Public safety communications center staffing: Do we have an emergency?

Steven L. Herrin
University of Nevada, Las Vegas

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Public Safety Communications Center Staffing, Do We Have An Emergency?

By

Steven L. Herrin

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Abstract

The 911 Public Safety Communications Specialist, operator, call taker, dispatcher, or whatever title these behind-the-scenes professionals operate under, they are indeed, the first public safety responder. Whether it is for police protection during criminal activity, fire extinguishment to save a burning house and rescue the victims, or paramedic treatment to remediate a life-threatening medical incident, the first contact the vast majority of these callers will have is with the 911 System.

Dr. Jeff Clawson, president of the National Academies of Emergency Dispatch, and creator of the Medical Priority Dispatch System (MPDS) first coined the term "first, first responder"[1] to describe the role of the Communications Specialist. With this in mind, why would a public safety communications center ever have to worry about its staffing level?

As hard as it may seem to believe, communications centers regularly have staffing problems. The main reason identified throughout the paper is the lack of national standards for staffing these centers. Fire and Police departments are rated by several agencies on their ability to respond quickly to emergency situations. This paper investigated some of the reasons why communications centers must be adequately staffed, efforts to attain and maintain adequate staffing levels, the lack of national standards for communications center staffing, and the recommendation for the establishment of staffing standards that can be used by any communications center.

Acknowledgements

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CHAPTER 1

INTRODUCTION

Overview

This paper is about establishing national personnel staffing standards for our nation's Public Safety Emergency Communications (911) Centers. These centers are required to receive emergency calls from the public and dispatch appropriate emergency units in a maximum allowable time. Without adequate staffing, this cannot be achieved. The inability of units to respond quickly can have a significant impact on the public, both in health and safety issues, and, can mean life and death and higher home owners insurance rates if firefighters and equipment do not arrive on scene of the emergency in a given amount of time. Without enough communications specialists on duty, emergency calls can be delayed. In short, a communications center must have adequate staffing to provide this fast, accurate emergency response service, and the best way to ensure that ability is to insist on staffing standards that would give center managers the ability to provide appropriate emergency service.

Especially in the post 9-11 world, law enforcement agencies and fire departments have had their public safety responsibilities increased, in particular in support of homeland security. Every year, law enforcement and fire departments are required to work harder to provide the best possible public safety services. These agencies cry out for more officers, more firefighters, more paramedics, more training, and more equipment and facilities to meet population growth and increases in violent crime,

terrorism and health problems of an aging society[2, 3, 4]. This paper points out that rarely does the public outcry go out for, or legislative action taken for additional Communications Specialists commensurate with increases in other areas of personnel and support facilities and equipment.

This paper assesses and evaluates public and professional groups recognition for the needs for national staffing standards, and efforts to establish them. The primary research question answered in this paper is: What formal work exists to establish national staffing standards for communications center staffing?

This paper will review articles and reports addressing staffing issues throughout emergency services agencies in Chapter 2. Research methods used are discussed in Chapter 3. Findings and results are identified in Chapter 4. The implications of the non-existence of national staffing standards are pointed out in Chapter 5. Conclusions and recommendations are provided in the final chapter.

Background

In order to best serve the public and our communities, it is important to get the appropriate emergency personnel (police, firefighters and/or paramedics) and equipment to the scene of crime, fire or medical emergency in the quickest, safest way possible. The establishment of national standards for communications center staffing would help ensure our centers are adequately staffed to provide this service. By maintaining enough Communications Specialists on duty, the public would spend less time waiting on an over-burdened 911 system. More lives could possibly be saved, and more personal property could be saved by faster responses to the original calls.

In today's public safety arena, with municipal budgets under ever-increasing scrutiny to make cuts and streamline, the protection of life and property is at an ever-increasing level of interest to the public and government officials.   Just how important is it to have an adequate number of police officers, firefighters, paramedics, and support facilities and equipment to meet the public safety demands, and how important is it to get a police officer to the scene of a violent crime, a fire engine to one's house and precious belongings going up in smoke and flame, or a paramedic to the side of the victim of a sudden, massive heart attack as quickly as possible? The apparently obvious answer to these questions is, at times, quickly enough to have an adverse effect on public safety in other areas of the particular response the responding officer/s is/are on[5, 6].

In the last several years, there has been an increase in the attention paid to communications center staffing shortages. Only in rare instances is the public made aware that their first line of emergency services contact is in need of help themselves[7]. When the call is heeded for more Communications Specialists, some agencies hire part time dispatchers, assuming this will take care of the problem[8]. Using this practice, administrators will make the claim that their center is fully staffed, albeit a good portion of their numbers is in the form of part timers. The plus with this is that known, or forecasted shortages can be staffed with these individuals ahead of time. The drawback is that a lot of staffing problems result in the unforeseen shortages, such as with sick leave. The center manager still must depend on calling these people back to work after a shift, or on a day off. This has the tendency to leave the manager with the

same problem already in place; getting someone to come in who is off, or has already worked a long, stressful shift.

A very real challenge to staffing a communications center is Communications Specialist burnout. Burnout occurs when a Communications Specialist, already stressed by the nature of the job, is required to work overtime to cover staffing and complete required training. In it's argument for the need of national standards for staffing, the Association of Public Safety Communications Officials (APCO) points out the fact that budget constraints, call volume stress, as well as caller induced stress, combined with the requirement to work overtime to cover shift shortages and complete training begin to create burnout factors for Communications Specialists[9]. As the burnout factors continue, sick leave use increases; as sick leave use increases, so does the requirement for others to fill in the void/s. As others fill the gaps, they begin to experience burnout factors themselves. In the end, sick leave use becomes a rampant problem, burnout is experienced by everyone in the center, and it becomes just a vicious cycle of burnout. The establishment of national staffing standards would eliminate most or all of these factors.

It is important to have public safety personnel respond quickly utilizing the quickest, safest method to get them there. The 911 Emergency System is the best method. The public can dial a simple, quick number to reach the emergency services of law enforcement, fire department and emergency medical services (EMS). Some agencies provide dispatch services for law enforcement only, fire department only, EMS only, or any combination of the three. These agencies receive emergency calls,

ascertain the nature of a problem, then dispatch appropriate public safety responders, or forward the call to the appropriate agency providing the emergency service required.

In the past, responding public safety units rolled "code", that is, lights and sirens, on almost every call for "emergency" services. Any mention of certain key words such as fire, respiratory distress, chest pains, shots fired and such, drew an automatic code response through the streets. The lights and sirens approach at responding to all calls increases the risk of vehicular collisions with the public. As cities have grown and become more congested, accidents between public safety vehicles and others sharing the same roads have increased, necessitating the re-thinking of how they respond. Some public agencies have developed their own procedures[10], and, numerous private agencies such as the National Academies of Emergency Dispatch (NAED)[11] have emerged as a result of this thinking that have developed what is known as *response protocols* for police, fire and EMS dispatching. This is where the Communications Specialist comes in, which is what these professionals will be referred to, from this point on.

There is a mind-set in the public safety industry now "to advance and support the public-safety emergency telecommunications professional and ensure that citizens in need of emergency, health and social services are matched safely, quickly and effectively with the most appropriate resource[12]."   Through the use of established protocols, the Communications Specialist determines the nature of each call, the safest, most appropriate level of unit response (that is, lights and sirens, or no lights and sirens), and the most appropriate unit or units to respond. This all equates to the most

appropriate public safety response and the appropriate level of concern over other areas of public safety while the units are responding.

So far, it's been stated that expeditious response was important, and the appropriate level of response is important. It's been pointed out the (perceived) continuous need for more officers, firefighters and paramedics, facilities, and support equipment needed, but the question of how many Communications Specialists a communications center needs to safely and effectively carry out it's part of the much needed public service has not been addressed.

Scope of Study

In order to obtain the information required to determine the presence or lack thereof of national staffing standards for communications center staffing, a review of the requirements and recommendations of organizations that have a direct impact on or professional affiliation with the agencies providing public safety services was completed. These include private and governmental entities that, either by rules of affiliation, or rules governing agency ratings based on dispatch and response criteria, have a direct influence on the provision of these services.

A review of relevant articles was performed from journals and industry-related publications (magazines) to ascertain the level of interest, concern, and indeed the feeling of need for national staffing standards. Often-times, news from official publications concerning forthcoming changes in service levels and/or laws is first seen in these articles.

After determining whether or not national staffing standards exist, a Communications Center Managers Survey was sent out. This survey was sent to approximately 50 communications centers of varying size throughout the country to determine if staffing, is indeed a common, or national problem[1]. Communications centers of varying sizes were used because the belief is that there may be a common problem for most communications centers, regardless of the size of the community they serve. Ten surveys were returned and their results are discussed in Chapter 4.

Additionally, other challenges to staffing, from hiring practices, to communicating staffing needs, to pay levels, to required overtime, to training, to Communications Specialist burnout, and so on, were pointed out. The expected overall findings are that there is no one factor that can be identified as the sole cause of a staffing problem for any communications center, but certainly, the staffing method applied (or not applied) is suspected to be the primary culprit.

There is always the hope that there are national staffing standards for communications center staffing buried in some agency publication, and that it can be brought to light to help communications center managers with staffing problems convince their agencies of the need for adequate staffing levels. Short of that, through survey results and possibly views, experiences and recommendations of agency affiliations, there may be ability to identify a formula used by some communications center managers that would be appropriate for any communications center to use to make an informed recommendation for inclusion into national staffing standards.

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[1] I petitioned approximately 50 governments for public information regarding their Communications Centers. In that regard, I interpreted the survey questions to be exempt from human subject review, and was confirmed by my department advisor in that interpretation.

CHAPTER 2

LITERATURE REVIEW AND CRITICAL ORGANIZATIONS

Literature

On February 5, 2002, a hearing was held in Washington DC by the National

Institute of Standards and Technology (NIST)$_{13}$. The focus at this hearing was to

impress upon Congress the need for Federal help in funding fire departments, as their

roles are being increased in the support of homeland security. There was discussion of

the increased workload of firefighters, the need for "more training, equipment,

apparatus, communications, safety and health issues and staffing"……. of firefighters.

There was not one mention of the subsequent need for more Communications

Specialists to support this proposed expansion of firefighters and equipment.

So, who, or what organizations are stepping up to place the appropriate level of

importance on communications center staffing issues? There are several organizations

that have taken up the cause to bring this problem to the frontline of public administrator

view. Several industry publications have increased their literary attention on the fact

that communications center staffing is not an uncommon occurrence in communities,

nor is it an insignificant concern for the leaders of any municipality providing public

safety services.

In his 2004 year-end report$_{14}$, Gary Allen, the Editor of *Dispatch Monthly* wrote of

the communications center "staffing crisis". He pointed out the obvious increase in

concern over staffing issues in the last several years, intensified by the terrorist attacks

on the World Trade Center Towers on September 11, 2001, but the lack of action resulting in the continuation of staffing shortages. He pointed out the obvious when he said that "without a nationwide standard for staffing, or even a consensus among experts on optimum staffing, cities and towns have no way to justify hiring more dispatchers." Because of the lack of national staffing standards, managers are reduced to using one of a number of different formulas (which will be discussed more later) to convince their department heads and city financiers to allow them to increase their staffing.

Allen goes on to report numerous other factors affecting communications center staffing, such as the very nature of the job. The Communications Specialist finds him or herself in an environment of confined quarters, high stress levels, and the requirement to become more and more prolific in technological skills, as dispatch systems become more and more dependent on computerized applications.

In addition to the working environment, it's becoming harder to find workers willing to provide the commitment demanded of this type of job. This requires the individual to give up family and leisure time to work shift work, nights, weekends and holidays, and begin a career in a seniority-based system. All of this not withstanding, the ability of the administrator to hire enough personnel, qualified or not, remains the main focus of this paper.

Articles from Trade Journals

There have been a myriad of articles written on the subject of staffing, or manning, as some articles use this term to mean the same thing. Many articles were

reviewed to determine whether or not there is an understanding of the need for national staffing standards, or simply, the demonstration, and recommendation of another formula to use. The majority of articles reviewed came from Scopus and the Business Source Premier. These areas seem to have an abundance of available material with which to study.

Many articles evaluated talked of staffing in general, how to attract staff, and once hired, what to do with that staff to make the numbers work, and how to keep qualified, talented staff for the particular occupation the articles were written for. A great number were concerning medical and Information Technology fields, with no direction in staffing a facility with certain specific position staffing requirements. Most articles, regardless of the field of study cited problems with staffing, some in particular used the term "staffing crisis[15]" to describe the problems being experienced. The few articles found with specific relevance to the complex staffing requirements of a public safety communications center will be discussed, even if very briefly.

One article taken that seemed to have a good possibility of addressing communications center staffing was written as a result of a congressional committee hearing in September, 2004. This hearing was held to reconcile funding for the increased responsibilities of fire departments with regards to Homeland Security[16]. As it turned out, the resulting funding approval was for *firefighters* for the next five years.

There were quite a number of journal articles that provided information and staffing formulas in their pages. The formulas taken from the articles in Scopus and Business Source Premier were extremely complicated; to place the entire formulas in this paper would create several additional pages of print[17, 18]. Four articles were

reviewed for their possible relevance toward communications center staffing, and will be discussed in detail later. Additionally, the manager that attempted to use these to figure an appropriate staffing level for their communications center would have to be a genuine mathematician. There are other, simpler formulas in use that were addressed in further literary review of some of the industry magazines and one subject matter expert.

"Communications Center Staffing: When is Enough - Enough?"

In Weaver's article, submitted for publication (article available upon request), on the subject of staffing[19], he sites Henri Fayol as being "instrumental in identifying the elements of the management process as planning, organizing, *staffing*, directing and controlling; this without much fanfare. He also provides two formulas for figuring appropriate staffing levels (Appendices. A & B). These are pretty basic formulas that are reasonably understandable by most communications center managers.

One very basic formula (Figure 1) seems to be common in communications centers using one and is performed on an Excel Spreadsheet. Here, a manager would figure total annual work hours per Communications Specialist, minus the expected coverage hours for paid lunch hours, vacation, and sick leave time afforded each person from the total annual work hours per person. The manager then figures how many positions the communications center needs to staff for an annual total. The last step is to divide the total expected individual work hours into the total hours needed to be covered. The resulting figure calculates the expected need for staffing, I think obviously, rounding up for non-whole numbers.

Communications Center Staffing Justification Formula[2]			
Hours Per Week	Weeks Per Year		Total Work Hours Yearly
40	52		2080
Vacation Hours	Lunch/break Hours	Sick Hours	Total Off Hours
240	207	100	547
			Total working Hour Per Year
			1533
Total Positions	Hours Manned Per Day	Days in A Year	Total Needed Hours
10	24	365	87600
			Total Operators Needed
			57.1 (52)

Figure 1.

As was mentioned earlier, Gary Allen of *Dispatch Monthly* cited a "staffing crisis" in his year-end report[14]. His report included the claim that agencies, in general, have been working at two-thirds their authorized strength since 1999. He closes his report with a reference to APCO, and that organization's work on the staffing issue.

Articles from Scholarly Journals

A title and content search of more than 500 articles from Business Source Premier and Scopus turned up four reviewable, or what appear to be function-specific articles with seeming relevance to communications center staffing. Other scholarly journal articles went into vast detail on many subjects of staffing; a great many addressing the staffing needs of medical facilities, which differ in their needs from the

[2] Current staffing formula used by the Las Vegas Department of Fire & Rescue Combined Communications Center.

staffing of a communications center, enough that the articles were of no use. As was

mentioned earlier, several articles, three taken for this paper, provide formulas for

figuring staffing that are very extensive and complicated. The following is a brief

accounting of four articles total, to the relevance, or lack thereof, to staffing a public

safety communications center:

"**On the Complexity of Manpower Shift Scheduling**"[20]: Hoong takes a

systematic, 3-step approach toward staffing, or scheduling, as it were, an organization

for "round-the-clock" operations. This process includes 1) the *allocation*, or the number

of workers for each shift of a day, 2) *Offday Scheduling*, which is the assigning of

offdays on the schedule, and 3) the *Shift assignment*, the actual assigning shifts to the

schedule. This is a very comprehensive and complete approach to staffing, after a

manager has the staff. There is no mention of how the minimum amount of staff a

communications center will need to fill the number of positions within the center. There

is no mention of a requirement to establish standards. The point in this article is that it

is very useful to a manager who already has his/her staff.

"**A Polyhedral Approach for the Staff Rostering Problem**"[21]: In this article

again, Felici and Gentile address the act of staffing, again the actual act is scheduling of

personnel for the agency or activity. This is another very comprehensive and

complicated formula whereby a *schedule* is made, not a staffing minimum. The formula

used here would be another applicable application for the manager who already has the

staff he or she is assigned.

"An Algorithm for Multiple Shift Scheduling of Hierarchical Workforce on Four-Day or Three-Day Workweeks"[22]: In that many communications centers work other than traditional hours, that is, some work four 10-hour shifts, some three 12-hour shifts and one 4-hour shift, and others work still other varied schedules, this article appeared, at least by its title, to hold some possible relevance. And, once again, Narasimhan includes an extremely complicated formula for essentially scheduling personnel for the differing shifts.

The one common thread in all three preceding articles is that they used staffing for the actual act of scheduling. There was no comment, or indication toward the act of staffing a facility to allow the scheduling of those personnel. These articles ended having no specific relevance to communications center staffing standards, or the actual process of staffing any facility.

"Fire Funds in Congress Talks"[23]: One final article review was taken from the News and Trends section of the Business Source Premier because it talked of "Fire Funds" and Congress in the title. This article was written as a result of Congressional Conference Committee meeting on Homeland Security in September, 2004. It was hoped that some language would be found that would indicate an understanding, once again, of the need to ensure our public safety communications centers would receive the appropriate consideration, as yet another campaign is presented to Congress on fire department budgetary constraints. This article fell short of expectations, as most have. The article talked of the Fire Grant Program. This program included appropriations for the Fire Act, which included $750 million in 2003, and 2004 to help fire departments with

staffing shortages and the Staffing for Adequate Fire and Emergency Response

(SAFER) Firefighters Act of 2003. The latter act included an additional $50 million "that

will enable fire departments to receive grants to hire and pay for new firefighters". This

obviously did not have communications center staffing standards in mind.

Magazines and Official Publications

Official magazines and publications with industry relevance were reviewed to determine

if these are used as avenues toward achievement of national staffing standards. The

primary publications in this field are:

- *911 Magazine*.

- *Dispatch Monthly Magazine*.

- *Firehouse Magazine*.

- *Fire Suppression Rating Schedule Handbook*.

These publications regularly print articles regarding the operations of our Public Safety

systems, and obviously, adequate staffing is a vitally important issue, especially to the

general public, at least in my opinion. The goal here was to find out if these publications

have published any information on, or demonstrated outward support for the

establishment of national standards for staffing.

    911 Magazine[24]:   This publication has no direct information on staffing of a

communications center. The article found that is closest to the subject regards

maintaining morale on the dispatch floor. Discussion of poor morale is found regularly

in these publications, and is a common topic of discussion amongst managers. One

thought to ponder here is that, without adequate staffing, morale is strained; this,

caused by increases in overtime to staff a "short" communications center, or to attend mandatory training to keep skills sharp as mandated by the National Fire Protection Association (NFPA) Standards 1061 and 1221. I would have liked to see the morale issue flow into a discussion of what it would take to make it better; specifically, in the development of national standards for staffing.

Dispatch Monthly[14]: This emergency communications industry publication, as was pointed out earlier in this paper, includes on its site, Allen's year-end report that talks of the "staffing crisis". He makes a good argument for national staffing standards by stating that "without a national standard, cities and towns have no way to justify hiring more dispatchers". He goes further to state that "there is no outreach to those seeking a career and who might consider dispatching. There is no national effort among the public safety associations to seed training or career development programs that might generate acceptable candidates". He does temper these statements by acknowledging the fact that APCO is working on the issue of development of national communications center staffing standards. This means that, at least *Dispatch Monthly* is aware of official efforts to accomplish this, and makes that information known to its readers. This is one of the few upfront examples found on the subject of this paper.

Firehouse Magazine[25]: In its February, 2005 issue, *Firehouse Magazine* published an article by Barry Furey. His article, entitled *The 911 Numbers Game*, pointed out the need to remember the 911 centers, also known as Public Service Answering Points, or PSAPs. He makes a good argument for the (possibly) oversight in many cases of firefighter needs over communications center needs. In his article, he says, "because these facilities often operate behind the scenes, their issues are less

visible, however, being less visible does not mean less important", and later in his article he states, "firefighters and fire equipment are visible and exciting and make a presence in the community, communications systems aren't, and don't". These are some very accurate comparisons drawn as to where the perceived importance is. Furey makes a good argument for the assurances to keep communications centers staffed, even if only by alluding to it; he does not go far enough in his article to come out and state a support for development of staffing standards.

Fire Suppression Rating Schedule Handbook[26]: Every fire department, paid or volunteer, strives (or dreams) to achieve an ISO Rating of 1, the highest insurance industry mark achievable by a fire department. As stated earlier, the higher the rating (from 1 to 10 in descending order), the more impact on homeowners insurance rates. The current edition, published in 1993, supports the communications center staffing provisions of *NFPA 1061* and *1221*. During an ISO Accreditation visit, communications centers are graded on the number of operators on duty in the communications center to handle fire calls. The NFPA, falls well short of making an adequate staffing requirement in the emergency communications services environment of today, as will be pointed out in the next section, and the support of the NFPA requirements by this publication means little. Here again, the lack of direction for the development of national staffing standards leaves the communications center managers right where they started; to be successful salesmen and women to adequately staff their facilities.

Organizations

There are several professional associations related to Public Safety communications centers. The associations with specific relevance to the provision of public safety services and possible contributors of information to this papers topic were:

The National Fire Protection Association (NFPA). The NFPA was founded in 1896 for the development of fire prevention and public safety codes. It took almost 100 years to establish and publish written codes (standards) for Public Safety Telecommunicator Professional Qualifications (Communications Specialist). "The mission of the international nonprofit NFPA is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically-based consensus codes and standards, research, training, and education"[27]. NFPA publishes two written standards for all communications centers, regardless of the type service provided, be it police, fire, EMS or a combination of some or all three. These two standards pertain specifically to Communications Specialists and the management of communications centers. They are *NFPA 1061, Standard for Professional Qualifications for Public Safety Telecommunicator*, and *NFPA 1221, Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems*. These two orders were reviewed to determine if there is any mention of actual staffing standards that should be applied to communications centers.

NFPA 1061 was the result of the formation of the Committee on Public Safety Telecommunicator Professional Qualifications in 1992; the resulting publication did not become effective until August 9, 1996[28].

The standards set here by *NFPA 1061* dictate the qualifications as minimums, a Communications Specialist must possess. It directs that the Communications Specialist "remain current with communications technology, operate within acceptable standards in response to public expectations for timely and efficient service, generate records of public safety services requests, given agency policies, procedures, and resources, so that the record is correct, complete and concise", and more[29]. The point here is that *NFPA 1061* establishes standards for the Communications Specialist without addressing how to acquire, or maintain proficiency on set standards. If there is adequate staffing, proficiency and upgrade training may be provided on a person's normal shift. If there happens to be a staffing shortage, all of this training must be completed on an overtime basis. This has the tendency to increase stress on an already stressed Specialist by taking normally scheduled days off away from the individual to attend training classes to keep their skills sharp, thereby complying with the NFPA Standard. In short, there is no language in *NFPA 1061* that addresses the need to adequately staff a communications center in order to complete the requirements of the standard.

NFPA 1221 was established in 1898 as part of a general standard on signaling systems. This means, it was originally intended for use by fire departments. This standard was completely revised in 1999 and made applicable to "all emergency responders, not just the fire service"[30]. *NFPA 1221*[31] supports the requirements as set by *NFPA 1061,* "Telecommunicators shall meet the requirements of *NFPA 1061*……". It also appears to be a generic attempt at establishing a standard for communications center staffing. *Section 6-4, Operating Procedures*, makes the following statements:

"The authority having jurisdiction shall ensure that the number of telecommunicators needed to affect the prompt receipt and processing of alarms[3] shall be as follows:

(1) "The authority having jurisdiction shall ensure that the number of telecommunicators needed to affect the prompt receipt and processing of alarms shall meet the requirements of Section 6.4.

(2) Communications centers that provide emergency medical dispatching (EMD) protocols shall have two telecommunicators on duty at all times.

(3) The authority having jurisdiction in charge of the communications center shall develop standard operating procedures, with each emergency response agency that identify when a dedicated telecommunicator is required to be assigned to an emergency incident.

NFPA 1221 makes two final statements alluding to some kind of staffing standard. That is that "At least one supervisor shall be on duty and available to the telecommunicator when more than two telecommunicators are on duty, and, the supervisor shall be assigned to the operations room when there are more than three telecommunicators on duty" [32]. Without going into great detail, this staffing requirement doesn't mean much to a communications center that responds to in excess of 200, 000 calls for emergency services per year[33]; and, the numbers are climbing. Or, how about the agency that receives in excess of 1,000,000 calls for emergency and non-emergency services[34]? It is my opinion that this "standard" means little or nothing to agencies receiving these vast numbers of calls.

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[3] Alarm as defined by *NFPA 1221*: A signal or message from a person or device indicating the existence of a fire, medical emergency or other situation that requires emergency services action.

The **Commission on Accreditation for Law Enforcement Agencies (CALEA).**

"The overall purpose of the CALEA Accreditation Program is to improve delivery of law enforcement service by offering a body of standards, developed by law enforcement practitioners, covering a wide range of up-to-date law enforcement topics. It recognizes professional achievements by offering an orderly process for addressing and complying with applicable standards"[35]. CALEA is law enforcement-specific organization, and was reviewed to determine what, if any standard for communications center staffing is addressed as a condition of the accreditation award to law enforcement communications centers.

CALEA developed a program in 1996 specifically for Public Safety Communications agencies to develop standards with a base of administrative and communications standards, and an independent neutral body to administer the program. In association with APCO, CALEA establishes Accreditation Standards for law enforcement agencies. Chapter 81 of the CALEA Accreditation Standards addresses the provision of law enforcement communications services[37]. It directs compliance with Federal Communications Commission requirements, but does not address staffing standards, or mention it. In that it quips a close relationship with APCO, is it safe to assume there may be mention of staffing standards through APCO? The next section will address that question.

The Association of Public Safety Communications Officials (APCO) International. "APCO International is the world's oldest and largest not-for-profit professional organization dedicated to the enhancement of public safety communications[37]." APCO is another non-specific organization that offers accreditation

to all communication center functions, again, not one in particular. APCO was evaluated to determine whether or not it is involved in any level of communications center staffing standards.

APCO claims itself to be "the leader in establishing protocols and standards for public safety communications[38]. At first glance, it is apparent to the reader that APCO has a project designed for the question of communications center staffing. This project is called **R**esponsive **E**fforts **T**o **A**ddress **I**ntegral **N**eeds in **S**taffing, or RETAINS[39]. In substantiation of development of staffing standards, the term "staffing crisis" was used again, as was found in other areas earlier. "The APCO Communications Center Task Force found that personnel recruitment and retention are key to the staffing of our nations 9-1-1/Public Safety Communications Centers (PSCC). While recruitment and retention are not the only factors, they are probably the most prevalent cause for the crisis. With that known, the APCO Communications Center Task Force developed a "Best Practices" document, which is designed to provide jurisdictions and agencies guidance and assistance in resolving the "crisis in recruitment and retention of 9-1-1/PSCC personnel."

RETAINS is the first, apparently very aggressive attempt at establishing national staffing standards for public safety communications centers. It is a 3-phase program, started in 2001, whereas Phase 3, the creation and implementation of national public safety communications center standards were expected to be announced by May, 2004[40]. That has not been completed yet, but the effort is ongoing. Whereas no "standard" for the number of communications specialists is recommended as yet, say for the size of the community, the number of calls for service, or whatever validating

data to be used, this is a fantastic step forward in the development of standards that agencies, indeed municipalities will be able to base their numbers of personnel on. At the current time, APCO is experimenting with three different formulas[42]. One is almost exactly the same as the formula currently in use in the Las Vegas Department of Fire and Rescue Combined Communications Center; one is figured by setting a call answering time limit, and one is using an adjustment factor (1.5 or 1.7) to cover times of breaks, vacations and sick leave.

The International Organization for Standardization (ISO). "ISO is the world's largest developer of standards. Although ISO's principal activity is the development of technical standards, ISO standards also have important economic and social repercussions. ISO standards make a positive difference, not just to engineers and manufacturers for whom they solve basic problems in production and distribution, but to society as a whole[42]." ISO makes a strong statement here. If it really is the world's largest developer of standards, then a review of its organization should reveal some important information.

The ISO rates Fire Departments from 1 through 10. The higher (starting at 1) the ISO rating, the greater benefit a community receives. A community's department that achieves an ISO Class 1 rating stands to benefit greatly, by experiencing significantly reduced homeowners insurance rates within the rating area. Although the ISO provides ratings for fire departments and affects homeowners insurance rates according to how fast a department can be on their doorstep, ISO only provides what it calls a *Market Segments Program for Staffing Firms*[43], but not public safety communications centers specifically. There was no apparent help in the staffing question from ISO directly, but a

review of the publication called the Fire Suppression Rating Schedule Handbook, which is the ISO's guide to a department becoming accredited, will show the intent of the ISO to use NFPA standards for communications center staffing.

The International Association of Fire Chiefs (IAFC). "Established in 1873, the IAFC mission is to provide leadership to career and volunteer chiefs, chief fire officers and managers of emergency service organizations throughout the international community through vision, information, education, services and representation to enhance their professionalism and capabilities[44]." In keeping with the spirit of this association's charter, I hoped to reveal some relevant information on their support of national communications center staffing standards.

It was hoped that there would be some staffing language through the IAFC, however, there was none. There is plenty of reference to budget issues to "ensure first responder programs are fully funded"[45], and the mention of working with Congress throughout the appropriations process of President Bush's 2006 Budget Proposal, there is no specific reference to the need, or support for national staffing standards for communications centers.

In yet another action by the IAFC[46], the association convened a summit in February of this year to "develop a strategic, coordinated message through the Congressional Fire Services Institute to send to Congress and the administration to ensure the future of the (National Fire Academy) academy". There is no mention here either of solicitation for, or support of national staffing standards for communications centers.

The National Institute of Standards and Technology (NIST). "Founded in 1901, NIST is a non-regulatory federal agency within the U.S. Commerce Department's Technology Administration. NIST's mission is to develop and promote measurement, standards and technology to enhance productivity, facilitate trade, and improve the quality of life[47]." It was hoped that a review of NIST would turn up some information or evidence that can be tied to the federal government's ideas and beliefs on standards for communications center staffing. This is the only federal agency found that, at least on the surface, appears to have the potential to have an influence on the subject matter.

The February 5, 2002 Hearing Report from the Senate Appropriations Subcommittee on VA/HUD and Independent Agencies from the NIST[48] on the requirements for the fire and emergency services delivered what I found to be a pretty common occurrence; that is, talk of increasing firefighter numbers, equipment, and facilities to accommodate the increases in firefighters. There is additional talk of the increased level of training that is needed, and it needs to be funded. One committee member, Buckman, spoke of the "under-staffing of fire departments", and endorsed a Bill titled SAFER introduced by two senators that would provide Federal assistance to local fire departments to hire more firefighters. Once again, there is no discussion of the need for more Communications Specialists to handle the increases if firefighters, equipment and facilities.

The National Emergency Number Association (NENA). "NENA's mission is to foster the technological advancement, availability, and implementation of a universal emergency telephone number system. In carrying out its mission, NENA promotes research, planning, training and education. The protection of human life, the preservation of property and the maintenance of general community security are among

NENA's objectives[49]." NENA is a private, non-profit organization with more than 7,000

members, established to "provide an effective and accessible 9-1-1 service for North

America; a membership dedicated to making 9-1-1 and emergency communications

work better". With that statement made, and the reality that communications can only

work best with adequate staffing, a review of some of NENA's projects, or initiatives as

they say it, may reveal an effort on their part at assisting in the development of national

staffing standards.

By the definition of its mission statement, "NENA promotes research, planning,

training and education. The protection of human life, the preservation of property and

the maintenance of general community security are among NENA's objectives", one

would think that NENA might be actively involved in the development of national

communications center staffing standards. A review of the primary project NENA is

currently involved with indicates this agency is more geared toward the technology side

of the industry. NENA maintains a national 911 Surcharge List that states what

agencies are charged for the 911 service provided by local telephone companies. They

are involved in projects featuring the continued development of and training on the

telecommunications devices for the deaf (TDD) and the associated teletypewriter (TTY),

making public safety communications centers Americans With Disabilities Act (ADA)-

compliant, and so on. There is no discussion of support for national staffing standards.

NENA is currently running an online survey of its own on emergency

communications pay practices and jobs. Although the reason for the survey is not

made clear on its site, can one possibly consider that this is perhaps NENA's initial

effort at entering the national staffing standards arena? Maybe and maybe not. At any

rate, there is no obvious information that would categorically convince the reader that NENA is pursuing this thought.

The National Academies of Emergency Dispatch (NAED). "The NAED is a non-profit standard-setting organization promoting safe and effective emergency dispatch services world-wide. Comprised of three allied Academies for medical, fire and police dispatching, the NAED supports first-responder related research, unified protocol application, legislation for emergency call center regulation, and strengthening the emergency dispatch community through education, certification, and accreditation[50]." Here is another organization that quips a bold (at least apparently) support of the communications center issues. NAED was evaluated for its role in national staffing standards, or the development of standards.

A search of the National Academies of Emergency Dispatch (NAED) Journal archives using the terms staffing, manning, manpower, human resources and standards turned up no discussion on the subject of staffing a communications center, let alone the development of national staffing standards. NAED teaches a Communications Specialist how to apply medical, police and fire-related protocols, but, it seems apparent to the reader, they have not entered the staffing arena in support of their members.

CHAPTER 3

RESEARCH METHODS

The methods used to conduct the research for this paper were a combination of the evaluation of articles, publications, professional affiliations through accreditation processes, and a survey of various communications center managers, consisting of different geographical locations and demographic size. The reasoning behind attempting to evaluate communications centers of varying sizes is the belief that, regardless of the size of the population served, communications centers, at least in general, all have the same problem; that is, difficulty in adequately staffing the communications center and providing required services in a manner consistent with agency and/or professional requirements.

Each professional organization and agency has an extensive website where a person can access all available information on that organization; what it does, issues it supports, projects, or initiatives, as some call them, and news of impending changes in the field, and in several cases, government activities within the field. These sites were scrutinized for any or all information available regarding national communications center staffing standards.

In addition, the review of several staffing practices and/or formulas demonstrate efforts by communications center managers to effectively staff their centers with a given number of personnel, not necessarily supported by anything beyond an (hopefully) effective sales pitch. Some of these are very basic, primitive to say the least, in today's world of hi-tech computers and programs written for almost every required function of

our working lives. At this point, one would think a program exists to help alleviate the sometimes difficult task of figuring staffing levels for a communications center's 24/7/365 public safety services environment. The intent was to determine the presence, or lack of technology-based (computerized) assistance for center managers.

Communications Center Managers Staffing Survey

The Communications Center Manager Staffing Survey[Attach 1] was sent to approximately 50 communications center managers; the method of dissemination was via electronic survey. It was sent to center managers I already knew and to those whose email information I could obtain through these personal contacts or through professional association groups. It was developed to help determine 1) if there is an industry-wide staffing problem, 2) if managers agree whether or not there is a problem, 3) how staffing is figured at various communications centers, 4) what specific services each center provided, as agencies vary widely in the setup of emergency services provisions, the level of professional affiliation common, or uncommon to centers of varying sizes, and 5) other factors that affect planning and implementing effective staffing. Some of the other factors affecting staffing are required training, vacation and sick leave coverage, size of community served, the size of the communications center, and so on. Each respondent was asked one subjective question. That was, "Would your agency support the establishment of national standards for staffing?" This was asked to draw out the feeling of the importance of the development of national staffing standards, and whether or not an agency was actively involved in the process of its development. Otherwise, the survey asked specific, but non-intrusive questions, as many people are reluctant to complete an official appearing survey if names and

specific communications centers are mentioned. This was done purposely in an effort

to obtain the maximum participation across the country through confidence of

maintaining absolute confidentiality. Subject names and specific communications

centers names may or may not be mentioned in the body of this paper, however, for

justification and/or clarification purposes, they may be obtained if requested, and if

subsequent approval is granted from the individual so requested.

CHAPTER 4

FINDINGS AND RESULTS

There are thousands of articles written on the subject of staffing. Two common themes were found in the articles reviewed for this paper. One was how to figure adequate staffing and how to schedule the available staffing, not the establishment of staffing standards. The other talked of needing to increase the numbers of firefighters, police officers, and support equipment and facilities. However, most articles that talked specifically on staffing recommended formulas of varying complexities in lieu of any set of standards to justify their numbers. Once again, this leaves adequate communications center staffing to how effective a communications center manager can be in selling the need to his or her superiors.

The review of magazines and official publications turned up limited discussion of the need for national staffing standards. *Dispatch Monthly* sites the need for national staffing standards, and alludes to efforts by APCO to establish them, but makes no commitment to joining the effort. *Firehouse Magazine*, while pointing out staffing oversights, does acknowledge the need to remember the communications centers staffing needs, does not advocate the establishment of staffing standards. *911 Magazine* talks of poor morale due to the lack of staffing, but falls short of recommending the establishment of staffing standards. The *Fire Suppression Rating Schedule Handbook* supports the requirements of NFPA Standards 1061 and 1221, but,

as pointed out earlier, these standards are not adequate for most communications

centers. Table 1 illustrates the level of involvement found in all written publications.

Table of Journals, Articles and Magazines		
	Discussion Found on Staffing Standards?	*Relevance to Efforts to Establish Staffing Standards
"On the Complexity of Manpower Shift Scheduling"	No	3
"A Polyhedral Approach for the Staff Rostering Problem"	No	3
"An Algorithm for Multiple Shift Scheduling of Hierarchical Workforce on Four-Day or 3-Day Workweeks"	No	3
"Fire Funds in Congress Talks"	No	3
911 Magazine	No	3
Dispatch Monthly	Yes	2
Firehouse Magazine	No	3
Fire Suppression Rating Schedule Handbook	No	3
*Relevance Factors: 1 aggressive, 2 somewhat involved, 3 no information found to indicate involvement		

Table 1

There were eight organizations _{Table 2} included for review in this paper. With the

exception of APCO, CALEA and NFPA, the other five were found to be void of any

discussion on the need to establish national staffing standards. Of the three that are

working on standards development, it appears that APCO is the only organization that is

aggressively working toward establishing a set of standards. CALEA states a close

relationship with APCO in the establishment of staffing standards, but has no CALEA-

defined project in this endeavor. NFPA states standards that are substantially

inadequate for a communications center in a community of any size or emergency

communications flow.

Table of Professional Organizations		
	Formal Work on Staffing Standards?	*Relevance to Efforts to Establish Staffing Standards
National Fire Protection Association	Yes	2
Commission on Accreditation for Law Enforcement Agencies	Yes	2
Association of Public Safety Communications Officials	Yes	1
International Organization for Standardization	No	3
International Association of Fire Chiefs	No	3
National Institute of Standards and Technology	No	3
National Emergency Number Association	No	3
National Academies of Emergency Dispatch	No	3
*Relevance Factors: 1 aggressive, 2 somewhat involved, 3 no information found to indicate involvement		

Table 2

The Communications Center Managers Survey was emailed to approximately 50 communications center managers Attach 1. Ten surveys have been returned. This number does not sound like much, but, the communications centers that responded are of varying size, representing every geographical locale across the Unites States, with varying population levels. The intent, again, was to sample representatives of every type of public safety communications center to try and determine whether or not a staffing problem exists across the board. This offers us a strong element of sample generalizability in making an assessment of other centers of similar size and makeup. The following is an evaluation of the information received from surveys that were returned.

Surveys received came from Arkansas, Colorado, Missouri, Nevada, South Carolina and Virginia, with population ranges from approximately 11,000 to over 500,000 residents. The breakdown of communications center function is as follows:

1. Four centers dispatch fire and EMS services.

2. Three centers dispatch police services only.

3. Two centers dispatch fire, police and EMS services.

4. One center dispatches police and fire services.

When asked if the communications center was fully staffed, meaning the center had the number of people authorized, only three said yes ~Table 3~.   These centers population numbers fell into four different population figures; 11,000-50,000, 51,000-100,000, 250,000-500,000, and more than 500,000.

Communications Center Staffing Survey Results										
Communication Center #	1	2	3	4	5	6	7	8	9	10
Population Served?	♦	♥	♣	♠	♦	♠	♦	♣	♥	♠
Fully Staffed?	Yes	Yes	No	Yes	No	No	No	No	No	No
How Many Operators?	20	19	16	10	47	20	257	23	32	14
Use Staffing Guidelines?	No	No	No	No	Yes	No	No	No	Yes	No
How Is Staffing Figured?	M	M	H	H	M	H	H/M	H	H	H
♠	11,000-50,000									
♣	51,000-100,000									
♥	251,000-500,000									
♦	More than 500,000									
M	Mathematical Formula									
H	Handwritten Form on a daily/weekly/monthly basis									

Table 3

The other seven centers were dispersed throughout the population ranges, as indicated in Table 3. The importance of these figures is, at least on the surface, indicative of the belief that staffing is a problem universally, not restricted to just one geographical area, or a common population base.

A full 80% of the survey respondents (communications centers) do not follow any kind of minimum staffing guidelines from any professional organization or agency. This is said a little reluctantly, as many talk about a staffing problem, but very few have entered the argument for establishing national staffing standards. With this in mind, maybe most agencies are reluctant to aggressively approach the subject with their

agencies(?), although most centers are aware of the intent by others to establish these standards.

All surveyed centers perform a formal hiring process that varies some, but essentially the same, with nine out of ten requiring a written test, and all requiring a pre-hiring interview of one sort or another. Once hired, a Communications Specialist tends to stay around, as the average annual turnover rate, in general, is less than 5%. One curious thought here is that, with such a low turnover rate, why then is the average experience level among them only 6-10 years? Have there been numerous retirements (or other reasons for leaving) during this time, or is this the historical norm for the industry? I believe a lot more research would have to be accomplished to answer these questions.

Half of the survey respondents reported that their Communications Specialists work more than 20 hours of overtime per month. This ties into the figures that show the number of communications centers that are under-staffed, and, that four of the centers require a Communications Specialist to come in on their time off to complete required training, five use a combination of duty time and days off, and only one performs all required training on a persons normal shift. The combination of required overtime to fill staffing shortages and complete training can lead to other factors that may affect a centers staffing, and will be discussed further at the conclusion of this paper.

Questions 24 and 25 of the survey were asked to get an idea of how much vacation and sick leave time a communications center must cover during a given year. Certainly, there has to be a break-even point where overtime to cover these costs an agency more

than hiring more Communications Specialists. This is that magic fine line that each

manager must figure out, and sell to those holding the dollars.

CHAPTER 5

IMPLICATIONS

As was pointed out in several areas, there are no national staffing standards for our nation's Public Safety Communications Centers. The immediate implication for the development of national staffing standards for these centers is to provide adequate staffing to provide professional, competent emergency services to our communities while keeping occupational stress, thus burnout down. When we talk of professional and competent emergency services, we mean answering the 911 calls quickly, obtaining accurate information from the callers quickly, and getting the information to the crews quickly and accurately. Without the development of standards for staffing, and, without the acceptance of it from our emergency services agencies, communications center managers will continue to play a delicate numbers game of trying to staff our "first, first responder" facilities. Our communications centers will continue to be staffed with highly driven professionals, however, at what point will the tolerance level be reached where these individuals will no longer be capable of providing fast, accurate responses to the people who need their services?

Considering overtime versus increasing staffing; there must be an acceptable break-even point where costs are equal to or less than the cost of sick leave and eventual Communications Specialist burnout. With the number of overtime hours reported on the Communications Center Managers Survey, the average was more than 20 hours a month. On the surface, this may seem acceptable, but that is the average. How many people work in excess of, say, 50, 60 or even 80 hours a month to cover

staffing shortages? That figure is not available at the time of this writing, but, talking to members of a major communications center, these are the figures being used.

Some communications center managers are now using a computer program called TeleStaff to staff their facilities. This program does not define staffing requirements for the center, rather, it takes the information provided by the manager to staff the facility with the assigned personnel. It is possible that, as a result of using this program, computer-generated statistics may become available to assist managers in identifying overtime trends, and quite possibly, justifying additional personnel, regardless of any national staffing standards.

CHAPTER 6

CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH IDEAS

We should have national standards for staffing our Public Safety communications centers. Why, indeed, should we have national standards for the number of firefighters[51] or police officers[52] we put on the streets if we cannot support them with communications capabilities and the manpower to provide them (the officers and firefighters) the services they need to do their jobs. When we say minimum staffing for firefighters and police officers, these standards are set by national averages in both cases; averages that are generally accepted as the standard that each organization should meet. APCO and CALEA both state that compliance with the standard is part of their organization's accreditation programs.

Public Safety Communications Centers should also be staffed using national standards. These emergency centers are not the local telephone company service center; they cannot put callers on hold and "you'll be helped by the next available customer service representative". These (911) calls must be answered very quickly, a great deal of information must be gathered quickly, then disseminated accurately to the responders, be they firefighters, paramedics or police officers. In some cases, the Communications Specialist remains on the line with the caller, performing Cardiopulmonary Resuscitation (CPR), or they might help Dad deliver a baby at home; all while the units are responding. The latter example of emergency telephone service provided takes a lot out of a person. The point here is there needs to be an adequate

number of personnel on duty so that one (or more) person does not take too many of these types of calls back-to-back. Here again, Communications Specialist burnout can become a reality if there is no emotional break between some of the more serious types of calls, and significant burnout, can mean an increase in the turnover rate of a communications center already strained by staffing problems. As it stands now, requiring a person to come in on a day off to attend Stress Training does little to alleviate the stress of the job, as it is replaced by a different kind of stress by being required to give up a day off to learn how to handle the stress created by very unpleasant emergency calls. A communications center that is appropriately staffed can provide training while a person is on the job. The effect of this would be to give a person a break from the pressures of the job while teaching them how to handle the stress of the job while not having to deal with the additional stress of giving up time off to recover emotionally.

Whether staffing standards are based on phone answering time requirements, the number of calls a Communications Specialist should take per hour compared to, say, an average annual number of calls received by the communications center, the number of operating positions required to be staffed at any given time, or some other factor, national standards for staffing the Public Safety Communications Centers should be developed, implemented, supported and enforced by all agencies employing such services. There certainly needs to be more participation from professional organizations that talk about our "staffing crisis". Although APCO is very aggressive in their endeavor, and is the industry leader in the development of (some kind) of staffing standards, more needs to be done, and it needs to be done sooner, rather than later, as

Communications Specialists continue to perform these very important, and often life-saving services to the public at reduced staffing levels.

More research is needed here also. There is a lot of talk about the "staffing crisis" we have, but it seems little is being done, save from the one organization already mentioned. A very aggressive look should be taken at what an acceptable overtime versus staffing cost should be. One major consideration in the emergency communications world is, here it is again, the burnout factor. These centers are not like business offices that can work a couple of people short, and have someone else simply pick up the additional workload. A Communications Specialist takes one call at a time, does it quickly, gets it out on the street, and moves on to the next call. Any delay getting help to the next caller could mean the difference between life and death.

APPENDIX A

Fixed Posts Positions

These are positions that are staffed regardless of the amount of activity experienced. Examples include 1-person dispatch centers (calls are received and dispatched by the same person), guard positions, supervisor positions, and radio dispatch positions in communications centers where is a division of labor is employed (i.e., call takers receive calls, radio dispatchers dispatch, exclusively). The formula for this calculation has three elements: positions, shifts and relief factor.

P= Positions: The number of positions that must be continuously staffed. Positions that must be taken into consideration include the primary positions and any support positions used. The latter includes relief positions (a "floating" dispatcher used for primary position lunch and restroom breaks).

S= Number of shifts: The number of standard 8 hour shifts the position must be staffed.

RF= Relief factor (usually 1.65 or 1.7): The relief factor takes into account holidays, vacations, days off, sick time, etc.

Calculation expression: P X S X RF = Number of bodies needed.

Problem example: A small communications center has three combined call taker/radio dispatcher positions that must be covered 24/7. One lead dispatcher/supervisor position per shift is also needed. The lead dispatcher/supervisor is responsible for shift supervision, and may also provide relief to the call fixed post dispatch positions when necessary. A total of 4 positions per shift are needed. Three shifts per day are used. We'll need to include our relief factor to cover holidays, vacations, sick time etc. used by the employees.

EXAMPLE:
3 X 3 X 1.7   15 people are needed to staff 3 call taker/radio dispatcher positions on each of the three 8 hour shifts.
3 X 1 X 1.7   5 people are needed to staff 1 lead dispatcher/supervisor position on each of the three eight hour shifts.
15 + 5   A total of 20 people are needed to staff 3 call taker/radio dispatcher positions and one lead dispatcher/supervisor position on each of the three 8 hour shifts.

The same calculation can be used in larger communications center that have fixed post positions. For instance, a large metropolitan police department communications center staffs continuously 15 radio dispatcher positions, in addition to 3 relief radio dispatchers

per shift. The relief radio dispatcher's job is to – position by position – relieve personnel for scheduled lunch and personal/stress breaks. To calculate this staffing standard, the formula would look like:

(15+3) X 3 X 1.7 = 91.8 (92) people are required to staff 15 radio dispatcher positions and 3 relief positions each shift 3 times a day.

If we were to reduce the relief positions by 1, then 86.7 (87) people would be needed.

Source: Weaver, William C. Jr., "When is Enough – Enough", Date unknown, reprinted by permission.

APPENDIX B

Volume Influenced Positions

These are positions that can be staffed according an expected or known volume of activity experienced (i.e., volume of emergency and non-emergency telephone calls), and uses an expected "reasonable" performance factor to determine the number of personnel required (i.e., calls per person per hour).

This formula is especially useful in communications centers and work settings where there is a division of labor between those who receive the call, and those who dispatch the screened calls. This is usually common in medium to large dispatch centers whose annual call volume exceeds 300,000 calls per year or more. It would be overly burdensome to expect a call taker with a high volume agency like the New York Police Department, for instance, to also perform radio dispatcher duties and manage patrol response to calls for service. The formula used to determine the number of persons needed in a volume influenced position looks like this"

CPH= Calls per hour: The number of calls per hour a call taker would be expected to process and be considered efficient. This factor also takes into account that the operator will be doing other tasks in support of these calls. The tasks include database entry, logging, call documentation, etc. The value we use is an average of the day, evening and night shift call takers. It is not representative of a single, specific shift.

HW= Hours worked in a shift: The number of hours actually worked during a tour on shift. Though the employee is really assigned to an 8-hour shift, he/she may actually work only 7 hours. The "missing" hour is consumed by scheduled personal and lunch breaks.

DW= Days worked in a work year (usually 240): The days worked standard will vary from agency to agency and depends on the vacation and benefits package the employer provides the employee. It starts with a calendar year, 365 days, and subtracts scheduled days off, vacation, holidays, sick time use, etc. for the work year. The end result after one subtracts these benefits is the "work-year".

TC= Total emergency and non-emergency calls received: Include 9-1-1, 3-1-1, non-emergency, administrative, etc. calls in this calculation.

TP= Total positions required: Total "production" positions required in a 24-hour period to process the calculated number of calls per year using the CPH standard.

RF= Shift Relief factor (usually 1.65 or 1.7): Previously discussed.

Expression: $\dfrac{\text{CPH X HW X DW}}{\text{TC}}$ = Total number of production positions required.

Example:

We'll use the hypothesis that a "productive" call taker in our large public safety communications center is expected to process 20 calls per hour (1 call every three minutes, on average). This expression would be:

20 X 7 X 240 = 33,600 calls per year per call taker handling an average of 20 CPH as the performance standard.

Using the calculated call taker work year productivity standard, we then divide the work year production value into the total number of calls projected (or known) for the year. We'll use some large numbers to get a sense of scale and how this equation can be applied to large center operations:

Our sample agency processes 2.5 million calls per year. Based on 20 calls per hour production standard, a productive call taker in this agency can be expected to process 33,600 calls for service in a representative work year. We divide the total number of calls to be processed by the total production value per call taker:

2,500,000/33,600 = 74 production positions handling 140 calls per shift (20 X 7 hours) are needed to successfully process 2,500,000 calls for service.

How many people do we need to staff 74 positions 24/7? We used the relief factor and multiple the number of production positions needed to determine the number of people we need to hire.

Expression: 74 positions X 1.7 relief factor = 126 persons needed to staff 74 positions in a call taking function.

Example: Using the same 2,500, 000 calls per year.

15 Calls per hour = 25,200 calls per work year   168 people needed.
25 Calls per hour = 42,000 calls per wok year   101 people needed.

The key is to set a performance standard that's reasonable and truly reflective of your agency's operations.

ATTACHMENT 1, SAMPLE SURVEY

PUBLIC SAFETY COMMUNICATIONS CENTER STAFFING SURVEY

This Survey is being completed as partial fulfillment of the Master of Public Administration Degree
No names or personal information will be asked

University of Las Vegas, Nevada
Spring, 2005

1. Does your Center dispatch for:

☐ Fire Only. ☐ Police Only. ☐ EMS Only.

☐ Fire & EMS. ☐ Police & Fire. ☐ All three.

☐ Police & EMS.

2. What is the approximate population for the community you dispatch for?

Select One. Pull Down List: Less than 10,000, 11,000-50,000, 51,000-100,000, 101,000-250,000, 251,000-500,000, More than 500,000.

3. How many operating positions (please include all dispatch, call taking and non-emergency positions) do you have in your Center?   .

4. How many operators (please include all dispatcher only, call taker only, 311 operator only, and so forth) do you employ in your Center?   .

5. Are you fully staffed?

☐ Yes.

☐ No.

6. Does your Center use minimum staffing guidelines from any affiliation, such as APCO, CALEA, ISO, NENA, NFPA, or other agency?

☐ Yes. Please check any that apply:

☐ APCO. ☐ CALEA. ☐ ISO. ☐ NENA. ☐ NFPA.

☐ Other, please specify   .

☐ No.

7. How does your Center figure its staffing?

☐ Through the use of a handwritten form on a daily/weekly/monthly basis.

☐ Through the use of a mathematical formula.

☐ Through the use of a computerized manning/staffing program. What is the name of that program _____ .

8. Are your managers aware of any formal attempts at establishing a *National Standard* for Public Safety Communications Center Staffing?

☐ Yes.

☐ No.

9. What is your Center's approximate annual turnover rate?

Select One Pull Down List: Less than 5%, 6-10%, 11-15%, 16-20%, 21-25%, More than 25%.

10. When your Center hires new Communications Specialists, how is the hiring process completed?

☐ Application, Written Test, Practical Exam, and Oral Board.

☐ Application and Interview.

☐ Application Only.

☐ Other. Please specify. _____ .

11. What kind of schedules do your operators work?

_____ .

12. Does your Center subscribe to any professional publications?

☐ Yes. Please check any that apply:

☐ 911 Magazine. ☐ Dispatch Monthly. ☐ EMS Magazine.

☐ Firehouse. ☐ Other, please specify: _____ .

☐ No.

13. Is your Center a member of a professional dispatch organization?

☐ Yes. Please check any that apply:

☐ APCO.   ☐ NAED.   ☐ Other, please specify   .

☐ No.

14. Are your Center's operators required to complete some form of recurring training as a requirement to keep their jobs?

☐ Yes.

☐ No.

15. If your Center's operators are required to complete recurring training, how it that training accomplished?

☐ On the operators regular shift.

☐ On their scheduled day/s off on an overtime basis.

☐ Combination of regular shift and overtime.

☐ NA.

16. What is the estimated average, in hours per month, do your Center's operators work in overtime?

Select one. Pull Down List: Zero, Less than 5 hours, 6-10 hours, 11-15 hours, 16-20 hours, More than 20 hours.

17. What is your approximate average experience level for operators in your Center?

Select one. Pull Down List: Less than 5 years, 6-10 years, 11-15 years, 16-20 years, More than 20 years.

18. Have you had a re-organization of your agency within the last year?

☐ Yes.

☐ No.

19. Has your Center installed a new CAD System within the last year?

☐ Yes.

☐ No.

20. Has your Center installed a new radio system within the last year?

☐ Yes.

☐ No.

21. Has your Center installed a new 911/511/311 system within the last year?

☐ Yes.

☐ No.

22. Does your agency provide formal Critical Incident Stress Management training?

☐ Yes.

☐ No.

23. How much vacation/annual leave do your Center's operators earn a year? (maximum annual accrual rate please)

.

24. What is the maximum annual sick leave accrual for your Center's operators? (maximum annual accrual rate please)

.

25. Would your agency support the establishment of a national standard for staffing?

☐ Yes.

☐ No.

After completing the Survey, please email it back to me at work sherrin@lasvegasnevada.gov. or at home steveherrin@earthlink.net.

The Survey may also be Faxed to 702-868-9001 or

Mailed to: Las Vegas Department of Fire & Rescue
              500 N. Casino Center Blvd.
              Las Vegas, Nevada 89101

              Attn: Steve Herrin
                     Communications Training Specialist
                     (702)229-0239

Just one more question: May I contact you personally for additional information regarding this survey?

☐ Yes, Best method of contact is: ☐ Phone. ☐ Email. ☐ Written.

                                       ☐ Any form is fine.

☐ No, please do not contact me for any further information.

Thank You very much for your participation. Once again, there will be no names or names of Centers used; this is strictly for data collection of staffing, challenges to staffing and staffing level justifications.

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