STAFFING AND RETENTION IN PUBLIC SAFETY COMMUNICATION CENTERS

August, 2005

EFFECTIVE PRACTICES GUIDE AND STAFFING WORKBOOK

APCO Project RETAINS
Responsive Efforts to Assure
Integral Needs in Staffing

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The effective practices and formulas contained in this document are a product of the research conducted by the staff at the University of Denver Research Institute on behalf of APCO Project RETAINS. They should be used only as general guidance or "helps" and applied judiciously to specific situations, with proper consideration of any unique factors in your communication center. No guarantee is expressed or implied by offering these guidelines or tools.

APCO Project RETAINS

Dear Public Safety Communications Colleagues:

We are pleased to bring you this Effective Practices Guide for public safety communications center professionals. This document is the culmination of years of research and a collaborative effort between the APCO Project RETAINS Committee, the University of Denver Research Institute, and public safety communications professionals from across the country.

This guide was developed in response to inquiries from public safety communications managers who requested a resource to help them address their staffing and retention concerns. They wanted ideas and strategies that could help them reduce the problems and issues associated with finding and keeping staff in communications centers.

Advisors in the development of this document included public safety professionals beyond Project RETAINS Committee members and the DRI team. All agreed that the focus of this Guide would be <u>effective</u> practices. It offers many resources, lessons learned, and success stories from the field to assist you. There are over 6,000 public safety communication centers around the country, they are as diverse as the communities they serve. We hope the blending of this research-based information with your knowledge and expertise will help you improve staffing and retention in your center.

We also invite you to look at the APCO website under "projects" to get additional information on the subject of staffing and retention in public safety communications centers and access the electronic *Staffing and Retention Toolkit*. The *Toolkit* automates the processes of calculating your staffing needs, monitoring your center's retention rate over time, and conducting research on employee satisfaction in our center.

We hope you find this document useful, and look forward to your feedback

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INTRODUCTION

A Tribute to Dispatchers

By Chief Thomas Wagoner (1994), Loveland Police Department, Loveland, Colorado

> *Someone once asked me if I thought that answering telephones for a living was a profession. I said, "I thought it was a calling."*
>
> *And so is dispatching. I have found in my law enforcement career that dispatchers are the unsung heroes of public safety. They miss the excitement of riding in a speeding car with lights flashing and sirens wailing. They can only hear of the bright orange flames leaping from a burning building. They do not get to see the joy on the face of worried parents as they see their child begin breathing on its own, after it has been given CPR.*
>
> *Dispatchers sit in darkened rooms looking at computer screens and talking to voices from faces they never see. It's like reading a lot of books, but only half of each one.*
>
> *Dispatchers connect the anxious conversations of terrified victims, angry informants, suicidal citizens and grouchy officers. They are the calming influence of all of them-the quiet, competent voices in the night that provide the pillars for the bridges of sanity and safety. They are expected to gather information from highly agitated people who can't remember where they live, what their name is, or what they just saw. And then, they are to calmly provide all that information to the officers, firefighters, or paramedics without error the first time and every time.*
>
> *Dispatchers are expected to be able to do five things at once-and do them well. While questioning a frantic caller, they must type the information into a computer, tip off another dispatcher, put another caller on hold, and listen to an officer run a plate for a parking problem....*

Why an effective practices guide?

Chief Wagoner's Tribute, written for National Telecommunicator Week in 1994, is a powerful reminder that calltakers and dispatchers are very special people – and absolutely essential to the operation of a public safety communications center.

They have unique abilities and talents, and the public relies on them to be there every hour of every day, even though most people don't know where "there" is. Getting them "there" is a major challenge for many managers, and that is why it is the focus of this Effective Practices Guide. Staffing, retention and employee satisfaction are important issues for managers, who are always looking for ideas on how to improve performance in these areas.

This Effective Practices Guide is based on extensive and detailed research. During the research process we realized that the idea of one "best" practice was too limiting; that what makes something a "best" practice depends on the fit between the practice and the situation. So we are presenting "effective" practices in hopes that managers will find ideas for practices that are the "best" for their center.

The Effective Practices Guide got its start in 1999, when APCO convened a Staffing Crisis Task Force in response to concerns expressed by members. The APCO Executive Council and Board of Officers eventually elevated the Task Force to Project status (Project 40 in the APCO Project series) and named it Project RETAINS (Responsive Efforts to Assure Integral Needs in Staffing).

Most of the practices recommended in this Guide are based on original research conducted by the staff of the University of Denver Research Institute (DRI) on behalf of APCO Project RETAINS. We have also included practices reported by other researchers and available in the literature.

The effective practices that are in this Guide are organized by the major findings from two national studies and six site visits, research that spanned two years. Study I surveyed managers and employees in a random sample of mostly small and medium sized public safety communications centers, whereas Study II surveyed only managers and focused on learning about the staffing and retention situation in large centers.

The results of the two studies have been presented at national and regional APCO conferences and discussed in several articles in the APCO Bulletin. The Project RETAINS Research Report, the Project RETAINS Technical Report, and other supporting materials that served as the basis for this Guide are available on the APCO website (go to http://www.apco911.org and follow the links to 9-1-1, then to Project RETAINS).

Section I is organized into three chapters based on the main ideas addressed by the research: Staffing, Retention, and Employee Satisfaction. Section II is a detailed discussion of staffing calculations that can be used to estimate the number of staff needed for coverage and volume-influenced positions. Paper and pencil worksheets that assist managers in working through the calculations are included in Section II.

The staffing worksheets are automated and available, along with a retention rate calculator and an Employee Satisfaction Survey in the Staffing and Retention Toolkit on the APCO website. These three basic management "tools" are designed to provide data and relevant research-based information that managers can use when making decisions. The automated tools generate customized reports that summarize the information for your center, provide guidance for interpreting your data, and discuss relevant effective practices and Project RETAINS research results. The Effective Practices Guide and the Staffing and Retention Toolkit are designed to stand alone, but complement each other.

An underlying assumption of both the Effective Practices Guide and the Staffing and Retention

Toolkit is that managers will use them to increase the effectiveness of their own management practices, thereby improving staffing, retention, and employee satisfaction in public safety communications centers throughout the country.

Effective managers continually seek new ideas. Ideas and opinions are great, but sometimes they lack hard evidence that they make any difference. That is the function of research. At the time that Project RETAINS was first conceptualized, there were many ideas and opinions about the causes of high turnover in communications centers. Some thought employees were leaving for more lucrative jobs associated with the dot-com bubble of the late 90s, others theorized it was related to tension between civilian and sworn personnel, and still others suggested it was poor screening processes. However, all agreed that there seemed to be general agreement that there was a “staffing crisis.”

The first step was to quantify the nature and extent of the staffing and retention situation. The two surveys were used to establish baseline national retention rates in public safety communications centers: 83 percent retention rate across small, medium and large centers (Study I) and 85 percent retention rate in larger centers (Study II). Conversely the average turnover rate for all centers was 17 percent and 15 percent in large centers.

The surveys were also used to find out which of the practices suspected of contributing to retention and employee satisfaction actually made a measurable difference. Five variables that were found to predict center retention rates and eight variables that were found to predict employee satisfaction constitute the short list of effective practices presented and discussed here. There were other practices that were statistically significant, but not significant enough to predict retention or satisfaction. Some of the items on the list are multifaceted, so there are a lot of research-based ideas to stimulate your thinking.

Using the information in the effective practices guide

There are two basic strategies used to improve organizations. The most familiar of these, the “problem solving process,” has a proven track record. Whether it consists of a four step process or a ten step process the fundamental strategy is the same - identify a problem and fix it. But fixing something that is broken is not the same as improving it. Putting out a fire in a hotel lobby is not the same as improving the hotel! Too often managers are so busy putting out fires that they never get around to making improvements.

Over-reliance on the problem solving approach keeps everyone focused on finding problems. That can lead to discouragement; no matter how good an organization is, it is always possible to find something wrong. Public safety communications center employees are immersed in situations where things have gone wrong. Everyone benefits when problems are identified and fixed, but managers and employees also need to hear about what they are doing right, and celebrate the wonderful work they do.

The alternative to the problem solving strategy is to focus on what is working well and apply what is learned to improve all aspects of an organization. One example of this alternative strategy that has received considerable attention is an approach called appreciative inquiry. The attraction of the approach is that it builds on strengths, successes, values, hopes and dreams that are already present within the people in the organization. It is about focusing on those things that give an organization a sense of vitality when it is functioning most effectively, by intentionally noticing times when everything works and figuring out how to make those times occur more often. The approach has been used successfully in a variety of organizations from businesses to third world countries struggling with poverty.

Given the negative situations most communications center employees are exposed to on a constant basis, and the pervasive feeling that they are not appreciated, it seems reasonable to at least explore the underlying philosophy of a positive approach; information about the appreciative inquiry approach is readily accessible on the Internet. See “Locating the Energy for Change” at http://www.iisd.org/pdf/appreciativeinquiry.pdf.

Additional positive organizational change strategies worth exploring are “positive deviance” and “organizational learning.” Whatever process you use, we trust that the effective practices presented in this Guide will provide you with practical ideas and ample food for thought.

SECTION I: Effective Practices

This section of the Guide is divided into three chapters based on the main themes of the Project RETAINS research: Staffing, Retention, and Employee Satisfaction. Factors that predicted either retention rates or employee satisfaction scores were used to further organize the material within each chapter. An extensive glossary is included at the end of this Guide. A Resource section at the end of each Chapter includes useful and readily available resources.

Key terms used in this section

Terms and phrases that are referred to throughout this document include:

Center size: Small, medium, and large refer to the size categories from the Commission on Accreditation for Law Enforcement Agencies (CALEA). CALEA defines small as a center with 1-15 employees, medium as a center with 16-75 employees and large as a center with 76 or more employees.

Staffing: Staffing refers to the number of employees needed to do the work. It should not be confused with scheduling which is concerned with the allocation of staff to specific time blocks. The staffing calculations in Section II of this Guide are intended to help managers consider the factors that need to be considered when estimating adequate staffing levels.

Study I and Study II: Two national surveys are the basis for most of the conclusions and recommendations in this Guide. Study I surveyed a random sample of mostly small and medium centers in 2004, and collected data from 153 managers and 600 employees. Study II used a shorter survey with managers only and received responses from 77 centers in 2005, 27 of which qualified as large using the CALEA definition. The analyses focused on large centers.

Site Visits: Six public safety communications centers in five geographically distributed locations were selected for onsite visits. Most, but not all of the sites, were managed by members of the Project RETAINS Committee. Managers set up meetings for interviews with key personnel, piloted the short version of the manager survey, and encouraged employees to complete the Employee Satisfaction Survey (part of the Staffing and Retention Toolkit). The site visits helped "put a face" on the survey results.

Chapter 1: STAFFING

Staffing

The most effective strategy a manager can use to improve retention is to make sure all authorized positions are filled. Closely linked to filling the authorized positions is figuring out the number of positions needed to comfortably handle the workload. This chapter discusses the links between staffing and retention and employee satisfaction. Section II provides step-by-step guidance in estimating the appropriate number of employees needed to handle the work in public safety communications centers.

Understaffing is risky business

It is frequently suggested that lives are put at risk if communications center staffing is not adequate. When one of the members of the Project RETAINS Committee asked if there had ever been a documented case of someone dying as a result of short staffing, nobody could cite a specific incident. A recent headline in the Washington Post might qualify: "[Prince George's County] Hiring More 911 Center Calltakers: Pledge Comes After Fire That Claimed Couple." The article describes a center that was operating with about 75 percent of its authorized staffing level (41 of a possible 55 calltakers).

The center handled about 1.3 million calls last year. At the time of the incident, the center received 183 calls in 30 minutes. According to the newspaper article, there were "eight to eleven" calltakers on duty at the time. That means each employee had to process 17 to 23 calls in that 30 minute time frame; a call processing time of 1.3 to 1.8 minutes per call - with no time between calls. Eight minutes elapsed between the time of the initial call and the arrival of a fire unit. The neighbor who called 9-1-1 hung up when put on hold. Was this a result of under - staffing? That question may be answered in court, but the story illustrates some of the additional risks posed by understaffing: center exposure to legal action, negative media coverage, and another incident that undermines public confidence in the system everywhere.

The relationship between staffing and retention

The Project RETAINS research investigated the nature and extent of staffing and retention issues in public safety communications centers. The strongest and best predictor of a high retention rate was having all authorized positions filled and being fully staffed. The fact that only a third of the centers (small and large) had enough staff to comfortably handle the workload confirmed what managers were telling APCO, that there was a staffing problem in many public safety communications centers across the country.

We were particularly interested in centers that reported that understaffing was a serious problem or they were chronically understaffed. Large centers were twice as likely to report a scenario of chronic understaffing, in part because most of them were dealing with employee turnover on a regular basis, but also because many of them had vacancies that were waiting to be filled.

Average turnover rates were lower in large centers than in small and medium centers, but turnover is almost inevitable in organizations that employ large numbers of workers. About 40 percent of the large center managers indicated they “over hire” to accommodate routine turnover or unexpected employee absences; although the practice is discouraged by most government entities. Managers who over hired were in centers that were more likely to be fully staffed, centers where employees could handle the workload without unnecessary stress or excessive overtime.

The workload is increasing

Most managers reported an increase in the workload over the past few years, but many indicated the staffing levels in their centers had remained about the same. They were indicating increases in total call volume, the number of emergency calls, wireless calls, and dispatch. So the question was whether these centers were using employee time more efficiently or diminishing the safety margin that permits them to handle unanticipated surges in call activity. If centers were operating closer and closer to their maximum call handling ability, and current staffing levels were compromising their ability to respond to normal call activity, what might happen in the event of a disaster?

The addition of a single employee can make a huge difference in employee stress and the quality of service provided to the public. Large center managers reported an average of nine vacancies, and one manager reported 36 vacancies. When asked to estimate the number of additional staff they needed so that calltakers and dispatchers could comfortably handle the workload, these managers said they needed about twice as many as the number of vacancies, an average of 1 7 additional staff. One center indicated a need for 84 additional employees!

Every body makes a difference

In a busy center, the number of agents available to handle the workload can make a substantial difference in response time. To get a sense of the difference a single employee can make in a small, medium and large center, look at Table 1. For purposes of comparison, the top line shows the same ASA (Average Speed of Answer) or wait time for each center, so the calls per half-hour and the number of calls handled varies from one center to another. The ASA numbers are based on Erlang calculations, which are based on queuing theory (i.e. calls don’t line up and come in one at a time).

Table 1: Power of One on Average Speed of Answer					
57 calls / half hour		163 calls / half hour		346 calls / half hour	
# of Agents	ASA	# of Agents	ASA	# of Agents	ASA
10	30 sec	25	30 sec.	50	30 sec.
9	80 sec	24	58 sec.	49	50 sec.

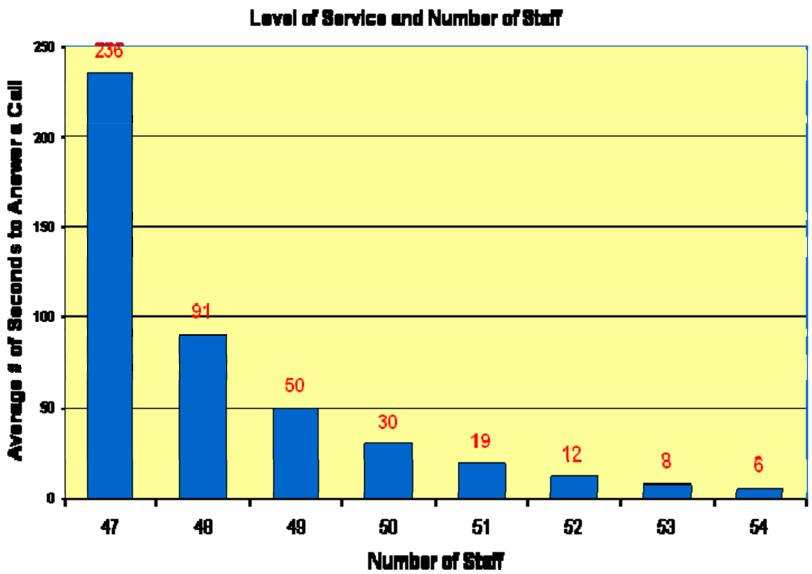
Note the difference in answering times when just one agent is subtracted from the total in each scenario. Wait time almost triples, increasing from 30 seconds to 83 seconds, in a small center when the number of calltaker s drops from 10 to 9. The increase in wait time is not as large in a large center if the number of employees drops from 50 to 49, but 20 seconds is a substantial difference in a true emergency situation. These figures demonstrate the difference in wait time experienced by callers when even one employee is unavailable.

Table 2: Level of Service and Number of Staff (346 calls per half hour)	
Number of Staff	Average Speed of Answer (sec)
54	6
53	8
52	12
51	19
50	30
49	50
48	91
47	236

There is a point of diminishing returns in terms of operational efficiency and impact on costs vs. benefits. If service levels are good (i.e. calls are being answered quickly), the addition of one person doesn't make much difference.

The figures in Table 2 are for a large center, handling 346 calls per half-hour. The wait time (ASA) doesn't change much if there are 54 rather than 52 agents handling calls; ASA decreases from 12 to six seconds, a difference of just six seconds. But if service levels are already slow, the loss of one or two individuals dramatically increases the time it takes for a call to be answered. The wait time increases almost five-fold when the number of agents drops from 49 to 47; from under a minute to almost four minutes.[2] Few callers will tolerate being put on hold for four minutes if they are in a crisis situation. The data in Table 2 are presented graphically in Exhibit 1, further illustrating the dramatic difference in a callers experience with the addition or subtraction of just one employee in a situation where a center is understaffed.

The graph shows that the addition of even one person can dramatically improve the response time in a center that is seriously understaffed.



The service goal most commonly mentioned for public safety communications centers is to answer 90 percent of calls within 10 seconds. Some 9-1-1 centers strive to answer every call by the third ring. Clearly such response goals require an adequate level of agent availability to handle the possibility of a sudden influx of calls. Even though most 9-1-1

Centers use a recording to tell callers not to hang up, callers assume a human being will answer the phone and not an answering machine. If they are experiencing a crisis, the last thing a caller wants to hear is a recording telling them they are being put on hold. Call abandonment rates are a good indicator of whether or not existing staffing levels can meet the incoming call volume.

Staffing calculations are part of the problem

How do public safety communications centers determine the number of staff they need? Over half of large center managers (56 percent) indicated they used a formula to determine the number of calltaker s and dispatchers they needed. Of those that used a formula; 27 percent used call volume in their calculations, and 8 percent figured average calls per hour. Fifteen percent of large center managers used an Erlang C calculation to estimate their staffing needs. One in five used a shift relief factor, and 40 percent indicted they calculated employees' available work time. Twenty percent conducted a work analysis to determine their staffing needs.

Erlang formulas are considered the standard for any process that requires an application of queuing theory, such as the nonlinear arrival times of incoming calls in a call center. The Erlang formulas use a statistical solution that addresses the randomness of call arrival times, but the formulas seem complex and often intimidate people who don't have a science or engineering background. Erlang formulas are commonly used by commercial call centers to determine staffing and scheduling needs. Some large commercial centers use hourly calculations to increase precision in matching employees to the expected call volume and to maximize profitability.

The question is why so few public safety communications centers use a systematic, formula - based process for determining their staffing needs – especially given the fact that lives rather than dollars are on the line. Our data suggest many public safety communications center managers probably have not had any formal instruction in the process of determining staffing needs. The requests that come in to APCO seem to confirm this hypothesis.

In addition, many managers (66 percent) indicated government spending limits and budgetary considerations were the most important considerations in determining the number of staff in their center; necessary decisions were made based on dollars rather than needs.

In too many centers, the process for determining the number of staff needed to do the job appears to be fundamentally flawed, providing inaccurate guidance, and leading directly to employee burnout and high turnover rates! That is why Section II is devoted to a process for estimating appropriate staffing levels. In addition, the process is automated so all calculations can be completed online using the tools in the Staffing and Retention Toolkit on the APCO website.

Understanding the numbers

We convened a panel of practitioners to help us identify the issues and understand the processes that were being used. It was clear from our surveys and conversations with managers that they were being asked to provide numbers and explain the rationale behind requests for additional staff, but the industry-specific resources that were available to them were difficult to interpret and they were finding it a challenge to explain and justify their requests. The people in charge of the budgets wanted specifics, not generalities, and they expected succinct explanations of the issues involved and a well-developed rationale behind requests for additional staff. They expected the same when managers attempted to defend current staffing levels from budget cuts.

Managers must be able to explain the process in lay language, and they must have a deep understanding of the work and the issues that impact their staffing needs. So we set out to design a process that didn't require an understanding of Erlang or queuing theory - a process that could be used and understood by thousands of managers in communications centers of every size and configuration. We believe we have achieved that.

The calculations in Section II build on and refine the procedures that are already used in the field. Here we demystify the process of estimating staffing needs, describe a step-by-step process that utilizes basic math (addition, subtraction, multiplication, and division), and explain the rationale behind each component of the formulas. To use the formulas managers must pull together the pertinent data, but the end result is a solid estimate of the number of employees needed to handle the workload. The expectation is that managers will use these formulas to help them estimate the number of employees needed to do the work of the center. We say "estimate" because we believe the final determination of staffing must be based on attainment of quality indicators. In addition, we believe managers must be held accountable for efficient and effective use of public resources. That means they need to be monitoring the average cost per call and/or cost per dispatch.

A word about efficiency: optimal efficiency in a public safety communications center requires excess capacity. A center where employees are busy all of the time cannot respond to the unexpected. In Section II we discuss the concept of agent occupancy rate, essentially a measure of time that agents are not busy but they are available to handle the unexpected. Agent occupancy rates vary widely based on the size of a center and the nature of the calls it processes, but all centers need to be mindful of staffing at a level that does not compromise public safety. (See agent occupancy in the Glossary).

If current authorized staffing levels are inadequate, it is usually the manager who must build a case for increasing the number. If your employees are comfortably handling the workload and meeting quality goals with the current authorized staffing level, that is reason to celebrate and to use the formulas to help the community anticipate future needs.

Comfortably handling the workload

The number of calls an employee handles each year varies widely from one center to another, based on the nature of the calls, how the center processes them (e.g., routing them through to an appropriate service provider or direct dispatch), and center size. The best indicators of employee ability to comfortably handle the workload are average speed of answer, call abandonment rates, agent occupancy rates, overtime and other quality criteria.

Effective practices related to staffing

Calculate your staffing needs.

If your employees average more than eight hours of overtime every month you need to analyze your staffing numbers. Use the process in Section II or the staffing tool in the Staffing and Retention Toolkit to estimate the number of employees your center actually needs to handle the workload. Try both formulas. If your call volume has grown in the past five years, a volume-influenced formula may give you a better handle on staffing needs than the shift relief factor or coverage formula you have been using.

Know your numbers.

Use your telephone records. Query your telephone or CAD database to obtain the historical data you need. Section II provides some guidance on which numbers you need to know to estimate staffing needs. If you don't have telephone records that provide the number and length of calls, devise a process that allows you to obtain those critical numbers. You can obtain the necessary numbers using paper and pencil and an inexpensive stopwatch – and the cooperation of calltaker s and dispatchers. Set up a data collection process and use it. The time invested will be rewarded by greater certainty if you have to request authority to hire additional staff. You cannot provide high quality services for your client agencies or your community if you don't have an appropriate and adequate number of employees, and you cannot estimate the number of employees you need if you don't know the numbers that can help describe the workload.

Do your homework.

Decision makers don't really care which formula you use. They want to know that you have a good understanding of activity levels and the capability of your staff to handle them. They don't want to be blamed for putting citizens' lives in peril, but they aren't going to write a blank check. Don't wait for a disaster. Give them a reason to trust your analysis and give you the hiring authority you need.

Don't do it alone.

Pull together the people who can help make the initiative a success, and get the staff involved. Involve people from the personnel and/or Human Resources (HR) office. Ask HR for personnel records to help determine worker availability. Be sure everyone is "on the same page" and understands the process and the rationale behind the calculations. If the call taking and dispatch staff are simply too overwhelmed to do the data collection, consider using retirees who are familiar with the work of the center. If you have a staff member who loves numbers, or is particularly good with analytical tasks, provide oversight and delegate. It is your responsibility, but that doesn't mean you are the one who has to do it.

Request the authority to hire an appropriate number of employees.

Build a case for adequate staffing based on historical records, a sound rationale, accurate calculations and center performance on quality indicators

Monitor the adequacy of authorized staffing levels.

Continually monitor quality indicators such as the use of overtime, and the ability to answer calls directly and within your targeted speed of answer goals (e.g., within three rings, or 90 percent of calls answered within 10 seconds). If carefully calculated estimates don't result in meeting your service quality goals, figure out why and build a case for staffing based on your findings

Make recruiting a priority.

Initiate a recruiting drive focused on filling all authorized positions. It is a big deal so make it a big deal. Get employees involved, work with the city or county personnel office and make sure they take your request seriously. Educate them (in their language) and enlist their support. They can't help you if they don't know why they should, and they won't give you more resources just because you ask for them.

Staff to authorized levels.

Staffing to authorized levels is the best thing a manager can do to improve retention rates. Being fully staffed and having all authorized positions filled is the most effective strategy you can use to increase your retention rate. Centers that are not fully staffed have more difficulty keeping employees and use more overtime to fill the gaps in the schedule; productivity goes down as new employees are being prepared to fill the vacant positions, and the quality of service is compromised. The best strategy for positive media coverage is to provide high quality service. Every authorized position should be filled as quickly as possible.

Keep the center fully staffed.

The safety of personnel in the field and the well-being of citizens depend on your ability to assure adequate staffing levels and keep all authorized positions filled. Positions that go unfilled for a period of time are viewed as expendable, especially when budgets are tight ("If you aren't staffing to authorized levels, then you obviously don't really need that many staff"). Even if the currently authorized FTEs do not meet your needs, hire to authorized levels before asking for additional staffing. Build a case for appropriate staffing levels using detailed estimates and center performance on quality indicators.

Hire so employees can comfortably handle the work load.

Staffing that doesn't include room for a sudden influx of calls leaves the center vulnerable. The trends reported by many managers were toward increasing call volume (partially due to more wireless calls), and increasing dispatch activity. Build a case to hire proactively so the communications center isn't always playing "catch up."

Keep the staff you have.

Use effective management practices to provide direction and support for employees. If salaries are not competitive, or not aligned with other public safety personnel, do something about it. Collect relevant data and use solid evidence to prepare your request. Don't give up if decision-makers don't give you what you request the first time you ask. Keep asking; that's how you send the message that this is an important issue for you and for the safety of the community.

Hire to accommodate predictable turnover.

Do a historical study of the turnover and retention rates in your center. Include turnover as a factor when determining hiring needs and build a case for hiring to accommodate predictable separations.

Consistently staff necessary positions.

Assure that all necessary positions are staffed. Don't put the center or client agencies in a situation that makes them legally vulnerable or undermines public confidence in the services provided. Consistently and adequately staffing necessary positions sends a powerful message to employees, field personnel and client agencies about the importance of the work and dedication to providing high quality services to the community.

A summary of these effective practices and related research results are presented in Table 3.

Table 3: Effective Practices: Keeping the Center Fully Staffed	
Recommendation	RETAINS Research Results
• Calculate your staffing needs. • Know your numbers. • Do your homework. • Don't do it alone. • Request the authority to hire an appropriate number of employees. • Monitor the adequacy of authorized • Staffing levels. • Make recruiting a priority. • Staff to authorized levels. • Keep the center fully staffed. • Hire so employees can comfortably handle the workload. • Keep the staff you have. • Hire to accommodate predictable turnover. • Consistently staff necessary positions.	Characteristics of fully staff centers. • Had higher retention rates (#1 predictor of center retention rate) • Had more employees who are satisfied. • Employees worked less overtime hours. • Were smaller in size (i.e. fewer employees) • Employees handled fewer calls per year had a higher percentage of staff fully, trained and working independently. • Characteristics of centers whose "current staffing allowed them to comfortably handle the workload: • Had higher retention rates. • Had more employees who are satisfied. • Employees worked fewer overtime hours. Characteristics of "chronically understaffed" centers and centers that had "a serious staffing problem." • Had lower retention rates. • Had more employees who were dissatisfied. • Employees worked more overtime hours. • Employees handled more calls per year.
Consistently staff necessary positions.	Employees who gave high performance ratings to their center's ability to consistently staff necessary positions were more satisfied and were from centers with higher retention rates.

Overtime and Retention

One of the clearest indicators that the current authorized staffing level can handle the workload is the use of overtime. If you are staffed at a level that allows employees to comfortably handle the workload, without resorting to regularly scheduled mandatory overtime, celebrate. If not, build a case for additional staffing so that you can reduce overtime.

A perverse incentive

Managers who have "run the numbers" and convinced themselves that being understaffed is cost effective are fooling themselves. It may save on the added expense of benefits for an additional employee, but it perversely keeps costs low by increasing turnover and assuring a substantial number of employees are earning entry level wages. "Saving" money by deliberately understaffing the center is short term planning and inefficient in the long run. Use the Cost per Hire/Turnover Calculator to find out how much turnover really costs your center (there is a link under Resources at the end of the staffing calculation section).

Table 4: Annual Calls per Employee when Overtime is a "frequent necessity"			
No, not a frequent necessity	Average Annual Calls per Employee	Yes, a frequent necessity	Average Annual Calls per Employee
Small Centers	5,000	Small Centers	7,500
Medium Centers	8,500	Medium Centers	14,000
Large Centers	6,500	Large Centers	13,000

Note: Data from both Project RETAINS studies are included in the above table.

When authorized positions are not filled, the employees who remain pick up the additional workload in a variety of ways: they work harder during their regularly scheduled hours as agent occupancy rates go up, and they work more overtime. Table 4 illustrates the difference in workload handled by employees in centers that use a lot of overtime vs. those who do not.

Any cost savings realized by using excessive overtime are offset by higher costs associated with recruiting, screening and training new staff. Heavy use of overtime keeps pay low and reinforces the need for overtime. If employees feel they are losing control of their personal lives, they will take steps to regain a measure of control. Our interviews indicated managers understand the relationship between excessive overtime and abuse of sick leave; that employees take time off if they aren't given time off. The result is that managers are even less able to manage well, because they can no longer predict which employees will actually come to work when they are scheduled to do so. It becomes a vicious cycle, and it is the manager's responsibility to turn it into a virtuous cycle. One manager said: *"We have focused on the reduction of overtime through better management of unplanned absences. Overtime was reduced by more than 40 percent over two years."*

Effective practices related to overtime

Minimize the need for overtime.

Do not plan for overtime as a part of standard operating procedures; make it the exception rather than the rule. Employees in Study I were asked how many hours of overtime they worked in a typical month. As overtime hours increased, retention rates and employee satisfaction decreased. In fact, for every 12 hours of overtime reported, the retention rate of the center went down by 2 percent. A majority of employees (69 percent) reported working overtime at least once a month and most (86 percent) reported a higher pay rate for overtime. Although it is a welcome source of additional income, excessive mandatory overtime hours contribute to employee decisions to leave.

Make overtime voluntary.

Overtime plays havoc with personal time. Minimizing the need for overtime gives employees a predictable schedule and control over their lives. If overtime is a necessity, give employees a choice over when they meet the overtime requirements. Employee satisfaction was higher when overtime was entirely voluntary.

Make mandatory overtime "voluntary mandatory."

In centers where overtime was mandatory, retention and satisfaction both suffered. When overtime is necessary, consider making it voluntary. If overtime cannot be entirely voluntary, use a system that allows employees to volunteer for the time they work overtime. At one of the centers we visited, the names of employees who volunteer to serve first go to the bottom of the list, so they can get it over with and they don't have to worry about it for awhile.

Offer maximum flexibility in the use of comp time.

Employees were more satisfied if policies allowed them to use comp time at their discretion. If overtime is paid for with comp time, give employees a reasonable level of control as to when they can use it without compromising the operational needs of the center.

Compensate employees at a higher pay rate for overtime.

Some employees are motivated by the additional pay that can be earned by working overtime, but others are not. A higher rate of pay (e.g., time and a half) is appreciated, but being paid fairly is a better alternative. Higher pay through overtime probably doesn't keep employees from leaving, but it should be easy to see if there is a relationship by monitoring overtime usage along with turnover.

Make overtime pay equitable.

Some centers pay off-duty field personnel to cover periods when additional staff are needed, but it creates tension and resentment when field personnel are paid a higher rate than full time employees doing the same job. Note: FLSA, the Fair Labor Standards Act does not prohibit equitable pay.

Use overtime data to determine adequacy of staffing.

Overtime is ten percent or more of the budget in over half of the centers in the country. Whether the annual budget is small or in the millions, it is not a strategic use of resources. Excessive reliance on overtime is an indication that management is using a reactive approach rather than a proactive approach to handling the workload. It is an abdication of responsibility, yet understandable if a manager does not have the authority to hire an adequate number of employees.

Don't use overtime as a substitute for adequate pay.

The strategy of relying on overtime to cover staffing needs, often rationalized as a means for enhancing salary and earnings for communications center staff, allows managers to cover their needs and increase employee earnings, but there are long-term financial and personnel costs. About 20 percent of employees indicated they were well paid without the use of overtime; another 14 percent said they were well paid if overtime was included. The employees who felt they are well paid without overtime were significantly more satisfied.

A summary of these effective practices and related research are presented in table 5.

Table 5: Effective Practices: Overtime	
Recommendation	RETAINS Research Results
• Minimize the need for overtime. • Make overtime voluntary. • Make mandatory overtime "voluntary mandatory." • Offer maximum flexibility in the use of comp time. • Make overtime pay equitable. • Use overtime data to determine adequacy of staffing. • Don't use overtime as a substitute for adequate pay.	Average hours of overtime worked was the #2 predictor of center retention rate Employees who worked less overtime were more satisfied. Centers where overtime was voluntary had employees who were able to use their comp. time when desired were more satisfied.

Recruiting, Screening, and Selecting Qualified Staff

The process of finding people who can do the work, who are willing to do the work, and who will work well with management and the other people on staff is definitely a challenge. Managers were more confident about the effectiveness of their recruiting and selection processes than employees were – but it was employee perceptions that predicted overall employee satisfaction.

Employees who indicated the screening and application process at their center was effective were more satisfied, and they were from centers with higher retention rates. A thorough and extensive application process was the number seven predictor of employee satisfaction. This is a case where it is difficult to know which factor is predicting the other – it is likely that more satisfied employees were carefully selected and there is a good fit between the person and the job. It is also true that employees pay close attention to the quality and performance of a new recruit. An extensive and thorough application process sends a message that the job is important, that employees are not just telephone operators but important contributors in an important position.

We found no significant relationship between the number of tools or processes used to screen applicants and center retention rate or employee satisfaction. The most effective strategies are based on a detailed understanding of the work requirements and the careful selection of procedures and instruments that can accurately evaluate the "goodness of fit" between the job and the applicant.

Reviewing and revising the screening and selection process were among the most effective practices managers reported for improving center retention rates. In large centers recruiting is a constant process.

Table 6: Recruiting strategies that have made a difference

1. Attend and recruit at career fairs at high schools, junior colleges and colleges, military bases, job fairs, and other local events.
2. Participate in community education programs, speaking engagements that include information about applying for positions: provide neighborhood law enforcement, fire-rescue, and EMS personal with information about the job openings when they give speeches in the community.
3. Give tours of your center before hiring: let recruits experience being a "cop for a day" via ride-along, and then sit "behind the bench" to get the perspective of the dispatcher.
4. Attend or help sponsor a "Citizens Academy" in your community and invite potential applicants to visit so they have a better understanding of the position and the environment before they apply.
5. Advertise in the local community and beyond: newspaper ads, relevant magazines, postings

on the city web site, internet postings, APCO and NENA websites, weekly information bulletins to local employment offices, billboards, TV and radio ads, bus billboards.

6. Use word of mouth: including current employees, law-enforcement, fire rescue, and EMS personnel who are dispatched.
7. Solicit law enforcement, fire-rescue, EMS for recommendations based on specific personality traits characteristic of successful call takers.
8. Request referrals from other departments.
9. Hire a full time recruiter.
10. Use training staff to recruit… they know what to look for in a candidate.
11. Develop a recruitment video specifically focused on the roles and responsibilities of a public safety Telecommunicator.
12. Work closely with University faculty and ask them to refer good candidates (be sure they know about the job and employee characteristics you are looking for).
13. Have all employees carry recruiting/ business cards to hand out to people who appear to have potential.
14. Offer a bonus for employees who refer people who are hired and complete the probationary period. (Pay half when recruit finishes training, half when they complete probation).
15. Create a mentoring program that gives the mentor extra pay when a recruit completes training, and one year anniversary.
16. FAX job announcements to other agencies in the area.
17. Maintain constant contact with the city personnel department.
18. Convince the personnel department to advertise routinely for positions, but also do " a lot of advertising on our own"
19. Work with HR to maintain an active hiring list at all times to avoid delay caused by testing. More frequent testing results in more applicants.
20. Use an online application process so all applications can be done on the internet. Include an announcement that tells people when they are hiring.
21. Use language from the personality screening test when posting to attract specific types of applicants.
22. Offer choice of shifts based on seniority. Change shifts to accommodate schedules.
23. Hire people for the shift they will work. Don't use rotation.
24. Offer internships to high school and college students.
25. Work with community groups to locate special language skills.
26. Conduct a regular pay and benefits study to remain competitive.
27. Increase starting salary to increase applicant pool
28. Use pre-employment testing specifically aligned with the job: multitasking, local geography, data entry, typing, etc.
29. Have the applicant come to the site and spend time sitting at the console.
30. Make the work facility an attractive and pleasing environment: create spaces where potential employees would like to spend time.
31. Create an entry level dispatcher position that allows you to recruit new hires along with experienced employees.
32. Over-hire positions to limit overtime when training new recruits.
33. Do not hire "maybes"- hire only people you are confident can do the job and fit in with the culture center.
34. Make sure coaches teach, not re-screen candidates, and be sure they have training on how and what to teach. Use a standardized process so trainers know what is expected.
35. Encourage employee involvement in pre-hire tests, sit-alongs and oral boards.
36. Reduce overtime by improving management of unplanned absences.
37. Select carefully, hire smarter, and cross train all dispatchers. Find the right combination of screening tests, use the ones that help you assess the fit between the person and the job.

Have experienced employees take the test to find out what you are looking for in a good candidate.

38. Get involved in state and regional professional organizations and training, and encourage people to visit your center.
39. Create a friendly workplace. Treat people well, expect them to be nice to each other and define norms for professional conduct.
40. Build a good reputation in the public safety community so your center is viewed as a desirable place to work.
41. Take an active role in professional organizations so the people who have already demonstrated their interest in public safety communications know about your center: they may apply if they are looking for better pay or change of location and you may already know you want them.
42. Use state-of-the-art equipment and sufficient training in how to use it.
43. Work to develop "best practice" all the time in all aspects of the operation.
44. Hold an open invitation for all interested applicants to visit the center one Saturday and the following Saturday have the Personnel Office hold an open house for applicants and immediately began processing applications (within 6 months we had 40 people hired!)
45. Implement a career ladder so people know they will have an opportunity to grow in the job (you can also use it to encourage cross-training)

We remain in constant contact with the city Personnel Department. We do a lot of job fairs, speaking engagements and advertising on our own and have convinced the Personnel Department to advertise routinely for our positions.

We have appealed to Human Resources to maintain an active hiring list at all times to avoid the delay caused by testing. More frequent testing potentially results in more applicants.

We do constant advertising, screening, and testing of potential candidates. We have been very fortunate in attracting six former employees over the past two years, which resulted in very little training time.

Effective practices related to recruiting, screening and selection

Here are some of the specific effective practices reported by managers:

Review and refine the job description periodically.
Periodic review of the job helps you create a realistic and ideal profile of the recruit who will be a good match with the center and meet the needs of the job.

Use plain language in job announcements.
The relationship between the organization and the employee begins with the job description and the way applicants are treated as they move through the selection process. Use language that accurately describes your center and the job. Don't oversell the job or make it sound more glamorous than it is. You will only waste resources on recruiting and training people who will quickly become disillusioned and leave...or who will stay and perform at an unsatisfactory level.

Post the job description regularly.

Regular postings on the center website, communication with people who can help identify high potential candidates, and a cyclical recruitment schedule can help assure qualified applicants are in the pipeline. Thorough and extensive application processes are the norm in public safety, and they take time, so it makes sense to assure ready access to potential applicants.

Explain the screening process and the job requirements.

Provide written information about all components of the selection process and the time involved in completing it. The length of time required for performance testing, background checks, and interviews can result in potential employees seeking work elsewhere or taking another job offer while waiting. It helps if they understand the process and the time involved.

Be explicit and tell them what to expect.

One center we visited gives applicants a study guide so they can prepare for the written exams and interviews. When applicants know what is expected they can make informed decisions about whether to continue with the process or drop out.

Review the sequence of your screening process.

Eliminate unqualified applicants early in the process. For example, identify candidates who have reliable transportation and a good attendance record at previous jobs. Find out if they have the intellectual and academic ability to handle the job before putting them through expensive psychological or performance tests.

Know what it takes to succeed.

Monitor the characteristics of applicants who do and do not succeed in the job, and adjust the "cut score" accordingly. If the job becomes more intellectually and technologically demanding, adjust the tests and reevaluate the cut score. Learn from the experience of one manager who said, "We have found that if we reach too low in the candidate pool it is hard on them – and, too often, if they don't wash out during training we regret our decision."

Hire only those candidates who fully meet center requirements.

Do not hire "maybes" – hire only people you are confident can do the job and fit in with the culture in the center. It is a waste of resources and it undermines the pride of existing staff when new hires are not highly qualified and carefully selected. Conversely, the quality of new hires can increase the pride and prestige of existing employees. Who wouldn't want to feel part of an elite cadre of unique and well-trained professionals?

Find out how an applicant handles stress.

Don't hire applicants who say they don't get stressed or have never experienced stress, and eliminate applicants who indicate they don't have a good personal support system.

Require time in the center during the screening process.

When applicants are nearing the final stages of the screening process, have them ride along with law enforcement, fire-rescue, EMS and/or sit with a dispatcher so they get a good idea of what the job entails. Make it a requirement rather than an option. The goal is "no surprises" for the candidate and increased likelihood they will successfully complete the training and probationary period.

Adopt an accelerated hiring process.

Commit time and resources to screen candidates and fill positions quickly and efficiently. One center we visited was experiencing a serious staffing shortage, so they held an open house one Saturday and on the following Saturday had the Personnel Office open for interested applicants. They began processing applications immediately and within six months the department had hired 40 new employees.

Don’t make it sound easy.

To make sure applicants knew what the work could be and the kind of emotionally charged situations they might encounter, the application process at one center included listening to a CD of three emotionally difficult calls that had been handled by employees in that center.

Develop a good relationship with the human resources/personnel office.

Make sure people who are involved in the recruiting, selection, or hiring process know about the unique nature and requirements of the job. They can help you find qualified candidates only if they know what qualifications they should be looking for.

Look for a good fit between the applicant and the organization.

Look for similar attitudes and values between the applicant and current employees, as well as a good fit with supervisory or management staff. When applicants spend time with current employees they get a better sense of the work and employees get a better sense of the applicant. It is better to discover mismatches early.

Find out if your screening tools are doing the job.

Study the relationship between applicants’ scores on screening tests and success on the job. You may find that some of your tests should be eliminated entirely and/or replaced by a more appropriate instrument.

Use tests that have “face validity.”

For example a test for multi-tasking should clearly require performance of skills and abilities that are obviously related to the work.

Test the test before using it on new recruits.

Administer new tests to existing staff to establish baseline data and find out which traits or scores are characteristic of your most successful employees. If you aren’t interested in hiring average employees you must figure out which characteristics you want in new employees.

Test your assumptions.

Do not assume you know what makes a good calltaker or dispatcher. Before one center started using the Predictive Index, a personality test that helps evaluate the fit between the person and the job, the existing staff took the test. Then they knew what to look for and could use those results to help identify the characteristics that were associated with success on the job. They were surprised to learn that their working assumption about what made a good dispatcher was not correct. The most dominant trait among the best dispatchers was not assertiveness but attention to detail - and the patience to get it.

Test the test after using it with new recruits.

Review the effectiveness of all components of the testing and selection process. For example, the center that started using the Predictive Index knew the new instrument was making a difference because recruits were not washing out of the training process as they once did, and the retention rate went from 68 percent to 82 percent in two years.

Help applicants decide if they are a good match for the job.

Another center reported having better luck with applicants pre-screening themselves after posting a ”Realistic Job Preview” on the website along with the postings for calltaker s and dispatchers.3 The Preview is a series of yes/no questions and the bottom line states: “If you answered ‘no’ to any of these questions, you should not apply for emergency communications specialist. You cannot be considered for a job as an ECS unless you are willing to perform/accept ALL of the above listed items." The questions are tough. The first one asks, "Are you willing to work any shift, including nights, weekends, and holidays?" The last question is: "The job of ESC carries with it the possibility of being sued due to a mistake that may be made that results in injury, death, or property damage. Are you willing to accept the personal liability associated with the job tasks?" It isn't hard to understand why they are seeing fewer applicants who are "just curious."

Table 7: Effective Practices: Recruiting, Screening and Selection

Recommendation	RETAINS Research Results
• Review and refine the job description periodically. • Use plain language in job announcements. • Post the job description. • Explain the screening process and the job requirements. • Be explicit and tell them what to expect. • Review the sequence of your screening process. • Know what it takes to succeed. • Hire only those candidates who fully meet center requirements. • Find out how an applicant handles stress. • Require time in the center during the screening process. • Adopt an accelerated hiring process. • Don't make it sound easy. • Develop a good relationship with the personnel office. • Look for a good fit between the applicant and the organization. • Find out if your screening tools are doing the job. • Use tests that have "face validity." • Test the test <u>before</u> using it on new recruits. • Test your assumptions. • Test the test <u>after</u> using it with new recruits. • Help applicants decide if they are a good match for the job.	• Employees who rated the recruiting process at their center as effective were more satisfied. • Employees who perceived the screening and application process at their center as effective were more satisfied and were from centers with higher retention rates. • Employees who agreed they understood the demands of the job before they accepted the position were more satisfied. • Employees who agreed their center had high standard for employee selection were more satisfied. • Employees who agreed only candidates who fully met center requirements were hired were more satisfied. • Employees who agreed the application process was through the extensive were more satisfied and were from centers with higher retention rates. • A thorough and extensive application process was the #7 predicator of employee satisfaction. • Employees who rated the job application process as effective were more satisfied. • Employees who rated the performance testing at their center as effective were more satisfied. ------------------- NOT supported by our research: Responsibility for hiring, whether done by communications center management, HR, or both did <u>not</u> impact employee satisfaction <u>or</u> center retention rate. The number of components that were used for screening for interpersonal skills or technical skills did not impact employee retention or center retention.

Shift Management and Employee Satisfaction

Shift work is a fact of life in public safety communications centers, and effective management of the shift assignment process is directly related to employee satisfaction. The shift assignment is the most critical contributor to employees' feelings of control over their lives. A good calltaker or dispatcher is someone who is willing to take control in an emergency. It doesn't make sense to ask them to relinquish control over their own lives in order to help others. Satisfaction with the shift selection process was fourth among the eight predictors of employee satisfaction, and was also associated with higher retention rates.

Shifts are happening

The 8-hour shift is still the most common; it was reported by 49 percent of centers in Study I. Ten percent were using 10-hour shifts, and only 3 percent were using 12-hour shifts. The other 38 percent of centers were using unique scheduling configurations designed to fit their needs and employee preferences.

"When I was hired, I was hired under the assumption that I would have some say in my choice of times worked. Having that taken away will cause a lot of problems in my personal life as I do a lot of volunteering...."

Fifty-four percent of the managers in Study I indicated employees worked on a rotating shift schedule, but there was not a statistically significant difference in center retention rates or employee satisfaction based on the use or absence of a rotation. This suggests employees adapt to the situation.

Moving beyond the basic 8-hour shift increases scheduling complexity but it appears to be worth the effort. Several centers were experimenting with different shift lengths from the ones they currently used; one site was piloting a combination of 8-, 10- and 12-hour shifts. The option of choosing between 8-hour, 10-hour or 12-hour shifts seems to be attractive to many employees. As with all choices, there are costs and benefits. The workday is long, but the opportunity to get away for three days at a time on a regular basis is beneficial. Some centers set up schedules to assure everyone has a three-day weekend on a regular basis. Ironically, rigid adherence to the 40 hour work week actually undermines managers' efforts to increase employee choices and improve scheduling.

Seniority privileges and employee choice can be combined with center needs, as they were in one of the sites visited. This center was using both 8- and 10-hour shifts. The opportunity to work four 10-hour days, rather than five 8-hour days, was linked to training and the scheduling process. The center wanted to increase the number of cross-trained employees (to increase scheduling flexibility) but gave employees the option of cross-training or limiting their choice of schedules. The bidding process was set up in two steps, 10-hour shifts (i.e. cross-trained employees were scheduled first), followed by 8-hour shifts. Within each step the time slots were allocated based on seniority. Employees were each assigned a 15 minute time slot when they could go online (to the city website) and select from the remaining open positions. Needless to say, employees rarely missed their allotted time slot (they could access the website from anywhere in the world at any time) and if they did their choices were more limited.

Employees need help balancing shift work and family responsibilities.

Shift work is especially challenging for young mothers, and it becomes an even greater challenge when a center uses a shift rotation system. As one employee noted, *"I would like to be able to work the same shift all year without having to rotate every four months. [It is] very hard to coordinate day care needs."* Two young mothers in another center indicated that the centers' decision (majority rule) to switch from 8-hour to 12-hour shifts meant they would have to quit, even though they enjoyed the work. They simply could not accept being away from their children for more than 12 hours a day. Even with supportive family members to help with day care, and regardless of the beginning and ending time for the 12-hour shifts, with the addition of travel time, it became too much time away. On the other hand, there were other young mothers in the center who were delighted with the idea of a 12-hour shift because they felt it gave them more time with their children!

The centers we visited in Florida provided mothers the option of bringing their children to work if they were unable to make other satisfactory accommodations during the hurricanes in 2004.

Revisiting rotation as a scheduling practice

One strategy that was reported as a strategy for improving recruiting and increasing retention rates was the elimination of shift rotations. As one manager put it, *"Hire people for the shift they will work. Don't use rotation."* This is about control and predictability for employees. They can adapt to shift work, but it increases their ability to plan and manage family responsibilities if their schedule is predictable.

Changing the shift structure

Most managers (94 percent) indicated that their current shift assignment process "works very well" or "works well most of the time." A few managers indicated that there were problems with the process, and that employees in those centers were less satisfied. So why not solve the problems? Changing such a fundamental aspect of the job is easier said than done.

Effective practices related to shift management

Offer as much flexibility as possible.

Providing an established system for "swapping" times when there is a special occasion is important even though it can be time consuming to keep track of all the activity in a large center. It is better to provide a system that legitimizes exchanges than to ignore the need and constantly adjust the schedule for unplanned or unscheduled "sick" leave. Offering legitimate processes for getting time off minimizes surprise absenteeism and makes it easier for managers and employees to plan ahead.

Consider alternative shift lengths.
If feasible for your center, explore the feasibility of offering different shift lengths, such as a combination of 8-hour and 10-hour shifts. In at least one center, the decision to offer a choice of different shift lengths resulted in employees using fewer sick days.

Review your shift structure and change it if it isn't working for people.
If the existing shift assignment process is not working at your center, investigate other options and try something different. Explore the tradeoffs involved in using a shift length other than the one currently used, or consider using a combination of shift lengths. Be sure to involve employees early in the process if you are considering changes to the existing schedule or shift selection process.

Do a formal survey of employee satisfaction.
Conduct the survey with the shift selection and scheduling processes. Ask about the strengths and weaknesses of the existing processes. Make sure you hear from everyone, not just the most vocal employees.

Involve employees in the decision.
Do this before making changes in the shift selection process. Explore all of the tradeoffs involved in using a shift length other than the one you are using.

Conduct a pilot study.
This should be done before full implementation, especially if significant changes are being considered.

Recognize and reward seniority.
The method used to determine shift assignments makes a difference. Our research found that if shifts were assigned by a supervisor, employees were less satisfied than when shift assignment involved bidding by seniority.

Think Win-Win.
The most important message about effective practices related to shift management is to use a schedule that fits the needs of the center and employees.

Summary

Staffing is like a three legged stool: (1) hiring enough people to do the job; (2) finding qualified applicants; and (3) screening carefully. The stool can't do the job it is intended to do if any one of the legs is missing. Hiring enough people to do the job supports employee retention and satisfaction because employees have more control over their personal lives when they aren't required to work excessive amounts of overtime. While there will always be "overtime junkies" who can't seem to get enough, our research indicates heavy use of overtime predicts high turnover. The job is more complex than it used to be, making it important to review job qualifications on a regular basis and to know what to look for in a "highly qualified” applicant. Carefully screening applicants, based on high but reasonable standards, will make everyone happier in the long run. Management practices that involve employees in critical decisions and offer choices and control over their personal lives contribute to employee satisfaction and retention. Flexibility and consideration of employee needs increases managers’ ability to manage effectively.

Resources

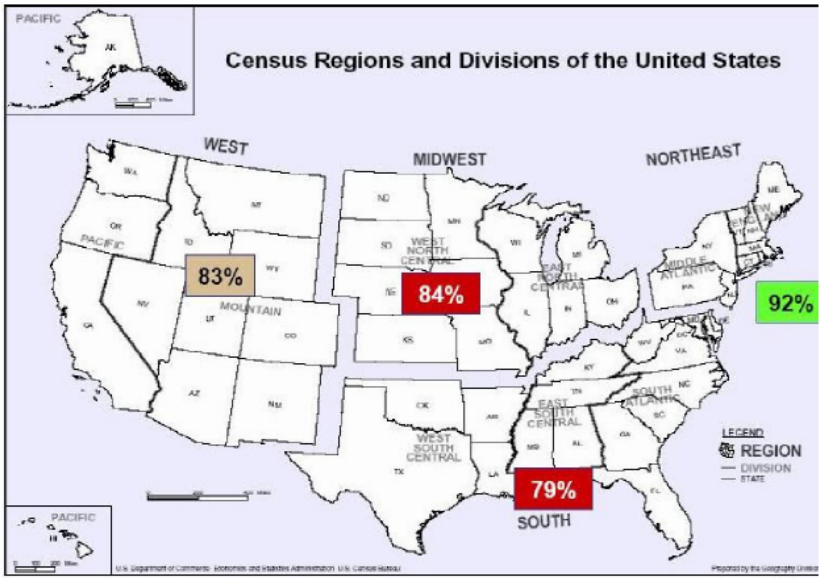
NOTE: The resources for the Staffing chapter are included at the end of Section II: Staffing Calculations

Chapter 2: RETENTION

National retention and turnover rates

The national average retention rate for public safety communications centers in Study I was 83 percent. In other words, on average, centers retained 83 percent of their employees in the previous year and experienced 17 percent turnover. In Study II, larger centers had slightly higher retention rates, with an average of 85 percent.

Exhibit 2: Average Retention Rates for U.S. Census Regions



How do we know this rate is representative? The national retention rate is consistent with the rates reported for a 2004 study[4] of North Carolina communications centers, a survey that had a response rate of over 90 percent.

Additionally, when we combined the data from all of the different groups that participated in various stages of the Project RETAINS research, the retention rates were remarkably consistent. That includes data from the initial pilot surveys, follow-up telephone interviews with non-responders, and both national surveys. The rate of most concern to you, however, is the retention rate for your center. Nevertheless, it is useful to compare your rate with the national average.

Is an 83 percent retention rate good? The national retention and turnover rates are baseline data. We have no way of knowing if the rate is increasing or decreasing. We can, however, compare these turnover rates to rates reported for other sectors of the economy: 10 percent for government jobs, 15 percent for nurses, 15 percent for teachers, 27 percent for private business, and 45 percent for retail.

Is it that high everywhere in the country? Our research revealed regional differences in retention rates. They ranged from 79 percent in the southeast to 92 percent in the northeast. Average retention rates for each U.S. Census region are summarized on the map presented in Exhibit 2.

Calculating a turnover and retention rate

You can check your center's turnover and retention rate for last year and compare it to the national averages by plugging your numbers into the following two formulas. First calculate the turnover rate, then subtract it from one (i.e. one is the whole) for the retention rate. Multiply by 100 to convert the decimal value into a percentage. Turnover is the complement of retention.

Step 1: Turnover Rate = Number of staff that left last year
÷ Total number of current employees

Step 2: Retention Rate (expressed as a percentage) = [1 – Turnover Rate] x 100

Using turnover as a factor when estimating staffing needs

We recommend centers that experience regular turnover use an adjustment for turnover when estimating the number of authorized staff needed to handle coverage and volume-influenced positions. An adjustment for turnover has more credibility if it is based on historical data for several years. We recommend a five year average if data is available. The US Department of Labor figures annual turnover based on monthly averages, but it is often easier to track down annual figures (if you are not already doing so, start keeping data on the number of recruits who wash out during the probationary year). It is useful to know whether you are losing employees in the early stages of employment or after they have been with the center for a while. If you are losing employees in the early years, it may indicate a problem with recruiting, screening and selection, or training. If you are losing them after several years with the center, it may be an issue related to pay or benefits.

There are various methods of calculating a turnover rate. If you want to compare your center's rate to the national rates reported by Project RETAINS, it is best to use the calculation described above. To use a more precise measure of turnover, determine annual averages by first figuring out the number of employees and the number of separations on a monthly basis. A monthly analysis is more accurate because if you lose several recruits during the training process (for one vacancy), you don't want to duplicate your counts for the same vacancy.

The role of center size in retention

A national average retention rate is interesting, but it is even more interesting to know the numbers behind that average. Nearly a quarter of communications centers experienced no turnover in the previous year, whereas seven percent of them lost at least half of their employees! It is not a crisis if your center is not losing employees; it is clearly a crisis if you lose more than half of them in one year. In Study I we found that the centers that were experiencing such high turnover rates were the smaller centers, where a loss of five (out of ten) employees is a 50 percent turnover rate. In contrast, the loss of five out of 100 employees would only be a five percent turnover rate. Most of the very high turnover rates in the first study were in small centers (who had an average of nine employees) but we also heard from a center with over 300 employees that had a turnover rate of 56 percent.

Table 9: Asking About Reason for Leaving
Question: In thinking about the reasons why experienced employees left the center last year, please write in the number of individuals you think left for each of the following reasons. Please limit it to <u>one primary reason per former employee</u> and count only those people where you are reasonably certain you know why they left. Leave spaces blank that do not apply
Number you think left for this reason ------ Promotion ------ Rotation ------ Retirement ------ Higher salary elsewhere ------ Family demands ------ Schedule conflict ------ Dissatisfaction ------ Student – graduated ------ Left to go (back) to school /college ------ Relocation ------ Burnout ------ Organizational fit ------ Interpersonal conflict ------ Personal reasons ------ Illness ------ Death ------ Reduction in force ------ Fired

Large centers generally had slightly higher retention rates (i.e. lower turnover) and a higher percentage of new recruits who were successfully completing their probationary period. Training and recruitment processes were better in large centers, and employees were typically paid more.

Even though the lowest retaining centers were small, data revealed that small to mid-size centers tend to be more stable; the centers that had no turnover in the previous year were near the national average of 1 8 employees. <u>None</u> of the large centers retained all of their employees in the previous year; the highest retention rate for a large center was 98 percent (i.e. 2 percent turnover), and 37 percent of the large centers had retention rates or 90 percent or more. That sets a high standard for large centers; most managers would be very pleased if they only had to replace less than 10 percent of their workforce each year. Of course, 100 percent retention would be better, but when large numbers of people are involved, it is only practical to plan for some turnover. And, high retention rates are not the same as a high performance operation or high employee morale.

The retention literature suggests managers are a major catalyst for employee turnover, and recommends that managers be specifically trained in effective management strategies related to retention. The five most valued retention interventions in the HR field are:

- Conducting internal studies (surveys, focus groups) to understand why employees leave or stay.
- Improving selection practices.
- Conducting exit interviews.
- Improving the openness of communication between management and employees. Expanding or improving training and development opportunities.

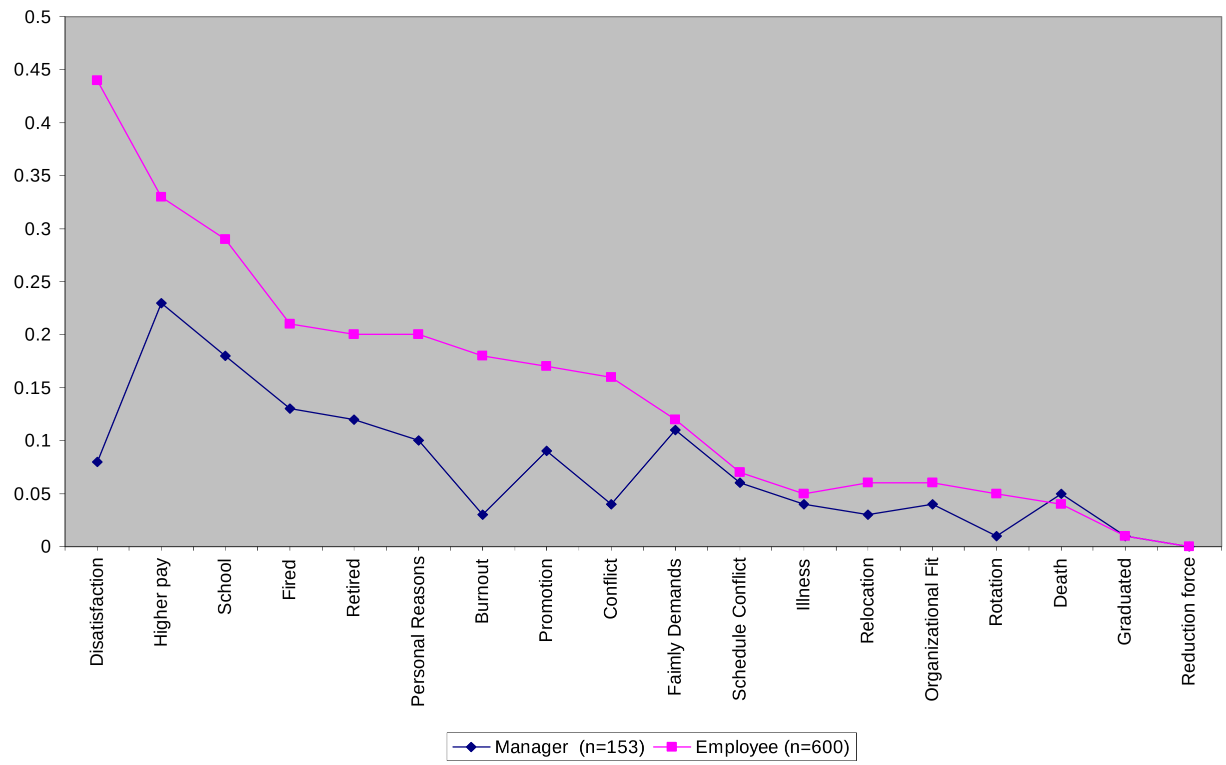
The decision to leave

People leave a job for many reasons. They often leave for a combination of reasons rather than one single reason but there is generally a catalyst or “final straw” that draws them to make the decision. A manager may be able to control whether that turnover is voluntary or involuntary, by assuring a rigorous screening and supportive training process, but they have little control over employee decisions to move to another state, go back to school, or stay home to raise a family. Open communication between management and employees can contribute to retention by fostering a cooperative relationship between them, but that isn’t always possible. HR professionals recommend the use of internal studies and exit interviews to help managers better understand why employees leave or stay

Although we did not survey individuals who were no longer employed, we did ask those who remained about their understanding of the reasons why their fellow employees left. As you can see in Table 9, this question emphasized that we only wanted them to tell us about the reasons for employees leaving when they were “reasonably certain” they knew why someone left. We asked managers and employees the same question, reasoning that they might provide different explanations for an employee’s departure. Although managers know more about job performance problems and management actions resulting in dismissal, employees may be more transparent with peers than with management.

The data presented in **Exhibit 3** were sorted from the most common to the least common reason employees gave for fellow employees leaving. The data are percentages of the number of “mentions.” That is, we only counted a reason once if it was mentioned as a reason for leaving, we did not count the number of people who left due to the reason, and we avoided duplicate counts if more than one employee reported the same example. Changing the numbers to percentages allows comparison of the results from two different sized groups (153 managers and 600 employees). Theoretically, if the percentages are comparable, both groups were hearing the same explanations for why employees were leaving.

Exhibit 3: Resons for leaving



The two lines are actually quite similar to each other; there aren't very many places where they diverge. However, the places where they do diverge are intriguing. They prompt questions about why there is such a dramatic difference for "dissatisfaction" and why there are larger differences for "burnout" and "conflict" as reasons for leaving. It would be interesting and useful to go back and ask what made those employees so dissatisfied that they chose to leave. Leaving for higher pay or to go to school are easier to explain and understand because it is obvious what they mean. Unfortunately, in this context, we can only speculate about the meaning behind the term "dissatisfaction." The difference with respect to burnout is interesting. Our research suggests "burnout" in public safety communications center employees is more likely to be the result of scheduling and overtime rather than the emotional challenges associated with the job.

Research on reasons why employees leave

A study of retention in human resources organizations reported that the most important factor affecting employee decisions to leave or to stay was the quality of their relationship with a supervisor or manager. This is consistent with our finding that feeling appreciated by management and supervisors is an important predictor of employee satisfaction, but we did not find a significant relationship between management appreciation and retention.

Researchers have reported the following reasons for employee decisions to leave: bad management practices; how people are treated on the job; poor communication; need for more challenging or exciting work; need for more opportunities to grow and learn; lack of recognition or rewards for good performance; insufficient control over their jobs and life; and not feeling that their work matters.

The retention literature supports the notion that employee perceptions influence retention and turnover decisions. Factors related to retention include employee perceptions of fairness, supervisor support, organizational rewards and job conditions, recognition, pay and promotions, job security, autonomy, role stressors, training, fit of employee personality and demographic characteristics, and comfort with the size of the organization.

Factors that researchers have linked to turnover in emergency call center workers are: adequacy of training; methods for managing workload and schedules; opportunities for career advancement; respect from administrators, organizational recognition; workloads and staffing levels; clarity of roles; and participation in decision making.

Exit interviews

There are many ways of learning about why people leave their job. Some cases are easy to determine (e.g., retirement, better salary elsewhere, return to school, or move out of state with a spouse), but some are less obvious. Good managers look for relationships between turnover and overtime, relationships with particular supervisors, or trends that surface in exit interviews.

The use of exit interviews is a common practice, and when consistent themes begin to emerge, they reveal systemic reasons why employees leave (as opposed to individual reasons). Part of good communication is to assess employee attitudes toward critical aspects of the job, particularly with respect to factors that can be changed. It may be as simple as asking an employee why they have decided to leave. It is important to listen for systemic issues such as insufficient training or inadequate benefits and address them. Exit interviews with those employees who are leaving will never be as helpful as continually checking with those who stay. That is why the Employee Satisfaction Survey in the Staffing and Retention Toolkit includes questions about employee intentions to leave or stay

Keeping track of seniority. One manager noted that he keeps track of the number of employees who complete training, the number who pass the five year mark (when there is a return on the investment in the cost of selection and training), the number who reach seven years (high potential as trainers and mentors), and the number who pass the 10 year anniversary (who will probably stay until they retire).

Problems in the training program

One site visit manager discovered training problems when new recruits repeatedly indicated in exit interviews that they were leaving because of the way they were being treated by the trainers. The situation became so severe that the center was training 40 recruits to get 20 employees! Management then implemented a more proactive approach to identifying and assigning Communications Training Officers (CTOs).

In this same center, any pay increase for serving as a CTO, and trainer selection as a whole was complicated by union negotiations. The center now encourages employees to volunteer for the role of CTO, and selection is based on the quality of the training they provide and interest in the training process, not just seniority. CTOs also receive more training as to what is expected of them than was previously offered. The pattern that emerged from the exit interviews made it clear that improving the training process was critical to improving retention. Several based on seniority is common, but it is not effective unless other factors are also considered.

Competition from the road

A center manager realized via exit interviews that recruits were using the communications center as a stepping stone in to the police force, causing the center to lose a substantial number of new recruits. Employees were also leaving this center and moving to agencies within the city to higher paying jobs. Recognizing the pattern and understanding that some of their greatest competition was from the road, they worked with HR to implement a new requirement: a two-year commitment to the communications center. Two years isn't enough time for a return on the investment in training, but employees who moved to other positions in the organization proved to be good ambassadors for the communications center. Of course, that would not be the case if they did not feel they had been treated well while in the job.

The management team developed other strategies for improving the situation in the center; hoping to retain more of their experienced employees. They made the work space more comfortable for people giving them control over lighting, heating and cooling, and providing each employee with their own personal chair (of their choice – one size doest not fit all). They instituted a career ladder and encouraged courses on conflict management, interpersonal communication, and leadership. The participation in committee work or involvement in the training process now required of everyone proved effective in building a sense of community and encouraging teamwork. Also, in-house newsletter the de-COMM-Press, further promotes a sense of community and employee recognition.

Negativity in the communication center

The final example of useful information gleaned from exit interviews came from a communications center that is recognized as one of its state's best. Interviews indicated that gossip and employee negativity had become serious problems, the management team realized they needed to pay more attention to interpersonal issues, address attitude issues during the selection process, and work explicitly on creating a more positive climate.

A lack of positive energy in the work environment is a common concern of communications center managers. People don't call 9-1-1 because they are having a good day, so negative energy is a fact of life in this line of work. But it can and should be addressed explicitly. One manager commented: "I tell my people in the bottom line is we are nice to each other and to our clients!" Comments from employees support such a direct approach. When managers or supervisors fail to respond appropriately to bad behavior it sends a message that they condone it, feel helpless, or don't care. None of these perceptions are useful when the goal is to create a good work situation.

Employees know if they plan to stay

With an average national retention rate of about 83 percent and a turnover of 17 percent, it seems more than a coincidence that when employees were asked if they expected to stay in their current job five more years, 17 percent said "probably not." Another 20 percent indicated they were "not sure." As noted earlier, this question was included in the Employee Satisfaction Survey found in the Staffing and Retention Toolkit because sometimes it is just a matter of asking, but it may not be "safe" for an employee to tell a manager they plan to leave. Having a sense of the number of employees who don't plan to make working in the communications center a career can help managers plan proactively.

Planning for turnover makes sense

Some centers are very stable. For those that are not, monitoring the retention rate over time makes sense. An adjustment for predictable turnover, based on historical data that has been used to establish an average turnover rate, should be part of an estimate of the number of employees needed for adequate staffing. Centers that experience predictable turnover every year need to take a proactive approach, assuring that applicants and new recruits are in the pipeline, rather than waiting for resignations before initiating the lengthy process of finding and preparing replacements. Thirty-nine percent of the managers in large centers said they "over-hire" to accommodate routine turnover and/or unexpected employee absence due to disability, maternity leave, etc. Centers that "over-hired" were twice as likely to report they were able to "comfortably handle the workload." The term "over-hire" is actually part of the problem. It is not "over hiring" so much as it is hiring proactively.

Five factors that predict center retention rates

We wanted to know which management practices in public safety communications centers were related to employee decisions to leave or stay. In research language, center retention rates and employee satisfaction scores were the dependent variables in our research design and management practices were the independent variables. We used a variety of statistical tests to identify significant relationships, and regression analysis to determine which relationships were strong enough to predict retention rates and employee satisfaction scores. It is important to distinguish between these two; employee satisfaction and center retention rates are different phenomena and they were not as closely related as we expected them to be.

In order of importance the factors that were found to predict center retention rates:

1. Staffing situation (i.e. whether or not the center is fully staffed).
2. Average overtime hours per month.
3. Job Complexity.
4. Hourly base pay rate.
5. Employee satisfaction with working conditions.

The first two items were discussed under Staffing. A fully staffed center with all authorized positions filled, and limited use of overtime are the best predictors of center retention rates. That means the most effective practices for increasing retention rates are: 1) keeping the center fully staffed, and 2) staffing at levels that minimizes the need for overtime.

This section addresses the remaining predictors of retention: Job complexity, pay rates and working conditions. None of these factors operate independently, but it is useful to understand their order of importance (i.e. influence).

Job Complexity

In our research "job complexity" was defined as the number of tasks that are a regular part of the job (i.e. the number of services each employee provides for citizens). The tasks included, but were not limited to taking 9-1-1 calls, taking administrative calls, dispatching for law, fire-rescue and/or EMS, conducting NCIC or state CIC checks, providing communication services for city or county services or public works, animal control, etc.

Our data indicate there are limits to the number of different tasks employees can handle. Calltaker s and dispatchers are famous for their multi-tasking, but they do have limits.

How hard can it be?

Employees in Study I indicated that completing/ being responsible for an average of seven tasks per shift was a regular part of their job. The number of total tasks went

One center set up a "Functions Committee" to analyze the arrangement of the work space and the distribution of work in the center. (It was so beneficial that the committee continues to meet periodically) In addition, the manager called managers in other communications centers that served similar size populations, and used an officer-to-citizen ratio to find out how many dispatch positions were being staffed in these other centers.

The function analysis and comparative study resulted in the addition of another police dispatch position. Meanwhile, the city auditor conducted a study of the center and authorized additional positions. According to the manager, "Once the new recruits were functional and able to carry their share of the workload, turnover dropped."

up, retention rates went down. Job complexity was also related to employee satisfaction (i.e. as tasks increased, satisfaction decreased), but it predicts retention.

Another factor that is related to job complexity is the number of client agencies that are served (law, fire-rescue, EMS, etc.). Large centers usually serve fewer agencies – an average of eight compared to an average of 12 for smaller centers. If each client has a different preferred protocol, the complexity of the job increases dramatically. One of the effective practices, but also one of the most challenging for centers serving multiple clients, is to develop and use a common set of protocols. It is far easier for multiple public safety communication specialists to co-locate than it is to actually consolidate.

Consolidated centers struggle with a variety of issues, most of which have to do with giving up control and maintaining independence. Centers able to move beyond the "co-location" stage and collaborate realize benefits from their larger size and the diverse perspectives of employees, but an inherently difficult transition can be downright painful if not managed well. During the site visits, it was obvious whether a center was operating as one entity or as separate entities sharing little more than a room and a roof.

One of the centers we visited has successfully combined several centers into a cooperative and collaborative group. The arrangement has worked well for the center and the client agencies. It has resulted in a substantial improvement in the quality of services provided and the cost of those services. It is the result of constant communication and frequent interaction between the management of the communication center and the leadership in the client agencies.

In general, the public is unaware if there is a lack of cooperation between different branches of public safety (law enforcement, fire-rescue, EMS), but that doesn't make it okay. Internal strife and bickering are not conducive to high performance. Cities and communities that force consolidation need to anticipate the challenges and provide support and resources to make a consolidation work for the community.

Specialize or cross-train?

The majority of managers of large centers (89 percent) indicated that all of their employees' time was devoted to call taking and dispatch, whereas 62 percent of the managers in Study I and 11 percent of managers in Study II indicated the majority of employees' time was devoted to these duties.

Half of the large centers indicated all or most of their employees were cross-trained but the tasks were separated; employees were assigned to one task or the other when on duty. Twenty-three percent of the large centers reported using a division of labor, with all or most of their staff working as a calltaker or a dispatcher but not as both. In 27 percent of the large centers employees performed both call taking and dispatch tasks while on duty. That came as a surprise; we expected the combined role to be common in small centers but did not expect to find combined roles in so many large centers. In fact, dividing the roles was one of the strategies managers used to manage job complexity. One manager reported a 1997 decision to split the role of telecommunicator into two roles, 9-1-1 operator and dispatcher. This strategy reduced turnover and *"changed turnover from 40 percent that didn't pass or complete training to 8-13 percent over the years."*

Size does not appear to be a factor in terms of whether or not center employees are cross-trained. Sixty-nine percent of the centers in Study I and 77 percent in Study II indicated their calltakers and dispatchers were cross-trained. Cross-training increases scheduling flexibility and improves a manager's ability to staff critical positions.

Technology in the public safety communications center

The use of more advanced technology in larger centers, as indicated by higher percentages of large center managers reporting the use of CAD and call tracking software, is consistent with our perception of increased employee access to the Internet. Most managers, even in small centers, have access to the Internet, and many managers are experimenting with providing employee access to the Internet in a way that does not compromise the need for security. These range from an independent computer with an Internet connection in the break room, a separate computer at one or more locations in the center, or secure connections at individual consoles.

Neither of the surveys explored the relationship between technology and employee satisfaction, although when employees in Study I were asked to respond to the statement "The technology supports high productivity" only 55 percent agreed and 23 percent disagreed. Also, technology problems did surface as an issue in some sites, mostly related to unreliable systems or new systems that did not perform as promised. In addition, some managers indicated that the adoption of new call tracking software and CAD systems provided more detailed data, but the additional data were not in a format that was as useful for decision-making as that which had been provided by previous systems.

Frequent upgrades in technology that are implemented to save time and make the work easier, may actually increase job complexity and increase the time new employees need to gain proficiency. Experienced employees have been making constant adjustments to the increasing complexity of a job that may seem overwhelming to a new recruit. If many highly qualified recruits are washing out of the training process or if they are the subject of hazing by more experienced employees (i.e. intense testing and pressure to see if they can stand the heat) it may be linked to the complexity of the job and the length of the training process. If well-screened and highly qualified employees are successfully completing training for call taking but balking when it is time to learn dispatch duties, this also may be a job complexity issue.

Technology improved efficiency and supported higher performance in some cases, but if the technology wasn't reliable or didn't work as expected, calltakers and dispatchers experienced higher than usual frustration levels. The stress of callers and agents knowing that lives may be on the line leaves them feeling helpless if the system goes down; it is traumatizing if the system is unreliable. It is the control issue again. Equipment and software contribute to job complexity and should be included in any internal review of job complexity. Ultimately a decision must be made: continue searching for those rare individuals who can and will do a very complex job, or review and modify the job to make it more manageable and less difficult for new recruits. Our research found higher retention rates when employees viewed the distribution of work as fair and the tasks were manageable.

Effective practices related to job complexity

Manage job complexity.
Keep the number and variety of tasks that are a regular part of a job manageable. Redistribute tasks if some consoles have heavier workloads than others. There may be inevitable differences from one console to another, but there is no excuse for a "killer" console.

Arrange the work area for efficient performance.
Seems obvious, but it is easy to add new equipment without reviewing all aspects of the work station. Ask employees for ideas about how to reduce complexity and make the work area more efficient. Set up a "Function Study Team" to review this aspect of the work on a regular basis.

Review work assignments annually.
Make sure the work is distributed fairly, and the gradual addition of tasks to the core set of responsibilities hasn't made the job more complex than it needs to be.

Rotate tough assignments.
Consider rotating the toughest assignments from day to day or even from the first half of a shift to the second half, so that the most challenging work is shared and nobody has to bear the full brunt of it for a full week or a full shift.

Keep the workload manageable.
Monitor agent occupancy levels and use of overtime. If there are particularly tough consoles, work with employees to redesign the manner in which the work gets accomplished.

Provide ongoing training.
Always provide support and training when employees are asked to take on additional tasks or when there is a change in equipment or procedures.

Learn from other managers.
Ask other managers about strategies they have used and found successful in easing the transition from old to new software, from independent to consolidated center operations, etc.

Develop a standard protocol.
If your center serves multiple agencies, each with a different set of protocols for routine tasks, develop a standardized protocol to minimize the potential for errors.

Analyze costs and benefits of new equipment.
When purchasing new equipment or software, consider what will be gained as well as what will be lost.

Pay and Benefits

Three key contributors to employee retention, beyond assuring that the center is fully staffed and limiting the use of overtime are: (1) managing job complexity; (2) assuring that employees are paid well; and, (3) good working conditions. All are factors that can deteriorate if not reviewed on a regular basis. You need to know if you are losing employees as a result of “job creep”, the situation in which new technology and increasing expectations have slowly changed the complexity of the job, as a result of pay rates that have slowly fallen behind those of other public safety service providers, or if interpersonal and working relationships in the center have turned sour.

Table 10: Effective Practices: Job Complexity

Recommendation	RETAINS Research Results
• Manage job complexity. • Arrange the work area for efficient performance. • Review work assignments annually. • Rotate tough assignments. • Keep the workload manageable. • Provide ongoing training. • Learn from other managers. • Develop a standard protocol. • Analyze costs and benefits of new equipment.	Job complexity was the #3 predicator of center retention rate. As the number of tasks (i.e. job complexity) increased, employee satisfaction decreased and center retention rates decreased.

Pay

Hourly base pay rate was the third most important predictor of center retention rate. There was a positive relationship between base pay and center retention rate (i.e. as base pay increased so did center retention rate), but there was not a corresponding relationship between pay and employee satisfaction ratings.

Several managers indicated higher pay was a strategy that helped them in recruiting and increasing retention. Table 11 summarizes the differences in hourly base pay rates based on role and center size. One of the centers we visited was in the process of reclassifying job descriptions. Management was finding it difficult to get people to take the supervisor positions when the promotion increased responsibilities but resulted in a cut in pay (no more access to overtime)!

The actual difference in pay between dispatchers and calltakers was minor and favored calltakers, possibly because centers with calltakers were generally the larger centers. Most managers in Study I (80 percent) reported the same pay rate for calltakers and dispatchers, but this could be, at least in part, due to the fact that 69 percent of the centers indicated that all of their employees were cross-trained.

Table 11: Hourly base pay rates								
	Study I (Average size = 18)				**Study II** (Average size = 135)			
Position	**Mean**	**Median**	**Min.**	**Max.**	**Mean**	**Median**	**Min.**	**Max.**
Calltaker	$12.71	$12.20	$6.36	$31.00	$14.27	$14.82	$10.02	$17.57
Dispatcher	$12.61	$12.10	$6.36	$21.14	$15.91	$15.80	$10.20	$20.34
Calltaker/Dispatcher	$13.04	$12.40	$6.36	$30.00	$14.62	$14.76	$10.20	$18.26
Shift supervisor	$16.79	$15.65	$9.17	$40.00	$22.25	$21.45	$16.58	$34.68

Union membership

Union membership is related to pay and employee satisfaction – that is, employees who are union members have higher pay and lower employee satisfaction than employees who are not union members. Employees in centers in which all employees were union members, on average, earned a base pay rate of $3.62 more per hour, and they also clocked twice as much overtime as those in centers where none of the employees were union members.

Table 12: Sample Salary Comparison Study

Salary Comparison Study for Metro Area - Public Safety Communications Centers Completed February of 2005										
	Calltaker		**Dispatcher**		**Lead Dispatcher**		**Supervisor**		**Director/Manager**	
CENTER*	**ENTRY**	**TOP**	**ENTRY**	**TOP**	**ENTRY**	**TOP**	**ENTRY**	**TOP**	**ENTRY**	**TOP**
Center A	n/a	n/a	$13.91	$21.73	$16.91	$22.81	n/a	n/a	(3) $41,366	$62,049
Center B	n/a	n/a	$14.86	$18.32	$15.60	$19.23	$17.51	$25.75	(3) $46,883	$68,973
Center C	n/a	n/a	$15.20	$22.51	$15.97	$23.65	$18.53	$27.43	(4) $60,098	$88,895
Center D	n/a	n/a	$15.48	$21.50	$17.95	$24.11	$20.11	$33.52	(1) $68,189	$113,649
Center E	n/a	n/a	$15.58	$23.08	n/a	n/a	$18.75	$27.69	(4) $58,200	$84,600
Center F	n/a	n/a	$15.76	$22.04	$18.96	$26.55	n/a	n/a	n/a	n/a
Center G	$13.50	$21.66	$15.80	$25.35	n/a	n/a	$21.58	$33.37	(3) $57,036	$91,392
Center H	**$12.46**	**$18.69**	**$16.15**	**$24.23**	**$21.23**	**$31.85**	**$21.77**	**$32.57**	**(4) $57,600**	**$86,400**
Center I	n/a	n/a	$16.35	$24.53	n/a	n/a	$20.53	$30.80	(3) $60,200	$93,310
Center J	n/a	n/a	$17.24	$30.75	n/a	n/a	$26.64	$34.76	(2) $64,610	$84,302
Average	**$12.98**	**$20.18**	**$15.63**	**$23.40**	**$17.77**	**$24.70**	**$20.68**	**$30.74**	**$57,131**	**$85,952**

This table is based on a sample document that was provided courtesy of Lenexa, KS PD Communications Center.

(1) Director a) Dispatcher positions are sworn Deputies; Supervisor positions are sworn Sergeants
(2) Lieutenant(b) Figures shown in chart under Dispatcher are for Dispatcher I. Figures shown under Lead are for Dispatcher II
(3) Manager(c) Employee must have held position of Calltaker prior to promoting to position of Dispatcher
(4) CaptainDirector/Manager figures are annual gross salary. All other figures are regular hourly wages.

Note: This table has been modified. The original included names of the centers that were used in the comparison. The center doing the comparison is in bold and placed in the table relative to the comparison centers (sorted in ascending order by dispatcher entry pay).

Our research found that center retention rates were significantly higher in centers where all employees were union members compared to those where none of the employees were union members. The relationships among union membership, center retention rate, and employee satisfaction are complex. We talked to one manager who felt stifled by union demands and restrictions, and another who was advocating union membership in hopes it would provide the leverage needed to improve working conditions for his employees.

Comparability of pay with other public safety personnel

Employees who say they are well paid when compared to other jobs in the community are more satisfied than those who believe their pay is low or about average. Pay comparable to other public safety personnel such as law enforcement, fire-rescue, EMS is more important to employees than pay comparability to other jobs within the community. Centers are sometimes located within a law enforcement, fire-rescue, or EMS organization, and communication center employees identify with the personnel they dispatch. Communications center employees often hear from management that they are part of the team, but, in reality, there is an ongoing debate about whether civilians or sworn personnel should be filling these positions. A recent study conducted on behalf of the Human Resources Committee of the Major Cities Chiefs and the Major County Sheriffs explored this issue, opinions clearly differed but the results were inconclusive.[5]

A study conducted by a Kansas center provides a useful example of how to organize the results of a pay study (see Table 12). The layout of the table provides clear information about when the study was conducted, identifies the rank associated with different positions, and the original identified the comparison centers. Providing the names of the centers being used in the comparison indicates transparency because it permits verification, and that builds trust. Note that the center conducting the study placed itself relative to the other centers in the comparison.

Both managers and employees were asked whether or not *"different treatment of civilian and sworn personnel was a source of tension in the center."* One in four managers said they didn't know or that the question was not applicable, but 32 percent indicated that sworn personnel were treated better and that it was a source of tension.

While 42 percent of the managers said there was no difference in treatment of civilian and sworn personnel, 66 percent of employees reported that better treatment of sworn personnel was a source of tension in their centers. These employees had significantly lower satisfaction compared to those who reported no differences in treatment. However, we found no statistically significant difference in either retention or employee satisfaction related to whether the manager was civilian or sworn, or whether the manager's immediate supervisor was civilian or sworn.

Communications center employees view themselves as part of the public safety team, not as telephone operators or clerical workers. Lower pay (49 percent said their pay was lower than other team members) sends a message about the value of their contribution to the team. Twenty-seven percent of employees said their pay was comparable to other team members and 8 percent said their pay was higher. Those who reported lower pay were significantly less satisfied and came from centers with lower retention rates.

Benefits

There is a significant relationship between benefits and employee satisfaction, but the number of benefits provided by a center does not have a relationship with center retention rate. Although benefits could influence decisions to stay or leave, there was no measurable impact of benefits on retention rates.

Managers who want to "hire to retire" need to make sure that the benefits offered are in line with what employees want. Different benefits have different levels of appeal to employees at different times in their careers. Most communications centers operate within another government center or as an independent public entity, so comparability of benefits is an issue to consider.

Table 13 summarizes the types of benefits and the percentage of centers in Study I that offered them. Some centers clearly went the "extra mile" in their efforts to improve employee satisfaction and retention. One center even paid employees $300 a month retention pay.

Table 13: Benefits in Communications Centers (Study I, n = 153)

Benefit	% of Centers
Health care/Medical plan	98
Retirement benefits	90
Dental plan	86
Vacation choice	73
Vision Plan	62
Shift selection	53
Seniority privileges	52
Assistance or pay incentive for education/college	46
Difference in pay for different shifts	40
Difference in pay for different responsibilities	36
Exercise room (onsite, no charge to employees)	35
Days off due to longer work days/schedule structure	28
Recognition program	27
Opportunities for advancement	26
Assistance in arranging for/providing daycare	1

Other benefits that were mentioned:

Neutral dress code

Monthly 9-1-1 pay incentive; CTO incentives

PEHP & Deferred Comp plans available

Holiday Pay

Disability

Tuition reimbursement

Employees are paid for cleaning of uniforms; rides to and from work; and a clothes allowance every 2 years.

Ability to trade shifts and or days off; Ability to take comp time if they find someone to work or to cover for them; Each employee has their own chair that is not shared with other shift workers; Limits on mandated overtime shifts.

Compensatory time off. No restrictions on the number of employees who can be off on a shift as long as someone volunteers to cover shift (they get OT pay) - entire shift could be on OT pay covering shifts for others.

Pay isn't everything

Although pay is a strong motivator, researchers have reported on other factors that are more important than pay (when the pay is sufficient to provide a reasonably comfortable standard of living). Such factors include: challenging and meaningful work; having autonomy and sense of control over one's work; opportunities to learn and grow; the sense of being part of a group or team; and a boss who communicates well and frequently and helps create a sense of purpose.[6]

Effective practices related to pay and benefits

Conduct a pay study.

Find out if compensation is consistent with comparable jobs in the community, but pay special attention to alignment with other public safety jobs (e.g., law enforcement, fire-rescue, EMS). A pay study will tell you if you have a legitimate case when asking for a pay increase on behalf of employees or when negotiating with the union.

Review each job and pay classification.

Make sure the position description matches the actual job responsibilities, pay, and skill requirements. One center we visited conducted a thorough study of the job responsibilities and their pay schedules to get the jobs reclassified.

Keep the pay scale competitive.

Whether calling managers in neighboring communications centers, or conducting a formal survey of pay in centers of comparable size and activity levels, do a comparison study of pay rates and salaries in your area.

Know what motivates each employee.

Offer benefits your employees care about. The number of benefits may not be as important as the type. Strive for fairness, but recognize there are different individual preferences.

Build a leadership team.

Find out which employees care about opportunities for career advancement and encourage their professional growth. Remember that a title is not what determines leadership; to the extent possible, develop a good working relationship with employees who are leaders by virtue of their influence rather than their formal title.

Review the incentives for supervisors.

Study the costs and benefits of moving into a supervisory position. Pay increases should offset any schedule changes or loss of opportunities to earn overtime.

Make retirement benefits comparable.

Employee satisfaction and retention increases if retirement benefits are comparable to those provided for other law enforcement, fire-rescue or EMS personnel.

Working Conditions

Defining "Working Conditions"

The survey items listed below were used to measure employee satisfaction with working conditions. Centers where employees agreed with these statements had higher retention rates. This wasn't a surprise since these conditions are descriptive of "a good place to work."

1. The distribution of work among staff is fair.
2. The assigned tasks are usually manageable.
3. The arrangement of the work area supports effective performance.
4. The stress levels are manageable.
5. Team members help each other perform well in a crisis.
6. There is scheduled break time away from the console.
7. Employees are able to leave the work station for breaks and or/meals.
8. Interactions with the agencies we serve are mostly positive.
9. There is professional help available when stress levels get too high.
10. Interactions with co-workers are positive (both social and work related).

Table 14: Effective Practices: Pay and Benefits

Recommendation	RETAINS Research Results
• Conduct a pay study. • Review each job and pay classification. • Keep the pay scale competitive. • Know what motivates each employee. • Build a leadership team. • Review the incentives for supervisors. • Make retirement benefits comparable.	• Hourly base pay rate was the #4 predicator of center retention rate. As pay increased, retention rates increased. • Employees who said they were well paid compared to other jobs in the community were more satisfied. • Employees who said their compensation was comparable or better than other public safety personnel were more satisfied and they were from centers with higher retention rates. • Only 12 percent of employees indicated dissatisfaction with "opportunities for career advancement" • Overall satisfaction with opportunities for advancement was not related to center retention rates. • One of the site visit center discovered the moving "up" the ladder resulted in a pay cut (due to loss of overtime). The costs outweighed the benefits. • The more benefits provided by a center, the higher their employee satisfaction, but the number of benefits provided was not related to center retention rates. • Employees who indicated their retirement benefits were comparable to those of other public safety personnel were more satisfied than those who indicated their retirement benefits were lower.

Although it seems as though practices are common sense, the differences that exist from one center to another indicate they are not always in place. All of these statements can be of these statements; it means they feel good about the way they are being treated. You can read through this list of practices and think you know how your employees would respond, but if you have not actually asked them you cannot really know.

Building a (responsible) sense of community

Long hours and close quarters can lead to too much community. The center can become like the small town where everyone knows everything about each other. That can be good or bad, depending on how the situation is managed. Managers of large centers may need to take a more proactive approach to building a sense of community and mutual responsibility, but every manager needs to attend to climate and culture issues.

Creating a positive work environment is beneficial in a variety of ways. A common them that surfaced in the site visits was concern about the fact that employees spend long hours together and, as one employee noted…..

“Cattiness ‘backstabbing’ and ‘gossip’ is unprofessional and takes away from the reason we are all here to begin with. There is nothing to deter this behavior which says that supervisors and managers don’t care that this is going on. This tears down morale and the ability to want to be here and be productive.”

Management is generally viewed as what managers do but powerful messages are also sent by what they don’t do!

Positive interpersonal relationships are related to employee satisfaction, and it is a working condition that can be managed the way people are allowed to treat each other, whether manager to employees, employee to employee, or client to employee. These are management practices that speak to a concern for each other’s well-being, a sense of caring expressed through fairness, expectations, and consideration throughout the organization.

The working conditions described by this list do not occur by accident, nor are they created by employees independent of management. They require deliberate action on the part of management working with employees. Using a theatrical metaphor, managers may set the stage and provide direction, but it is the director and the players working together that create the performance.

Building Teamwork and a Sense of Community

One of the centers we visited uses the squad structure to build teamwork and a sense of community. Employees have a 15-30 minute briefing when they come to work, and that time is used (at least partially) to building squad unity. The center has eliminated rotations and the squad leaders (shift supervisors) are expected to build esprit de corps within their squad. Another manager indicated that they were using “more frequent staff meetings, more frequent training seminars” to improve employee satisfaction and retention. Another strategy being explored by that center is a physical rearrangement of the dispatch consoles, with the goal of increasing efficiency and supporting teamwork Most of the consoles currently are arranged in a “star” or “+” shape such that dispatchers are in the same “room” but have their backs to each other. Management is trying it out to see how the employees like not having to stand up and talk to each other across the divider.

Taking care of basic physical needs

Centers that attend to the physical environment, and create an environment that supports employees' basic physical needs, enjoy higher retention rates. These basic needs include but are not limited to the arrangement of the work space for maximum efficiency, reasonable control over temperature and lighting, minimal noise levels, clean restrooms, an inviting place to take a break (inside and/or outside of the building), and provisions for employee safety (whether that means bullet proof glass or a safe parking space). One manager reported noticeable improvement in employee morale simply by providing each employee with a budget to select and purchase their own personal chair and headsets.

Employees do not expect management to redesign a center around their individual needs, but they do expect managers to care enough to ask what might make them more productive and more satisfied in their work.

"If it's important to them, we try to make sure it's important to us. Like the chair issue. We started looking at chairs and realized if we just bought one type of chair, it wouldn't fit everyone. Now we pretty much special order for each bottom — and we buy chairs every year. Lighting was a big issue for them so it became a big issue for us. This building was built with one switch for the lights, 5,300 square feet and one switch turned them all on or off! It cost us a lot of money, but now we have a switch for each light and if they want one, employees can have their own personal desk lamp. Heating and air conditioning are huge issues, and we are including that as we look at purchasing new consoles. Physical comfort concerns are huge. That's been our number one goal the past four years. What can we do to make their job better? If we can make their job better, maybe they'll be happy to come to work, so that's the way we approach things."

Effective practices related to working conditions

Build a positive relationship between communications center employees and field personnel.

Clear communication and trust are easier to gain if people know each other and trust the training that has been provided at both ends of the communication exchange. A proactive approach is especially important to build trusting relationships if there are tensions between sworn and civilian personnel. Require periodic "ride-alongs" or hold an open-house. Don't let tensions build if there has been an incident related to miscommunication on either end. Treat employees well so they will be positive ambassadors if they move into sworn or other positions of influence within the city.

Do not condone verbal abuse of calltakers or dispatchers.

If there are problems with verbal abuse, intervene early and get them resolved. Intervene directly or use the chain of command; make sure employees know they are accountable but they also need to feel supported.

Build team spirit.

To function effectively a team needs a clear structure and a clear elevating goal that is understood and shared by everyone on the team. The structure of the team should be obvious, aligned with the expected result, and use resources strategically.

Provide training in interpersonal communication skills and conflict resolution.
The communication skills needed to work effectively with colleagues may be different than those needed to handle callers. Training in conflict management contributes to proficient handling of calls but it can also improve relationships among employees.

Provide professional help and support.
Provide highly qualified professional help for employees who may be struggling with personal or professional issues. Make sure confidentiality is respected and work to reduce any stigma associated with obtaining help when it is needed.

Structure the physical environment to support effective performance.
A comfortable (personal) chair and headphones, reasonable control over temperature and lighting, noise control, clean restrooms, a pleasant place for breaks away from the console, and provisions for employee safety contribute to employee morale and performance. Remember that chairs wear out, and replacements costs should be built into the budget.

Schedule breaks.
Provide for scheduled break time away from the console so employees are able to leave the work station for breaks and/or meals.

<table>
<tr><th colspan="2">Table 15: Effective Practices: Creating Good Working Conditions</th></tr>
<tr><th>Recommendation</th><th>RETAINS Research Results</th></tr>
<tr><td>

Build a positive relationship between communications center employees and field personnel.
Do not condone verbal abuse of calltakers or dispatchers.
Build team spirit.
Provide training in interpersonal communication skills and conflict resolution.
Provide professional help and support.
Structure the physical environment to support effective performance.
Schedule breaks.

</td><td>
Good working conditions were the #5 predictor of center retention rates. The
conditions included:

The arrangement of the work area supported effective performance.
There was scheduled break time away From the console.
Employees were able to leave the work station for breaks and/or meals.
Team members helped each other perform well in a crisis.
Interactions with co-workers were positive (both social and work related).
Interactions with the agencies served were mostly positive.
The distribution of work among staff was fair.
The assigned tasks were usually manageable.

There was professional help available
when stress levels get too high

Employees who rated their physical environment higher were from centers with higher retention rates. The physical environment includes adequate:
Physical work conditions (i.e. lighting, temperature)
Technology
Seating
Noise level
Restrooms
A place for breaks
Safety
</td></tr>
</table>

Summary

There are management practices that have an impact on retention and the reduction of turnover. Project RETAINS research revealed that, in addition to staffing and overtime considerations, the conditions that had the greatest influence on retention rate were: (a) job complexity; (b) hourly base pay rate; and (c) employee satisfaction with working conditions. Several strategies that have proven successful for managers working to improve these conditions were discussed.

Resources

Salary and Benefits. This website addresses compensation, career advancement, and benefits, and the free Salary Wizard provides comparisons of salaries for different categories of public safety personnel in different parts of the US. Available at: http://www.salary.com/home/lay-outscripts/html_display. asp

Pay Studies. A number of resources 9-1-1 call center managers can use to study the degree to which their center's salary and benefits are aligned with local, regional, and national counterparts. Available at http://salary.com/home/layoutscripts/homl_display.asp and

Cost Per Hire Calculator/Turnover Calculator. Two detailed calculators that will take you through the process of determining the real cost of turnover. They help answer two key questions: 1) "How much does it really cost to hire someone?" and, 2) "What is attrition really costing your organization?" Available at http://www.mentor4inc.com/Recruiting-Staffing/Staffing-Calculators.aspx

Understanding Turnover by Pat Hauenstein, President of Advantage Hiring. Provides a discussion of the reasons for turnover and a calculator that generates an estimate of cost per employee and total cost of turnover based on data enter about annual wage for the job, cost of benefits as a percentage of wages, and the total number of employees who left. The calculators aren't as thorough as in the previous site, but the theoretical framework is worthy of consideration.

Chapter 3: EMPLOYEE SATISFACTION

Research on "Employee Satisfaction"

Researchers who investigate employee satisfaction generally investigate the following job elements:

1. The job itself (content, variety, and training).
2. Supervisor-employee relationships (related to respect, recognition, feedback and fairness in evaluation).
3. Management actions and beliefs (employee perceptions related to trust, information sharing, and valuing employees).
4. Opportunities for career advancement and job security.
5. Work environment (physical facilities and resources).
6. Pay, benefits, and rewards.
7. Co-worker relationships (cooperation, teamwork, positive communications).

The employee satisfaction literature identifies the factors that are most important to employee satisfaction as: (1) challenging and meaningful work; (2) autonomy and a sense of control over one's work; (3) opportunities to learn and grow; (4) being part of a group or team; and (5) a boss who communicates well and often and creates a sense of purpose.

Two Sides of Employee Satisfaction

Factors that contribute to employee satisfaction often are divided into two categories: employee factors, or characteristics of the employee, and job factors, or characteristics of the job. It is the interaction between the employee and the job that determines employee satisfaction. For example, when a calltaker or dispatcher from a small center tries to move to a larger center (or vice versa) they may find it simply isn't a good fit. Satisfaction and productivity increase when managers pay attention to employee factors, and decrease when they are ignored or mishandled.

Employee factors include individual characteristics related to achievement, ability, recognition, responsibility, drive for advancement, age, gender, family responsibilities and

People Change

Sometimes personal changes result in a decision to leave, but they may also result in a decision to return. An employee who had left for a job with a less hectic pace said, "Once it gets in your blood, going to a regular job isn't always satisfying. We have had several people leave and come back. We've also had people try to come back after several years away from the work, only to find out they couldn't do the job anymore. The job has definitely changed, and they probably have, too"

support systems, physical and psychological well-being, etc. Effective practices that address employee factors include a solid orientation program that lets employees know what the work entails, explains how work is assigned, and trains them to know what to do when there is a problem with the work or other issues. An effective orientation also explains benefits, performance criteria, the basis for salaries and bonuses, and information about company resources that are available to them (such as psychological counseling in the aftermath of a critical incident or for stress management). Employees also need to know about performance evaluation criteria and the structure and process for advancement.

Beyond an orientation to basic information about "the way we do things around here," managers need to make sure employees know how to do the work well, and that they hear regularly how meaningful and valuable their work is. Continued personal and professional growth and learning (i.e. ongoing training) is essential, especially when there are changes in policies and procedures related to the work. Employees feel more valued when they see their concerns and ideas taken into consideration when policies and procedures are being developed.

Actually doing the job well is the real test.

One HR representative we interviewed was talking about employee factors when she told us, "We have found that no matter what we do to inform them about the job in advance, at some point they have to do the job to really know whether they are going to make it. Some will, some won't! Sometimes even strong candidates just can't do it!"

Job factors include organizational policies and procedures, supervision, salary structure, interpersonal relations on the job, and working conditions. Shift work, emotional stress, physical inactivity, and overtime demands in the event of a natural disaster are examples of factors associated with jobs in public safety communications centers.

Effective practices related to job factors include assuring fairness, management and supervisor support, rewards, positive recognition, reasonable pay, promotions, job security, autonomy, attention to role stressors, training that supports effective performance, a culture that promotes open communication between management and employees, and pride of affiliation.

Measuring Employee Satisfaction

Researchers have developed a variety of instruments to measure employee satisfaction, but none of them quite fit our need to measure the satisfaction of public safety communications center employees. We received many ideas and opinions about practices that were believed to contribute to employee satisfaction or dissatisfaction. Survey questions were developed from a list of effective practices that was generated by the Staffing Crisis Task Force (1999, the group that preceded the Project RETAINS Committee). However, there was no research to indicate which of these practices actually made a difference in employee satisfaction!

A common strategy is to ask employees to respond to statements about employee or job factors, based on the extent to which they agree or disagree with these statements. We decided not to use a generic employee satisfaction survey, so we developed questions to inquire about specific aspects of the work in public safety communications centers. We asked employees about their experiences and their satisfaction in relation to six areas: 1) job requirements; 2) recruiting, testing and selection processes; 3) compensation and benefits; 4) staffing adequacy; 5) working conditions; and 6) recognition.

Table 16: Asking about center

Question: Please rate the overall performance of the communications center on each of the following criteria. If you have no idea how well the center is performing on an item, select DK for don't know.

	Excellent	Above Average	Average	Below Average	Poor	Don't Know
Ability to consistently staff necessary positions	☐	☐	☐	☐	☐	☐
Ability to train	☐	☐	☐	☐	☐	☐
Call answering times	☐	☐	☐	☐	☐	☐
Customer satisfaction	☐	☐	☐	☐	☐	☐
Efficient call management	☐	☐	☐	☐	☐	☐
Employee retention	☐	☐	☐	☐	☐	☐
Employee satisfaction	☐	☐	☐	☐	☐	☐
Shift management	☐	☐	☐	☐	☐	☐
Use of overtime	☐	☐	☐	☐	☐	☐

Although managers were surveyed for their perception of staffing and retention issues, we believed that to obtain a credible measure of employee satisfaction we had to ask employees directly. The original employee survey was composed of over 320 items, including 52 items that asked employees to rate their degree of satisfaction in the six categories mentioned earlier. Employee responses to 52 items provided the basis for our satisfaction measure, the Employee Satisfaction Index (ESI).

In research language, the ESI score was one of two dependent variables (i.e. we tested the hypothesis that the ESI score <u>depended on</u> certain organizational policies or practices, the independent variables). The other dependent variable was center retention rate. We looked at dozens of independent variables to see if there was statistically significant evidence of a relationship between them and our two dependent variables. Practically every question in the survey was analyzed as an independent variable. The full results of that analysis can be found in the Technical Report, available on the APCO website.

Turning Research into a Management Tool

Our interest in identifying the underlying employee satisfaction factors was driven by a desire to create a short survey that would be easy for managers to use with employees. We wanted to design a survey that was short enough that employees could complete it in 5-10 minutes, but long enough to provide managers with a useful measure of employee satisfaction. The result was the "Employee Satisfaction Survey." Managers can access the survey and use it with their employees, then generate a customized analysis and report through the Staffing and Retention Toolkit.

What Determines "Satisfaction" for Communications Center Employees?

After analyzing the individual items and groups of items for statistical relationships, we identified five groupings or themes that characterized employee satisfaction: (1) recognition and relation-ships; (2) salary and benefits; (3) scheduling; (4) training; and (5) working conditions. These were the factors that determined satisfaction for public safety communication center employees. Each factor was composed of and further defined by several questions.

In other words, our definition of employee satisfaction in public safety communications centers is the degree to which employees feel content about a constellation of issues: the recognition they receive for their work, the quality of their interactions with management and co-workers, the physical environment where they work, their schedule and the scheduling process, the salary and benefits, and the adequacy of the initial and ongoing training that is provided.

Eight Factors that Predicted Employee Satisfaction

Using the ESI score as our measure of satisfaction in Study I, we found eight variables that predicted employee satisfaction:

1. Center performance (a composite score made up of multiple items).
2. Preparation and ongoing training (also a composite score).
3. Feeling appreciated by management.
4. Employee satisfaction with the shift selection process.
5. Effective mentoring of new trainees.
6. Feeling appreciated by their immediate supervisor.
7. A thorough and extensive application and screening process.
8. Feeling appreciated by the media.

The above variables are listed according to the strength of their ability to predict employee satisfaction, but it is clear that several of them are related. Two variables are concerned with training and three are concerned with recognition, giving us five categories of variables that predict employee satisfaction. The relationship between employee satisfaction, shift selection and scheduling was discussed in Chapter 1. The influence of the screening and application process on employee satisfaction was also discussed in Chapter 1. The remaining variables: center performance, training, and recognition are discussed in this chapter.

Center Performance

Perceptions of Center Performance

The center performance question asked respondents to rate their center on each of nine indicators (see Table 16). In comparing manager and employee ratings, we found that managers tended to rate their center more positively than employees did. But it was employee ratings that predicted employee satisfaction: high overall center performance ratings from employees were related to high employee satisfaction.

Center performance ratings can be viewed as an indication of satisfaction with management practices. Several other questions asked employees to rate various aspects of supervision and management, and high ratings on those items were also related to higher retention rates, but it was the center performance question that predicted employee satisfaction.

Learning to be a Manager

Employees' satisfaction with center performance is largely due to how they view the center's supervision and management. Numerous studies over the years have reported that the most important factor affecting an employee's decision to stay or leave is the quality of the relationship they have with their supervisor or manager.

Researchers have repeatedly found that the "culture" established by leadership style and strategies, rewards and recognition, and the communication that comes from supervisors and managers, is a major influence on employee satisfaction and turnover decisions.

Moving from being an individual contributor to a management role is a challenging and difficult step in any profession. Some people seem to have an instinct for management, whereas others struggle. Training and continuous learning is as important for managers as it is for employees.

Effective practices related to center performance

Build your management skills.

Read professional publications directed at public safety communications center personnel, but also scan materials directed at managers in other professions to find ideas that can be adapted to the needs of the center.

Show that you care about high performance and employee well-being.

Actions speak louder than words, and never more so than the messages you send by your actions related to all aspects of center performance.

Develop and use a professional network.

Get involved in a professional organization such as APCO or local state organizations. Encourage everyone, but especially those in management or supervisory positions to read, attend conferences, and be on the lookout for ideas and opportunities to improve center performance.

Analyze relevant data and use it to develop a high performance center.

Conduct a thorough analysis of center performance with basic statistics using time frames that make sense. Compare staffing and workload annually, quarterly, or seasonally, whichever makes sense for your center, and make adjustments as needed. Monitor the amount and cost of overtime; overtime usage is an indicator that can tell you whether or not you need to adjust staffing levels or revise schedules. Monitor performance on key quality indicators such as abandonment rates, average call-answering times, employee absenteeism, the use of sick leave, retention and turnover rates, client complaints, etc.

Focus on continuous improvement.

If the center measures quality indicators, post the pertinent data where employees can see them. Be aware of the need for confidentiality, and make it clear that speed is not the only indicator of quality.

Evaluate the efficiency and cost effectiveness of operations.

Using data on number of calls handled and operational costs, calculate an average cost per call and an average cost per dispatch. Compare the results to those of other communications centers in the area or data available on the Internet.

Monitor key processes.

Establish a system that provides for regular review of key processes related to employee satisfaction and retention. This includes recruiting and selection of new employees, training and mentoring of recruits, providing training for experienced staff, supervision, recognition, use of overtime, and determination of staffing needs.

Respond to errors constructively.

Errors are bound to happen, but management response to errors determines whether they serve as an opportunity for organizational learning and improvement. The response from management sends a message to all employees, not just the one that made the error. If an error becomes a consistent pattern, retraining or management action is necessary.

Know all your customers.

Collect customer satisfaction data, recognizing there are many customers (the agencies served, personnel dispatched, citizens who call for help, the city or county managers, or the community at large). Do not forget the internal customers – your employees.

Monitor the success of new trainees.

If too many recruits are "washing out" during training, analyze your recruiting, selection and training processes to find the leak in the pipeline and fix it.

Involve employees.

Create a standing committee with representatives from all shifts and different levels of seniority to monitor and evaluate the policies and procedures related to center performance. Question all assumptions. Even if the center has always done it a certain way, the process may need to be improved.

Ask for feedback.

Ask employees what is working well and what they see that needs to be improved. Create a sense of shared responsibility for making the center a high performing organization. Find out if employees view the decision processes as "fair".

Hone your management skills.

Perhaps the most important conclusion to be drawn from the relationship between center performance and employee satisfaction is that managers need to pay attention to their own learning. This does not mean they need to go (back) to college, but rather, that they continually seek opportunities to learn and get involved in professional growth. Participation in a professional organization, reading management literature, or taking formal courses benefits the center and serves as a source of renewal. The manager is a role model for learning, and the quality of the preparation and training program reflects the managers' own attitude toward learning.

One center uses a weekly "early day" when supervisors provide training on a topic identified as a need by review of tapes, questions from employees, or problems that have surfaced. The sessions aren't long but they are timely and focus on improving the quality and consistency of service.

Table 17: Effective Practices: Communications	
Recommendation	RETAINS Research Results
• Build your management skills show that you care about high performance and employee well-being. • Develop and use a professional network. • Analyze relevant data and use it to develop a high performance center. • Focus on continuous improvement. • Evaluate the efficiency and cost effectiveness of operations. • Monitor key processes. • Respond to errors constructively. • Know all your customers. • Monitor the success of new trainees. • Involve employees. • Ask for feedback (about "fairness" and interactions between employees and Management). • Hone your management skills.	Communications Center performance was the #1 predictor of employee satisfaction. Employee ratings of center performance on nine aspects of operation were the strongest predictor of overall employee satisfaction. Managers tended to rate their centers higher (more positively) than employees, but employee ratings of center performance were a significant predictor of center retention rates. The characteristics of effective supervision and management include: • regular recognition of employees' good work • decision processes are fair • interactions with supervisor and upper management are positive • Management responds to errors constructively. • Shows interest in creating good working conditions • Employees participate in decisions that affect them

Preparation and Training

The work of public safety communications specialists has changed over the years. In most centers the demands of the job have moved far beyond simply answering and redirecting telephone calls. The fact that many managers reported raising the cut score for their qualifying tests, and others reported implementing more rigorous screening and training programs confirms the growing complexity of the job. Effective ongoing training is critical to addressing job complexity, and it is related to both employee satisfaction and retention.

New hires "wash out" of the training process for several reasons. They may realize the job isn't for them, or ineffective processes such as a poor screening and selection process, a poor training program, or lack of support once formal training is completed may be setting them up for failure.

It is not only the new recruits who suffer when they wash out, trainers and mentors feel the failure and frustration of investing their time for naught.

The selection of effective trainers is critical to any effort to improve organizational performance. Strategies implemented by centers to improve the training process included: 1) a competitive application process for trainers that includes a quality-and-process review of tapes; 2) a multi-phased training process that exposes recruits to more than one trainer; 3) clear expectations and training for trainers; and, 4) continuous review and feedback about individual trainers' effectiveness in supporting and training new recruits.

Use effective processes to screen new recruits

Employees should not have to eliminate poorly qualified recruits; a rigorous and effective screening and selection process followed by a solid training program that is well-aligned with the skills they will need should accomplish that. Hiring a recruit who shows little promise is a waste of time and resources. Employees who are not even involved in the training process feel the impact when new recruits fail, because it often means the center will continue to be understaffed and they will have to continue covering the staffing deficit with overtime. Some comments from managers were:

> *"We've put much more effort into training and being supportive of trainees. While it lingers we've mostly eliminated the old hazing."*
>
> *"We do not hire "maybes," we only hire people we are confident can do the job and fit in with our culture. We encourage employee involvement in pre-hire tests, sit-alongs and oral boards. Our coaches teach, they don't rescreen candidates and they teach the [Center] way- not their own personal style."*

Effective practices related to preparation and training

Eliminate (the need for) hazing.

Experienced calltakers and dispatchers pay close attention to the quality of new recruits. That is one of the reasons why many managers have begun to include experienced staff members in the process of selecting new recruits. Highly qualified recruits reflect well on existing employees, and can make everybody's job easier. Hazing is a practice that many rookies face in novel situations. Defined as initiation by harassment, abuse or humiliation, it is a demeaning and potentially dangerous practice. Within communications centers it is designed to test a new recruit's persistence and drive them out if they can't stand the "heat." Participation in the selection process gives experienced employees a vested interest in the success of new recruits.

Make sure the initial training program prepares employees for success.

Several managers reported improvements in the training program or an increase in the amount of time devoted to mentoring new recruits. Gradual changes in the nature of the job need to be reviewed periodically to make sure the training program and the work expectations are well-aligned. One center we visited makes sure the trainers stay in touch with the work by limiting the length of the assignment in the training department. The training staff is required to work at call taking and dispatch and bring back what they learn as part of the process of continually upgrading and updating the training process. In some centers, managers periodically work the phones or radios to maintain their skills and keep in touch with the work. Managers of small centers usually are expected to take calls and/or dispatch in addition to taking care of all management responsibilities.

Although it may seem to be an obvious suggestion, managers should periodically ask trainees and their trainers if the basic training and mentoring program is providing the information and developing the skills new employees need to be successful on the job, and modify the program as needed.

Encourage cross-training.

In most centers employees are cross-trained for call taking and dispatch. Cross-training provides for greater flexibility in scheduling and covering unanticipated absences or vacancies. There are two ways to approach the organizational need for people to be cross-trained – the proverbial carrot or stick. Some centers simply require all employees to be cross-trained by a certain time, and if they do not meet that target date, they are let go. Other centers use a pay differential, preferential treatment in scheduling, or other incentives to encourage employees to become fully cross-trained.

Review the sequence as well as the content of your training program.

If the selection process is identifying highly qualified candidates who “should” be able to cross-train and handle both call taking and dispatch, but new recruits balk when they have to move from entry level to more challenging consoles, you may need to revise the sequence of your training program. Provide ample support and positive feedback but give new recruits early exposure and opportunities to build confidence in their ability to handle all aspects of the job. One of the site visit centers uses “problem based learning” to train new recruits (see the Resources list for a place to begin learning about this approach if you are not already using it).

Select trainers and mentors carefully.

Training is critical to effective performance, quality of service, and efficiency. Carefully selecting and training trainers is an effective practice that can have a positive impact on nearly every aspect of work in the center. Managers and training coordinators in almost every center we visited emphasized the importance of selecting trainers and/or mentors carefully.

The selection of trainers, and the process used for training sends a powerful message to everyone. It is better to seek out people who want to be trainers, for the right reasons. Some centers put trainers through a rigorous application process, reviewing tapes of their performance for confirmation of adherence to protocol and quality standards. Training is the path to advancement and leadership in some centers, and people who want to become a trainer must go through a competitive process. It is not effective practice to require someone who doesn’t like to teach to become a trainer, although there obviously are times when a manager has no choice.

Often referred to as a Communications Training Officer, CTO or Training Officer, experienced employees are assigned to work side-by-side with a new recruit. Trainers typically earn additional pay, so this opportunity is often viewed as a perk that is offered on the basis of seniority. Our data, however, suggest that selecting trainers on the basis of seniority or availability alone is a poor practice. It is good to reward seniority, but subjecting new recruits to someone who is not a good trainer doesn't benefit anybody, and it undermines organizational improvement efforts.

One manager realized that CTOs provided more effective leadership than did shift supervisors, who were viewed as "too close to their people and finding it difficult to discipline and actually manage them." Another manager indicated he recently had realized that supervisors did not seem to know what was expected of them (another area where training can make a difference).

On-the-job-training with a mentor is a component of most centers' training programs. Effective mentoring programs create a culture of support in the communications center, one that encourages teamwork and support for fellow employees. In our research, the quality of that experience was a reliable predictor of employee satisfaction. Comments from managers indicated this is an area many centers have strengthened or expanded in their new-employee training programs.

Train the mentors/CTOs.

Institute a process for carefully selecting the employees who will mentor new recruits. Not only should they be among your best calltakers and/or dispatchers, they should be interested in teaching and committed to the success of new recruits. Train them to be effective mentors – the fact that they do the job well does not necessarily mean they can teach it to someone else.

Compensate mentors/CTOs for the additional responsibility.

Rotate the mentoring responsibilities if you have enough staff to do so. Give seniority preference once quality criteria have been met. Some centers reward CTOs with pay increases or other incentives. Remember that good calltakers and dispatchers take pleasure in their work and they may want to limit the time they devote to watching new recruits learn the job.

Use the mentoring and training role to build leaders.

Select for and build upon the leadership skills of your experienced employees by screening carefully for the honor of training new recruits. In your screening of potential mentors and trainers, look for employees with a willingness to build the future of the organization. Selecting employees with these leadership skills as mentors and trainers will build a positive organization by increasing professionalism, commitment to high performance, effective communication skills, and teamwork.

Monitor the progress of new employees' learning.

Develop a process that allows you to monitor the progress of new recruits. Provide trainers with laptop computers to support CTOs ability to do the level of monitoring expected of them and complete Daily Observation Records (DORs). Link the laptops to the central computer and keep all records under lock and key to maintain confidentiality. Get feedback from both mentors and trainees to help you identify strengths and weaknesses in the training program and continually improve the curriculum and the process.

Remediate immediately when needed.

Provide remedial training on specific tasks as soon as a trainee shows signs of difficulty. If you let them practice a skill the wrong way before you intervene, it will be all the more difficult to teach them the correct way. Experienced employees may also need remediation if you find they have fallen into bad habits or they are not adhering to protocol.

Use more than one trainer per recruit.

The mentoring process is an important part of initiation into the social and professional culture of the organization. Training by more than one CTO provides alternative perspectives and enhances connections to the interpersonal network in the center. Exposing recruits to different mentors gives them multiple perspectives on the work, and it can provide management with less biased insight into their strengths and training needs. Develop a mentoring "curriculum" that can be divided among the mentors as the new trainee rotates through the different shifts.

Monitor consistency from one trainer to another.

One of the training coordinators we interviewed utilizes a color coded spreadsheet to monitor the progress of new recruits on performance indicators. Keeping track of the recruits also allows him to identify differing expectations on the part of the CTOs. Recruits work different shifts and under different trainers, so it is important to know if all of the trainers are communicating a consistent set of expectations. This shows up quickly if a recruit who is performing at a high level (according to the daily observation reports from one trainer) suddenly drops to a low score on that same indicator when assigned to a different trainer.

Move recruits along.

Training is expensive; recruits may need to be pushed along to assume full job responsibilities as quickly as possible. One center combined a revised training program with "more daily practice taking live non-emergency calls in conjunction with achievement dates that resulted in reduced training time and placed employees in independent status sooner." A combination of accelerated orientation and training in critical job skills followed by effective mentoring and on-the-job training works well for most centers.

Expect and support continuous learning for all employees.

In addition to basic training classes specifically related to the job, develop ongoing training opportunities. Consider using a problem based learning approach for formal training and adapting it for committee work.

Research tells us that one of the characteristics of a "good boss" is one who pays attention to the fit between an employee's skills and personal interests and the job, and who encourages employee growth and career development. Effective managers attend to both task and relationship issues.

Remember that learning is not just about classes and schools.

Participation in local and regional training opportunities and active involvement in a professional organization is an excellent way to upgrade your own skills and find out about other centers while making a contribution to the field. This provides opportunities to talk with other managers to learn how they handle some of the routine tasks of training, mentoring and monitoring the progress of new recruits. You might be surprised at some of the elegant solutions that are used elsewhere.

Listen to employees.

It is important to measure employee attitudes on all aspects of the job periodically. It is especially important to measure attitudes about job features that managers have some power or influence to improve. In the public sector it can be difficult to improve pay, benefits, facilities, and other contextual or environmental factors, but that does not mean a manager should not try. If you improve the things you have power to change, and use your influence on behalf of employees to try to improve even bigger issues, employees will know that you care.

Ask employees for their perspective, but <u>only if you plan to use the information!</u> If employees don't see things changing as a result of their input, they will write off future attempts to obtain their input as a waste of time and they won't respond the next time you ask for their opinions. Also, if employee feedback results in retaliation or punitive action they will shut down completely. Ask employees about "the way things are done around here," and find out what their issues are. Use their responses to increase your understanding of their perspective and improve center performance.

A win-win career ladder

Another center reported good results with the implementation of a career ladder. Calltaking, dispatch, and teletype were separated, and the manager worked with the HR office to design a career ladder that had two steps for calltakers and teletype operators and three steps for dispatchers. They would like to get everyone cross-trained but have decided not to force this issue; instead they linked cross-trained but have decided not to force this issue; instead they linked cross-training to the career ladder. Employees choose whether or not to move up the career ladder, but the career ladder is designed so that both employees and the center benefit when they opt to move up. The management team monitors the program results and reported that in three years 14 out of 79 of the 9-1-1 operators had been promoted to Level II, and 10 of 35 dispatchers had been promoted to Level II (4 have made it all the way to Level III).

The management team of the center was most pleased about including committee work as a career ladder requirement. To move up the career ladder and stay there, an employee must participate in the committee structure that supports the daily operations of the center. A promotion is not a permanent assignment, and if people don't meet the requirements annually they return to the previous level. All but the initial steps of the career ladder require cross-training, and employees have many options for obtaining the additional training or hours of job shadowing needed to maintain their current position on the ladder. The message to employees is clear: "You can just put in your time and leave at the end of the shift, but pay raises and advancement depend on your participation in the work of the center or the community."

Choices included serving as a CTO, spending time with the Communications Emergency Response Team or the Critical Incident Stress Debriefing Team, helping as community volunteer or working on an internal committee (e.g., the library committee, employee of the month committee, the furniture committee, the chair committee, the newsletter committee, etc.) Employees receive extra pay when committee work is required beyond regular work hours, and they get credit for volunteer work (e.g. Heart Walk or Relay for Life), but they do not get additional pay for personal time spent on volunteer activities.

Employees as this center are encouraged to take classes that develop their interpersonal and leadership skills. Collaboration with the local community colleges and universities has proven beneficial, and one local community college works closely with the 9-1-1 public safety office to develop appropriate courses.

Listen to all employees, not just friends and squeaky wheels.

In small centers, feedback from employees may be unavoidable, but even in small centers there is a tendency to listen to the most vocal employees, the friendliest employees or the "squeaky wheels," and develop a distorted picture of the overall situation. In large centers it can be time consuming to develop an appropriate survey instrument, solicit employee feedback, analyze the data, and pull together a report that can be used within the management team or with employees. However, historical abuse or lack of action in response to employee feedback often has created an environment of suspicion and distrust. Assuring anonymity is a challenge, but essential.

These are some of the reasons why we invested so much time in developing the Employee Satisfaction Survey that is available through the Staffing and Retention Toolkit. Honest feedback, although truly valuable to a manager, can be difficult to obtain without proper safeguards for employee anonymity.

Do not take criticism personally, and do not ignore it!

One of the most important skills you can master as a manager, and an important skill to teach your employees, is to focus on processes rather than personalities. In other words, ask for feedback but don't take employee criticism personally. If you are responsible for performance reviews you already know how difficult this can be**. Learning to focus on the process rather than people takes time, but the value added to your management effectiveness is worth the effort.** Turning criticism into constructive action shows employees how to do the same.

You don't have to think of everything on your own. Ask employees; they often know what they don't know, and they know what they need or want to know!

If you ask you must do something with the answers

The manager of a center that tested the Employees Satisfaction Survey in the Staffing and Retention Toolkit found it to hear what, at first, appeared to be negative comments and recommendations from employees. The Survey includes several open ended question where employees could enter their comments and commendations. Though it was not easy to read some of the comments, the information turned out to be useful (after the initial hurt feelings passed). The manager shared the following comments with us:

"I have settled down since I first read it; the perfectionist in me wants everyone to like it here! I'm planning to read it more carefully in a couple of weeks, but here are my thoughts right now.

One thing that was mentioned that I absolutely want to do for staff is to give them more input into what training they receive. It hit me over the head that we always have so many training topics identified, some of which have to be done, that we've never really asked them what they want.

I also want to look at follow-up training for newly trained people. It's struck a chord that - Yes, once they are trained they are set adrift and left to the supervisors to deal with. The question in my mind is why we never thought of that before!"

Recognition and Feeling Appreciated

Many of the strategies that we have included in this document send a message of recognition and appreciation, but do so indirectly. Everyone likes to hear a genuine and explicit statement of appreciation. Rewards are valuable tangible reminders of accomplishment and formal appreciation, but it is often the casual comment or the general tone in which a statement is made that best conveys real appreciation.

Communications center employees are largely invisible; their important behind the scenes work is invisible to most of the public until or unless they make a mistake. Only one in four managers in Study I said they thought the communications center employees were recognized adequately as important members of the public safety team.

Employees who felt appreciated were more satisfied than employees who said they either were not appreciated or they weren't sure. Although it made a difference whether or not employees felt appreciated by coworkers, sworn officers/officials, the agencies they served, the public, elected officials, and a partner or family members, there were only three sources of recognition that predicted employee satisfaction. In order of importance, they were: feeling appreciated by management, feeling appreciated by an immediate supervisor, and feeling appreciated by the media.

Virtually all employees said they felt they were doing important work, and four out of five said they received a great sense of satisfaction from doing their jobs, but only half of them felt appreciated by management! More employees felt appreciated by an immediate supervisor. Only one in five indicated they felt appreciated by the media.

Appreciating Employees

Appreciation can be expressed in a variety of ways – **actions speak louder than words**, so letting an employee select the chair, control the temperature and lighting at the work station, or make choices about their participation in the center sends the message that they are appreciated. However, there is also a need for explicit and specific statements of appreciation on a regular basis, not just from an immediate supervisor, but from higher levels of management as well. General statements such as, "Good job" or "Nice work" are not nearly as effective or valued by employees as more explicit and substantive statements.

Table 18: Effective Practices: Preparation and Training	
Recommendation	RETAINS Research Results
• Eliminate (the need for) hazing. • Make sure the initial training program prepares employees for success. • Encourage cross-training. • Review the sequence as well as the content of your training program. • Select trainers and mentors carefully. • Train the mentors/CTOs. • Compensate mentors/CTOs for the additional responsibility. • Use the mentoring and training role to build leaders. • Monitor the progress of new employees' learning. • Remediate immediately when needed. • Use more than one trainer per recruit. • Monitor consistently from one trainer to another. • Move recruits along. • Expect and support continuous learning for all employees. • Remember that learning is not just about classes and schools. • Listen to employees. • Listen to all employees, not just friends and squeaky wheels. • Do not take criticism personally, and do not ignore it!	Effective preparation and training was the #3 predictor of employee satisfaction. Employees who perceived their own initial orientation process and initial classroom training as effective were more satisfied. Additional aspects of training related to higher employee satisfaction: • on the job-training (mentoring or shadowing) • having an appropriate length of time from hiring to working independently; • an expectation to continue learning and training • attendance at conferences or sessions offered by professional associations Employees who perceived the mentoring of new trainees as effective were more satisfied and were from centers with higher retention rates. Effective mentoring of new trainees was the #5 predictor of employee satisfaction.

Managers Need to Feel Appreciated Too

When you ask employees for feedback, ask about what they feel needs to be changed, but also ask them what they like about the way things are currently being done. Employees talk to each other during slow periods and breaks. You can be certain that they spend a lot of time thinking and talking about how to improve the center. By asking for feedback on the things they see that need to be changed as well as the things they appreciate, you can nurture a positive perspective that helps offset the negativity they encounter every day. You can assume you know the answer or you can ask and know for sure.

Effective practices related to recognition

Look for occasions to celebrate successes.

Use National Public Safety Telecommunications Week, the second full week of April each year (by Congressional proclamation and the result of a concerted APCO effort) to lavish attention on your staff, but make sure it is not the only time you do so. Do an Internet search for ideas and activities, and use them frequently - any time you have an opportunity to recognize your staff.

Recognize good work.

Look for opportunities to publicly acknowledge employees for their work. Establish employee recognition programs from key audiences. Employees need to know, on a regular basis, that they are valued by management and their immediate supervisors. Do not assume that spoiling them during employee recognition week will satisfy their need to feel appreciated by management.

Survey employees to learn what they value.

Find out who employees view as the “client:” the agencies they serve, the personnel they dispatch, the citizens that call, etc. Get employees and clients involved in developing strategies to gather substantive feedback about how the center is doing.

Create positive working relationships.

The work in communications centers includes far more negative situations than most jobs. Negativity is contagious, and employees experience the negativity that flows through the communication center, so management must make an extra effort to cultivate a positive and caring work environment. It needs to be absolutely clear that management values employees’ “being nice” to callers, the units they dispatch, and each other.

Reinforce desirable behavior.

For example, reward perfect attendance with a shopping certificate, tickets to a special place or event, or even a massage. Or better yet, let the employees select the award they prefer. Ask client agencies or local businesses to provide rewards or to participate in recognition programs.

Accentuate the positive.

If employees are more likely to hear from you when they make a mistake than when they do something right, don’t be surprised if they don’t feel appreciated, and don’t be surprised if they don’t help you feel appreciated for your efforts.

Develop a positive working relationship with the media.

Do not wait until the center is part of a negative story to communicate with the media. The best way to create a positive relationship with the media is to create a high performance center and keep it staffed at levels that can comfortably handle the workload. Do a web search for strategies that can be used to develop a positive relationship with the media.

Table 19: Effective Practices: Recognition and Feeling Appreciated	
Recommendation	RETAINS Research Result
• Look for occasions to celebrate successes • Recognize good work • Survey employees to learn what they value • Create positive working relationships • Reinforce desirable behavior. • Accentuate the positive. • Develop a positive working relationship with the media.	Feeling appreciated by management was the #3 predictor of employee satisfaction. Feeling Appreciated by immediate supervisor was the #6 predictor of employee satisfaction. There is a distinction between the two. Feeling appreciated by the media was the #8 predictor of employee satisfaction. Employees who felt appreciated by coworkers, sworn officials, the agencies they serve, public/elected officials, their family, the media, the public, were more satisfied.

Summary

The relationship between center performance and employee satisfaction suggests managers need to pay attention to their own learning. This is not about going (back) to college; it is about taking advantage of opportunities to grow personally and professionally. The manager is also ultimately responsible for assuring appropriate preparation of new recruits as well as providing for the ongoing training of experienced employees. Formal and informal recognition, first from management, and secondly from supervisory staff, are major contributors to employee satisfaction. A positive, proactive relationship with the media is another important contributor to employee satisfaction.

Resources

Job Satisfaction and Organizational Commitment: An academic discussion of basic concepts and definitions in the Sloan Work and Family Encyclopedia, by Dr. Jane R. Williams, Indiana University-Purdue University Indianapolis. Available at:

Rating Job Satisfaction: An article about effective practices for enhancing job satisfaction (Syptak, J. M., Marsland, D W., & Ulmer, D. (1999). Job satisfaction: Putting theory into practice. Family Practice Management. Offers an online tool for rating an organization’s practices. Available at: http://www.aafp.org/fpm/991000fm/26.html

Support and Recognition: Provides a listing of courses offered by The Public Safety Group and includes Critical Incident Dispatching and a variety of other APCO compliant courses: topics include Mentoring New Trainees, Managing Organizational Stress, Recognition, Physical Environment, Time Away from Console, Training. Available at: http://www.publicsafetygroup.com/pages/scched.html. Supervision: Provides tips for becoming a successful manager and a variety of other resources about fairness, interactions, trust, participation in decision making. Available at: http://www.recognizeserviceexcellence.com

Resources and management tools for safe and effective emergency dispatch services. Available at: http://www.recognizeserviceexcellence.com/leadership.php

Problem based learning. The University of Delaware website has articles and books on PBL, sample PBL problems and links to the PBL Clearinghouse. In the PBL approach, the problem drives the learning. Available at: http://www.udel.edu/pbl/.

Training and Retraining: Provides a Manager's Toolkit for Retraining IT Professionals. Available at: http://www.drjohnsullivan.com/articles/1998/net89.htm.

Tips and training ideas: The Call Center Times, a publication devoted entirely to call center issues. Available at: http://www.callcentertimes.com

Hazing: Do a Google search on hazing and you will find there are plenty of resources devoted to the elimination of this potentially destructive and dangerous practice. One such site can be found at: http://www.stophazing.org/

Dealing With the Media: Lists ideas written by the Canadian Health Services Foundation for researchers, but the tips apply to communication center managers and employees. Available at: http://www.chsrf.ca/knowledge_transfer/pdf/media_e.pdf.

SECTION II: Staffing Workbook

Introduction

The formulas and worksheets in this document are based on research about staffing and retention issues in public safety communications centers; and a review of the staffing formulas and calculations that are currently used in these centers. The formulas we present do not use Erlang calculations. Instead, basic mathematical processes including addition, subtraction, division, and multiplication (and their respective symbols +, -, ÷, x) are used throughout the document. Step-by-step directions and examples are provided. The formulas and calculations are deliberately transparent and the rationale behind them is explained in depth. The intent is to provide formulas, language and ideas that will make it easier for public safety communications center managers to understand and explain staffing needs.

The formulas are designed to offer maximum flexibility, but you will have to figure out how to apply or adapt the formula to your situation. The decision about which formula to use depends on the structure of the work in your center, whether you combine the call taking and dispatch tasks at one console, or separate and assign tasks to staff at separate consoles. After working through the process of estimating staffing levels for each position in the center, you can compare your center's current staffing level with the estimates provided by the formulas.

New terms are introduced in this section while other commonly used terms have been adapted specifically for this purpose. An extensive and detailed glossary is included at the end of this document to help clarify the meaning of any terms that may be unfamiliar, but it may also be useful to make sure that your understanding of a familiar term is consistent with the way it is being used in the text.

Assuring Adequate Staffing

The importance of staffing at an appropriate level cannot be over stated. These formulas are designed to help you estimate the number of staff you need, not the number you currently have. The only thing that might be more important than knowing how many staff you actually need to handle the workload is to make sure you fill all of the positions that are currently authorized. Centers that are fully staffed to authorized levels enjoy higher retention rates and higher employee satisfaction. The first priority for a manager who wants to solve a staffing and retention problem is to hire to authorized levels. This makes it important to figure out how many employees are actually needed to comfortably handle the workload.

Determining Staffing Needs

There will always be questions about the number of employees needed to cover the phones or handle the call volume. The title of Bill Weaver's 1999 article, one that largely influenced our thinking about staffing estimation, frames the basic question well, "Communications Center Staffing: When is Enough, Enough?"

The process of estimating staffing needs is full of opportunities to underestimate the true need, to underestimate the amount of time it actually takes to process calls, and to overestimate the amount of time that employees are available to handle calls. Managers want and need guidelines for estimating the number of employees needed to do the job properly.

But what is "the job?" The most basic answer for public safety communications centers is "answering the telephone and dispatching personnel." Behind that simple answer is the world of complexity and diversity that characterizes public safety communications centers.
Estimating staffing needs is a combination of art and science. Section I discussed some of the "art" related to managing for staffing, retention and employee satisfaction. This section delves into a little of the "science." We suggest a six-step process for estimating staffing levels. These steps are discussed in detail in this section.

Step 1: Identify the type of position you wish to analyze.

Step 2: Determine employee availability.

Step 3: Determine your turnover rate.

Step 4: Select the appropriate formula and analyze all positions.

Step 5: Compare the number of staff you currently have with the number you need.

Step 6: Do a reality check.

"Estimate" of Staffing Need

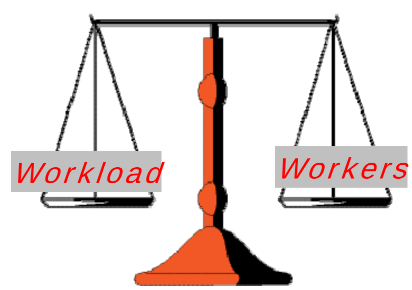
We use the word "estimate" throughout this discussion as a constant reminder that any staffing formula represents only the beginning of determining actual staffing needs. Quality indicators (such as percent of calls answered within 10 seconds, call abandonment rates, or average speed of answer) ultimately determine whether there are "enough" employees to provide high quality services to the agencies and communities you serve.

There is no formula that can give you a magic number. It is an illusion. Using only one formula to address the diversity that exists in public safety communications centers is totally inappropriate, if not dangerous. The number of staff you need depends on the size of the center, the number of client agencies, the nature of services provided, and the way in which the work is assigned. A thorough analysis of the nature of the work assignments should accompany the calculations provided here.

Staffing is NOT the Same as Scheduling

It is important to clarify the difference between *staffing* and *scheduling*. The two concepts are so similar that the line between them isn't always obvious. *Staffing* concerns the number of employees needed to do the job, whereas *scheduling* is concerned with assigning those employees to specific time blocks to match the need. The formulas and calculations included in this section are designed to determine the number of employees needed to either cover a console or handle the call volume.

Decisions about providing relief for meals and break times, when to start the day shift, whether to use 8-, 10-, or 12-hour shifts, how to structure days-on/days-off patterns, or whether to use rotations are *scheduling* decisions. "How many people do I need to handle the workload this year?" is a *staffing* question.



The Basic Formula

Every staffing formula is an equation that balances the work that needs to be done with the number of workers available to do it. Of course it isn't quite that simple. Imagine a set of scales aloft. Now imagine the workload on the right pan and workers on the left pan. To balance the scales (i.e. the two sides of the equation), the weight in the two pans must be equal. If they are not equal, the challenge is to figure out why.

There are two ways to balance the pans, and although the most common approach is to add weight to the side that raises, that isn't necessarily the right approach. It could be that there is too much “weight” on the other side Careful analysis of both pans can help clarify the options, and help determine whether the best response is to remove weight from the pan on the left (reduce the work), or add weight to the pan on the right (increase the number of workers).

Redistributing the workload

In one center we visited the workload was redistributed when officers began doing CIC checks from their mobile/in-vehicle laptop computers. The work didn’t go away; it simply was handled differently. Redistribution is not an easy sell, but it is a reasonable and cost- effective solution in some situations.

Let’s look at the individual components of our equations, the measures that determine the “weight” in each of the pans. Recall we have two sides to the equation, a measure that describes worker availability on one side, and a measure that describes the workload on the other. It is always easier if both measures are in the same unit, and we have chosen the hour as the unit of measurement. We will look first at the process for determining employee availability in hours because both formulas require this number.

Step 1: Identify the type of position you wish to analyze

The first step is to make a list of all the positions in your center. The term “position” refers to a specific job such as calltaker or dispatcher that consists of a specific task such as taking calls or dispatching.

To avoid some of the inevitable confusion around the word “position”, in this section we use “console” when referring to a physical location, and “position” when referring to an organizational task or job that is done by an employee. As an example, when an employee works as a dispatcher (the organizational task, job or position), they are working at a physical location within the communications center (a dispatch console). It is considered a dispatch “position” whether an individual employee is cross-trained or not. That same employee may work a calltaker position at some other time (i.e. a different location within the center). You are estimating the number of employees needed to do the work of specific positions within your center.

At least three different kinds of positions may be present in communications centers: function positions, coverage positions, and volume-influenced positions. Deciding whether a position (i.e. a job) qualifies as a “function”, “coverage”, or “volume-influenced” position is the first step in the process. This can be confusing, especially if employees in your center are cross-trained. For example, if an employee is cross-trained but assigned to a call taking position on one shift but a dispatch position on another shift, you want to calculate the number of employees needed to handle the duties for each position.

Some centers have only coverage positions; others have all three types of positions, and some are in transition. Increases in call volume may indicate that a center that has traditionally used a coverage position calculation may need to use a volume-influenced position calculation. We encourage you to explore both formulas, but the structure of the work assignments within your center and the availability of statistical information about call volume and call processing times will determine which formula is most appropriate for you.

***Function positions*.**

Some staffing decisions are based completely on "function." For example, in most centers there is only one manager to fill the management function. Some centers may have three full time trainers and a full time training director to handle the training task, but the number of employees in these positions is not directly related to the workload or the number of hours the center is open, so no formula is involved.

***Coverage positions*.**

Some staffing decisions are determined by simple "coverage" needs; that is, the number of positions that require an employee to be in a chair at the console to cover the incoming calls and/or the radio, or the number of supervisors needed to meet requirements for a supervisor in the center at all times. For some centers it is sufficient to calculate the number of people needed to provide minimum coverage 24/7/365. For others, physical limitations, such as the number of radio channels, or the number of consoles in the center limit the number of employees that can be accommodated. Radio/Dispatch positions typically require a coverage calculation in centers where call taking and dispatch are separated.

***Volume-influenced positions*.**

For other centers, the number of employees needed is influenced by the volume of incoming calls and/or radio activity. "Volume-influenced" positions generally handle the incoming calls (calltakers in centers that separate the functions or calltaker/dispatchers in centers that combine the duties in one console). Determining the number of employees needed for these positions requires a calculation based on volume.

Volume (i.e. number of calls) changes from hour to hour, from day to day and from one week to the next. Volume-influenced staffing needs can be estimated for an hour at a time or a year at a time. A tool for analyzing average weekly activity or a typical week from different seasons or quarters is available in the Staffing and Retention Toolkit.

Step 2: Determine employee availability

The work year for full time employees is typically figured as 52 weeks at 40 hours per week or 2,080 work hours per year. These "full time" numbers are not adjusted to account for holidays, vacation time, sick leave, etc. Employee availability is usually calculated by subtracting the time an employee is unavailable from the number of days or work hours in a year. When employees are on vacation, on sick leave, in training, or assigned to other duties, they are not available to handle incoming calls or dispatch. Any time they are out of the building or out of the room, they are unavailable. Whenever someone else has to do the work, that period of time has to be included in the determination of unavailable time.

We decided to use an employee availability measure that is based on hours rather than shifts. Many centers are experimenting with different shift lengths, using combinations of 8-, 10-, and 12-hour shifts to provide extra coverage during busy periods. An hourly measure can be used by centers that use the traditional 8 hour shift, but it also accommodates the diversity of shifts being used by different centers, and offers greater flexibility for centers experimenting with multiple shift lengths.

Liebert and Miller[7] provide a detailed explanation of the concept of calculating staffing needs (for jails) based on hours rather than shifts. Their use of Net Annual Work Hours makes sense and applies to communications centers, but we modified the language slightly to emphasize that the calculation is for Net Available Work Hours (NAWH). The use of NAWH keeps the focus on the available time rather than the unavailable time.

An example for calculating NAWH is provided in Table II-1. Determine the actual averages for each position by creating a list of actual hours in each category for each employee. Sum those hours, then divide by the number of employees, and enter the averages in the worksheet. If calculating averages is not possible, another option is to use allocations such as two weeks vacation per year (2 weeks = 80 hours), or 10 days of sick leave (80 hours). However, using allocations does not account for differences in vacation time for employees with higher seniority and may underestimate the hours of available time. We recommend using averages based on historical personnel records rather than allocation figures for greater accuracy, but either will work. Keep in mind that different positions (i.e. job categories) may have a slightly different NAWH and may require separate NAWH calculations for each position (i.e. each position not each employee).

Table II-1 Sample calculation of Net Available Work Hours (NAWH)

Position: calltaker/Dispatcher (Telecommunicator)

A	2,080	Total hours for one full time employee
B	144	Average vacation and holiday leave (total hours)
C	37	Average Personal leave (total Hours)
D	0	Average Training leave (total Hours)
F	0	Average military, FMLA leave,etc. (total hours)
G	219	Average lunch break (total hours)
H	0	Average other activities (meetings, light duty, special assignments, etc.)
I	400	Total availability time + Total B through H (144 + 37 + 219 = 400)
J	1,680	Net Available Work hours (NAWH) = A-1(2080 – 400 = 1,680)

1,680 = Net Available Work hours per employee (NAWH from J above)

The example is based on one full time employee (using 2080 hours as the number of "full time" employee work hours per year). The number of work hours in an employee year may vary, so be sure to find out the correct number of work hours for your center. Note that in the example, the total work time of 2,080 hours "shrinks" by 19.2 percent to 1,680 hours during which employees are actually available to process calls (this is why commercial call centers refer to this as a "shrinkage adjustment"). Overestimating the available time will result in an underestimate of staffing needs and likely make overtime a necessity. A blank worksheet for calculating NAWH is available at the end of this section.

Calculate the number you need, not the number you have.

When estimating the number of staff you need, include time for breaks, training, predictable absenteeism (e.g. military duty, FMLA, disability), etc. Planning for time to take a break away from the console may seem trivial, but our research indicates that centers where employees have scheduled time away from the console have higher retention rates. Some centers account for lunch and breaks when calculating available time; others do not, they cover lunch and breaks informally with officers coming in from the road. We recommend planning for breaks when estimating your staffing needs - even if time off for lunch and breaks isn't currently included when calculating employee availability. Excluding lunch and break times from the calculation of employee availability means you will be underestimating the real need.

Include time for employees to attend training sessions, classes, or professional conferences. If you leave these items out of the calculations you are leaving these activities to chance and they most likely will not happen. The point is to use the calculations to estimate what you need, not what you already have.

Step 3: Determine your turnover rate

If you keep track of retention and turnover rates from year to year, you know whether the turnover rate in your center is predictable or variable. For example, if your center's turnover rate is close to the national average of 17 percent year after year, you can predict an average annual turnover of 17 percent and plan ahead. If turnover tends to vary from one year to the next (e.g., a flurry of retirements or FMLA requests) adjust your FTE calculation based on expected turnover. Another possibility is to hire additional staff based on the lowest turnover rate in recent years. If your center experiences regular turnover, a turnover adjustment is an essential component in your staffing estimate.

To calculate average turnover rate, simply fill in the numbers in Table II-2. A simple calculation for turnover is the total number of people who left the center during a given year divided by the total number of staff (the highest number employed at one time during that same year). Turnover = Staff who left ÷ Total employees. Note that this calculation is based on actual employees, not authorized positions. An extra worksheet for calculating average turnover rate is available in the Resources section (worksheet B). If including part time employees in your calculation of turnover, be sure to adjust the numbers to reflect full time equivalents (i.e. two half-time employees are equivalent to one full time employee, and one half-time employee should be included as .5 FTE). You can take it a step further and separate the numbers for probationary and experienced employees to see if there are a disproportionate number of people leaving from either group (see steps B and C in Table II-2).

Table II-2: Calculating Average Turnover Rate							
	Category	Year					Average
		20 __	20 __	20 __	20 __	20__	
A	Total number of employees at the highest staffing level for that year						
B	Number of new hires that failed to complete the probationary period						
C	Number of experienced employees who left for any reason*						
D	Turnover Rate (Turnover = B + C ÷ A)						
E	Retention Rate (Retention = 1 – Turnover) x 100						

*Include all experienced employees who left for voluntary or involuntary reasons (e.g. turnover initiated by the employee, rotation, retirement, death, management action, etc.)

Step 4: Select the appropriate formula and complete analyses for all positions.

In a small center, a single calculation may be all that is needed to estimate staffing levels. In larger centers, this will be an iterative process, working through the calculations for each separate position, and then adding it all up in a summary report that compares current staffing levels with the estimates of the number of employees needed to either cover a position or respond to a given workload.

The process takes time and patience but it is worth the effort if it helps you determine the appropriate number of employees needed to comfortably handle the workload. Knowing the number of employees you need is an important step toward obtaining them.

Coverage positions

Estimate the number of staff for coverage positions.

Coverage positions are jobs or posts that must be "covered" regardless of the number of incoming calls or dispatch activity. The coverage may refer to a particular task or a specific work station that must be staffed or covered for a given length of time, usually continuous service 24/7/365. Centers that can handle the workload with minimal staffing on all shifts should use a coverage calculation.

Identify coverage positions.

Jobs such as law enforcement dispatch, fire-rescue dispatch, emergency medical dispatcher, and shift supervisor, are typical coverage positions. If a center staffs a fire-rescue dispatch console and a law enforcement dispatch console around the clock, regardless of the amount of call activity, those are two different "coverage" positions. It does not matter whether it is covered by someone who works exclusively as a calltaker or dispatcher, or someone who is cross-trained.

The formula for coverage positions

Staffing for coverage positions is based on balancing the number of hours each position must be covered and worker availability. Coverage need is the number of positions that must be covered multiplied by the number of hours per day, the number of days per week and the number of weeks per year. Worker availability has already been calculated using the Net Available Work Hours worksheet, so we plug in our NAWH for this position. Then we divide the hours needing coverage by NAWH to get a base estimate. This base estimate is multiplied by the turnover adjustment to obtain a more realistic estimate of the number of full time equivalent employees (FTEs) needed to cover that position. Note: All of the formulas yield an estimate of FTEs, the most common unit of measurement for staffing. The basic formula for coverage positions is: FTE = Hours needing coverage ÷ Employee Availability x Turnover Adjustment. Table II-3 illustrates a sample calculation of FTEs for a Calltaker/Dispatcher or "Telecommunicator" coverage position.

Different Shift Lengths

If your center uses multiple shift lengths (e.g., a combination of 8-hour, and 10-hour or 12-hour shifts), treat the different length shifts as different positions. For example, if the center uses a basic eight hour shift structure that is supplemented by two overlapping ten hour shifts for the busiest periods of the day, use the worksheets to calculate coverage for Dispatcher-8 and Dispatcher- 10 separately and add up the results of the two calculations to obtain the overall estimate for the number of Dispatchers needed.

Is Radio Dispatcher a coverage or volume-influenced position?

We came to the conclusion that the use of a time measure such as minutes of radio time for radio/dispatch activity is not a realistic approach to calculating the number of dispatcher needed. Push-to-talk numbers or actual radio time is intermittent and intern=mingled (i.e. short bursts of activity on several unrelated incidents make it difficult to calculate an average processing time, which is an essential ingredient of the calculation for volume-influenced positions.)

Staffing for radio dispatch positions is often based on a different kind of measure: the number of available channels, frequency availability, the number of consoles in the center, the number of field units that can safely be monitored by a single dispatcher, contracts with client agencies, etc. The number of staff possible is constrained by these factors. Most centers have refined their minimum dispatch staffing needs over the years using the time honored method of trials and error, but this coverage calculation is a good place to begin.

Estimates usually result in a fraction of an FTE. The decision of whether to round up or down does not need to follow traditional math rounding rules. If your calculation results in an FTE of 2.3, you can decide whether to round up or down, but you will have to justify it in budget requests. Think of it this way – if it takes 2.3 people to lift a heavy object, two people will not be able to lift it no matter how hard they try. Applying that to the communication center, it means there will be times when service quality goals cannot be met. That's one reason why managers are encouraged to staff for peak call volume rather than average call volume on any given shift. These estimates usually result in a fraction of an FTE.

Rounding down is the equivalent of building failure into the system during the design process. Those extra FTE needs can be covered by overtime, but recognize that you are building overtime into the process. Historical records of overtime expenditures and turnover can reveal the extent to which planning short is impacting center performance on service quality goals.

Table II-3 provides an example for calculating FTEs for coverage positions.

Table II-4 illustrates a variety of different scenarios. If coverage needs vary with the season (e.g., hurricane season, wildfire season, tourist season), shorten the number of weeks per year or increase the number of positions. For example, if three additional dispatch positions are covered around the clock for the summer season (.5 FTE = 52 ÷ 2 = 26 weeks), you can do one estimate for the year long positions and a separate estimate for the summer positions (sample examples 5 and 6), or you can calculate for 4.5 positions (see table II- 4, example 7), since 26 weeks = .5 FTE x 3 = 1 .5 part time positions, plus the 3 full-time positions). Adjust the weeks and NAWH for summer positions if no vacation time is allocated.

Different Staffing Levels on Different Shifts

If your center has different coverage needs on different shifts you may find it easiest to calculate each shift separately. If three employees typically cover dispatch on days, but only one employee is needed for the night shift, calculate them separately. In this case, the calculation might be for Dispatcher-Day (3 positions), Dispatcher-Swing (3 positions), and Dispatcher-Graves (1 position). This may be the easiest way to use the formula if your center uses overlapping 10-hour shifts; treat each shift as a separate position and calculate the number of employees needed to "cover" that position (i.e. shift).

Table II-3: Sample Calculation of FTEs for Coverage Positions	
Note: Coverage positions must be covered regardless of call volume or level of activity.	
Position: Calltaker/Dispatcher (Telecommunicator)	
Hours needing coverage:	
A. 5	Total number of consoles that need to be covered for this position
B. 24	Number of hours per day that need to be covered
C. 7	Number of days per week that need to be covered
D. 52	Number of weeks per year that need to be covered
E. 43,680	Total Hours needing coverage = A x B x C x D (5 x 24 x 7 x 52 = 43,680)
Employee Availability:	
F. 1,680	Net Available Work Hours - enter average NAWH from worksheet
Staff Needed:	
G. 26.0	Full Time Equivalent base estimate (FTE) = E ÷ F (FTE = 43,680 ÷ 1,680 = 26.0)
H. .15	Turnover Rate - from retention worksheet, convert to decimal (15% = .15)
I. 30.0	adjustments based on quality indicators: FTE = G x (1+ H) (FTE = 26.0 x 1.15 = 30.0)
30.0 = Estimated Staffing Need (in FTEs from Step I above)	
FTE = Hours needing coverage ÷ Employee Availability x Turnover Adjustment	

Table II-4: Comparison of Alternative Calculations for Coverage Positions									
	Coverage Needs					Availability	Staff needed		
	A	B	C	D	E	F	G	H	I
Steps in Calculation:	Enter	Enter	Enter	Enter	=AxBxCxD	Enter	= E÷ F	Enter	=G(1+H)
Position	Consoles	Hrs/Day	Days/Wk	Wks/Yr	Total Hrs	NAWH	FTE	Turnover	FTE+
1) Calltaker (8 hour)	1	24	7	52	8,736	1,680	5.2	0.15	6.0
2) Calltaker (10 hour)	1	10	7	52	3,640	1,680	2.2	0.15	2.5
3) Calltaker (3 x 8 + 10)	1.42	24	7	52	12,405	1,680	7.4	0.15	8.5
4) Calltaker/Dispatcher	5	24	7	52	43,680	1,680	26.0	0.15	30.0
5) Fire-Rescue Dispatcher	3	24	7	52	26,208	1,680	15.6	0.15	17.9
6) Summer Fire Dispatcher	3	24	7	26	13,104	1,000	13.1	0.15	15.1
7) Fire (Summer added)	4.5	24	7	52	39,312	1,340	29.3	0.15	33.7

If coverage for a given console varies by shift, you can treat it as a separate position or add an appropriate fraction (using decimals) to indicate the total number of FTEs needed. For example, if your center can handle incoming calls with one calltaker console most of the time but you add a 10-hour position to cover the busy afternoon and evening period, you can estimate coverage for one 24-hour console (see table II-4, example 1) and a second console that is covered for only 10 hours (see table II-4, example 2), or you can calculate the number of staff needed based on 1.42 positions, since a daily 10 hour shift is 10 ÷ 24 or 41.7 percent of a full day (see table II-4, example 3). Note that these two strategies are illustrated in Table II-4, and that both calculations estimate a need for 8.5 full time employees (8.5 FTE).

If a new recruit is being mentored by an experienced employee (i.e. both are working a single position together) count the two of them as one FTE.

You can also see that the total number of hours in the calculation varies with the number of positions to be covered (see table II-4, examples 4 and 5). Two additional positions that need to be covered 24/7/365 require an additional 12 FTEs (30.0 – 18.0 = 12.0 FTEs).

You can also see that the total number of hours in the calculation varies with the number of positions to be covered (see table II-4, examples 4 and 5). Two additional positions that need to be covered 24/7/365 require an additional 12 FTEs (30.0 – 18.0 = 12.0 FTEs).

Volume-influenced positions

Estimate the number of staff for volume-influenced positions

The number of employees required to staff volume-influenced positions is determined by measures of the overall activity level in the center, and the number of individuals scheduled to handle the workload on any given shift is determined by the workload for that shift. There are additional steps in the calculation of staffing for volume-influenced positions because there are more factors to consider. We still have a formula with work on one side and workers on the other, but the work is defined based on the amount of work rather than the number of hours that positions or consoles need to be covered. The basic formula for volume-influenced positions is FTE = Workload ÷ Employee Availability x Turnover Adjustment.

Identify volume-influenced positions.

Calltaker is a volume-influenced position in larger centers. The combined calltaker/dispatcher position may be a volume-influenced position if staffing levels are increased to handle increased phone activity during the afternoon or evening shift, or if the number of calltaker/dispatchers is increased to handle consistent and predictable increases (e.g. weekends). Situations in which staffing is increased to handle a special event such as a sports event or the 4th of July are typically handled with overtime and might be considered “volume-influenced scheduling” but not volume-influenced staffing.

These calculations are a little faster if you use a spreadsheet (label columns as in A through J and enter the appropriate formulas). Another alternative is to use the Staffing tool in the Staffing and Retention Toolkit on the APCO website.

Calculating the number of employees needed for volume- influenced positions begins with converting workload from number of calls into hours. This is accomplished by multiplying total call volume by the average time it takes to process each call. If different positions handle different types of calls, and you can separate out the call volume data and determine average processing times for different positions (e.g., law enforcement, fire-rescue, EMS, NCIC), you can calculate them separately.

Count all calls.

Most centers use Computer Aided Dispatch (CAD) to track emergency calls, but if you have automated call reporting software that allows you to track statistics on all incoming and outgoing telephone calls your estimate will be more realistic. CAD entries tend to underestimate actual call activity. Detailed phone records will help you estimate the number of staff needed more accurately if you know which numbers you need. You will need measures of total call volume and the average time it takes to process calls.

While incoming call volume is an indicator of the workload, used alone, it underestimates the actual workload because outgoing calls and internal or transfer calls also take time. Consider all call activity when analyzing the workload. If you are using call volume to estimate the number of staff needed, make sure to count duplicate calls that report the same incident. Do this even if the calls are short and don't get entered into the CAD system. If a call requires time to answer, it must be counted.

Determine hourly processing capability.

If your telephone software indicates how many calls you process, it most likely can tell you how long each call lasts (call duration), and it should be able to generate averages.

Many centers combine the call taking and dispatch functions, so we use the term "average processing time" (APT) in our formula rather than "average call duration." Average processing time is a combination of actual telephone busy time and after-call wrap-up time. This includes time spent entering CAD data, dispatching units, transferring calls, address verification, checking NCIC, etc., as well as actual busy time on the telephone or radio.

The key word is "average" processing time. You want to estimate the actual number of employees that are needed, so it is not appropriate to use the average for the fastest dispatcher in the center and assume everyone else could work that fast if they set their mind to it. An average includes everyone, from the slowest to the fastest. After all, there are times when doing something fast is not the same as doing it properly, and different people do their best work at different speeds. Table II-5

An indirect approach to determining HPC

If you don't have the data for calculating APT and HPC directly, you may be able to calculate HPC indirectly. One manager reported an increase in the abandonment rate whenever the center received more than 200 calls per hour during periods when the center was staffed with 12 calltakers/dispatchers. That means 12 employees could handle a maximum of 200 calls per hour, so employees had an average hourly processing capability of 16.7 calls per hour (i.e. 200 ÷ 12 = 16.7).

provides an example of how to calculate hourly processing capability. A blank worksheet for calculating hourly processing capability for coverage positions is available at the end of this section.

In the example, the average telephone time for all employees is one minute, and the average wrap-up time is 1 .5 minutes, the average processing time (APT) is 2.5 minutes per call. Divide the 60 minutes of an hour by 2.5 to obtain the number of calls that can be processed in an hour, which is 24 calls (HPC = 24 calls per hour). This is different than call duration, which is telephone time only. Your software can provide detailed information about telephone time, but you will have to use other means to determine wrap-up time.

Table II-5: Sample Calculation of Hourly Processing Capability	
A. 1.0 minutes	Average telephone busy time (call duration in minutes, using decimals), from phone records
B. 1.5 minutes	Average call completion time (in minutes, this includes time for data entry, address verification, etc.)
C. 2.5 minutes	Average Processing Time (APT) = A + B
D. 24 calls hourly	Average Hourly Processing Capability (H PC) = 60 ÷ C

APT tells us how long it takes to process each call, but we want to know how many calls can be processed each hour. We divide the 60 minutes of an hour by the APT to obtain an hourly measure, the Hourly Processing Capability (HPC = 60 minutes ÷ APT). This is the average number of calls that could be handled by agents if they were busy every minute of the hour. The more accurate your calculation of APT and HPC, the closer your staffing estimate will be to your actual staffing needs.

Total Call Volume (TCV) is divided by average Hourly Processing Capability to convert the number of calls into worker hours, the measure of the Workload (W = TCV ÷ HPC). It seems logical simply to put the Workload estimate on one side of our equation, and put the NAWH in the other, and calculate the number of FTEs by dividing NAWH into the Workload. However, there are additional issues that we did not consider when estimating staffing for coverage positions. The number you would get from dividing workload by NAWH is the number of employees needed to work every minute of every hour they are available. If you were to staff at the level estimated with this calculation, you would be expecting employees to function at maximum processing capability at all times. That is analogous to planning to drive across country at full speed every minute you are in the car; not slowing down for towns or gas stations. You are either driving full speed or at a complete stop! This is neither reasonable nor possible.

Adjust for a reasonable agent occupancy rate.

There is another factor related to time that is beyond our calculation of employee availability based on NAWH and one which you have no control over. It is the rate at which calls come into the center. Agent occupancy (AD) is the component in the formula that adjusts for all those minutes when employees are in their chair and ready to answer calls, but there are no calls. For example, if there are 4 people working an 8-hour shift (i.e. 4 x 8 = 32 potential work hours) and the actual workload is 26 hours of busy time (telephone/radio), agent occupancy is 26 ÷ 32 or 81.25 percent. As you can see, "agent occupancy" is an indicator of actual work (26 hours) vs. potential work (32 hours) accomplished. This example was for a shift, but the calculation can be done on an hourly basis to determine agent occupancy for each hour of the day or week. An hourly analysis makes sense if the center has very high call volumes, significant daily or hourly variation, and/or uses a combination of overlapping shift lengths. For most centers it is sufficient to use a target value in the formula, or calculate agent occupancy rates for each shift and determine an overall average.

In the example above, employees are occupied 81.25 percent of the time but not busy 18.75 percent of the time simply because the phone isn't ringing even though they are available. Whether viewed as "ready" time or "available" time, it is a variable that needs to be considered when estimating actual staffing needs.

This is the factor that concerned us when we learned that most call centers were experiencing increases in call volume, but that staffing levels had remained "about the same" in many of those same centers. One possibility was that the additional calls were being absorbed by available staff time (i.e. the center had low agent occupancy rates and employees could easily accommodate the increase in call volume), but the other possibility was that agent occupancy rates were getting too high (i.e. the center was operating dangerously close to its maximum call handling capability). If all calltakers are operating at peak productivity levels at all times, any non-routine event will immediately throw a center into overload. In other words, if all agents are already operating at peak efficiency the center cannot respond to an emergency! Imagine a rubber band stretched to the limit – if any additional tension is put on it, it breaks.

Commercial call centers report that an average agent occupancy rate of 85-90 percent is optimal, but probably only achievable in very large centers that have a steady stream of incoming calls. Pushing employees beyond that level for extended periods of time tends to result in increased turnover and undesirable call handling behaviors.[8] Think of the quiet times in the middle of the night or a quiet Sunday afternoon. Someone needs to be at the console even though they may not be busy much of the time; unfortunately, those unused minutes can't be scraped together and given to the people on the swing shift so you have to adjust for them in your estimate. An adjustment for agent occupancy rate is the safety factor, the "cushion" that allows centers to absorb the shock of unanticipated surges in activity, such as a train wreck, a tornado, or a multi-car pile-up on the Interstate.

Consequently, the volume-influenced estimate presented here includes an agent occupancy adjustment. Ideally you will use actual numbers, but those numbers will vary on a daily and hourly basis, and will be different for each shift. The alternative is to use a target agent occupancy rate based on either a best guess or a random sample from different shifts on different days of the week.

A large center may want to use a target agent occupancy rate of 80 percent, whereas a more realistic figure for a smaller center is probably between 60-70 percent. Higher rates are not achievable in smaller centers simply because they lack a steady stream of calls.

If agent occupancy is too low, employees have too much "empty" time on their hands and they tend to get bored. If the occupancy rate is too high, such as over 90 percent on a regular basis, turnover rates and undesirable behavior increase. You can determine an appropriate agent occupancy rate for your center indirectly by monitoring these quality indicators.

Adjust for turnover.

If you haven't already done so, follow the steps in Table II-2 to determine your center's turnover rate. Anticipating turnover, and hiring proactively is often referred to as over-hiring, but that term makes it sound like you have excess staff, when in reality you are hiring the number of staff needed to handle the workload using projections based on careful analyses of historical data.

Almost 40 percent of large center managers indicated they over-hired to accommodate routine turnover and/or unexpected absences due to disability, maternity leave, etc. The practice of proactive hiring allows managers to compensate for new employees who may be able to fill an "organizational" vacancy immediately, but still require weeks or months of training before they can truly fill the "operational" vacancy created when a fully trained employee leaves.

A few words about rounding:

The "decision rule" you use for rounding can result in an underestimate of the actual need. Here again, if it takes 2.3 people to lift a weight, then two people won't be able to lift it no matter how hard they try. Applying the same idea to the calculation of staffing needs, it means that quality criteria such as having 90 percent of calls answered in 10 seconds simply will not be met because the incoming call volume is greater than the center's call processing capability, and abandonment rates go up. There are not enough calltakers to lift the extra weight (i.e. handle the workload), and the limitation has been built into the system!

That is when a more intentional rounding "decision rule" is more useful – it allows a thoughtful decision about when to add another employee, based on historical data and performance targets. The addition of a single employee can make a huge difference in the stress experienced by employees and the services provided (see the discussion under the heading Every Body Makes A Difference in Chapter 1). Early feedback from beta testers indicates that the hourly analysis tool may be one of the most useful and powerful tools in the Staffing and Retention Toolkit.

The formula for volume-influenced positions

The formula for the volume-influenced calculation is FTE = Workload ÷ Employee Availability x Turnover Adjustment. The conversion of workload into hours requires information about total call volume and average processing time. Average processing time is used to calculate hourly processing capability, another hourly measure. True employee availability is based on the calculation of NAWH multiplied by a reasonable Agent Occupancy rate. The base FTE estimate is adjusted for turnover to yield a more accurate estimate of the number of employees needed.

A sample volume-influenced calculation

Let's work through the sample calculations in Table II-6. The total call volume for this sample center was 500,000 calls in the most recent year. Analysis of phone records and average wrap-up time indicates the average processing time for all of the calltakers in the center is 2.5 minutes per call. Therefore, if they are working at maximum capacity, employees can handle 24 calls per hour. We divide 500,000 by 24 to obtain the total workload expressed in hours; in this case it is 20,833 call hours.

Enter the average NAWH of 1,680 hours for each employee in this position (it has already been calculated using the NAWH worksheet). An agent occupancy rate of 70 percent means each employee is actually handling calls 70 percent (.70) of the time that they are available. The NAWH is multiplied by .70 to obtain the time that each person is actually available, bringing the True Available time to 1,176 hours per person. This is the time factor that must be used to determine the number of employees needed to balance the total call hours; 20,833 call hours divided by 1,176 applied hours per person indicates a need for 17.7 workers to balance the scales when there are 20,833 call hours on the other side.

However, the center has an annual average turnover rate of 15 percent, which means productivity is going to slip and experienced employees are going to be handling more calls as new recruits work their way into the position. Increasing the staffing estimate by the turnover rate (i.e. 17.7 FTE x 1 .15), results in an adjusted estimate of 20.4 FTE. Those two additional staff will make a substantial difference in service quality and reduce the need for overtime. (See the discussion under Every Body Makes a Difference in Chapter 1). A blank worksheet for estimating volume-influenced positions is available at the end of this section.

This section discussed each of the components of our volume-influenced formula. Let's look at how a change in any one of those components impacts the number of FTEs estimated. The calculations in Table II-7 illustrate the impact of call volume, average processing time, net available work hours, and agent occupancy on the number of staff needed and the calls handled per employee. In each section, all other variables are held constant so it is possible to see the impact of the variable being considered. As noted earlier, balancing the scales can be accomplished by making adjustments on the side of the workload or the side of worker availability.

Table II –6: Sample Calculation for Volume-influenced Positions	
Note: The number of Volume –influenced positions is based on call volume and average processing time.	
Position: Calltaker	
Workload:	
A. 500,000 call	Total Call Volume for this position (TCV), from phone records
B 2.5 minutes per call	Average Processing Time for this position (APT), from phone records
C. 24 calls per hour	Hourly processing Capability (HPC) = 60 ÷B (60 ÷ 2.5= 24)
D. 20,833 calls hourly	Workload in hours (W) = A ÷ C (500,000 ÷ 24 = 20,833)
Employee Availability:	
E. 1,680	Net available Work Hours – enter average NAWH from worksheet
F. .70	Agency Occupancy rate – enter AO, Convert percent to decimal (70 % = .70)
G. 1,176	True Availability per person (TA) = E x F (1,680 x .70 = 1,176)
Staff Needed	
H. 17.7	Full Time Equivalent base estimate (FTE) =D ÷G (17.7 = 1,176)
I. .15	Turnover Rate from retention worksheet – convert to decimal (15% = .15)
J. 20.4	Full Time Equivalent required to accommodate turnover, prior to any adjustments based on quality indicators: FTE = H x (1 + I)
20.4 = Estimated Staffing Need (in FTEs from Step J above)	
FTE = Workload ÷ Employee Availability x Turnover Adjustment	

Table II-7: Comparing Impact of Variables on FTE Calculation for a Volume-influenced Position										
	Workload				Worker Availability				Turnover Adjustment	
	A	B	C	D	E	F	G	H	I	J
Steps in Calculation:	Enter	Enter	= 60 ÷ B	= A ÷ C	Enter	Enter	= E x F	= D ÷ G	Enter	= H (1+ I)
Position	TCV	APT	HPC	Workload	NAWH	AO	TA	FTE	Turnover	FTE
Calltaker	500,000	2.5	24.0	20,833	1,680	.70	1,176	17.7	.15	20.4
Calltaker	1,000,000	2.5	24.0	41,667	1,680	.70	1,176	35.4	.15	40.7
Calltaker	500,000	5.0	12.0	41,667	1,680	.70	1,176	35.4	.15	40.7
Calltaker	500,000	2.5	24.0	20,833	1,450	.70	1,015	20.5	.15	20.5
Calltaker	500,000	2.5	24.0	20,833	1,680	.65	1,092	19.1	.15	21.9
Calltaker	500,000	2.5	24.0	20,833	1,680	.70	1,176	17.7	.30	23.0

Key: TCV = Total Call Volume APT = Average Processing Time HPC = Hourly Processing Capability W= Workload (in hours)
NAWH = Net Available Work Hours AO = Agent Occupancy rate TA = True Availability
FTE = Full Time Equivalent

Analyze hourly call volume for a week

Analyzed appropriately, call center statistics make it possible to determine the rhythms of a call center; the hourly, daily, weekly, and seasonal fluctuations that make appropriate staffing and efficient scheduling challenging.

Call volume and average processing times both vary throughout the day, the week, and the year. While it is time consuming to conduct an hourly analysis, it is also rewarding because it provides a more accurate staffing estimate and it is useful for scheduling. The Staffing and Retention Toolkit available on the APCO website includes a tool for conducting an hourly analysis for a week (also referred to in this section as weekly analysis). It generates an estimate of “worker hours” needed to handle the call volume for each hour during the week. The numbers that are generated assume each worker is busy every minute of each hour, so this is not the same as estimating FTEs, because NAWH and agent occupancy must be considered in order to do that.

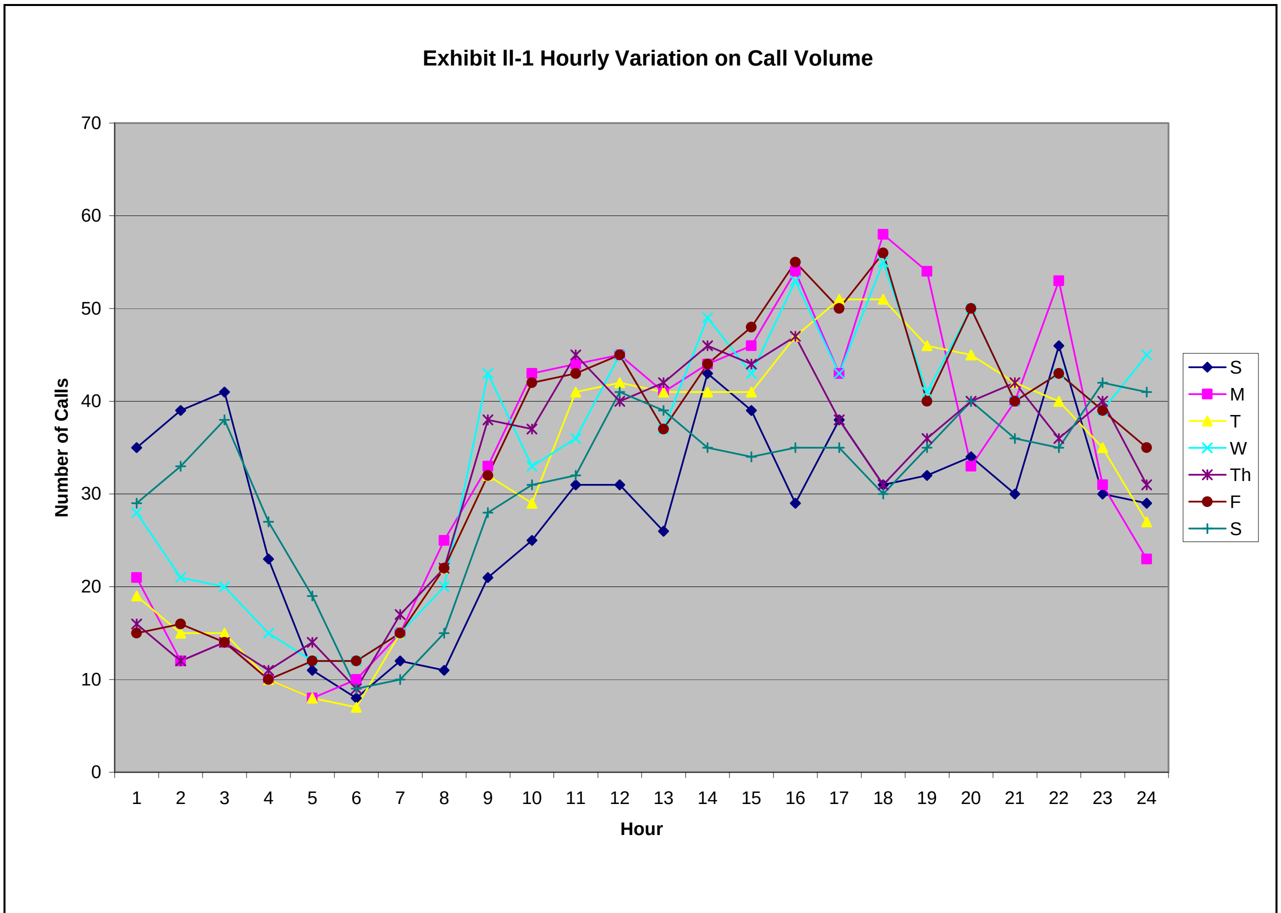
Knowing when calls ebb and flow over the course of a week, and knowing which hours of the day tend to be the busiest have a practical application to scheduling. The bonus tool in the Staffing and Retention Toolkit is designed to analyze hourly call volume and staffing needs. You can do the same thing using a spreadsheet. Create a table with the days of the week down the left hand column and the hours of the day across the top. Enter the call volume into the cell representing each hour. Graph the results for a picture of the general trends as well as the variability in the call volume. If the graph is set up with the hours along the horizontal (X) axis, it displays the pattern of hourly variation.

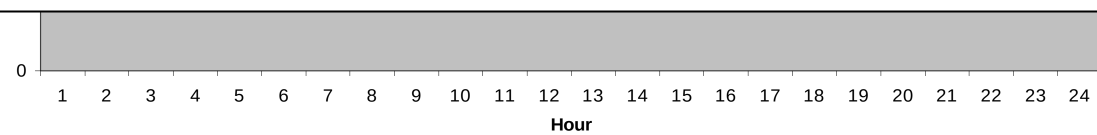
Graph it

Estimates of staffing needs based on historical records, analyzed in light of experience, are more accurate than a simple formula. Last year’s data represent the best information available for planning this year’s staffing needs, but unusual patterns in the data should not be ignored. It is these patterns in human behavior, and how they play out in terms of calls, that are revealed in a weekly analysis.

The data in Exhibit II-1 are from an urban call center. They show a daily pattern with low call volume at 0500 and high call volume between 1500 and 1800, when school lets out, traffic increases as people return home from work, etc.. They also show that the staff needed at 0200 on Saturday and Sunday mornings when bars typically close is about double of that needed the rest of the week during that time period.

A picture truly is worth a thousand words. Even though most managers are intimately aware of these daily fluctuations, a graphics display of the variation is useful in helping decision-makers understand the rationale behind a request for additional staffing, or to explain the relationship between staffing, agent occupancy and the workload. Graphs are especially useful for visualizing scheduling needs.

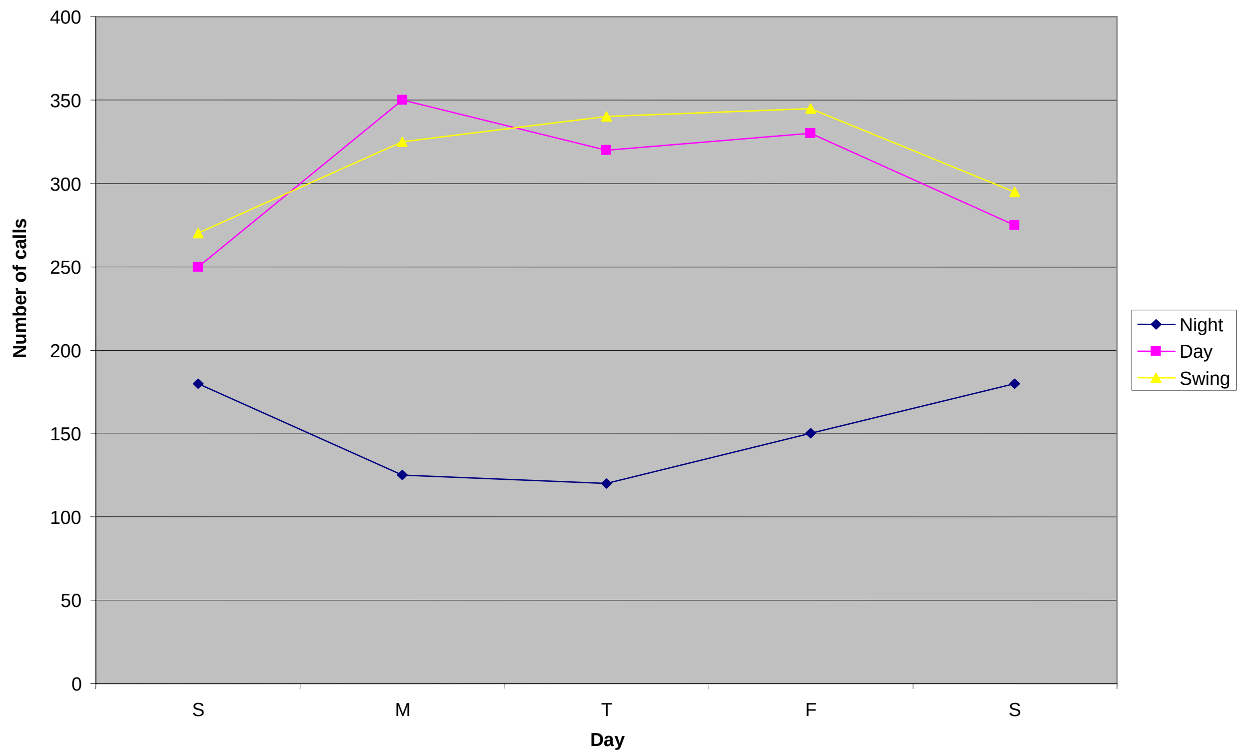




To display variation by day of the week, organizing call volume into smaller time blocks such as shifts or portions of a shift helps illuminate the different staffing need of different time periods on different days of the week. The organization of the call volume data into eight hour time blocks [i.e. shifts) for the graph in Exhibit II-2 shows the workload handled by shift and clearly illustrates very similar staffing need for the other two shifts.

An hourly analysis can be used to analyze average weekly activity or to analyze a “typical week” from different seasons. For example, a center in Florida may want to compare call activity during hurricane season with “normal” call activity. A center in California may want to compare wildfire or mudslide season with the rest of the year.

Exhibit II-2 Variation in call Volume by shift



Another useful graph is a pie chart similar to the one in Exhibit II-3. Aligning the number of employees assigned to each shift based on the distribution of call volume during that shift is the basic process of staff allocation. In this instance, the graph indicates the allocation of staff by shift should be close to 41 percent assigned to days, 41 percent assigned to the swing shift, and 18 percent assigned to the night shift. Actual allocation must account for the minimum staffing level that is required to handle peak call volumes during a shift.

The types of graphs discussed in this section are generated automatically in the Staffing and Retention Toolkit. Most spreadsheet programs offer a graphing function. We encourage you to make use of such visual displays to help explain staffing needs to decision-makers.

Step 5: Compare the number you have with the number you need

Once you have estimated the number of employees needed for each position, enter the information in a table such as Table II-8, to summarize the overall staffing in the center and compare current staffing levels with estimated staffing need provided by the calculations. Be sure to list results for all of the coverage and volume-influenced positions and add the function positions to the list to make it complete. A blank worksheet for comparing current staffing with estimated staffing needs is available in the Resources section. If there are substantial differences between the numbers of current staff and the estimated need, the summary will clearly show where the disparity exists.

Step 6: Do a reality check

Keep in mind the old saying “Garbage in garbage out.” The ultimate test of the usefulness of these formulas is whether or not the number of staff estimated allows your center to handle the workload with limited use of overtime and still meet reasonable service quality targets. If the numbers used to generate the staffing estimate are not accurate, the estimate will not be accurate either.

The Staffing and Retention Toolkit

There is no easy way to calculate the true number of employees needed to handle the workload in your center, just as there is no easy way to find people who can be successful calltakers and dispatchers. The processes we have described take time and effort.
APCO has made it a little easier with the web-based Staffing and Retention Toolkit. Visit the APCO website and explore the tools. You can find it by following the links to 9-1-1 and Project RETAINS. Let APCO know if you find the tools useful, and let them know about additional tools that could make your job a little easier

Table ll-8: Comparing Current Staffing with estimated Staffing needs				
WORK	Total Call Volume: 500,000 Total Emergency Calls: 180,000 Average Processing Time: 2.5 Minutes Hourly Processing Capability: 24 calls per hour		Current Staffing	Estimated Need
WORKERS	Coverage Positions:	Dispatcher	28.5	30.0
	Volume-Influenced positions:	Calltaker	22.0	20.4
	Function Positions:	Manager Training Supervisor Radio Technician	1 1 1	1 1 1
		TOTALS:		

Erlang Calculators on the Web

Most public safety communications centers are small enough that they probably will not need to go beyond the calculations offered in this document. But for those who have the time and interest in exploring Erlang estimates (based on queuing theory), we are including a list of some useful websites in which you can download a free Erlang calculator or just plug in the numbers for your center and experiment with various combinations of variables that influence the number of staff needed.

We tested the validity of our results by using the formulas described in this section with the results we got using an Erlang calculator and found that our formulas did a good job of estimating appropriate levels of staffing. Check out some of the free Erlang calculators on the web (see text box).

Summary

This section described a six-step process for estimating the number of employees needed to handle the workload in public safety communications centers. Step-by-step directions and sample

Erlang on the web

The Ansapoint website has several free calculators {http://www.ansapoint.com/calculator]. Plug in your targets [e.g. quality goals such as 90 percent of calls answered within ten seconds] and assumptions [e.g. average call duration and average wrap up time for a call] and the calculator tells you how many staff members you need. This site also has more complex calculators. The calculations are fast and easy, but print your results because they are not saved from one visit to the next.

A free software program with Erlang calculators is available on the KoolToolz website [http://www.KoolToolz.com]. These tools let you test various models and generate forecasts based on call volume trends. You can generate graphs based on Erlang queuing theory, that illustrate the relationship between call volume and average delays, and the relationship between call volume and the number of agents needed. The professional version of these tools is less than a hundred dollars.

Another resource for calculating staffing needs and downloading a free Erlang calculator is The Call Center School [http:www.thecallcenterschool.com]. the easy to use QuickStaff software is free and comes with complete instruction and great flexibility. Three tabs feature: a shrinkage calculator, a staffing calculator, and a calculator for the number of trunks needed. There is a library call center employees.

calculations illustrated the process for coverage and volume-influenced positions. Basic equations for balancing workload and employee availability were explained in detail, and a rationale was provided for the use of Net Available Work Hours, an adjustment for Agent Occupancy, and an Suggestions were made for preparing a summary report that summarizes current staffing levels estimates and compares them with the estimated staffing levels provided by the calculations. Automated versions of these formulas, available in the Staffing and Retention Toolkit located on the APCO website, were also described.

Resources

Staffing and Retention Toolkit, available on the APCO website. Built as a companion to the Effective Practices Guide, the Toolkit contains three compartments: Staffing, Retention, and Survey. These tools are designed to make it easy for managers to either plug in their numbers or collect the data needed to assess employee satisfaction, calculate retention rates over time, and estimate staffing needs. The tools are free but registration is required. Follow the links to 9-1-1 Available at: http://www.apcointl.com

Communications Center Staffing: When is Enough, Enough? Bill Weaver article discusses the concepts of fixed position vs. volume-influenced staffing (although there are errors in the formula). Available at:

Staffing Analysis Workbook for Jails: Second Edition (2003). An excellent discussion of the process of conducting a staffing analysis, the rationale behind using Net Annual Work Hours rather than a shift relief factor, and the factors that contribute to an accurate estimate of staffing needs. Available at: http://nicic.org/Library/016827

The Call Center School offers free software and articles that address core staffing issues in call centers. Aimed primarily at commercial call center managers, the website offers a wealth of ideas that can be adapted and applied in public safety communications centers. Available at: http://www.thecallcenterschool.com/

Calculating Shift Relief Factor. State of Oklahoma Worksheet is very straightforward and easy to understand. Available at: http://www.doc.state.ok.us/Offtech/040113ab.pdf

South Carolina Department of Corrections document summarizes changes in the shift relief factor over time (1996-2003). Calculations include a factor called "Staffing Enhancement used to accommodate Turnover." Available at

http://www.doc.sc.gov/PublicInformation/StatisticalReports/SpecialReports/ShiftReliefFactorfor SecurityStaffCY1997-CY2004. pdf

NENA PSAP Staffing Survey Report, created under the auspices of the NENA SWAT initiative by L. Robert Kimball & Associates and 9-1-1 SME Consulting. Includes the results of a survey of 70 PSAPs, serving populations less than 140,000 and a staffing formula worksheet. Available at: http://www.nena.org

Staffing Calculators and articles that address staffing issues. Dispatch Monthly (2004). APCO Formula for Comm Center Staffing (Jennifer Hagstrom, September, 2000; reprinted as insert in January, 2005). Great source of resources related to staffing and shift configuration. Available at: http://www.911dispatch.com/shiftwork/staffing_config.html

Ansapoint website hosts several call center calculators that utilize the Erlang C formula. Erlang calculations are based on queuing theory, performance targets (such as 90 percent of calls answered in 10 seconds or less), call duration, number of lines, etc. Available at: http://www.ansapoint.com/calculator/

Notes:

1 To view the rest of the Tribute, go to http://www.911dispatch.com/info/NTW/wagoner_tribute.html

2 ibid.

3 You can view the instrument at http://www.lakelandgov.net/lpd/support/telecommunications.html

4 Yearwood, D. (2004). Recruitment and retention of public safety telecommunicators. *Public Safety Communications*, July 2004, 8-10, 60.

5 Public Safety Communications Center, Major Cities Chiefs and Federal Bureau of Investigation National Executive Institute, Released June, 2005 (based on a 2004-2005 Survey conducted by the Colorado Police Department, Colorado Springs, CO)

6 Kaye, B., & Jordan-Evans, S. (2003). How to retain high-performance employees. *The 2003 Annual: Volume 2, Consulting.* New York: John Wiley & Sons, Inc.

7 Liebert and Miller, (2003) Staffing Analysis Workbook for Jails: Second Edition. U.S. Department of Justice, National Institute of Corrections. Available at http:/nicic.org/Library/016827

8 Reynolds, P. (2002) Understanding Agent Occupancy. The Call Center School, Nashville, TN. Available at www.thecallcenterschool.com

Glossary

Abandoned calls – See Call Abandonment.

Access Key – A unique computer-generated letter/number combination that allows one employee to enter a website and complete the Employee Satisfaction Survey. The access key is deactivated once it has been used.

Agent Occupancy Rate – A measure of the average amount of time when employees are busy with incoming calls or dispatch activity. It can be viewed as "available time" or "ready time" and a reasonable cushion of excess agent availability should be included in staffing estimates as a safety factor (i.e. assuring the center is able to handle unanticipated surges in call activity).

Researchers in commercial call centers report increased employee turnover and "undesirable" agent behaviors when agent occupancy rates exceed 85 to 90% over extended periods of time. Detailed records are needed to calculate actual occupancy rates, so the calculations used in the Toolkit are based on agent occupancy targets.

Anonymous – there is no identifiable or traceable link between the respondent and the data, such as with the information provided by employees in the Employee Satisfaction Survey. Employee access is controlled with the use of unique access keys, and their submissions are completely anonymous. Not even the webmaster can link a response to a specific employee.

Annual Call Volume (ACV) – is the total number of calls processed by a communications center in a year. It is often reported as incoming calls only but a more accurate measure includes all call activity: incoming, internal transfers, and outgoing calls. Duplicate calls for a single incident, such as multiple wireless calls for the same car accident, should also be considered for inclusion in total call volume since they require a response and consume calltaker time.

Authorized Positions – The number of positions in a communications center that are allowed to be filled by the budget or budgeting authority, or budgeted FTES. The authorized level may differ from the actual number of current employees.

Average actual time – The determination of Net Available Work Hours can be based on an average of actual time employees are unavailable (there always seems to be someone who never uses sick leave or never takes their vacation days). Averaging real data for the previous full year, obtainable from the Human Resources Department or from employee records, will reflect the differences due to seniority (e.g., additional vacation time for senior people) and differences in the use of leave (e.g. FMLA, or military leave).

Average allocated time – A faster but less accurate measure of employee availability is to simply use the number of days employees are allocated (whether they use them or not in a give year). For example, you might figure two weeks (80 hours) paid vacation per employee, one sick day a month (8 hours x 12 months = 96 hours per year), one-and-a-half hours per day for lunch and two 15 minute breaks (50 weeks x 1.5 hours = 75 hours per year), etc.

Average call completion time – see Call Completion Time

Average Processing Time (APT) – is determined by adding the average telephone busy time and call completion or wrap-up time. Conceptually related to average call duration and calls per hour, it is a more general term that can be used for telephone activity alone, or for a combination of telephone and radio activity. For example, if the average time on the telephone is 1.5 minutes per call and another .5 minutes is the average time needed for associated activities such as data entry or dispatch, the APT = 1.5 + .5 = 2.0 minutes.

Average telephone busy time – The actual time spent talking on the telephone as measured by telephone software.

Average Speed of Answer – A common quality measure in communications centers, it is the time it takes from first ring to pick up by a calltaker.

Basic analysis structure – This refers to the time blocks that can be selected in the web tool used for hourly analysis of weekly activity (in the APCO Staffing and Retention Toolkit). The use of time blocks makes it easy to compare call volume and staffing if the time block is based on shift length. Centers that use multiple overlapping shift lengths can use two hour blocks. The only limitation is that time blocks must be evenly divisible into a 24 hour day.

Blocked calls – Calls that receive a busy signal when all lines are being used.

Busy time – The time when a calltaker is actually talking on the telephone or the dispatcher is actually talking on the radio. It is the time recorded by most software programs and does not include any additional time associated with a particular call or incident.

CALEA – The Commission on Accreditation for Law Enforcement Agencies, Inc., in conjunction with APCO developed Standards for Public Safety Communications Agencies, and published The Standards Manual of the Public Communications Accreditation Program in January of 1 999. CALEA defines size for stand-alone centers as the total number of authorized full-time personnel. They use three center size categories: A (1-15 personnel), B (16-75 personnel) and C (76 or more personnel). These categories are referred to as small, medium and large size centers in all Project RETAINS documents.

Call Abandonment – An incoming call that is abandoned when the caller hangs up before the call is answered. The number of abandons and the abandon rate are good quality indicators and generally related to speed of answer. Call abandonment is taken seriously by public safety communications centers, and all abandoned 9-1-1 calls must be called back.

Call completion time — the non-telephone time spent processing a call. It includes all additional time related to a call; time spent entering data in to the CAD system, handling the call internally, transferring calls, dispatching a unit to the scene, address verification, etc.

Call processing time – The amount of time spent on a call. This includes actual busy time on the telephone plus any additional time spent entering data for that call on the computer, into the CAD system, address verification, etc. There is a substantial difference in processing time if a calltaker is simply routing a call to a dispatcher or ambulance service vs. providing emergency medical information and dispatching a field unit to the scene.

Call reporting software – Software commercially available for tracking telephone statistics that are not captured by the CAD system. Ideally such software can provide detailed information about the number and length of all incoming, outgoing, and internal transfer calls. Such information is vital to determining the number of staff needed to handle the workload (calculation of FTE needs is based on number of calls and average processing times).

Call Volume – A common term for the number of calls. Usually used with a time delineated qualifier such as annual call volume, or hourly call volume. Call volume is not about the length of calls or the nature of the calls. It is simply the number of calls and it is used to determine workload. Centers where each employee handles telephone and radio activity, may want to add the number of incidents dispatched to the number of telephone calls to obtain a more accurate indication of workload (number of CAD entries or incidents dispatched is considered a more realistic indicator than number of push-to-talk events).

Census Region – The United States Census Bureau divides the U.S. into four Regions: Northeast, South, Midwest, and West; and nine Divisions.

Communications Center – A centralized location for processing telephone calls. See Public Safety Communications Center.

Computer-Aided Dispatch (CAD) – Computer software that provides dispatch related services such as records management, mobile data, 9-1-1, links to NCIC and state databases, and interfaces to jail, property, personnel records, etc.

Confidentiality – Confidentiality means access to information is limited to specific people (e.g., researchers or a website administrator), and may not be reported in a way that allows an individual or individual center's identity to be determined. Information that is confidential is not anonymous; there is a (protected) link between the data and the source of the data.

Console – The physical space where a calltaker or dispatcher works, also called a work station or post.

Contract year – The base number of days or hours in a "full time" job; typically 2080 hours per year. The term applies to legally binding formal written contracts, but in "right to work" states, such contracts do not exist.

Coverage Position – A job category in which the number of employees is determined by the need to provide service regardless of the workload. The "coverage" may refer to a particular task, a specific work station, post, or console that must be staffed or "covered" for a given length of time, usually continuous service 24/7/365. For example, a fire-rescue or law enforcement dispatch console that is covered around the clock regardless of the amount of call activity is a “coverage” position. Small centers where one or two employees can handle all telephone and dispatch activity around the clock with a minimum number of staff must staff for “coverage” of those consoles. Shift supervisor or shift manager is a “coverage” positions if someone must fill that position during all shifts, or even for one or two shifts a day (note that it does not need to cover 24 hours for it to be a coverage position). A center that can handle the

call load with minimum staffing around the clock must fill a basic number of coverage (sometimes called “fixed”) positions. A center that requires a separate dispatcher to cover each of five different consoles 24/7/365 has five “coverage” positions. If one console is used to cover several channels during the night shift, the number of positions used to calculate coverage needs should include an appropriate fraction.

Decision Rule – A parameter set for determining when an additional employee will be scheduled to handle the workload. The hourly analysis tool (in the APCO Staffing and Retention Toolkit) can be set up to round up at intervals other than .5; most programs have a default rounding rule: round up if over .5 and down if under .5; when exactly .5 round to the nearest even number. Providing additional control over the rounding process is intended to avoid systematically under or over estimating the number of staff needed to handle the incoming call volume.

Employee Availability - is a measure of the actual number of hours employees are available to handle a task, expressed as Net Available Work Hours (NAWH). It is calculated by subtracting the total hours an employee is on leave or in training from the total work hours (i.e. the number of hours in a year for a “full time” employee). This is referred to as “shrinkage” in commercial call centers. This adjustment is used for coverage and volume- influenced positions only. It can be calculated using the amount of time allocated or actual average time used for each category. Calculations based on actual employee data will address differences in vacation and leave time based on employee seniority. Time off that may be unique to a center could include: reduced workloads for new recruits, long-term disability, light duty assignments, leave without pay, unexcused absences, or turnover rate (based on an average for several years). See Net Available Work Hours for additional detail.

Employee Satisfaction Survey (ESS) **–**is composed of questions that were used for a national survey that was developed specifically for the purpose of understanding staffing and retention issues in public safety communications centers. Questions were based on a list of effective practices generated by the APCO Staffing Crisis Task Force in 1 999, and refined in consultation with the members of the APCO Project RETAINS (Responsive Efforts to Assure Integral Needs in Staffing) Committee in 2003. Surveys were distributed to a random sample of managers of public safety communications centers across the nation. Managers provided numerical data and information about policies and practices in their center, and passed the employee surveys on to their staff. Employees responded to questions about their satisfaction with center policies and practices.

Responses were received from 153 managers and 600 employees.

Employee Satisfaction Survey Long Version– Employee satisfaction was measured with 52 items in the original survey. These items were related to the work itself, the physical environment, supervision and management, the level of support provided by the center, scheduling policies and practices, and compensation and benefits. The 52 item satisfaction scale had a reliability coefficient of .94, indicating high reliability.

Employee Satisfaction Survey Short Version– The Employee Satisfaction Survey in the web-based Staffing and Retention Toolkit is a shortened version of the survey. Factor analysis was used to reduce the original satisfaction scale and to select the questions for the ESS, resulting in a 20-item satisfaction scale. Additional questions, on topics that predicted employee satisfaction, are also included in the ESS. These other questions are about overtime, recognition, the overall performance of the center, and future plans. The 20-item satisfaction scale was pilot tested in 2005 by four call centers and a total of 317 employees. A .86 reliability coefficient for the shortened satisfaction scale was also high.

Erlang–is a unit of measurement for the call traffic within an hour. For example, if a center receives 30 calls in one hour and each call lasts 5 minutes, the total minutes of traffic in the hour is 150 (30 minutes x 5 minutes = 1 50 minutes). But there are only 60 minutes in an hour so that 150 minutes is divided by 60 to calculate an Erlang (150 ÷ 60 = 2.5 Erlangs). The higher the Erlang number, the busier the center. The Erlang is named after its inventor, Agner Krarup Erlang of Denmark, and goes back to 1909 when he published The Theory of Probabilities and Telephone Conversations. There are several telephone-traffic models (formulas) that utilize the Erlang. The Erlang is generally used to estimate the number of telephone lines that are needed, but formulae that have been developed to model queuing activity allow estimates of staffing requirements based on call activity (i.e. Erlangs).

Fixed Position – Positions that are covered at a minimum level independent of call volume and regardless of the activity level. See Coverage position.

Full Time Equivalent (FTE) – The number of full time staff it takes to cover a position for one shift. If a center schedules two half-time employees to cover one position, the two employees make up one full time equivalent, or one FTE. Each half-time employee would be .5 FTE.

Function Position – A job that is based on a specific task or function necessary to operation of a communications center. A “function” position is independent of call volume and does not require coverage. For example, if all of the time of a manager is spent on management functions, manager is a function position in the center. Additional examples of “function” positions may be training coordinator, quality assurance coordinator, radio/technical specialist, tape puller, or any other job that serves a specific role not related to covering a specific position or responding to call processing activity in the center.

Hourly Processing Capability (HPC) **–** is the total number of calls that can be handled in an hour based on the average processing time (APT). It is a measure of potential call handling if every minute of the hour is devoted to processing calls. The number is an indicator of the maximum number of calls that can be safely handled in an hour. HPC can be determined indirectly by analyzing call abandonment records (i.e. callers hang up and call again if they feel they have been on hold too long). If the abandonment rate consistently increases when call volume exceeds a certain ratio of calls to calltakers, you know the center has reached the hourly processing capability. For example, if 12 agents typically handle incoming calls with an abandonment rate below 5%, but when the incoming call volume exceeds 200 calls per hour the abandonment rate goes up, the indirect HPC for that center is about 16.7 calls per person (HPC = 200/12 = 16.66). Other quality indicators such as percentage of calls answered within 10 seconds can be used for an indirect estimate of HPC. The HPC is dependent on the number of tasks that need to be completed with each call, and will be shorter for agents that simply route a call through to the appropriate dispatcher vs. an agent that handles all aspects of a call from pick-up to dispatch.

Hourly Analysis – The process of analyzing call volume and staffing needs on an hour-by-hour basis, generally for a week at a time. An hourly analysis may be based on a specific week selected because it is "typical" or unique in some way (e.g., an unusually high level of activity surrounding a holiday or special event such as a football game), or averages of weekly activity (e.g., by quarter, by month, by month, by season, etc.). The bonus tool in the Staffing and Retention Toolkit uses an hourly analysis.

Incoming Call Volume - The total number of incoming wireless and wire-line calls received in a given time period.

Minimum Staffing – The minimum number of staff scheduled at any time during a given period of time based on experience, contract, legal requirements or previous staffing studies. Set the hourly analysis tool so that the calculation never goes below the minimum.

Net Annual Work Hours (NAWH) = Total work hours minus all leave for training, vacation, holidays, sick leave, comp time, FMLA, military leave, etc. Similar to Net Available Work Hours but restricted to an annual measure. See Employee Availability.

Net Available Work Hours (NAWH) - NAWH is calculated by subtracting the total hours an employee is out of the building or out of the room and unavailable for handling the core function(s) of call taking or dispatch from total work hours. When determining NAWH for a position averages should be used for all employees in that position. For example, if the number of total work hours for calltakers is 2080 hrs per year (i.e. the number of hours in a year for a "full time" employee), and the averages for all calltakers are 240 hours vacation time, 80 hours of sick leave, 1 6 hours of personal leave, 24 hours of training, and 78 hours for lunch/breaks, the total time they are actually available to answer calls is 2080 minus 240 + 80 + 1 6 + 24 + 78 = 2080 – 438 = 1 642 hours. See Employee availability. Same as Net Annual Work Hours.

Over hire – Some centers are authorized to hire additional employees, beyond their authorized levels, to accommodate predictable changes in employment levels due to turnover, FMLA, etc.

Performance Targets – Quality indicators that serve as a proxy for communications center performance. Common indicators are the percentage of calls that are answered within ten seconds, the percentage of calls answered within three rings, the call abandonment rate, the average speed of answer (ASA), blocked calls (busy signals), etc.

Position – A job in a communication center that has specific requirements and duties. For example, some centers have a calltaker/dispatcher position in which all employees do both call taking and dispatch whenever they are on duty: the two tasks are not separated and each employee handles all calls from pick up to completion. Some centers use the term "telecommunicator" to signify the union of these duties, but whatever the name, the position is the same. Some centers divide the task into separate positions, with some individuals designated as "calltakers" and others designated as "dispatchers." The position is "calltaker" or "dispatcher" even though the individual employee who is filling that position at any given time may be cross-trained and move easily from one job to the other. The term position does <u>not</u> refer to rank or salary classifications. The different positions within a communication center are typically based on function, coverage needs, or call volume. Staffing for combined calltaker/dispatch positions may be based on either coverage or volume-influenced calculations, depending on the size and distribution of incoming calls in the center. Dispatch positions tend to be based on coverage needs. Some centers use a combination of 8-hour and 10-hour positions. Calltaker positions tend to be volume-influenced. See function position, coverage position, and volume-influenced position for additional detail.

Post – A physical space, console or work station where a specific task or job is completed. For example, there may be specific posts devoted to call taking, while other posts are devoted to law enforcement dispatch, fire-rescue dispatch or emergency medical dispatch. An employee at a dispatch post may pick up incoming calls if the calltakersare unable to handle the pace of incoming calls, but the primary task at that post is dispatch.

Probationary – Staff that has been recently hired or is still in a "probationary" period that usually includes intensive training and/or mentoring. Also referred to as "new hires" in the retention rate calculator.

Problem Based Learning – An instructional strategy that confronts students with the statement of a problem prior to instruction, creating a need to know and a purpose for learning. It is an instructional strategy that has been used with good success in medical schools, law schools, K1 2 education, college and university courses and graduate schools. It is based on the way we naturally learn (i.e., we are confronted with a problem so we seek information that will help us understand and address that problem), so it increases student motivation and retention of the information that is learned.

Project RETAINS – See RETAINS.

PSAP – This acronym refers to the primary Public-Safety Answering Point, the first point of contact for incoming calls. Some centers that receive calls routed to them from the first point of caller contact are referred to as "secondary" PSAPs.

Public Safety Communications Center – A centralized location that receives telephone calls for service from public safety service providers. Typically this includes police/law enforcement, fire-rescue, and/or EMS services. Most public safety communications centers also dispatch field units for these service providers. In addition, many handle calls for public entities and provide call taking and dispatch services for public works or public utilities, etc. Most public safety communications centers handle 9-1-1 calls; some also handles calls from 7/10 digit emergency service lines.

Queuing Theory – Calls do not come into a call center one at a time, and statistical equations can predict the way these calls will arrive. Call center calculators that are based on mathematical models of queuing behavior are used in communications centers that handle a very large number of calls. The most common calculators are based on various Erlang calculations. See Erlang.

Recruit – A newly hired employee, typically still in training or within the probationary period. Recruiting is an area of great interest to managers who have difficulty finding employees who can handle the work and finding enough to comfortably handle the amount of work. Study II explicitly solicited information about recruiting strategies that were particularly effective for finding potential calltakersand/or dispatchers. Those strategies are available in the Employee Satisfaction Survey report and the Effective Practices Guide.

RETAINS, Project RETAINS (Responsive Efforts to Assure Integral Needs in Staffing) **–** an APCO initiative that resulted in two national studies on staffing and retention in America's public safety communications centers. The Project RETAINS research was conducted in two steps. Study I, which included surveys of managers and employees in a random sample of public safety communications centers across the nation, was completed in 2004. Managers were asked to provide numerical data and information about policies and practices in their center, and employees were asked about their satisfaction with factors believed to impact employee satisfaction and/or center retention rates. Responses were received from 153 managers and 600 employees. Study II, completed in 2005, focused on obtaining information from managers of large centers to better understand differences due to center size (with large being defined as 76 or more employees using the Commission on Accreditation of Law Enforcement Agencies definition). Responses were received from 27 large communications centers.

Retention – The ability of an organization to keep its employees, as opposed to losing them as a result of voluntary or involuntary departure decisions. Retention is the opposite and complement of turnover.

Retention Rate – Percentage of employees that remained with an organization during a given period of time (usually annually). Calculated as [1 - Turnover Rate] * 100. A more accurate calculation, if data are available, is to use an aggregate of monthly averages.

Scheduling – The process of assigning employees to specific time slots. Staffing is the determination of the number of employees needed, while scheduling is the allocation and deployment of available employees.

Selection – The process of screening and selecting potential employees who are highly qualified and/or a good fit with the work.

Shift Relief Factor (SRF) **–** The number of full time equivalent staff needed to cover a position that requires coverage on a continuous basis. For example if it takes 1.7 full time staff to cover one 8-hour shift (after deducting all leave and breaks from total annual work time), and the position must be covered 24 hours a day, 3 shifts X 1.7 = 5.1 FTE to cover the position around the clock.

Shift start time – You can set the beginning time on the hourly analysis tool to make it easier to see the relationship between call volume, staffing needs, and scheduling based on your current shift structure. If you enter data on the Excel spreadsheet, do <u>not</u> change the layout of the spreadsheet, the tool will automatically organize the data based on the shift start time you select.

Shrinkage – The loss of employee availability due to time off for vacations, sick leave, etc. It is essentially the same concept as net available work hours, but focuses on lost time rather than available time – a glass half empty vs. a glass half full). The term shrinkage is often used by commercial call centers.

Staffing – Staffing is a broad terms that includes the process of determining the number of employees needed to handle a specific set of tasks and/or a given workload, finding, hiring and keeping the appropriate number of employees. It differs from scheduling in that staffing is about the number of employees needed to handle the work load, whereas scheduling is about the allocation and deployment of those employees.

Time period for analysis – in the Staffing and Retention Toolkit refers to the time period used to obtain the hourly data entered in the Analysis of Hourly Staffing Needs for a week. The hourly data can be an average from several weeks or months, a week selected at random, a week selected because it is fairly "typical" or a week selected because it is unusually busy. Be sure to record identifying information about the data, such as beginning and ending dates, phone lines included, and a brief description of any unique aspects of the time period (e.g., busy season, big game in town, etc.).

Total Call Volume (TCV) – is used to estimate staffing needs for volume- influenced positions. Call volume is simply the number of calls; it is <u>not</u> about the length or nature of the calls. All calls should be counted, incoming, lateral or transfer calls, and outgoing calls contribute to the total number of calls handled. As long as a call requires time, it should be included in the total. Note that Total Call volume can be for any time period, and it can be for any position, as long as the data is available in that format. For example, it may be appropriate to estimate staffing based on Total 9-1-1/Emergency Call Volume if all emergency calls are handled by designated calltakers. If administrative calls are tracked and counted separately from emergency calls, <u>and</u> the center staffs these positions based on volume, staffing should be estimated for the specific position. If incoming calls are distributed to whomever is available at the time, it makes more sense to lump all calls together and estimate staffing needs based on total call volume for the calltaker position in the center. Most centers will use total annual call volume for this calculation, but the tool can also calculate staffing needs for shorter periods of time such as quarterly or during a busy season (but remember to make the time adjustment in all tools). Centers where each employee handles telephone and radio activity, may want to add the number of incidents dispatched to the number of telephone calls to obtain a more accurate measure of workload (number of incidents dispatched is considered a more realistic indicator of workload than number of push-to-talk events).

Turnover Rate – The ratio of the number of workers who had to be replaced in a given time period to the average number of workers. Project RETAINS research calculated turnover as the percentage of all current positions that required replacement workers. Calculated in the Toolkit as the total number of staff that leave employment in a given year, for any reason (i.e. both voluntary and involuntary separations), divided by the total number of employees that year. Also known as attrition rate. A more accurate calculation, if data are available, is to use an aggregate of monthly averages.

Volume-influenced positions – Jobs within a communication center that require different levels of staffing based on the workload; positions that require additional employees to accommodate daily, weekly or seasonal variations in call volume. Job categories or tasks where the number of employees on any given shift is determined by the activity level ("volume") of incoming calls and/or incoming calls and dispatch. For example, if the number of calltakerson duty is different at different times of the day, different days of the week, or different seasons based on the number of incoming calls, the calltaker position should be considered a "volume-influenced" position.Staffing for volume-influenced positions is based on the total call volume for that position (usually total annual call volume), and the average time it takes to process each call. The average processing time is used to calculate call handling potential or hourly processing capability an average number of calls that can be handled by agents if they are busy every minute of the hour. The average processing capability and the total call volume are used to transform total workload into total hours of work to be done. Adjustments are made for employee availability based on Net Available Work Hours, and a reasonable target for Agent Occupancy rate (expressed as a percentage of actual busy time). The result is a number of full time employees that are needed to handle an annual workload of a certain number of calls at a given rate of calls per hour.

Workload (W) – An hourly measure of the work. Calculated as the number of hours spent processing telephone calls or handling calls and dispatch. It is determined by dividing total call volume by the average hourly processing capability (W = TCV / HPC). For example, if the Call Volume is 250,000 calls, and the average number of calls that can be handled in an hour is 30, W = 250,000 / 30 = 8333. The workload is expressed as 8,333 hours of call processing time.

Acronyms and Abbreviations

ACD	Automatic Call Distributor directs calls to next available agent
AO	Agent Occupancy is a measure of the proportion of an hour that an agent is occupied with call processing activity. Desirable levels range from 80-90 percent.
APT	Average Processing Time is total telephone busy time and any additional time needed to process a call related to a single incident.
CAD	Computer-Aided Dispatch
CALEA	Commission on Accreditation for Law Enforcement Agencies
FTE	Full Time Equivalent is the number of employees needed to staff one full time position: one full time employee or two halftime employees equal 1 FTE.
HPC	Hourly Processing Capability is processing potential if every minute of every hour is used for call processing (HPC = 60 min / average processing time = 60 min/APT)
NAWH	Net Available Work Hours is calculated by subtracting total time when an agent is not available for call processing from total work hours.
PSAP	Public Safety Answering Point
TCV	Total Call Volume is the total number of calls processed in a designated time period.
W	Workload in hours is calculated by dividing total call volume by hourly processing capability (W = TCV/HPC)

Comparison of Terminology			
Factor	Concept	Similar term	Advantage of the new term
Total Call Volume (TCV)	Number of calls	Annual Call Volume (ACV)	Not limited to annual, applicable to any time frame
Hourly Processing Capability (HPC)	Number of service requests that can be handled within an hour	Calls Per Hour (CPH)	Not limited to "calls" and implies the number is a maximum number possible rather than normative.
Average Processing Time (APT)	Length of time spent handling a service request	Average Call Duration (ACD)	Provides for the additional time involved in handling a call – allows inclusion of dispatch activity
Net Available Work Hours (NAWH)	Actual time that employees are available to handle core tasks	Net Annual Work Hours (NAWH)	Recognizes availability to handle core tasks
W = TCV x HPC	Workload is total number of calls multiplied by the hourly processing capability	Total Calls (TC)	Transforms the number of calls into a measure of potential in hours.
Hour	Unit of measurement	Shift	Increases flexibility for centers using different combinations of shift lengths.

Staffing Worksheets

STAFFING ESTIMATION WORKSHEETS

A six step process for estimating the number of employees needed**:**

Step 1: Identify the type of position you wish to analyze;

Step 2: Determine employee availability (Worksheet A, NAWH)

- You will need to do a NAWH worksheet for every profile you have created.

  Ex. Calltakers

  Dispatcher

  Supervisors

- Each requires their own NAWH worksheet. If you have cross-trained employees, their numbers will be the same. Supervisors should be considered and averaged separately.

Step 3: Determine your turnover rate (Worksheet B)

Step 4: Select the appropriate formula and analyze all positions (Worksheets C, D, E)

- Worksheet C: Coverage positions are most closely equated to minimum staffing. Each center will have a certain amount of coverage positions. Smaller centers tend to have only coverage. Medium and large centers have a mix.
- Worksheet E: this is <u>not</u> the total call volume for you center. It is the call volume handled by volume-influenced positions.

Step 5: Compare the number of staff you have with the number you need (Worksheet F)

- Worksheet F: the worksheet should reflect the number of authorized staff (<u>not</u> current staff levels)

Step 6: Do a reality check using quality indicators

Worksheet A: Determining Employee Availability

Determine Net Available Work Hours (NAWH)		
Position:		
A	_________	Total hours for one full time employee
B	_________	Average vacation and holiday leave (total hours)
C	_________	Average sick leave (total hours)
D	_________	Average personal leave (total hours)
E	_________	Average training leave (total hours)
F	_________	Average military, FMLA leave, etc. (total hours)
G	_________	Average lunch and break (total hours)
H	_________	Average other (meetings, light duty, special assignments, etc.)
I	_________	Total unavailable time = Total B through H
J	_________	Net Available Work Hours (NAWH) = A – I
___________ = Net Available Work Hours per employee (NAWH from J above)		

Worksheet B: Calculating Average Turnover Rate

Calculate Average Turnover Rate		Year					Average
		20__	20__	20__	20__	20__	
A	Total number of employees at the highest staffing level for that year						
B	Number of new hires that failed to complete the probationary period						
C	Number of experienced employees who left for any reason*						
D	Turnover Rate (Turnover = B + C ÷ A)						
E	Retention Rate (Retention = 1 – Turnover) x 100						

*Include all experienced employees who left for voluntary or involuntary reasons (e.g. turnover initiated by the employee, rotation, retirement, death, management action, etc.)

Worksheet C: Calculating Staffing for Coverage Positions

Estimate Staffing Needed for Coverage Positions
Note: Coverage positions must be covered regardless of call volume or level of activity.
Position:
Hours needing coverage: A. _______ Total number of consoles that need to be covered for this position in a 24 hour period. B. _______ Number of hours per day that need to be covered C. _______ Number of days per week that need to be covered D. _______ Number of weeks per year that need to be covered E. _______ Total Hours needing coverage = A x B x C x D Employee Availability: F. _______ Net Available Work Hours - enter average NAWH from worksheet Staff Needed: G. _______ Full Time Equivalent base estimate (FTE) = E ÷ F H. _______ Turnover Rate - from retention worksheet, convert to decimal I. _______ Full Time Equivalent required to accommodate turnover, prior to any adjustments based on quality indicators: FTE = G x (1+ H)
____________ = Estimated Staffing Need (in FTEs from Step I above)
FTE = Hours needing coverage ÷ Employee Availability x Turnover Adjustment

Worksheet D: Calculating Hourly Processing Capability

	Calculate Hourly Processing Capability
A. _____ minutes	Average telephone busy time (call duration in minutes, using decimals), from phone records
B. _____ minutes	Average call completion time (in minutes, this includes time for data entry, address verification, etc.)*
C. _____ minutes	Average Processing Time (APT) = A + B
D. _____ calls hourly	Average Hourly Processing Capability (HPC) = 60 ÷ APT)

** Your telephone software may be able to provide detailed information about telephone busy time, but you will have to use other means to determine average wrap-up time.*

Worksheet E: Calculating Staffing for Volume-influenced Positions

Estimate Staffing Needed for Volume-influenced Positions	
Note: The number of Volume-influenced positions is based on call volume or activity level.	
Position:	
Workload:	
A. _____________ calls	Total Call Volume for this position (TCV), from phone records
B. ____ minutes per call	Average Processing Time for this position (APT), from phone records
C. ______ calls hourly	Hourly Processing Capability (HPC) = 60 ÷ B
D. _________ call hours	Workload in hours (W) = A ÷ C
Employee Availability:	
E. _______	Net Available Work Hours – enter average NAWH from worksheet
F. _______	Agent Occupancy rate – enter AO, convert percent to decimal
G. _______	True Availability per person (TA) = E x F
Staff Needed:	
H. _______	Full Time Equivalent base estimate (FTE) = D ÷ G
I. _______	Turnover Rate from retention worksheet – convert to decimal
J. _______	Full Time Equivalent required to accommodate turnover, prior to any adjustments based on quality indicators: FTE = H x (1 + I)
_______________ = Estimated Staffing Need (in FTEs from Step J above)	
FTE = Workload ÷ Employee Availability x Turnover Adjustment	

Worksheet F: Comparison and Summary of Staffing Estimates

Compare Current Staffing with Estimated Staffing Needs			
WORK	Total Call Volume:		
	Total Emergency Calls:		
	Average Processing Time:		
	Hourly Processing Capability:	Current Staffing	Estimated Need
WORKERS	Coverage Positions:		
	Volume-influenced Positions:		
	Function Positions:		
	TOTALS		