

Running head: WHAT ARE THE SOLUTIONS FOR STAFFING SHORTAGES

What are the Solutions for Staffing Shortages at Bloomington Fire Station #6?

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### Abstract

The problem investigated was the Bloomington Fire Department did not have a formalized long-term plan to address staffing shortages at Fire Station #6, which could result in an increased risk to the community and first responders. The purpose of this research project was to identify staffing needs and develop long-term solutions to address staffing shortages at Fire Station #6. The descriptive research method was used in this study to answer the following questions: What are the staffing options for Fire Station #6? What risks arise for the community and BFD if staffing shortages are not addressed? What are other departments similar to BFD doing to address staffing shortages? What recommendations will be implemented to address the staffing shortages at Fire Station #6?

Past and present BFD staffing and operation plans were reviewed and critiqued. Staffing models from other departments similar in size were reviewed and also critiqued. An interview was conducted with a chief officer from a fire department similar to the BFD to determine the type of staffing model in use and how it was implemented. The results for this research show several different staffing options for Fire Station #6 are available. The recommendations from this research are to attract potential candidates who live near Fire Station #6 who could be hired as volunteer/paid-on-call staff. This hiring process should be reevaluated on a 5 year basis as new people move into the area. The BFD should also consider plans for staffing Fire Station #6 outside the current duty crew hours. This could be done by adding more hours to the current duty crew and staffing the station at night if needed. Expanding or moving the current rental house system should also be explored as this program has been successful in adding staffing to Fire Station #6.

CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writing of another.

Signed: \_\_\_\_\_

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## Introduction

February 14, 1947, marked the first meeting for the Bloomington Fire Department (BFD). The meeting was held in Gus Welter's shop where Arnold J. Friendshuh was elected the first Fire Chief. On April 8, of that year, the Town Council voted Resolution #106, providing the official startup of the Bloomington Fire Department (Bloomington Fire Dept., 2011). Since that date in 1947 the BFD has been a volunteer/paid-on-call department. As the city grew so did the fire department growing from one fire station to six stations in the first 32 years. Currently, the BFD continues to operate out of six fire stations and has no plans to add any additional stations (Bloomington Fire Dept., 2011). Over the last 64 years recruitment and retention of volunteer firefighters has not been a concern until recently at Fire Station #6. The recruitment and retention of firefighters has only been an issue at this particular station because staffing levels fluctuate on a consistent basis.

It is important to note that the BFD requires firefighters to complete 20 years of service before being vested in the retirement pension and become eligible to collect a monthly pension payment. This retirement plan is an incentive and helps provide consistent staffing levels at all the fire stations except Fire Station #6. Even though the retirement pension has helped provide stability for the BFD, it has become very expensive to hire additional firefighters due to rising pension contribution costs. Currently, each additional firefighter hired adds approximately \$25,000 annually to the city pension contribution. The rising pension contribution can be attributed to reduced investment returns as a result of the downturn in the economy. With these rising pension costs it may not be possible to hire additional firefighters on the current system. The staffing shortage could be attributed to several issues, yet a clear, long-term resolution has not been found to address the staffing problems at Fire Station #6 (Bloomington Fire Dept.,).

The Problem identified for this research is that the Bloomington Fire Department does not have a formalized long-term plan to address staffing shortages at Fire Station #6, which could result in an increased risk to the community and first responders.

The purpose of this research project was to identify staffing needs and develop long-term solutions to address staffing shortages at Bloomington Fire Station #6. The descriptive research method was used in this study to answer the following questions: (a) What are the staffing options for Fire Station #6, (b) what risks arise for the community and the BFD if staffing shortages are not addressed, (c) what are other departments similar to the BFD doing to address staffing shortages, (d) what recommendations will be implemented to address the staffing shortages at Fire Station #6?

Procedures for this paper included literature research which began at the National Fire Academy (NFA) and continued at the Hennepin County Library, through the internet, and an interview. Past and present BFD operations and staffing plans were reviewed, described, and critiqued. Staffing models from other departments similar in size were reviewed and also critiqued.

### Background and Significance

The City of Bloomington, Minnesota, a southern suburb of Minneapolis was founded in 1858. Today, Bloomington has grown into a dynamic city with more than 82,000 residents and a daytime work population of over 100,000 people (City of Bloomington, 2011). Major industries include retail and entertainment, hotel and restaurant, health maintenance and computer manufacturing. Bloomington's northern border includes the Minneapolis & St Paul International (MSP) Airport and the Minnesota River is the southern boundary. The City of Bloomington includes a working full time staff of over 500 employees (City of Bloomington, 2011). The Mall

of America is located within Bloomington just south of the MSP Airport. The Bloomington Public school system provides schooling to 11,929 students through ten elementary schools, three middle schools, and two high schools (Bloomington Public Schools, 2011). Bloomington is also home to the largest community college in Minnesota, Normandale Community College (Normandale Community College, 2011). The city is divided by interstate 35W from east to west. West Bloomington consists mostly of residential with newer residential development, along with multi-story office and residential high rises. The eastern part of the city consists of more industrial and retail areas. East Bloomington also contains the majority of Bloomington's less expensive housing. There are 36,400 households and 22,768 families residing in Bloomington (City of Bloomington, 2011). The City of Bloomington's fire protection is provided by the BFD which consists of one full-time fire chief and approximately 135 paid-on-call firefighters. The BFD operates out of six fire stations with nine engine companies, five ladder companies, and several additional support vehicles.

The Mall of America (MOA) which is the largest tourist attraction in Minnesota is located in Bloomington and provides an enhanced risk for the city of Bloomington and public safety agencies. The MOA first opened its doors in 1992 with a price tag of \$650 million. With a total of 4.2 million square feet and 2.5 million square feet of gross leasable space, it makes the MOA the largest shopping mall in the United States (Mall of America, 2011). The MOA contains more than 520 stores, 20 sit down restaurants, 30 fast food restaurants, 36 specialty food stores, and a 14 screen movie theater. The MOA employs 11,000 year-round employees which often peaks to 13,000 employees in the summer and holiday months (Mall of America, 2011). Key attractions include an indoor amusement park, an underwater aquarium, LEGO imagination center and four large anchor stores. Although Fire Station #6 is located on the west side of

Bloomington and nearly 10 miles away from the MOA it is still assigned to the MOA on a 2<sup>nd</sup> alarm.

The BFD operates on a budget of approximately 2.5 million dollars per year and has an average call load of approximately 1,200 calls annually (Bloomington Fire Department, 2011). The BFD provides back up emergency medical services for the Bloomington Police Department however the primary response from BFD is fire related. The area directly served by Fire Station #6 is located in the northwest part of the city and on average is the station with the least amount of calls per year. Even though it is the slowest station it has one of the highest property value loss risks due to the upscale neighborhoods it serves. The area directly served by Fire Stations #6 is considered high-end housing with very large homes constructed with light weight construction techniques. Fire Station #6 also serves several high rise office and residential buildings in their first due area. The neighborhoods served by Fire Station #6 have had several significant structure fires over the past several years with most of them occurring in large residential homes (Bloomington Fire Dept., 2011).

Bloomington Fire Station #6 opened in 1979 with 6 volunteers/paid-on-call firefighters assigned to the station and operated one fire engine pumper and one brush fire truck. The station consists of two drive-through garage bays and one single garage bay. Currently, it houses Engine 6, Brush 6, and spare Ladder 6. Spare Ladder 6 is not a front line ladder truck and not considered when establishing staffing levels. Fire Station #6 is a small station consisting of the apparatus garage space and a small dispatch office and training room. The station also has two bathrooms and a small kitchen/dining area. The station does not have sleeping quarters (Bloomington Fire Dept., 2011).

Since 1979 the volunteer/paid-on-call station 6 staffing levels have fluctuated from a high of 14 members in 1984 to as little as 5 members in 2004. At the current time, 8 firefighters are assigned to the station, two of which are eligible to retire in 2012. Because of staffing fluctuations over the last several years and inconsistent daytime response, the BFD began utilizing an alternative staffing method at Fire Station #6 in 2003. The alternate staffing method compared to the traditional volunteer firefighters who respond from home, was to staff the station with three paid on call firefighters to supplement day time response. The three positions are filled Monday-Friday from 8:00 AM to 5:00 PM and is referred to as the Duty Crew (Bloomington Fire Dept., 2011). The firefighters are paid a wage of \$15.00 per hour and are all current members of the fire department. The duty crew program does not cover the entire 24 hour period and costs the department an additional \$105,000.00 in staffing per year. The times outside of the duty crew hours are covered by the 8 volunteer/paid-on-call staff which due to personal commitments of staff, at times is not sufficient to staff a truck.

Volunteer/paid-on-call firefighters all live within responding distance of a fire station. This is usually a circle of 2 miles around the fire station. This requirement is so the firefighters respond to the station when paged and then respond to the scene on apparatus. This restriction contributes to the staffing issues at Station #6 and only allows the fire department to hire from a very affluent area. Hiring within the 2 mile circumference around a fire station is a standard practice the BFD has followed for years in order to keep response times acceptable for a community with 82,000 residents. This hiring practice has proved to work very well to keep responses between five and six minutes from the time of page for the first arriving fire engine (Bloomington Fire Dept., 2011). This hiring practice has proved successful for all the BFD Stations but in the last 10 years Fire Station #6 has suffered staffing shortages that can be in part,

attributed to the demographics of the neighborhood it serves. In 2007, fire department command staff recognized the need for another recruitment drive at Station #6, one of several over the past 15 years. The mass mailing, door to door recruitment, and an open house only produced two applications, only one of which was hired (Bloomington Fire Dept., 2011). This staffing shortage has resulted in calls having to be answered by other stations and staffing/equipment shortages on first alarm assignments. Presently, there is no long-term plan in place to solve this problem (Bloomington Fire Dept., 2011).

The United States Fire Administration (2010) provides the following five items as operational objectives:

1. Reduce the loss of life from fire in the age group 14 years old and below.
2. Reduce the loss of life from fire in the age group 65 years old and above.
3. Reduce the loss of life from fire of firefighters.
4. To promote within communities a comprehensive, multi-hazard risk-reduction plan led by the fire service organization.
5. To respond appropriately in a timely manner to emerging issues.

The completion of the research project addresses the stated United States Fire Administration [USFA] operation objectives found in 3, 4 and 5 above. The relationship of this research paper and the Executive Leadership course includes leadership, research, and change by identifying the staffing problem BFD faces at Fire Station #6.

This Executive Fire Officer Program research paper relates to the USFA mission “to provide national leadership to foster a solid foundation for our fire and emergency service stakeholders in prevention, preparedness, and response” (NSFA, 2011) by identifying and

solving a potential problem within the City of Bloomington which could result in an increased risk to life and property.

### Literature Review

A literature review was conducted to determine what information is available to answer the following research questions: What are the staffing options for Fire Station #6? What risks arise for the community and BFD if staffing shortages are not addressed? What are other departments similar to BFD doing to address staffing shortages? What recommendations will be implemented to address the staffing shortages at Station #6? Research was conducted at the Learning Resource Center at the National Fire Academy, the Hennepin County Public Library, the internet, and through an interview.

Many fire departments throughout the country both career and volunteer/paid-on-call are having staffing issues. The city of Allen Park, Michigan is trying to avoid a \$600,000 deficit for the current fiscal year by eliminating several career firefighter positions (Jurich, P., 2011). While many of these issues can be attributed to the economic downturn and shrinking budgets, one of the issues for volunteer/paid on call departments is the lack of interest from community members to join their local fire department. In Eden Prairie, Minnesota the mostly volunteer fire department is “fighting just to get people to sign up” and retain them for an extended period of time (KSTP, 2011). With the economy downturn and people working multiple jobs it has taken potential candidates away from fire departments that do not provide enough benefit to attract people to the volunteer/paid on-call fire service. Ozog (2007) reported in his EFO paper on a study about volunteerism by the United Parcel Service. The study indicated that people would increase their volunteer time if the organization made good use of the volunteer’s time, had a

good reputation of being well managed, made better use of individual talents and had defined job tasks(p.14).

Firefighting in Canada, Volunteer Vision, reported by Vince Mackenzie reports that in today's world image is everything. Fire departments hold their values out to the public for support and the "good reputation of the fire service is invaluable to us" (MacKenzie, 2011, ¶ 2). The volunteer fire service typically attracts those who have an interest in serving with honor, distinction and pride. Attracting those who fit this profile is important and can provide solid members who are committed and loyal to the fire department and community. The problem is finding these people who want to serve their neighborhood fire station (MacKenzie, 2011).

The Maplewood Fire Department in Minnesota plans to add full-time fire crews but to do so with fewer fire stations. In the past 14 years the Maplewood Fire Department staffing levels have shrunk from 140 firefighters to a current level of 60. To address these staffing issues the Maplewood Fire Department is exploring the use of its current paid-on-call firefighters to staff the fire stations on a 24-hour shift using a part-time rotating schedule. The Maplewood Fire Chief Steve Lukin states, "Maplewood has had a hard time recruiting and retaining paid-per-call firefighters for the southern and western stations in particular" (Horner, 2011, P. 1). To address these staffing issues in the southern and western sections of the city they plan on closing two stations and adding part-time staff to the remaining three stations (Horner, 2011).

Most fire departments begin as volunteer/paid on-call but as the call volume and population grows the department either grows with the city and maintains its current staffing model or starts to transition to career firefighters or part-time staffing (Coleman, 2005). The staffing model of using part-time employees to supplement volunteer/paid-on-call firefighters can be found in many departments. Some of these staffing models are used only to supplement

the daytime response as volunteer/paid-on-call fire departments have fewer members available during daytime hours. This problem is attributed to volunteer/paid-on-call firefighters having to work a full-time job to earn a living which takes them away from home and the community they live in (Coleman, 2005). In South Montgomery County, Texas the fire department bought over an acre of land for a forth fire station to serve a new subdivision but cannot come up with an additional \$4 million to build and equip the station (Lee, 2010). Even if South Montgomery finds the funds to build the station they still need to staff it. Staffing the station with paid firefighters will cost the county an additional \$43,000 per firefighter. A lower cost solution would be to hire volunteer or part-time firefighters who earn a fraction of what the full-time firefighters make (Lee, 2010). Some communities will choose the lower cost solution of hiring volunteers/paid on-call firefighters but that leads to recruitment and retention problems similar to what BFD Fire Station #6 is currently having. With the recruitment and retention issues that come with volunteer/paid on-call fire departments some departments have decided to turn to career firefighters to staff the stations or a combination of both career and volunteer/paid on-call firefighters. In 2009, South Montgomery County, Texas decided to staff their stations with full-time career firefighters but in 2010, budget constraints prohibited them from opening the new fire station to address the new subdivisions that were built and to keep their response time at a level the community can accept (Lee, 2010).

Staffing levels are in part determined by the community and what type of service they desire and what type of risk they may have but it commonly comes down to funding. The National Fire Protection Association 1720 (NFPA, 2004, p. 6), standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments states “staffing and deployment as: The

fire department shall identify minimum staffing requirements to ensure that a sufficient number of members are available to operate safely and effectively.” This NFPA standard provides direction to fire departments as to how they should operate and guidance on staffing levels to operate safely and effectively. The BFD has an Insurance Service Office (ISO) rating of 3 and meets the NFPA 1720 standard (Bloomington Fire Department, 2011).

Struggling volunteer/paid-on-call fire departments across the country have turned to alternate staffing methods to address shortages. These staffing methods are usually part-time firefighters who are less costly than using career firefighters. In Cedar Falls, Iowa the fire department has turned to using a combination of career, volunteer, and cross-trained firefighter reserves. The cross-trained firefighter reserves are required to work 12 shift hours per month and 144 hours per year. They also need to attend 4 hours of training per month for a total of 48 hours per year. The Cedar Falls Fire Department also uses volunteers to supplement their staffing levels. These volunteers are required to work a total of 16 hours on an assigned shift and receive a Length of Service Award which is paid annually (Schilling, 2009).

In Brooklyn Park, Minnesota the fire department recently changed its staffing model from volunteer firefighters who respond from home and work to part-time firefighters who staff the stations on a 24-hour schedule. The Brooklyn Park Fire Department (BPF) is similar in size to the BFD. Brooklyn Park is the sixth largest city in Minnesota with a population of 75,781 (City of Brooklyn Park, 2011). The fire department was structured similar to the BFD until recent changes were made due to staffing issues. They went away from using volunteer firefighters due to recruitment and retention issues that led to staffing shortages at four fire stations. The BPF now staffs three fire stations with either two or three part-time firefighters who are paid an hourly wage of \$13.00 per hour. Three stations are staffed from 8:00 AM to

11:00 PM and then from 11:00 PM to 8:00 AM staffing levels are reduced from three stations to two stations. They supplement their staffing model with automatic aid and mutual aid agreements from surrounding communities and in the event of a large incident they have the ability to call back part-time firefighters (Brooklyn Park Fire Dept., 2009).

On March 13, 2011 the author conducted an interview with Rodger Coppa, Deputy Chief of Administration & Logistics for the BPF. According to Coppa the staffing levels have been reduced from a volunteer/paid on-call staff of 72 to the current staffing of 62 part-time firefighters. Approximately, 80 percent of those live in the city and were hired from the old system. The other 20 percent live outside the city and had FFI and FFII certifications before being hired. Coppa stated the new model of using part-time firefighter's works very well. It provides a level of service that is consistent instead of guessing how and when a call would be answered. The paid-on-call system did not provide the level of service they have now especially during the day when the majority of the firefighters were at work. The main reason for switching to a duty crew/part-time firefighter model is because the day time staffing was lacking at all BPF stations. The new model provides consistent staffing levels 24 hours per day as well as additional services to the community (R. Coppa, personal communications, March 13, 2011).

Since BPF went to the duty crew staffing model, they provide emergency medical services (EMS) and respond as first responders to assist paramedics who work for a private ambulance service that provides transport. In responding to medical calls the BPF increased the call volume from approximately 1,500 before the transition to an all-time high of 5,712 responses in 2009. The training has also changed and now requires each firefighter to perform 60 hours of training per quarter and daily training sessions with each individual duty crew. Each part-time firefighter on the duty crew earns \$13.00 per hour and can qualify for the pension after

5 or 10 years of service. The cost of using part-time firefighter's verses the old system of volunteer/paid on-call firefighters is an approximate \$500,000 increase. The BPFDD budget went from 1.8 million on the old system to 2.3 million for the new staffing model. (Brooklyn Park FD, 2010).

According to Bertram, many fire departments are faced with the same problem, not enough staffing to properly do the job due to budget constraints. Many have overcome this problem with alternative staffing options which include: part-time employees, apprenticeships, and intern programs (Bertram, 2006). The staffing issues at BFD Station #6 not only present risks to the neighborhood it serves but to the entire city by shorting alarm assignments of apparatus and firefighters. An article by B. Goldfelder (2007) "Poor Staffing = Deadly Outcomes" describes tasks that need to be completed at a structure fire and the formula for determining the staffing levels. Goldfelder states, "It takes well-led, well-trained firefighters to fight fires based upon pre-required tasks. How many do you need? Figure out the tasks and apply that number" (Goldfelder, 2007, p. 1). Using a 1,000 square foot house fire with wood framing in a hydrant area Goldfelder uses the following tasks and staffing:

Water Supply- 1 firefighter on the hydrant

Pump operator- 1 firefighter

3 handlines- 3 firefighters per line

Force Entry & Search- 2 firefighters

Vent- 2 firefighters

RIT- 3 firefighters

Command-2 firefighters

A minimum of 20 firefighters are needed to complete the stated tasks (Goldfelder, 2007). These tasks do not take into consideration other factors that could have significant impacts on an operation which would then impact staffing levels needed to complete the job safely. Many risks arise when fire departments attempt to complete these tasks without adequate staffing. In the article, Staffing and Tactics for Firefighter Survival, J. Parker (2010) states, “adequate staffing at incidents enables departments to use proper tactics to implement a strategy that fits the scenario presented. These tactics will lead to increased firefighter survival.”(p.1). On January 27, 2011 Springfield New Jersey firefighters responded to a house fire and had a quick response time of four minutes from the time of call. But the initial crew only had three firefighters which prevented a fast interior attack. The crew had to wait for over 12 minutes for mutual aid fire departments to arrive before the fire could be attacked from the inside. The fire had gone from a one room fire to the entire floor being engulfed in flames and had spread to the third floor. Springfield Fire Chief James Sanford stated, “That the fire in Springfield expanded because they didn't have enough manpower” (Khavkine, 2011, p. 1).

Waiting for the proper staffing levels to arrive at a fire to conduct task orientated operations is mostly determined by the incident commander. The incident commander should follow Occupational Safety and Health Administration (OSHA) standards. These standards can have a significant impact on how an incident commander decides what tasks can safely be completed or how they will be accomplished depending on the level of staffing. One of the OSHA standards is the respiratory protection standard (29 CFR 1910.134), paragraph (g) (4) “procedures for Interior Structural Firefighting” and specifically the standard for two stand-by personnel outside while at least two suppression firefighters are inside. The standard states, “At least two employees enter the IDLH atmosphere and remain in visual or voice contact with one

another at all times; at least two employees are located outside the IDLH atmosphere (p. 1). This standard does not preclude firefighters from performing emergency rescue activities before staffing is in place. (OSHA, n.d.). Not only do OSHA and NFPA standards recommendations help determine staffing levels, so should the departments risk management plan. The BFD Risk Management Profile states, “Will we risk our lives a lot, in a calculated manner, to save Savable lives. We will risk our lives a little, a calculated manner, to save Savable property. We will not risk our lives at all for lives and property that are already lost” (Bloomington Fire Department, 2008, P. 1). Being able to perform tasks that follow these risk management profiles and the NFPA Standard 1720 which states, “Upon assembling the necessary resources at the emergency scene, the fire department shall have the capacity to safely commence an initial attack within 2 minutes 90 percent of the time” (NFPA 1720)

Outside the BFD Duty Crew hours at Fire Station #6 the station has periodically been under staffed. This author reviewed the years from 2006 to 2010 and found that the volunteer/paid-on-call staff has fluctuated from 4 firefighters in 2006 to 9 firefighters in 2010. In 2007 the BFD acquired a house near Fire Station #6 that is 1.5 miles from the station. The house is currently rented to two firefighters who respond to Fire Station #6 and this has improved the staffing levels; however, is only a short-term 5 year solution because the house will be removed for future road improvements (Bloomington Fire Dept., 2011).

This author also reviewed Fire Station #6 call data from 2006 through 2010 and found 7 incidents where they were dispatched to working structure fires within their zone. The duty crew or volunteer/paid-on-call firefighters answered all 7 fires with an engine response although some of them were not in a timely manner. Three of the working fires were during duty crew hours and the engine arrived on scene within an average of 5:61. It is very likely that these three

working fires would not have been answered by Engine #6 within the average of 5:61 if it was not for the duty crew staffing. The other four calls handled by the volunteer/paid on-call firefighters during non-duty crew hours had an increased response time average of 7:59. On two occasions Engine #6 was not the first BFD engine to arrive even though it was in their zone of coverage. On one of the fires in 2009 it took Engine #6 over 9 minutes to arrive. Six of these fires were in large homes that were two or three stories in height and the remaining fire was in a commercial building. (Bloomington Fire Dept., 2011).

This author then reviewed staffing related data from 2006 to 2010 for Fire Station #6 during non-duty crew hours. The specific data reviewed was related to how many times Fire Station #6 responded with only two firefighters and how often did the engine at Fire Station #6 fail to respond due to staffing shortages.

#### Fire Station #6 Call Data:

2006- Responded to 302 fire calls

- Not able to respond 10 times within their response zone due to staffing shortage
- Responded 59 times with only 2 firefighters

2007- Responded to 271 fire calls

- Not able to respond 14 times with their response zone due to staffing shortage
- Responded 36 times with only 2 firefighters

2008- Responded to 290 fire calls

- Not able to respond 7 times with their response zone due to staffing shortage
- Responded 10 times with only 2 firefighters

2009- Responded to 238 fire calls

- Not able to respond 3 times with their response zone due to staffing shortage
- Responded 32 times with only 2 firefighters

2010- Responded to 230 fire calls

- Not able to respond 5 times with their response zone due to staffing shortage
- Responded 25 times with only 2 firefighters

Schilling (2009) states, a movement has been building with the struggling volunteer departments that cannot afford expensive career positions. This movement brings in part-time personnel to create a staffing alternative. It allows fire department administrators to decide based on run volume, the number of staff members needed on each shift. Shifts can vary in any degree of time blocks (p. 10).

Hart (2006), reported on the implications of attended-staffing decisions in Baltimore County volunteer fire service. Volunteer fire stations in Baltimore County had slow response times because they were not staffed. A solution to this problem was to hire part-time personnel to staff the stations. He concluded that hiring part-time personnel should be the last resort due to the implications it caused for the volunteer firefighters. Although Hart's survey of 92 active Baltimore County volunteer firefighters revealed that over 80% of those surveyed indicated they would attend stations for eight-hour shifts if benefits were provided. Hart's research concluded that most of the benefits that the volunteers identified included wages and other rewards. The most popular incentives included fuel assistance, tuition reimbursement, and assistance with healthcare. Other popular non-momentary incentives were meal assistance, training, and computer/internet access.

In Mankato, Minnesota the fire department uses a combination of full-time, part-time and volunteers to staff their three fire stations. In 1988, the city of Mankato transitioned from a traditional full-time fire department to a public safety department model. This change brought on volunteer firefighters to supplement the full-time staffing. Today, Mankato has a population of 36,000 residents which increases every fall to nearly 50,000 residents due to a large university located in the city. The fire department has 16 full-time firefighters most of which cover the daytime hours (City of Mankato, 2011). Nighttime staffing is supplemented by 37 volunteer

firefighters with 6-10 volunteer firefighters per shift. The city of Mankato is looking at building new fire stations and keeping the main downtown fire station staffed with full-time firefighters. Two other stations would be remodeled or rebuilt and staffed with resident and non-resident volunteers. Fire Station #2 would be built in the NE quadrant of the city and would include four to six townhomes next to the station for the volunteers to live in. Station #3 would continue to be for the resident volunteers who live in the city near the fire station. With these changes the Mankato Fire Department would like to make a goal of 15 staff members in 9 minutes to the urban area of Mankato. 10 staff members in 10 minutes to the suburban areas and 6 staff members in 14 minutes to the rural areas. In 2010 the Mankato Fire Department had an average response time to fire and emergency calls of 5:03 (City of Mankato, 2011).

### Procedures

Procedures for this paper included literature research which began at the National Fire Academy (NFA) and continued at the Hennepin County Library, through the internet, and an interview. Past and present BFD response data and staffing plans were reviewed, described, and critiqued. Staffing models from other departments similar in size were reviewed and also critiqued.

1. What are the staffing options for Fire Station 6?
2. What risks arise for the community and BFD if staffing shortages are not addressed?
3. What are other departments similar to BFD doing to address staffing shortages
4. What recommendations will be implemented to address the staffing shortages at Station 6?

The author completed a review of applicable literature from material found at the National Fire Academy Learning Resource Center and internet search engines including Google Search and

Bing Search. The material found is related to long-term plans to address staffing shortages at volunteer/paid on-call fire departments.

This author conducted an interview with Rodger Coppa, Deputy Chief of Administration & Logistics for the Brooklyn Park Fire Department on March 13, 2011 at 2:00 PM. The intent of the interview was to gain information on the BPFD and staffing problems they have had and what they have done to solve those problems. The BPFD is very similar in size and structure to the BFD and had some of the same staffing issues that Fire Station #6 is currently having. The interview provided useful information that may assist in solving the stated problem. The interview questions included the following: What caused the BPFD to change staffing models? What hours are the stations staffed? What is the staffing level at each station? How are the firefighters paid? Does BPFD have any more volunteer firefighters or paid on-call firefighters? Did the department have to make any modifications to the stations to house firefighters 24 hours a day? What were the staffing levels before and after the change? How was your daytime response before you started using part-time firefighters? How does BPFD meet the NFPA 1710 & 1720 standards? What was the call load before and after the change in staffing? How do you conduct training with the part-time firefighters? What is your current budget and what was your budget before the staffing change?

Finally, the author conducted a review of volunteer and/or paid on-call fire departments across the United States to find similar staffing problems and how those problems were solved. Several departments were identified and many had or have the same problem as the BFD. Most of these departments are looking at part-time employees to supplement volunteer/paid on-call firefighters. The author also completed a review of applicable literature using material from

within the BFD including standard operating procedures, budget information, the current BFD duty crew program, and BFD administration information related to staffing.

The data researched for the paper has limitations due to identifying comparable departments with a similar problem as stated in the research. The author reviewed several departments with a similar problem encountered by the BFD but the author had difficulty finding examples from departments that were strictly volunteer/paid on-call that also use duty crews to supplement staffing especially daytime staffing.

### Results

The results of this research were found from an analysis of literature and review of several fire departments across the United States. This research has found many departments with similar staffing issues that BFD Fire Station #6 is experiencing. Several different staffing methods and models were identified during the research that could be used to solve the stated problem. During this research an interview was conducted with Deputy Fire Chief Rodger Coppa of the Brooklyn Park Fire Department in Brooklyn Park, Minnesota. (The questions and responses can be found in Appendix A)

The first question, what are the staffing options for Fire Station 6? Through research the author was able to identify several different staffing models used by volunteer/paid on-call departments across the United States.

There are several staffing options for Fire Station 6. The current staffing model using volunteer/paid on-call firefighters supplemented by a daytime duty crew has improved the staffing shortages but only from 8:00 AM to 5:00 PM Monday-Friday. After two retirements the Fire Station 6 volunteer/paid on-call staff will be reduced to 6 firefighters in 2012. Two of the six firefighters live in the BFD rental house and are considered short term. One of the options is to

maintain the current staffing model and pursue potential candidates who live within the response area of Fire Station #6. Hiring additional long-term volunteer/paid-on-call firefighters at Fire Station #6 would be ideal although could prove costly due to rising annual pension costs which could reach \$25,000 per new employee. Because Fire Station #6 only accounts for 20-25% of the total calls in Bloomington it may be more beneficial to hire new employees at the busier fire stations (Bloomington Fire Dept., 2010).

Another staffing option is to expand the duty crew staffing model currently used today which is 9 hours during the daytime Monday-Friday. Expanding the duty crew hours to cover weekends and night-time hours is an option but will create additional costs. The current 9 hour duty crew five days a week costs approximately 105,000.00 per year. Expanding the duty crew hours will increase that number almost three times. Another obstacle with using the duty crew for additional hours is that Fire Station #6 is not set up to house firefighters especially during nighttime hours. The station would need to be updated with sleeping quarters and bathroom/shower facilities which would also add additional costs.

The BPFDD has chosen the duty crew part-time employee staffing model. The BPFDD uses duty crews to cover the entire city 24 hours per day. BPFDD went from a volunteer/paid on-call system to the duty crew system which was due to staffing shortages at all four fire stations. They no longer use volunteer/paid on-call firefighters and have gone to a part-time system with firefighters being paid part-time wages. These changes increased the fire department budget by \$500,000 (BPFDD, 2011).

The Maplewood Fire Department is having a similar staffing problem and intends to solve the problem using full-time fire crews and closing two fire stations. The Maplewood Fire Department has seen its staffing decline over the last 14 years from 140 firefighters to a current

level of 60. Recruiting and retaining volunteer/paid on-call firefighters has been the issue. They are exploring using current volunteer/paid on-call firefighters to staff the stations with a part-time rotating 24 hour schedule (Horner, 2011).

The last option, using examples from the Mankato Fire Department is to use a combination of resident and non-resident volunteer/paid on-call staff and provide housing to the non-residents. The Mankato Fire Department is planning to build a new fire station with six townhomes next to the station for volunteers to live in. This is similar to the BFD system of utilizing the rental house but again, this is a short-term (5 year) solution since the house will need to be removed for future road improvements.

The second question, what risks arise for the community and BFD if staffing shortages are not addressed? Several risks were identified by the author if the long-term staffing problem at Fire Station 6 is not addressed. One identified risk is the percentage of calls that Fire Station #6 does not answer due to staffing shortages will increase as personnel retire and/or the rental house is no longer an option. If the fire calls are not answered by Fire Station #6 or they take longer to answer calls within their zone it will result in an increase in response time. As stated Fire Station #6 has the slowest response time averages of the 6 stations in Bloomington but has significant life and property risk due to the affluent neighborhood it serves. The neighborhood that surrounds Fire Station #6 consists of mostly large single family dwellings that were constructed with light-weight construction. It is imperative to arrive early when one of these structures burns due to the rapid fire spread in these types of buildings. Since 2006 Fire Station #6 has had 7 structure fires within their zone with 3 being answered by the duty crew. The other 4 fires were answered by the volunteer/paid on-call staff. (See figure 1)

Figure 1

<b>Incident</b>	<b>Date/time</b>	<b>Response Time</b>	<b>Staffing</b>	<b>Duty Crew(Y/N)</b>
House Fire	12/02/2006 @ 11:42 AM	6:30	2	N
House Fire	12/02/2006 @ 5:06 PM	7:29	3	N
House Fire	01/03/2008 @ 4:43 AM	7:25	3	N
Commercial Fire	05/24/2009 @ 04:50 AM	9:53	2	N
House Fire	06/29/2009 @ 3:32 PM	6:37	3	Y
House Fire	02/10/2010 @ 08:50 AM	4:36	3	Y
House Fire	02/10/2010 @ 5:00 PM	6:10	3	Y

Another risk associated with staffing shortages at Fire Station #6 is a reduced number of apparatus and firefighters to the city. Fire Station #6 is included on all box alarm assignments throughout Bloomington most of which are assignments on the first or second alarm. If Fire Station #6 is unable to respond or responds with two firefighters it results in fewer total firefighters on the scene. The BFD follows the NFPA Standard 1720 and the OSHA respiratory protection standard. Reducing one engine and staffing from the alarm assignments will affect staffing on the fire ground. Less staffing on the fire ground can become a safety issue for firefighters and citizens. This could change the tactics of the incident commander because he/she

will have to wait longer for specific tasks to be completed. Having to wait for additional resources to complete tasks can be problematic especially if a life hazard is present. Examples of risks found during the literature review include the B. Goldfelder, on proper staffing levels to complete pre-determined tasks and the January 27, 2011 Springfield New Jersey Fire. Less staffing, reduced equipment, and increased response times are all identified as potential risks associated with this problem. These identified risks could potentially have impacts on the current I.S.O rating 3 that the BFD has had for a number of years.

The third question, what are other departments similar to the BFD doing to address staffing shortages? Through research this author was able to identify several fire departments in Minnesota that are similar to the BFD that are having or have had staffing shortages and the solutions to their problem. These departments are BPF, Maplewood Fire Department, and the Mankato Fire Department. All three departments had staffing issues and addressed them with part-time firefighters staffing the stations.

The interview with BPF Deputy Chief Coppa revealed a staffing model where parts of that model could be used at Fire Station #6. The BPF strictly used volunteer/paid on-call firefighters until they switched to a part-time staffing model. Staffing levels before the switch were near 72 firefighters and went down to 62 part-time firefighters who staff the stations as a duty crew. Coppa revealed the reason for the staffing model switch was due to staffing shortages at all four BPF stations especially during the day. Three stations are now staffed with part-time firefighters during peak hours. During the night time hours the staffing level drops to two stations staffed with part-time firefighters. The BPF relies on neighboring agencies to assist meeting NFPA and OSHA standards through automatic and mutual aid agreements. When the

BPFD switched staffing models the fire department budget increased by \$500,000 and one could argue reduced their overall coverage.

The final question, what recommendations will be implemented to address the staffing shortages at Fire Station #6?

This author has found valuable information from researching other departments during this project. This research will help suggest recommendations to improve the staffing problem at BFD Station #6.

A review of current staffing levels and hiring practices will need to be completed. Looking at what options are available to recruit and retain firefighters from the neighborhoods near Fire Station #6. Some of these options may not have been used in the past. Both the Mankato Fire Department and the BPFD have used new models to staff fire stations; information from these departments and others identified in the research will help form a long-term solution to the stated problem.

Attempting to maintain and/or increase the current BFD staffing levels at all 6 fire stations will be important in continuing to meet NFPA and OSHA standards. If recruitment and retention does provide more potential candidates at Fire Station #6 it will be important to keep other stations fully staffed. This will offset reduced staffing levels at Fire Station #6 when counting total firefighters on alarm assignments. Adding duty crew hours at Fire Station #6 is a possibility depending on funding. It may be easier to fund additional duty crew hours than hiring volunteer/paid-on-call firefighters due to rising pension costs.

The BFD must continue current automatic and mutual aid agreements with neighboring fire departments. The BFD Box Alarm system provides a wealth of predetermined mutual aid resources that command staff can depend on if needed.

## Discussion

When reviewing the different staffing models in place across the United States this author found many different types and variations that suited individual fire departments. The difficulty is finding a staffing model that will be a long-term solution to the stated problem at Fire Station #6. Developing the right staffing model can be challenging due to department members and the community not understanding that the current staffing model may no longer be efficient or meeting their needs. The BFD has put several solutions in motion to solve the staffing problem at Fire Station #6 but only one is considered to be long-term; the duty crew. Attempting to recruit and retain firefighters for Fire Station #6 has been a recurring problem. The Eden Prairie Fire Department in Eden Prairie, Minnesota is “fighting just to get people to sign up” and retain them for an extended period of time (KSTP, 2011, p.1). The BPFD had daytime staffing issues that contributed to the department switching staffing models and going to part-time firefighters who now staff the fire stations on a 24-hour basis (Brooklyn Park Fire Department, 2011).

Bertram (2006), states many fire departments are faced with the same problem of lack of staffing. Not enough staffing can contribute to problems on the fire ground. Risks associated with staffing shortages at emergency incidents can lead to incident commanders cutting corners or pressing the envelope (Goldfelder, 2007). The staffing shortages at Fire Station #6 have led to increased response times in their first due area and shortages to alarm assignments in the city. An example of staffing shortages at a structure fire can be found at the January 27, 2011 Springfield, New Jersey fire. Three firefighters on the initial alarm had to wait for over 12 minutes for additional resources to arrive and assist in the fire fight.

J. Parker (2010) states, adequate staffing at incidents enables departments to use proper tactics at incident scenes. Using proper tactics with more firefighters on scene will only result in

safer operations overall. A movement has been building with struggling volunteer departments that cannot afford or choose not to hire expensive career firefighters. The movement uses less expensive part-time firefighters to staff fire stations for part of the day or 24-hour periods (Schilling, 2009). This author found several departments not only across the United States but also in Minnesota. The Maplewood Fire Department dropped from a high of 140 volunteer/paid-on-call firefighters in 1997 to a current level of 60 firefighters. The Maplewood Fire Department will close two fire stations and staff the remaining three with part-time firefighters on a 24 hour basis (Horner, 2011).

The BPFDD uses a staffing model of part-time firefighters after going away from volunteer/paid-on-call firefighters. This change was due to poor turnout during the day. With this change the budget for the BPFDD increased by \$500,000 (Brooklyn Park Fire Department, 2011). The Cedar Falls Fire Department uses a combination of career, part-time and cross-trained reserve firefighters to address their staffing needs. (Schilling, 2009).

This author believes the most appealing combination of firefighters is in the Mankato Fire Department. They use career firefighters to staff their downtown station where a majority of the calls exists but use two sub stations with resident and non-resident volunteer firefighters to supplement the staffing levels. Non-resident volunteer firefighters do not reside in the city but either live in the fire station or work shifts as part-time firefighters. The City of Mankato plans to build a new station with townhomes next to it so the firefighters can live off site and still respond quickly. The resident volunteer firefighters all reside within the city limits and staff a third station (Mankato Fire Dept., 2011).

Many of these staffing models could be used for Fire Station #6. This author believes the BFD has the information needed to solve the problem stated in this research. Solutions can be

found from different fire departments experiencing problems with staffing especially daytime staffing on volunteer/paid-on-call fire departments.

### Recommendations

Based on the research done for this project there are three recommendations. First, the BFD should review the next 5-year staffing outlook for Fire Station #6 and project what the levels will be for the volunteer/paid-on-call staff. With two retirements planned in 2012 and the potential to lose the rental home in the next 5 years, staffing could be reduced to 4 firefighters. If feasible the BFD should attempt to attract potential candidates who live near Fire Station #6 who could be hired as volunteer/paid-on-call staff. Even though recruitment drives in the past have not yielded high numbers of applications this process should be reevaluated on a 5 year basis as new people move into the area. One possible issue with hiring more volunteer/paid-on-call firefighters is the pension cost of each member added to the plan. Currently, it costs the City of Bloomington approximately \$25,000 annually in new contributions to the pension fund for every newly hired firefighter. Keeping the current system in place at Fire Station #6 should be a priority if more volunteer/paid-on-call firefighters can be found and/or afforded.

Second, the BFD should consider plans for staffing Fire Station #6 outside the current duty crew hours. This could be done by adding more hours to the current duty crew and even staffing the station at night if needed. The current duty crew at Fire Station #6 serves the department and community well. The duty crew has handled many alarms during the day that may have not been answered in a timely response. It has kept response times down Monday-Friday during the day when traditionally this has been the most difficult time to staff Fire Station #6. Expanding the duty crew hours could be expensive since the current cost for the duty crew at Fire Station #6 is \$105,000 but plans to raise funds through the budget process should be

explored. Even if funds are found to cover the additional duty crew hours Fire Station #6 may need to be expanded with up to date living quarters especially if the nighttime hours are expanded.

Finally, the BFD should explore the feasibility of expanding the current rental house system it has in place. Two firefighters currently respond to Fire Station #6 from the house. This has supplemented the staffing levels although this is a short-term solution since the house will be raised for future road expansion. This concept of using rental homes or apartments may be a good solution if property and building(s) can be identified. The current process in Mankato, Minnesota of building townhomes next to a new fire station for firefighters to reside appears to be a good option. The BFD should look at the property next to or near Fire Station #6 to see if townhomes can be built and offered to firefighters who would then respond to Fire Station #6. Obviously, identifying the costs of such a project needs to be explored and compared with costs of just adding a duty crew to cover more hours.

These three recommendations should be explored further to determine the feasibility of such plans. A decision should take place so a long-term staffing solution can be in place within 5 years to address the upcoming retirements and the loss of the rental home program.

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Appendix A.....Deputy Chief Coppa Interview

Interview of Deputy Chief Rodger Coppa  
Brooklyn Park Fire Department  
Brooklyn Park, Minnesota

This interview took place in person on March 13, 2011

1. What is your name and position of the Brooklyn Park Fire Department?

Response: My name is Rodger Coppa, Brooklyn Park Deputy Chief of Operations for the Brooklyn Park Fire Department.

2. Can you tell me about the Brooklyn Park Fire Department? Past and Current?

Response: The BPFDD is currently a part-time fire department with a total staffing around 62 firefighters. The current system uses part-time firefighters that staff the stations using a duty crew model of staffing. BPFDD has 4 fire stations with three of them staffed with duty crew members. The remaining station is used as a call-back station only. The duty crew at full strength from 8AM to 11PM at which time the staffing goes down to 2 stations until 8AM the next day. The duty crew consists of 2 or 3 person crews. The previous staffing model was a volunteer/paid-on-call method. Firefighters carried pagers and responded to the station when there was a call. Total staffing was around 75 firefighters.

3. Why did BPFDD change staffing models?

Response: Staffing turnout on the old system was lacking. Daytime staffing was especially a problem and getting trucks in service was inconsistent. When a call came in especially during the day the response was inadequate. Changing to the new system provides a timely response with much improved response times.

4. What is the cost difference between the two staffing models?

Response: The cost difference is around \$500,000. The BPFDD budget before the change was 1.8 million and after the change went to 2.3 million.

5. How are the part-time firefighters hired and how are they compensated?

Response: The majority of the firefighters were hired from the volunteer/paid-on-call system. Approximately 80% still live within the city. Other firefighters were hired with prior experience and state certifications. All the part-time firefighters are paid an hourly wage of \$13.00. The duty crew firefighters are also part of the BPFDD pension and are vested after 5 years at 40% and 100% after 10 years.

6. When the BPFDD changed staffing models to a 24 hour duty crew did the stations have to be remodeled with bunk rooms/rest rooms/kitchen?

Response: No, all fire stations were constructed with bunk rooms and living facilities. The BPFDD Station #4 is not used as a duty crew station and only as a call-back station.

7. Did the BPFDD see an increase in incidents when the switch was made to a duty crew system?

Response: Yes, the call-load before the switch was around 1,500 incidents and increased to an all-time high of 5,700 incidents in 2009.

8. What was the cause of the large increase in incidents?

Response: Medicals, before the BPFDD did not respond on medicals but now with 24 hour staffing the fire department responds with the police department on all medicals. North Paramedics still handle all ALS/BLS transports

9. Are there any concerns with meeting the NFPA 1710/1720 standards by going to this new staffing model?

Response: No concerns at this time. BPFDD has a good automatic aid and mutual aid agreements in place that provide more apparatus and staffing at working fires.

10. How are the part-time firefighters trained?

Response: Each firefighter must complete 60 hours of quarterly training. This training is usually done while the firefighters are on shift.