

Running head: DEVELOPING STAFFING PLAN

Developing a Staffing Plan for Fire Investigations Division

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Abstract

The problem was the Fort Worth Fire Department (FWFD) assigned only one duty investigator to respond citywide on nights and weekends. The purpose was to develop a staffing plan that would facilitate the appropriate and most efficient use of duty personnel. The action research method was used and the research questions were: (a.) how were the current roles and responsibilities of FWFD arson/bomb investigators defined? (b.) what were the industry standards governing arson investigation and bomb response? (c.) what were the financial ramifications for implementing a new staffing plan? (d.) what was the new staffing plan? The procedures consisted of applying current policies and industry standards to develop a comprehensive staffing plan. The results were a staffing plan was drafted and recommendations for implementation were submitted to the Executive Staff of the FWFD.

Developing a Staffing Plan for Investigations Division

Introduction

Best practices in staff management are simply the processes of ensuring that the right people, with the right skills and tools, are performing the right tasks, at the right time. Effective staff management is arguably the single most important factor in managing any business to a successful outcome (Shaw, 1998). Because today's fire service managers are being held to higher standards than their predecessors it is incumbent upon them to look for the best utilization of personnel and equipment.

Today's fire service managers must realize and accept the necessity for change whether it is for budgetary reasons, legal reasons or for technological developments. The choice is between managing change and using it to their advantage or being managed by it. (Federal Emergency Management Agency [FEMA], 2008).

In spite of the significant increase in population and land mass in the city of Fort Worth resulting from annexation and economic development the Fort Worth Fire Department (FWFD) has not seriously addressed the need to provide additional personnel to perform fire origin and cause investigations and other investigative duties.

The problem is the FWFD does not have a current staffing plan that address the increased call volume and response area assigned to duty arson investigators. The purpose of this research is to develop a staffing plan that will facilitate the appropriate and most efficient use of duty investigators.

This applied research paper will use the action research method. The following questions that were developed to address the research problem are: (a) how are the current roles and responsibilities of FWFD arson/bomb investigators defined, (b) what are the industry standards

governing arson investigation and bomb response?, (c) what are the financial ramifications for implementing a new staffing plan?, and (d) what is the new staffing plan?

Background and Significance

The City of Fort Worth is the seventeenth largest city in the United States. It is located in North Central Texas approximately thirty miles west of Dallas, Texas. The population of Fort Worth is 702,850 and has a land area encompassing over 348 square miles. Fort Worth is a city whose rich history can be attributed to innovation as well as the preservation of its western heritage. It can also be said that the City of Fort Worth is well-known for aviation, logistics, defense and technology. (City of Fort Worth, *Comprehensive Annual Financial Report [CAFR]*, 2008).

The Fort Worth Fire Department (FWFD) has over 900 sworn civil service personnel and 47 civilian employees. It has 42 fire stations divided into 6 operational battalions. FWFD responds to over 80,000 calls annually. (www.fwfd.net, *Fire department facts*) The mission of the Fort Worth Fire Department is “to protect our community through education, prevention, preparedness, and response”. The services the fire department provides to the citizens of Fort Worth are fire prevention, fire suppression, emergency medical response, hazardous materials response, dive team response, high angle/technical rescue, aircraft crash rescue, and explosive ordnance mitigation and disposal.

The Fire Investigations Division is responsible for investigating all fires that are other than accidental. Additionally, they are responsible for responding to all incidents involving improvised explosive devices and other explosives related incidents. There are 14 authorized positions in the Investigations Division which is under the leadership of a battalion chief. Because investigators are responsible for investigating arson fires and bomb incidents they are

required to maintain the following certifications; firefighter, emergency medical technician, hazardous materials technician, arson investigator, peace officer, and certified bomb technician.

In 2006 the total number of investigators was increased from 11 to 15 for the anticipated retirement of four incumbent investigators. Then, the number of investigators was reduced by 1 in 2008 when the Internal Affairs section was reassigned to work under the Executive Services Deputy Chief. Since then, there has not been a staffing increase in response to the increased call volume and anticipated growth of the city.

At the present time, the staffing level of the Fire Investigations Division has not affected the organizations ability to achieve its mission. However, if the city continues to grow at the same rate it has over the past five years the staffing level of duty investigators will have to increase accordingly. It is also noteworthy that if the current economic downturn in addition to the national housing market and mortgage crisis have led many people to intentionally setting their homes on fire to collect insurance money. Similarly, high gasoline prices and the down economy have led to a rise in intentionally set vehicle fires. (FireChief.com, July 2008)

The APIE structural change model for analysis, planning, implementation, and evaluation which was taught in Unit 3: Change Management Module as part of the *Executive Development* course at the National Fire Academy will be used during the development and implementation of the staffing plan.(Federal Emergency Management Agency [FEMA], 2008a) The research problem relates to the United States Fire Administration's mission and objective 5.1 which is to maintain a positive work environment to ensure the organization's well-being and productivity by implementing a staffing plan that provides adequate staffing levels for investigation of fires and prevent investigators from excessive mental and physical fatigue. (FEMA, 2008b)

Literature Review

The literature review for this Applied Research Paper (ARP) will be used for the purpose of further answering the research questions by looking at what other authors have written about this topic. The literature review will also consist of personal interviews, surveys, current standard operating procedures, journals, and established national standards.

Literature addressing the current roles and responsibilities of FWFD arson investigators are defined in the Fort Worth Fire Department standard operating procedures. It is the policy of the FWFD to investigate the origin and cause of all fires that occur within the city limits of Fort Worth (Fort Worth Fire Department, *Standard Operating Procedures, S7302*). In support of this policy, a duty investigator (Marshal 99) is assigned to respond to all known incidents that occur when called by the incident commander. The duty investigator (Marshal 99) will be available on a 24 hour basis, seven days a week. If Marshal 99 (M99) is not immediately available and will not be available within a reasonable amount of time he/she will decide whether a back-up investigator will be called (Fort Worth Fire Department, *Standard Operating Procedures, S7302*). In addition to fire investigative responsibilities FWFD duty investigators will respond when a bomb threat has been issued to any individual or building occupancy. If an explosive device is located FWFD duty investigators have the responsibility to perform render safe procedures to make the scene safe. Additionally, they are required to conduct an investigation of the scene, collect evidence, interview witnesses and suspects, and make arrest if possible (Fort Worth Fire Department, *Standard Operating Procedures, S7303R1*). Another important function of the fire investigator is public education. A lot of emphasis is placed on filing cases and making arrest but educating people about arson can also be a deterrent to a person choosing to commit arson. Greene (2006) said fire departments must take advantage of every opportunity

to educate the public on the importance of everyone helping to fight the crime of arson. If fire departments take a proactive approach, fear can be substantially reduced. Furthermore a proactive approach will aid fire departments in fostering good will in the community.

Because of the increased workload several recommendations have been made to address the increased response area and additional calls. One recommendation has been adding a second on duty investigator to work a 24/72 work schedule. Captain Gary Rhodes said that the two-Marshal 99 concept is the way to address the present and future needs of the unit (personal conversation, 5/8/2009). An investigator will respond to all incendiary structure and vehicle fires, all major injuries and deaths at incident scenes, all incidents involving explosives or incendiary devices, and all fires of which the cause is undetermined. Captain Rhodes also said that by adding a second duty investigator it will provide better on scene fire investigations, cut response times, and reduce the fatigue factor and other concerns (personal conversation, 5/8/2009).

On the Fort Worth Fire Department, fire investigators are assigned to one of four operational shifts designated by corresponding letter A, B, C, and D shifts. Each shift is assigned an investigator who works a 24/72 shift and has two back up investigators who work 4/10 hrs shifts per week for a total of twelve investigators. There is a captain who is assigned as office manager to schedule vacations, training and other related activities. The division is headed by a battalion chief who oversees the daily operations of the entire division.

As part of the literature review the author sought to include the work schedule of other arson investigative units. According to the United States Fire Administration, *Attacking the Violent Crime of Arson: a Report on America's Fire Investigation Units* (2004) a list of some of the nation's investigative unit work schedules are listed as follows:

Alaska State Fire Marshal's Office

The normal shift for sworn personnel is straight day work, Monday through Friday. After-hours call-out for fire investigation is handled in each regional office.

Tucson, Arizona

The fire investigation captain and the three investigators maintain a regular work schedule of 8 a.m. to 5 p.m., Monday through Friday, excluding holidays. There is a rotation of the three investigators into an on-call status for fire investigations who may be required outside regular business hours. The investigators are on call every third week for 7 consecutive nights at a time. All investigations conducted outside normal business hours are on an overtime basis. The Captain may respond to major incidents outside normal business hours.

West Palm Beach County, Florida

The schedule now used by the Fire Investigation Section as investigators working two shifts--one beginning at 7:30 a.m. and finishing at 4 p.m., the second beginning at 3 p.m. and ending at 11:30 p.m.--Monday through Friday. On Saturday and Sunday, a third shift works 3 p.m.-11:30 p.m. All other times and on holidays, one person is assigned to callback, which requires overtime compensation for investigators.

Oklahoma City, Oklahoma

The agents regularly work a daytime shift (Monday through Friday) with some flexible start/finish times. An on-call system is used to cover responses that are required after normal duty hours.

El Paso, Texas

Uniformed personnel assigned to the Fire Investigation Section work an administrative schedule 8 a.m. to 5 p.m. (Monday through Friday), with an uncompensated hour for lunch. After hours, weekends, and holidays are covered on a call-out basis.

There are no perfect work schedules; however, there are some options that work better than others. For example, some fire investigation units use the 3 or 4 platoon system which personnel work a 24 hour shift. The advantage is that a duty investigator is available around-the-clock to respond to calls which reduces the need to have investigators on-call or standby. The big disadvantage is that at the end of the 24 hr. shift the investigator may be off for 72 hours during which time written reports and follow up investigations are placed on hold. While other fire investigation unit investigators work a 40hr. shift which allows them to devote more time to follow up cases but the disadvantage is that there is a void left for after hour responses (United States Fire Administration, [USFA], 2004). The Fort Worth Fire Department Investigations Unit has a combination of both types of work schedules which seems to be the best of both systems.

Another part of the literature review is to look at what state and federal mandates apply to the FWFD Investigations Division. There are many state mandates that arson investigators must abide by such as the Texas Commission on Fire Protection (TCFP) that governs the firefighter and arson investigator certifications and Texas Law Enforcement Officer Standards and Education (TLEOSE) is the authority for maintaining the arson investigator's peace officer certification. The federal standards and guidelines that FWFD investigator abide by come from National Fire Protection Association (NFPA), FBI/ Hazardous Devices School and National Bomb Squad Commander's Advisory Board (NBSCAB). One of the NFPA standards that

affect investigators directly is NFPA 1003: *Professional Qualifications for Fire Investigators* which specifies the minimum job performance requirements for fire/arson investigators.

Furthermore, today's fire investigators must demonstrate to a court of law that they have the training and qualifications to offer an opinion about the origin and cause of a fire, has data to support the conclusion, and has followed the appropriate protocols and has followed the scientific method of investigation as stated in NFPA 921 (DeHaan, 2007). All investigators assigned to the FWFD Investigations Division are all required to become members of professional organizations such as the International Association of Arson Investigators (IAAI) and the International Association of Bomb Technicians and Investigators (IABTI).

As in most fire departments, the FWFD is looking for ways to cut cost while still providing adequate service to the citizens. Any departmental changes especially dealing with staffing issues will be scrutinized for any adverse effects on the budget. The goal of this applied research paper is to determine if the Fire Investigations Division can operate more efficiently with two duty investigators after normal business hours and weekends instead of one duty investigator and not have an adverse effect on the department's budget. All arson fires must be investigated by a certified arson investigator and on many occasions there are incidents that require an arson investigator response to occur simultaneously which requires the need for more than one arson investigator to be on duty. Currently, after normal business hours an arson investigator is called from home to respond to the incident if the on duty investigator is unable to respond in a timely manner. Thus, if two arson investigators were assigned each day there would be less need to have an investigator on standby to respond from home if multiple incidents were to occur after hours.

Data obtained from United States Fire Administration's NFIRS for 2001 show that the most

incendiary structure fires occur between late Saturday night and early Sunday morning (Saturday at 11 p.m. to Sunday at 4 a.m.), and then at 8 p.m. and 10 p.m. Sunday evening (USFA,2004). This seems to concur with the information obtained from Fort Worth Fire Department Senior Information Analyst, Dana Alden that states that the majority of FWFD investigator responses occur on Saturday and Sundays (Appendix A). However, contrary to the USFA report FWFD data indicated that the majority of incendiary structure fire responses occur mostly between 3 p.m. and 11 p.m. instead of between 11p.m.and 4 a.m.

Fire departments use many different variations of work schedules. It's imperative to find a work schedule that utilizes available human resources in the best possible way. As part of the literature review a survey was submitted to representatives of twenty-six different Arson Investigation Divisions across the country. The people selected were those whom the author attended the National Fire Academy *Analysis of Arson Management course* with in April 2008 (Appendix B). I also contacted the City of Fort Worth Human Resources Division and asked several employees if the city had a staffing plan or a template that I could use to develop a staffing plan for the Arson Division. Each time I was told that they were not familiar with the topic and I was referred to speak to someone else.

As a result of the finding of the literature review, there is a definite need to address the work schedules of investigators and have it documented. There was not enough data received to support a traditional written staffing plan.

Procedures

The purpose of this action research was to develop a staffing plan for the Fort Worth Fire Department (FWFD) Fire Investigations Division. The first step in my research was to find out

if others in the fire service and other related fields had conducted any research on this subject and if there were any published documentation. I began my literature review at the Learning Resource Center (LRC) during the two weeks I was at the National Fire Academy in Emmitsburg, Maryland. After I returned to home I then searched resources at my local library, searched the internet using *Google* search engine. I also visited fire and law enforcement related websites. I searched departmental documents such as Fort Worth Fire Department Standard Operating Procedures and nationally recognized written material such as, National Fire Protection Association (NFPA) Standards, and FBI Hazardous Devices School protocols.

The types of research procedures used were personal observations, surveys and a personal interview with Retired Captain Gary Rhodes who was one of the first Fort Worth firefighters to become an arson investigator. He was also very instrumental in assembling the first bomb squad in the North Texas Region. Capt. Rhodes was a certified fire investigator and master instructor who taught arson investigation at the local college. He has vast amount of knowledge in regards to arson investigation and bomb squad procedures.

How I planned to answer the research questions was to first review the current standard operating procedures and investigator job descriptions to make sure the individual investigators were operating at a level that was expected of them by the department. Also a thorough look was taken at industry standards regarding arson and bomb response in effort to insure that the arson investigators were operating at a level that was in line with how other arson and bomb response agencies were expected to operate throughout the country.

Next, to answer the second research question; what are the industry standards regarding arson and bomb response I researched NFPA standards, national publication dealing with arson investigators and bomb technicians. I look specifically at NFPA 1033 & 921 which both address

professional standards for fire/arson investigators. Also, I researched the National Bomb Squad Commander's Advisory Board (NBSCAB), *National Strategic Plan for U.S. Bomb Squads* (December, 2008).

In order to find out what the ramifications were for changing the existing work schedule and adopting a new a staffing plan I contacted Dana Alden, Senior Information Analysis for the Fort Worth Fire Department to have her provide me with statistical data regarding response information for the Investigations Division. I analyzed information obtained from fire and run reports, and output from the work done in the division.

I then conducted several meeting with staff to discuss the long range plans of the division to solicit feedback from them in regards to how the division was currently operating and what they saw as changes needed to be made in order to improve the level of service provided.

I developed a survey to gather a small sampling of information regarding staffing of arson investigation units. My target audience was the twenty-five classmates from my last NFA course titled *Analysis of Arson Management*. Although this was a small survey I saw the value of the knowledge and experience from the group and thought it would be more beneficial than sampling a larger group that may not have the same level of arson investigative knowledge.

The limitations encountered in doing this research paper was that there were many different variations of works schedules and not much documentation of the effectiveness of one plan or the other. The overwhelming majority of information regarding staffing plans where catered toward private industry and was not applicable to a public fire department that was under State Civil Service protection.

Results

1. How are the current roles and responsibilities of FWFD arson/bomb investigators defined?

The Fort Worth Fire Department Standard Operating Procedures S7302 and S7303R1 clearly define the role of the arson investigator which is to respond when called upon to assist with the thorough investigation of all fires that are determined to be anything other than accidental and if the fire is determined to be arson the investigator will conduct a criminal investigation to find the perpetrator and bring that person to appear before a court of law. Because FWFD investigators are also bomb technicians they must respond when called upon to investigate incidents involving explosives and if a hazardous device is found they are required to use their training to render the device safe in order to protect lives and property.

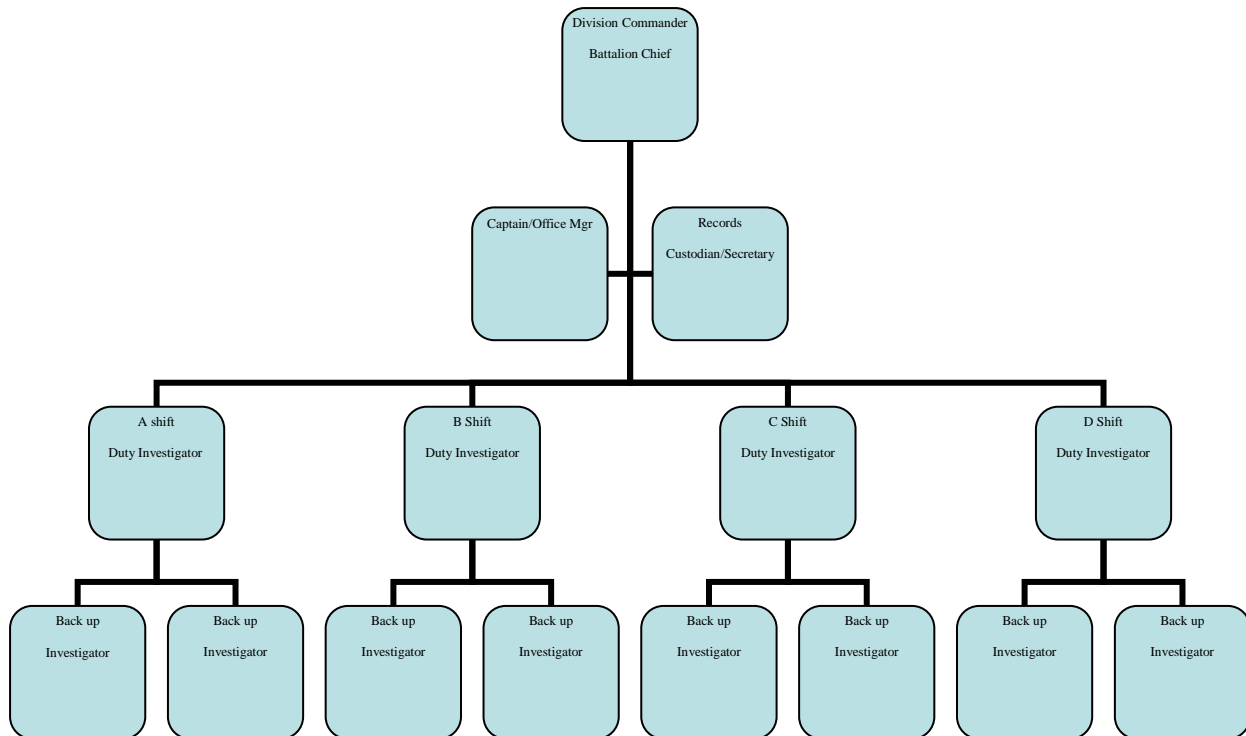
With the exception of the Battalion chief and Captain all personnel are assigned to a work shift. The shifts are divided into A, B, C, and D. Each shift has one investigator who works 24 hours on and 72 hours off work schedule. Each shift has two backup investigators assigned to assist the on duty investigator. In 2008, investigators responded to 737 arson fires and over 200 bomb related calls compared to 685 arson fires and 168 bomb related calls in 2007 (FWFD Investigations Division 2008 End of Year Report).

The roles and responsibilities of investigators are stated in FWFD standard operating procedures and each investigator is required to be knowledgeable of those procedures. In addition each investigator is required to complete a comprehensive training program before they are allowed to work as an on-duty investigator.

Other fire/arson investigator duties involve filing arson cases and testifying in a court of

law. Other duties include public education, responding to citizen complaints, and assisting Fire Prevention officers with nightclub overcrowding issues.

Current Organizational Chart



2. What are the industry standards governing arson investigation and bomb response?

The industry standards dealing with arson investigators and how they fulfill their duties are rules and regulations that apply to law enforcement officers such as having a good understanding of constitutional amendments and criminal law. NFPA 1033 Professional Qualifications for Fire Investigator specify the minimum job performance requirements for fire/arson investigators. The International Association of Arson Investigators (IAAI) is a

professional organization for fire investigators. The IAAI provides resources for training, research, and technology for fire investigators around the world (wikipedia.org/wiki/IAAI). The International Association of Bomb Technicians and Investigators (IABTI) is a non-profit, professional association formed for countering the criminal use of explosives. The goals of the organization is achieved through the exchange of training, expertise and information among personnel employed in the fields of law enforcement, fire and emergency services, the military, forensic science and other related fields (www.iabti.org). The FBI Hazardous Devices School located in Huntsville, Alabama is the only location in the United States that teaches public safety personnel explosives training. The National Bomb Squad Commander's Advisory Board (NBSCAB) serves as the leadership element of U.S. public safety bomb squad related issues and acting as a decision making authority on recommended guidelines and standards for the profession. (United States Department of Justice, 2006) Alcohol, Tobacco, Firearms, and Explosives (ATF) is a unique law enforcement agency in the United States Department of Justice that has the responsibility of protecting communities from violent criminals, criminal organizations, the illegal use and trafficking of firearms, the illegal use and storage of explosives, acts of arson and bombings, acts of terrorism, and the illegal diversion of alcohol and tobacco products. (atf.gov, 2009)

3. What are the financial ramifications for implementing a new staffing plan?

The implementation of a new staffing plan using existing personnel will not have to increase the annual Fire Investigations budget for personnel's salaries. However, there will be a cost savings in emergency callback overtime because by adding a second duty investigator on the 24/72 cycle it will be a reduction in the amount of times an investigator is paid overtime for responding from home to assist with an investigation. Another financial savings will be a

reduction in the number of take home vehicles for follow up investigators. The current annual lease agreement for four Chevy extended-cab pickups cost approximately \$36,000 plus the cost of fuel. If the backup investigators currently assigned to these vehicles are reassigned as duty investigators the lease vehicles will no longer be needed. Another benefit will be a cost saving of \$22,626 that is spent on the built in overtime for investigator working on the rotating shift. However, the bomb training day budget will increase by \$15,664 because six instead of three on-duty investigators will receive overtime for coming in on their day off for training which will create a net savings of \$ 6,962.

The current work schedule has two backup investigators for each on duty investigator. The implementation of a new staffing plan requiring one backup investigator for each two on duty investigators the duties and responsibilities of each will have to be adjusted. This means that the duty investigator will have to conduct the fire scene origin and cause investigation and follow up to his/her own fires.

Another major benefit to implementing the new staffing plan the fact that for many years the duty investigators have expressed concerns about having to be available to respond to over 350 square miles and to over 700,000 residents which sometimes leaves them overwhelmed and stressed out.

4. What is the new staffing plan?

The new staffing plan will be implemented utilizing the same number of personnel however, it will be necessary to change the work schedule, and duties and responsibilities will change as well in order to increase the number of investigators on duty at one time. As a result, there will be a reduction in overtime cost by not having to use emergency callback overtime to bring in off duty personnel. Consequently, by having more personnel readily available to

respond to a fire investigation there will be a better initial fire origin and cause investigation.

First, instead of having one duty investigator and two backup investigators per shift there will be two duty investigators and one backup investigator. The two duty investigators will be assigned to respond to different geographical areas of the city instead of being dispatched citywide from one location. If an investigator assigned to investigate an incident needs assistance they may call on the second duty investigator as oppose to calling an investigator who is off duty. This will afford the duty investigator to immediately assist at an investigation if the need arise and it allow the investigator who is not on the payroll to enjoy their time off work. It also relieves the duty investigator the stress of having to respond to every incident that occurs on a given work day.

Second, the backup investigators for each shift's primary duties will change from performing follow-up duties for the duty investigator to handling bomb squad duties which consist of investigating all prohibited weapons and explosives related cases, maintain all bomb equipment, conduct monthly bomb training, and bomb threat awareness training.

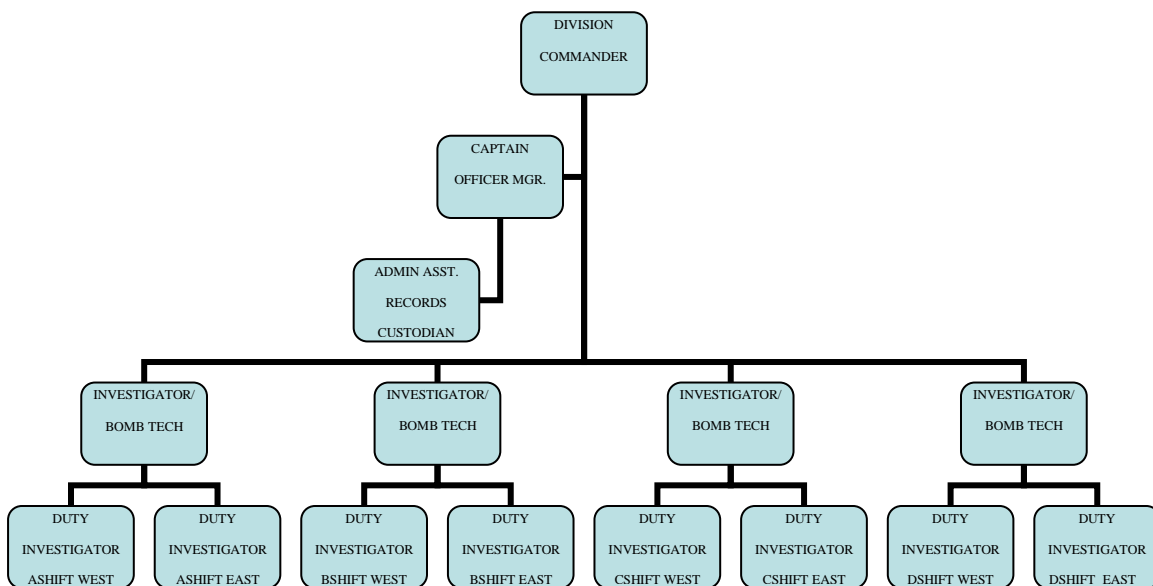
All personnel assigned the Investigations Division are classified as 40 hour personnel and must comply with Fair Labor Standards Act (FLSA) and department guidelines. The second duty investigator will have to modify their 40 hour schedule in order to work 24/72 schedule just as the current duty investigators are doing.

Next, consideration must be given to where the second duty investigator will be located and what vehicle will be used for incident response. The original duty investigator will continue to be located and respond from his current location at the Fire Investigations main office. It is recommended that the second duty investigator is located and respond from Fire Station #20 which is where the bomb response vehicle is located. There will be very minimal cost associated

with this move because the infrastructure for housing the duty investigator and the vehicle are already in place.

The last thing that must be accomplished before the second duty investigator is put in service is an information bulletin must be developed to inform fire department personnel of the new response procedures.

New Organizational Chart



Discussion

The decision to research the feasibility of restructuring the staffing assignment of investigators in the Fire Investigations Division was precipitated by the request made by several investigators to address the fatigue and stress factors caused by having to respond citywide to fire incidents. Another reason was to look at the possibility using existing personnel to have more duty personnel available to respond to fire origin and cause investigations. In order to

effectively address emerging arson trends the additional duty investigator can help to ensure that all new fires receive a “full court press” investigation (FEMA, 2008). This means that investigators will blitz the fire scene immediately in order to quickly make contact with witnesses and/or suspects within the first 48 hours of the incident while the information is still fresh in their minds.

The standard operating procedures for the department are well defined and match the actual response protocol for the arson/bomb unit. The only problem is that Operations personnel have not adequately familiarized themselves with the written procedures, as a result, investigators are not called out to incidents that they should and called to some incidents that they shouldn't. The new response procedures along with reiterating the current arson and bomb response procedure must be a high priority. With the cooperation of the Training Chief and Operations Deputy chief this can be accomplished by training sessions delivered in the field training group (FTG) format.

In order for the staffing plan to be effective, the roles and responsibilities of all investigators must be clearly defined and everyone must be committed to carrying out their new assignment. Two investigators on duty will require more responsibility for the full origin and cause investigation to be completed with minimal assistance from backup investigators consequently, new job duties and responsibilities for duty investigators and follow up investigators must be developed before any scheduling change takes place. Everyone must feel they have a say in the new staffing plan in order to diminish the chance of poor morale setting in.

In addition to considering the investigators opinion of whether to add a second duty investigator would there be enough data justify the need for the change. The author was certain that run data would indicate that investigators would be called more often after normal business

hours and weekends however this was not the case. Research shows statistics of calls by time of day since 2006 show the majority of calls occurring between 3 p.m. and 11 p.m. and calls by day of the week show 13% of calls occurring on Mondays and Wednesdays, 14% on Tuesdays and Thursdays, 15% on Fridays and Saturdays and 16% on Sundays.(Appendix A)

There was not much data from researching industry standards that defined the staffing level for a fire investigation unit; however, the USFA study in 2004 conducted on the state of America's fire investigation units was very informative. In reference to bomb calls response, the FBI Hazardous Devices School strongly recommends that no less than two certified bomb technicians respond to render safe an improvised explosive device. The Fort Worth Bomb Squad's policy is to have a minimum of three certified bomb technicians on scene before any positive action is taken toward dealing with an explosive device.

The bottom line is the Fire Investigation Division currently has more back up investigators in the office during normal business hours to interview witnesses, file cases and receive miscellaneous assignments. If half of the back up investigators are transferred to work as duty investigators the majority of interviewing and case filing will be the responsibility of the duty investigator.

Recommendations

As result of the information received for this applied research paper it is my recommendation that a new staffing plan consisting of having two duty investigators working a 24/72 hour schedule to be implemented on a 90 day trial basis. The 90 day trial is necessary due to the fact that the success of the new staffing plan would be dependant upon the ability of the investigators to efficiently respond to calls for service, conduct thorough origin and cause

investigations, and file cases while in the process continue to provide a financial benefit to the City of Fort Worth. The organizational benefit to implementing the new staffing plan would be that the Fire Investigations Division will have additional on duty personnel available to respond to fire investigations in a timelier manner because a single investigator will not be responsible for the entire city. Also, by having two fire investigators investigating a fire scene there will be a second person immediately available to interview witnesses, collect evidence and assisting with the cause determination of the fire. This will also limit the amount of time fire companies have to standby on scene waiting for an investigator to arrive on scene and will hopefully result in a better overall investigation.

In conclusion, my recommendation for those researchers who may wish to replicate this study they must first identify and define the problems in their respective agencies and then design a plan of action to remedy the problem and most importantly, elicit feedback from your stakeholders. Your most significant stakeholders are those individuals, in this case, investigators who are going to be the key to success or failure of the plan.

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Appendix A: Arson Response Statistics

CASES LISTED BY CAUSE	2006	Percent of Total Fires	2007	Percent of Total Fires	2008	Percent of Total Fires
Act of Nature	27	1%	26	1%	39	2%
Arson	216	9%	198	10%	197	8%
Cause under investigation	40	2%	71	4%	106	5%
Cause undetermined after investigation	930	37%	509	27%	774	33%
Cause, other	115	5%	80	4%	85	4%
Failure of Equipment or Heat Source	452	18%	392	21%	299	13%
Intentional	88	3%	60	3%	87	4%
Unintentional	656	26%	576	30%	756	32%
Total Fire Incidents	2524	100%	1912	100%	2343	100%

TIME OF DAY CALLS RECEIVED	2006	Percentage of Calls Received	2007	Percentage of Calls Received	2008	Percentage of Calls Received
0700-1459	810	32%	586	31%	691	29%
1500-2259	1123	44%	825	43%	1078	46%
2300-0659	591	23%	501	26%	574	24%
TOTAL	2524	100%	1912	100%	2343	100%

DAY OF WEEK CALLS RECEIVED	2006	Percentage of Calls Received	2007	Percentage of Calls Received	2008	Percentage of Calls Received
Sunday	340	13%	279	15%	367	16%
Monday	404	16%	290	15%	300	13%
Tuesday	372	15%	282	15%	334	14%
Wednesday	350	14%	259	14%	298	13%
Thursday	320	13%	252	13%	333	14%
Friday	374	15%	271	14%	348	15%
Saturday	364	14%	279	15%	363	15%
TOTAL	2524	100%	1912	100%	2343	100%

Appendix B: Arson Survey

Response Summary

Total Started Survey: 19

Total Completed Survey: 19 (100%)

DownloadCreate Chart1. What is the size of your city or population served?		
	<i>answered question</i>	19
	<i>skipped question</i>	0
	Response Percent	Response Count
Less than 50,000	15.8%	3
50,000-150,000	21.1%	4
150,000-250,000	5.3%	1
Over 250,000	57.9%	11
DownloadCreate Chart2. What is the size of your department?		
	<i>answered question</i>	19

<u>DownloadCreate Chart2. What is the size of your department?</u>		
		<i>skipped question</i>
		0
	Response	Response
	Percent	Count
Less than 100	31.6%	6
100-250	26.3%	5
250-500	5.3%	1
More than 500	36.8%	7

<u>DownloadCreate Chart3. How many arson investigators are assigned to your division?</u>		
		<i>answered question</i>
		19
		<i>skipped question</i>
		0
	Response	Response
	Percent	Count
Less than 5	36.8%	7

DownloadCreate Chart3. How many arson investigators are assigned to your division?

5-10	26.3%	5
10-15	31.6%	6
More than 15	5.3%	1

DownloadCreate Chart4. Which best describes your selection process for arson investigators?

	<i>answered question</i>	19
	<i>skipped question</i>	0
	Response Percent	Response Count
Promotional examination for position	10.5%	2
Interview interested candidates from within the department	73.7%	14
Hire from outside the department	5.3%	1
Position filled by seniority within the department	10.5%	2

DownloadCreate Chart5. Once selected how long are arson investigators required to remain in the division?		
	<i>answered question</i>	18
	<i>skipped question</i>	1
	Response Percent	Response Count
1 year	0.0%	0
3 years	5.6%	1
5 years	16.7%	3
No commitment required	77.8%	14
DownloadCreate Chart6. Do your arson investigators file cases?		
	<i>answered question</i>	19
	<i>skipped question</i>	0
	Response Percent	Response Count

DownloadCreate Chart6. Do your arson investigators file cases?

Yes	73.7%	14
No, assigned to police department	26.3%	5

DownloadCreate Chart7. Are your arson investigators required to perform other duties? (ex. Fire prevention, bomb squad response, building inspections)

<i>answered question</i>		19
<i>skipped question</i>		0
	Response Percent	Response Count
Yes	73.7%	14
No	26.3%	5

DownloadCreate Chart8. What is the work schedule for arson investigators?

<i>answered question</i>		16
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Download Create Chart 8. What is the work schedule for arson investigators?		
		skipped question
		3
	Response	Response
	Percent	Count
5 day workweek 8 hr shift	37.5%	6
4 day workweek 10 hr shift	6.3%	1
24 hr shift	25.0%	4
Combination of different work schedules	37.5%	6
Show replies Other (please specify)		4
Download Create Chart 9. Does your department/agency have a written staffing plan for your Arson Division		
		answered question
		19
		skipped question
		0
	Response	Response

DownloadCreate Chart9. Does your department/agency have a written staffing plan for your Arson Division		
	Percent	Count
Yes	42.1%	8
No	57.9%	11

DownloadCreate Chart10. What is your department protocol regarding fire evidence testing?		
	answered question	19
	skipped question	0
	Response Percent	Response Count
Send to Department/agency crime lab	68.4%	13
Send to State Fire Marshall's office	10.5%	2
Send to private contractor	0.0%	0
Store it in evidence locker until its needed	26.3%	5

Appendix C: Survey Letter

From: Tatum, Bobby

Sent: Tuesday, May 26, 2009 1:58 PM

To: Tatum, Bobby; marshalone@irmofire.org; tony.brinson@ci.yuma.az.us; wesley.caskey@cor.gov; jchism@ci.killen.tx.us; jcrenshaw@miamigov.com; john.doucette@po.state.ct.us; bguttenplan@hvc.rr.com; john.kananowicz@po.state.ct.us; mkarban@villageofhinsdale.org; jlukancic@jolietcity.org; kenneth.g.macmaster@maine.gov; fdmay10@aacounty.org; zebmullis@co.union.nc.us; andrew.robinson@phila.gov; darrelljanetskiner@yahoo.com; tbsmith14@hotmail.com; lstafford@cityofclintonnc.us; dwegleitner@cityofeagan.com; davewilliams@sandiego.gov

Subject: Arson Survey

Importance: High

Gentlemen:

I hope all is well with you and your respective departments. I met each of you last year when I attended the NFA Analysis of Arson Management Course. I am in the process of writing my Applied Research Paper in my first year of the Executive Fire Officer Program. If you could take a moment to complete this brief 10 question survey I would be forever grateful.

Click on the link below:

<http://www.surveymonkey.com/s.aspx?sm=2fbQr2bp2fJHm09lcUGL2fBrKw3d3d>

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Fort Worth Fire Department
Investigations Division
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Fort Worth, Texas 76102
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bobby.tatum@fortworthgov.org

Appendix D: Staffing Plan for Arson Investigators



Fort Worth Fire Department
INTER-OFFICE Correspondence
Investigations Division

TO: Fire Chief Rudy Jackson

FROM: Battalion Chief Bobby Tatum

DATE: August 15, 2009

SUBJECT: Assignment of Second on-duty Investigator

Purpose

To establish guidelines for the implementation of a two duty fire/arson investigator staffing plan

General Information

- I. This document will outline the location, duties and responsibilities, and work schedule of the two duty fire/arson investigator positions that will be implemented October 1, 2009.
- II. It is the policy of the Fort Worth Fire Department (FWFD) to investigate the origin and cause of all fires that occur within the city limits of Fort Worth
- III. It is also the policy of the FWFD and the Bomb Squad to respond to and render safe all incidents involving explosives within the city limits of Fort Worth and surrounding municipalities/counties with established written mutual aid agreements.
- IV. In support of this policy, two duty fire/arson investigators will available to respond to all known incidents that occur when called upon by the on scene incident commander.
- V. The two duty fire/arson investigators will be available on a 24-hour, 7-day a week basis

Instructions/Procedures

- I. Identification/designation:
 - A. The two duty fire/arson investigators will have their response areas divided geographically into West and East divisions of the City. The dividing line will

be I-35 (N/S Freeway).

- B. The duty investigator assigned to the West will be located at Fire Station #2, 1000 Cherry St. Ft.Worth, Tx. 76102, in the east bay facing Cherry St. (old Marshal 99 quarters)
- C. The duty investigator assigned to the East will be located at Fire Station #20, 1051 Woodhaven Blvd, Ft.Worth, Tx. 76103, vehicle will be staged in the center bay and office will be in old investigator's room.
- D. The duty investigators will be dispatched to their respective response area by Fire Alarm Office (FAO) using their individual Marshal number instead of Marshal 99.

II. Duty Investigator Duties and Responsibilities:

- A. Scene Examination
 - 1. Secure the scene
 - 2. Conduct exterior and interior scene survey
 - 3. Interpret fire patterns
- B. Document the Scene
 - 1. Draw a diagram of the scene
 - 2. Photograph the scene
 - 3. Construct investigative notes
- C. Evidence Collection/Preservation
 - 1. Collect evidence
 - 2. Maintain Chain of Custody
 - 3. Prevent spoliation of evidence
- D. Interview
 - 1. Develop a strategy for interviews
 - 2. Conduct Interviews
 - 3. Evaluation interview information
- E. Post-Interview Investigation
 - 1. Gather reports and records

2. Evaluate investigative file
3. Formulate opinion as to cause and origin of fire

F. Presentation

1. Coordinate expert resources
2. Testify during legal proceedings
3. Conduct public informational presentations

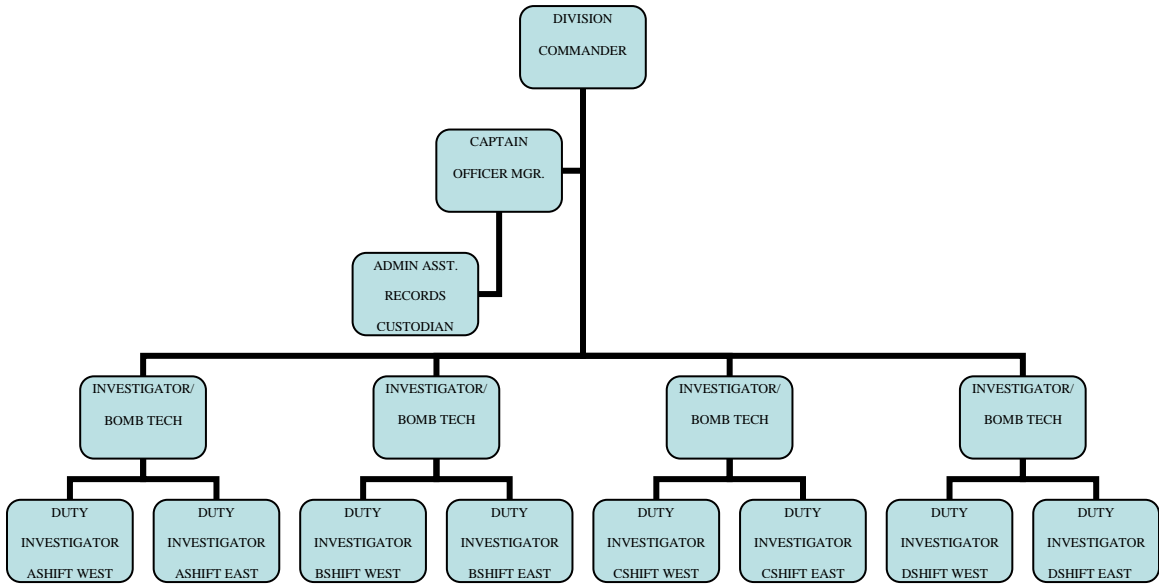
III. Back up Investigator Duties and Responsibilities

- A. Assist duty investigator with administrative duties when requested
- B. Respond to all bomb related calls during normal business hours
- C. Respond to prohibited weapons calls during normal business hours
- D. Maintain all bomb equipment and bomb range
- E. Develop curriculum and teach monthly arson and bomb training
- F. Back up duty investigator for after hours responses

IV. Duty Investigator and Back Investigators Work Schedules

- A. Duty Investigators will work a 24/72 rotating schedule
- B. Back up Investigators will work a 40 hr. schedule 8 a.m.-5 p.m. Monday-Friday.

V. Appendix A: Fire Investigations Organizational Chart



VI. Appendix B: Duty Investigators Work Schedule

October 2009						
Sunda	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1A 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 1600-2400 8hrs	2B 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	3C 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs
4D 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs	5A 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	6B 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	7C 0000-0800 8hrs 0000-0800 8hrs 1600-2400 8hrs 1600-2400 8hrs	8D 0000-0800 8hrs 0000-0800 8hrs 1600-2400 8hrs 0800-2400 16hrs	9A 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	10B 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs

11C 0000-0800 8hrs 0800-0800 8hrs 0000-0800 8hrs 0800-0800 8hrs	12D 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	13A 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	14B 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	15C 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrsS	16D 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	17A 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs
18B 0000-0800 8hrs 0800-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	19C 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrsS	20D 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	21A 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	22B 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	23C 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrsS	24D 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs
25A 0000-0800 8hrs 0800-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	26B 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	27C 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	28D 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	29A 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	30B 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs	31C 0000-0800 8hrs 0000-0800 8hrs 0800-2400 16hrs 0800-2400 16hrs

A Shift Duty Investigator West/East C Shift Duty Investigator West/East

B Shift Duty Investigator West/East D Shift Duty Investigator West/East

VI. Appendix C: Back up Investigator work schedule

Monday	Tuesday	Wednesday	Thursday	Friday
8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.
8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.
8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.
8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.	8 a.m. -5 p.m.