	14,211	38.8
Total	**50,184**	**137.1**

Observations:

- When zero-on-scene calls and out-of-service calls were excluded, there were only 137 calls per day, or 5.7 per hour.
- Four categories accounted for 79 percent of activities.
- Thirty-one percent of nonzero on-scene calls were traffic-related.
- Twenty-four percent were investigations.
- Thirteen percent of these calls were crimes.
- Eleven percent were general noncriminal calls.

Figure 4. Calls per Day by Initiator by Months

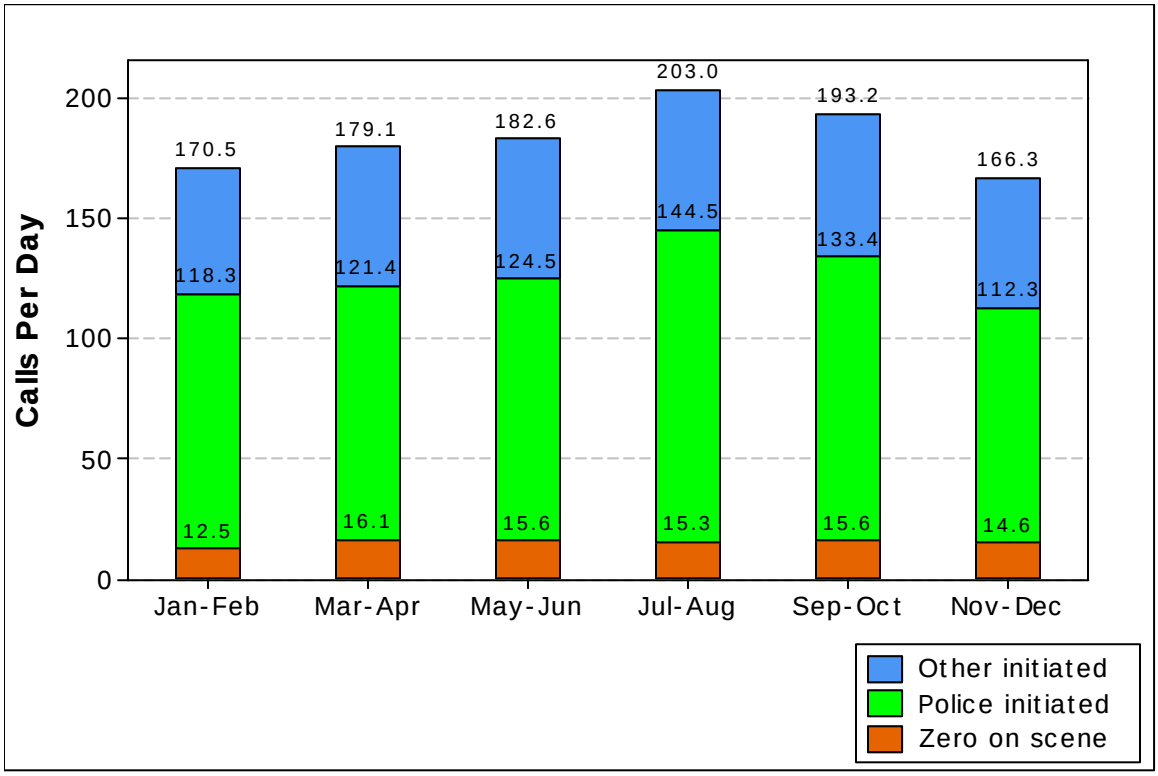


Table 4. Calls per Day by Initiator by Months (Jul 07–June 08)

Initiator	Jul-Aug	Sep-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun
Zero On-Scene	15.3	15.6	14.6	12.5	16.1	15.6
Police-Initiated	129.1	117.8	97.8	105.8	105.3	108.9
Other-Initiated	58.6	59.8	54	52.2	57.7	58.1
Total	**203**	**193.2**	**166.3**	**170.5**	**179.1**	**182.6**

Note. All calls with valid times are included.

Observations:

- The number of calls was largest from July to August.
- The number of calls was smallest from November to December.
- The largest months had 22 percent more calls than the smallest months.
- There were consistently more police-initiated calls than other-initiated calls. Police-initiated calls were always more than 50 percent of all calls.

Figure 5. Calls per Day by Category by Months

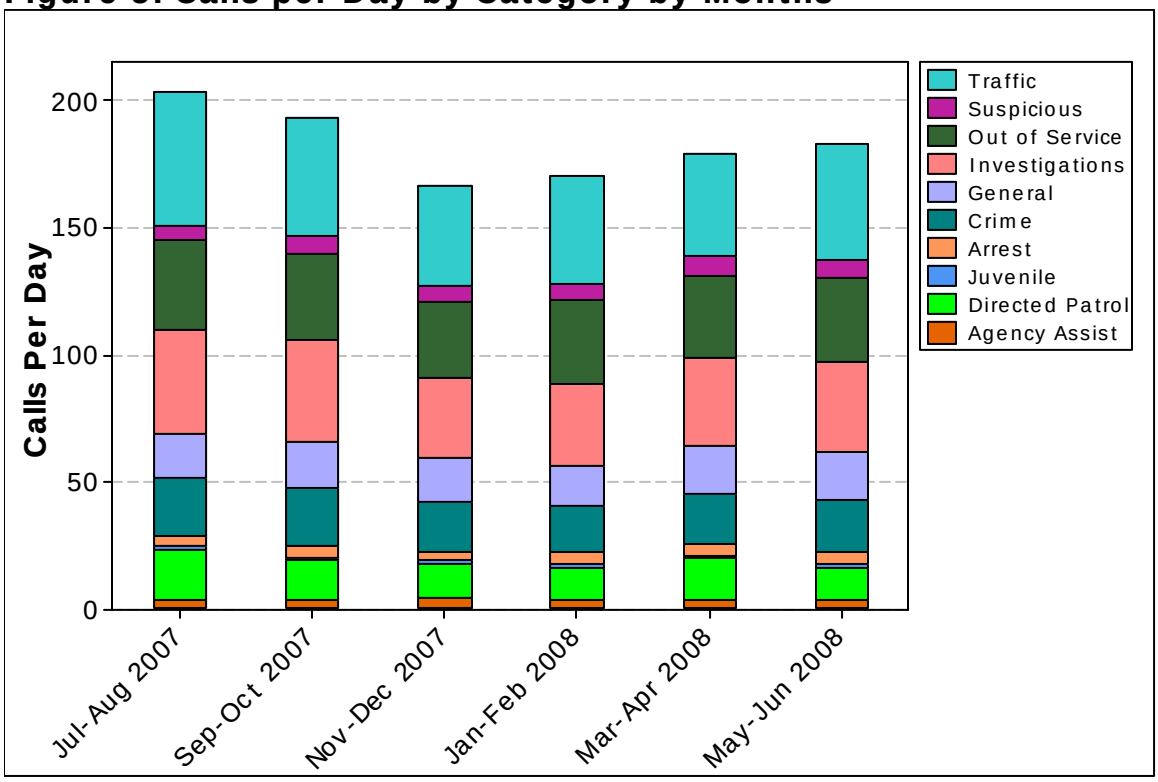


Table 5. Calls per Day by Category by Months

Category	Jul-Aug	Sep-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun
Accidents	4	3.5	4	4	4.6	3.5
Alarm	6.6	4.6	4.7	4.3	3.9	5.9
Animal Calls	0.4	1.2	1.1	0.9	1.5	0.9
Assist Other Agency	3.3	3.4	3.8	3.3	3.3	3.3
Check/Investigation	34	35.5	26.8	27.6	30.9	29.1
Crime—Persons	7.8	7.1	5.8	6.7	7.4	8.1
Crime—Property	14.7	15.1	13.7	11.6	12.3	12.5
Directed Patrol	19.8	15.2	13.3	12.2	16.2	12.9
Disturbance	2.2	4.1	3.7	3.1	5.6	4.1
Juvenile	1.2	1.2	1.5	1.5	1.2	1.1
Miscellaneous	17.1	17.6	16	14.6	17.5	18.1
Out of Service—Administrative	19.4	18.2	16.4	18.8	18	17.5
Out of Service—Personal	16.8	15.2	13.8	14.3	14.5	15.8
Prisoner—Arrest	4.1	4.4	3.4	5.2	4	4.4
Prisoner—Transport	0.2	0.4	0.1	0.2	0.1	0.4
Suspicious Person/Vehicle	3.4	3.5	3	3.5	2.5	3.1
Traffic Enforcement	48	42.7	35.3	38.9	35.4	41.9
Total	203	193.2	166.3	170.5	179.1	182.6

Observations:

- Out-of-service calls varied between 30 and 36 per day throughout the year.
- In absolute terms, traffic-related calls (enforcement and accidents) per day had a wide range, from 39 (November to December) to 52 (July to August).
- Crime calls varied between 18 (January to February) and 23 (July to August) per day throughout the year.
- Investigations (checks and disturbances) varied from 31 (November to December) to 41 (July to August) calls per day throughout the year.

Figure 6. Average Busy Times by Category and Initiator

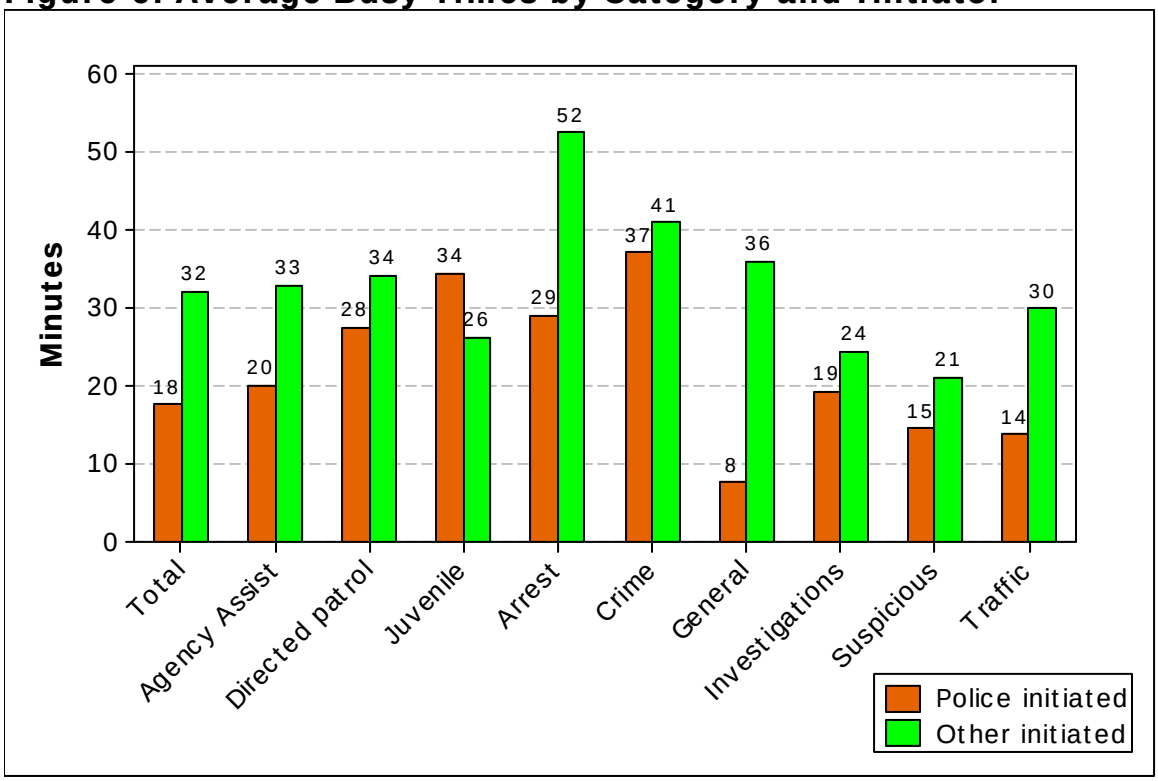


Table 6. Average Busy Times by Category and Initiator

Category	Police-Initiated		Other-Initiated	
	Total Calls	Minutes	Total Calls	Minutes
Accidents	82	46.9	1,479	14.3
Alarm	92	8.5	295	19.4
Animal Calls	42	16.7	836	32.9
Assist Other Agency	263	20.1	3,066	29.4
Check/Investigation	7,280	19.5	2,272	47.7
Crime—Persons	69	58.3	3,920	37
Crime—Property	311	32.4	93	34.2
Directed Patrol	4,871	27.5	1,228	20.3
Disturbance	32	19.1	372	26.3
Juvenile	30	34.4	1,885	38.6
Miscellaneous	3,532	7.6	213	52
Prisoner—Arrest	1,252	28.3	17	58.1
Prisoner—Transport	47	47.8	969	22.1
Suspicious Person/Vehicle	128	13.5	2,142	20.5
Traffic Enforcement	12,068	13.6	1,479	14.3
Total	**30,099**	**17.7**	**20,065**	**32.1**

Note. The chart and table exclude zero-on-scene calls and out-of-service calls.

Observations:

- The average time spent on a call was between 8 and 58 minutes overall, with significant variation by call type (see Table 6).
- The longest average times spent were 58 minutes on other-initiated prisoner transport and 58 minutes on police-initiated crimes against persons.
- Police-initiated traffic-related calls averaged 14 minutes per call.
- Other-initiated crime calls averaged 41 minutes per call.

Figure 7. Number of Responding Units by Initiator by Category

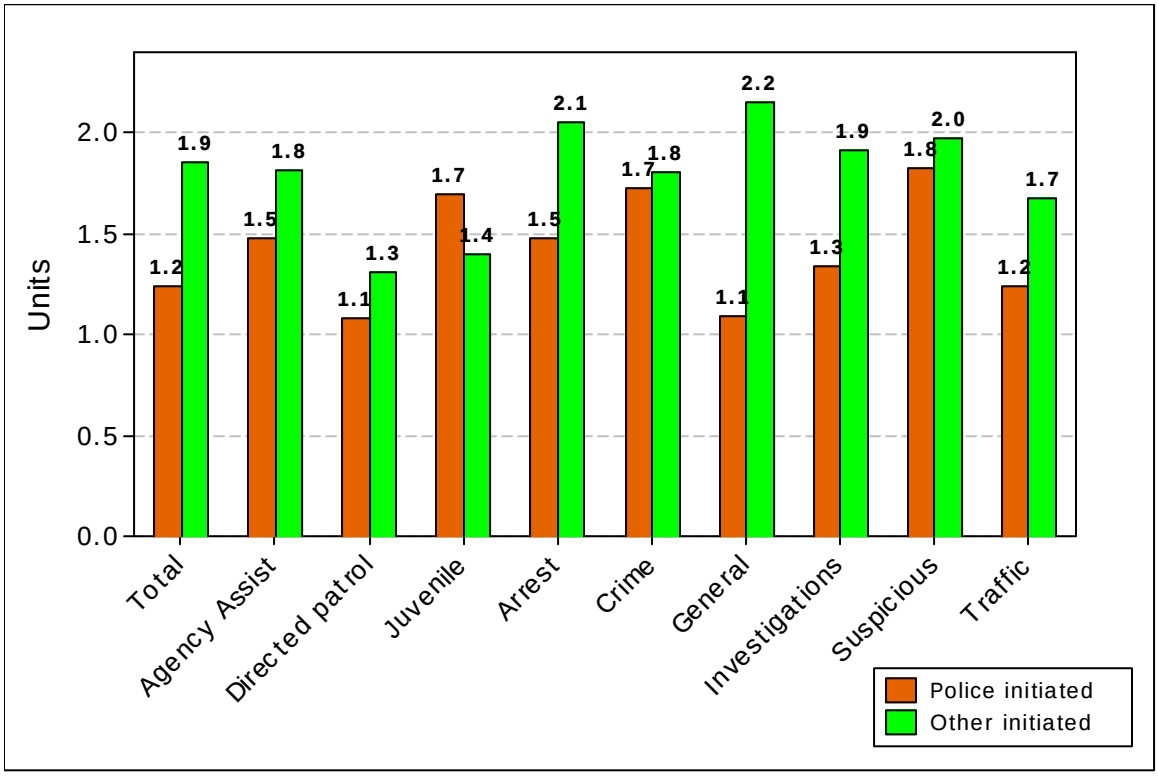


Table 7. Number of Responding Units by Initiator by Category

	Police-Initiated		Other-Initiated	
Category	**Average**	**Total Calls**	**Average**	**Total Calls**
Accidents	2.1	82	2.2	1,278
Alarm	1.8	92	2.2	1,479
Animal Calls	1.1	42	1.2	295
Assist Other Agency	1.5	263	1.8	836
Check/Investigation	1.3	7,282	1.8	3,066
Crime—Persons	2.4	69	2.2	2,273
Crime—Property	1.6	311	1.6	3,921
Directed Patrol	1.1	4,884	1.3	93
Disturbance	1.6	32	1.8	1,228
Juvenile	1.7	30	1.4	372
Miscellaneous	1.1	3,533	2.3	1,886
Prisoner—Arrest	1.5	1,252	2.1	213
Prisoner—Transport	1.1	47	1.1	17
Suspicious Person/Vehicle	1.9	128	2.2	969
Traffic Enforcement	1.2	12,069	1.4	2,142
Total	1.2	30,116	1.9	20,068

Figure 8. Number of Units Responding by Category

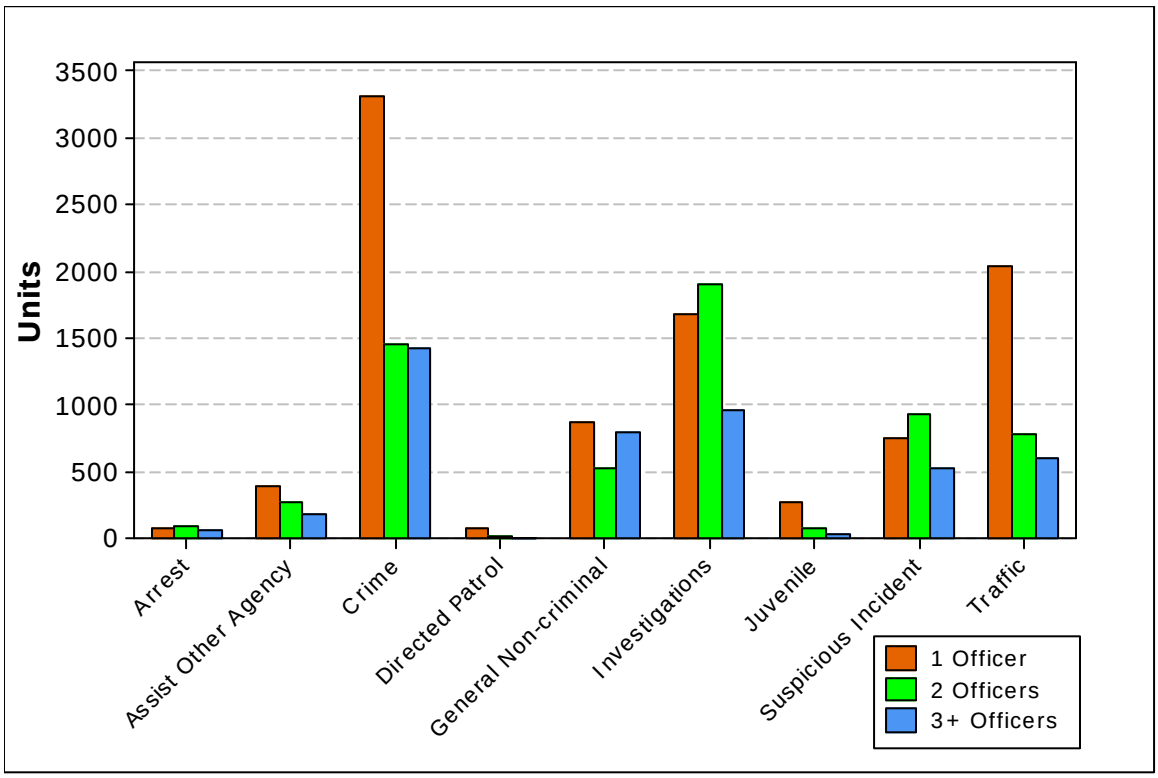


Table 8. Number of Units Responding by Category

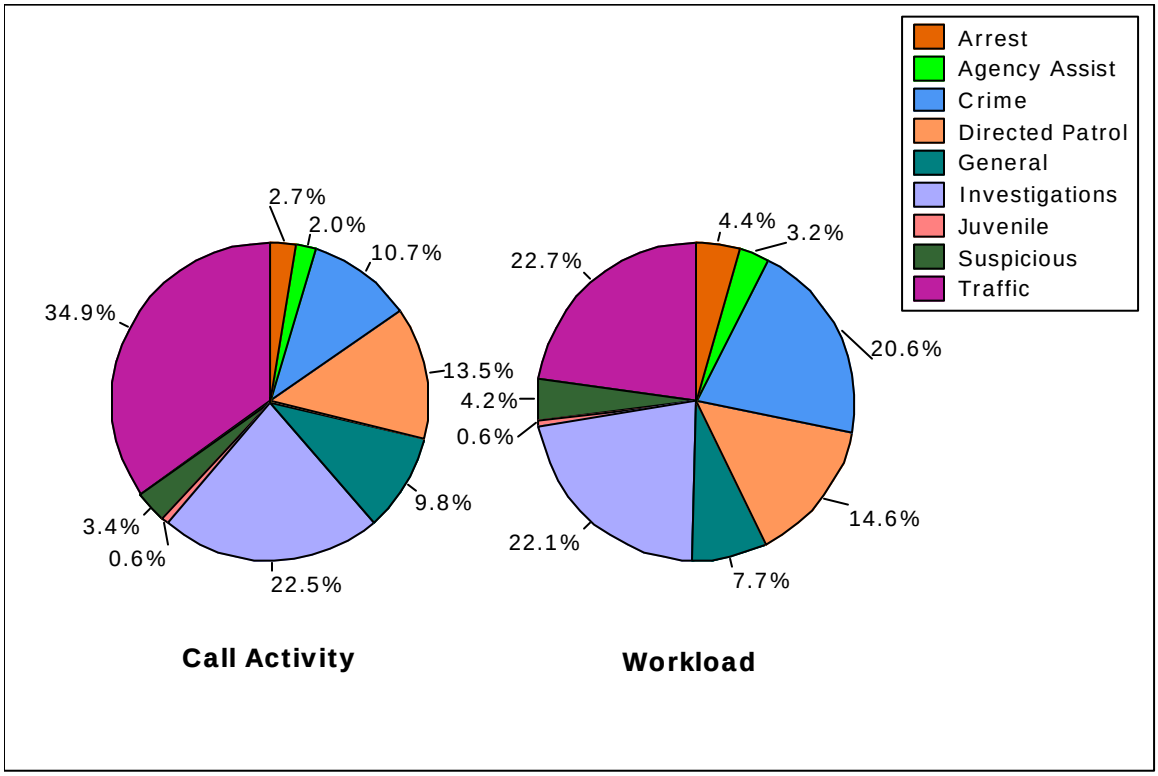
Category	Responding Units		
	One	Two	Three or More
Accidents	512	312	454
Alarm	213	894	372
Animal Calls	239	48	8
Assist Other Agency	390	270	176
Check/Investigation	1,460	1,013	593
Crime—Persons	782	626	865
Crime—Property	2,533	824	564
Directed Patrol	70	18	5
Disturbance	501	515	212
Juvenile	263	76	33
Miscellaneous	631	471	784
Prisoner—Arrest	55	94	64
Prisoner—Transport	16	1	N/A
Suspicious Person/Vehicle	246	412	311
Traffic Enforcement	1,520	472	150
Total	**9,431**	**6,046**	**4,591**

Note. Figure 8 and Table 8 include other-initiated in-service calls.

Observations:

- The overall mean number of responding units was 1.2 for police-initiated calls and 1.9 for other-initiated calls.
- The mean number of responding units was always between 1.1 and 2.4, with a maximum for police-initiated crimes against persons.
- The number of responding units was also high for general crime calls, with an average 1.7 units per call for police-initiated calls and 1.8 units for other-initiated calls.
- Nearly half of calls—47 percent—involved one responding unit.
- The largest group of calls involving 3 or more units was crime-related.
- Alarm calls were more likely to have 2 responding units than one unit.

Figure 9. Percentage of Calls and Work-Hours by Category in Aug 2007



Note. Calculations include only nonzero on-scene in-service calls.

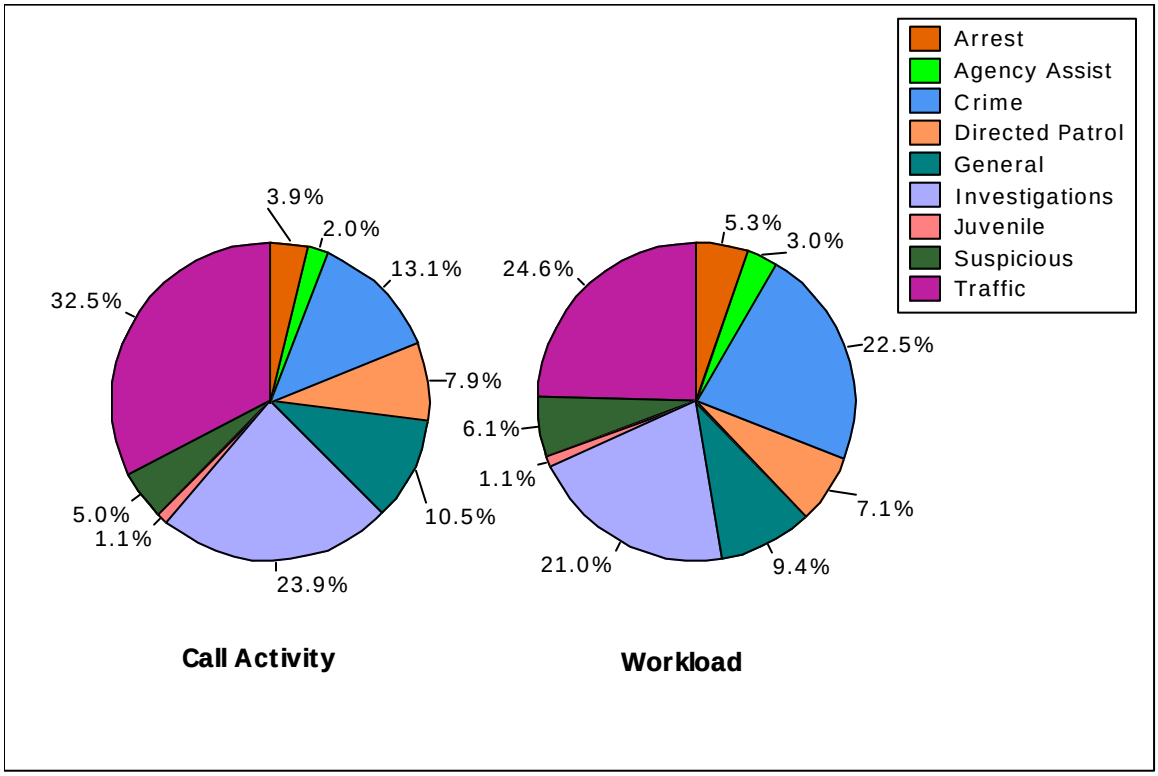
Table 9. Calls and Work-Hours per Day by Category in Aug 2007

Category	Per Day	
	Calls	**Work-Hours**
Arrest	4.4	3.6
Assist Other Agency	3.2	2.6
Crime	17.1	16.8
Directed Patrol	21.6	11.9
General Noncriminal	15.8	6.3
Investigations	36.1	18.1
Juvenile	1	0.5
Suspicious Incident	5.4	3.4
Traffic	56	18.6
Total	**160.7**	**81.7**

Observations:

- Total calls were 160.7 per day, or 6.7 per hour.
- Total workload was 81.7 work-hours per day, or 3.4 personnel per hour.
- Traffic-related events constituted 35 percent of calls but only 23 percent of workload.
- Crimes constituted 11 percent of calls but 21 percent of workload.
- Investigations, including premise checks, were 22 percent of calls and workload.

Figure 10. Percentage of Calls and Work-Hours by Category in Feb 2008



Note. Calculations include only nonzero on-scene in-service calls.

Table 10. Calls and Work-Hours per Day by Category in Feb 2008

Categories	Per Day	
	Calls	**Work-Hours**
Arrest	4.8	3.5
Assist Other Agency	2.5	1.9
Crime	16.3	14.7
Directed Patrol	9.8	4.6
General Noncriminal	13	6.2
Investigations	29.8	13.7
Juvenile	1.4	0.7
Suspicious Incident	6.2	4
Traffic	40.4	16
Total	**124.3**	**65.3**

Observations:

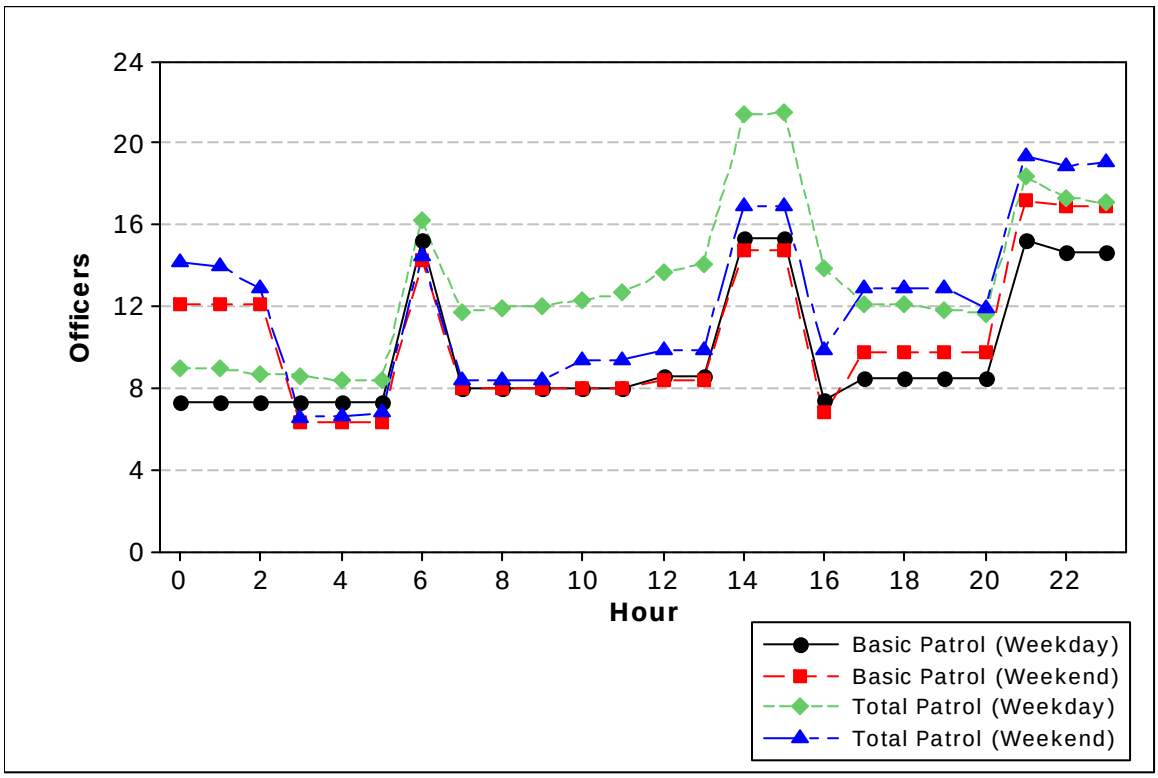
- In February, the total calls and workload were lower than they were in August.
- Total calls were 124.3 per day, or 5.2 per hour. This was 23 percent lower than it was in August.
- Total workload was 65.3 work-hours per day, or 2.7 personnel per hour. This was 20 percent lower than it was in August.
- Traffic-related events constituted 32 percent of calls but only 25 percent of workload.
- Crimes constituted 13 percent of calls but 22 percent of workload.
- Investigations, including premise checks, were 24 percent of calls and 21 percent of workload.

B. Deployment

The department operated with three 10-hour shifts starting at 6 a.m. (morning shift), 2 p.m. (swing shift), and 9 p.m. (night shift). These shifts overlap from 6 a.m. to 7 a.m., from 2 p.m. to 4 p.m., and from 9 p.m. to midnight. This explains the three spikes in officer deployment graphs. Along with regular patrol officers, the department has additional officers performing patrol-related duties. These include cars and motorcycles assigned to traffic enforcement and K-9 units. Additional special units assigned to the lake and river area and street crimes units were also included. The patrol unit included officers and supervisors.

We included all officers and supervisors from the rank of sergeant and below within our analysis. The department deployed an average of 10 and 9.5 patrol officers during the 24-hour day in August 2007 and February 2008, respectively. When including the additional units, the department deployed an average of 12.8 and 11.6 officers during the 24-hour day in August 2007 and February 2008, respectively. The deployment varied by season but also between weekends and weekdays. It varied much more by time of day.

Figure 11. Deployed Officers by Day of Week in Aug 2007



Observations:

- The average patrol deployment was approximately 10 patrol officers during the week and 11 officers on weekends.
- There was a medium variation (8 percent) between deployment during the week and on weekends.
- On weekends, deployment reached as high as 17 officers and dropped as low as 6 officers.
- During the week, deployment peaked at 15 officers and dropped as low as 7 officers.
- When additional units (e.g., traffic) were added, the deployment rose noticeably on both weekends and weekdays.
- The average number of total deployed officers varied from 13 during the week to 12 on weekends.
- Total deployment rose as high as 22 officers during the week and 19 officers on weekends.

Figure 12. Deployment Versus Workload on Weekdays in Aug 2007

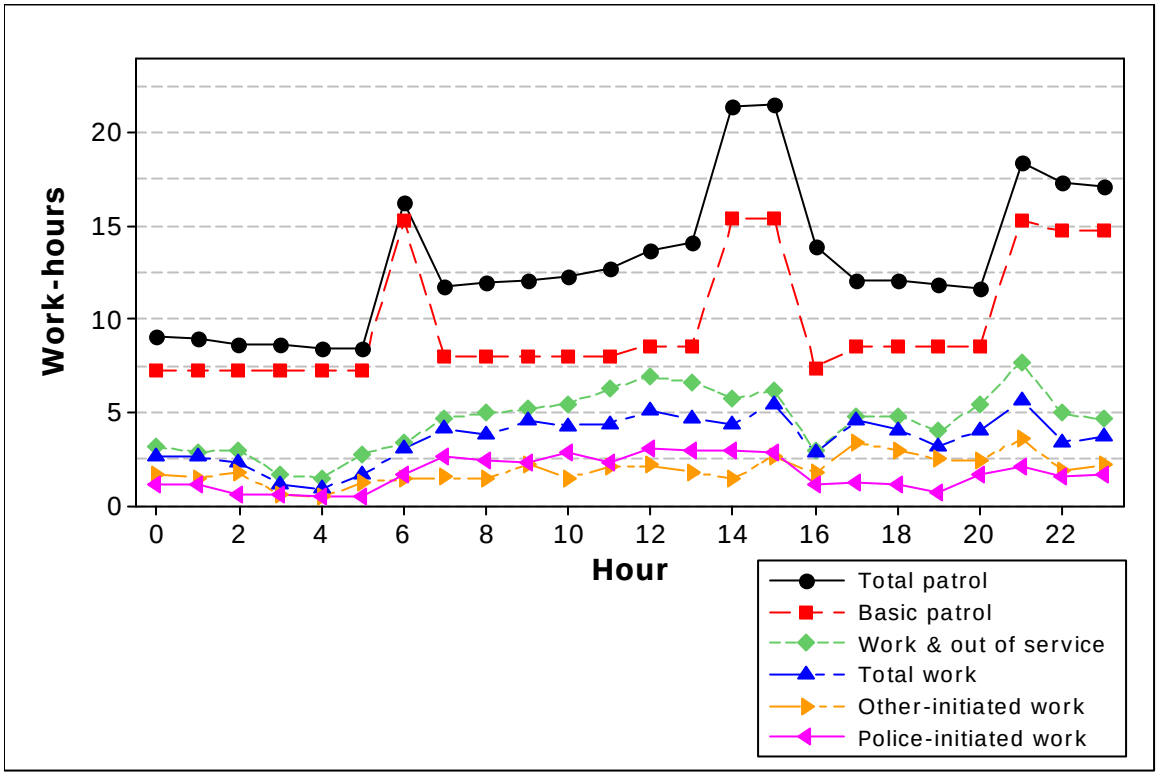
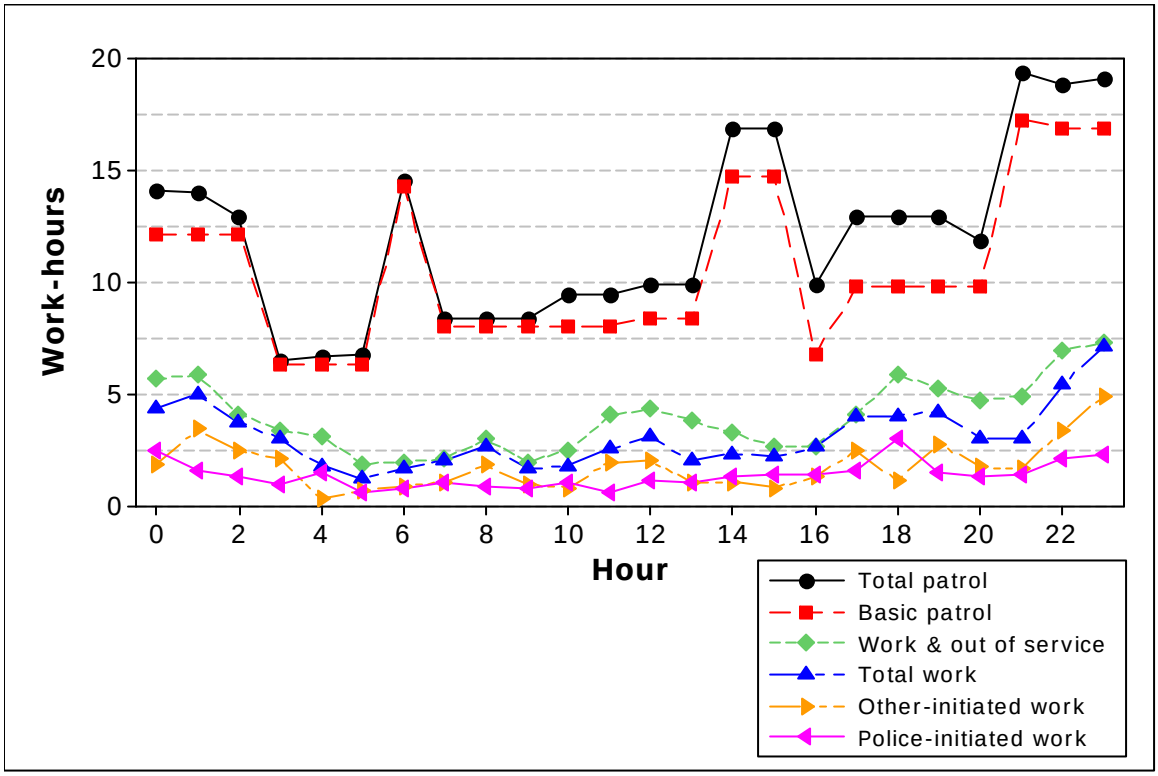


Figure 13. Deployment Versus Workload on Weekends in Aug 2007

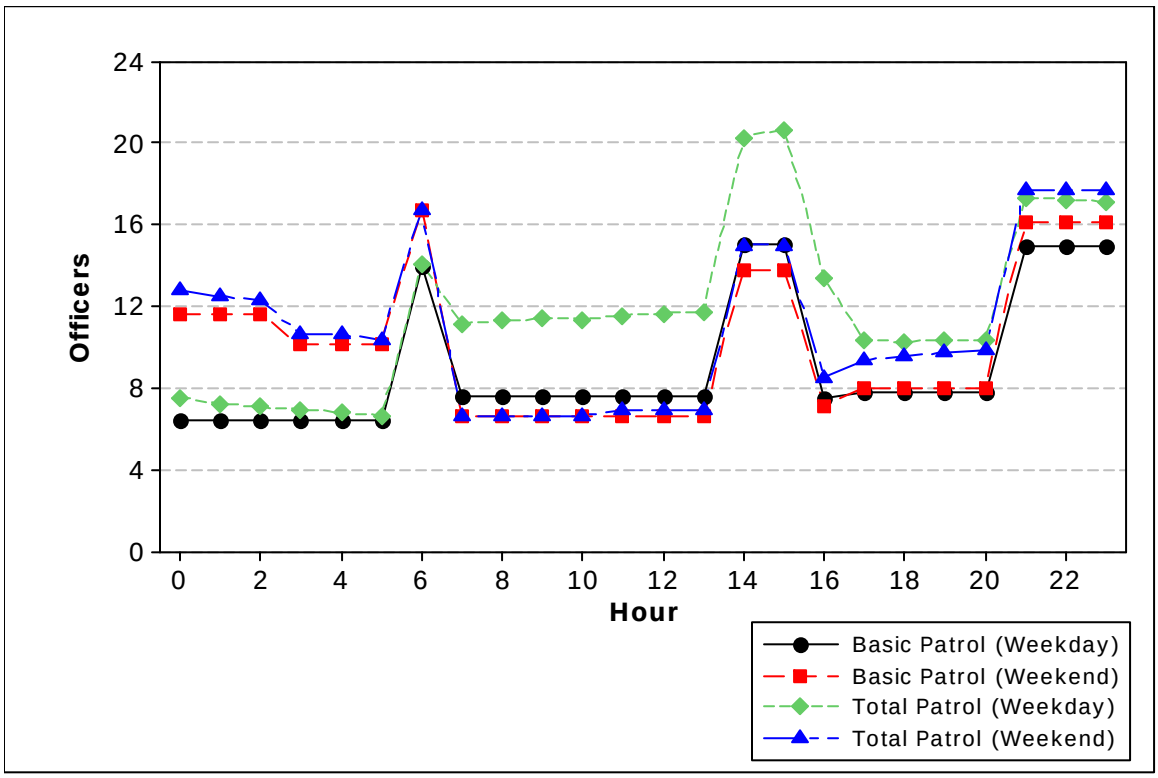


Observations:

- Out-of-service calls certainly affected the workload and are discussed after Figure 17.
- During the week, patrol workload averaged 3.6 personnel per hour.
- This was 36 percent of basic deployment and 27 percent of total deployment, which means that patrol officers spent 27 percent to 36 percent of their time on patrol-related activities.
- During the week, patrol workload dropped as low as 10 percent of total deployment between 4 a.m. and 5 a.m. and rose as high as 37 percent of total deployment at 3 periods during the day.
- On weekends, patrol workload averaged 3 personnel per hour.

- This was 29 percent of basic deployment and 25 percent of total deployment.
- On weekends, the patrol workload dropped as low as 11 percent of total deployment between 6 a.m. and 7 a.m. and rose as high as 45 percent of total deployment between 3 a.m. and 4 a.m.

Figure 14. Deployed Officers by Day of Week in Feb 2008



Observations:

- The average number of officers deployed in February was slightly lower than it was in August, with 10 officers during the week and 9 officers on weekends.
- Basic deployment's highs and lows (6 to 15 during the week and 7 to 17 on weekends) were similar to those in August.
- When additional units (e.g., traffic) were added, the deployment rose less than it did in August.
- Total deployment reached a maximum of 21 officers during the week and 18 officers on weekends.
- The average number of total deployed officers varied from 12 during the week to 11 on weekends.

Figure 15. Deployment vs. Workload on Weekdays in Feb 2008

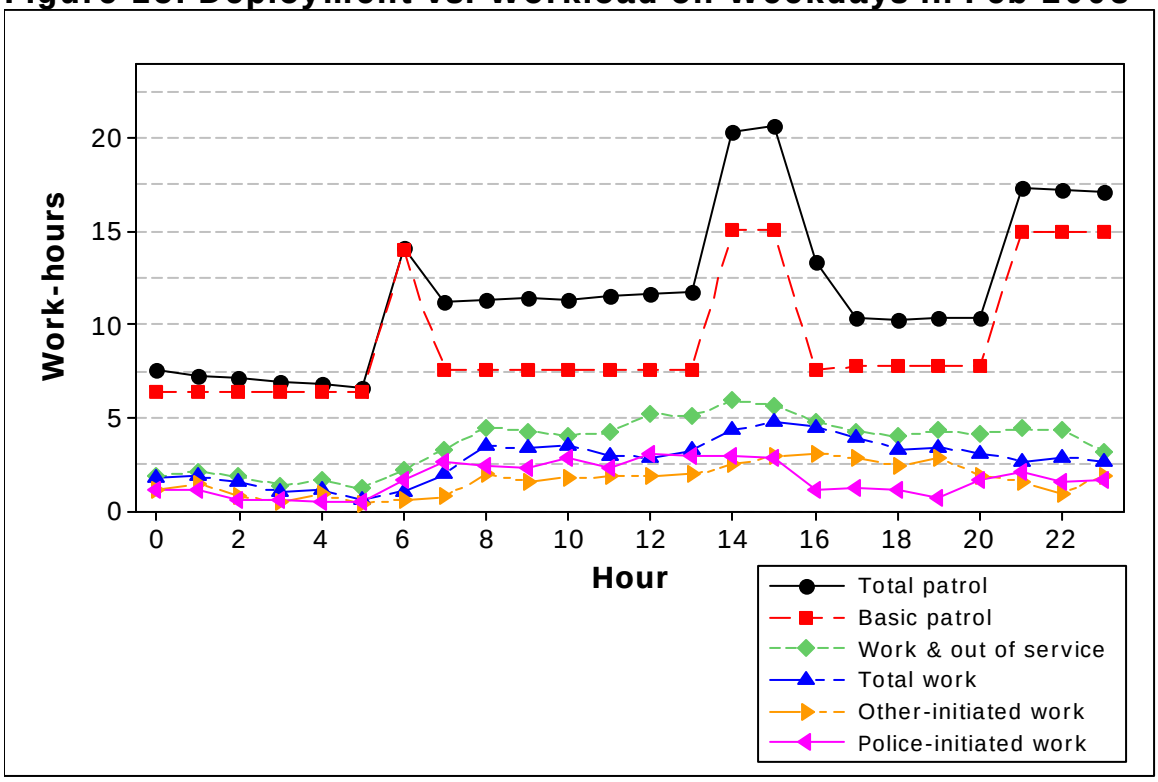
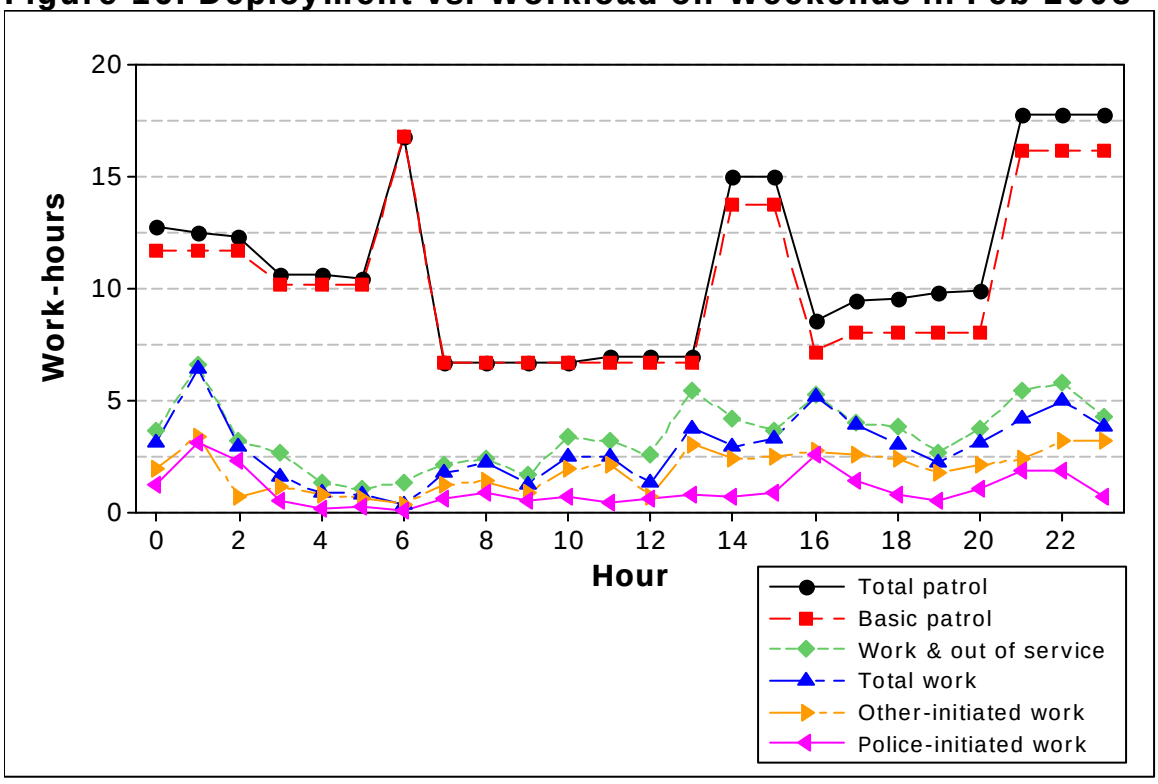


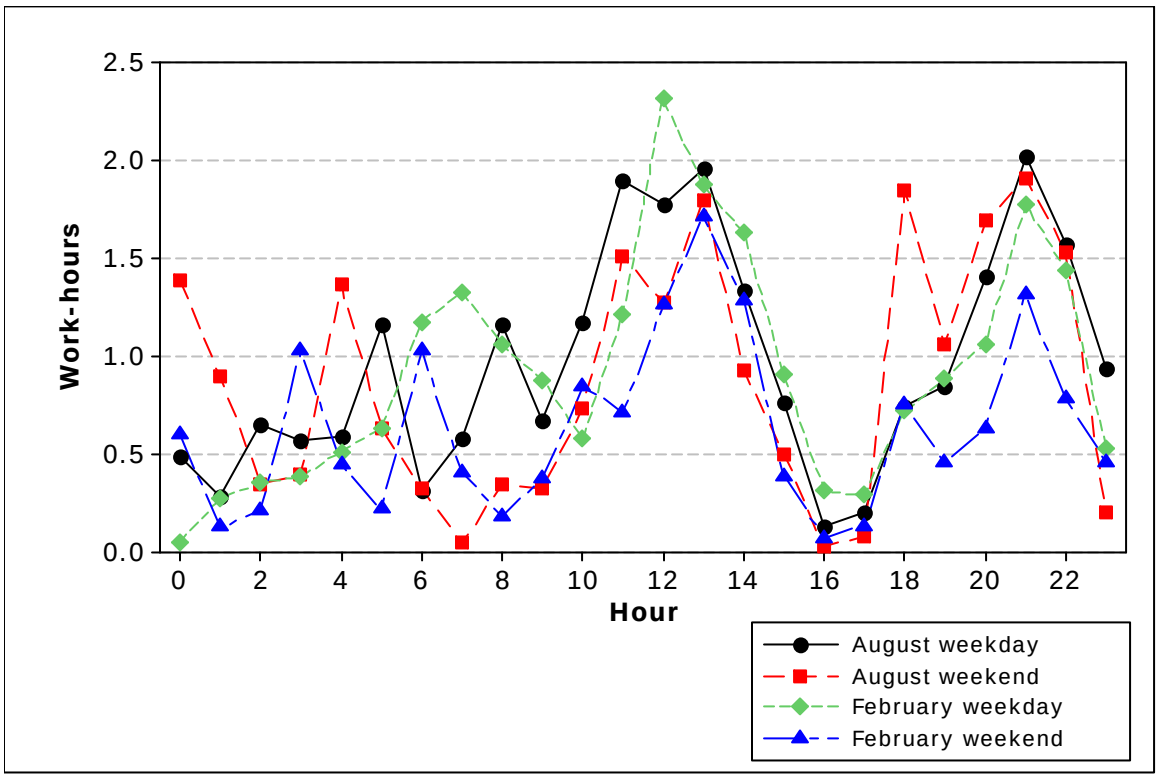
Figure 16. Deployment vs. Workload on Weekends in Feb 2008



Observations:

- When out-of-service calls were included, during the week, the total nearly matched deployment between 1 p.m. and 2 p.m.
- During the week, patrol workload averaged 2.7 personnel per hour.
- This was 29 percent of basic deployment and 23 percent of total deployment, which means that patrol officers spent 23 percent to 29 percent of their time on patrol-related activities.
- During the week, patrol workload dropped as low as 7 percent of total deployment between 6 a.m. and 7 a.m. and rose as high as 38 percent of total deployment between 5 p.m. and 6 p.m.
- On weekends, patrol workload averaged 2.8 personnel per hour.
- This was 27 percent of basic deployment and 25 percent of total deployment.
- On weekends, the patrol workload dropped as low as 2 percent of total deployment between 6 a.m. and 7 a.m. and rose as high as 60 percent of total deployment between 4 p.m. and 5 p.m.

Figure 17. Out-of-Service Workload by Day and Month



Observations:

- Out-of-service workload varied by type of day and hour.
- In February, out-of-service workload averaged 0.9 personnel per hour during the week and 0.6 personnel on weekends.
- In August, out-of-service workload averaged 1 personnel per hour during the week and 0.9 personnel per hour on weekends.
- In August, out-of-service workload peaked at 2 personnel between 1 p.m. and 2 p.m. and between 9 p.m. and 10 p.m. during the week and at 1.9 personnel between 9 p.m. and 10 p.m. on weekends.
- In February, out-of-service workload peaked at 2.3 personnel between noon and 1 p.m. during the week and at 1.7 personnel between 1 p.m. and 2 p.m. on weekends.

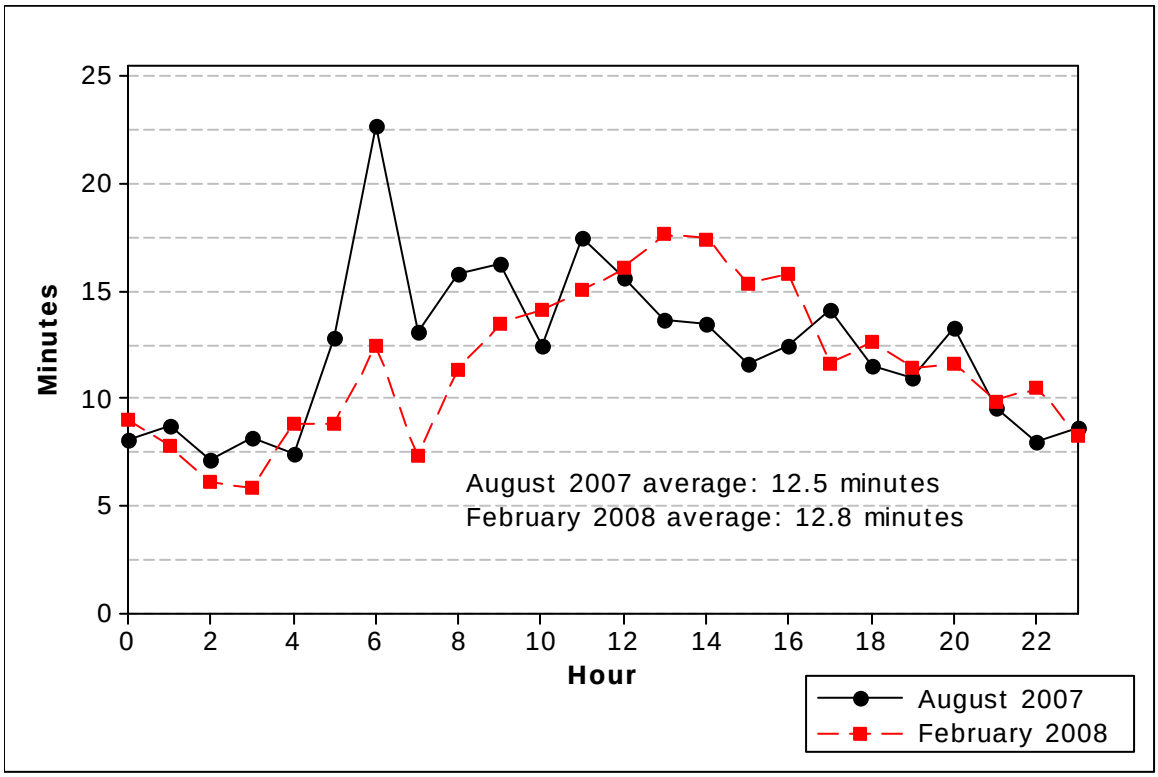
C. Response Times

We analyzed the response times to various types of calls, separating the duration into dispatch and travel times. We begin the discussion with statistics that include all calls combined. Later, we report on the much lower response times for high-priority calls. We analyzed several types of calls to determine whether response times varied by call type. To better understand the response time issue, the study team calculated the cumulative distribution function (CDF) of response times for three types of calls. We calculated the dispatch delay, travel time, and total response time.

Before presenting the specific figures and tables, we summarize all of the observations. We started with 5,916 calls for August 2007 and 4,703 calls for February 2008. We limited our analysis to calls that were other-initiated with nonzero on-scene times, excluding out-of-service calls. This left 1,484 calls in August 2007 and 1,476 calls in February 2008.

After the overall statistics, we present an analysis based on the priority codes provided within the data. We focused on high-priority calls for the entire year, and the response times were significantly shorter.

Figure 18. Average Response Time by Hour of Day for Aug 2007 and Feb 2008



Observations:

- Average response times varied significantly by hour of day.
- They were nearly the same in February and August, on average.
- In August, the longest response times were between 6 a.m. and 7 a.m., with an average of 22.7 minutes. The shortest response times were between 2 a.m. and 3 a.m., with an average of 7.1 minutes.
- In February, the longest response times were between 1 p.m. and 2 p.m., with an average of 17.6 minutes. The shortest response times were between 3 a.m. and 4 a.m., with an average of 5.9 minutes.

Reading the Cumulative Distribution Function (CDF) Chart

The vertical axis is the probability, or percentage, of calls. The horizontal axis is the time of dispatch delay, travel time, or total response time. For example, approximately 80 percent of February's calls experienced a dispatch delay of 10 minutes or less. (The 80 percent line intersects the red curve at the 10-minute mark.) A similar percentage of August calls experienced a dispatch delay of 9 minutes or less.

When comparing different CDF lines, a higher graph represents *a* larger percentage of low values. In Figures 19 through 21, the dispatch delay and response time graphs are consistently higher for August 2007 than they are for February 2008. This indicates that times were consistently shorter in August than they were in February. Meanwhile, the travel times are nearly identical.

Figure 19. Dispatch Delay Cumulative Distribution Function

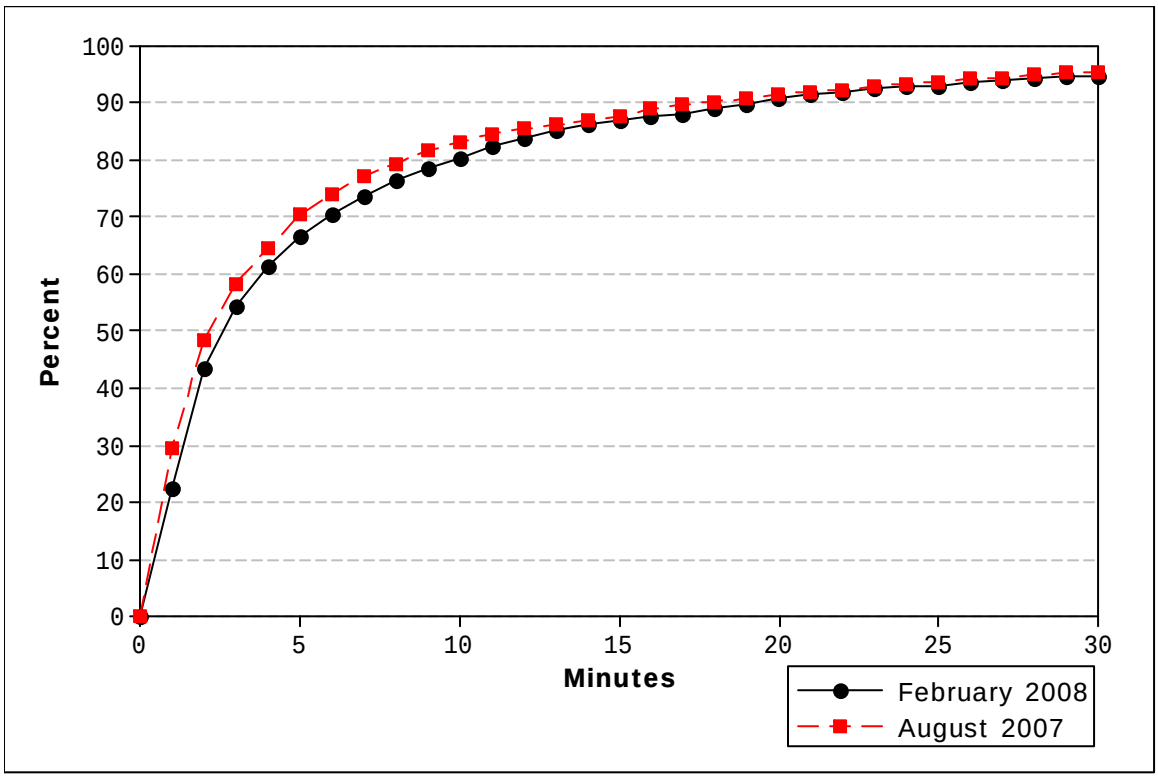


Figure 20. Travel Time Cumulative Distribution Function

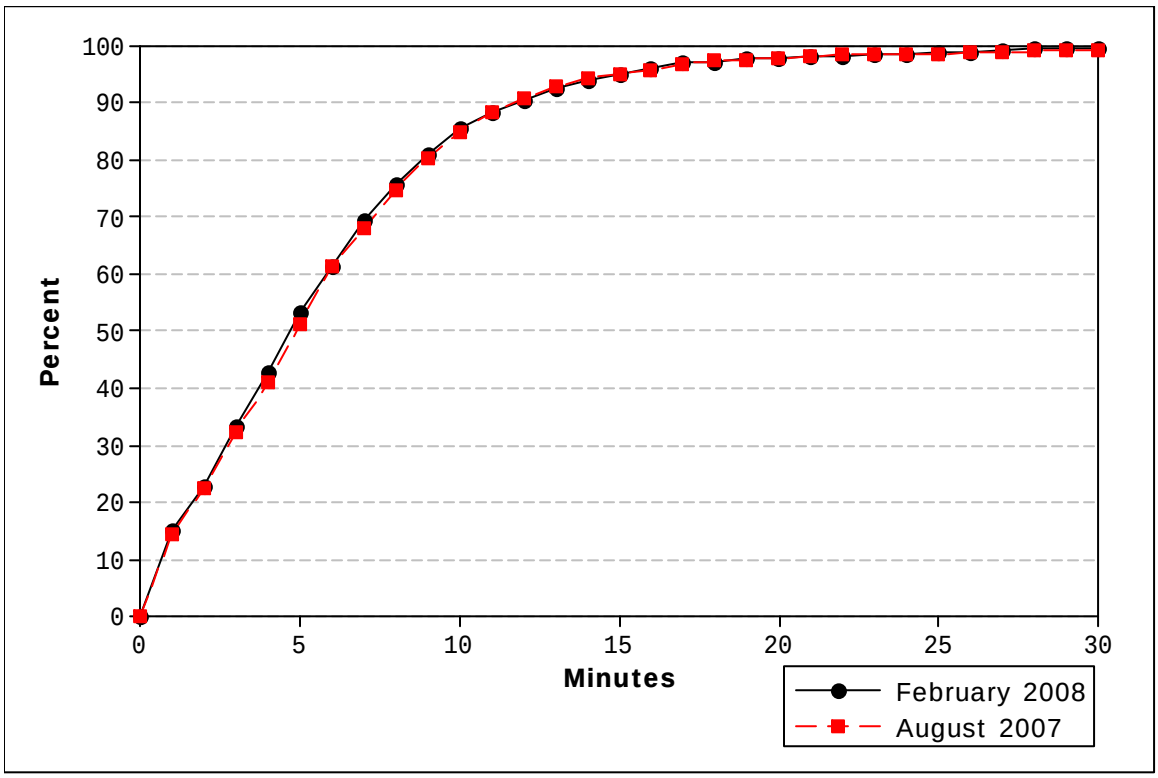


Figure 21. Response Time Cumulative Distribution Function

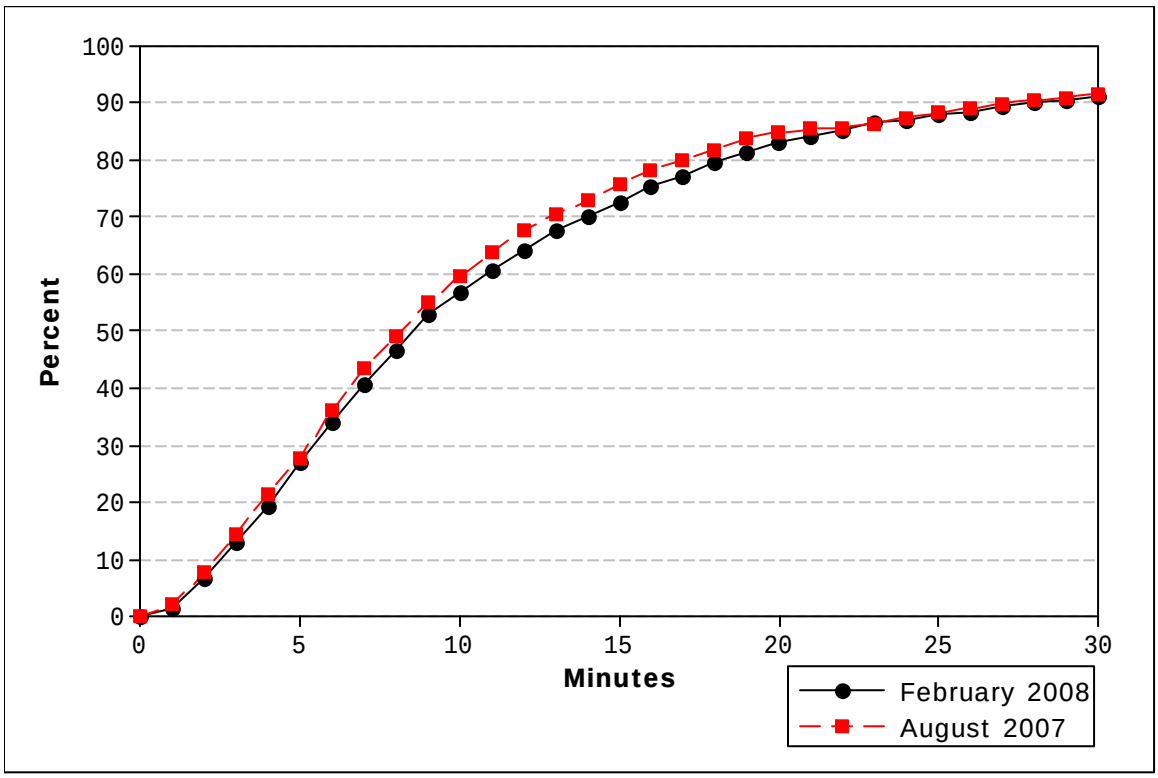


Figure 22. Average Dispatch, Travel, and Response Times in Aug 2007

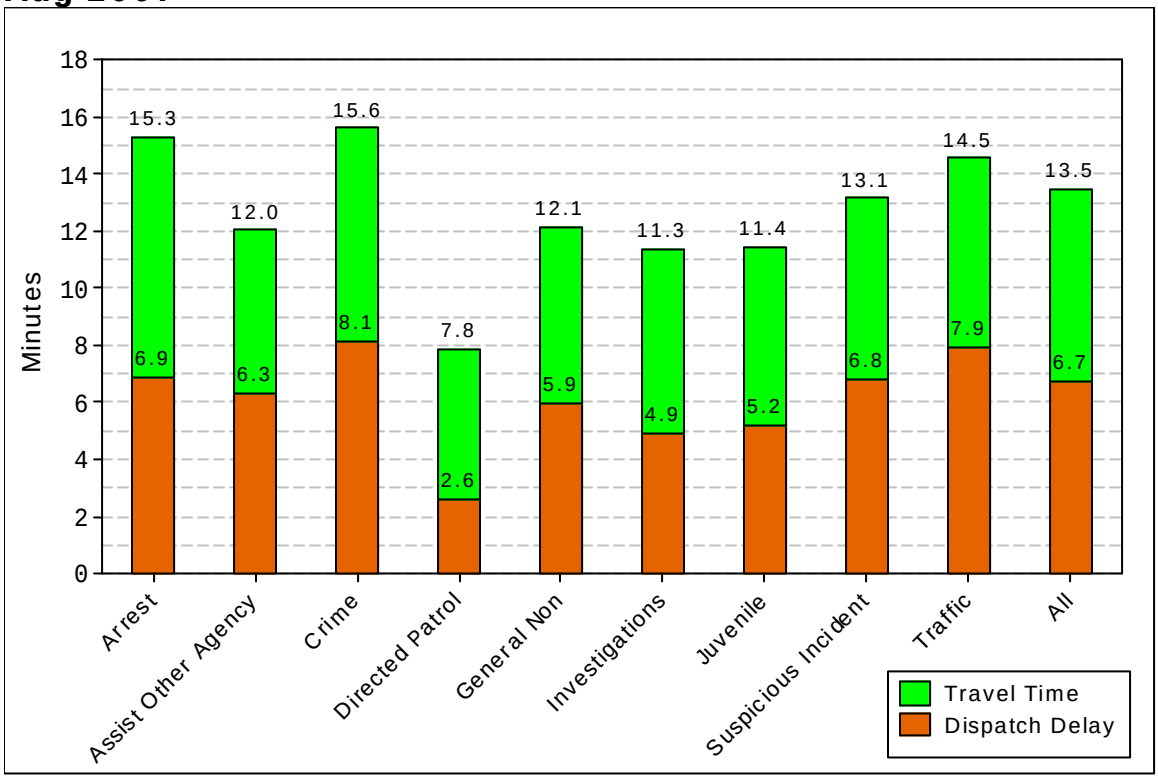


Figure 23. Average Dispatch, Travel, and Response Times in Feb 2008

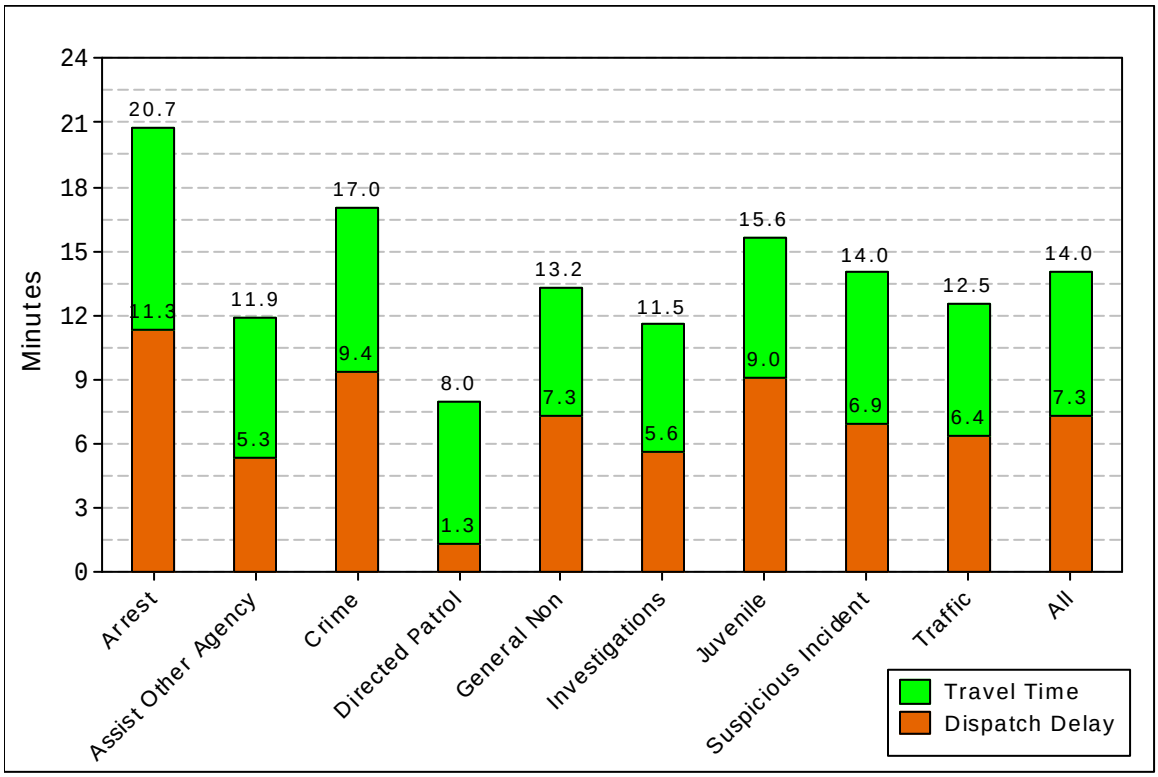


Table 11. Average Dispatch, Travel, and Response Times by Category

Category	August 2007			February 2008		
	Dispatch	Travel	Response	Dispatch	Travel	Response
Arrest	6.9	8.4	15.3	11.3	9.4	20.8
Agency Assist	6.3	5.7	12	5.3	6.6	11.9
Crime	8.1	7.5	15.6	9.4	7.6	17
Directed Patrol	2.6	5.2	7.8	1.3	6.6	8
General	5.9	6.2	12.1	7.3	6	13.2
Investigations	4.9	6.4	11.3	5.6	5.9	11.5
Juvenile	5.2	6.2	11.4	9	6.5	15.6
Suspicious	6.8	6.4	13.1	6.9	7	14
Traffic	7.9	6.6	14.5	6.4	6.1	12.5
Total	**6.7**	**6.7**	**13.5**	**7.3**	**6.7**	**14**

Table 12. 90th-Percentile Dispatch, Travel, and Response Times by Category

Category	August 2007			February 2008		
	Dispatch	Travel	Response	Dispatch	Travel	Response
Arrest	31.1	26.4	38.8	46.1	23	60
Agency Assist	21.5	11.1	29	22.1	12.8	28.1
Crime	25.4	13.4	38.2	25.9	14.8	37.4
Directed Patrol	5.4	10.8	14.9	1.9	13.6	14.3
General	18.1	11.2	26.5	24.4	10.8	31.7
Investigations	13.8	11	22.4	13.6	11.1	21.4
Juvenile	19.1	11	29.9	28.8	12.5	36.7
Suspicious	21.8	11.2	29	18.7	12.4	28.7
Traffic	21.8	13.3	33.1	17.8	11.5	26.5
Total	**19.1**	**12.3**	**29.3**	**20.2**	**12.5**	**30.7**

Observations:

- Response times varied significantly by call category.
- Average response times were as short as 8 minutes (for directed patrol) and as long as 16 minutes (for crime calls) in August. They were as short as 8 minutes (for directed patrol) and as long as 21 minutes (for arrests) in February.
- Average response times increased from August 2007 to February 2008 for all categories except agency assists and traffic-related calls.
- Average dispatch delays varied between 3 (for directed patrol) and 8 minutes (for crime and traffic calls) in August and between 1 (for directed patrol) and 11 minutes (for arrests) in February.
- 90th-percentile values for response times for different call categories were as short as 15 minutes and as long as 39 minutes in August. They were as low as 14 minutes and as high as 60 minutes in February.
- Overall average travel time and 90th-percentile values barely changed from August to February.

- Average travel times for arrests were longer than for all other calls: 8 minutes in August and 9 minutes in February.

High-Priority Calls

A priority code from 1 through 5 was assigned to each call by the dispatch center. By examining the call descriptions, we observed that emergencies were assigned higher priorities than non-emergencies. Table 13 shows that average response times varied by priority. A separate category for accidents with injuries is also included. These averages included all nonzero on-scene other-initiated calls throughout the entire year (July 2007 to June 2008).

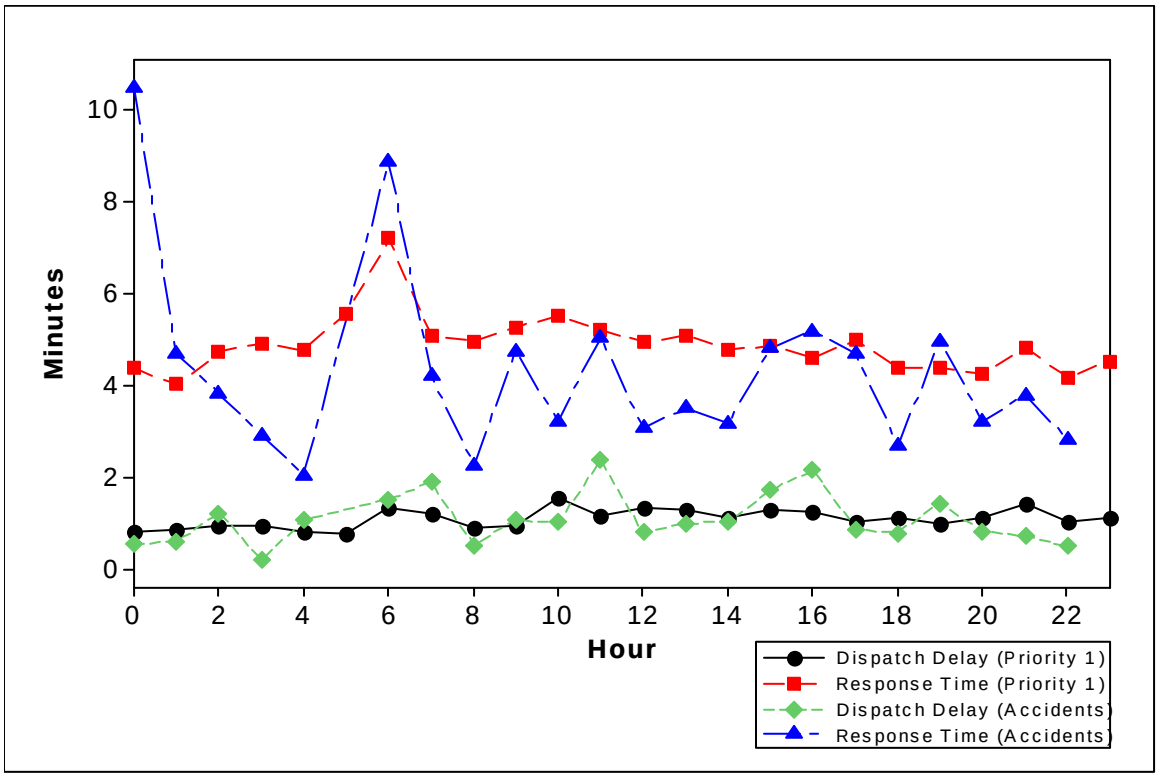
Table 13. Average Dispatch, Travel, and Response Times by Priority

Priority	Dispatch	Travel	Response	Total Calls
1	1.1	3.6	4.7	3,365
2	3.3	4.5	7.8	3,774
3	9.5	6.7	15.9	12,593
4	N/A	N/A	N/A	0
5	6.6	7.1	13.5	261
Total	**6.9**	**5.8**	**12.5**	**19,993**
Accident With Injuries	1.3	2.8	4.1	192

Observations:

- Response times varied significantly by call priority.
- Priority 1 calls and accidents had much shorter response times of 4.7 and 4.1 minutes, respectively, compared to the overall average of 12.5 minutes.

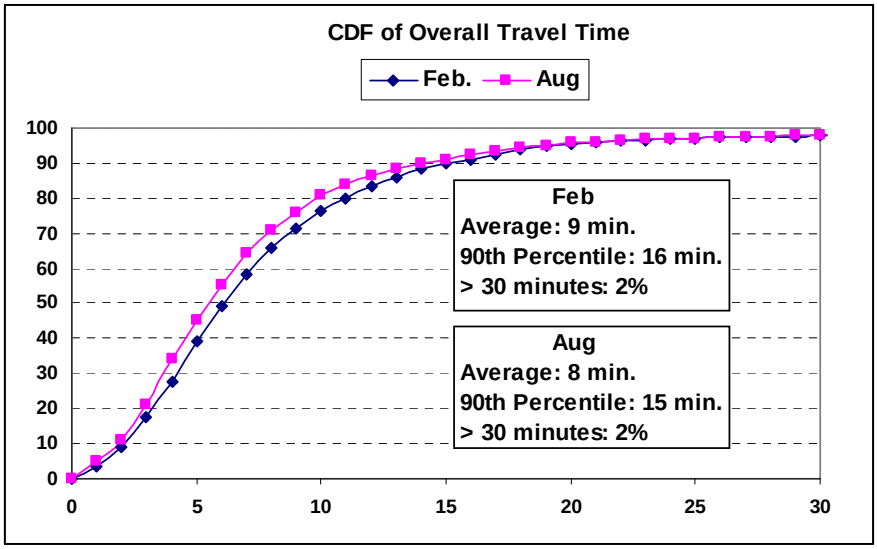
Figure 24. Average Response Times by Hour for High-Priority Calls

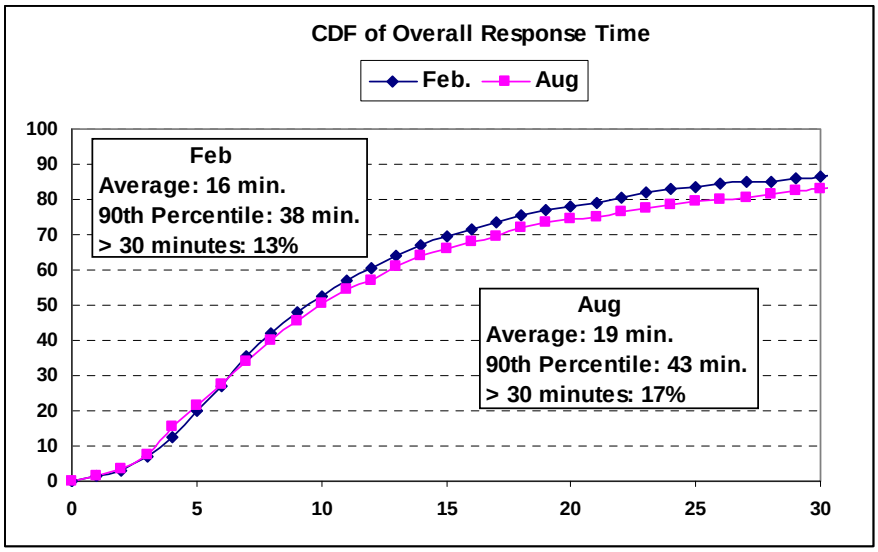


Observations:

- The average response time for priority 1 calls varied by time of day, from 4 minutes between 1 a.m. and 2 a.m. to 7.2 minutes between 6 a.m. and 7 p.m.
- The average response time for accidents varied by time of day, from 2.1 minutes between 4 a.m. and 5 a.m. to 10.5 minutes between midnight and 1 a.m.
- The average dispatch delay approached 2.4 minutes between 11 a.m. and noon for accidents with injuries.

Figure 24A, 24B – CDF of Travel and Overall Response Times

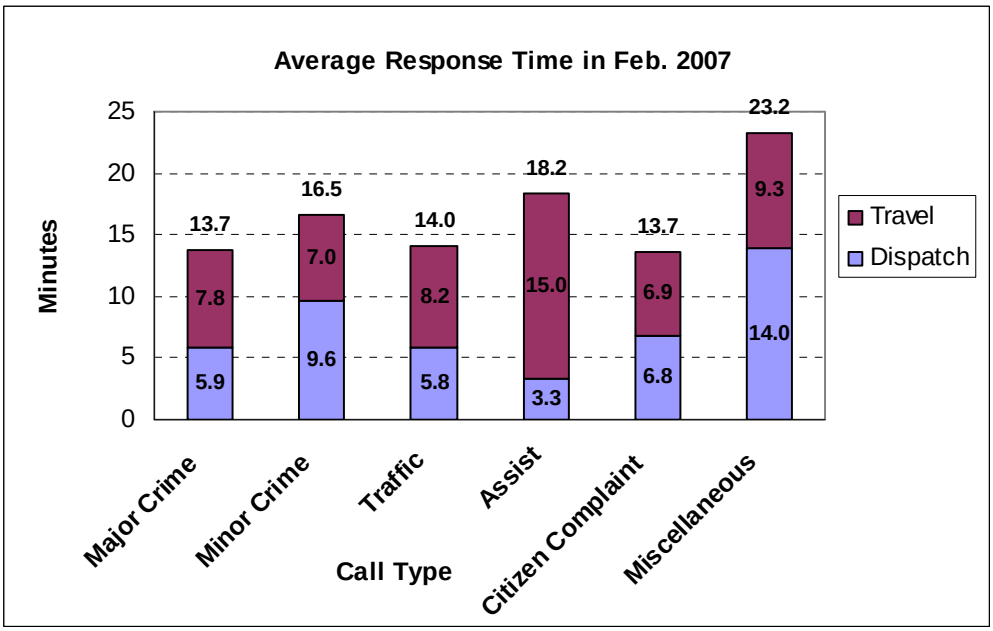


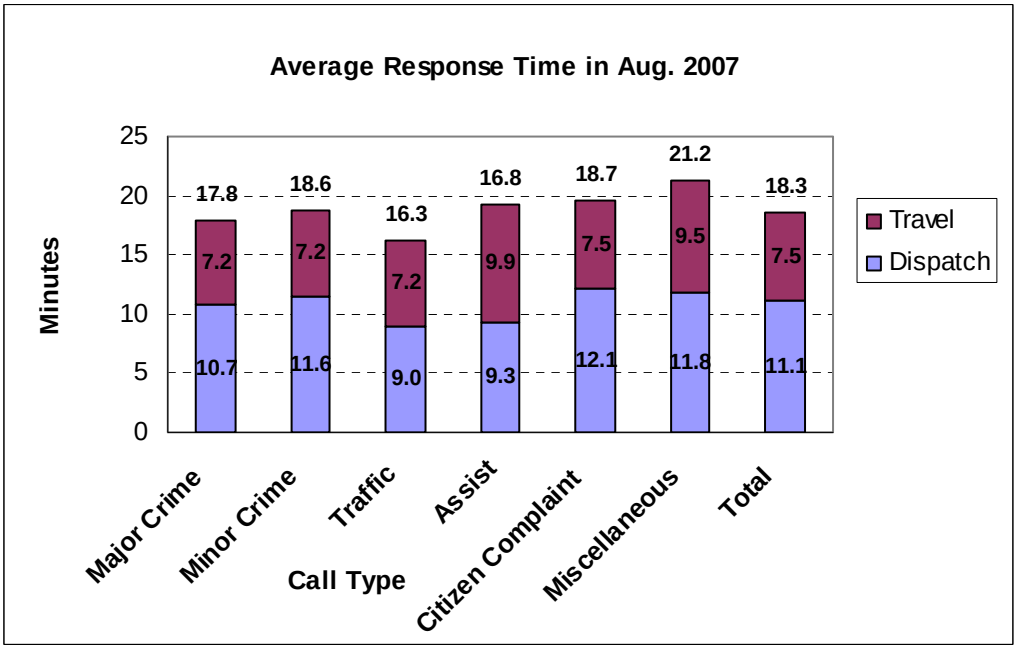


Observations:

- The average travel time was approximately the same in both months.
- About 75 to 80 percent of all calls experienced a travel time of less than 15 minutes.
- The total response time averaged 16 minutes in February and 19 minutes in August.
- Thirteen percent of February calls and 17 percent of August calls experienced a response time of more than 30 minutes.

Figures 25A and 25B. Average Response Time by Call Category and Personal Injury Accidents





Again, when dispatch systems did not prioritize calls, we utilized a specific type of call to serve as a proxy by which we could obtain a sense of response times to true emergencies (typically, automobile

accidents with personal injuries). We extracted all such accidents from the two sample months and identified the following information.

Table 14. Personal Injury Accidents

	February 2008 (26 Calls)		August 2007 (25 calls)	
Times	**Average**	**Maximum**	**Average**	**Maximum**
Dispatch	1.4	13	3.82	68
Travel	6.1	25	4.80	27
Response	7.5	38	8.62	77

Observations:

- All average response times for major crimes, traffic, and citizen complaints were approximately 14 minutes in February and between 16 minutes and 19 minutes in August.
- Dispatch delays and average response times for personal injury accidents were much lower than they were for other call types.
- Dispatch delay averaged less than 2 minutes in February and 4 minutes in August. Total response times were 7.5 minutes in February and 9 minutes in August.

We felt it was necessary to dig deeper into these response times. Although there was an improvement over other types of calls, we wanted to better understand why the numbers remained high for responses to such emergencies.

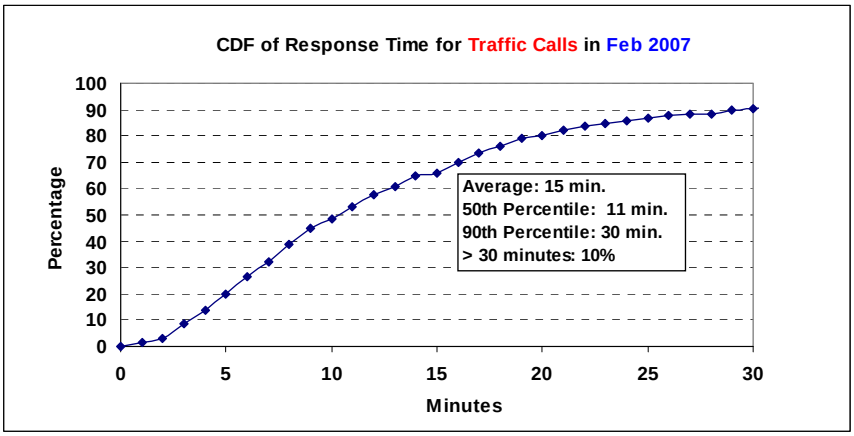
When we explored the 25 calls in August, we found that four had total response times in excess of 10 minutes (29.75, 76.90, 10.15, and 18.05 minutes). Clearly, something had occurred on these calls that terribly skewed the average response times. When we removed these four calls from the equation, the averages dropped to:

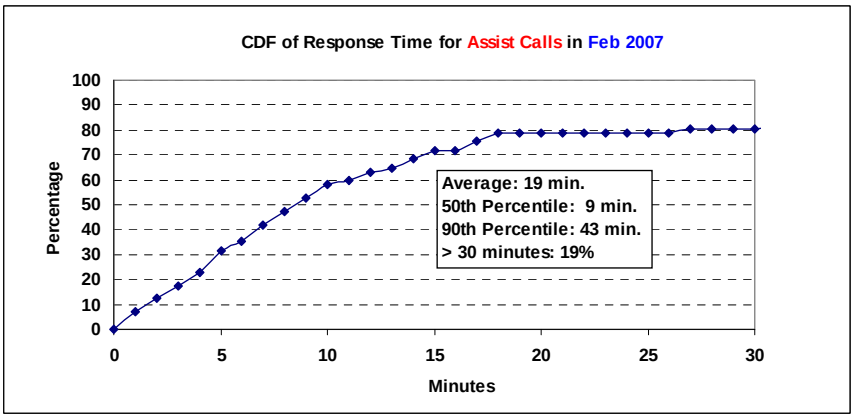
Dispatch	1.27
Travel	2.99
Total	4.26

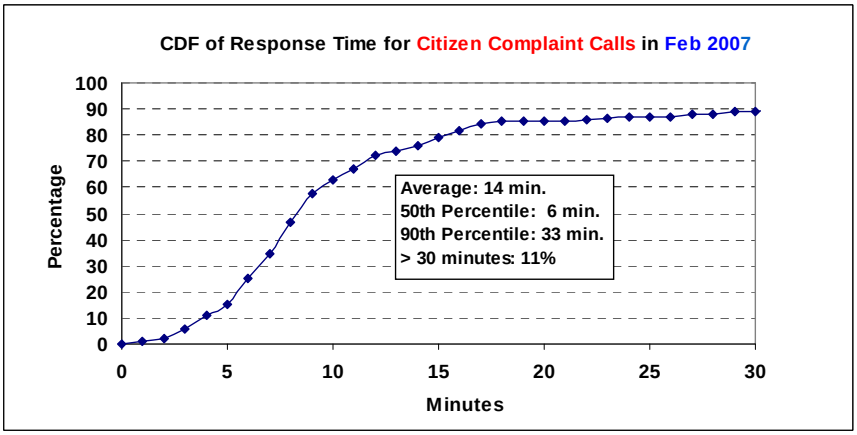
These are far better response times to emergencies. However, the data set also includes response times that seem unreasonably low, such as dispatch times of 0.15, 0.3, 0.07, and 0.37 minutes—and even one instance in which travel time was listed as 0 minutes. This may well be a function of a lack of application of standard dispatch practices.

In summary, while it appears that response times to emergency calls (as measured by the proxy use of accidents with personal injury) are within acceptable limits, it is clear that the current record-keeping system is inadequate to produce appropriate dispatch records.

Figures 26A, 26B, and 26C. Cumulative Distribution Function of Total Response Time for Traffic, Citizen Complaint, and Assist Call Categories in February



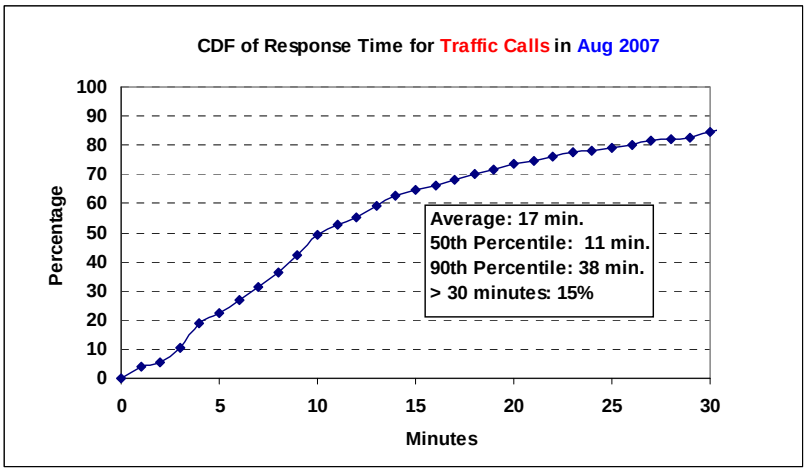


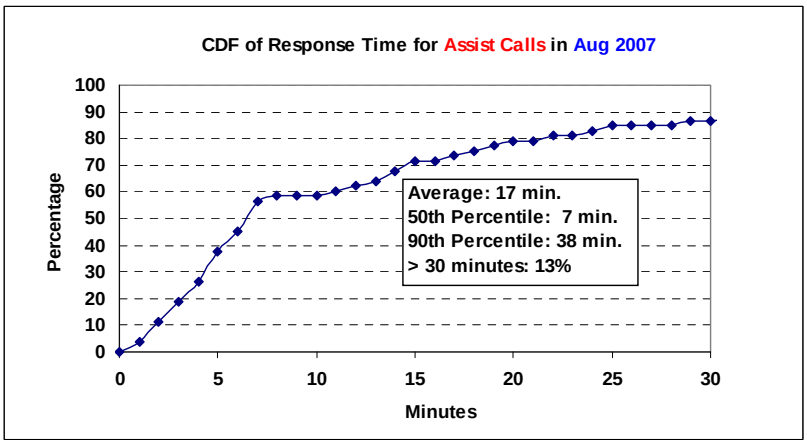


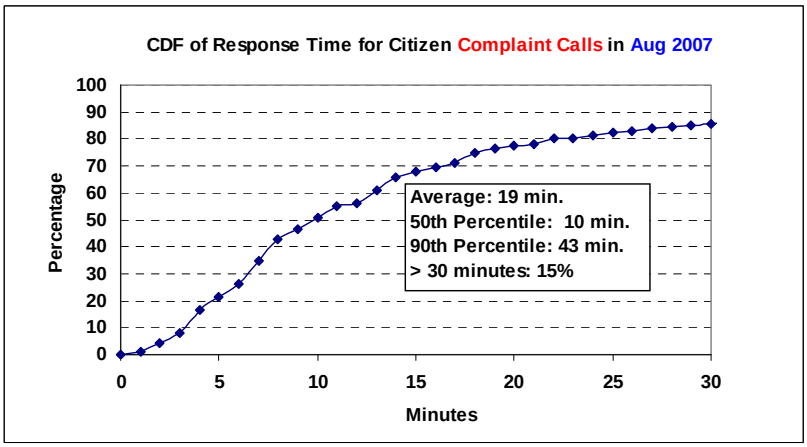
Observations:

- Average response times ranged from 14 minutes for citizen complaints to 19 minutes for traffic calls.
- The 50th percentile was only 6 minutes for citizen complaints.
- Eleven percent of the citizen complaints experienced a response time of 30 minutes or longer.

Figures 27A, 27B, and 27C. Cumulative Distribution Function of Total Response Time for Traffic, Citizen Complaint, and Assist Call Categories in August







Observations:

- Average response times ranged from 17 minutes for traffic calls complaints to 19 minutes for complaint calls.
- The 50th percentile was more than 10 minutes for traffic and citizen complaints.
- Thirteen percent of citizen complaints experienced a response time of 30 minutes or longer.

V. Patrol Staffing Analysis Methodology and Framework

There is no "correct" answer to the question of "How many officers should we have." Rather, staffing levels are a policy decision made by elected officials with the advice and input of city and police administrators, consistent with the community's ability to fund staffing levels. ICMA's role is to provide the city with accurate workload analysis to allow these officials to make informed decisions when reviewing staffing levels. Since the largest component of the department is the Patrol function it is there that we will focus the staffing discussion.

Patrol personnel perform a wide range of activities during their deployment. For analysis purposes these activities can be divided into three specific categories. *Calls for Service* (CFS) include both citizen and self initiated activities when officers are engaged in responses to incidents and include preliminary investigations, arrests, report writing, traffic enforcement, etc. *Administrative* activities include all of the non-CFS functions required of patrol personnel including vehicle care, roll calls, internal administrative functions, meals, court time, personal activities, etc. *Non committed time* is the remainder of the patrol shift when officers are not involved in either of the previously identified categories. (Previously this time was spent on what was called "random preventative patrol." However research has shown that randomly riding throughout the community in marked units does little to prevent criminal activities.)

Modern police administrators insure that patrol officers have targeted activities to perform (such as directed patrol, selective traffic enforcement, community policing functions, park-walk-talk, etc.) during

those periods. These activities are typical are “interruptible.” That is, officers can stop performing these functions if needed to respond to more serious functions.

Calls for Service obviously must be handled, and the vast majority of Administrative activities are also mandatory. This leaves Non-Committed time as the category which is primarily affected by staffing decisions. There are no “standards” or “guidelines” regarding the percentages of time that officers should be involved in each of these functions. However, as a starting point for discussion we suggest that a 1/3, 1/3, 1/3 comparison be made. That is, that each of the three categories comprises approximately 1/3 of the officer’s on-duty time. Clearly this varies by shift and day of week. There would be little need for community policing activities in the early morning hours, for example.

A. Patrol Function Staffing vs. Calls for Service

To determine and justify the size of theLHPD, the chief must establish the number of officers required to staff the uniformed patrol force. For greater accuracy, the chief must know the amount and type of calls of response, the time to clear the call, and the time officers are at work. Demands for police services occur in a fairly predictable and systematic pattern over an extended period of time.

The LHPD provided documentation to illustrate CFS for 2008. According to the LHPD, there were 25,877 CFS after traffic stops; self-initiated calls were removed for the data information. An examination of the 2008 data indicated that an average of 24.52 minutes of consumed times were spent on LHPD CFS. This is relatively low compared to previous studies we have conducted. The possible reason for the shorter time reported in the CAD is that officers are calling back into service before

completing reports and then completing reports when not on a call, an obvious example of officers positively handling calls for service workload. This would skew the times reflecting a shorter time per call and not capturing the entire time needed to complete the call. Alternatively this demonstrates active patrol supervision where first line supervisors encourage officers to handle calls expeditiously and return to service. In either case these are positive statements about the LHPD patrol force.

It is also necessary to calculate the average number of hours that an officer reports to work. To do this, ICMA has used a public safety police officer availability model, based on methods taught by the Northwestern University Center for Public Safety and the data supplied by the LHPD.

The term *availability* refers to the average number of days or hours that officers annually actually report for work. The availability is determined by the work schedule, the average contracted leave time, and the unscheduled time utilized by a typical officer. The data supplied by the LHPD is used to calculate leave averages when factoring in time lost for training, sick or injured time, and other leave time (e.g., military leave, jury duty, bereavement leave).

The present schedule causes the LHPD to work a minimum of 2,184 hours annually before leave time is allowed. The schedule impacts the staffing levels. According to the city's personnel office, Lake Havasu's officer availability is 1,690 hours. (Note: Officers assigned to patrol squads in 2008 reported to work, on average, 169 days, or 1,690 hours. This is consistent with other studies conducted by ICMA.)

Unobligated time is also known as preventive patrol and is best described as time being orientated toward the prevention of crimes and accidents, maintenance of public order, and discovery of hazards and delinquency-causing situations (CALEA).

The chief of police has determined that the minimum staffing is 6 officers on each of the two 12-hour shifts. Multiplying 12 officers by the length of the tours, 12 hours, the result is 144 hours per day, or 52,560 hours per year. Dividing the total hours per year by the officer availability of 1,690 hours, the result is 31 officers needed to staff the patrol function.

ICMA's recommendations are not merely tips to promote efficiency, effectiveness, and performance but are also essential steps that the city has to take to reduce financial dependability on the taxpayers, thus making the Lake Havasu community a financially better place to live, work, shop, and raise children. Acknowledging the importance of the patrol function, the LHPD should conduct periodic reviews of the workload analysis to ensure adequate coverage and accurate data information. This will also ensure that there are no disparities between the actual workload analysis and the chief of police's deployment policy.

Besides determining the total number of officers to staff the patrol function, a detailed workload analysis will assist in the most efficient deployment of officers by day of week, time of day, and location. It can also assist in determining the use of directed patrols and the allocation of specialized units and other resources. It is the means by which the proactive patrol availability of a patrol officer can be implemented to its most productive use.

Workload analysis is also important for personnel management and executive decision-making, as it provides tangible support for budgeting, patrol and support personnel, and equipment.

The deployment shown in the prior data analysis section reflects the assignment of personnel when officers were working 10 hour shifts. The graphs, clearly that personnel resources were wasted in that shift configuration.

VI. Comments, Observations, and Recommendations

A. Patrol

- *Schedule Change*: ICMA commends the LHPD administration and the rank and file for their efforts in converting the 10-hour schedule into the 12-hour tour of duty. This schedule puts more personnel resources in line with workload demands. While such a schedule may have a downside of reducing continuity of command, it is preferable to continuing the current deployment patterns. The new schedule has reduced overtime and allowed the police department to redeploy resources to its marine efforts during the peak of the season.
- *Corporals*: When ICMA reviewed the staffing levels and the span of control for each of the patrol squads, it was related that one sergeant could be in charge of 10 police officers on any given tour of duty. The normal span of control is 5 to 8 police officers. Due to the geography of the city, it could feasibly take up to 6 minutes to respond to the scene to evaluate any situation or provide appropriate backup to another unit. ICMA recommends the use of the corporal ranks to assist the first-line supervisors. The corporal position could also be used to assist when the sergeant is on extended leave time, thus reducing the use of

overtime. The corporal program would also provide some keen insight for the city and police administration reviewing the supervisory skills and abilities of these up-and-coming police officers. The program could act as a selection or grooming process for future first-line supervisors. A minimum stipend should be provided to the 5 individuals assigned to these corporal tasks. An evaluation process would be implemented for the first round of candidates with semiannual progress reports. The position would then be based on the chief of police's selection. Officers selected to participate in this program must attend some type of first-line level supervisor training to protect the community from any failure to train or supervise lawsuits.

B. Civilianization

The LHPD, like most police departments, is confronting increasing demands for services with limited resources. One remedy for the dilemma is the greater use of civilian employees. Civilianization enables more officers to answer calls requiring full police powers. The LHPD has already started the process by identifying positions civilian employees can fill (e.g., property and evidence management, crime scene investigators, traffic accident investigators, and a support services manager).

To determine whether a position could be civilianized, the following questions must be asked:

- Does the position involve responding to police emergencies?
- Does the position require police officer status or arrest powers?

To ensure the success of the program, prudent personnel selection and effective training are essential. Hiring retired officers with job

knowledge and the respect of the current staff may be a choice in filling civilian positions. Police acceptance is also critical to the success of the process. All levels of management must support civilianization.

ICMA and the LHPD administration have collectively identified potential sworn positions that can be civilianized, thus maintaining the appropriate number of positions while decreasing the city's costs associated with employing a sworn police officer.

- *Property and Evidence Custodian*: This property and evidence (P/E) room has been staffed with a full-time sworn officer for the past 15 years. Prior to 1994, the P/E room was staffed with two part-time civilians. Up until December 2008, a part-time civilian had also been assigned as an assistant and backup. The part-time position was discontinued due to a reduction in part-time salary funding.
  Although the property and evidence custodian acts as a backup for the crime scene investigator, neither position necessarily needs to function as a first responder. Response can be limited to secured major crime scenes, where sworn personnel would remain present. Civilianization of this position would allow the return of the sworn position to case and field work in the detective bureau.

- *Crime Scene Investigator*: The full-time sworn crime scene investigator could potentially be civilianized and limited to response to secured major crime scenes where sworn personnel would remain present and follow up on routine investigations once secured by sworn personnel. The current investigator does function as a primary responder on occasion, as a supplement to the detective bureau; therefore, this position should not be civilianized unless the property and evidence sworn position is reallocated to the bureau in the table of organization.

- *Traffic Accident Investigator(s)*: Routine accident investigation is a generalized function of traffic and patrol personnel. Civilianizing the function would free additional sworn resources and potentially prevent the need for new sworn positions as the city grows.

- *Support Services Manager*: The jail, dispatch, records, and facilities operations have been overseen by a sworn lieutenant

since 2001. Prior to that, a civilian support services manager filled this role. Long-term consistency, depth of experience, and expertise are difficult to sustain given the nature of sworn personnel rotations and promotions.

- *Administrative Lieutenant*: This sworn position was created with a command reorganization in 2006. The lieutenant is responsible for budget development and administration and currently has the corollary duty of academy commander (expected to be a one- to two-year commitment ending in early or late 2010). Budget responsibility has historically been assigned to command-level sworn personnel, with the exception of several years in the mid-1990s, when it was assigned to the civilian support services manager.

Recommendations

ICMA commends the LHPD administration in their effort to identify these civilian positions. Their thought process is cost-effective and efficient. The LHPD fully understands the financial implications associated with the recommendations.

The timetable to implement the recommended changes is the responsibility of the city. The city should fully staff the civilian structure while practicing fiscal restraints. The LHPD has proven to be a first-class law enforcement agency moving the police department into the twenty-first century. (Note: The civilianization of one or both of the lieutenant positions should not necessarily reflect a reduction in the total number of lieutenants. The patrol function is understaffed at the lieutenants' level, and at least one of those positions should be transferred as funding resources become available.)

C. Technology

The patrol unit onboard computer laptops runs on a 900-MHz spread-spectrum data channel, which has been a problem. Limited sites and very poor coverage cause the drops and areas with no signal at all.

Over the past two years, the police administration's and the city's information technology units have been going in two separate directions in an attempt to resolve the issues. There have also been some CAD/RMS concerns when the system cannot provide accurate information.

Recommendations

ICMA recommends that the city and police administration conduct a feasibility study to evaluate the program before any further funds are expanded on the project

D. Communications / Differential Police Response

Communications

The basic function of the communication system is to satisfy the immediate information needs of the LHPD in the course of normal daily activities and during emergencies. The communications system conveys information from the public to the LHPD through communications personnel, to the officer who responds to the call for assistance, to other law enforcement and public service agencies, and to information storage facilities and retrieval systems (CALEA).

Most routine communications and all emergency communications are routed through the communications center. There are three interrelated means of communication in place: telephone, radio, and computer. All services demand immediate attention, forcing a dispatcher to choose one call over the other. The communications center console positions are capable of receiving telephone calls and dispatching police, fire, and emergency medical services at once.

As previously stated, the current CAD/RMS is simply not capable of producing the data needed to manage a modern police agency. A feasibility study should be conducted to evaluate the program before any funds are expanded on the project.

There is an obvious need for professional subject-matter expertise to improve the technology of the LHPD. The department also needs to maintain qualified information technicians for the issues relating to the record-keeping/dispatch function. It was related to ICMA that the department used to maintain a full-time information technician to rectify day-to-day concerns.

Recommendations

ICMA recommends that the city ensure that a full-time technician is assigned to resolve day-to-day technology issues and concerns. This person should have full responsibility to deliver to the department and the city regular, accurate, and understandable reports on all aspects of the records management and dispatch functions.

Differential Police Response/Tele-service

The department should also consider a differential police response program. One of the programs available is Tele-service: a technique for the screening and referral of service calls, a procedure through which the dispatchers can record reports for certain categories of non-emergency incidents over the telephone. It is intended to divert non-emergency calls from the patrol units, providing officers with more time to engage in proactive/directed patrols or traffic enforcement duties.

Tele-service also can reduce waiting time for complainants with minor problems that may be deferred because of higher-priority assignments.

While it is intended to divert assignments from the patrol units, Tele-service cannot substitute for the presence of a police officer, nor can it be used to resolve or settle grievances. Tele-service reports related to patrol operations are not diminished in importance. The reports must be entered into the record management system in order to implement planning and deployment strategies.

Calls must be screened to ensure the following:

- That the offense is not in progress;
- That no one at the location presents a threat to persons or property;
- That there is not an opportunity for an apprehension;
- That the incident is not listed as one that requires an on-scene response;
- That there is neither physical evidence to be collected nor witnesses present to be interviewed; and
- That there are no circumstances present that would lead the dispatcher to believe that a police response would be appropriate (e.g., injuries).

A suggested list of calls that do not require a police response and the Tele-service includes:

- A lost or stolen cell phone or iPod
- Theft from a vehicle;
- Tampering with a vehicle;
- Lost or stolen license plates;
- Theft of a bicycle;
- Larceny, minor thefts (excluding shoplifting and embezzlement);
- Malicious mischief and vandalism;
- Lost property;
- Harassment;
- Threats;
- Nuisance telephone calls;
- Animal complaints; and
- Traffic complaints that are not in progress.

For Tele-service to be effective, it should include the following:

- A clear specification of types of calls eligible for Tele-service;
- The ability of the citizen to choose whether or not the call is taken over the phone;
- Providing a mailed copy of the report free of charge to the caller;
- Training for the dispatchers to effectively carry out this task;

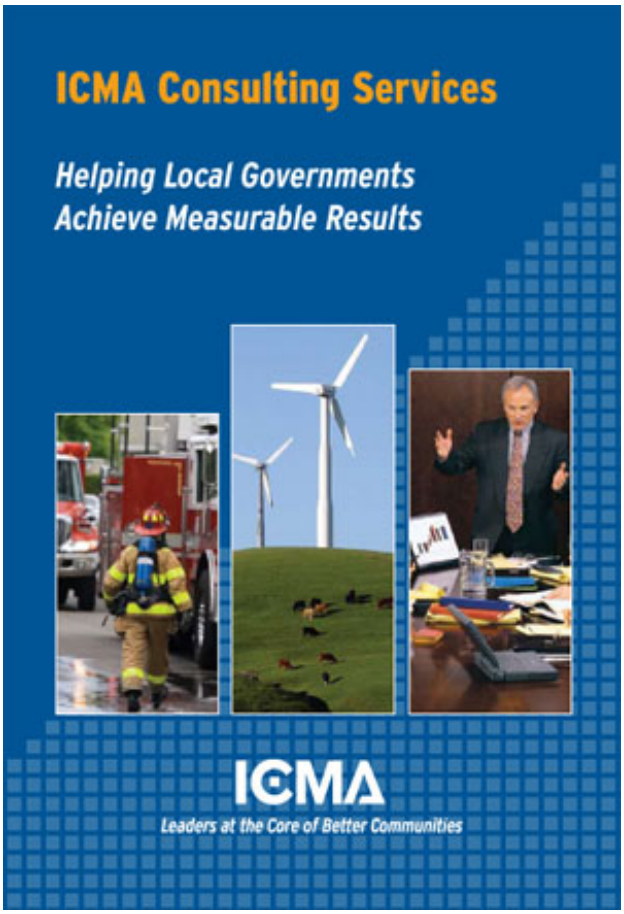
- Ensuring reports taken over the phone are reviewed for accuracy and included in any feedback to the patrol squads; and
- Police assigned to areas remaining aware of incidents occurring within their area of responsibility.

Recommendations

We recommend that the LHPD develop policies and procedures to institute Tele-service for appropriate calls. The existing dispatch staff and police officers on light duty should be able to perform this task.

Leaders at the Core of Better Communities

Part 1 B
Data Analysis Report
Fire / EMS
Lake Havasu, Arizona



Submitted by:

Public Safety Services

ICMA Consulting Services

International City/County Management Association

Lake Havasu, AZ

Part I. Aggregate Call Totals and Dispatches

The data include calls between 07/01/2007 and 06/30/2008. The dispatches of battalion chief, command staff, inspector, support unit, SQUAD unit and DH engine were not included in call, workload and response time analysis. We found that 148 (2%) calls were solely responded by those units and we reported summary statistics separately in the Appendix I. The activity of battalion chief unit (BC1) is reported in Appendix II. In addition, the FD training, unit out of service/mechanical, school activity/demo and fire test/MDT calls were analyzed and reported in appendix III.

We categorize the call type based upon end of call description. (For the correspondence between end of call description and call type, see Appendix IV.) We also report the discrepancy between start and end of call descriptions in Appendix V.

In a year, 5,859 non-cancelled calls were received. Of these, 292 (5%) were structure fire or outside fire calls, and 4,384 (75%) were EMS calls. The analysis of call types is captured in a set of seven tables an figures.

- Table 1—Call Types
- Table 2—Call Types by Call Source
- Figure 3—Fire Calls Partitioned by Type and Duration (formatted as branches of a tree)
- Figures 4—Fire Calls by Type (pie chart)
- Figure 5—Calls by Month
- Figure and Table 6—Calls by Hour of Day
- Table and Figures 7—Number of All Units Dispatched to Calls

Part II. Workload by Individual Unit—Calls and Total Time Spent

We report two types of statistics: dispatches and workload. In Part I we reported that there were 5,859 non-cancelled calls, but because multiple units are often sent, the total number of dispatched units we analyze here is more than 7,500. We also look at the actual time spent by each unit at every call. The average time from dispatch until clear was 41 minutes per unit. The total unit workload in a year for all units combined was slightly more than 5,000 hours. After the introductory table, we present run data and workload data for every unit, as well as the daily average for engine, medical, and other units.

- Table 8—Busy Time by Call Type
- Figure 9—Total City: Average Busy Hours per Day by Call Type
- Table 10—Workload by Unit Type
- Table 11—Total Annual and Daily Average Number of Runs by Call Type
- Figure 12—Annual Average Runs
- Table 13—Total Annual and Daily Average Busy Minutes per Day by Call Type
- Figure 14— Minutes per Day on Calls

Part III. Dispatch Time and Response Time

Dispatch processing time is the difference between unit dispatch time and call receipt time. Response time includes dispatch processing time, turnout from the station, and travel time. We are interested in the dispatch time and response time mainly of the first arriving units. Overall, the average dispatch processing time was 0.5 minutes, and

the average total response time was 6.0 minutes. For structure fire calls, we analyze the response time of both the first and second arriving fire equipments.

- Table and Figure 15—Average Dispatch Time, Turnout, Travel Time, and Response Time of First Arriving Units by Call Type
- Table 16—Call Source: Average Dispatch Time of First Arriving Units by Call Source
- Table 17—Which Unit Arrived First for Each Call Type
- Figure and Table 18—Average Dispatch Time, Turnout, Travel Time, and Response Time of First Arriving Units by Hour of the day
- Figure and Table 19—Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for **EMS** Calls
- Table 20—Average Response Time of Fire Equipments for **Structure Fire and Outside Fire** Calls by Unit
- Table 21— Average Response Time for **Structure Fire and Outside Fire** Calls by Unit
- Figure and Table 22—Cumulative Distribution Function (CDF) of Response Time of First and Second Arriving Fire Equipments for **Structure and Outside Fire** Calls
- Figure 23—Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for **Hazard/Fire/Smoke/Investigation** Calls

Appendix

- Appendix I: Summary of Activities of Non-Primary Units
- Appendix II: Battalion Chief (BC1) Activity Analysis
- Appendix III: Number of Runs and Total Busy Hours for Training, Test, School Demo and Out of Service/Mechanical Calls

- Appendix IV: Correspondence between End of Call Description and Call Type
- Appendix V: Discrepancy between Start and End of Call Description

Table 1—Call Types

Call Type	# of Non Cancelled Calls	Calls / Day	Calls %	# of Cancelled Calls	Cancelled %
Accident	260	0.7	4.4%	9	3.3%
Medical	4034	11.1	68.9%	118	2.8%
Suicide	90	0.2	1.5%	7	7.2%
EMS Total	**4384**	**12.0**	**74.8%**	**134**	**3.0%**
Outside Fire	118	0.3	2.0%	7	5.6%
Structure Fire	174	0.5	3.0%	1	0.6%
Alarm	372	1.0	6.3%	55	12.9%
Good Intent	64	0.2	1.1%	10	13.5%
Hazard/Fire/Smoke Inv.	293	0.8	5.0%	13	4.2%
Rescue	39	0.1	0.7%	2	4.9%
Service	415	1.1	7.1%	22	5.0%
Fire Total	**1475**	**4.0**	**25.2%**	**110**	**6.9%**
Total	**5859**	**16.1**	**100.0%**	**244**	**4.0%**

Note: Cancelled calls are defined as all units stay on scene less than a minute.

4111 = direct line into dispatch (used to be the emergency line)
MA = medical assist, WA = walk – in, SI=self-initiated, RADI = Radioed in

Observations:

- 4% calls were cancelled in a year.
- On average, the city received 16 non cancelled calls per day between July 2007 and June 2008, an average of less than 1 per hour citywide.
- Medical calls totaled 4,384 (74.8%), about 12 per day.
- Fire category calls totaled 1,475 (23.2%), about 4 per day.
- Structure and outside fire combined averaged 0.8 calls per day, 5% of total calls.
- There was more than 1 service call per day.

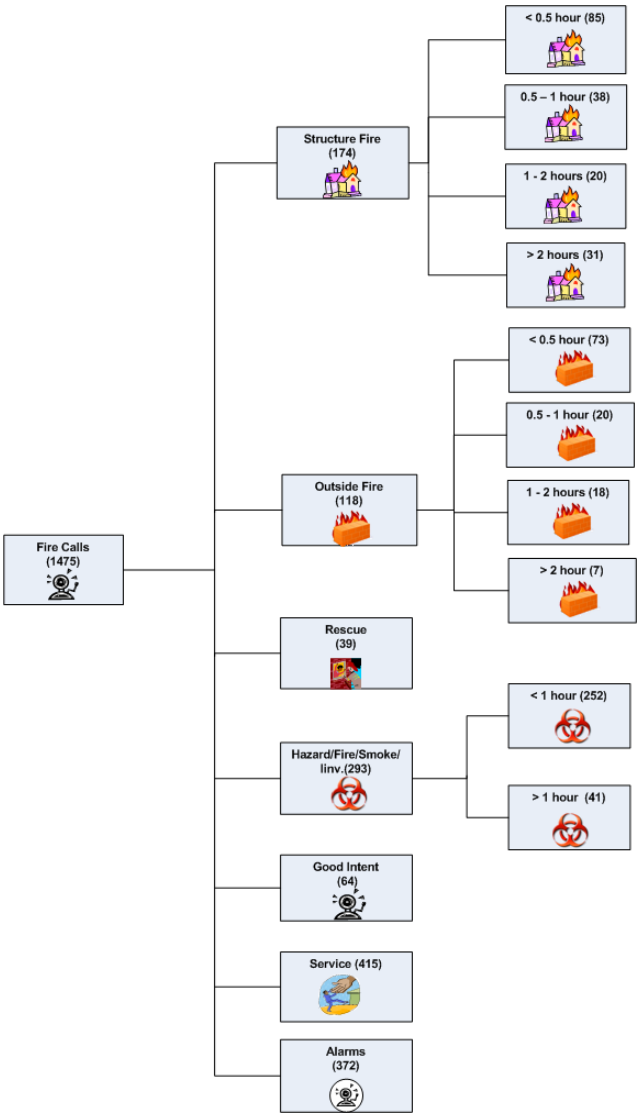
Table 2—Call Types by Call Source

	911/411	RADI	WA	SI	Other
Accident	235	12	0	8	5
Medical	3669	251	0	55	59
Suicide	87	0	0	2	1
EMS Total	**3991**	**263**	**0**	**65**	**65**
Outside Fire	110	3	0	2	3
Structure Fire	159	4	7	1	3
Alarm	242	5	117	4	4
Good Intent	47	4	0	12	1
Hazard/Fire/Smoke Inv.	262	18	0	9	4
Rescue	29	1	5	2	2
Service	379	12	0	20	4
Fire Total	**1228**	**47**	**129**	**50**	**21**
Total	**5219**	**310**	**129**	**115**	**86**
Calls / Day	**14.3**	**0.8**	**0.4**	**0.3**	**0.2**

Observations:

- Approximately 90% of the calls came in through 911 or 411.
- There a significant number of medical calls that were radioed in.
- Almost one-third of the alarms were reported as WA.

Figure 3—Fire Calls Partitioned by Type and Duration (formatted as branches of a tree)

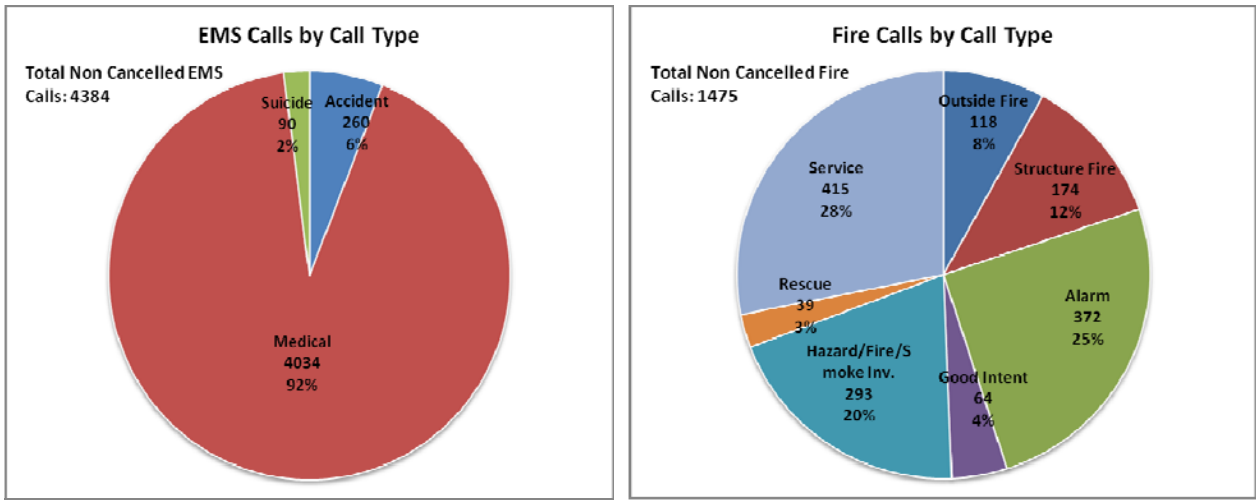


Observations:

- Of the 174 structure fire calls, 31 lasted more than two hours, 20 lasted between one and two hours, and 123 lasted less than one hour.
- Of the 118 outside fire calls, 93 (79%) lasted less than one hour.
- Of the 293 hazard/fire/smoke/investigation calls, 252 (86%) lasted less than one hour.

- In all, the department handled 117 calls (51 structure fires, 25 outside fires, and 41 hazard/fire/smoke/investigation) that lasted more than one hour, or approximately two long calls per week.

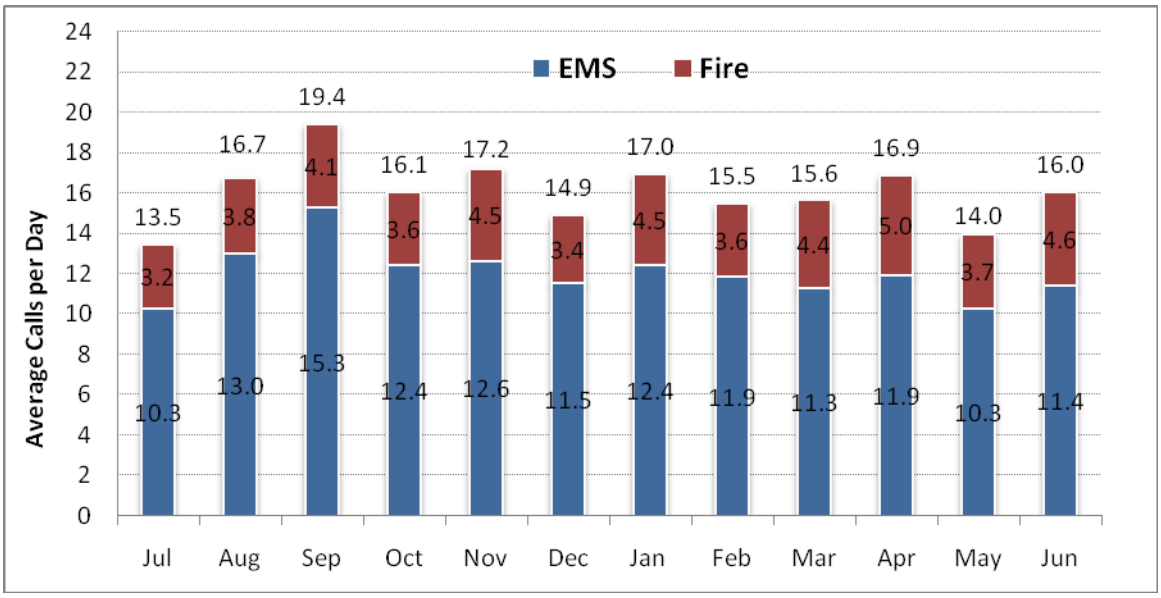
Figure 4—EMS & Fire Calls by Type (pie chart)



Observations:

- There were 292 structure and outside fire calls, about 20 percent of the total, for an average of 0.5 calls per day.
- There were 415 (28%) good intent calls, an average of 1.1 per day.
- There were 372 (25%) alarms calls, an average of 1 per day.
- There were 293 (20%) hazard/fire/smoke/investigation calls, an average of 0.8 per day.
- There were 4034 (92%) medical calls, an average of 11 per day.
- There were 266 accident calls, an average of 0.7 calls per day.
- There were 90 suicide calls.

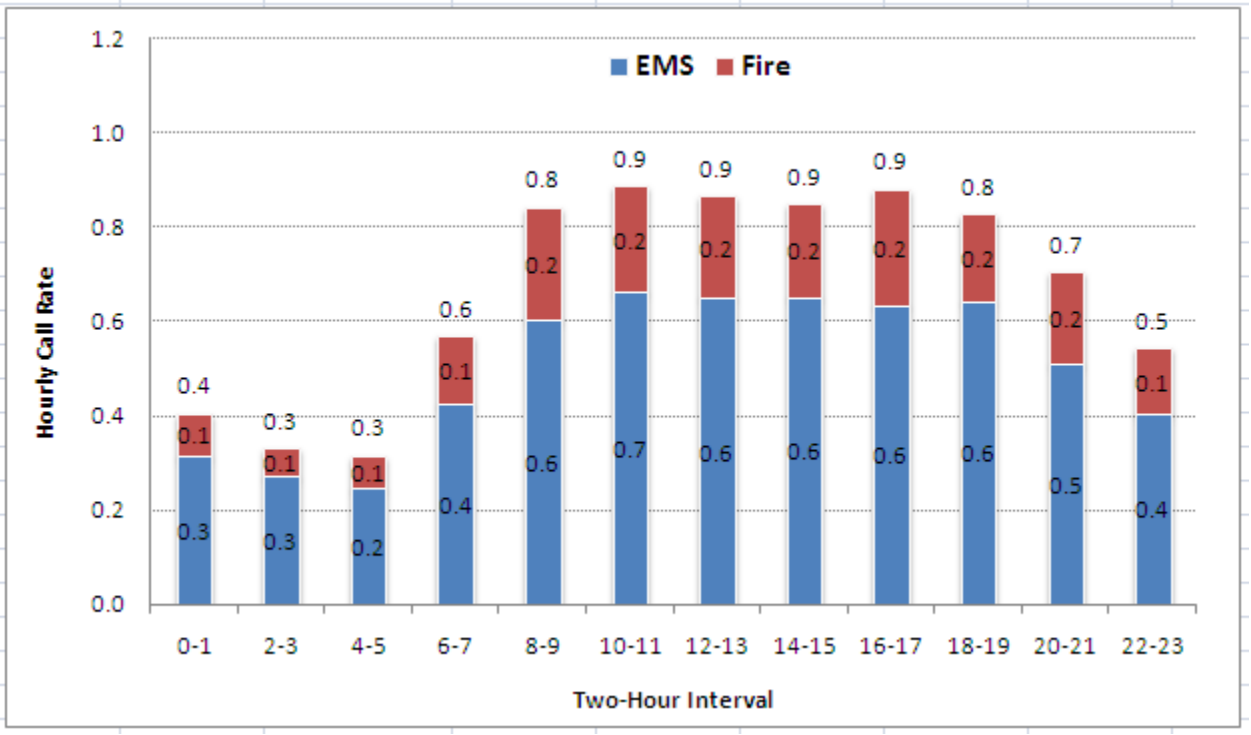
Figure 5—Calls by Month



Observations:

- Average calls per day varied by month and ranged from a low of 13.5 calls per day in July to 44 percent more in September, which had a high of 19.4 calls per day.
- Except July and September, averaged calls per day were between 14.0 and 17.2.
- The reason the average calls per day peaked in September was the significantly increased number of EMS calls.

Figure and Table 6—Calls by Hour of Day



	Hourly Call Rate		
Two Hours Interval	EMS	Fire	Total
0-1	0.3	0.1	0.4
2-3	0.3	0.1	0.3
4-5	0.2	0.1	0.3
6-7	0.4	0.1	0.6
8-9	0.6	0.2	0.8
10-11	0.7	0.2	0.9
12-13	0.6	0.2	0.9
14-15	0.6	0.2	0.9
16-17	0.6	0.2	0.9
18-19	0.6	0.2	0.8
20-21	0.5	0.2	0.7
22-23	0.4	0.1	0.5
Calls/Day	6.0	2.0	8.0

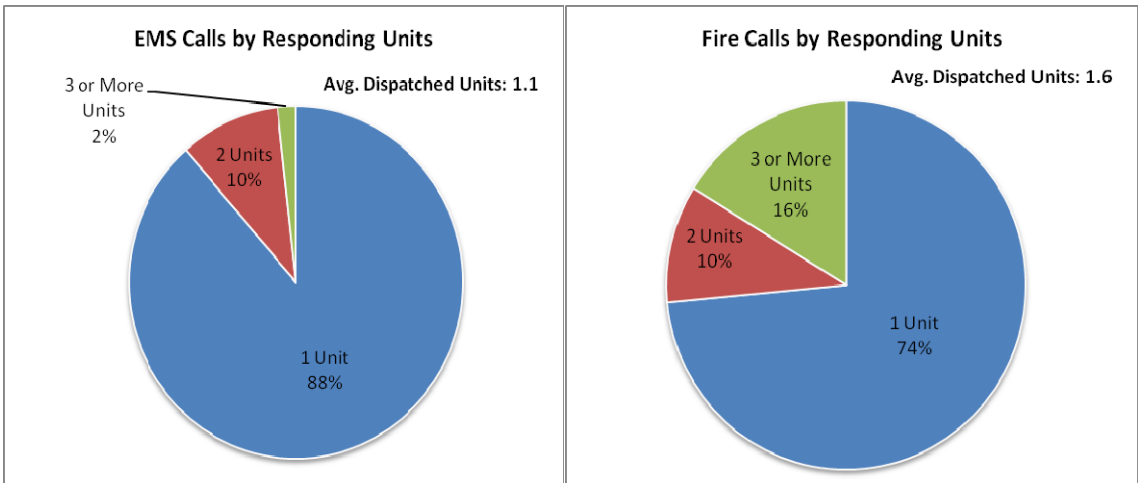
Observations:

- Total call rates stayed between 0.8 to 0.9 calls per hour between 8 AM and 8 PM, the 2000 hour.

- The call rate was lowest between midnight and 5 AM, less than 0.5 calls per hour.

Table and Figure 7—Number of All Units Dispatched to Calls

Call Type	1 Units	2 Units	3 or more Units	Total Calls
Accident	40	169	51	260
Medical	3753	257	24	4034
Suicide	87	1	2	90
EMS Total	**3880**	**427**	**77**	**4384**
Outside Fire	86	25	7	118
Structure Fire	0	0	174	174
Alarm	322	24	26	372
Good Intent	59	4	1	64
Hazard/Fire/Smoke Inv.	222	60	11	293
Rescue	12	10	17	39
Service	383	29	3	415
Fire Total	**1084**	**152**	**239**	**1475**
Grand Total	**4964**	**579**	**316**	**5859**



Observations:

- Overall, 85 percent of calls were dispatched only 1 unit.
- On average, 1.1 units were dispatched per EMS call.
- On average, 1.6 units were dispatched per Fire call.
- Of the 174 structure fire calls, 100% were dispatched 3 or more units.
- Of the 118 outside fire calls, 32 (27%) were dispatched 2 or more units.

Table 8—Busy Time by Call Type

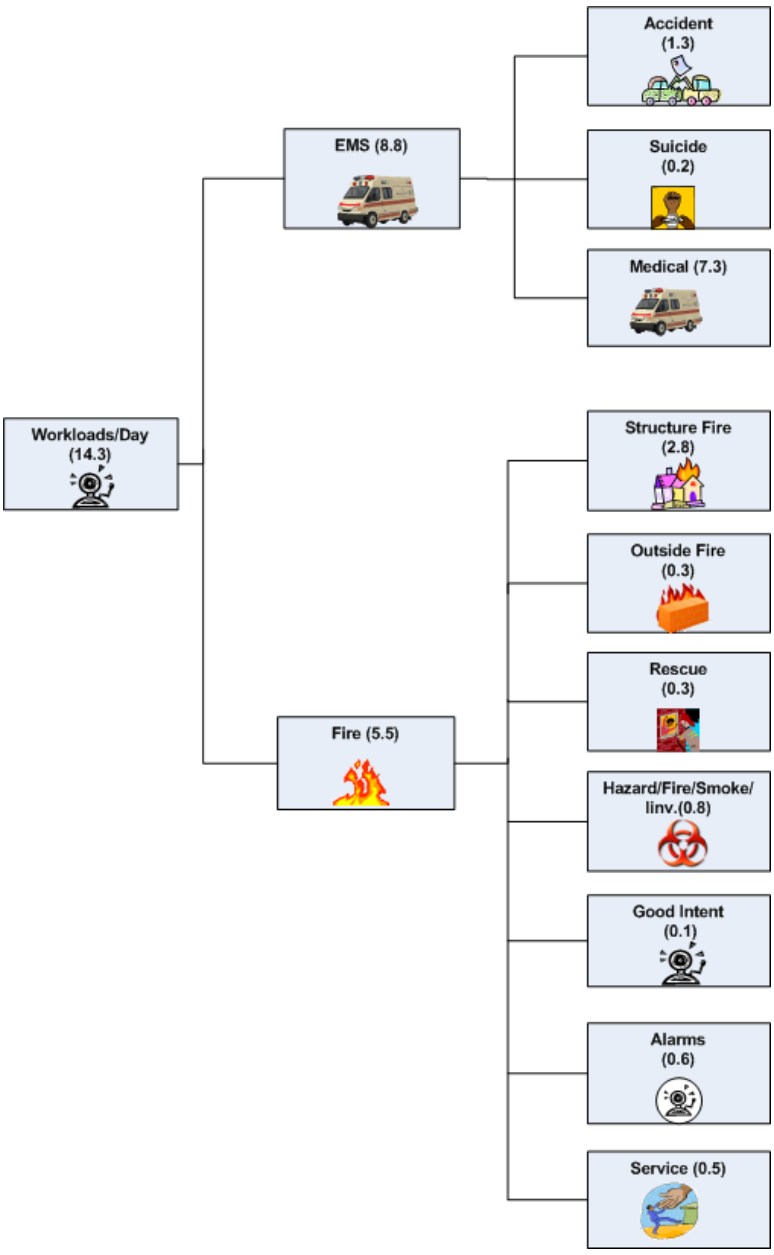
Call Type	Avg. Busy Minutes/Call	Total Busy Hours	%	Avg. Busy Hours/Day	No. of Runs
Accident	49.8	468.8	9%	1.3	565
Medical	36.0	2673.9	51%	7.3	4452
Suicide	49.3	83.8	2%	0.2	102
EMS Total	**37.8**	**3226.5**	**62%**	**8.8**	**5119**
Outside Fire	45.5	127.5	2%	0.3	168
Structure Fire	81.9	1036.8	20%	2.8	760
Alarm	24.6	218.7	4%	0.6	534
Good Intent	26.9	35.9	1%	0.1	80
Hazard/Fire/Smoke Inv.	42.0	276.9	5%	0.8	396
Rescue	74.8	117.2	2%	0.3	94
Service	24.8	196.2	4%	0.5	474
Fire Total	**48.1**	**2009.2**	**38%**	**5.5**	**2506**
Total	**41.2**	**5235.6**	**100%**	**14.3**	**7625**

Observations:

- The various units were busy a combined 5236 hours including cancelled calls. The average total department workload per day was 14 hours and 18 minutes. This is the total time of all the units that were busy at calls for service.
- There were a total of 7625 runs including cancelled calls, an average of 21 runs per day.
- Medical calls accounted for 62 percent of the total workload.
- The average time spent on a medical call was 38 minutes.
- Structure and outside fire calls combined were 22 percent of the workload; average time spent on a structure fire call was 82 minutes, and on an outside fire, 46 minutes.
- All structure fire calls were dispatched with 3 or more fire equipments, which significantly increased average busy minutes per call.

- There are 31 structure fire calls, which had on scene time longer than 2 hours. Among the 31 calls, 14 of them had on scene time longer than 4 hours.
- Alarm and service call had the smallest average busy minutes per run, 25 minutes.

Figure 9—Total City: Average Busy Hours per Day by Call Type



Observations:

- The various units combined spent 5.5 hours for fire-classified calls per day, including 2.8 hours for structure fire calls and 0.3 hours for outside fire calls.
- The various units spent 8.8 hours on EMS calls per day including 7.3 hours for medical calls, 1.3 hours for accident calls.

Table 10—Workload by Unit Type

Station	Unit ID	Unit Type	Avg. Busy Min./Run	# of Runs	Busy Min./Day	Total Busy Hours
Station 1	TK1	Truck	37.3	1583	161.6	983.2
Station 2	E2	Engine	43.6	1129	134.8	819.9
Station 3	E3	Engine	37.2	1579	160.8	978.1
Station 4	E4	Engine	44.8	1232	151.1	919.0
Station 5	E5	Engine	40.4	1751	193.6	1177.8
Station 6	E6	Engine	51.5	274	38.7	235.3
NA	FBT	Fire Boat	81.1	39	8.7	52.7
NA	R3	Rescue Unit	141.1	2	0.8	4.7
NA	R4	Rescue Unit	115.5	25	7.9	48.1
NA	R42	Rescue Unit	91.3	11	2.8	16.7
Total			41.2	7625	860.6	5235.6

Note: Reserved units are recoded in all workload analysis. For example, E1 is recoded as Tk1, E22 is recoded as E2, E32 is recoded as E3. E42 is recoded as E4, E52 is recoded as E5. E62 is recoded as E6.

Observations:

- TK1, E2, E3, E4, E5 were busy over 800 hours in a year.
- Among all primary units, E5 had the most workload and runs, averaged 3.2 hours per day.
- E6 had relative low utilization in all engine companies, had 274 runs with total workloads of 235 hours.
- Fire boat had 39 runs with total workloads of 53 hours in a year.
- Rescue units had total 38 runs with total workloads of 69.5 hours in a year.

Table 11— Total Annual and Daily Average Number of Runs by Call Type

Runs	TK1	E2	E3	E4	E5	E6	Average Runs/Unit
Accident	125	98	70	87	158	19	93
Medical	961	588	1081	643	1044	103	737
Suicide	29	19	22	20	11	0	17
EMS Total	**1115**	**705**	**1173**	**750**	**1213**	**122**	**846**
Outside Fire	22	33	27	27	38	7	26
Structure Fire	165	123	101	149	162	59	127
Alarm	105	94	87	95	128	25	89
Good Intent	16	10	8	15	24	7	13
Hazard/Fire/Smoke Inv.	58	96	59	77	86	18	66
Rescue	14	11	10	21	18	6	13
Service	88	57	114	98	82	30	78
Fire Total	**468**	**424**	**406**	**482**	**538**	**152**	**412**
Total	**1583**	**1129**	**1579**	**1232**	**1751**	**274**	**1258**
Average Runs/Day	**4.3**	**3.1**	**4.3**	**3.4**	**4.8**	**0.8**	**3.4**

Observations:

- Primary fire equipment averaged 1258 runs per year for an average of 3.4 runs per day.
- E5 responded most often, averaging 4.8 runs per day.
- E6 responded least often, averaging 0.8 runs per day.
- Medical runs constituted 67 percent of the runs on average.
- Per month, on average, an engine company responded to 10.6 structure fire calls and an additional 2.2 outside fire calls.
- Per week an engine company responded to more than 1 false alarm, 1 hazardous condition and 1 service call.

Figure 12— Annual Average Runs

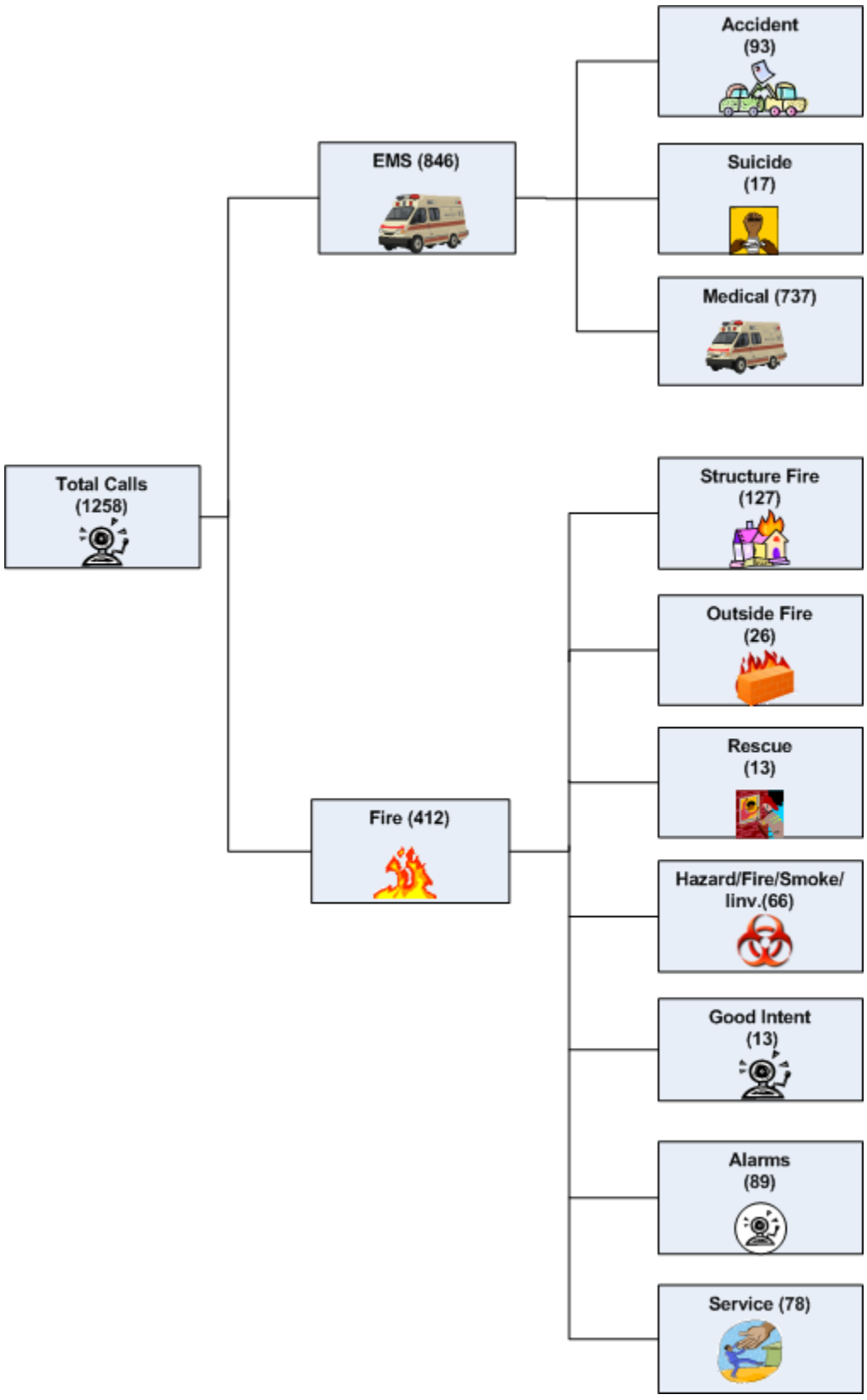


Table 13— Total Annual and Daily Average Busy Minutes per Day by Call Type

Avg. Minutes/Day	TK1	E2	E3	E4	E5	E6	Average Minutes/Engine
Accident	15.9	13.5	10.5	11.0	21.2	2.3	12.4
Medical	84.1	61.7	100.4	74.0	100.6	10.8	71.9
Suicide	3.3	2.3	3.5	3.1	1.0	0.0	2.2
EMS Total	**103.3**	**77.4**	**114.4**	**88.1**	**122.8**	**13.1**	**86.5**
Outside Fire	2.5	4.6	2.9	2.7	4.7	0.6	3.0
Structure Fire	34.6	27.6	23.1	32.5	34.2	17.9	28.3
Alarm	7.1	7.0	5.6	6.4	8.5	1.4	6.0
Good Intent	1.4	0.6	0.5	1.6	1.5	0.3	1.0
Hazard/Fire/Smoke Inv.	5.5	11.6	5.5	9.5	10.5	2.1	7.4
Rescue	2.4	2.8	2.4	4.6	3.1	0.3	2.6
Service	4.9	3.3	6.3	5.7	8.3	3.1	5.2
Fire Total	**58.4**	**57.4**	**46.3**	**63.0**	**70.8**	**25.6**	**53.6**
Total	**161.6**	**134.8**	**160.8**	**151.1**	**193.6**	**38.7**	**140.1**

Observations:

- Engine and truck companies averaged 140 minutes on calls per day.
- Engine and truck companies spent approximately one and a half hours per day on EMS calls.
- Fires: engine and truck companies spent an average of 28 minutes per day on structure fires, and 3 minutes on outside fires.
- Five of the engine and truck companies (TK1, E2, E3, E4, and E5) had similar average workloads of more than 2 hours per day.
- Engine Company 6 was the least busy, with 39 minutes per day of service.

Figure 14—Average Minutes per Day on Calls

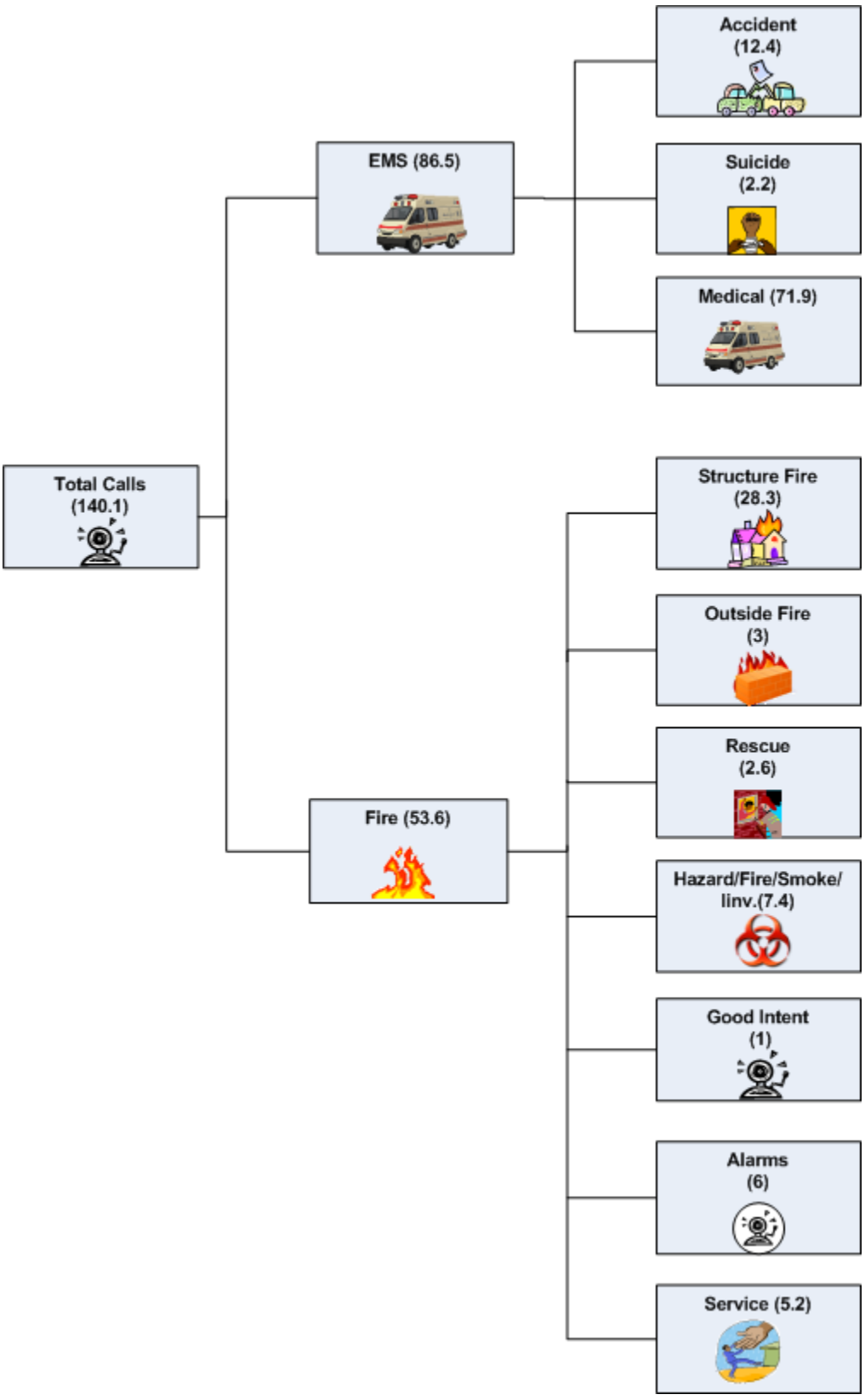
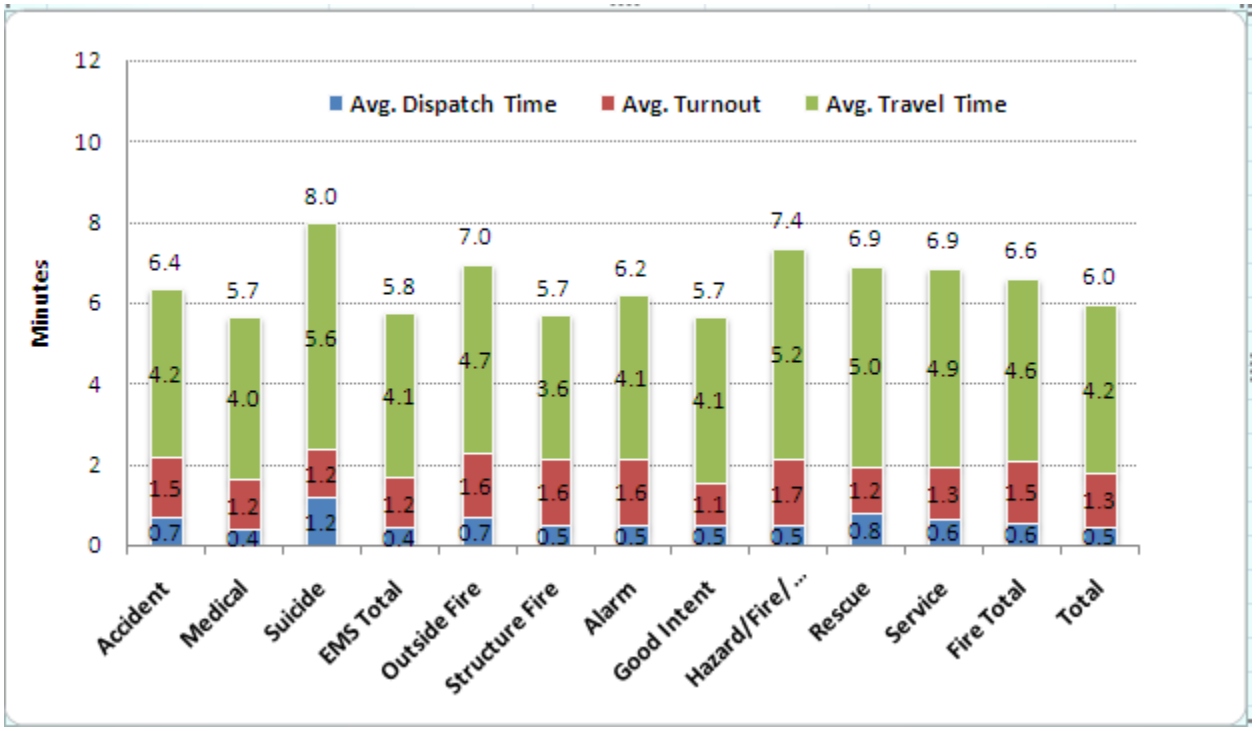


Table and Figure 15—Average Dispatch Time, Turnout, Travel Time, and Response Time of First Arriving Units by Call Type

	Avg. Dispatch Time	Avg. Turnout	Avg. Travel Time	Avg. Response Time	Number of Calls
Accident	0.7	1.5	4.2	6.4	260
Medical	0.4	1.2	4.0	5.7	4034
Suicide	1.2	1.2	5.6	8.0	90
EMS Total	**0.4**	**1.2**	**4.1**	**5.8**	**4384**
Outside Fire	0.7	1.6	4.7	7.0	118
Structure Fire	0.5	1.6	3.6	5.7	174
Alarm	0.5	1.6	4.1	6.2	372
Good Intent	0.5	1.1	4.1	5.7	64
Hazard/Fire/Smoke Inv.	0.5	1.7	5.2	7.4	293
Rescue	0.8	1.2	5.0	6.9	39
Service	0.6	1.3	4.9	6.9	415
Fire Total	**0.6**	**1.5**	**4.6**	**6.6**	**1475**
Total	**0.5**	**1.3**	**4.2**	**6.0**	**5859**



Observations

- The average response time for medical calls was 5.8 minutes.
- On fire calls, the average response time for structure fire calls was 5.7 minutes, and for outside fire calls, 7.0 minutes.
- The average response time for all call types were less than 8 minutes.

Table 16—Call Source: Average Dispatch Time of First Arriving Units by Call Type

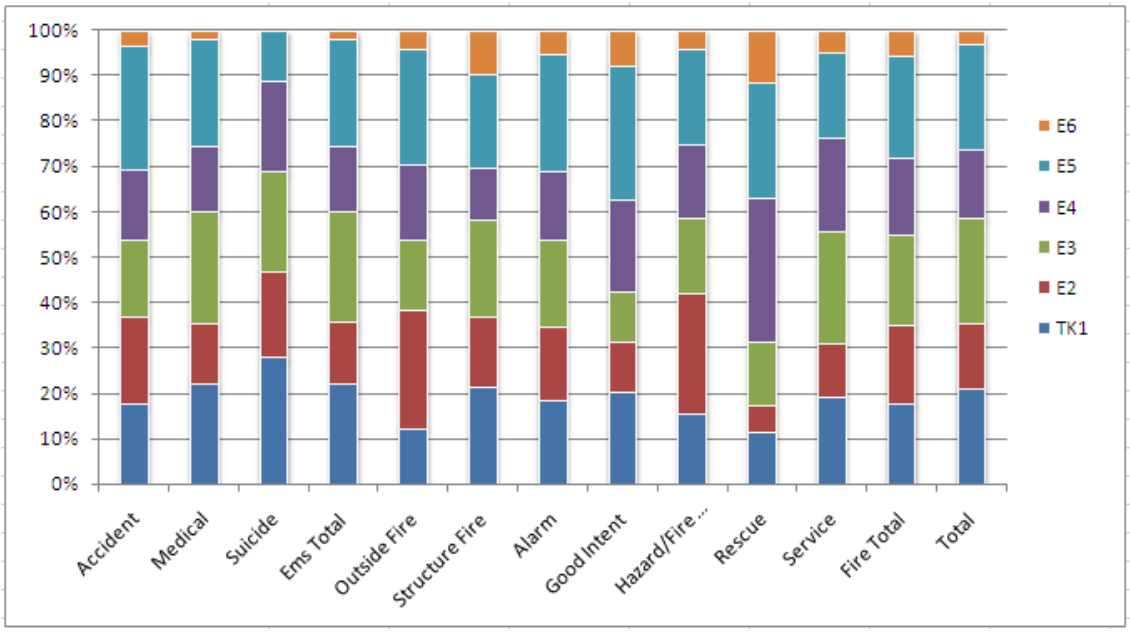
	911/411	RADI	WA	SI	Other
Accident	0.72	0.45	0.00	0.48	0.56
Medical	0.39	0.50	0.00	0.08	0.30
Suicide	1.21	0.00	0.00	0.21	0.92
EMS Total	**0.43**	**0.50**	**0.00**	**0.13**	**0.33**
Outside Fire	0.72	0.54	0.00	0.35	0.97
Structure Fire	0.52	0.30	0.43	0.12	0.76
Alarm	0.59	0.34	0.39	0.33	0.45
Good Intent	0.63	0.28	0.00	0.02	0.27
Hazard/Fire/Smoke Inv.	0.50	0.37	0.00	0.00	0.61
Rescue	0.78	0.28	0.40	1.94	0.70
Service	0.69	0.42	0.00	0.13	0.36
Fire Total	**0.61**	**0.37**	**0.39**	**0.18**	**0.60**
Total	**0.48**	**0.48**	**0.39**	**0.15**	**0.39**

Note: Please refer to Table 2 for number of calls by call source

Observations:

- The overall average dispatch time was half a minute.
- The dispatch time for suicide calls was the longest, averaged 1.2 minutes.
- For structure and outside fire calls, other call source had the longest dispatch time.

Figure and Table 17—Which Unit Arrived First for Each Call Type



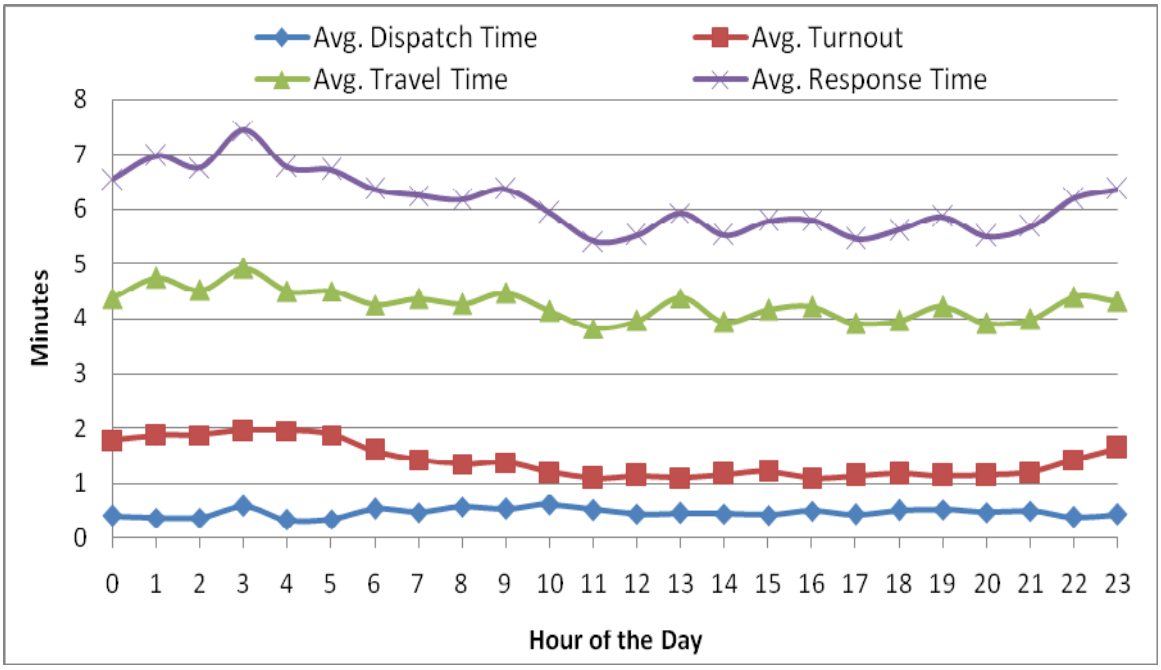
	TK1	E2	E3	E4	E5	E6
Accident	17.7%	19.2%	16.9%	15.4%	27.3%	3.5%
Medical	22.2%	13.1%	24.8%	14.2%	23.7%	2.0%
Suicide	27.8%	18.9%	22.2%	20.0%	11.1%	0.0%
EMS Total	**22.1%**	**13.6%**	**24.3%**	**14.4%**	**23.6%**	**2.1%**
Outside Fire	12.2%	26.1%	15.7%	16.5%	25.2%	4.3%
Structure Fire	21.3%	15.5%	21.3%	11.5%	20.7%	9.8%
Alarm	18.5%	15.9%	19.4%	15.1%	25.8%	5.4%
Good Intent	20.3%	10.9%	10.9%	20.3%	29.7%	7.8%
Hazard/Fire/Smoke Inv.	15.4%	26.6%	16.7%	16.0%	21.2%	4.1%
Rescue	11.4%	5.7%	14.3%	31.4%	25.7%	11.4%
Service	19.1%	11.9%	24.5%	20.8%	18.6%	5.1%
Fire Total	**17.8%**	**17.2%**	**19.7%**	**17.2%**	**22.4%**	**5.7%**
Total	**21.0%**	**14.5%**	**23.1%**	**15.1%**	**23.3%**	**3.0%**

Observations:

- The pattern of which unit arrived first on scene was equally divided between TK1, E3, and E5.
- Overall, E5 and E3 were the 1st unit on scene 23% of the time with TK1 first 21% of the time.
- For structure fire calls, TK1, E3 or E5 were the 1st unit on scene 21% of the time.

- For outside fire calls, E2 or E5 were most often the 1st unit on scene.

Figure and Table 18—Average Dispatch Time, Turnout, Travel Time, and Response Time of First Arriving Units by Hour of the day

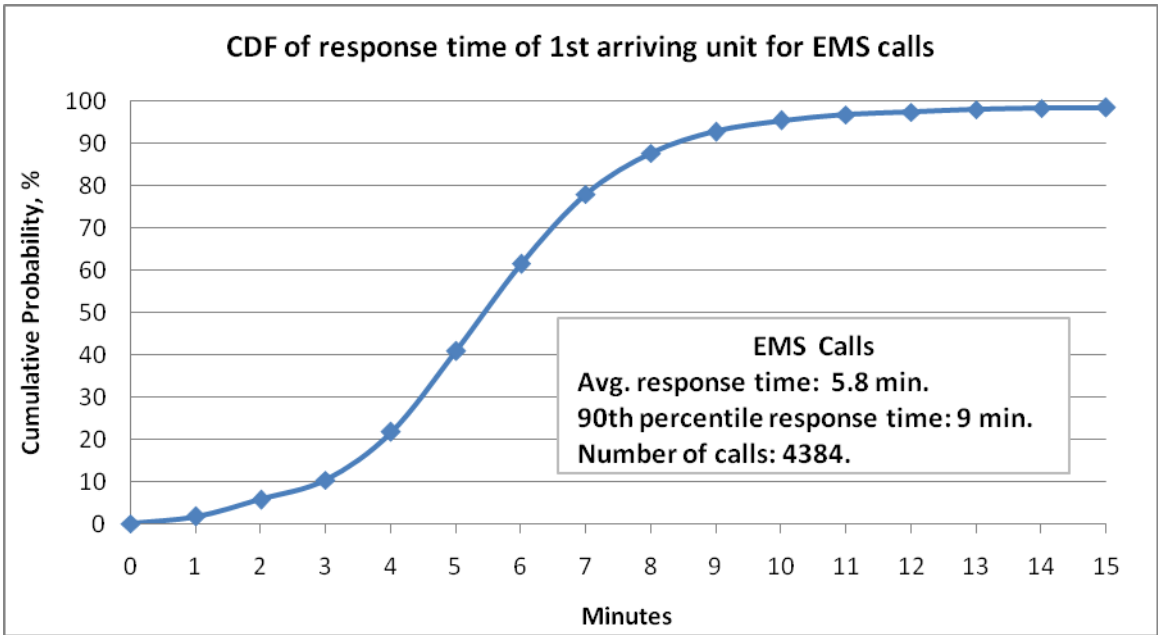


Hour	Avg. Dispatch Time	Avg. Turnout	Avg. Travel Time	Avg. Response Time	# of Calls
0	0.4	1.8	4.4	6.6	146
1	0.4	1.9	4.7	7.0	150
2	0.4	1.9	4.5	6.8	133
3	0.6	1.9	4.9	7.4	109
4	0.3	2.0	4.5	6.8	106
5	0.3	1.9	4.5	6.7	125
6	0.5	1.6	4.3	6.4	175
7	0.5	1.4	4.4	6.3	241
8	0.6	1.3	4.3	6.2	310
9	0.5	1.4	4.5	6.4	305
10	0.6	1.2	4.1	5.9	326
11	0.5	1.1	3.8	5.4	321
12	0.4	1.1	4.0	5.5	307
13	0.4	1.1	4.4	5.9	326
14	0.4	1.2	3.9	5.5	310
15	0.4	1.2	4.2	5.8	311
16	0.5	1.1	4.2	5.8	305
17	0.4	1.1	3.9	5.5	338
18	0.5	1.2	4.0	5.6	312
19	0.5	1.1	4.2	5.9	293
20	0.5	1.1	3.9	5.5	270
21	0.5	1.2	4.0	5.7	244
22	0.4	1.4	4.4	6.2	227
23	0.4	1.6	4.3	6.4	169

Observations:

- Dispatch time was stable over the day.
- Turnout time was longest from midnight to 5 AM; thus, response time was longest in the same period.
- The average response time from midnight to 5 AM was between 6.7 to 7.0 minutes.
- Average response time was consistently under 6 minutes from 10 AM until 10 PM.

Figure and Table 19—Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for EMS Calls



Reading the CDF Chart

The vertical axis is the probability or percentage of calls. The horizontal axis is response time. For example, with regard to EMS calls, the 0.9 probability line intersects the graph at a time mark at about 9 minutes. This means that 90 percent of these calls were reached in less than 9 minutes.

Response Time	Response Time Code	Frequency	Cumulative Percent
0 min	0	0	0.0
0-1 min	1	75	1.7
1-2 min	2	177	5.7
2-3 min	3	203	10.4
3-4 min	4	495	21.7
4-5 min	5	837	40.8
5-6 min	6	909	61.5
6-7 min	7	722	78.0
7-8 min	8	426	87.7
8-9 min	9	223	92.8
9-10 min	10	114	95.4
10-11 min	11	62	96.8
11-12 min	12	30	97.5
12-13 min	13	26	98.1
13-14 min	14	9	98.3
14-15 min	15	9	98.5
15-20 min	16	32	99.2
>= 20 min	17	34	100.0

Observations:

- The average response time for EMS calls was 5.8 minutes.
- Six minutes: the response time for 62 percent of EMS calls was less than 6 minutes.
- For 90 percent of EMS calls, the response time was less than 9 minutes.

Table 20 -- Average Response Time for Structure Fire and Outside Fire Calls by 1st Arriving Unit

1st Arriving Unit	Structure Fire		Outside Fire		Total	
	Avg. Response Time	# of Runs	Avg. Response Time	# of Runs	Avg. Response Time	# of Runs
TK1	6.3	38	6.9	14	6.5	52
E2	4.7	27	5.9	31	5.4	58
E3	5.5	37	9.2	20	6.8	57
E4	6.8	20	10.1	20	8.4	40
E5	6.4	36	6.1	31	6.2	67
E6	3.6	17	5.5	5	4.0	22
FBT	0.0	0	12.5	4	12.5	4
Total	5.7	175	7.4	125	6.4	300

Observations:

- Engine 6 had the shortest response time for both structure and outside fire calls when it arrived first.
- Engine 4 had the longest response time for both structure and outside fire calls when it was first on scene.
- The first arriving unit for structure and outside fire calls ranged from 3.6 minutes (E6 for structure fire call) to 10.1 minutes (E4 for outside fire call).

Table 21 -- Average Response Time for Structure Fire and Outside Fire Calls by Unit Not just 1st Arriving

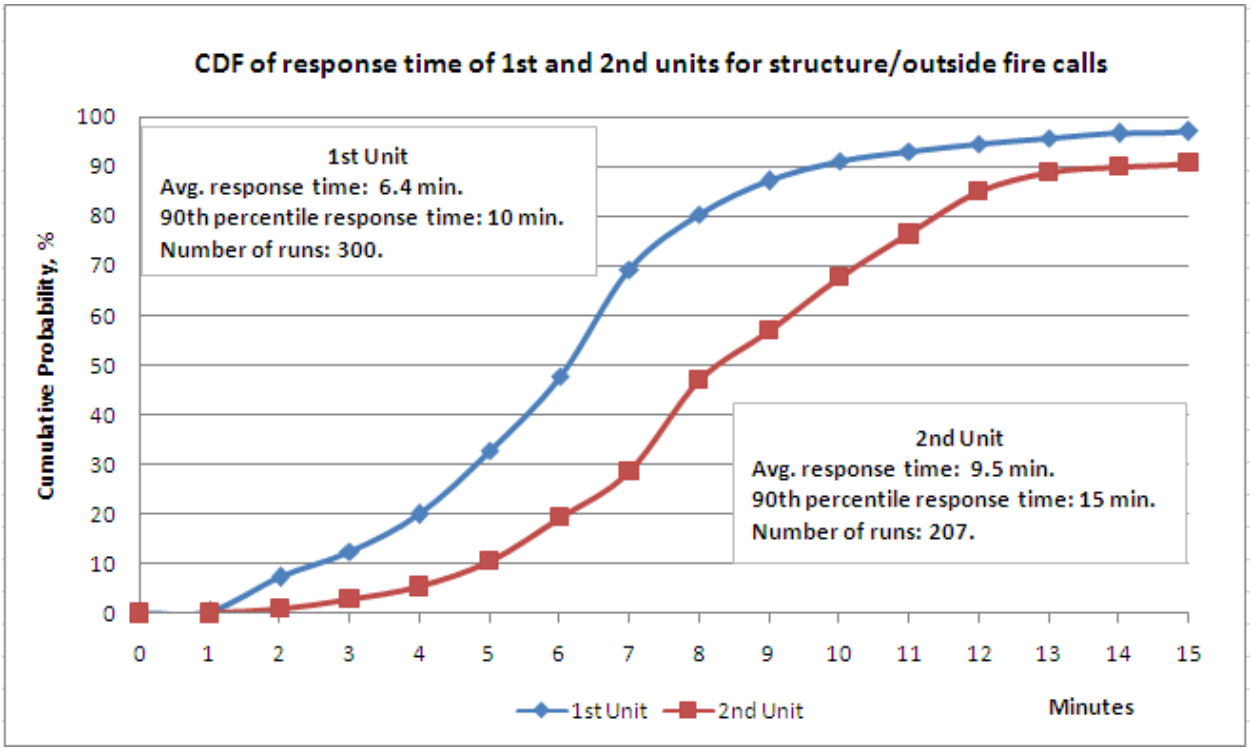
	Structure Fire		Outside Fire		Total	
	Avg. Response Time	# of Runs	Avg. Response Time	# of Runs	Avg. Response Time	# of Runs
TK1	11.4	165	9.1	22	11.1	187
E2	10.8	123	6.1	33	9.8	156
E3	11.2	101	10.2	27	11.0	128
E4	12.1	149	11.7	27	12.1	176
E5	11.0	162	6.9	38	10.3	200
E6	14.5	59	8.3	7	13.8	66
FBT	0.0	0	22.1	13	22.1	13
R4	0.0	0	23.6	1	23.6	1
R42	56.5	1	0.0	0	56.5	1
Total	11.6	760	9.7	168	11.3	928

Note: This table includes all runs of fire equipments.

Observations:

- The engine and truck companies' response time for structure and outside fire calls ranged from 6.1 minutes (E2 for outside fire call) to 14.5 minutes (E6 for structure fire call).
- Engine 2 had the shortest response time for both structure and outside fire calls.
- The overall response time of fire equipment, 11.6 minutes, is much longer than the average response time of first arrived unit, 5.7 minutes for structure fire calls and 9.7 minutes compared to 7.4 minutes for outside fire calls. In general the SQD units arrive first.

Figure and Table 22—Cumulative Distribution Function (CDF) of Response Time of First and Second Arriving Fire Equipment for Structure and Outside Fire Calls

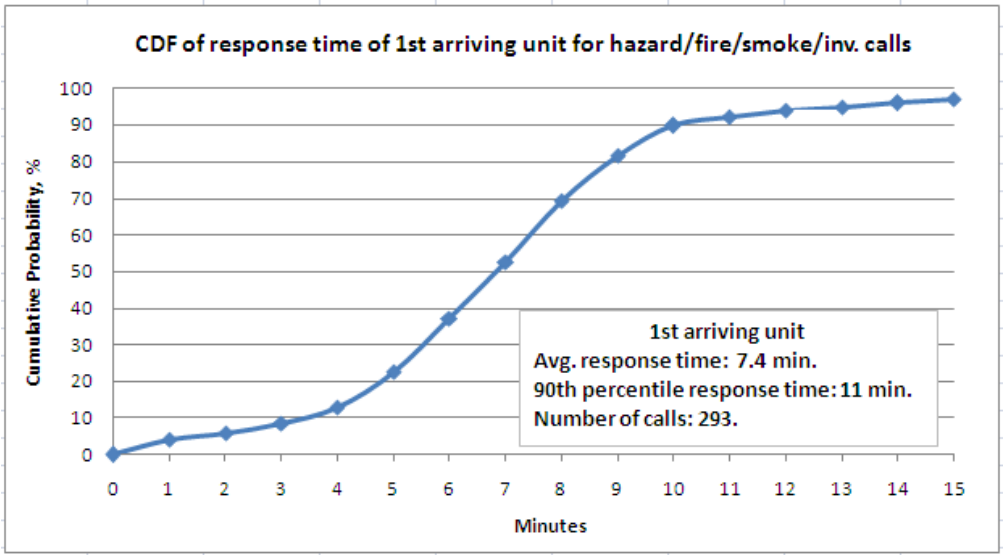


Response Time	Response Time Code	1st Unit		2nd Unit	
		Frequency	Cumulative Percent	Frequency	Cumulative Percent
0 min	0	0	0.0	0	0.0
0-1 min	1	1	0.3	0	0.0
1-2 min	2	21	7.3	2	1.0
2-3 min	3	15	12.3	4	2.9
3-4 min	4	23	20.0	5	5.3
4-5 min	5	38	32.7	11	10.6
5-6 min	6	45	47.7	18	19.3
6-7 min	7	65	69.3	19	28.5
7-8 min	8	33	80.3	38	46.9
8-9 min	9	20	87.0	21	57.0
9-10 min	10	12	91.0	22	67.6
10-11 min	11	6	93.0	18	76.3
11-12 min	12	5	94.7	18	85.0
12-13 min	13	3	95.7	8	88.9
13-14 min	14	3	96.7	2	89.9
14-15 min	15	1	97.0	2	90.8
15-20 min	16	7	99.3	8	94.7
>= 20 min	17	2	100.0	11	100.0

Observations:

- The average response time of first arriving fire units for structure and outside fire calls was 6.4 minutes.
- Six minutes or less: 48 percent of the time, the first fire unit arrived on scene.
- For 90 percent of the time, the first fire unit arrived within 10 minutes.
- The average response time of the second arriving fire units for structure and outside fire calls was 9.5 minutes.
- For 90 percent of the time, the second fire unit arrived within 15 minutes.

Figure 23—Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for Hazard/Fire/Smoke/Investigation Calls



Response Time	Response Time Code	Frequency	Cumulative Percent
0 min	0	0	0.0
0-1 min	1	12	4.1
1-2 min	2	5	5.8
2-3 min	3	8	8.5
3-4 min	4	13	13.0
4-5 min	5	28	22.5
5-6 min	6	43	37.2
6-7 min	7	45	52.6
7-8 min	8	49	69.3
8-9 min	9	36	81.6
9-10 min	10	24	89.8
10-11 min	11	7	92.2
11-12 min	12	5	93.9
12-13 min	13	3	94.9
13-14 min	14	3	95.9
14-15 min	15	3	96.9
15-20 min	16	3	98.0
>= 20 min	17	6	100.0

Observations:

- The average response time for hazard/fire/smoke/inv. calls was 7.4 minutes.

- Six minutes or less: 37 percent of the time, the first unit arrived on scene within 6 minutes.
- For 90 percent of the time, the first unit arrived on scene within 11 minutes.

Appendix I -- Summary of Activities of Non-Primary Units

Unit Type	Unit	# of Runs	Total Busy Hour
Ambulance	AMB	2	0.5
ARFF	AP1	7	11.2
Battalion Chief	BC1	556	570.9
Battalion Chief	BC2	28	32.3
Battalion Chief	BC3	1	4.7
Support Unit	COE	2	18.1
Support Unit	COW	2	18.3
Engine	DH	40	30.0
DH Engine	DH21	1	4.5
DH Engine	DH23	1	4.9
Engine	E8	14	7.6
Command Staff	F50	6	17.3
Command Staff	F51	5	22.7
Command Staff	F52	1	1.3
Command Staff	F53	41	99.3
Command Staff	F54	19	56.0
Command Staff	F56	3	3.6
Inspector	F62	12	43.0
Inspector	F64	16	34.0
Inspector	F65	25	74.5
Command Staff	F66	10	42.8
Command Staff	F67	9	32.2
Battalion Chief	F69	3	9.4
Command Staff	F707	4	0.2
Inspector	F71	31	93.1
Inspector	F72	21	66.0
Inspector	F73	28	65.6
Squad	HT7	5	16.1
Squad	HT8	9	30.6
Rehab Unit	REHAB1	24	86.8
Support Unit	S2	13	23.1
Squad	SQ3	3	12.5
Squad	SQ5	55	158.8
Squad	SQ7	2	10.8
Squad	SQ8	19	32.2
Total		1018	1734.9

Note: Unit of service/mechanical call was excluded.

AP1 was out of service for 23 days (Apr 20/2008 – May/13/2008).

Appendix II -- Battalion Chief (BC1) Activity Analysis

Call Type	Avg. Busy Min. / Run	# of Runs	Total Busy Hours	Busy Min. / Day
Accident	48.1	221	177.3	29.1
Medical	87.7	19	27.8	4.6
Suicide	220.4	1	3.7	0.6
EMS Total	**52.0**	**241**	**208.8**	**34.3**
Outside Fire	56.6	12	11.3	1.9
Structure Fire	73.8	171	210.2	34.6
Alarm	27.6	28	12.9	2.1
Good Intent	59.7	2	2.0	0.3
Hazard/Fire/Smoke Inv.	81.2	60	81.2	13.4
Rescue	68.9	32	36.7	6.0
Service	46.3	10	7.7	1.3
Fire Total	**69.0**	**315**	**362.1**	**59.5**
Total	**61.6**	**556**	**570.9**	**93.8**

Appendix III -- Number of Runs and Total Busy Hours for Training, Test, School Demo and Out of Service/Mechanical Calls

Number of Runs	FIRE TEST CALL-MDT	Training FD	School activity/ demos	Unit out of service/mechanical	Total
TK1	1	170	12	38	221
E2		139	1	13	153
E3		115	10	17	142
E4		149	12	6	167
E5		151	4	23	178
E6	1	129	2	6	138
FBT		4		1	5
R4		1			1
Total	2	858	41	104	1005

Total Busy Hours	FIRE TEST CALL-MDT	Training FD	School activity/ demos	Unit out of service/mechanical	Total
TK1	0.0	394.2	9.8	28.0	432.0
E2		316.6	1.0	9.0	326.6
E3		258.7	11.0	15.3	285.0
E4		339.4	10.7	8.4	358.4
E5		319.6	1.7	20.1	341.4
E6	0.0	380.9	1.9	12.9	395.7
FBT		8.2		1.9	10.1
R4		5.2			5.2
Total	0.1	2022.8	36.0	95.6	2154.5

Appendix IV -- Correspondence between End of Call Description and Call Type

Call End Description	Call Type	Grand Call Type
ACCIDENT-INJURY INTO BUILDING	Accident	EMS
Vehicle Accident	Accident	EMS
Medical Assist	Medical	EMS
Medical Standby Detail	Medical	EMS
Attempt Suicide	Suicide	EMS
SUICIDE	Suicide	EMS
Fire Alarm	Alarm	Fire
Help needed alarm	Alarm	Fire
Public Assist/Good Intent	Good Intent	Fire
Sprinkler sys out of service	Good Intent	Fire
Bomb Threat	Hazard/Fire/Smoke Inv.	Fire
Check Hazard	Hazard/Fire/Smoke Inv.	Fire
Fire/Smoke Investigation	Hazard/Fire/Smoke Inv.	Fire
Gas Leak(Non Structure)	Hazard/Fire/Smoke Inv.	Fire
HazMat Assignment	Hazard/Fire/Smoke Inv.	Fire
Brush fire	Outside Fire	Fire
Lake assignment	Outside Fire	Fire
Other non-structure fire	Outside Fire	Fire
Trash fire	Outside Fire	Fire
Vehicle fire	Outside Fire	Fire
ACCIDENT-NON INJURY INTO BUILDING	Rescue	Fire
Aircraft emergency	Rescue	Fire
DROWNING	Rescue	Fire
Rescue Assignment	Rescue	Fire
Technical Rescue Assignment	Rescue	Fire
Airport Flight Standby	Service	Fire
Bee Threat	Service	Fire
BURN PERMIT/BONFIRE	Service	Fire
Dispatch Fire Information	Service	Fire
Fire Follow Up	Service	Fire
Fire Safety Standby	Service	Fire
Mutual Aid	Service	Fire
PD ASSIST	Service	Fire
Reassigned	Service	Fire
Welf/Inact/Invalid	Service	Fire

Commercial Assignment	Structure Fire	Fire
Residential Assignment-working fire	Structure Fire	Fire
FIRE TEST CALL-MDT	FIRE TEST CALL-MDT	Other
School activity - demos	School activity - demos	Other
Training FD	Training FD	Other
Unit out of service/mechanical	Unit out of service/mechanical	Other

Appendix V -- Discrepancy between Start and End of Call Description

Description	Count (Start of Call Description)	Count (End of Call Description)	Diff
ACCIDENT-INJURY INTO BUILDING	13	13	0
ACCIDENT-NON INJURY INTO BUILDING	11	10	-1
Aircraft emergency	5	5	0
Airport Flight Standby	6	5	-1
Alarm sys out of service	1		-1
Attempt Suicide	80	83	3
Bee Threat	56	56	0
Bomb Threat	3	3	0
Brush fire	31	32	1
BURN PERMIT/BONFIRE	1	1	0
Check Hazard	127	132	5
Commercial Assignment	44	57	13
Dispatch Fire Information	4	3	-1
DROWNING	1	1	0
Fire Alarm	347	345	-2
Fire Follow Up	7	8	1
Fire Safety Standby	24	30	6
FIRE TEST CALL-MDT	6	8	2
Fire/Smoke Investigation	135	129	-6
Gas Leak(Non Structure)	48	47	-1
HazMat Assignment	4	9	5
Help needed alarm	81	84	3
Lake assignment	9	11	2
Medical Assist	4179	4186	7
Medical Standby Detail	60	60	0
Mutual Aid	14	13	-1
Other non-structure fire	27	32	5
PD ASSIST	19	20	1
Public Assist/Good Intent	65	77	12
Reassigned	1	1	0
Rescue Assignment	18	23	5
Residential Assignment-working fire	109	118	9
School activity - demos	42	42	0
Sprinkler sys out of service	1	1	0

SUICIDE	15	15	0
Technical Rescue Assignment		2	2
Training FD	828	839	11
Trash fire	2	2	0
Unit out of service/mechanical	107	107	0
Vehicle Accident	251	257	6
Vehicle fire	55	48	-7
Welf/Inact/Invalid	322	332	10
(blank)	88		-88
Total	7247	7247	

ICMA

Leaders at the Core of Better Communities

Part 2
Operational Analysis Report
Fire / EMS
Lake Havasu, Arizona

I. Executive Summary

Lake Havasu fire department faces unique challenges compared to most other communities. Located in the desert area of Arizona with prime lake frontage, the city limits quickly give way to unusual challenges of rough and unforgiving terrain. While the landscape changes can be spectacular, it positions Lake Havasu almost as an oasis in the desert; with a ½ to 2 hour drive to major metropolitan centers.

At the same time, the lake area limits access to portions of the city limits via the London Bridge and the water surface can be completely covered with boats during peak tourist times.

This report presents findings on the current delivery of services for police, fire, and EMS in Lake Havasu, AZ, and offers recommendations for future service delivery.

During an on-site visit, a number of persons were interviewed concerning the delivery of public safety services in Lake Havasu. A brief overview of the responses and a more detailed report follow.

Interviews with officials indicated that employees in the existing police and fire departments care about their jobs and the quality of delivery of services to the citizens of Lake Havasu. There was agreement that the departments' equipment and response to service calls were very good or excellent.

There was grave concern about the city's finances and the ongoing delivery of services. As the current housing downturn subsides, where houses will be built will drive when stations should be staffed at different levels based upon service demand and growth patterns.

This report seeks to move Lake Havasu away from a philosophy of a series of outputs to one of delivery of outcome-based services. Most fire and EMS systems and most police agencies focus on outputs. *Outputs* aim to measure the level of response in terms of speed and quantity of delivery. The measures are usually rigid and unbending. *Outcome service delivery* focuses on measures that determine how effective an agency is, what it actually achieves, and how the public values the services it receives.

Determining public appreciation or customer satisfaction can be determined by surveying patients and others receiving police, fire and EMS services. Public comments and feedback, citizen surveys, and community council interaction with citizens can be used for this purpose.

II. Administration and Finance

In meetings with the officers in the fire department, it is apparent that there exists a good communication system between command and the stations. The department is a younger department and upcoming retirements will only add to that demographic.

There exists a tendency to compartmentalize or "silo" functions within the department; the challenge to be addressed is spreading the workload to all members of the agency in the various stations to fully utilize available paid time which approaches 200,000 personnel-hours per year.

The City has connected all of its buildings with an intranet service; live conferencing and e-mail. Other communications should be

expanded between the fire stations and various buildings that house fire department command functions.

The housing crisis that is impacting the rest of the United States is walloping the City of Lake Havasu. Property values have declined by as much as 50%; tourism and sales tax dollars are down; commercial airline service has ceased at the airport; and suicides are at very high levels. These challenges will impact the available resources of the city and costs must not just be contained; new revenue streams must be created and explored whenever possible.

One area that the department must evaluate is determining what services are critical to achieving the mission of the Lake Havasu Fire Department. While the department has received many specialized vehicles from federal and state funding such as for hazmat; can that service be eliminated without impacting the citizens of Lake Havasu? One way to accomplish this may be to continue to train responders to the operations level as required by OSHA but instead of responding and conducting all phases of hazmat response, the emphasis should be on developing contracts with the private sector to provide the services beyond operations/containment. Time will certainly increase to respond because major metropolitan areas are several hours away and given the limited number of calls and limited risk, resources may better be targeted elsewhere.

The department should begin by conducting a comprehensive all-hazard risk assessment of the community. All properties in the community should be evaluated and at the same time, manageable risks eliminated. Risks that are likely to occur in Lake Havasu include the obvious – fire and EMS – but also would include high heat, floods/heavy rains, human made incidents, boating accidents, drought, and windstorms. There are other hazards that are likely to affect the city. These can be developed by historical and demographic review.

Once the hazards have been identified, how is each property at risk for each hazard? Properties should be labeled as high, medium, or low. At the same time, at-risk populations should be identified and the resulting data compiled into a GIS format that shows what areas are at risk for each event. In that manner, resources can be deployed when a hazard occurs or, when possible, forecasts predict hazards to occur.

Based on the location of deployed resources, how long will it take to move those resources and respond to calls for service at each property? Can resources be deployed mobile (instead of in fixed bases) to better manage risks? An example might be that the engine in Station 6, which makes the least number of calls, may be mobilized to the island area during events. The staff could further deploy to smaller units and patrol high traffic areas versus waiting for calls.

Police should be trained to be Medical First Responders if they are going to work specialized assignments since they will also be patrolling areas and may arrive prior to fire being able to get to scenes, particularly during major tourism events. By cross-training in some areas, existing resources can be better utilized and eliminate double response.

By integrating the response plans of police, fire, and public works, calls for service can be efficiently and effectively handled while not jeopardizing the safety of responders or the customer.

The city should also review whether Station 6 needs to be staffed 24/7. The station is built to handle the airport which no longer has commercial air traffic but instead handles private planes only. If there are not going to be commercial planes landing at the station, the resources could be eliminated and response made from alternate locations. The other alternative would be to position a medic unit inside the mall that would respond to calls for service and staff it with 2 instead of the 4 that are assigned to the current station. The unit in the mall would only be staffed when the mall is open or during peak hours of operation.

At the same time as Station 6 is considered, the use of 24 hour shift should be reviewed and alternatives developed such as 12

hours. The peak hours of service are 8 a.m. to 8 p.m. and staffing could be increased during those periods and lowered during the night time hours. Instead of staffing engine companies with four persons, they could drop to three during evening hours.

III. Communications

The communication system of Lake Havasu is very well managed and times are reviewed to ensure consistency, efficiency, and effectiveness. The times for dispatch are low and well within benchmarks established across the country. The existing 800 mHz system incorporates police and fire.

Because Lake Havasu operates a bus system that incorporates areas outside the city limits, improvements to the 800 mHz system should be included in the rural portion of the Transportation Enhancement Program identified projects. The City should also contact its Senator and Representative to include improvements to the communication system in any federally legislated transportation bills as specific earmarks. It would be noted, however, that one of the state's senators is not a fan of specific earmarks!

In the case of alarms, the agency should review protocols for dispatch to fire alarms. For alarms, one unit should be dispatched and reports from the scene should determine if additional units are sent. Again, this offers the opportunity for police to provide information about what is happening on the scene if they are given basic training. The first assigned unit should respond with lights and siren; all other units assigned to the alarm should respond non-emergency and should be called off from response as soon as possible.

The insurance industry as well as other national organizations are concerned with false alarms and have produced model standards that are recognized by the American National Standards Institute (ANSI). The International Association of Chiefs of Police (IACP) have been updating ordinances and Lake Havasu should compare its enabling legislation with these new models.

Locations that experience false alarms should be promptly cited for violating the alarm ordinance so as to limit the numbers of false calls due to malfunctioning equipment. Alarms are apt to increase because in times of fiscal distress, property owners will often defer preventive maintenance that includes maintenance on alarm

systems. These false alarms endanger responders as well as citizens when multiple pieces of equipment are dispatched.

The use of 311, particularly for non-911 calls, should be reviewed. Work requiring public works, advisory information, traffic problems, road closures, potential emergency incidents, and public information could be disseminated using 311 and minimize the volume of traffic directed to 911, thereby freeing operators and call takers.

IV. EMS

The City utilizes paramedic engine companies to support an EMS system with transport by private carrier.

The City performs all of the work associated with Advanced Life Support but it receives no revenue. At a minimum, the city should utilize a third party billing service to begin to capture the fees for the work it performs on Advanced Life Support patients. The city would need to apply for the proper numbers to bill Medicaid, Medicare and private insurers. A website to obtain a National Provider Identifier is:

https://questions.cms.hhs.gov/cgi-bin/cmshhs.cfg/php/enduser/std_adp.php?p_faqid=6594&p_created=1139240585&p_sid=3KvhuMtj&p_accessibility=0&p_redirect=&p_lva=&p_sp=cF9zcmNoPTEmcF9zb3J0X2J5PSZwX2dyaWRzb3J0PSZwX3Jvd19jbnQ9NjMsNjMmcF9wcm9kcz0yMSwyNSwzODcmcF9jYXRzPSZwX3B2PTMuMzg3JnBfY3Y9JnBfc2VhcmNoX3R5cGU9YW5zd2Vycy5zZWFyY2hfbmwmcF9wYWdlPTE*&p_li=&p_topview=1

The NPI allows ambulance providers to bill insurance companies under the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

An alternative would be granting a franchise agreement which provides for reimbursement of costs associated with stabilizing and packaging Basic and Advanced Life Support patients from the transport service. The transport service should receive only those monies that it is entitled to collect for taking the patient from the engine company and transporting to the appropriate care facility and with a franchise could also generate some administrative costs

and free the city from having to bill or contract with other third-party billers.

The city should also develop an outcome based approach to EMS: what is the result of the intervention on the part of the city? If the city is spending considerable dollars to deliver non-viable patients to a care facility, the dollars may be better utilized elsewhere or the ambulance service could be encouraged to pick up those duties thereby freeing the city from having to fund the work. Fire Departments often state that HIPAA prohibits obtaining outcome information; it is actually the opposite. Responders and ambulance services are part of the HIPAA chain of care and should coordinate patient care as well as patient billing. Hospitals should be concerned with the viability of patients delivered to their door. Similarly, the responding agency should be concerned about outcome if errors occur after they have delivered the patient.

This requires coordination and participation of medical control with the first responders/paramedics and transport services.

Working together in a system establishes performance measures to ensure that successful outcomes are being achieved and, if they are not, what actions can or should be taken to reverse that trend.

These types of outcome approaches are used and reported regularly on hospital websites for critical issues such as heart bypass and other treatments. The same should be mandated of EMS services.

V. Water System, GIS

Fire Hydrants – Firefighters service the fire hydrant system in Lake Havasu. The ongoing work includes flowing, pressure checking, painting, and weeding around hydrants within the city.

The City should pursue reimbursement from the water system for maintenance on the hydrant system. In turn, the department should expand its work on the hydrant system to include a proactive flushing program with all actions logged on a Geographic Information System.

The use of GIS will allow a history to be created on the assets of the water system that can prevent litigation in the future as well as maintaining the assets on a continual basis. Employees of the fire department could be trained and the data input on the GIS system as work progresses. The costs of performing the work should be reimbursed to the city. Similar processes have been accomplished in Washington, DC with its water district.

The fire department already inspects flood control drainage areas; photos and work undertaken could easily be logged onto GIS systems for recovery if liability issues arise in the future.

VI. Inventory Control

The department has a very good stock of equipment such as hand tools, turnout gear, nozzles, hose, and other items. Using the city's computer system and a bar code reader, numbers should be assigned to all of the department's equipment and the assets tracked on a continual basis. By having bar codes on the racks that store items, management can see when items are used and provide for regular replacement.

The system should be expanded so that employees are checking personal items that are assigned to them and a regular reporting process provided electronically. This would allow a timely replacement of turnout gear, gloves and similar items and a tracking process to ensure that items are not forgotten or abused. The station information could be uploaded to one level of the inventory tracking system with a review by the "quartermaster" assigned personnel.

In addition, regular inspections of facilities and equipment could be uploaded with defects reported automatically and tracked until

repairs are completed. The staff should be commended for taking action on station work and performing corrective repairs that would normally have required expensive outside contractors. Such actions utilize the available time of personnel and use those dollars rather than paying to persons outside the agency.

Of particular note is the placement of reserve apparatus in stations and subjecting it to regular maintenance. Too often the fire service stages such equipment in remote locations where it is often forgotten until needed. Only then it is found that regular starting, running, and exercising of the equipment has not taken place and it requires extensive work to be put into service.

VII. Fire Prevention, Public Education, Employee Education

The department has utilized volunteers and non-sworn personnel in various public education and support services. The CERT team is one of the larger teams that has been viewed and is an excellent example of how to use civilians to support the ongoing work of a fire staff. The civilian volunteers provide rehab at fire scenes, fill air bottles, and give other needed support.

The fire education personnel are extremely active and provide considerable training throughout the community. The goal of the agency should be to integrate these services with every member of the agency so that there are no longer “fire fighters” but rather “safety specialists” who are concerned with fire and EMS issues through mitigation and prevention. While being a lofty goal – it should be the focus to eliminate all fires and successfully recover all persons who interact with EMS.

Prevention and mitigation is already being demonstrated in the work with the drainage areas that would take response from fire personnel if they become clogged in heavy, sudden downpours. This same type of prevention and mitigation should reach throughout the department focusing on removing anything that can be mitigated before an incident occurs.

One way to accomplish this is to inspect every building in the fire district over a period of time. Integrating the building department with the fire department through training of firefighters may allow the city to handle a return to building boom when it occurs without adding additional staff. Through inspections, mitigation and

prevention, fire staff can provide valuable service to customers as well as educating themselves on construction within their fire districts.

Inspections for fire systems should carry a modest charge and repeats on inspections for violations should also be charged. All commercial, industrial, and multi-family structures should be inspected yearly; residential should be inspected every third year.

The excellent education program already in place could be further improved through the use of pre and post testing to demonstrate that students and persons using the service are achieving an educational addition. Demonstrating outcomes for the time spent is critical when evaluating whether to add or subtract from the service.

The same holds true for education of personnel. Any education should include mandatory competency testing on a yearly basis to ensure that the skills being taught are being retained. For those employees that do not demonstrate competency, remedial training should be provided and if skills cannot be mastered, then other measures should be taken including relieving them of duty. Fire

fighting can be dangerous and training keyed on the dangers that are likely to be encountered should have to be adopted by all staff. If a staff member is not capable of achieving competencies, then they become a liability both to their fellow staff members as well as the city.

Safety committees are active and the steps listed will help improve upon safety. Employees should always be aware that injuries, disabilities and fatalities are real dollar losses; the city pays for such injuries and losses on an annual basis and these come from the pool of dollars available for all city services. If employees are found violating safety policies and procedures, they should be disciplined, up to and including discharge.

The department has excellent physical fitness equipment in place. The wellness program should track annual physicals and include corrective action for deficiencies found. Employees who fail should be given specialized training or assistance to correct these deficiencies but ultimately it is their decision to make on whether they will be qualified for the positions they hold.

The City currently provides funds for yearly physicals; the issue should be coordinated with the employee groups to utilize paid health insurance to cover as much of the cost possible with results forwarded to the city via employee releases. The physical information is protected by HIPAA and should be kept in separate folders in the employee's personnel file and not be subject to Freedom of Information Act (FOIA) or other scrutiny. Employees who do not cooperate should be ordered to a city-paid physical.

Weekends can be a busy time for the department, and alternative deployments of resources should take place to provide functionality such as the golf carts and ATV's. These also provide an opportunity to expose the agency positively and encourage citizens to prevent, mitigate, and ensure safety.

The recent stimulus program contained 100% funding for police and fire personnel. The agency may want to join forces with the police on the use of boats to handle the crowds that fill the lake area. While the boating was not in season when this review was conducted, we did view carbon monoxide prevention actions and photos that show extreme congestion. Rather than trying to fit multiple boats through the waterways, an officer from each discipline (police and fire) should be on each boat. It appeared that

getting multiple watercraft into areas during peak tourism times may be impossible.

The same partnership should be conducted using land-based resources, particularly to the island areas. The limiting factor is the single bridge thus resources should be maximized and pre-deployed as much as possible.

The preventive work should be encompassing the work of the building department. Ideally, teams of fire specialists should be created to review and comment on plans, thereby building depth in the agency for future years. By making all staff prevention focused, mitigation of threats and hazards can take place before they lead to calls for service. These areas should not just be limited to fire but should also include EMS.

To begin the process of adopting a fire prevention strategy, the community should look at adopting mandatory sprinkler systems in all structures. Residential sprinklers are not always popular but for most new home construction, builders offer counter top upgrades, higher quality trims, and normally underground sprinkler systems. The question that should be asked: “Is it more important to prevent the lawn from burning or the occupants of the structure?” If the answer is the occupants, why not make the investment at the time of construction to sprinkle the home, thereby minimizing the risk to the occupant as well as the responder. Another way to look at this is that legislation ensures sprinkled commercial structures that are normally occupied but 12 hours a day; why not worry about structures that are likely to house people 24 hours per day?

Another area that should be reviewed and undertaken: inspecting all rental properties. Fires tend to occur in rental properties at a higher rate and often lead to larger displacement levels because of multi-family occupancy. By inspecting and charging a nominal fee for service for the basic inspection with escalations to inspect non-compliant facilities, the community can minimize risk as well as generate additional dollars to cover the cost of training and staffing.

The final piece of this “division” of the fire service is delivering targeted public education with an evaluation of the program to ensure that the message is not just being delivered, but received.

Public Education again should be the focus of every member of the department and not just the commanding officer. One or even a

handful of people cannot deliver a public education message to such a diverse and geographically large area. Rather, all of the fire companies should be expected to communicate with schools and other public group facilities in their district and coordinate the delivery of public education to all levels.

Public Education should also not be limited to just "fire prevention week." Fire prevention should be a year-round focus and should complement the department education, fire prevention, and inspections.

A goal of the department should be to train every child from 3rd grade up in CPR as well as all of the community. Coupled with AEDs in all city vehicles and public buildings, and the aggressive stance taken by EMS – Lake Havasu should be an example of how to deliver a complete safety system. As AED's are put in place, the locations should be located on GIS and linked to the communication center. When calls of cardiac nature are received, the caller can be directed to the closest AED which may allow a viable patient for paramedics and transport personnel.

The department uses people in a Fire Corp; this should be expanded either through CERT or other programs to enable as many functions to be turned over to civilians if they do not require sworn personnel. Sworn personnel can assist but could then be called away if emergencies occur and not disrupt the delivery of services.

VIII. Outcome focused department

Lake Havasu is delivering many very good services to its citizens. The department leadership was willing to undertake the comprehensive review. It has a younger staff that demonstrated a desire to train and improve. During visits to the station it was evident that the staff take a great deal of pride in themselves, the facilities, and equipment. By taking on additional functions such as hydrants, storm drains and other work, mitigation and prevention are being conducted; the challenge will be to ever more aggressively mitigate and prevent rather than react.

It has one of the most unique mission statements: "When we enter the fire service, whether it is suppression, prevention, or administration, we are taught teamwork, commitment, trust, loyalty, and customer service. During our career, we practice

heroism, innovation, creativity, humanitarianism, and customer service. Before we step aside to make room for the new personnel, we prepare individuals with the tools necessary to meet the demands of continuous change."

Continuous change is not always easy.

The challenge that is facing the department, and ultimately the City, is facilitating the transition from a reactive, output focused department to one that is looking at outcomes.

Central to becoming an outcome focused department is to develop a comprehensive mission, vision, and value that focuses on key service delivery. That stated service delivery must agree with the elected body and the citizens.

The next step is to create performance measures for goals that achieve the adopted strategies. The performance measures should evaluate outcomes. Instead of just saying the department responded to 10 cardiac arrests last year – the question should be answered, "What was the outcome of that intervention?" If the strategy is to successfully treat and transport viable patients who recover from sudden cardiac onset, performance measures have to be in place to determine if that is being achieved.

Similarly, if the strategy is to develop Lake Havasu as a fire preventive community, then all aspects of achieving that strategy need to be aligned and functioning.

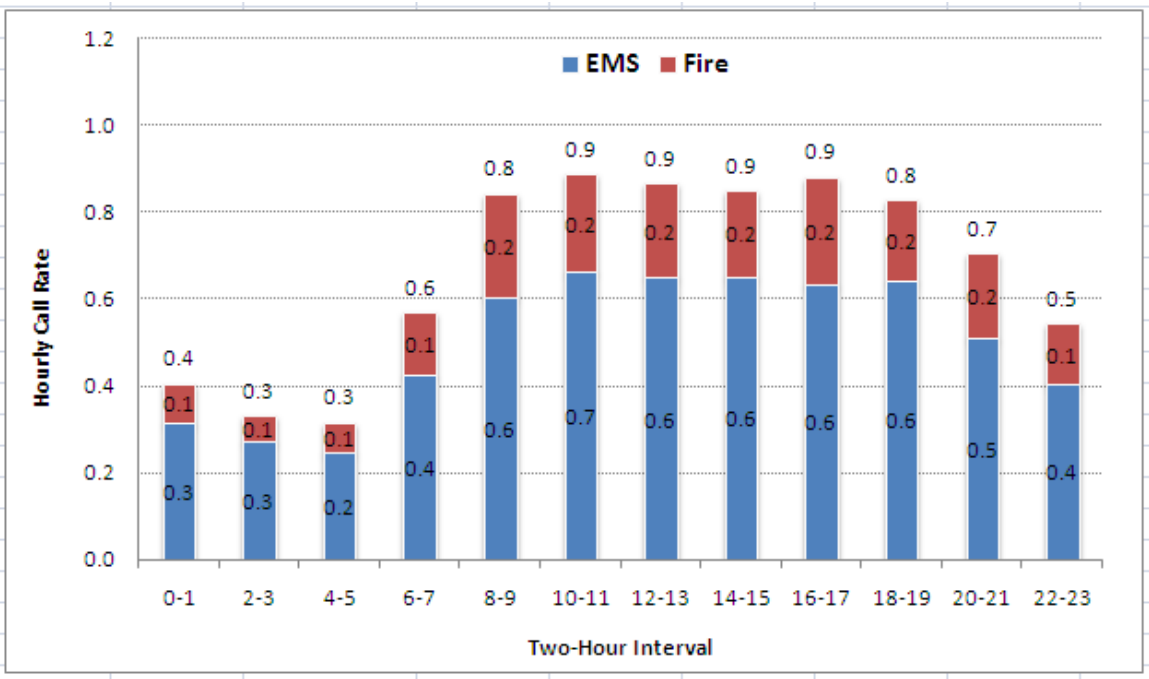
The department needs to focus on the outcomes and not just the commanders of the various units. A significant number of hours are being paid by the City for work by various employees in the department. Not all of these hours are being used and there is substantial talent within the ranks to deliver improved levels. By involving all personnel who are being paid to deliver the service to the citizens of Lake Havasu, more effort can be made by the many that is consuming the few. The challenge for the command then becomes managing the efforts and coordinating those efforts; not the efforts themselves.

Because the various functions of the city – building department, inspections, communication, stations, records, GIS – are spread across a number of locations, incorporating all of these records into a computer service that could be shared both at the station levels

and on MDT's is critical. Communication must be interoperable at all levels of the organization; not isolated to two-way radios.

Appendix I

Twelve Hour Shifts



A key recommendation for Lake Havasu is to move toward twelve hour shifts from the 24 hour shifts that are currently in use.

When looking at the workload of Lake Havasu, the peak hours for calls are from 8 a.m. in the morning until 8 p.m. in the evening. From 8 p.m. to 8 a.m., calls drop off significantly.

The problem with 24 hour staffing is aligning staffing with work volume. Staff is designed to handle the peak work load volumes; when those volumes drop off during evening hours, the staffing does not drop; it remains constant. In other words, Lake Havasu is paying for work hours that are not needed. One could argue that this is a function of 24 hour shifts – the shift schedule assumes that there will be sleep time. However, even assuming sleep, the 24 hour shift provides for more people sleeping that would be necessary to handle calls that are received during those hours.

The better approach to staffing is the 12 hour work shift which ideally fits the Lake Havasu call volume. Using the 12 hour work shift, the department can staff heavier during the 8 a.m. to 8 p.m. peak hours and close a station and eliminate medical units during the 8 p.m. to 8

a.m. Such a scheduling approach does require additional management of resources, aligning the resources with peak times along with time during the year.

Lake Havasu has a surge of activity in the spring season for the normal college break period when the lake draws a substantial amount of traffic – both boats on the water and pedestrians along the shore. In that time period, the 12 hour shifts may need to be staggered so that even more personnel can be assigned during the peak hours of the day; less as day turns to night.

Other advantages of the 12 hour shifts:

1. During periods that would normally be sleep time, maintenance on trucks and equipment can occur as well as training. Moving the maintenance from the busy daylight shifts of 8 a.m. to 8 p.m. means that the day shifts can be freed to respond to emergency calls and not have to stop maintenance tasks.
2. Station work and other maintenance can occur on evenings and during night hours versus daytime.
3. Work load and staffing can be aligned to provide usage of hours that are being paid and that are not productive; something that industry and the private sector have used for years.
4. During peak demands of the year, the 12 hour shift assures that staff will have rest time. Working 24 hour shift during peak tourist season leads to sleep deprivation and interruption that is extremely unhealthy. Studies funded through the Assistance to Firefighter's Act Grant have repeatedly shown that the 24 hour shift is not the healthiest in busy departments or in departments that have work spread across the 24 hour period. The sleep interruption and deprivation does not end when the work shift ends; it has been found that the human body takes several days to adjust and acclimate to sleep periods and with the 24 hour shift, about the time that the body acclimates, the person returns to work duty.
5. Other work can be better completed with less interruption during the evening hours: the recommendation to use staff for GIS mapping, checking drainage structures, inspection and flow of fire hydrants, inspection of large occupancies such as night clubs for fire code violations (to avoid something like "The Station" fire in Rhode Island), mobile patrols along the waterfront during peak tourist spring break season, updates on licenses and testing, and other administrative tasks.

6. Company inspections can take place during off-peak hours in lieu of sleep time. These company inspections may include public meeting areas, restaurants, sporting venues, and other areas. The appearance of fire staff can be utilized much like community policing officers in the law enforcement area both for resources as well as performing official functions. Mall areas are particularly suited to inspection in later hours when customers have gone home and only maintenance staffs are present.
7. Home and other private residence inspections can take place in evening hours more easily than during peak call times. A goal of all departments should be inspection of all structures both for educational efforts of staff as well as to remove hazards before a call for service is needed. In private properties, trip and fall hazards along with other EMS related liabilities should be targeted for mitigation with an eye towards preventing calls for service in the future.
8. If an employee calls in sick, holiday, or vacation time, the 12 hour shift allows flexibility of either relocating existing resources or filling with overtime but at 12 hours instead of 24 hours. When operating at minimum manning and with minimum staffing, overtime can easily mushroom into non sustainable levels.

The use of 12 hours without oversight can mean that more employees have to be hired. The following chart demonstrates this comparison:

With Kelly Days

	Shift Description		
	12	24	"10/14
Average shift length HRS	12	24	12
hours per week	42	60	41
weeks	52	52	52
Total hours Scheduled	**2184**	**3120**	**2132**
Hours NOT Worked			
Holidays	12	12	12
Vacation	10	10	10
Kelley		9	
Sick days	12	12	12
Total Days Lost	34	43	34
Total Hours Lost	**408**	**1032**	**408**
NET Hours Worked	**1776**	**2088**	**1724**
min manning	24	24	24
hours/day	24	24	24
days	365	365	365
total manhours needed	210,240	210,240	210,240
manpower for department	118.4	100.7	121.9
	4 shifts	3 shifts	4 shifts
Personnel per shift	29.6	33.6	30.5
	4	3	4
	118.3784	100.6897	121.949

With a minimum manning of four persons in each of six stations and NOT filling holidays, vacations, or sick days with the use of overtime or part-time employees, it would take 118 employees to cover four squads of the 12 hours shift.

The existing organizational chart of the department can accommodate the staffing with the one battalion chief now assigned to training, also handling the day shifts in a four platoon system. The fire service has a tendency to use officer ranks; the use of Incident Command Systems with line personnel assuming command until relieved is far more preferable, particularly with the low volumes of major incidents that require anything beyond on-scene command. This also empowers line personnel and removes from the

centralized command structure so prevalent in the fire service. The comparison of the two styles: in World War II, the Germans used the centralized command structure with layers of command down to the front lines. However, without approval of the top command, no decisions could be made at the lower level. This often resulted in delays and lost opportunities which the allies, who used the Incident Command System, used to their advantage.

By using flexible staffing with resources deployed during times needed, the difference in staff levels can be narrowed. The added work utilization is much more significant as well with time available for administration and the possibility of supporting other departments (analysis of trends, crime analysis, resource management, scheduling). When support jobs are being cut in other areas, the added use of work hours as well as the vast knowledge not being tapped in the existing fire department can be key to minimizing affects on the customer as well as optimizing other departments' functioning.

The chart above is being provided in an Excel format so that various options can be run by the city to determine optimal staffing. The key is the total hours worked and those can be filled, in some cases, with the use of overtime but that would remain a city decision.

Lake Havasu
Appendix A. Recommended 12-Hour Schedule

Week	Team	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Day	A	B	B	A	A	B	B
	Night	C	D	D	C	C	D	D
2	Day	B	A	A	B	B	A	A
	Night	D	C	C	D	D	C	C
3	Day	A	B	B	A	A	B	B
	Night	C	D	D	C	C	D	D
4	Day	B	A	A	B	B	A	A
	Night	D	C	C	D	D	C	C

Note. The schedule repeats every 4 weeks.

Purple Shift: Squad A. For the purple shift, all six stations would be staffed from 8 a.m. to 8 p.m. This would result in 24 persons on duty (four for relief). An alternative would close station 6 until such time as there is justification for staffing which would save 4 persons on this shift and result in a deployment of 20 each day at 5 stations.

Orange Shift: Squad B. For the orange shift, all six stations would be staffed from 8 a.m. to 8 p.m. This would result in 24 persons on duty (four for relief). An alternative would close station 6 until such time as there is justification for staffing which would save 4 persons on this shift and result in a deployment of 20 each day at 5 stations.

Green Shift: Squad C. For the green shift, five stations would be staffed from 8 p.m. to 8 a.m.; Station 6 would not be staffed, resulting in a savings of four personnel.

Blue Shift: Squad D. For the blue shift, five stations would be staffed would be staffed from 8 p.m. to 8 a.m.; Station 6 would not be staffed, resulting in a savings of four personnel.

By moving towards a 12 hour shift from the current 24, targeted staffing can be provided with peak call times staffed and non-peak unstaffed, saving 16 persons from the 24 hour schedule which evens out totals on the attached Excel spreadsheet. In addition, sick and other time would not be taken at 24 hours but instead at 12 hours, thereby reducing costs (sick, vacation, compensatory, and holidays).

Observations:

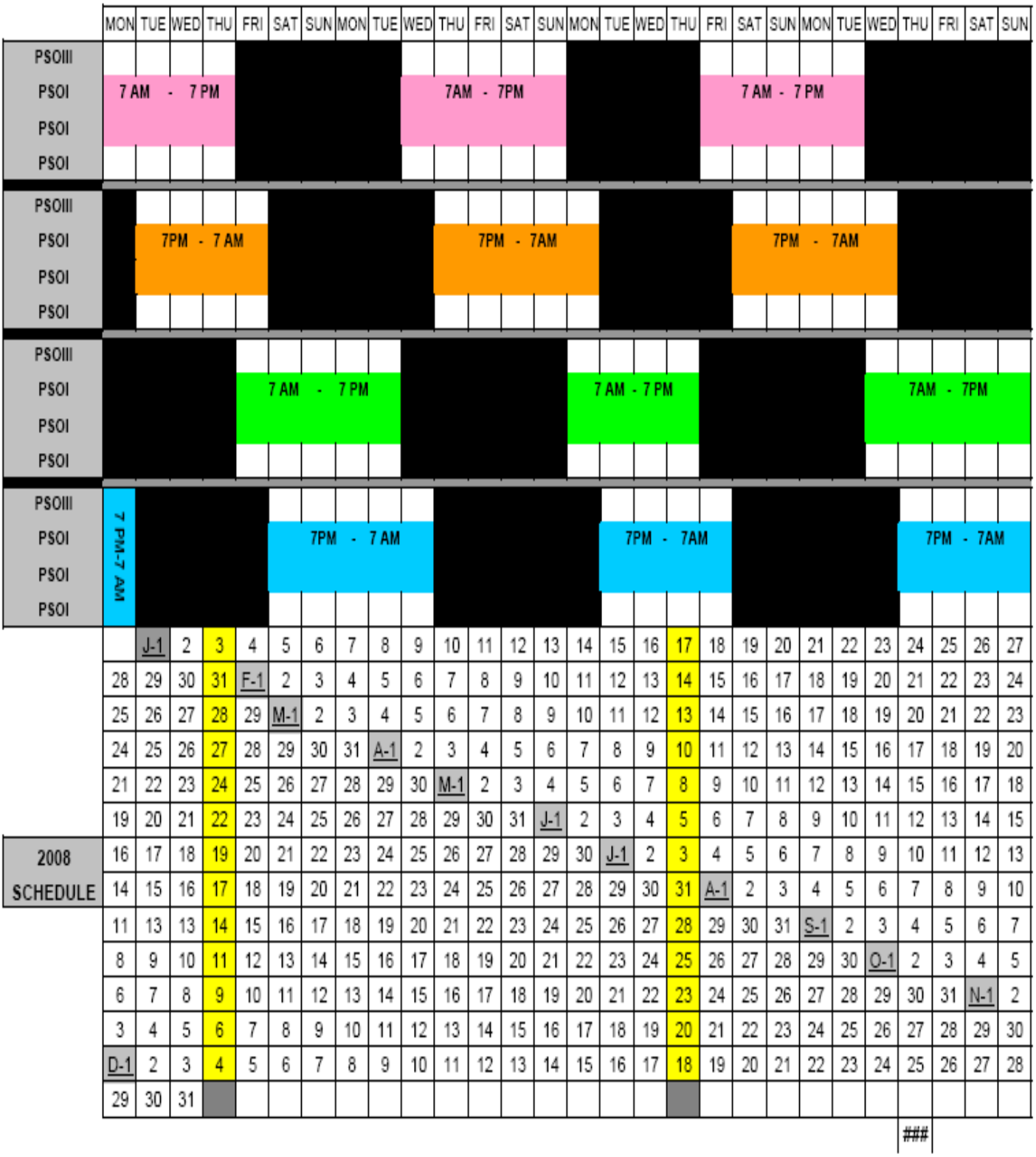
- Each team gets Friday, Saturday, and Sunday off every other week.
- Teams work 36 hours one week and 48 hours the following week, averaging 42 hours per week. This is within Fair Labor Standards Act requirements, and the extra hours can be paid at straight time.
- These extra 2 hours per week contribute the equivalent of one additional officer for every 20 officers.
- Officers tend to like this shift because of the weekends off and the additional pay. Even if the additional 2 hours are paid at overtime rates, it is cheaper than hiring additional personnel.

Deployment of Personnel, Additional

For all shift models:

1. The models in the Excel spreadsheet provide for additional personnel to cover in event of vacations, sick and other leave time. The goal is to achieve 4 person companies in each station with one person in each station being assigned to “Incident Commander” unless relieved by an officer of the department. The Incident Commander would receive schedules and work assignments from officers of the department and be held accountable for performance of assignments.
2. Administration would work the day shift/40-hour week or could also be moved to the 12 hour schedule for additional command on shifts.

Appendix B. Alternative Schedules



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