

DETERMINING THE TIME AVAILABLE TO VOLUNTEER

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ABSTRACT

The Brookville Fire Department relies on volunteer Emergency Medical Technicians and Firefighters to provide emergency medical, fire, and rescue services to an expanding population base. This reliance on volunteers presents unique problems and challenges to the officers of the department.

This research paper used the descriptive research method to determine when department personnel are available for emergency duty. The purpose of this research is to identify the time availability of fire department personnel.

Questions to be answered by this research:

1. Are there times throughout the day when sufficient personnel are not available to respond to emergency calls?
2. Are there times when available personnel do not meet nationally accepted staffing levels?
3. By having accurate availability information, what steps can the department leadership take to assure sufficient personnel?
4. How much time does the volunteer have to commit to the Brookville community?

Literature review provided ample literature referring to volunteers; however, little literature was found comparing the time availability of volunteers.

The findings of this research revealed that there are times when available personnel fall below acceptable levels.

As the call volume increases, personnel availability becomes a critical issue for the department. City leaders and the Fire Department management team will be able to use this research to plan solutions to staffing problems.

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INTRODUCTION

Phillip C. Stittleburg stated, “There are many demands made on volunteer firefighters, not the least of which is time. As the public looks for more service, better service, and a greater variety of services, the time volunteers spend fulfilling their mission continues to increase.

This increased demand for time happens at an unfortunate juncture in our history as we see American workers spending progressively more time earning a living. Statistics seem to indicate that we spend more time at work than workers in most other industrialized nations do. Moreover, the two-income home is commonplace, cutting ever further into volunteers’ discretionary time.

Furthermore, volunteer fire departments do not compete just with employers for the time their members have to donate. There are also school events, family obligations, church activities, and who knows what else, not to mention the occasional opportunity for recreation.”(Fire Chief Magazine, Feb.1, 2000)

The Brookville Fire Department is a combination department located in southwest Ohio. A career fire chief, eight part time employees, and thirty-two paid on call volunteers staff the department. The department has documented a 27% increase in call volume over the preceding nine years.

This increased call volume and mandated training requirements have placed additional burdens on the volunteers’ time.

A method was needed to ascertain personnel availability.

This availability information would be used to:

1. Analyze the expansion of the automatic mutual aid program to cover those times found to have insufficient personnel available.

2. Discover if the volunteer staff has time available for additional assignments.
3. Compare Brookville Fire Department's staffing levels with nationally recognized standards (NFPA 1710).
4. Develop a comprehensive staffing plan that is supported by data.
5. Present this staffing plan to the city fathers.

The descriptive research method was used to sample Brookville Fire Department personnel. Department personnel were given a two-month calendar. They were asked to record daily the time they were available for fire department duty (emergency or non-emergency). The information was then input into a spreadsheet program, and a graphic representation of personnel availability was produced.

BACKGROUND AND SIGNIFICANCE

The Brookville Fire Department is a combination fire department that provides emergency services to the City of Brookville, to the southern half of Clay Township, and to the northern half of Perry Township. Approximately 15,000 people reside in the thirty-six square mile fire protection district. The department has ISO ratings of six for the incorporated area and nine for the unincorporated areas. The fire district is composed of city and rural areas with Interstate 70 dividing the district.

The department responded to 1584 Fire and EMS emergency calls during 2001. In addition to emergency services, the department participated in fire prevention, fund raising, and community service activities. It is not difficult to see that the Brookville Fire Department is very busy for a small department.

The Brookville Fire Department holds a unique place within the community. The department members are the sons, daughters, uncles, aunts, and grandchildren of the community.

The affection the community has for the department and the commitment the department has for the community is something that is rarely experienced by larger fire departments. Customer service, “the” new buzzword in the fire service, has always been the normal operation of the Brookville Fire Department.

Prior to 1987, twenty-eight paid-on-call volunteers staffed the department. Like many small towns, Brookville was experiencing growing pains. Daytime calls were being managed by a core group of four volunteers. These volunteers were third shift employees who were available during daytime hours. As the daytime call volume increased, health problems, stress, and burnout of this core group became a problem.

The Village of Brookville hired its first career fire chief in 1987. The initial plan was for the Fire Chief to do building inspection (new construction), fire inspections, firefighting, EMS, training, and manage the department. As run volume and workload increased, it became evident that additional daytime personnel were needed.

There were several factors contributing to the increasing run volume:

- A major building addition to the nursing home, resulting in increased EMS calls.
- Strong residential development in the incorporated and township areas of the fire district.
- The completion of the village owned industrial park.

In 1995, the fire department asked for and received permission to supplement the daytime volunteers with part time personnel. These part-time personnel were to provide additional fire and EMS staffing during the daytime hours (6A.M.-6P.M.). Initially two employees per shift were hired. As call volume continued to increase, the number of part time personnel was

increased to three per shift, and the authorized strength of the department was also increased from thirty-two to forty, allowing for the hiring of additional paid-on-call volunteers.

The continued expansion of the commercial, industrial, and residential base has put additional pressure on fire department personnel (27% call volume increase over nine years).

In addition to the daytime staffing issues, a new staffing problem has arisen. Evening volunteer ambulance crew members need to stop responding before their normal shift is complete at 6A.M. Most crew members stop responding at 4A.M. This puts the department right back where we started in 1987, with two or three people managing all the 4-6A.M. calls.

The explanations crewmembers give for not being able to complete their shifts are:

1. The average length of an ambulance call is 1.5 hours. Therefore, when a call is received during the two –hour period before the end of the shift, crewmembers have barely enough time to get back to quarters, to restock and clean the ambulance, and to travel to their full-time jobs without being late for work.
2. Our call volume has increased to the point where crews know they are going to get calls. The nursing home starts waking patients for breakfast at 5:00A.M. Most mornings we receive a request for an ambulance before 6:00A.M.
3. Most employers can accept an employee being late once or twice a year for his or her full-time job; however, being late for work one day a week, every week, is unacceptable.

With the growing demands being placed on the volunteer staff, a way was needed to determine not only the availability of the volunteers, but also how much additional time I expect them to give. At what point am I asking too much of them? At what point are they out of time to give?

LITERATURE REVIEW

The Capital Newspaper

C.Collins reported, “Fire Chief Roger S. Simonds plans to demote one-third of the county’s volunteer chiefs, captains, and lieutenants, saying they’ve failed to respond to enough emergency calls to have the experience to command.”

American Association of Retired Persons

An AARP survey on volunteering produced the following results to this question: how many days a year do you spend some part of your time as a volunteer?

11 %: One to seven days per year

18 %: One to three weeks

33 %: A month or two

38 %: More than two months

By the People: A History of Americans as Volunteers

Ellis & Noyes concluded, “Employees become necessary as the group evolves into an organization, agency, or unit of government – not because volunteers could not do the job, but because the magnitude of the work grows beyond what part-time volunteers can handle.”

National Fire Protection Association

Kristen Hay states, “According to the N.F.P.A., the nation’s volunteer force dropped thirteen percent from 1983 to 1991. Smaller communities have been hard hit, forced to depend on a grayer population for jobs that increasingly entail more fund raising than firefighting. As for 1998, about thirteen percent of firefighters in cities of 10,000 or more were fifty or older; the association said the figure in towns with fewer than 2,500 people was even greater, at eighteen percent.”(US Fire Departments Need Volunteers)

Points of Light Foundation

Volunteers working on serious social problems spend an average of 4.8 hours per week.

The Boston Globe

Brian MacQuarrie reported, “Fanning flames, inadequate staffing at fire stations called a disaster waiting to happen. Nostalgia cannot save lives. And neither, many resident’s worry; can a fire department staffed for a bygone era of bushy mustaches and wide-eyed Dalmatians.

From Ipswich to Needham to Berkley, fire chiefs in Massachusetts are constrained by tight budgets and new terrorist concerns. Saddled with aging downtowns, sprawling new development, and expanding responsibilities, the chiefs say their limited resources are being stretched to and past the breaking point.

To make matters worse, House Speaker Thomas M. Finneran has said that local aid might face a ten percent cut in the 2003 budget. “Such a reduction would be devastating”, Partridge, one of the fire chiefs, said.

“You take ten percent away, and that’s manpower,” Partridge said. “That will impact each and every department across the state.”

In Needham, Fire Chief Robert DiPoli said such a cut would be a “disaster.” His department already has lost twenty percent of its firefighters in the last decade, DiPoli said, even as the workload has doubled. Needham’s firefighters are now more likely to respond to the medical emergencies of an aging population than fires, DiPoli said. And, with calls about suspicious packages and white powder on the increase, the force seems constantly in motion.

In summary, literature review has found ample literature referring to volunteer employees. All of the time studies found, however, belonged to the private sector. I found no studies that addressed the issue of the time available to do volunteer fire and EMS work.

With the two-income home becoming the norm, the increased demand of family obligations, increased training standards, and work schedules, it has become increasingly difficult for me to track personnel availability. Added to this is the increased demand for non-traditional services; thus, the need for a reliable method to track volunteers' availability became apparent.

PROCEDURES

Methodology

The goal of this research was to evaluate the available time members of the department have to participate in emergency and non-emergency activities.

Department members were given two, one month calendars and asked to list daily the times they would be available for fire department activities. They were asked to be completely honest, and to document only those times they were available.

Population Surveyed

In total twenty-one paid on-call volunteer personnel, the roster size at the time of the survey, were given the opportunity to participate. Two of those were on leave (one sick and one maternity), and one refused to participate (I was trying to do away with the volunteers). One respondent's information was excluded because the data submitted was skewed. (He indicated he was available 24/7). In total seventeen completed surveys were included in this survey.

The part-time employees were excluded from this survey.

Assumptions and Limitations

It was assumed that all respondents understood the instructions and would answer honestly. After reviewing the data submitted, it became evident that the respondents documented that they were available more than was possible. They subtracted no time for church, school, or

other social activity. For most respondents, time at their full time job was the only time they were not available.

The data collected was skewed toward increased availability, but I decided to complete the research project using this data anyway. The rationale for using this data was:

1. Once the data comparison program was set up, accurate data could be used at any time to obtain updated information
2. The time constraints of this research project did not allow sufficient time to resurvey participants.
3. If the survey results are evaluated with the knowledge that the data represents the best-case scenario, better staffing decisions will result.

Data Program

Using the Microsoft Excel spreadsheet program, a workbook was created for September and October. Each workbook contained seven sheets: each sheet represented one day of the week.

On each sheet:

- Column A, row 1= Date
- Column A, rows 2-25= hours of the day

This was repeated down column A until all the dates for that day of the week were entered.

- In row 1, columns B-R, the names of the survey respondents were entered.
- Column S equals the totals column. The formula to total columns B-R was entered in this column.

- Column T equals the average column. Care had to be taken when developing the average formula. Some months have five weeks in them.

Personnel available were entered with: 1 = available, 0 = not available.

Using this spreadsheet method, I could determine who and how many personnel were available at any given time of the day or day of the week. Charting the average column I can visually represent the average number of personnel available.

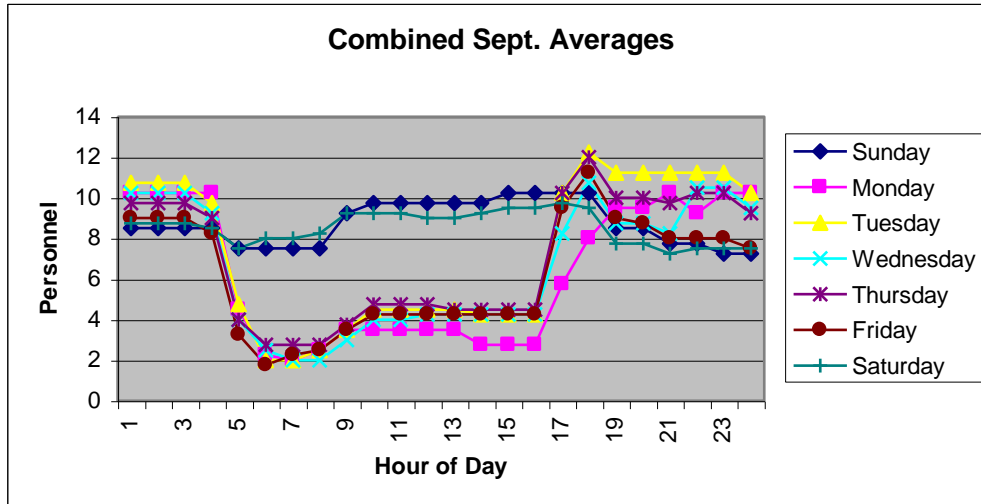
RESULTS

The data provided by the respondents was input into the spreadsheet program and displayed graphically for analysis.

Analysis of the data was undertaken with the knowledge that the Brookville Fire Department's standard response to a residential structure fire is two engines, a rescue, and a medic. The goal is to have four firefighters on each engine, five on the rescue, and two on the medic for a total of fifteen personnel responding.

September results:

The graph below represents the combined September daily averages. Individual daily average availability charts can be seen in appendix A. (pg. 25).



Review of the data provides the following analysis:

Sunday

- The average availability is consistent throughout the day.
- We were not able to meet our staffing goals.
- Structure fires will require mutual aid.
- Simultaneous calls will require mutual aid.

Monday-Friday:

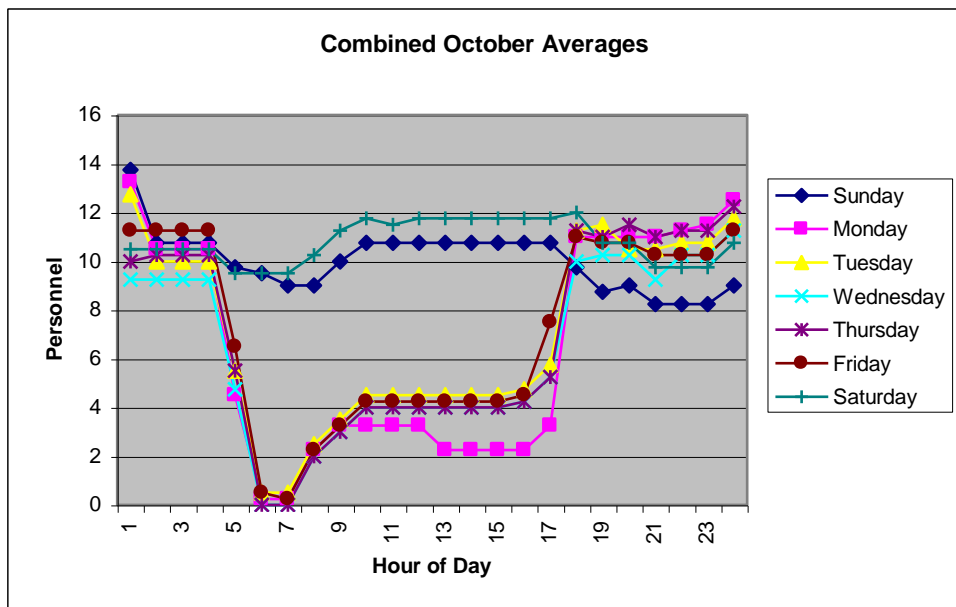
- The average availability pattern is similar throughout the week.
- There is a marked decrease of available personnel starting at 4A.M.
- At no time would we be able to handle simultaneous calls.
- On most days we would be able to fully staff only one piece of equipment, and then for only part of the day.

Saturday:

- Saturday and Sunday follow a very similar availability pattern.
- The average availability is consistent throughout the day.
- We were not able to meet our staffing goals.
- Structure fires will require mutual aid.
- Simultaneous calls will require mutual aid.

October results:

The graph below represents the combined October daily averages. Individual daily average availability charts can be seen in appendix A (pg 25).



Review of the data provides the following analysis:

Sunday

- The average availability fluctuated between thirteen and eight personnel throughout the day.

- We were not able to meet our staffing goals.
- Structure fires will require mutual aid.
- Simultaneous calls will require mutual aid.

Monday-Friday:

- The average availability pattern is similar throughout the week.
- There is a marked decrease of available personnel starting at 4A.M.
- At no time would we be able to staff simultaneous calls.
- There are four hours each day when we cannot respond with one piece of equipment with a minimum staffing level of four.

Saturday:

- Saturday and Sunday follow a very similar availability pattern.
- The average availability is consistent throughout the day.
- We were not able to meet our staffing goals.
- Structure fires will require mutual aid.
- Simultaneous calls will require mutual aid.

DISCUSSION

Comparing the survey findings with literature review supports the conclusion that there are fewer volunteers available for daytime department staffing, and the duration of time of the shortage of personnel is increasing.

This statement by Ellis & Noyes, “Employees become necessary as the group evolves into an organization, agency, or unit of government – not because volunteers could not do the job, but because the magnitude of the work grows beyond what part-time volunteers can handle,” best describes the current situation facing the Brookville Fire Department. As the workload

continues to increase, volunteer personnel are having difficulty keeping up with the workload, not because they lack the commitment or desire, but because they lack time.

The weekday pattern of personnel availability is very consistent and predictable. The drop off of available personnel starts at 4A.M. and continues through 6P.M. Available personnel decreases during the time of day when the population of the fire district is growing, factory workers, teachers, students, and shoppers are arriving when the volunteer is leaving.

If you were to calculate the roster size required to maintain the desired fifteen person daytime response, the results would calculate to a 78.75 person roster.

4/21:15/a

- 4=average daytime volunteer availability [7 hours per day, 3 days per week]
- 21=volunteer roster size
- 15=desired response
- a=needed roster size

To recruit 78.75 people at the present recruitment rate would require a population base of 19,500.

21/5200:78.75/a

- 21=volunteer roster size
- 5200=present population of Brookville
- 78.75=calculated roster size needed
- A=calculated population base needed

I do not see Brookville tripling in size in the near future.

In addition to the recruitment issue, the department would have to provide additional training and equipment. The costs to provide equipment for a force this large would be an

estimated \$114,000 [\$2000 each x 57]. That represents 1/3 of our present budget. Add to those costs \$1000 for each recruit to provide Firefighter level1 and EMT-B training, we are looking at an additional \$57,000.

As we review the facts presented, we can answer the questions that initiated this research.

Research question #1. Are there times throughout the day when sufficient personnel are not available to respond to emergency calls?

A. Yes, there are twelve hours when sufficient personnel are not available to fully staff one engine.

Research question #2. Are there times when available personnel do not meet nationally accepted staffing levels?

A. Yes, there were only two, one-hour periods when sufficient personnel were available to meet the NFPA 1710 staffing guide.

Research question #3. By having accurate availability information, what steps can the department leadership take to assure sufficient personnel?

A. Expansion of the current mutual aid agreements will be the quickest solution for adding additional personnel to responses. However, expanded use of mutual aid creates other issues that will need to be addressed. Some of those issues are:

1. The response time for some of our mutual aid companies can exceed fifteen minutes.
2. Five of the seven AMAR departments are experiencing the same personnel shortages as the Brookville Fire Department.
3. Simultaneous calls will deplete personnel available for mutual aid response

4. Move up and filling in will require additional training for dispatch centers. The development of standard radio procedures and discipline for all departments will be required.

Research question #4. How much time does the volunteer have to commit to the Brookville community?

A. In reviewing the availability graphs, it becomes evident that very little time is left in the volunteer's schedule.

Every Monday night the volunteer is at the station for four hours of training, and one night a week and one weekend a month he or she is on ambulance duty. Add weekly station duties and equipment checks to this schedule and one can see how very little time the volunteer has available for additional duties.

The Brookville Fire Department's standard response to a residential structure fire includes two engines, a rescue, and a medic. The goal is to have four firefighters on each engine, five on the rescue, and two on the medic for a total of fifteen personnel. The department's officers decided upon this standard response long before N.F.P.A. 1710 or OSHA 2 in 2out rulings became standards. They decided this was the minimum response needed to protect the citizens and firefighters in a safe and efficient manner. When the initial response falls below these levels, efficiency and safety suffers.

The argument can be made that N.F.P.A. 1710 does not apply to combination departments, and that would be a true statement; however, the OSHA 2in 2out ruling does apply.

In the past city leaders have done an excellent job of controlling growth within the community. This controlled growth maintained the small town flavor of the community and allowed department heads time to develop strategies to deal with this growth.

It does not appear that controlled growth will continue. Construction plans are on the drawing board to bring sewer and water to the unincorporated areas of the fire district. The County Engineers' Office is doing this work. When this happens, explosive growth in the unincorporated areas of the fire district is a very real possibility.

For our organization this study raises serious questions as to the ability of the department to maintain services at the present level without additional staffing. No expansion of services should be attempted.

As the department ages, the loss of key members will have a disruptive effect on the department.

When the additional Homeland Security training requirements are passed down to smaller departments, those will put additional burdens on our department and personnel.

The results of this research indicate that the time available to volunteers is limited. Our department struggles to maintain current training requirements. Any additional training requirements imposed may be impossible to meet.

RECOMMENDATIONS

The study data confirmed:

- There are insufficient volunteer personnel available to provide adequate coverage to the fire district.
- Brookville Fire Department volunteer personnel are available more than the average (4.3 hours).
- Simultaneous calls can leave the community unprotected.

Considering the data provided by this research, this researcher makes the following recommendations:

One

- Examine the possibility of expanding the automatic mutual aid agreement.
Currently AMAR (automatic mutual aid response) is received for the non-hydrant areas of the fire district and involves tanker operations only.
- Revise the box alarm system to target those life safety hazards that need additional personnel and equipment on the first response. These hazards would receive their own box alarm number and assignment.
- Develop standard radio procedures and discipline for those departments and dispatch centers involved in the AMAR program.

The expansion of the AMAR agreements should include a personnel availability study by the participating departments. Reliance, on AMAR from departments that have the same staffing issues as the Brookville Fire Department would not produce the desired benefits.

Two

- Form a fire department study committee of civic leaders. This committee would have a make up of elected officials (city and township), business leaders, citizens, and department members.
 - The first task of this committee would be to decide what types of services the department would provide. Current practice is for the department to plan and train for every possible event. When an emergency arises, we respond, regardless of the nature of the call. It is time to reevaluate this policy. Given the current staffing conditions, we cannot be the “end all, do all” response agency. The size of our community and department will

dictate what services can be provided. More importantly, the decision regarding services provided must be a community-based decision.

- The second task for the committee would be to develop a staffing plan based on the services to be provided.
- The third task of the committee would be to compile a report of the findings and recommendations, and present it to the political bodies of the fire district, the fire department leadership team, and to department members.

The challenges facing the Brookville Fire Department are real. It is currently impossible for the Brookville Fire Department to meet the required training needs.

Realistic response, training, and staffing goals must be developed if the department is to meet the challenges of the future.

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APPENDIX A

Average Daily Availability Graphs

