

**Staffing Inadequacies During Peak Hours
at Granville Township Fire Department**

By:
Casey Curtis
Lieutenant
Granville Township Fire Department
PO Box 202
Granville, Ohio 43023

A research project submitted to the Ohio Fire Executive Program

31 May 2011

CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

1. 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 writings of another.

2. I have affirmed the use of proper spelling and grammar in this document by using the spell and grammar check functions of a word processing software program and correcting the errors as suggested by the program.

Signed: _____

Printed Name: _____

ABSTRACT

One problem at the Granville Township Fire Department is a lack of staff to adequately cover emergency runs. The problem does not exist for single unit EMS and fire calls. The inadequacy occurs only during peak hours and when multiple apparatus are required. The purpose of this applied research project is to determine when staffing levels are lowest, when run volume is at its highest and possible solutions.

The research and survey questions were formulated to determine peak times, how many positions would be required, potential ways to generate income to pay for an increase in staffing, and impact on current volunteer participation. The questions are the following:

1. What are the peak times that require increased staffing levels at GTFD?
2. How many additional positions would be needed in the near and long term future to meet current and future demand for emergency responses?
3. How could additional staffing be paid for?
4. What impact would an increase in the number of paid staff have on volunteer staff that is available during the daytime?

A literature review was performed to further explore options to make improvements. Extensive run data and analysis was performed in order to obtain a clear picture of what peak time staff issues exist. The final result of research showed that from 0800 – 2000 runs were the highest and volunteer availability was the lowest. The final recommendation was that two 12 hours shifts per weekday would alleviate a majority of the staffing shortage. The additional expense could be paid for by the implementation of EMS billing.

TABLE OF CONTENTS

CERTIFICATION STATEMENT..... 2

ABSTRACT..... 2

TABLE OF CONTENTS..... 3

INTRODUCTION 4

 Statement of the Problem..... 4

 Purpose of the Study 4

 Research Questions..... 4

BACKGROUND AND SIGNIFICANCE..... 5

LITERATURE REVIEW 8

PROCEDURES..... 13

 Definition of Terms..... 15

 Limitations of the Study..... 15

RESULTS 16

DISCUSSION..... 18

RECOMMENDATION 20

REFERENCES 23

APPENDIX 1 – Runs During Volunteer Availability 24

APPENDIX 2 – Runs By Hour of the Day..... 25

APPENDIX 3 – Runs Volume By Day of the Week..... 26

APPENDIX 4 – Volunteer Availability Survey 27

APPENDIX 5 – Survey Results..... 28

INTRODUCTION

Statement of the Problem

The Granville Township Fire Department (GTFD) prides itself on providing the highest level of EMS and fire protection for its residents. The GTFD has grown and evolved significantly over the past five years and the communities that are protected by the GTFD have also been undergoing changes. One of the community changes that has impacted the fire department is a change in demographics. The problem this study will address is the change in demographics that has had a negative influence on volunteer participation and availability, resulting in staffing shortages during peak run times.

Purpose of the Study and Research Method

The purpose of this study is to identify and implement alternative staffing options that could supplement the staff shortages during peak runs times. A survey of GTFD volunteers and similar combination departments was conducted along with GTFD emergency run data analysis to answer the following questions.

Research Questions

The research questions this study will investigate are:

1. What are the peak times that require increased staffing levels at GTFD?
2. How many additional positions would be needed in the near and long term future to meet current and future demand for emergency responses?
3. How could additional staffing be paid for?
4. What impact would an increase in the number of paid staff have on volunteer staff that is available during the daytime?

BACKGROUND AND SIGNIFICANCE

Since the mid 1980's the GTFD has had full time staff in one form or another. Volunteers that both lived and worked in the area supported the full time staff program. The first full-time staff members worked a 40-hour work week from 0800 to 1700, Monday to Friday. In the early 1990's the schedule was modified to have coverage from 0800 to 2300, Monday to Friday. All runs from 2300 to 0800 and all weekend were covered by volunteer members, most of which responded from home. Volunteer members were assigned duty crew nights that had them on a six-day rotating schedule. The crews were comprised of four to six members that performed both fire and emergency medical service (EMS) duties. Any run that required additional apparatus response was dispatched, as an all call and any volunteer or full-time staff member was able to respond.

Less and less volunteers were able to make runs on their assigned duty crews. Weekend runs that occurred during the day prior to the nighttime crew being on duty were greatly impacted as well. This system allowed for runs to be dispatched to the volunteer and it was very common to take ten minutes or more just to mark a unit en route. If after 12 minutes apparatus had not marked responding, mutual aid response would be started. If the mutual aid department was also a volunteer department the initiation of EMS care could be further delayed. Even utilizing a full-time staff department, initial care might still be in excess of ten minutes.

In 2006 the staff schedule was adjusted again to meet the needs of the changing community. Three of the four full-time members were placed on the 24 on / 48 off shift rotation. The fourth employee stayed on a 40-hour work week. These full-time employees were then supplemented with one part-time employee per shift. This resulted in a minimum of two firefighter/paramedics on duty 24/7 with a third available from 0800 to 1700 Monday to Friday.

The third full-time employee eventually found employment elsewhere and the position was converted into a second part-time slot that was added as a 24-hour shift. With this minor adjustment the GTFD now had minimum staffing of three firefighter/paramedics 24/7.

In January of 2007 the structure of the department changed from a private corporation to a township department. With this change in structure and the passing of a new 2.5 mil levy the department hired its first full-time Fire Chief. In October of 2007 three additional full-time employees were added. This did not create an additional person per day. It was utilized to replace one of the part-time shifts. The last change that occurred was in July of 2009. The GTFD was the recipient of a Staffing for Adequate Fire and Emergency Response (SAFER) grant that allowed for the hiring of three additional full time employees.

Current staff levels are as follows: One Fire Chief on a 40-hour work week schedule, one shift officer and two full-time firefighter/paramedics on a 24/48 schedule with three different units. A fourth position is filled every day with a 24-hour part time employee position. The full-time staff is tasked with all daily fire and EMS duties as well as various other specialized responsibilities. All four paid employees are assigned to the first out engine and three of those individuals are cross-manned with the first out medic. The current volunteer roster consists of 20 volunteers with various levels of training and various levels of participation.

Typical response on a fire run is the first out engine staffed with four. The second in apparatus varies based on call type and location. This second in apparatus may either be a mutual aid company or apparatus staffed with volunteers from GTFD. In the case of a motor vehicle accident (MVA) the medic is sent with three and the shift officer stays back to ride in charge of the rescue. The rescue will not leave the station with less than three unless abnormal circumstances exist. For example, additional volunteer response to the scene or a known lack in

volunteer availability. If personnel are available the next apparatus to respond on a MVA would be the second medic. On an EMS call, regardless of the nature, the medic is always staffed with three firefighter/paramedics. A station vehicle follows to bring additional personnel to the scene or to bring back personnel if a two-person crew can handle the nature of the call. By utilizing the station vehicle the GTFD is able to keep additional personnel on station for the next emergency call.

I plan to use my research results to find a way to implement and fund a staffing solution that will benefit the department at those times where our volunteer participation and availability is at its lowest. With the hopes of finding an adequate solution the organization will reduce the exposure risk of the first-in engine company by providing timely and well trained responding apparatus on fire calls as well as MVAs. In the future if the trend of volunteer availability continues to dwindle a peak time staffing solution may prove to be useful at times much broader than current expectations. One of the primary concerns of the implementation of an increase in staff during peak times is the potential negative impact on volunteers. For the three to four individuals that are available their responses may be decreased or modified. The impact is unknown at this time, but through review of surveys of departments that have dealt with similar situations my goal is to find a solution that will be beneficial to all GTFD personnel.

The significance of this study is that it allows the GTFD to gain a better perspective of volunteer availability, when peak runs times are occurring, and what options there are to implement and fund a peak time staffing program. The results will allow the GTFD to better utilize current staff and create an improved staffing system that will improve response times as well as firefighter safety.

LITERATURE REVIEW

The purpose of this literature review is to gather information from previous published sources regarding the topic of peak time staffing. The review found information on possible reasons for decline in volunteer participation, alternative schedules and possible sources for income if the hiring of additional personnel is deemed the best option.

Cowan (2009) researched the values of staff members within his combination organization. His department was composed of a staff make up similar to that of the GTFD. His organization had 19 full time staff and was supplemented by volunteers. The GTFD has undergone similar organizational changes just as Cowan's department did. Cowan performed a survey with 48 of his staff members. He had a complete response rate of 50% and the results found the following regarding career and volunteer personnel values: the top five values of all respondents were teamwork, professionalism, safety, skill, and integrity; the top five values for career firefighters were teamwork, professionalism, pride, safety, and skill; the top five values for volunteer members were the following teamwork, professionalism, skill, safety, and duty. These results show there is an overlap of values for each group of individuals. Although, it does show that there are some differences. The value "duty" seems to be important in the volunteer setting. This sense of duty to act is very common in many volunteer organizations not limited to the fire service. It is well known that many people choose to volunteer because they feel it is their duty to give back to a community, organization or group. The success of a volunteer program is based on the participants having their own set of values fulfilled. If they lack the value of duty, chances are they will not be interested in volunteering to begin with.

Based on his research into motivating volunteers Silva (2001) tried to determine what factors motivate volunteers and how volunteer participation can be improved. Silva surveyed

volunteers within his organization and also sent surveys to 150 others that were associated with similar department demographics. Silva received a response rate of 60% and he found that the top five factors motivating members to volunteer were the following, (in order of greatest to least): using it as a step towards full-time career, for the excitement, for the social interaction, for the pay, and for the challenge. Silva found that performing civic duty was second to last on the list of motivating factors. The only other factor that had lower results was “individuals wanted to be full-time but could not afford a pay cut.” (p.39) Silva also found that factor that caused the most conflict between career and volunteer members was that the volunteers felt they were not receiving training to the same standard that the career personnel were. The results of his research found that providing improved communications between the volunteer staff and the career staff would greatly reduce internal conflict. Also improving the roles and responsibilities for all personnel would play a role in decreasing tensions.

Olson (2006) conducted a research project regarding strategic staffing for his fire department. After extensive data analysis including risk identification, travel times, run location, nature, day of the week, time of day, and population, Olson found that an increase in staffing of 10 additional full-time was required to meet the demands of the changing demographics in the fire district. More importantly, Olson was able to pinpoint certain locations that needed improvement as well as peak load times that would benefit from additional staffing. He found that for his area, an additional four personnel working 0800 to 2000 Monday to Saturday would greatly impact the level of service being provided to the community. Not addressed in his research project were possible avenues that would allow for meeting additional budget requirements of the increase in staff.

Mustafa (2009) performed a peak-load evaluation for his department, Seminole County Fire Department. They operate a part-time peak-load transport unit that is available during increased call volume periods. He found the need for the evaluation because the system had been in place since 2007 and a review had never been performed to evaluate the impact on unit deployment. The study assessed alternative peak-load staffing models used elsewhere and recognized times and days when there was a need for increased staffing. He based his findings on dispatch records and department run data. After the analysis was performed, the current model be used was evaluated for effectiveness. Mustafa's results showed the existing plan was working well and decreasing the departments need to rely on mutual aid responses. Through his evaluation he also found a gap in service where mutual aid was still being utilized. He then made recommendations, which were supported, to implement an addition peak-load.

An applied research paper produced by Garber (2008) sought to find the pros and cons of establishing an EMS cost recovery program in order to increase staff levels. Garber's findings showed that through an EMS cost recovery program additional staff could be added, additional training could be paid for, and future equipment purchases could be budgeted. Garber stated in his research that though he had no data to back up any resistance, he felt that the taxpayers might not be in favor of paying for a service that is already being paid for by tax dollars. He also noted that with the continued increase in EMS cost recovery, insurance companies are likely to increase insurance premiums. Garber went on to find that the potential income for Advanced Life Support (ALS) runs would average \$375 per run and Basic Life Support (BLS) runs would average \$300 per run. He noted that there is also a mileage cost recovery of approximately \$12 per mile. Based on his research a collection rate of 85% was to be expected. Garber's department

had a current run volume of 1,478 for 2007 and an expected income of \$397,938 without the mileage component added in.

The United States Fire Academy (USFA) has published a guidebook that serves as tool for fire departments to explore alternative methods of funding. The guideline highlights a large variety of funding sources including local, state and federal funds, grants, private sources, EMS billing and miscellaneous sources. Some of the miscellaneous sources include raffles, door-to-door solicitation, food and entertainment events, sports events and sales of goods and services. Grants through the Federal Government are a source that the GTFD currently utilizes. The GTFD has received over \$100,000 in AFG funds and currently employs three full-time firefighter paramedics funded through the SAFER program. The GTFD has plans to continue to aggressively apply for all available federal funding.

The USFA guidebook addresses EMS billing as well, an alternative that the GTFD is looking into and needing to gather more information on. Currently a majority of the fire departments in Licking County and adjacent counties are utilizing EMS billing as an alternative source of revenue. Based on phone and email conversations with local department chiefs EMS billing will generate \$300-\$600 per run and have a collection rate of 60-80%. The percentages of collection varied largely due to billing procedures and the selection of EMS billing company. Based on information provided from Paumier Medical Management Group, Inc., the potential income from EMS billing for the GTFD would be \$175,000. This dollar amount is based on run volume, collection data and average transports.

A face to face interview was conducted with GTFD Chief Hussey. Questions were directed to gain insight into his position on current staffing and any deficiencies that he noted. Chief Hussey had conducted several report queries into Firehouse software for a recent ISO

rating review. Chief Hussey stated that he found that a majority of the runs the GTFD takes are during daytime hours. Chief Hussey also stated that he has seen a decreasing amount of volunteer staff available during the normal workday hours. He attributes this to the fact that most volunteers are working outside of the community and are not available to take runs during the week. He also addressed the response time of the second out apparatus, as he believes the response time is less than ideal. As the primary daytime incident commander, he is well aware of the ever-increasing time it is taking the second fire apparatus to mark en route. He also stated that he has noticed a significant delay in the response of the rescue on MVAs. When asked about potential solutions for the lack of daytime staff the Chief said over the years the GTFD has had many individuals interested in volunteering that did not live in the run area. As of today it is a requirement that one live in or work in the run area in order to volunteer. Some exploring has been conducted to see if creating an “out of township” volunteer program would be both supported and beneficial.

Chief Hussey stated that utilizing additional paid staffing during peak times would be a practical option to improve additional apparatus responses. If the results of this research project determine that additional paid staffing is the best option to supplement staffing during peak times the fire chief and the township trustees are going to want to be sure that any additional revenue will be consistent and lasting. Going through the hiring and training process is a grueling task and would ideally be for long-term employees.

During the interview Chief Hussey was asked what his thoughts were regarding minimum staffing levels during the times when volunteers were available the least. Chief Hussey said that he would support an SOP change that would mandate a minimum of six firefighters on

company plus one command officer. He stated that with the current minimum being four, the increase of two people would be sufficient to staff fire and EMS calls as follows:

- BLS or ALS call – 1 EMS unit with a three medics
- Arrest or Non-Breather – 2 ALS units with three medics on each and a command officer
- MVA - 1 EMS unit with three medics, 1 Rescue with three FFs and a command officer
- Fire – 2 Fire Apparatus with 3 FFs and a command officer
- M/A Fire – 1 Fire Apparatus with 4 FFs or 2 Fire Apparatus with 3 FFs

MVAs and fire runs would also require additional units to respond from the GTFD or from a mutual aid department. Additional response would depend on nature and severity of the run. The Chief stated that he feels this would allow for adequate participation for volunteers. He also stated that he would only support the SOP change to be effective only during the hours that are determined to have decreased volunteer availability, not 24/7.

Chief Hussey was also asked if the current budget could support additional staff. He said that in order to assure appropriate funds were available additional income would need to be generated. One of the options to generate income is an increase or addition in the fire levies in place in Granville Township and the communities that we contract with to provide EMS and fire protection. Chief Hussey stated that consideration would also be given to EMS billing to supplement the budget and that considerable prudence would need to be taken. The public perception of the implementation would need to be researched thoroughly possibly in an open public forum.

PROCEDURES

This applied research project used data collected from the GTFD fire and EMS reporting software. These data focused on time of day, day of the week and how volunteer participation

impacts emergency responses. Specifically related to emergency responses were data that reflected the impact of volunteer availability on the second due apparatus to fire and rescue runs. Data was also analyzed to determine the occurrence rate of simultaneous EMS runs and how those response times are affected.

An internal survey (Appendix 4) was conducted and directed toward all volunteer staff. The survey collected data and facts regarding individual volunteer availability and participation. Questions were directed to gain additional insight into the volunteers' availability on weekends and during other peak times of the day. The results of this survey will be compiled and analyzed to determine the impact of staffing increases on current volunteer participation. The contributions that volunteers make are measurable in both time and financial impact. Replacing all of the volunteers with paid personnel either full-time or part-time would be financially devastating and something that will be avoided at all costs. The survey was sent to all current GTFD volunteers. With a total of 18 surveys being sent out there were 15 returned.

The GTFD Fire Chief, Jeff Hussey, was interviewed regarding his position on peak time staffing needs, increasing staff levels during times when volunteer availability proved to be at its lowest and what he saw as viable options to fund and maintain an increase in staff, volunteer or paid.

Data analysis and literature reviews were used to complete this research regarding potential funding for the future staff changes. Existing and new options for funding were explored.

Definition of Terms

ALS - Advanced Life Support is a set of life-saving protocols and skills that extend Basic Life Support to further support the circulation and provide an open airway and adequate ventilation

BLS - Basic Life Support is the level of medical care which is used for patients with life-threatening illnesses or injuries until the patient can be given full medical care at a hospital. BLS is generally used in the pre-hospital setting, and can be provided without medical equipment.

Combination Department - a type of fire department which consists of both career and volunteer firefighters. In the United States, combination fire departments are typically tax-supported in some fashion, and generally have an annual call volume larger than purely volunteer departments but less than career departments.

Out of Township Volunteer Program - a program that would allow volunteers to participate even if they did not work or live in the run area. The program would require a set amount of hours monthly to be on station.

Volunteer - a firefighter/EMT that is trained to a variety of levels ranging from 36 hour FF/EMT-B to FFII/EMT-P. Volunteers are often paid no wages at all but are sometimes paid per call or paid a minimal incentive pay.

Limitations of the Study

One of the limitations of the study is regarding volunteer availability. While the survey showed what volunteers stated their availability it did not address actual participation during the times of stated availability. Another limitation of the research paper was the ability to find quality data regarding other fire departments that are effectively using a peak time staffing model.

RESULTS

GTFD uses Firehouse Software as its EMS and fire records management system. The use of Firehouse was started in 2007 and high quality, searchable data exists from that year to the present. All other data is only available in limited hard copy reporting that does not support searching or data analysis. Data that was gathered from the GTFD fire and EMS reporting software was focused on overall run volume, run time of day, run day of week, and response times. Overall run volume has not seen a dramatic increase from year to year. The average of the past four years has been 1140 runs. When run times were analyzed it was found that the highest volumes occurred between the hours of 0801 and 2000. The top three run times were 1800, 1700 and 1500 in descending order. An analysis of day of the week runs was performed and it was determined that from the seven days a week there was at most a 2.3% difference in the busiest day of the week, Friday, to the slowest day of the week, Monday. From 2007 to 2010 the busiest days of the week have been consistent. In order from most active to slowest the data show the order to be Friday, Saturday then Sunday.

Data from the volunteer availability survey and GTFD run data analysis are included in the Appendix, and there it was found that that volunteer members had very limited availability during the week. Of the 15 volunteers that completed the survey from 0801 to 2000 between five and nine stated they were available to make runs. The survey also asked how many of the five weekdays they were available for the hours indicated. It was found that four were available three of five days, six were available four of five days and five were available all five weekdays. Questions in the survey were also directed to obtain information regarding weekend availability. The results showed that on weekends of the 15 volunteers that responded between 10 and 14 were available to make emergency runs around the clock. Run data analysis has shown that a

majority of the runs occur during times when volunteer member availability is at its lowest. Volunteer staff is at its lowest volume from 0801 to 2000, at this same time run volume is at its highest. From 2007 to the present, 72% of all fire and EMS runs have occurred from 0801 to 2000. Run data did show that Friday, Saturday and Sunday are the busiest days of the week. When comparing days that volunteers indicated they were available, additional staffing is available on two of the three busiest days.

Based on information received from the Granville Township fiscal officer 1 mill generates approximately \$300,000 based on current property values in Granville Township. In order to adequately cover immediate and future expenses of an increase in staffing the public would need to vote in support if a tax levy increase of less than 1 mill. Information gathered from EMS billing companies that currently serve other departments in the area showed a possible income of \$175,000 to \$250,000.

As stated previously, maintaining a high quality volunteer roster is a necessity. Implementing a program that would decrease or eliminate the volunteer member would be detrimental. Additional survey questions were asked to determine whether or not volunteer members thought their participation would be negatively impacted by adding additional staff during the day both weekdays and weekends. The first question was asked to determine if volunteers felt increasing staff from 0801 to 2000 would negatively impact their participation during the week. The results of that question found that only 20% of the volunteers felt there would be a negative impact, 0801 to 1600. From 1601 to 2000 the amount of volunteers that stated their participation would be negatively impact went up to 46%. The same question was asked regarding impact on the weekends. The number of volunteers that felt their participation would decrease was a consistent 46% from 0801 to 2000.

Realizing the importance of volunteers to the daily operation of the GTFD inspired additional survey questions to be formulated. Two of the questions asked volunteers to rate their current satisfaction with both opportunity for participation and opportunity for training and continuing education. With regard to participation, 13 out of 15 indicated they were average, satisfied or very satisfied with the opportunities that were presented to be involved. The remaining two indicated that they felt somewhat satisfied. All 15 out of 15 stated that they were either satisfied or very satisfied with their opportunity for training and continuing education.

A final survey question was asked to address a possible solution for the decreased availability of volunteers. One of the options that would be considered to increase staffing during the weekdays, 0801 to 2000, is the design and implementation of an “out of township” volunteer program. Volunteers were asked if they would support this type of program. Of the 15 surveys that were return only three stated that they were opposed to such a program. The remaining 12 stated they would support a program in some form.

DISCUSSION

The significance of volunteer staff availability is evident on almost every shift. Only a handful of volunteers are available during daytime hours. From 0800 to 2000 fire response is typically limited to two fire apparatus, from GTFD, on commercial or residential responses. These responses are bolstered with mutual aid response from surrounding departments. However, depending on location response times could be ten minutes or more. The utilization of mutual aid departments is not a problem in our area. But as departments continue to become busier the chance for increasing response times becomes a concern. In the last four years an average of 28% of the runs at the GTFD occurred during hours when volunteer crews are assigned and available. The other 72% of fire and EMS runs are during hours when volunteer

response is at its weakest. Those hours are from 0600 to 2300 when volunteers are not required to respond. Peak times for runs are 0800 to 2000 with the highest run volume being between 1200 and 1800. The lowest run volume times are from 0300 to 0600.

Volunteer availability is also impacted by day of the week. Volunteers that work out of the run area are typically available on both Saturday and Sunday. Many of the volunteers are full time firefighters in other locations resulting in a lack of availability every shift day that they are at work. For all of the GTFD volunteers that work at other departments their lack of availability occurs every third day, as based on their rotating unit day schedule. Run volume does vary slightly based on day of the week. Friday has been determined to be the busiest day and Mondays on average are the slowest days.

The addition of two personnel between the hours of 0800 and 2000 would allow for an immediate response of two apparatus. Adding two staff would make the daily staffing from 0800 to 2000 six plus a Chief from 0800 to 1700. This would allow prompt response of one ALS medic on every EMS call while leaving enough staff on station to adequately cover a second run in progress with the same promptness. The average turnout time currently for a second EMS run in progress is 3:52 compared to 1:13 for first runs. Regarding rescue and fire runs the additional staff would also provide improved response times on second due apparatus. The average response time for the rescue to an MVA is 5:37 and the average response time for the second out fire apparatus is 6:50. These results compared to the first out apparatus of 1:55.

The goal of the GTFD is to provide the highest level of fire and EMS service in the most efficient and professional manner possible. Decreasing response times and increasing initial responding personnel is a straightforward way to fulfill this objective. The option to add staff, as “out of township” volunteers would cost the township very little, the only expenses would be

gear, uniforms, and physicals along with minimal administrative expenses. One of the main concerns with implementing this program is being able to recruit and retain adequately trained and experienced people. Based on current expectations it would require 10 new or current volunteers that would be willing to commit to one 12-hour shift per week. Volunteers have historically been very hard to retain when other options become available to them. The option to add staff with additional part-time employees would have a much larger reoccurring expense.

It was determined based on survey results, run data analysis, and the interview with the Fire Chief that two additional positions would fill the void in staffing. If those positions could be filled by opening up an alternative opportunity to volunteer, such as the “out of township” program, the financial impact would be minimal. Increases in expenses would be limited to fire gear, uniforms, training and ancillary HR expenses. If the two positions per day were filled with part time staff members cost would include the items listed above for the additional volunteers and would also require an additional payroll expense. The figure would be based on 24 hours per day, two 12 hour positions, times five days per week. The base amount would be 120 hours at a part-time pay rate of \$12.80 per hour plus any additional payroll expenses. The overall wage expense would be roughly \$80,000 per year. These positions would be part-time as stated earlier and would not incur health or pension benefits.

Funding resources for an increase in part-time staff are an increase in fire levy millage or the implementation of an EMS billing program. Both resources could very easily fund the increase in manpower.

RECOMMENDATION

The results of the research project have brought light to a situation that was already a known concern. Through data analysis, literature review and survey a better perspective of

the actual staff problem has materialized and prior to completion of the research project the staffing inadequacy during peak times was noticed by all members. After completion of the project actual data was able to support the notion that volunteer availability was lacking during certain hours of the day.

The following are my recommendations to move forward with a solution. The first step in the process is to make a presentation to Township Trustees for approval. Adding two additional part-time shifts per day would adequately cover the peak time staffing shortage. Based on data analysis and survey results, two 12-hour shifts per day on weekdays only would be required. With the approval of the township administration a public survey would take place to determine the level of support for EMS billing. Having public support for EMS billing would allow for the next step in the process to take place. The next step of the process would be creating and implementation of the EMS billing program. Prior to hiring any staff the income stream from the EMS billing would be verified. The timeline to do this would be based on input from the EMS billing company.

The final steps in the process would be hiring additional staff and make any necessary SOP/SOG changes. The hiring process would remain consistent with previous hiring at GTFD. Hiring part-time employees would be based on the current part-time staff member's willingness to work additional hours per pay period. It is estimated that 6 to– 10 additional part-time employees would need to be hired in order to appropriately fill the schedule. From the time that the additional employees are hired the new shift staffing would be implemented in 30 days. A review of the program would be conducted six months from the date of implementation and then once a year moving forward. Careful consideration would be given

to volunteer participation, changes in turn out times and income from the EMS billing program.

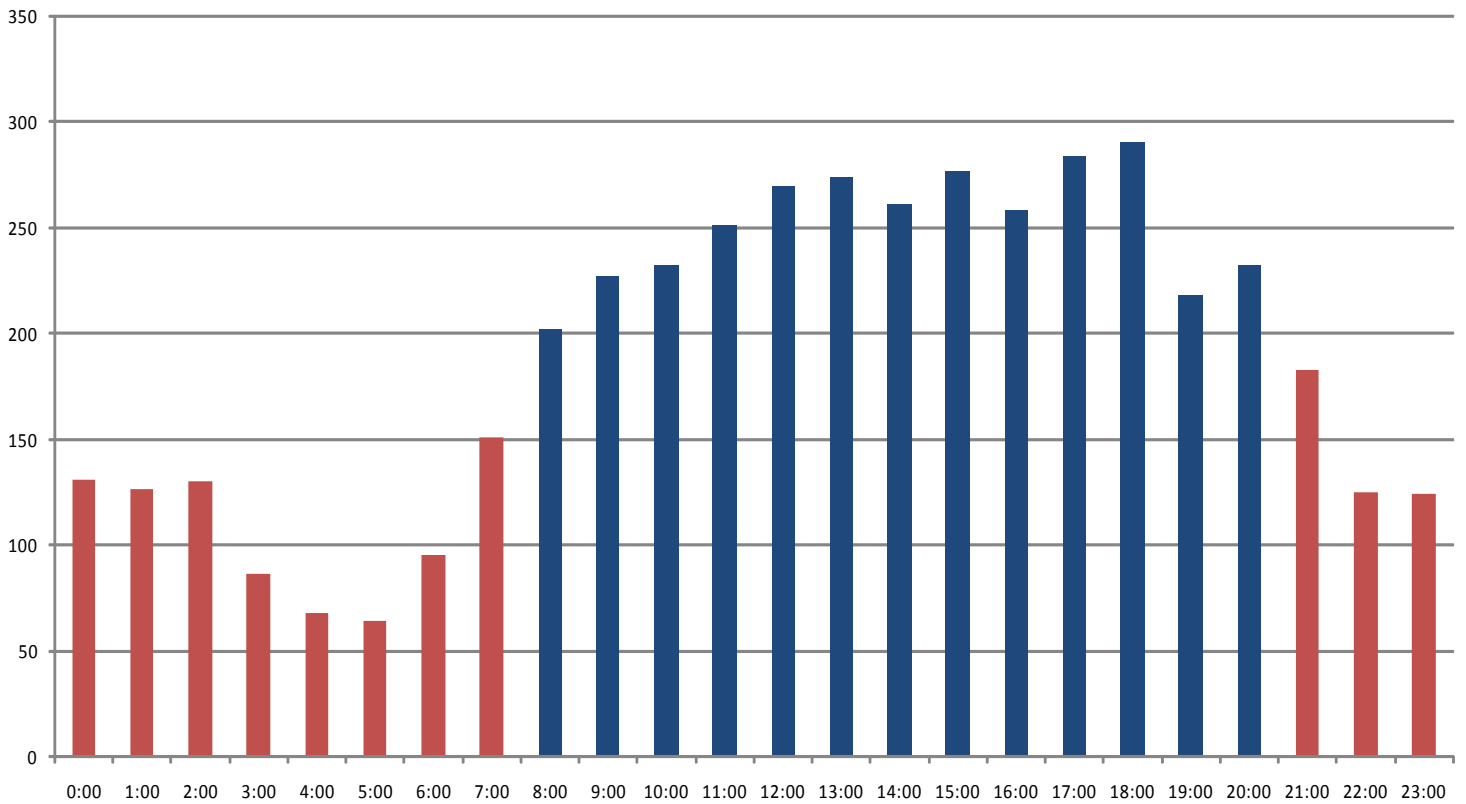
REFERENCES

- Barlow, J. (2002) *Funding alternatives for career fire departments – A non-profit perspective*. Retrieved May 21, 2010 from <http://www.usfa.dhs.gov/pdf/efop/efo34822.pdf>
- Cowan, D. (2009) *Assessing the values of a combination department in transition*. Retrieved May 26, 2010 from <http://www.usfa.dhs.gov/pdf/efop/efo43040.pdf>
- Fulk, J. (2009) *Investigating the need for additional staffing*. Retrieved August 1, 2010 from <http://www.usfa.dhs.gov/pdf/efop/efo42844.pdf>
- Garber, R (2008) *Increasing staffing levels for the Staunton Fire & Rescue Department by establishing an EMS revenue recovery system*. Retrieved May 26, 2010 from <http://www.usfa.dhs.gov/pdf/efop/efo42777.pdf>
- Green, L., Kolesar, P., & Whitt, W. (2006) *Coping with time-varying demand when setting staffing requirements for a service system*. Retrieved August 1, 2010 from <http://www.ieor.columbia.edu/~ww2040/TimeVarying1217.pdf>
- Olson, D. (2006) *Career emergency services strategic staffing plan for South Kitsap Fire and Rescue*. Retrieved May 21, 2010 from <http://www.usfa.dhs.gov/pdf/efop/efo39812.pdf>
- Sierra, A. (2001) *From twenty-four to something new, a shift away from the traditional work schedule in the fire service*. Retrieved May 26, 2010 from <http://www.usfa.dhs.gov/pdf/efop/efo31763.pdf>
- Silva, J. (2001) *Motivation of volunteer firefighters in combination fire departments*. Retrieved May 21, 2010 from <http://www.usfa.dhs.gov/pdf/efop/efo32044.pdf>
- United States Fire Academy. *Funding Alternatives for Fire and Emergency Services*. Retrieved June 25, 2010 from <http://www.usfa.dhs.gov/downloads/pdf/publications/fa-141.pdf>

APPENDIX 2 – RUNS BY HOUR OF THE DAY

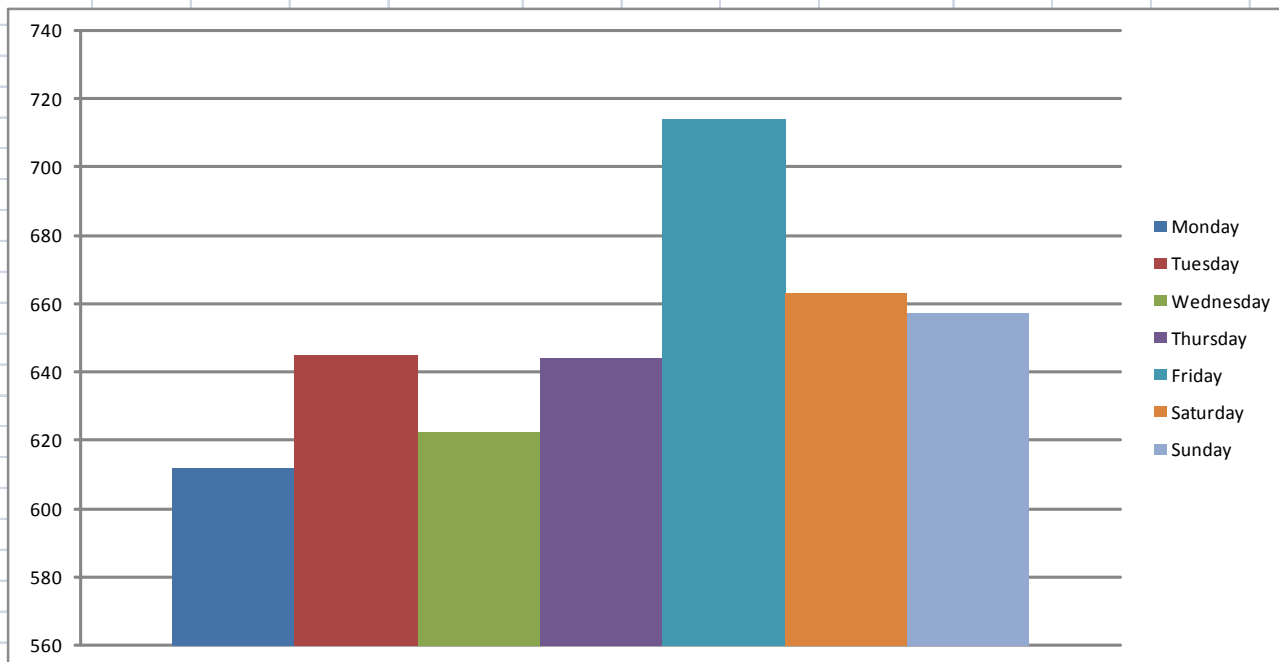
	2010			2009			2008			2007			2007-2010			
	EMS	Fire	TOTAL	EMS	Fire	TOTAL	EMS	Fire	TOTAL	EMS	Fire	TOTAL	EMS	Fire	TOTAL	
0:00	25	12	37	20	4	24	24	8	32	26	12	38	95	36	131	2.9%
1:00	32	2	34	23	7	30	25	6	31	23	8	31	103	23	126	2.8%
2:00	23	4	27	21	12	33	27	6	33	26	11	37	97	33	130	2.9%
3:00	18	2	20	18	6	24	21	3	24	14	4	18	71	15	86	1.9%
4:00	16	5	21	16	4	20	5	2	7	13	7	20	50	18	68	1.5%
5:00	12	1	13	10	1	11	19	5	24	12	4	16	53	11	64	1.4%
6:00	17	4	21	18	9	27	16	14	30	10	7	17	61	34	95	2.1%
7:00	27	6	33	29	13	42	24	7	31	31	14	45	111	40	151	3.3%
8:00	31	12	43	35	26	61	35	16	51	33	14	47	134	68	202	4.4%
9:00	44	11	55	34	18	52	47	19	66	36	18	54	161	66	227	5.0%
10:00	40	14	54	47	20	67	40	15	55	34	22	56	161	71	232	5.1%
11:00	64	12	76	39	17	56	42	21	63	43	13	56	188	63	251	5.5%
12:00	39	25	64	41	22	63	49	23	72	45	25	70	174	95	269	5.9%
13:00	42	23	65	53	17	70	47	27	74	41	24	65	183	91	274	6.0%
14:00	40	18	58	37	35	72	51	23	74	46	11	57	174	87	261	5.7%
15:00	47	25	72	49	23	72	45	27	72	41	20	61	182	95	277	6.1%
16:00	36	15	51	38	31	69	39	28	67	52	19	71	165	93	258	5.7%
17:00	37	28	65	48	25	73	39	30	69	45	31	76	169	114	283	6.2%
18:00	55	21	76	48	24	72	60	28	88	36	18	54	199	91	290	6.4%
19:00	46	12	58	43	19	62	28	15	43	43	12	55	160	58	218	4.8%
20:00	41	20	61	28	14	42	34	30	64	48	17	65	151	81	232	5.1%
21:00	36	19	55	33	15	48	23	19	42	25	13	38	117	66	183	4.0%
22:00	26	11	37	18	13	31	25	6	31	16	10	26	85	40	125	2.7%
23:00	20	13	33	21	6	27	23	12	35	18	11	29	82	42	124	2.7%
															4557	100.0%

Runs By Hour of the Day



APPENDIX 3 – RUN VOLUME BY DAY OF THE WEEK

Days of the Week Run Stats			Days of the Week Fire Run Stats			Days of the Week Fire Run Stats		
2007			2008			2009		
Monday	143	13.0%	Monday	167	14.2%	Monday	150	13.1%
Tuesday	146	13.2%	Tuesday	172	14.6%	Tuesday	170	14.8%
Wednesday	175	15.9%	Wednesday	153	13.0%	Wednesday	150	13.1%
Thursday	171	15.5%	Thursday	158	13.4%	Thursday	159	13.9%
Friday	161	14.6%	Friday	188	16.0%	Friday	171	14.9%
Saturday	152	13.8%	Saturday	165	14.0%	Saturday	174	15.2%
Sunday	154	14.0%	Sunday	175	14.9%	Sunday	174	15.2%
TOTAL	1102		TOTAL	1178		TOTAL	1148	
Days of the Week Fire Run Stats			Days of the Week Fire Run Stats					
2010			2007 to 2010					
Monday	152	13.5%	Monday	612	13.4%			
Tuesday	157	13.9%	Tuesday	645	14.2%			
Wednesday	144	12.8%	Wednesday	622	13.6%			
Thursday	156	13.8%	Thursday	644	14.1%			
Friday	194	17.2%	Friday	714	15.7%			
Saturday	172	15.2%	Saturday	663	14.5%			
Sunday	154	13.6%	Sunday	657	14.4%			
TOTAL	1129		TOTAL	4557				



APPENDIX 4 – VOLUNTEER AVAILABILITY SURVEY

1. What is your typical weekday availability for emergency runs? Please select all times during the day that you are available for runs.

0001 – 0400 hrs 0401 – 0800 hrs 0801 – 1200 hrs 1201 – 1600 hrs 1601 – 2000 hrs 2001 – 0000 hrs

2. Regarding the questions above, typically how many days out of the 5 weekdays are you available?

1 2 3 4 5

3. What is your weekend availability for emergency runs? Please select all times during the day that you are available for runs.

0001 – 0400 hrs 0401 – 0800 hrs 0801 – 1200 hrs 1201 – 1600 hrs 1601 – 2000 hrs 2001 – 0000 hrs

4. How satisfied are you with your opportunities for participation? Choose One

Not At All Somewhat Average Satisfied Very Satisfied

5. How satisfied are you with your training and continuing education? Choose One

Not At All Somewhat Average Satisfied Very Satisfied

6. Would additional paid weekday, daytime staffing adversely impact your participation?

From 0801 – 1200 hrs YES NO From 1201 – 1600 hrs YES NO From 1601 – 2000 hrs YES NO

7. Would additional paid weekend, daytime staffing adversely impact your participation?

From 0801 – 1200 hrs YES NO From 1201 – 1600 hrs YES NO From 1601 – 2000 hrs YES NO

8. I would support an out of township volunteer program.

Daytime Mon – Fri 24 Hrs Mon – Fri 24 Hrs 7 Days a Week Strongly Opposed No Opinion

9. Is there anything that would increase your availability or participation...

Weekdays during the day?

Weekdays at night?

Weekends during the day?

Weekends at night?

10. What can the GTFD do to improve your experience as a volunteer?

