

**A REVIEW OF RESPONSE TIMES FOR PAID AND VOLUNTEER  
UNITS WITHIN THE EAST FORK FIRE AND PARAMEDIC  
DISTRICTS**

Fire Service Financial Management

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## **ABSTRACT**

The problem was that a review of response times to fires and emergency medical alarms for paid and volunteer apparatus within the East Fork Fire and Paramedic Districts had not been conducted. The purpose of this research is to determine if career and volunteer response times are acceptable. The study uses historical research methodology. The research questions were:

1. What are acceptable response times for volunteer and career units responding within the East Fork Fire and Paramedic Districts?
2. How are volunteer and career response times affected by the time of day?
3. How are volunteer and career response times affected by day of the week?
4. How are volunteer and career response times affected by the type of alarm?

The procedures included a study of 132 structure fires and 1347 emergency medical alarms. The data was obtained from Douglas County computers where computer aided dispatching records are archived. Response time was the sum total of the time of notification to the time of dispatch, the time of dispatch to in-service time, and the in-service time to the arrival time as reported to dispatch via voice radio communication.

The results indicated that most of the response districts were within an acceptable average response time. The midnight to 7 a.m. time frame had the longest response times for both career and volunteer units. The 7 a.m. to 6 p.m. and 6 p.m. to midnight time frames had mixed results for shortest times. There was no strong correlation to which day of the week experienced the longest or shortest response times. Generally, there was a lower response time to medical alarms than to fire alarms for both career and volunteer units.

The recommendations were that consideration be given to locating a new station with paid personnel in the vicinity of the districts having response times longer than the guideline. There should be additional study into why responses to medical alarms were shorter than to fires. Additional education should be given to members regarding the necessity of lowering response times in the midnight to 7 a.m. time frame. Volunteer recruiting efforts should continue for members who can respond in the 7 a.m. to 6 p.m. time. Finally, strong consideration should be given to the methods being used to record, store, and cross check response time data.

## TABLE OF CONTENTS

	Page
Abstract	ii
Table of Contents	iv
Introduction	1
Background and Significance	1
Literature Review	2
Procedures	6
Results	9
Discussion	12
Recommendations	14
References	15
Appendix A	16
Appendix B	17
Appendix C	23

## **INTRODUCTION**

The problem is that a review of response times to fires and emergency medical calls for paid and volunteer apparatus within the East Fork Fire and Paramedic Districts (Districts) has not been conducted. The purpose of this research is to determine if career and volunteer response times are acceptable. The study uses historical research methodology. The research questions are:

1. What are acceptable response times for volunteer and career units responding within the East Fork Fire and Paramedic Districts?
2. How are volunteer and career response times affected by the time of day?
3. How are volunteer and career response times affected by day of the week?
4. How are volunteer and career response times affected by the type of alarm?

## **BACKGROUND AND SIGNIFICANCE**

The Districts are made up of eleven independent volunteer fire departments, and one paid station. The volunteer stations house engines, water tenders, and support apparatus. The paid station houses two advanced life support ambulances and one staff unit. There are several more densely

populated areas within the Districts that have lightly populated areas between them. The densely populated areas are where the volunteer stations are located. The paid station is centrally located with respect to most of the volunteer stations; it too is in a more heavily populated area. Career and volunteer units are dispatched simultaneously to fires and emergency medical alarms.

In 1992 the Fire and Paramedic Districts were combined administratively. The two Districts have slightly different boundaries. There is no difference in dispatching initial units into all areas. In 1996 the paid medical personnel were officially recognized as firefighters by including this responsibility in their job descriptions. This has had a significant effect on response times and the nature of volunteers and paid members working together during alarms.

The Districts are considering adding paid personnel and co-locating them with a volunteer department in a second station planned for construction. Adding personnel and living quarters to a station construction project will increase costs. The evaluation of benefits compared to costs was a significant part of the NFA Financial Management course.

Though response time is a single component of such a large and long-term financial undertaking, it is a significant one to the public. The combined benefits of such a change should outweigh the costs.

## **LITERATURE REVIEW**

The purpose of this literature review is to establish a theoretical foundation for this study. There was a considerable amount of information available regarding response times for predominantly career departments. There was little information addressing volunteer response times. Presumably, this is because response times are based on a service level to the public regardless of how that service is delivered.

The definition of response times vary from place to place and publication to publication. The National Fire Protection Association defines response as: "The act of responding to an alarm." and response times as "The time a company takes to get to a fire and begin fire operations; it includes dispatching time, turnout time, travel time, and setup time." (Burklin & Purington, 1980, p 155).

Similarly, the Commission on Fire Accreditation International defines response time as alarm processing time, turnout time, and travel time (Commission on Fire Accreditation International [CFAI], 1997). Initiation of action time is considered in a slightly different category than "response time" but is the same as set up time. More specifically, the alarm processing time is the time from receipt of an alarm to the time it is transmitted to emergency responders. Turnout time begins when responding units acknowledge receipt of the alarm and ends at the beginning of travel time. Travel time starts at the end of turnout time and ends when the unit arrives on scene. Set up time begins

at arrival and ends when either a patient is contacted or water applied on the fire.

The International City Manager's Association has noted that once a satisfactory response time has been determined, and the local situation has been measured, a jurisdiction can judge how satisfactory response times are. Interestingly, based on these definitions of response time, they are typically longer than expected. There is as much as a fifty percent reduction in effectiveness for each minute of increased response time (Dionne & Granito, 1988).

"Fire and EMS alarms increase in intensity with time, and positive outcomes are usually experienced through early intervention." (Rule, 1996, P 8)

The determination of a satisfactory response time varies greatly. Generally, response time to structure fires is correlated to the elapsed time from a fire starting, proceeding through the smoldering stage, the open flame stage, flashover, and full involvement. (Morris, 1993) Ideally, considering the possibility of the rescue of trapped or overcome victims, intervention should be made prior to flashover (Dionne & Granito, 1988). Tests conducted at the Southwest Research Institute indicate that at the time of flashover there is not only a rapid increase in heat, but also a rapid increase in the release of toxic

materials and a corresponding decrease in oxygen. (NFPA Handbook, 1986).

The smoldering stage, the time from initiation of an event to the time that flaming combustion begins and a smoke alarm would activate, is approximately eighteen to twenty minutes. Flashover typically occurs within eight to ten minutes after flaming ignition (CFAI, 1997).

The definition of response time for emergency medical services (EMS) alarms does not vary from the definition for fire response times. Processing time, turnout time, and travel time are all components for both types of responses (Rule, 1996).

The time frame that an emergency responder's arrival and intervention could result in a positive outcome on an EMS call is somewhat similar to that of fire. Cardiac arrest caused by heart attacks, drowning, asphyxia, or other mechanism will result in permanent brain damage beginning in four to six minutes (Morris, 1993). The greatest chance of survival in these types of emergencies rests with intervention within 10 minutes (CFAI, 1997). The most significant difference rests in the four to ten minute time frame. Many victims may be saved by prompt intervention not only to save a life but to avoid or reduce brain damage. Such damage many times results in long-term suffering and economic hardship (American Heart Association, 1997).

Optimal response times have not been established for victims of major trauma. Historically, the benefits of a rapid response has been based on

common sense with limited supportive data. Studies of the outcome of trauma patients who "...should have died but didn't, and live patients who should have lived but didn't." (Feero, Hedges, Irwin, and Simmons, 1995 p 134) have indicated a relationship between a shorter out-of-hospital time and survivability. Response time would clearly be a component of this.

The response times of volunteer firefighters and emergency medical technicians varies with their availability. Generally, it is becoming harder to recruit and retain people to fill the volunteer role. Employers are also less likely to allow volunteers to respond from work (Towle, 1997). An interview with the Nevada State Fire Marshal (M. Carr, personal interview, February 20, 1999) indicates that response in Nevada's more populated areas that utilize volunteer systems tend to be reduced during the typical commute and work hours. This would be approximately seven a.m. to six p.m. Additionally, volunteers are less likely to respond to alarms that will interfere with sleep patterns before work. This would usually be the midnight to seven a.m. time frame. The day of the week also impacts volunteer availability. Again, primarily because of employment schedules. Typically, there are more volunteers available during weekends according to Mr. Carr.

In summary, the literature indicates that alarm processing time, turnout time, travel time, and the initiation of action time are components of response time. An effective response time must be less than ten minutes at the most. Any reduction in this maximum time indicates significant improvement in outcome.

The intervention of firefighters before flashover interrupts the process of heat and toxic smoke buildup, and the corresponding reduction in oxygen. The earlier this process is stopped the more likely trapped victims will be found and survive; and more property will be saved. Early intervention of emergency medical technicians has dramatic effect on both cardiac arrest and trauma patients. There is a direct correlation between the time of intervention and the outcome of the patient. Each minute that passes reduces the possibility of survival and the quality of life of surviving patients. The availability of volunteer responders varies with time of day, and the day of week. Specifically, the availability varies with volunteer employment schedules. This reduction in availability affects response time.

## **PROCEDURES**

### **Population**

The population selected for this study consisted of a review of all emergency responses for the calendar years of 1997 and 1998. The records were located in the Douglas County computer system data files. They had been automatically stored there by the Douglas County Communications Department's computer aided dispatching system. The total population of all alarms were

5609 for both years. The total structure fire responses were 673. The total emergency medical responses were 2132. The population was reviewed for accuracy, corrupt response time records were eliminated from the data pool.

The population surveyed ultimately consisted of 132 structure fire alarms and 1347 emergency medical alarms for both years.

### **Instrumentation**

Because a study of this magnitude had not been requested locally, a computer software program was written to extract the raw information from the Douglas County computer. Another program was written to compile and correlate the data into a format that could be expressed, interpreted, and evaluated (Appendix A). Data was retrieved for response times to structure fire alarms and emergency medical alarms for each volunteer response district within the jurisdiction of the Fire and Paramedic Districts. The data was also divided into three sections of time for each day of the week. The time sections were: midnight to six a.m., six a.m. to seven p.m., and seven p.m. to midnight. Paid ambulance and volunteer fire department response times were also divided into the time of notification of an emergency to the actual dispatch time, dispatch time to in-service time, and in-service time to time of arrival at scene, as reported to dispatch by voice radio communications. The data was printed and manually placed into tables.

### **Pilot Testing**

The data sheets were reviewed for accuracy by a team of reviewers. They were: the computer programmer, the Communications Department Head, two Communications Supervisors, and the East Fork Fire and Paramedic Districts Deputy Chief of Training. This team was utilized for the pilot test because they are all familiar with the computer aided dispatching system, the County computer system, the East Fork Fire and Paramedic Districts dispatching procedures, and the general operation of the Districts and Communications Department.

This testing was intended to evaluate the content of the data recovered from the computers. The data was reviewed by each team member in private. The entire team or certain members then met several times to discuss the accuracy of the data.

The team members had some reservations regarding the accuracy of the data in general. There was no other resource from which data necessary for the research could be obtained. The parameters of the software programs were adjusted to eliminate incorrect reports as much as possible. Some data suspected of being incorrect were also compared to written alarm records, when available, to assure accuracy.

### **Collection of Data**

The data was compiled by day of the week and time of the day. It was then divided into notification of an emergency to dispatch time, dispatch time to in-service time, and in-service time to scene arrival time. Volunteer and paid staff response times were then compared in each component of response time for both time of day and day of the week. The results were then totalled to develop response times for each volunteer response district for type of alarm, day of the week, and time of day. The total response times were calculated to mean average. The volunteer times were subtracted from the career staff times to also develop a comparison of times for each component of response time.

### **Assumptions and Limitations**

It was assumed that after review all alarm records were correct. It was further assumed that responders had reported their times accurately; and dispatchers had recorded information accurately for these alarms. It was also assumed that the computer program collected all data based on the parameters given to the programmer, that the programmer had a general understanding of the data and how it was to be collected and displayed, and that the data was displayed accurately and without bias. Limiting factors of the study were that it applied to the East Fork Fire and Paramedic Districts and may not reflect an accurate sampling of other fire service entities. There was no consideration given to staffing of apparatus, or the capabilities of the personnel after arrival at

a scene. The time from arrival to the time that a patient was actually contacted, or fire suppressants were actually applied to a fire was not addressed because they were unavailable.

## **RESULTS**

The results of the survey were combined and grouped by day of the week, and time of day. Each group was then divided into type of alarm and type of responder. Overall response times were calculated by mean average to the first whole number, rounding .5 to 0. Overall averages were rounded to the first decimal, rounding .5 to 1.

Regarding response by time of day (Appendix B) the average emergency medical services response time range from 5.6 minutes to 26.6 minutes for the paid staff. There are 2 VFD districts that have exceptionally long response times for career members. If they are not considered, the highest response time for emergency medical services would be 14.6 minutes for paid staff. Volunteer response time for emergency medical services range from 7.3 to 13.3 minutes.

The time from notification to dispatch averaged 2 minutes. In 8 districts either the paid or volunteer unit response times averaged under 10 minutes. 3 districts response times average higher than 10 minutes; however, they are within a minute or two.

Fire response times range from 6.6 minutes to 38 minutes for paid staff; and 8.3 minutes to 38 minutes for volunteers. It is interesting that the high end of the response time is the same time for both paid and volunteer. If that time is ignored, the longest response time for paid staff is 28 minutes and it is 13.9 for volunteers.

Overall, the longest response times by time of day are in the midnight to 6 a.m. time range. There are 6 volunteer 5 paid occurrences when the midnight to 6 a.m. time range is the longest for emergency medical services alarms. There are 7 volunteer and 4 paid staff occurrences when the same time frame is the longest for structure fire alarms. There were also 4 occurrences when paid staff was the longest for structure fires in the 6 p.m. to midnight time frame. There were also 3 occurrences in the 6 p.m. to midnight time when volunteers had long response times to emergency medical services alarms. There were several occurrences when response times were equal in more than one time frame. There was no strong correlation between these occurrences however.

The shortest response times were in the 7 a.m. to 6 p.m. for both paid and volunteer, and emergency medical services and structure fires. However, there were 7 medical occurrences when both the 7 a.m. to 6 p.m. and 6 p.m. to midnight tied for the shortest response times for volunteers, and four times that the same time frames tied for career emergency medical services alarms.

The shortest times for volunteers responding to structure fires fell in the 7 a.m. to 6 p.m. time frame. There were 5 occurrences. There were four occurrences in the 6 p.m. to midnight time frame. The paid staff had 6 occurrences in the 7 a.m. to 6 p.m. time, two in the 6 p.m. to midnight time, and 3 ties between the same two time frames.

The day of the week data (Appendix C) does not seem to be as clearly polarized as the time of day data. The overall average response times to emergency medical services alarms for paid units ranges from 6 minutes to 26 minutes. Again if the extraordinarily long responses to districts 4 and 5 are ignored, the longest time is 13.6 minutes. Responses by volunteers to emergency medical emergencies is from 7.8 minutes to 13.6 minutes.

The career responses to fires ranges from 6.1 to 30.9 minutes. Without considering the long response times to districts 4 and 5 the longest time would be 13.8 minutes. Volunteer responses to fires ranges from 9.6 minutes to 18.3 minutes. Again, for both emergency medical services and structure fires the notification to dispatch time averages 2 minutes. There were 7 districts where either the paid or volunteer unit arrived within 10 minute, 3 districts were within 11 minutes, and one well outside a 10 minute limit.

There were 12 occurrences when 2 or more of the shortest response times for career and volunteer happened on multiple days for both fire and medical

alarms. This is significantly higher than the time of day multiple occurrences. The shortest response times for volunteers to emergency medical alarms was evenly spread between Tuesday, Thursday, and Friday. There were 4 occurrences when the shortest response times for volunteers to structure fires was on a Thursday. The remainder were evenly spread between Monday, Wednesday, and Saturday with one each.

The longest response times were similar to the shortest. There were 15 occurrences when 2 or more days had multiple longest response times. Paid staff had their longest response times on Thursday with Wednesday, Tuesday, and Sunday not far behind. Volunteers had the exact same number of longest responses on Monday, Wednesday, Friday, and Saturday for emergency medical alarms.

Fire response times for career units had 2 of the longest response times on Friday. Each other day of the week had one longest response time each. Volunteer responses to structure fires were similar with three of the longest responses on Sunday, two on Wednesday, Friday, and Saturday, and one each for Tuesday and Thursday.

## **DISCUSSION**

The purpose of this study was to determine if career and volunteer response times are acceptable. Using a 10 minute guideline (CFAI, 1997) there were 8 out of 11 districts where the average response times were less than the guideline when calculated by time of day. There were 7 out of 11 within 10 minutes, and 3 within 11 minutes, when calculated by day of the week. Depending on how the calculations were done, either 3 or 4 districts are outside the guideline. If dispatch times were reduced by 1 minute there would be as many as 3 other districts within the guideline as calculated by day of week.

There are some data that seem to be out of the norm. The differences in average data between time of day and day of week is concerning. Presumably, rounding may cause some deviation; however, as stated in the procedures, there may be some data that is still corrupt.

Medical alarm response times tended to be lower than fires. This may be due to differences in apparatus, equipment, and staffing needs between fire and emergency medical alarms.

Turnout time (Burklin & Purinton, 1980) is longer for the volunteer responses than for career responses. This is no surprise when volunteers do not stay at a station. The point to consider is that in some districts the shorter travel time (Burklin & Purinton, 1980) of the volunteers does not compensate for the

extended turnout time. If these response times were shortened, the reduction would present itself in better patient outcomes (Rule, 1996) and possibly better fire suppression results (Dionne & Granito, 1988).

There seems to be a correlation between the time of day and response times. Midnight to 7 a.m. being the longest for both career and volunteer. Shortest response times seem to be split between 7 a.m. to 6 p.m. and 6 p.m. and midnight. This would indicate that the areas studied experience different daytime responses than other areas of the state as described by the Nevada State Fire Marshal (M. Carr, personal interview, February 20, 1999). They did not seem to be longer.

Though there were some days of the week when response times showed an increase in either the number of long or short responses. The significant number of multiple days with the same number of occurrences negated those increases. Simply, there were no days of the week that were clearly better or worse than others.

## **RECOMMENDATIONS**

According to the data most of the districts are within the 10 minute guideline. there should be some consideration given to the location of the newly staffed station to position it to lower response times to the areas that exceed the guideline.

There should be more study given to why medical alarm response times are lower than fire response times. There is not a strong correlation to recruit members to staff certain days of the week. Because both volunteer and career members seem to have their highest response times from midnight to 7 a.m. there should be some education to the members regarding lowering response times in this time frame. Volunteer responses during the 7 a.m. to 6 p.m. time is another concern - though it does not seem to be a current problem. Recruiting efforts to attract members who are available during these times should be continued.

The accuracy of the data is a concern. The Districts and the County Communications Department should develop methods to more accurately record, store, and cross-check response time data.

## REFERENCES

American Heart Association, (1997). Basic life support for healthcare providers. Dallas, TX: Author.

Burklin, R.W., & Purington, R.G. (1980). Fire terms: A guide to their meaning and use. Boston: National Fire Protection Association.

Commission on Fire Accreditation International. (1997). Fire & emergency service self assessment manual. Fairfax, VA: Author.

Dionne, J. M., & Granito, J.A. (1988). Evaluating community fire protection. In R.J. Coleman, & J.A. Granito (Eds.), Managing fire services (pp 100 - 125). Washington D.C.: International City Management Association.

Feero, S., Hedges, J.R., Irwin, L., Simmons, E. (1995). Does Out-of-Hospital EMS Time Affect Trauma Survival? American Journal of Emergency Medicine, 13, 133-135.

Morris, G.P. (1993). A three minute response time goal. Phoenix, AZ. Phoenix Fire Department.

National Fire Academy. (1997). Fire service financial management: Student manual. Emmitsburg, MD: U.S. Fire Administration.

Rule, C.H. (1996). The Five Minute Response. Wisconsin Fire Journal, 8, 8.

Towle, Lisa. (1997). What If No One Answers The Call. National Fire and Rescue, Spring, 1997.

**Appendix A**

VFD STATION #

DAY OF WEEK: SUNDAY MONDAY TUESDAY WEDNSDAY THURSDAY FRIDAY SATURDAY

STRUCTURE FIRE	EMS	12 MID - 7AM	7AM - 6PM	6PM - 12 MID	NOTIFICATION TO DISPATCH		DISPATCH TO IN-SERVICE		IN SERVICE TO ARRIVE	
					AMB*	VFD*	AMB*	VFD*	AMB*	VFD*

\*ROUND TO CLOSEST MINUTE

## Appendix B

### Response Time By Time of Day

#### District 1

	12 mid-7a				7a-6p				6p-12mid				Average
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	
Amb	1	1	3	5	2	1	3	6	2	1	3	6	5.6
VFD	1	5	1	7	2	3	3	8	2	3	2	7	7.3
A-V	0	-4	0	-4	0	-2	0	-2	0	-2	1	-1	
FIRE													
Amb	2	2	3	7	2	1	3	6	2	1	4	7	6.6
VFD	2	7	6	15	2	6	3	11	2	5	2	9	11.6
A-V	0	-5	3	-8	0	-5	0	-5	0	-4	2	-2	

#### District 2

	12 mid-7a				7a-6p				6p-12mid				
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	
Amb	2	1	6	9	2	1	5	8	2	1	5	8	8.3
VFD	2	6	3	11	2	4	3	9	2	5	2	9	9.6
A-V	0	-5	3	-2	0	-3	2	-1	0	-4	3	-1	
FIRE													
Amb	4	1	6	11	2	1	6	9	2	1	5	8	9.3
VFD	4	7	4	15	2	6	3	11	2	6	1	9	11.6
A-V	0	-6	2	-4	0	-5	3	-2	0	-5	4	-1	

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time By Time of Day, continued**

## District 3

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	1	1	12	15	3	1	10	14	1	1	8	10	12.6
VFD	2	7	3	12	3	5	5	13	1	7	2	10	11.6
A-V	0	-6	9	3	0	-4	5	1	0	-6	6	0	
FIRE													
Amb	3	1	6	10	1	1	1	3	6	8	1	15	9.3
VFD	3	8	2	13	1	9	1	11	6	8	1	15	12.9
A-V	0	-7	4	-3	0	-8	0	-8	0	0	0	0	

## District 4

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	2	2	23	27	2	1	22	25	3	1	24	28	26.6
VFD	2	6	4	12	2	6	4	12	3	5	4	12	12
A-V	0	-4	19	15	0	-5	18	13	0	-4	20	16	
FIRE													
Amb	1	1	36	38	2	1	29	32	6	1	38	45	38.3
VFD	1	8	64	73	2	7	11	20	6	7	9	22	38.3
A-V	0	-7	28	35	0	-6	18	12	0	-6	29	23	

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time By Time of Day, continued**

## District 5

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	2	1	22	25	2	1	22	25	2	1	23	26	25.3
VFD	2	9	1	12	2	5	5	12	2	5	7	14	12.6
A-V	0	-8	21	13	0	-4	17	21	0	-4	16	12	
FIRE													
Amb									4	1	23	28	28
VFD									4	6	2	12	12
A-V									0	-5	21	16	

## District 6

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	2	2	9	13	1	1	9	11	2	1	9	12	12
VFD	2	7	3	12	1	5	3	9	2	4	3	9	9.9
A-V	0	-5	6	1	0	-4	6	2	0	-3	6	3	
FIRE													
Amb	2	3	7	12	2	3	9	14	2	3	11	16	13.9
VFD	2	7	7	16	2	5	5	12	2	6	3	11	16.9
A-V	0	-4	0	4	0	-2	4	2	0	-3	8	5	

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time By Time of Day, continued**

## District 7

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	2	1	8	11	2	1	7	10	2	1	8	11	10.6
VFD	2	5	4	11	2	4	3	9	2	4	3	9	9.6
A-V	0	-4	4	0	0	-3	4	1	0	-3	5	2	
FIRE													
Amb	2	1	10	13	2	1	9	12	2	1	7	10	11.6
VFD	2	6	3	11	2	6	4	12	2	6	4	10	10.9
A-V	0	-5	7	2	0	-5	5	0	0	-5	3	0	

## District 8

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	1	1	7	9	2	1	7	10	2	1	6	9	9.5
VFD	1	5	4	10	2	3	3	8	2	3	6	11	9.6
A-V	0	-4	3	1	0	-2	4	2	0	-2	0	2	
FIRE													
Amb					2	1	8	11	2	1	8	11	10.9
VFD					2	7	3	12	2	6	5	13	8.3
A-V					0	-6	5	1	0	-5	3	2	

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time By Time of Day, continued**

## District 9

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	3	2	10	15	1	1	10	12	1	2	11	14	13.6
VFD	3	7	6	16	1	6	4	11	1	6	4	11	12.6
A-V	0	-5	4	1	0	-5	6	1	0	-4	6	3	
FIRE													
Amb									2	1	9	12	12
VFD									2	5	2	9	9
A-V									0	-4	7	11	

## District 10

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	3	1	14	18	2	1	10	13	2	1	10	13	14.6
VFD	3	5	8	16	2	6	4	12	2	6	4	12	13.3
A-V	0	-4	6	2	0	-5	6	1	0	-5	6	1	
FIRE													
Amb	3	1	11	15	1	5	7	13					13.8
VFD	3	10	1	14	1	7	3	11					12.5
A-V	0	-9	10	1	0	-2	4	2					

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time By Time of Day, continued**

District 12

	12 mid-7a				7a-6p				6p-12mid				
	A	B	C	T*	A	B	C	T*	A	B	C	T*	
EMS													
Amb	2	1	10	13	2	1	9	12	2	1	10	13	12.6
VFD	2	9	3	14	2	4	3	9	2	6	4	12	11.6
A-V	0	-8	7	1	0	-3	6	3	0	-5	6	1	
FIRE													
Amb					1	2	8	11	3	1	9	13	12
VFD					1	6	7	14	3	7	4	14	13.9
A-V					0	-4	1	3	0	-6	5	1	

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total



Amb 2 1 7 10 3 1 8 12 2 1 8 11 2 1 5 8 2 1 7 10 3 1 7 11 2

1 5 8

VFD 2 6 5 13 3 6 4 13 2 7 2 11 2 5 2 9 2 5 2 9 3 7 3 13 2

5 2 9

A-V 0 5 2 3 0 5 4 1 0 6 6 0 0 4 3 1 0 4 5 1 0 6 4 2 0

4 3 1

Average EMS: Amb 9.9 VFD 10.8

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time by Day of The Week, continued**

FIRE

Amb 2 1 10 13 3 1 5 8 3 1 5 8 4 1 4 9 4 1 2 7 2 1 6 8 2  
 1 5 8  
 VFD 2 7 8 17 3 4 1 8 3 7 2 12 4 6 1 11 4 1 1 6 4 1 1 6 2  
 6 2 10  
 A-V 0 6 2 4 0 3 4 0 0 6 3 4 0 5 3 2 0 0 1 1 2 0 5 2 0  
 5 3 2

Average fire: Amb 9.15 VFD 9.9

District 3

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B
Amb	1	2	7	10	1	1	8	10	2	1	8	11	1	1	10	12	1	1	10	12	3	1	8	12	2					
VFD	1	5	2	8	1	5	2	8	2	5	3	10	1	6	2	9	1	4	3	8	3	6	6	15	2					
A-V	0	3	5	2	0	4	6	2	0	4	5	1	0	5	8	3	0	3	7	4	0	5	2	3	0					

C T  
 1 9 12  
 6 5 13  
 5 4 1

Average EMS: Amb 11.3 VFD 10.1

FIRE

Amb 3 1 6 10 6 8 1 15 1 1 1 3  
 VFD 3 8 2 13 6 8 1 15 1 9 1  
 12  
 A-V 6 7 4 3 0 0 0 0 0 8 0  
 9

Average fire:    Amb 9.3            VFD 13

District 4

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B
Amb	1	4	26	31	2	1	23	26	2	1	19	22	2	2	25	29	2	1	23	26	2	1	25	28	2	1				
VFD	1	7	2	10	2	6	5	13	2	5	3	10	2	5	3	10	2	6	4	12	2	5	3	10						
A-V	0	3	24	21	0	5	18	13	0	4	16	12	0	3	22	18	0	5	19	14	0	4	22	18	0	4				

Average EMS:    Amb 26.7            VFD 10.8

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time by Day of The Week, continued**

FIRE

Amb 1 1 26 28 1 1 21 23 1 2 30 33 2 1 37 40 2 2 26 30 2  
 1 29 32

VFD 1 6 17 24 1 8 2 11 1 7 6 14 2 8 12 22 2 8 9 19 2 7  
 11 20

A-V 0 5 9 4 0 7 19 12 0 5 24 19 0 7 25 18 0 6 17 11 0 6  
 18 12

Average fire: Amb 30.9 VFD 18.3

District 5

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B
C	T																													

Amb 2 1 22 25 1 1 20 22 2 1 22 25 1 1 21 23 2 1 20 23 1 1 23 25 2 1  
 24 27

VFD 2 6 4 12 1 6 2 9 2 5 1 8 1 6 5 12 2 8 1 11 1 6 2 9 2  
 6 6 14

A-V 0 5 18 13 0 5 18 13 0 4 21 17 0 5 16 11 0 7 19 12 0 5 21 16 0 5  
 18 13

Average EMS: Amb 24.4 VFD 10.7

FIRE

Amb 4 1 23 28

VFD 4 6 2 12

A-V 8 7 25 40

Average fire: Amb 28 VFD 12

## District 6

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B
C T																														
Amb	1	1	10	12	2	1	8	11	2	1	9	12	2	1	10	13	1	1	9	11	1	1	8	10					2	
	1	9	12																											
VFD	1	5	5	11	2	5	3	10	2	5	4	11	2	10	4	15	1	5	2	8	1	5	4	10					2	
	6	3	11																											
A-V	0	4	5	1	0	4	5	1	0	4	5	1	0	9	6	2	0	4	7	3	0	4	4	0					0	
	5	6	1																											
Average EMS:	Amb 11.6				VFD 10.8																									

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time by Day of The Week, continued**

FIRE

Amb 2 1 7 10 2 4 9 15 1 1 6 8 2 1 12 15 1 3 9 13 1 5  
 10 16  
 VFD 2 6 3 11 2 5 6 13 1 2 7 10 2 5 3 10 1 6 6 13 1 8  
 6 15  
 A-V 0 5 4 1 0 1 3 2 0 1 1 2 0 4 9 5 0 3 3 0 0  
 3 4 1

Average fire: Amb 12.8 VFD 12

District 7

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B
Amb	2	1	7	10	2	1	7	10	2	1	8	11	2	1	8	11	2	1	8	11	2	1	8	11	2	1	8	11	1	
	1	7	9																											
VFD	2	5	3	10	2	5	3	10	2	4	3	9	2	4	4	10	2	5	3	10	2	5	3	10	2	5	3	10	1	
	5	3	9																											
A-V	0	4	4	0	0	4	4	0	0	3	5	2	0	3	4	1	0	4	5	1	0	4	5	1	0	4	5	1	0	
	4	4	0																											

Average EMS: Amb 10.4 VFD 9.72

FIRE

Amb 3 1 7 11 2 1 10 13 2 1 7 10 3 1 7 11 2 1 9 12 2 1 9 12 2 1  
 8 11  
 VFD 3 6 3 12 2 4 5 11 2 6 3 11 3 4 3 10 2 6 3 11 2 5 4 11 2 6  
 3 11  
 A-V 0 5 4 1 0 3 5 2 0 5 4 1 0 3 4 1 0 5 6 1 0 4 5 1 0 5 5 0

Average fire:    Amb 11.4        VFD 10.8

District 8

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B
Amb	2	1	8	11	1	2	7	10	1	1	6	8	3	1	7	11	2	1	7	10	1	1	6	8	2					
VFD	2	3	4	9	1	6	6	13	1	4	6	11	3	2	3	8	2	3	5	10	1	3	4	8	2					
A-V	0	2	4	2	0	4	1	3	0	3	0	3	0	1	4	3	0	2	2	0	0	2	2	0	0				0	

Average EMS:    Amb 9.3        VFD 10.1

\* A= notification to dispatch; B=dispatch to in-service; C=in-service to on-scene; T=total

**Response Time by Day of The Week, continued**

FIRE

Amb 3 1 5 9 3 1 10 14 1 1 9 11 2 1

8 11

VFD 3 5 4 12 3 8 5 16 1 3 4 8 2 6 4 12

A-V 0 4 1 3 0 7 5 2 0 2 3 3 0 5

4 1

Average fire: Amb 9 VFD 9.6

District 9

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B

Amb 1 1 10 12 2 2 10 14 2 2 9 13 1 2 12 15 1 1 11 13 2

1 10 13

VFD 1 5 4 10 2 8 2 12 2 8 5 15 1 5 2 8 1 6 5 12 2

6 5 13

A-V 0 4 6 2 0 6 8 2 0 6 4 2 0 3 10 7 0 5 6 1 0

5 5 0

Average EMS Amb 13.2 VFD 11.4

FIRE

Amb 2 1 9 12

VFD 2 5 2 9

A-V 0 4 7 3

Average fire: Amb 4 VFD 3

District 10

	Su				M				T				W				Th				F				Sa			
--	----	--	--	--	---	--	--	--	---	--	--	--	---	--	--	--	----	--	--	--	---	--	--	--	----	--	--	--



**Response Time by Day of The Week, continued**

FIRE

Amb 1 5 7 13 3 1 11 15

VFD 1 7 3 11 3 10 1 11

A-V 0 2 4 2 0 9 10 4

Average fire: Amb 13.8 VFD 12.5

District 12

	Su				M				T				W				Th				F				Sa					
EMS	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B	C	T*	A	B

C T

Amb 2 2 9 13 2 1 9 12 2 1 10 13 3 1 8 12 2 1 10 13 2 1 9 12 2

1 10 13

VFD 2 6 4 12 2 6 3 11 2 6 3 11 3 5 3 11 2 9 3 14 2 5 2 9 2

6 4 12

A-V 0 4 5 1 0 5 6 1 0 5 7 2 0 4 5 1 0 8 7 1 0 4 7 3 0

5 6 1

Average EMS: Amb 12.6 VFD 11.3

FIRE

Amb 5 1 10 16 2 1 8 11 1 5 6 12 3 1 10 14 1 2

12 15

VFD 5 6 6 17 2 4 6 12 1 2 3 6 3 9 4 16 1 5 14

20

A-V 0 5 4 1 0 3 2 1 0 3 3 6 0 8 6 2 0 3 2

5

Average fire: Amb 13.6 VFD 14.9