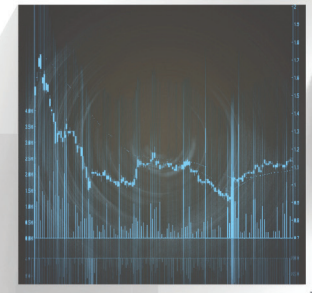
# A PERFORMANCE-BASED APPROACH TO POLICE STAFFING AND ALLOCATION

Jeremy M. Wilson and Alexander Weiss



COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

MICHIGAN STATE UNIVERSITY

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Jeremy M. Wilson and Alexander Weiss

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# About the COPS Office

**The Office of Community Oriented Policing Services (COPS Office)** is the component of the U.S. Department of Justice responsible for advancing the practice of community policing by the nation's state, local, territory, and tribal law enforcement agencies through information and grant resources.

Community policing is a philosophy that promotes organizational strategies that support the systematic use of partnerships and problem-solving techniques, to proactively address the immediate conditions that give rise to public safety issues such as crime, social disorder, and fear of crime.

Rather than simply responding to crimes once they have been committed, community policing concentrates on preventing crime and eliminating the atmosphere of fear it creates. Earning the trust of the community and making those individuals stakeholders in their own safety enables law enforcement to better understand and address both the needs of the community and the factors that contribute to crime.

The COPS Office awards grants to state, local, territory, and tribal law enforcement agencies to hire and train community policing professionals, acquire and deploy cutting-edge crime fighting technologies, and develop and test innovative policing strategies. COPS Office funding also provides training and technical assistance to community members and local government leaders and all levels of law enforcement. The COPS Office has produced and compiled a broad range of information resources that can help law enforcement better address specific crime and operational issues, and help community leaders better understand how to work cooperatively with their law enforcement agency to reduce crime.

- Since 1994, the COPS Office has invested nearly $14 billion to add community policing officers to the nation's streets, enhance crime fighting technology, support crime prevention initiatives, and provide training and technical assistance to help advance community policing.
- By the end of FY2011, the COPS Office has funded approximately 123,000 additional officers to more than 13,000 of the nation's 18,000 law enforcement agencies across the country in small and large jurisdictions alike.
- Nearly 600,000 law enforcement personnel, community members, and government leaders have been trained through COPS Office-funded training organizations.
- As of 2011, the COPS Office has distributed more than 6.6 million topic-specific publications, training curricula, white papers, and resource CDs.

COPS Office resources, covering a wide breadth of community policing topics—from school and campus safety to gang violence—are available, at no cost, through its online Resource Information Center at www.cops.usdoj.gov. This easy-to-navigate website is also the grant application portal, providing access to online application forms.

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# Preface

Much attention has been given to police recruitment, retention, and, in this economic context, how to maintain police budgets and existing staffing positions. Less has centered on adequately assessing the demand for police service and alternative ways of managing that demand. To provide some practical guidance in these areas, the Office of Community Oriented Policing Services (COPS Office) provided support to the Michigan State University (MSU) School of Criminal Justice to review current staffing allocation experiences and existing approaches to estimating the number of sworn staff a given agency requires. This guidebook summarizes the research conducted by the MSU team. It highlights the current staffing allocation landscape for law enforcement agencies and provides a practical step-by-step approach for any agency to assess its own patrol staffing needs based upon its workload and performance objectives. Additionally, it identifies some ways beyond the use of sworn staff that workload demand can be managed, and discusses how an agency's approach to community policing implementation can affect staffing allocation and deployment. This guidebook will be particularly useful for police practitioners and planners conducting an assessment of their agency's staffing need, and for researchers interested in police staffing experiences and assessment methods. This guidebook has a companion document, entitled *Essentials for Leaders: A Performance-Based Approach to Police Staffing and Allocation*, which may be of particular interest to police executives and policymakers who are concerned about both police-staffing allocation and efficiently providing quality police service in their communities.

# CHAPTER ONE

## Introduction

Staffing police departments is a continuous challenge and one that has become more complex in recent years. Immediately prior to the onset of the 2008 recession, police agencies had difficulty recruiting officers and responded by implementing a number of creative recruitment incentives. Shortly thereafter, the depressed economy caused police agencies to implement hiring freezes, furloughs, lay-offs, salary and benefit cut-backs, and retirement incentives. Such difficulties spurred 7,272 applications to the COPS Hiring Program requesting $8.3 billion to support more than 39,000 sworn-officer positions (COPS 2009). Altogether, both the supply of and demand for qualified officers are changing in a time of increasing attrition, expanding law-enforcement responsibilities, and decreasing resources (Wilson, Dalton, Scheer, and Grammich 2011).

While agencies give much attention to recruitment and retention, they often overlook a more fundamental question: *How many police officers does a particular agency need?* Answering this question is essential to any discussion about managing workforce levels, regardless of whether there is a shortage of qualified officers or an inability to support previous staffing levels. Put another way, what number of officers would help an agency most cost-effectively meet the demands placed on it? This is a fundamentally different question than how many officers does a community want or can a community support. Yet answering the "need" question effectively frames a discussion about "want" and "affordability."

Unfortunately, police decision-makers have few resources to guide them in determining the number of officers they need. To be sure, there are multiple approaches to answering this question, ranging from the simple to the complex, each with a range of advantages, disadvantages, and assumptions. These approaches, however, generally have not been described and synthesized in a way that most practitioners could immediately understand and implement. In this work, we seek to provide a practical resource to help police decision-makers understand the fundamentals of determining workforce need.

## Objective

There are many variables to consider in developing a comprehensive personnel plan. These variables include the following:

- Staffing level
- Distribution of workforce by skill, seniority, rank, gender, and race
- Deployment of personnel by function and geography
- Compensation structure
- Generational preferences and differences
- Qualification criteria and selection process
- Promotion criteria and process
- Retirement and pension options

This guidebook provides a practical resource that police decision-makers can use to assess and determine the number of sworn patrol staff they need to meet their service obligations according to their communities' preferences, expectations, and requirements. This can be considered the first step in developing a comprehensive personnel plan. By focusing exclusively on patrol staffing levels, we can give more attention to the nuances, intricacies, and scenarios of determining these and provide the broadest-applicable advice.

## Approach

We used many sources of information and expertise to develop this guidebook.

First, for context on typical staffing approaches, we reviewed the literature on police staffing analyses. This included various staffing tools and manuals, case studies, consultant assessments, and academic studies of staffing determinants.

Second, we interviewed representatives from 20 police agencies about their current staffing assessment. We sought, in particular, to identify variation in their experiences. Our interviewees represented multiple agency types and varying levels of sworn officer populations, geographic regions, and jurisdictional size and other characteristics (see Table 1.1 on page 5). We included agencies serving locations considered "college towns" (Kalamazoo, MI; Tuscaloosa, AL), cities having economic difficulties (Rockford, IL; National City, CA), and cities with recent growth (North Charleston, SC; Colorado Springs, CO). We chose seven cities from the South, seven from the Midwest, two from the Northeast, and four from the West. We chose some cities because of their membership in professional consortia that shared staffing ideas, and others because of their unique size (e.g., particularly large or small). We chose interviewees from four sheriff's offices, 14 municipal agencies, one consolidated city-county agency, and one joint police and fire protection agency. We selected individuals from urban, suburban, and rural jurisdictions.

We conducted interviews between February and September of 2010 with representatives who were familiar with staffing and personnel procedures. We interviewed the chiefs of nine agencies. We conducted group interviews of two to six persons for four agencies. We conducted in-person interviews for four agencies and telephone interviews for all others. We used a semi-structured interview protocol designed to elicit discussion about staffing issues.

## Table 1.1: Agencies Chosen for Interview, Ranked by Number of Sworn Officers

| Agency Name | Type | Sworn Officers | Region | Jurisdiction Population |
|---|---|---|---|---|
| Los Angeles County (CA) Sheriff's Office | County sheriff | 9,700 | West | 3,501,487 |
| Houston (TX) Police Department | Municipal police | 5,100 | South | 2,245,100 |
| Milwaukee (WI) Police Department | Municipal police | 1,893 | Midwest | 596,974 |
| Prince George's County (MD) Police Department | County police | 1,725 | South | 828,770 |
| Charlotte-Mecklenburg (NC) Police Department | Consolidated city-county | 1,765 | South | 753,000 |
| Seattle (WA) Police Department | Municipal police | 1,358 | West | 617,300 |
| St. Louis (MO) Police Department | Municipal police | 1,296 | Midwest | 348,189 |
| Hillsborough County (FL) Sheriff's Office | County sheriff | 1,195 | South | 1,174,727 |
| Colorado Springs (CO) Police Department | Municipal police | 623 | West | 315,000 |
| North Charleston (SC) Police Department | Municipal police | 321 | South | 90,000 |
| Rockford (IL) Police Department | Municipal police | 280 | Midwest | 151,000 |
| Tuscaloosa (AL) Police Department | Municipal police | 275 | South | 80,000 |
| New Bedford (MA) Police Department | Municipal police | 258 | Northeast | 100,000 |
| Overland Park (KS) Police Department | Municipal police | 242 | Midwest | 175,000 |
| Kalamazoo (MI) Department of Public Safety | Joint police-fire | 240 | Midwest | 95,000 |
| Lansing (MI) Police Department | Municipal police | 234 | Midwest | 118,000 |
| Douglas County (NE) Sheriff's Office | County sheriff | 127 | Midwest | 497,416 |
| National City (CA) Police Department | Municipal police | 90 | West | 65,000 |
| Slidell (LA) Police Department | Municipal police | 84 | South | 35,000 |
| McCandless (PA) Police Department | Municipal police | 28 | Northeast | 27,000 |

*Source: Agency self-report [Sworn officers]; National Public Safety Information Bureau (2011) [jurisdiction population].*

Third, we conducted a 1-1/2 day focus group with 21 police executives and planners, researchers, consultants, and members of the COPS Office.[1] The discussion centered on current and future staffing challenges; what agencies are doing to plan for their workforce needs; why agencies do not use existing staffing tools and methodologies; components of comprehensive personnel planning; who would use this guidebook and how would they use it; and how the guide should be structured.

Fourth, our research team has significant practical and academic experience working with police agencies across the United States. In particular, members of the team have had many collaborations with police agencies and various decision-makers, officials, and administrators to assess staffing needs, identify areas for improved efficiency, and develop evidence-based personnel planning lessons. We have used information obtained from several police agencies and these collaborations to illustrate our approach.

Finally, we continually solicited feedback from police and staffing experts on content and format throughout the development of this guidebook.

## Outline of Guide

In the following chapter, we review the current staffing landscape, including effects of the recent recession on staffing needs and agencies' abilities to meet them, and issues that agencies currently consider in determining staffing levels. In Chapter 3, we review some approaches to staffing, discussing how agencies may apply one specific approach called the workload-based patrol staffing model, using actual data from select departments to illustrate the process. We highlight alternative ways of providing police service in Chapter 4, and conclude in Chapter 5 with a discussion of the relationship between police staffing and community policing.

1. Ordered by institution, participants included Alexander Weiss, Alexander Weiss Consulting; Lynn Nelson, Cache County (UT) Sheriff's Office; Katrina Graue, Charlotte-Mecklenburg (NC) Police; Ron Sloan, Colorado Bureau of Investigation; Amanda Terrell-Orr, Colorado Springs (CO) Police; Albert Pearsall and Mora Fiedler, COPS Office; Russ Torres, Douglas County (NE) Sheriff's Office; Dwayne Orrick, Cordele (GA) Police; John Jackson, Houston (TX) Police; Gary Cordner, Kutztown University; Todd Diaz, Lafourche Parish (LA) Sheriff's Office; Bruce Fogarty, Los Angeles County (CA) Sheriff's Office; Peter Bellmio, Management Consultant Group; Jeremy Wilson and Charles Scheer, Michigan State University; Adolfo Gonzales, National City (CA) Police; Victoria Brock, Prince Georges' County (MD) Police; Darryl Smith, Percyville (VA) Police; Greg McFadden, Seattle (WA) Police; and Kenneth Hailey, St. Louis (MO) Metropolitan Police.

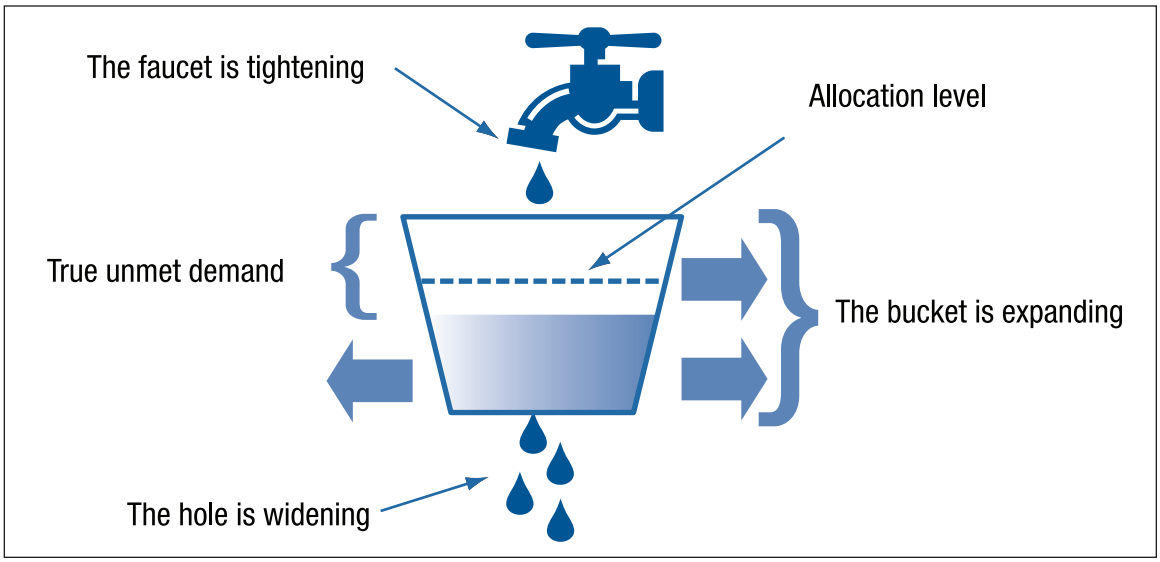
# CHAPTER TWO

## Charting the Staffing Landscape

To illustrate the staffing landscape that police agencies face, including the total demand for new officers and the challenges in personnel planning, Wilson et al. (2011) suggest a "bucket" metaphor (see Figure 2.1). In this analogy, the bucket represents the total demand for police officers. The supply of personnel flows through a tightening faucet, shrinking due to changing generational preferences and a decreasing number of qualified applicants. The 2008 recession shut off this flow completely for some agencies, who found themselves unable to hire, thus disrupting the delivery of services by increasing the level of unmet demand for police (McNichol, Oliff, and Johnson 2010). Meanwhile, the hole in the bucket, caused by retirement, military call-ups, and other sources of attrition, is expanding. The demand for police officers is increasing because of the need for local police to address community policing, homeland security, and other emerging issues, such as immigration enforcement, computer crime, violence in schools, and the implications of social media. The net result is an increasing gap between the actual number of officers and both the allocation level (shown by the dashed line in Figure 2.1) and the total demand for officers.

Though helpful for illustrating overall issues, the bucket metaphor may not account for all complexities in police staffing. In recent years, many local communities have had to implement stop-gap measures, such as furloughs, hiring freezes, layoffs, and unfilled vacancies, to meet budget deficits, all of which affect staffing cohorts and have long-term implications on strategic planning and personnel management, including recruitment, retention, training provision, career progression, supervision, productivity, morale, costs of service, and so on (Wilson, Rostker, and Fan 2010). The recruitment-and-retention challenge local agencies have traditionally faced has become a multifaceted problem that affects all forms of personnel administration and service delivery.

Figure 2.1: The Staffing Supply and Demand Bucket Metaphor



## The Profound Effect of the 2008 Recession on Staffing

The recession of late 2008 and early 2009 aggravated the relationship between staffing and unmet demand. In our interviews, agency representatives portrayed themselves as struggling with a crisis previously created by pronounced staffing difficulties.

The interviews suggest that the deepening crisis has led to a precarious situation. The crisis further restricts the resources and hence the ability of agencies to plan strategically for staffing needs. Indeed, one respondent told us economic restrictions have become so severe that agencies often cannot apply innovative solutions learned elsewhere. Such inability adversely affects how well agencies can meet individual and organizational needs ranging from training and supervision to career progression and leadership (Wilson et al. 2010). Agencies feel planning is more important than ever for determining staffing needs and in getting the resources to meet these needs. Many respondents do not believe their agency is "understaffed," because it has already absorbed the additional workload arising from budget-cutting. Nevertheless, though they can offer no empirical analysis of the impact of losing officers, they feel such analyses could show an understaffing problem. Economic growth, practitioners told us, will not solve the problem of diminished resources that constricts staffing analyses and imperils agency staffing.

To date, there have been no comprehensive evaluations of the ultimate impact of the 2008 recession, which DeLord (2009) termed a "perfect storm" for police human-resource concerns, on service delivery in America's police agencies. However, the COPS Office recently compiled and assessed data from a variety of sources and confirmed a downward trend in staffing levels (the first in at least 25 years): about 12,000 police officers and deputies were laid off in 2011; there were about 30,000 unfilled sworn positions; about 28,000 law enforcement personnel experienced a work furlough of at least one week or more in 2010; and over half of U.S. counties are providing police service with fewer staff than one year ago (COPS 2011; Melekian 2012). Without such evaluations, anecdotal evidence captures but a glimpse of a larger problem that the Police Executive Research Forum (PERF) contends has led to cuts in training, hiring, recruitment, and benefits packages (PERF 2010).

The recession appears to have produced an environment prompting reconsideration of traditional staffing concerns and practices. Concerns about the economy color personnel decisions from staffing analysis to supervision to retention.

The substantive effects of the 2008 recession remain unclear. McNichol et al. (2010) suggest its effects upon state budgets continue due to the lag of federal stimulus money and a growing inability of many states to close budget gaps. Our interviewees also note concerns ranging from the utility of staffing benchmarks (e.g., existing staffing numbers don't always reflect the number actually needed) and budgeting for new hires to community policing efforts and perception of staffing strength. One police chief related that "there hasn't been any real urgency, until now." Interviewees also fear that the ultimate effects of the recession pose a greater hazard to institutional health than initially envisioned, especially as federal stimulus dollars diminish.

Beyond the scope of this work, more research is needed to discern the ultimate effects of the recent recession on agencies by size and organizational characteristics, including their ability to provide adequate staffing levels and to meet needs for community policing, service quality, training, accreditation, employee retention, organizational planning, accountability, and advancement. As one respondent stated, "The [staffing] process is getting extremely difficult, and we need help." Another lamented that examining staffing needs "works great…but can we keep any of what we have, given our current budget?" Such statements may reflect a fiscal "new normal" for public services (McNichol et al. 2010; Scott-Hayward 2009).

In light of both systemic and recent events one thing is clear—the complexities of the contemporary staffing challenge call for ongoing, comprehensive, evidence-based personnel planning.

## A Wide Range of Internal and External Factors Determine Staffing Need

Beyond the effects of the recent recession, respondents described a number of departmental variables that influence the need for officers (see Table 2.1). These may be used as agency-specific inputs in a staffing model designed to generate a number of desired sworn officers. One respondent provided a unique visual of the process: the staffing allocation in his city is based on mandatory minimums, but there are other pieces, such as funding, to the "pie" that are equally crucial and may restrict hiring of new recruits. Many of these pieces do not actually affect demand but rather how an agency processes or manages the demand.

### Table 2.1: Variables Respondents Claimed Influence the Need for Sworn Staff

| Variables |
|---|
| Efficiency and productivity |
| Crime rates and anticipated growth or decline |
| Job tasks/type of calls |
| Officer/population ratios |
| Mandatory minimums |
| Collective bargaining minimums |
| Shift distribution |
| Supervisory placement |
| Command staff need |
| Response time |
| Uncommitted time |
| Call volume |
| Estimates of future call volume |
| Technology |
| Organizational capability |
| Organizational ethic |
| Organizational vision and planning |
| Public pressure |
| Geographic issues |
| Community policing style |

*Source: Respondent interviews*

## Agencies Perform Staffing Analyses to Varying Degrees

Most agencies recognize the importance of staffing analysis. All but three agencies in our sample have used some type of analysis to determine personnel needs. Nevertheless, the sophistication of analysis varies considerably given that each agency has a different level of facility with the processes, prescriptions, and formulas available, as well as a different familiarity with what a proactive planning analysis requires. What constitutes a "staffing analysis" for each agency depends on organizational needs, capacities, time, and resources.

### Table 2.2: Staffing Benchmarks Indicated by Respondents

| Benchmarks |
|---|
| Levels mandated by labor agreement |
| Budget |
| Productivity assessments/job task analysis |
| Reported calls for service or perceived need |
| Anticipated workload |
| Officer/population ratios |
| Crime levels |
| Officer/crime ratios |
| Response time |
| Mandated minimum staffing totals |
| Officer distribution |

*Source: Respondent interviews*

We asked our interviewees what staffing benchmarks their agencies use (see Table 2.2). Many noted that the use of specific benchmarks is fluid. Representatives of three agencies of varying size told us that benchmarks are seen as "idiosyncratic" and often are used selectively to support impressions of personnel stability. Respondents representing four agencies were apprehensive about using benchmarks as strict measurements because of the perception that they do not account for organizational change. Respondents in one of the largest agencies said they are skeptical about using population-based staffing metrics because such metrics do not incorporate specific community needs.

There does not appear to be any pattern by agency size or jurisdictional character to explain variation in staffing analyses. Representatives of agencies with more than 1,000 officers showed the same variation as those with fewer officers. Representatives of agencies with 100 to 300 officers were more likely to claim that budget concerns could limit analyses. One agency sought to conduct staffing analyses during budgeting in order to make less arbitrary decisions. Two agencies had empirically compared their needs to others of similar size or jurisdiction through participation in professional consortia, such as the Massachusetts Major City Chief's Association and the Benchmark Cities Survey (City of Overland Park 2010). Four other agencies conducted less formal comparisons.

Agencies cite many different reasons for conducting staffing analyses. Perhaps most commonly, agencies may conduct staffing analyses when organizational or leadership changes occur. They may also, as noted, conduct them for budget and labor negotiations. Indeed, representatives of two agencies said that such an analysis is required by labor contract. Agencies may also conduct analyses in response to new funding restrictions or to determine the effect of recent position losses or increases.

Agencies may also conduct ad hoc analyses. One chief told us, in addition to more comprehensive and formal analysis, his agency will conduct analyses when he "gets a wild hair." Some focus group participants said they conduct staffing analyses for accreditation purposes, but receive no formal guidance on which method to use.

Respondents from five agencies expressed concern that, because past staffing analyses had occurred prior to the most recent economic recession, they may not reflect current needs. One respondent stated that city budgets rely on "historical precedent" that has been rendered obsolete because it assumes comparability between the current and prior fiscal environment.

## Budgeting for Staffing is Precarious

We asked respondents to discuss their budgeting process. Many noted that although budgeting is usually a cooperative effort within agencies (e.g., chief and command staff) and between agencies and local government (e.g., chief and city council/mayor), now they feel pressure to justify their budgets more than ever. Agencies discuss budgets throughout the fiscal year, and view staffing analyses as a means to influence budget makers. How or when they use such analyses varies. Respondents from three agencies explained that the budget is final when presented to them. Agencies may also use public outcry about crime waves, or increased complaints about service cutbacks, to pressure local governments for staff increases. A few agencies noted making temporary adjustments to their budget because of stimulus grants. One agency is examining ways to fund community policing outside budget negotiations.

We asked respondents to identify variables that decision-makers use for staffing allocation (see Table 2.3). Many of these variables, such as calls for service and mandatory minimum levels, affect shift allocation. Three agencies reported performing workload assessments to guide allocation decisions. One respondent explained his agency employs a minimum staffing approach but often needs to adjust staffing deployment based on daily needs.

Table 2.3: Variables Respondents Claimed Determine Staff Allocations

| Variables |
|---|
| Calls for service |
| Crime levels |
| Response time |
| Patrol allocation |
| Shift distribution |
| Geographic disbursement |
| Officer-population ratio |
| Mandatory minimum levels |
| Metrics arising from workload assessments |
| "Game-time decision" at shift level |

*Source: Respondent interviews*

Not all respondents keep their actual staff levels close to their budgeted levels. Some deliberately keep fewer staff than authorized so that budget cuts do not debilitate their department. Most see this gap as inevitable due to fluctuations in staff resulting from military call-ups and layoffs or furloughs. Most also see the gap as unavoidable in the current fiscal environment. What matters is that the gap not grow nor become a permanent problem. Being "close to full staff" is a more realizable and practical goal for most responding agencies. Many respondents felt that if they can get through a fiscal year without layoffs or other events increasing the unmet demand for police, then they have adequately weathered whatever financial problems existed. If departments are able to minimize larger, systemic problems, one respondent said, then the department can resolve "spot problems" with overtime.

## Agencies Feel Understaffed, But Cannot Demonstrate It

Few agencies are able to conclusively demonstrate through workload analysis that they are not properly staffed. Several agencies acknowledged that they can reassign or redeploy officers to overcome shortages and meet workload demands. Agencies that use staffing-analysis software note that the software-based analyses suggest mathematically that their staff numbers are sufficient.

For many agencies, understaffing is a *feeling* that traditional workplace efforts appear disrupted. Some agencies pointed out ways they feel understaffed (see Table 2.4). Others state the extent to which they feel understaffed changes over time, given various changes in duties and crime trends. A common claim of respondents, regardless of perceived staffing need, was that agencies could accomplish more with additional officers. The perception of always needing more officers coupled with the seemingly haphazard way by which police agencies determine staffing led one agency to seek staffing analysis techniques. Another claimed that an "immediate need" existed for an empirically-based staffing analysis. A focus-group participant claimed that the lack of empirical staffing analysis directly affects challenges such as departmental efficiency and employee recruitment.

### Table 2.4: Stated Reasons for Perceive Understaffing Reasons

| Reasons |
|---|
| Decline in officer proactivity |
| Increase in administrative tasks |
| Lack of staffing flexibility |
| Inability to reduce overtime |
| Trickle-down effect stresses specialty assignments |
| Perceived efficacy of service delivery |
| Concerns about future departmental expansion |
| Concerns about military deployments |
| Triage-ing of calls |
| Increased response times |
| Increase in citizen complaints |
| Burden of police reporting has shifted to citizens with little agency follow-up |
| "Intuition" |
| "Doing more with less" |
| "Officers have a full plate" |

*Source: Respondent interviews*

While many agencies have fewer sworn staff numbers than budgeted, the notion of a "full staff"—let alone what may constitute evidence of understaffing—appears to be subjective. Typically, police personnel consider their agency understaffed if their current number of officers is below their allocated level. This is problematic if the allocated level is not based on any kind of workload or performance assessment. In this situation, officers might feel there is a lack of commitment to the police and that they are overworked, even if the agency has enough officers to meet current demand. Agencies typically use processes that rely on organizational familiarity to reach what one respondent called an "educated arbitrary figure." One agency had nearly 200 fewer officers than budgeted and a graduating academy class of recruits that was funded entirely by federal stimulus grants, yet its respondents did not perceive understaffing (an assessment that might not, of course, be universally shared). Some practitioners also do not believe staffing cures all. As one focus group participant said, "If the answer to our problems is more staffing, we'll always be understaffed."

## Context Matters When Considering Staffing Analysis

When asked to provide department-specific contexts for their staffing experiences, respondents listed circumstances that were remarkably similar across agencies. Budget constraints were important to almost all respondents. Respondents from more than half the agencies in our sample stated that their relationships with state or local governments were strained because of the recent recession and subsequent budget negotiations. Such strains, they added, have actually led agencies of varying size to share knowledge and strategy. Professional organizations help provide connections for sharing strategies.

The perceived unique context of each jurisdiction is both a disadvantage and a potential benefit for staffing analyses. Because they feel their environments are unique, some practitioners feel that inter-departmental comparisons yield few tangible solutions to problems that they have faced independently over long periods of time. Respondents from three agencies expressed a desire to conduct analyses, but were reluctant to use peer comparisons because of the perception that no other agency has a similar operational environment. One respondent said that although "we're always looking at what others are doing," specific organizational issues not shared by others make such comparisons "meaningless." Such an attitude may isolate agencies professionally. As one chief commented, "We're not in competition with each other," and "all our problems are basically the same." Using peer comparisons in budget negotiations may counter or confirm perceptions that an agency's struggle is common or unique, allowing for informal and casual comparisons upon which many professional relationships are based. Peer benchmarking can also help mitigate insular thinking and the potential belief that the agencies and communities are more different than they truly are. In fact, as discussed throughout this guidebook, agencies share a lot of common characteristics and experiences.

## Community Policing and Problem-Solving Efforts Are Being Compromised

Perceived understaffing may undercut community policing and similar problem-solving efforts. Many agencies disclosed that the relationship between staffing and community policing efforts may not be linear. Problem-solving may be structurally integrated in community-oriented approaches to patrol, response, follow-up, and organizational transparency. Nevertheless, both specialized units (often in the form of school, housing, or business-related outreach programs) and proactive patrol efforts are compromised because of restrictions in uncommitted officer time arising from budget cutbacks.

Increased duties arising from fiscal belt-tightening reduce officer-initiated time normally spent in the community. One chief said that "our officers cannot add one more thing to their plate" because of a lack of personnel. Increased response times, additional report taking, triage of calls, and other indicators of understaffing have contributed to a sense that the time available for long-term problem-solving is shrinking. "During tough times, the important stuff is the first to go," said one chief whose agency seeks to solve problems locally by establishing one-on-one relationships with the public.

While many of the duties officers no longer have time to perform could be transferred to non-sworn staff, one respondent saw potential disadvantages to such an approach. Telephone interviews by non-sworn staff, lack of follow-up with lower-level property crime calls, and online crime-reporting reportedly have contributed to public perceptions that the agency is isolated and does not care about residents. This, in turn, could undermine gains made in community policing.

Changes in protocol resulting from staffing deficiencies and the need to manage demand have also contributed, one respondent claimed, to "slippage in our clearance rates." Over time, such slippage may lead to negative public perceptions of the agency. This respondent in particular feared increases in citizen complaints, despite the lack of any current "organized public outcry."

## Salient Themes Emerge from Staffing Experiences

Much of what respondents shared on their staffing experiences reflects a state of being overwhelmed, both by concern for budgetary shortcomings and by lack of experience with long-term economic difficulties. Nevertheless, representatives from all but two agencies in our sample said the way they currently determine their staffing budgets reflects normal procedure. Despite feeling overwhelmed and underprepared, few agencies and local governments are changing how they determine their budgets. Instead, the biggest difference since the recession has been in how agencies absorb additional workload caused by staffing shortages. Respondents indicate they seek answers to help them navigate contemporary budget challenges, but they appear to rely on approaches developed when staffing crises did not exist.

## Agencies Are Adjusting to a "New Normal"

Concern for the volatile economy as a fundamental problem has transitioned to an "adjustment stage" (four agencies noted this). Opportunities to expand staff are restricted despite a growing concern that the recession has magnified the need for urgent and innovative action. In each agency, the economic crisis has created tenuous relationships with local government and led to fears that service restrictions will result in public dissatisfaction and undermine community outreach efforts that have been building for several years. This suggests the importance of police–community communication (e.g., through meetings, presentations, surveys, newsletters)—the police need to keep abreast of community concerns while simultaneously sharing their practical realities.

## Agencies Seek Efficient Ways to Do Business

Efficient and effective service delivery is a focus of many agencies both in budgeting and evaluating staffing. Six of the agencies view the current economic crisis as a watershed moment in their organizational development and are searching for ways to staff effectively and efficiently. Capitalizing on technology and learning from other professions, including the private sector, are just a few options to explore.

## Staffing Analysis Remains a Mystery to Many

For many agencies, staffing assessment tools and processes appear to be a "black box." Many feel frustrated by either the lack of control in conducting analyses or a lack of understanding of their mechanics. Agencies speak of workload assessments, computer programs, metrics, and formulas with an often unclear understanding of how these resources actually work, sometimes placing blind faith in them to define their staffing needs. Some agencies lamented that many metrics used in computerized staffing analyses appeared either irrelevant or inapplicable to them. Four agencies make staffing decisions with little empirical data or analysis to support them, even pinpointing areas where they think research could help but remaining unaware whether any exists.

## Staffing Analyses Are Useful but Out of Reach

Agencies view staffing analyses, specifically those conducted with external assistance, as especially important in recessionary times. Due to the rigor and apparent objectivity of such analyses, these agencies hypothesize that expert assessments could provide them with greater leverage for negotiating budgets with local decision-makers. Although expert analysis might better articulate their true needs, many agencies cannot afford to hire others to do them and lack the expertise or time to conduct them internally. These limitations frustrate many agencies. These same kinds of limitations have been identified in similar studies (see Levine and McEwen 1985).

### Staffing Is an Intuitive Process

Certain agencies, suspicious of external analysts and formulas, feel comfortable using processes that rely largely on historical precedent or, at times, no empirical basis at all. This intuitive process is often defended as providing a more individualized picture of an agency's staffing needs. One agency stated that in 4 years it conducted three different staffing studies but none reflected its unique needs. Another stated that metrics available in software packages and from external sources may present "basic standards" but do not account for variables such as geography and organizational changes.

## Concluding Remarks

The staffing landscape, particularly that portrayed by the respondents and focus group participants in our study, is one characterized by complexity and uncertainty. While the staffing experience appears to vary by agency, a common thread is that the determination of staffing need warrants greater attention. As one respondent put it, "We determine how many officers we need by holding an envelope to our head." In the next chapter, we take a step to help guide an evidence-based process by presenting an approach to assessing the demand for patrol officers who form the "backbone" of the police organization.

# CHAPTER THREE

## A Workload-Based Assessment for Patrol

In this chapter, we highlight common staffing approaches and demonstrate how agencies may develop and use a workload-based assessment of patrol staffing needs that incorporates performance objectives for discretionary time. We also review various work schedules and illustrate their importance in patrol staffing allocation, using data from four law enforcement agencies, including information from their calls for service and notional work schedules.

An assessment approach reflecting departmental workload can help provide a better and more objective means for determining staffing needs. Additionally, comprehensive assessments for patrol help to answer a host of critical questions, including:

- How many patrol units should be on duty during each shift?
- How should they be distributed among the various communities in the city or county?
- Should one officer or two be assigned to each car? Or, should there be a mix of one-officer and two-officer cars?
- How do patrol officers spend their time when they are not handling calls for service?
- What are the patrol beats for each car?
- Which citizen calls merit response by a patrol car, and which ones can be handled by other means, such as taking a crime report over the telephone?
- How many cars are dispatched to each call?
- What should be the starting times of patrol officers' tour of duty?
- What do patrol officers' schedules look like: days on duty, tour rotation, and so forth (Levine and McEwen 1985, 3)?

Police-staffing models have evolved to reflect models of policing. The earliest models reflected approaches to addressing rising crime and the number of personnel necessary to do so. Later models aimed to improve efficiency, but did not give much attention to discretionary time needed for community policing. More recent models address community policing needs, but can require difficult decisions—e.g., defining response intervals.

## Typical Approaches to Staffing Allocation

Traditionally, there have been four basic approaches to determining workforce levels. Each differs in its assumptions, ease of calculation, usefulness, validity, and efficiency. We review each below to provide context for developing an evidence-based approach to police staffing.

## The Per Capita Approach

Many police agencies have used their resident population to estimate the number of officers a community needs (Adams 1994; Orrick 2008). The *per capita method* requires determining an optimum number of officers per person and then calculating the number of officers needed for the population of a jurisdiction (Orrick 2008). To determine an optimum number of officers per population—that is, an optimum officer rate—an agency may compare its rate to that of other regional jurisdictions or to peer agencies of similar size. Although it is difficult to determine the historical origin of or justification for the per capita method, it is clear that substantial variation exists among police departments.

Advantages of the per capita method include its methodological simplicity and ease of interpretation. The population data required to calculate this metric, such as census figures and estimates, are readily available and regularly updated. Per capita methods that control for factors such as crime rates can permit communities to compare themselves with peer organizations (Edwards 2011). The disadvantage of this method is that it only addresses the quantity of police officers needed per population and not how officers spend their time, the quality of their efforts, or community conditions, needs, and expectations. Similarly, the per capita approach cannot guide agencies on how to deploy their officers.

Agencies using the per capita method may risk a biased determination of their policing needs (Adams, Baer, Denmon, and Dettmansperger 2009; Campbell, Brann, and Williams 2003; Coleman 2010; Ervin 2007; Glendale Police Department 2009; Hale 1994; Hassell 2006; IACP 2004, 2007; Orrick 2008). There are several reasons for this. First, there is no generally accepted benchmark for the optimum staffing rate. Rather, there is considerable variation in the police rate depending on community size, region, agency structure and type. Table 3.1 on page 23, for example, shows widely varying rates by region, population of jurisdiction, and for selected large jurisdictions.

Per capita ratios do not account for the intensity of workload by jurisdiction. Crime levels and types can vary substantially among communities of similar population sizes. Per capita ratios also do not account for changes in population characteristics (such as seasonal fluctuations in tourist communities), or long-term trajectories of population growth and shrinkage.

The per capita method does not account for variations in policing style, service delivery, or response to crime (i.e., how police officers spend their time). Some police departments may choose to use non-sworn staff to perform some service functions. Others may choose a more community-oriented (with various forms of implementation) or traditional style of service delivery. Variations in how agencies choose to patrol their jurisdictions also have implications for staffing needs that are not reflected in per capita ratios.

## Table 3.1: Full-time Officers per 1,000 Population by Region, Community Population, and for Selected Large Jurisdictions

| Location | Number of Full-Time Officers per 1,000 Population |
|---|---|
| **Region** | |
| Northeast | 2.6 |
| South | 2.6 |
| Midwest | 2.2 |
| West | 1.7 |
| **Population of Jurisdiction** | |
| 250,000 or more | 2.7 |
| 100,000 to 249,999 | 1.8 |
| 50,000 to 99,999 | 1.7 |
| 25,000 to 49,999 | 1.8 |
| 10,000 to 24,999 | 1.9 |
| 2,500 to 9,999 | 3.5 |
| All sizes | 2.3* |
| **Selected Jurisdictions** | |
| Washington, D.C. | 6.7 |
| New Orleans, Louisiana | 6.5 |
| Baltimore, Maryland | 4.7 |
| Chicago, Illinois | 4.7 |
| Philadelphia, Pennsylvania | 4.7 |
| Newark, New Jersey | 4.4 |
| New York, New York | 4.3 |
| St. Louis, Missouri | 3.9 |
| Boston, Massachusetts | 3.7 |
| Cleveland, Ohio | 3.6 |
| Detroit, Michigan | 3.5 |
| Atlanta, Georgia | 3.4 |
| Milwaukee, Wisconsin | 3.4 |
| Cincinnati, Ohio | 3.2 |
| Los Angeles, California | 2.5 |
| Houston, Texas | 2.3 |
| Phoenix, Arizona | 2.1 |
| Albuquerque, New Mexico | 1.9 |
| Las Vegas, Nevada | 1.8 |
| San Diego, California | 1.5 |
| Montgomery County, Maryland | 3.1 |

*Sources: Federal Bureau of Investigation (2011), Reaves (2010).*

*There is significant variation within each of these categories. For example, in the Northeast region, ratios range from 4.1 for cities over 250,000 to 1.8 for cities from 10,000 to 25,000 in population. In cities over 250,000 in population the ratios range from 2.0 officers per 1,000 in the West to 4.1 in the Northeast

Table 3.2: Police Staffing Ratios in Michigan Cities with Populations Between 100,000 and 200,000

| City | Estimated Population | Sworn Officers | Officer Rate per 1,000 | Crime Rate per 100,000 |
|---|---|---|---|---|
| Lansing | 114,415 | 240 | 2.09 | 1,819 |
| Flint | 113,462 | 201 | 1.77 | 3,339 |
| Warren | 133,721 | 230 | 1.71 | 1,144 |
| Grand Rapids | 193,096 | 323 | 1.67 | 2,416 |
| Ann Arbor | 115,148 | 149 | 1.29 | 1,253 |
| Sterling Heights | 127,697 | 166 | 1.29 | 1,058 |

The per capita approach fails to account for environmental differences among jurisdictions. It does not incorporate service-area size, weather patterns, or physical barriers and obstacles (such as rivers, mountains, bridges, and tunnels) in determining optimum staffing levels. Furthermore, it does not account for non-crime related functions and activities, traditionally performed by police as community demographic and economic characteristics dictate. In sum, the per capita method does not consider community context for determining staffing levels.

Table 3.2, which presents population, officers, officer rate, and crime rate for six Michigan jurisdictions with populations between 100,000 and 200,000, demonstrates how differing communities can have variations in their officer rates. Flint, which reports the highest crime rate, has the second-highest officer rate. Yet Lansing, with a crime rate only about half that of Flint, has the highest officer rate. Warren, with a crime rate only about one-third that of Flint, and less than half that of Grand Rapids, has the third-highest officer rate.

Given the disadvantages noted above as well as others, the International Association of Chiefs of Police (IACP) has strongly advised against using population rates for police staffing. The IACP (2004, 2) notes, "Ratios, such as officers-per-thousand population, are totally inappropriate as a basis for staffing decisions…. Defining patrol staffing allocation and deployment requirements is a complex endeavor which requires consideration of an extensive series of factors and a sizable body of reliable, current data."

## The Minimum Staffing Approach

The *minimum staffing* approach requires police supervisors and command staff to estimate a sufficient number of patrol officers that must be deployed at any one time to maintain officer safety and provide an adequate level of protection to the public (Demers, Palmer, and Griffiths 2007; Orrick 2008). The use of minimum staffing approaches is fairly common (Kotsur 2006; National Sheriffs' Association 2007) and is generally reinforced through organizational policy and practice and collective bargaining agreements.

There are two principal reasons a jurisdiction may use a minimum staffing approach. First, policymakers in many communities believe there are a minimum number of officers needed to ensure public safety. This may be particularly common in small communities where there are relatively few citizen-generated demands for police service yet residents expect a minimum number to be on duty at all times. Second, police officers themselves may insist (often through collective bargaining) that a minimum number of officers be on duty at all times. In some communities, the minimum staffing level is established by ordinance (Mrozinski 2010).

There are no objective standards for setting the minimum staffing level. Agencies may consider population, call load, crime rate, and other variables when establishing a minimum staffing level. Yet many agencies may determine the minimum necessary staff level by *perceived* need without any factual basis in workload, presence of officers, response time, immediate availability, distance to travel, shift schedule, or other performance criteria (New Jersey Division of Local Government Services 2009; Shane 2007; Demers et al. 2007; Orrick 2008). This may result in deploying too few officers when workload is high and too many officers when it is low. To be sure, the minimum staffing level is often higher than what would be warranted by the agency workload. Ironically, even when the minimum staffing is not workload based, it is not uncommon to hear police officers suggest that an increase in the agency's workload should warrant an increase in the minimum staffing level.

Minimum staffing levels are sometimes set so high that it results in increasing demands for police overtime. When staffing falls below the minimum standard, police managers typically must "hire back" officers on overtime to satisfy the minimum staff requirement. It is not uncommon for some agencies to hire back officers nearly every day due to officers taking time off for sick leave, vacations, or other reasons. Additionally, some agencies use a very narrow definition of available staffing. For example, they may hire back to fill a vacancy in patrol, even though there are a number of other officers on the street, including those in traffic, school resource units, and supervisors. Inefficiency increases when there are minimum staffing levels on overlapping shifts, leading to a higher number of officers on duty at a time that may not coincide with workload demand.

Most police officers, given a choice, would prefer to have more officers on the street, lending credence to a minimum-staffing model. Nevertheless, increasing the minimum staffing level will not, by itself, improve agency performance or necessarily increase officer safety. In fact, officers hired back to work extra shifts are likely to be fatigued, increasing the risk of injury to themselves or others.

Minimum staffing can also decrease the extent to which an agency can be nimble and flexibly deploy officers based on changing workload demands.

Finally, in some agencies the minimum staffing level may become, by default, the perceived optimal staffing level. In these situations, agencies often use the minimum level as a method to decide, for example, whether an officer can take a benefit day off. Others build work schedules so as to ensure that the minimum level is on duty. In these situations, staffing decisions are based on meeting the minimum level rather than optimizing the available resources to meet workload demand.

## The Authorized Level Approach

The *authorized level* approach uses budget allocations to specify a number of officers that may be allocated (Wilson et al. 2011). (See, for example, City of Bloomington 2009.) Although the authorized level may be determined through a formal staffing assessment, it is often driven by resource availability and political decision-making. The authorized level does not typically reflect any identifiable criteria such as demand for service, community expectations, or efficiency analyses, but may instead reflect an incremental budgeting process.

It can sometimes be difficult to determine what is meant by authorized level. For example, in 2009, the Chicago Police Department simultaneously offered an early retirement plan and reduced hiring of new officers. As a result, at the end of 2009 the department was about 700 officers below its authorized level of 13,500. In addition, there were also more than 1,000 officers unavailable each day because of leave or other limited capacity. This resulted in media reports suggesting that the department was operating nearly 2,000 officers below its authorized level (Fox News 2009).

The authorized level can become an artificial benchmark for need, creating the misperception among police leadership, line staff, and the community that the agency is understaffed and overworked if the actual number of officers does not meet the authorized level (Baker and Harmon 2006). Additionally, as our focus group participants noted, unless an agency staffs above the authorized level, fluctuations in recruitment, selection, training, and attrition may lead to the actual staffing levels falling below authorized levels. Wilson, Rostker, and Fan (2010) found that municipal police agencies with at least 300 sworn officers are, on average, 5 percent below their authorized sworn level.

Because the authorized level is often derived independently of workload considerations, an agency may be able to meet workforce demand with fewer officers than authorized. Still, the *perception* of being understaffed, resulting when officials bemoan the department operating below authorized strength, can diminish morale and productivity (Shane 2010) and make it appear that the community is not adequately funding public safety.

## The Workload-Based Approach

A more comprehensive attempt to determining appropriate workforce levels considers actual police workload.[2] *Workload-based* approaches derive staffing indicators from demand for service (Lumb 1996). What differentiates this approach is the requirement to systematically analyze and determine staffing needs based upon actual workload demand while accounting for service-style preferences and other agency features and characteristics. The workload approach estimates future staffing needs of police departments by modeling the level of current activity (Orrick 2008; Wilson and McLaren 1972; Keycare Strategy Operations Technology 2010). Conducting a workload analysis can assist in determining the need for additional resources or relocating existing resources (by time and location), assessing individual and group performance and productivity, and detecting trends in workload that may illustrate changing activity levels and conditions (Glendale Police Department 2009; Hale 1994; Orrick 2008; Shane 2007). Furthermore, a workload analysis can be performed at every level of the police department and for all key functions, although it is more difficult to assess workload for some units than others (Hale 1994). The importance of the workload-based approach to staffing is evidenced by it being codified as a standard (16.1.2) by the Commission on Accreditation for Law Enforcement Agencies (2006). The agency allocates personnel to, and distributes them within, all organizational components in accordance with documented workload assessments conducted at least once every 3 years.

Unfortunately, there is no universally-accepted standard method for conducting a workload-based assessment. Defining and measuring "work" varies by agency. Knowing that staff decisions are based upon calls for service and the time required to respond to them, officers may not have an incentive to be efficient in their response to calls or even to engage in activities that reduce calls (Orrick 2008; Shane 2007). Learning how to conduct a workload-based assessment may be challenging for police administrators. Typical workload models are complicated and require intensive calculations. They also require decisions on a wide array of issues that are very difficult for officials and communities to make—such as how frequently streets should be patrolled—and do not uniformly account for discretionary activities, such as time for community policing and other officer-initiated activities.

Software programs may simplify the analytical process, but their methods are not always clear and can be inappropriate for some agencies. The cost of purchasing these software programs can be substantial, as can the training of staff to use them. These programs can be helpful for scheduling purposes, but less so as a tool for optimizing resources. Rather than relying on software, some agencies hire outside assistance to assess their workload. This may be more costly than conducting the analysis "in-house," but the analysis will benefit from experience, the results may carry greater weight among decision-makers because they are independent, and, in most cases, the cost-savings of creating a more efficient staff allocation more than offsets the costs of the analysis.

2. For an historical overview of "early" and "modern" work-load based allocation models for patrol, see Fritsch, Liederbach, and Taylor (2009).

We suggest that, even with shortcomings, allocation models based on actual workload and performance objectives are preferable to other methods that might not account for environmental and agency-specific variables. Agencies could benefit from a more popularized workload-based methodology of staffing analysis that is easy to learn, comprehend, employed by administrators, and, importantly, helps to effectively manage discretionary time. No single metric or benchmark should be used as a sole basis for determining an agency's staffing level (Fritsch, Liederbach, and Taylor 2009). Rather, agencies should consider metrics in light of professional expertise that can place them in an appropriate practical context.

## A Step-By-Step Approach for Conducting a Workload-Based Assessment

We demonstrate how to conduct a workload-based assessment by examining the distribution of calls for service in four law enforcement agencies:

1. The Delaware, Ohio, Police Department, June 1, 2007–May 31, 2008
2. The Rockford, Illinois, Police Department, July 1, 2007–June 30, 2008
3. The Lansing, Michigan, Police Department, January 1, 2009–December 31, 2009
4. The Chicago Police Department, August 1, 2008–July 31, 2009

This method is designed to provide staffing estimates for the patrol division. That is, it is based on the assumption that officers spend some fraction of their time handling citizen-generated calls for service.

There are six steps in this process:

- Examine the distribution of calls for service by hour of day, day of week, and month
- Examine the nature of calls for service
- Estimate time consumed on calls for service
- Calculate agency shift-relief factor
- Establish performance objectives
- Provide staffing estimates

## Examine the Distribution of Calls for Service by Hour of Day, Day of Week, and Month

The principal metric used to assess workload is citizen-initiated calls for service. A call for service occurs when a resident contacts the police, typically by phone, and a police officer is dispatched to handle the call. While key to the workload-based approach, it can be difficult to reliably measure the number of calls in a community. Law enforcement executives may use information from a Computer-Aided Dispatch (CAD) system to determine the number of calls for service in a given time period, but such information can be very misleading. Most organize their CAD systems around "events" or "incidents." Yet these events are not necessarily calls for service. In some communities, every traffic stop is an event, as is, in Chicago, even an officer's meal, and an officer's visit to a station is an incident (Weiss 2010). In others, an event may be generated or initiated by an officer, yet appear in a statistical system as a call for service. Traffic stops in particular may appear to be calls for service, particularly if an arrest is made. Using CAD data without scrutiny may grossly exaggerate, perhaps by three- or four-fold, the number of citizen-generated calls, although some systems permit users to identify records by the source of the call. Emerging CAD/RMS technologies may make it easier to obtain reliable workload data.

In order to produce a staffing estimate, it is important to carefully examine data on calls for service. To illustrate this concept, consider data from Rockford, Illinois, from July 1, 2007 to June 30, 2008. For this period we identified 104,251 calls in which a police officer was dispatched. This equates to an average daily call volume of 286, or an average of 12 calls per hour.

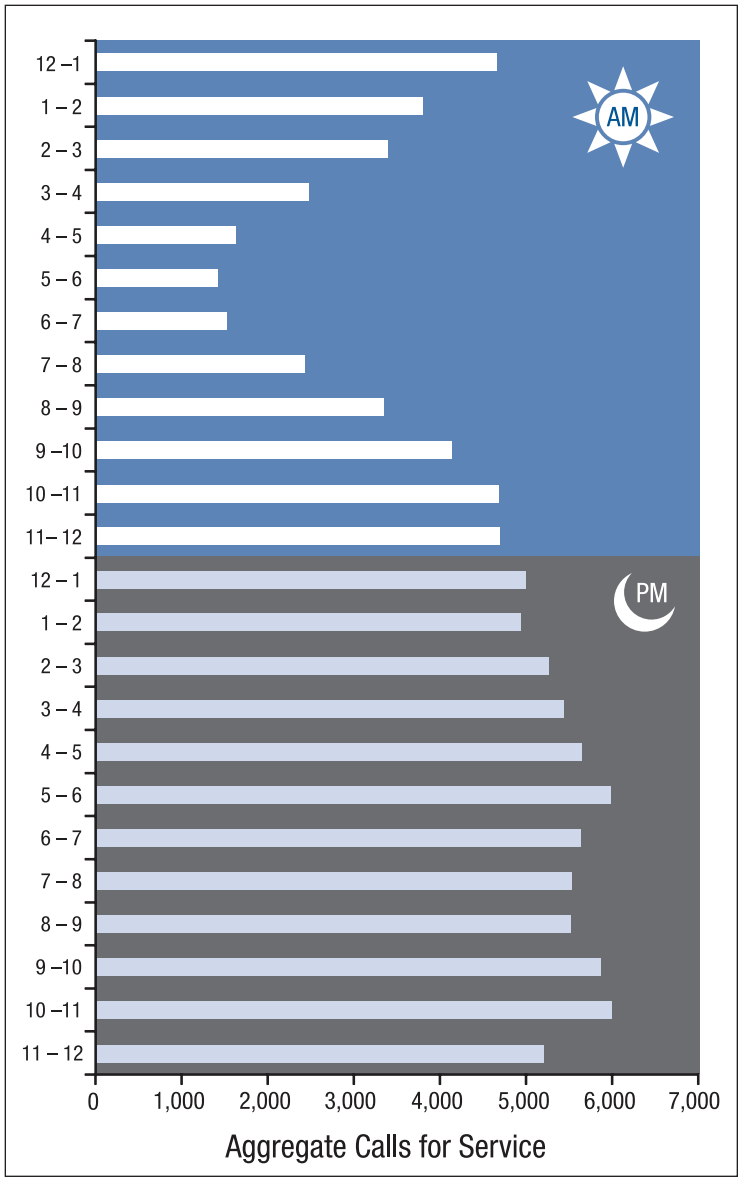
Figure 3.1 on page 30 illustrates the distribution of these calls by hour of day. On a typical day, demand for services appears to be greater between 2:00 PM and midnight than at other times.

Figure 3.2 on page 32 illustrates the distribution of calls by day of week in Rockford for the same time period. Demand is greatest on weekends, with the number of calls on Saturday being 15 percent higher than on Monday.

As previously noted, agencies can differ by their needs. Figure 3.3 on page 32, on the daily distribution of calls in Delaware, Ohio, illustrates this. While calls for service in Rockford are greatest on Saturday and least on Monday, in Delaware, Ohio, they are greatest on Friday and least on Sunday.

Calls for service may also vary by season. Such demands may have implications for other requests and activities that affect resource allocation, as well as scheduling vacations and training. Figure 3.4 on page 33 shows distribution of calls for service in Lansing, where peak call levels occur in the summer months.

Figure 3.1: Rockford Police Calls for Service by Hour, July 2007 to June 2008




*Source: Rockford Police Department*

## Examine the Nature of Calls for Service

In addition to analyzing the distribution of calls for service by hour, weekday, and month, administrators should examine the nature of or reasons for calls. This will serve two purposes. First, it will help to determine whether the data reliably reflect citizen-generated calls. If, for example, the list of call types includes categories such as traffic stops or officer meals, then the data are likely not reflecting resident needs. Second, such a review will help in better understanding the work that the agency's officers are doing.

Table 3.3 on page 31 lists the top 20 call types in Lansing, Michigan. These calls, all of which require an officer response, represent 61 percent of citizen-generated calls for service.

About 6,000 calls in this group are related to traffic and parking (as are about 8,000 calls in the top 25 categories, which include 5 additional categories not shown in Table 3.3). Altogether, traffic and parking related calls account for 12 percent of all calls. Some fraction of these calls may require a back-up unit, but that information is typically not available in the CAD data.

It can also be useful to examine the types of calls by districts or beats. Table 3.4 lists the most frequent call types in two Chicago police districts. In the first, most calls involve violent or otherwise more serious crime. In the second, calls are for less serious issues. (Parking violation 1 is for parking violations, such as obstructing traffic or blocking a fire hydrant, which create an immediate hazard and require an officer to wait until the violation is cleared with a disposition. Parking violation 2 is for parking violations, such as residential zone parking violations, which do not create an immediate hazard and do not require an officer to wait at the scene until the violation is cleared.)

### Table 3.3: Lansing Police Calls for Service by Type, January to December 2009

| Type | Number |
|---|---|
| Larceny | 3,623 |
| Fight | 3,570 |
| Property damage accident | 3,212 |
| Assault | 3,189 |
| Trouble with subject | 2,831 |
| Check welfare | 2,781 |
| Unwanted guest | 2,196 |
| Suspicious person | 2,096 |
| Burglary | 1,985 |
| Noise complaint | 1,963 |
| Parking complaint | 1,940 |
| Malicious destruction | 1,847 |
| B&E/burglary alarm | 1,769 |
| E911 hang up | 1,438 |
| Unknown trouble | 1,424 |
| Transport | 1,325 |
| Check security of building | 1,320 |
| Threats complaint | 1,264 |
| Reckless driving | 1,194 |
| Suspicious vehicle | 1,139 |

*Source: Lansing Police Department*

### Table 3.4: Calls for Service by Type in Two Chicago Districts, August 2008 to July 2009

| DISTRICT A | | DISTRICT B | |
|---|---|---|---|
| Type | Number | Type | Number |
| Domestic disturbance | 14,623 | Disturbance | 9,209 |
| Disturbance | 13,941 | Parking violation 1 | 3,308 |
| Narcotics loitering | 7,708 | Disturbance music | 2,297 |
| Battery injury | 6,565 | Detail | 1,960 |
| Domestic battery | 5,182 | Battery injury | 1,691 |
| Selling narcotics | 5,067 | Auto accident PD | 1,640 |
| Person with a gun | 4,148 | Domestic disturbance | 1,387 |
| Alarm burglar | 4,002 | Parking violation 2 | 1,366 |
| Disturbance music | 3,061 | Check well being | 1,270 |
| Assault injury | 2,815 | Emergency medical service | 1,191 |

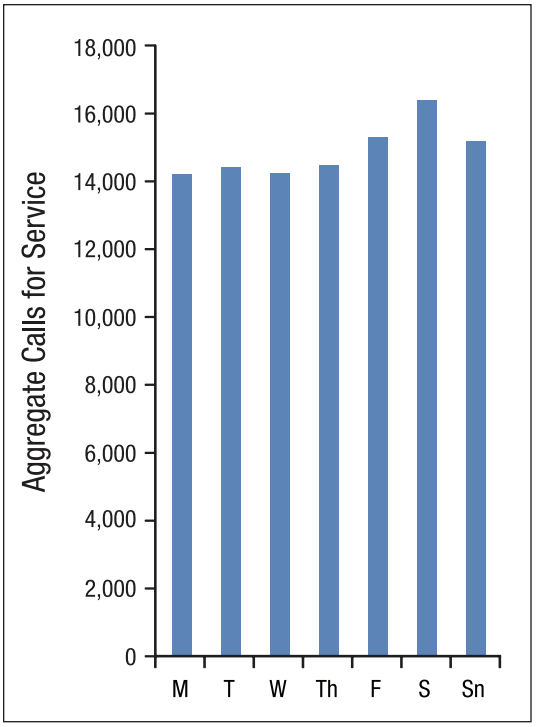
*Source: Chicago Police Department*

## Estimate Time Consumed on Calls for Service

An important component of the analysis is the amount of time consumed on calls for service, specifically the time from when an officer is dispatched to answer the call until the last officer clears the scene. How this time is recorded will vary by community. This is most straightforward when a single officer handles the call and completes resulting administrative demands (e.g., reports, arrests) prior to clearing it. Information on time consumed by calls for service should be readily available in the CAD database.

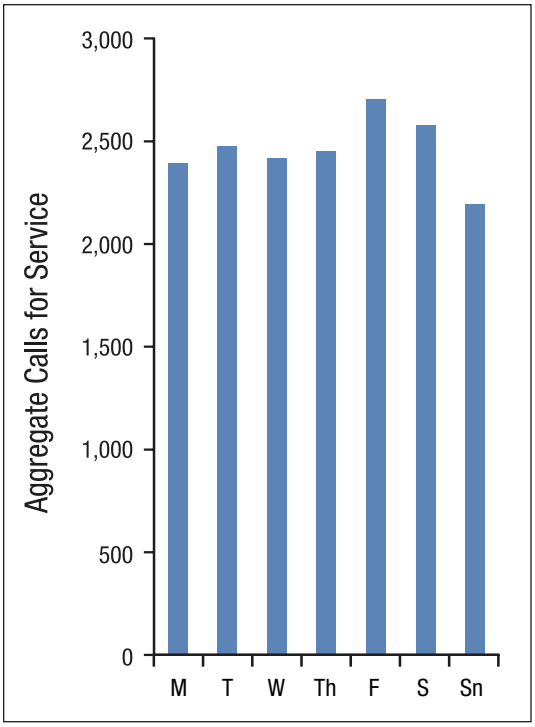
In some cases, measuring time consumed on calls for service is more problematic. In some organizations an officer may respond to a call and report the call is completed upon finishing the on-scene work. In other cases the officer may complete the report for that call later in the shift, perhaps at the station. In some agencies, the use of computer-based report systems may increase the time required for report preparation, or may prompt officers to return to the police facility to complete reports. As a result, report preparation may not appear as call-for-service (CFS) time. This potential problem can be addressed in two ways. First, an agency can determine the number of calls that require a report, and estimate the amount of time required. Second, if report writing will normally not be part of CFS time, it may be necessary to adjust for this when establishing performance standards.

Figure 3.2: Rockford Police Calls for Service by Day of Week, July 2007 to June 2008




*Source: Rockford Police Department*

Figure 3.3: Delaware, Ohio, Police Calls for Service by Day of Week, June 2007 to May 2008




*Source: Delaware Police Department*

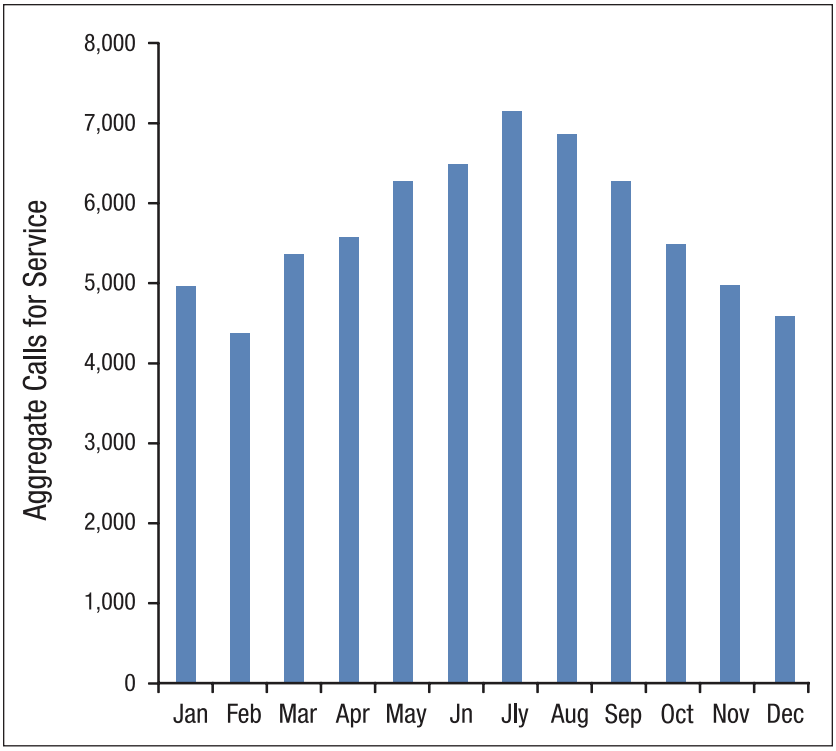
A final issue related to measuring time consumed is multiple-officer dispatching. Most CAD systems do not accurately capture the number of "back-up" officers dispatched to a call, nor do they capture the amount of time that the back-up officers spend on the call. In some communities officers "self-dispatch" to calls. That is, they respond to a call even though they have not been instructed to do so. There may not be a record of their time on scene. We will later describe alternative approaches to this issue.

## Calculate Agency Shift-Relief Factor

The fourth component of the staffing model is the shift-relief factor. The shift-relief factor shows the relationship between the maximum number of days that an officer can work and *actually* works. Knowing the relief factor is necessary to estimating the number of officers that should be assigned to a shift in order to ensure that the appropriate number is working each day. The shift-relief factor will vary by whether officers work 8-, 10-, or 12-hour shifts.

Shift-relief factor calculation begins with gathering data about benefit time[3] in the agency. There are two ways to approach this. In some agencies it is possible to obtain data on the actual use of benefit time. That is, the agency can provide the actual number of hours of vacation taken by officers in a unit or on a shift. This can be very informative because officers with more seniority tend to use more benefit time. Thus, a shift with senior officers would have a higher shift-relief factor than one with junior officers. Adjusting for this difference makes the workforce model more reliable. An alternative approach to obtaining the actual data is to build a shift-relief factor on the assumption that officers will use all their benefit time each year. For example, if an agency provided 10 days each year for sick leave, we would assume that each officer would use all 10 sick days (while it may not be common for officers to use their entire amount of sick time, this assumption will allow for a conservative estimate given the possibility that it could occur).

Figure 3.4: Lansing Police Calls for Service by Month, January to December 2009




*Source: Lansing Police Department*

3. This may include sick leave, vacation, holidays, compensatory time, training, worker's compensation, military leave, etc.

### Table 3.5: Notional Time Off Each Year for Officers Working Five 8-Hour Shifts Weekly

| Category | Time Off (hours) |
|---|---|
| Personal Time | 7 |
| Vacation | 116 |
| Holiday (12 annually) | 96 |
| Sick Leave | 107 |
| Training | 64.5 |
| Regular Days off (2 weekly) | 832 |
| Total | 1,222.5 |

*Source: Notional data for illustration*

### Table 3.6: Notional Time Off Each Year for Officers Working Four 10-Hour Shifts Weekly

| Category | Time Off (hours) |
|---|---|
| Personal Time | 7 |
| Vacation | 116 |
| Holiday (12 annually) | 96 |
| Sick Leave | 107 |
| Training | 64.5 |
| Regular Days off (3 weekly) | 1,560 |
| Total | 1,950.5 |

*Source: Notional data for illustration*

Table 3.5 illustrates, notionally, the average benefit time off per officer for an agency working 8-hour shifts (total time off divided by the number of personnel).

The formula for the shift relief factor is:

365 x shift length / (365 x shift length – total time off)

where 365 is the number of days in the year and shift length is the number of hours per shift.

The data above indicate this agency should have a shift-relief factor of

2920/ (2920–1222.5) or

2920/ 1697.5 or

**1.7**

Thus, in this example, 1.7 officers need to be assigned to a shift to ensure one is working any given shift.

The shift-relief factor will differ for an agency with 10-hour shifts, because officers have more regular days off. Table 3.6 illustrates, notionally, average benefit time off in an agency using 10-hour shifts (but retaining 8-hour award increments for vacation and holiday time).

Notice that the total time off grew significantly because officers now have 30 hours off each 7-day period instead of 16 in 8 hour shifts. This leads to the following calculations for the shift-relief factor:

365 x shift length / (365 x shift length – total time off) or

365 x 10 / (365 x 10 – total time off) or

3650/ (3650–1950.5) or

3650/ 1699.5 or

**2.1**

This means that 2.1 officers must be assigned to a shift to ensure one is working it on a given day.

Finally, we examine the shift-relief factor for an agency on 12-hour shifts (estimated with vacation time off for an employee with 10–15 years of experience because actual time off data were not available). Table 3.7 presents notional benefit time for officers working such shifts, with calculations for shift-relief factor immediately following.

365 x shift length / (365 x shift length – total time off) or

365 x 12 / (365 x 12 – 2704 or[4]

4380 / (4380–2704) or

4380/1676 or

**2.6**

Table 3.7: Notional Time Off Each Year for Officers Working 12-Hour Shifts

| Category | Time Off (hours) |
|---|---|
| Personal Time | 40 |
| Vacation (10–15 years of service) | 136 |
| Holiday | 144 |
| Sick Leave (Maximum earned) | 96 |
| 7 days off in each 14 day period | 2,288 |
| Total | 2,704 |

*Source: Notional data for illustration*

Although the shift-relief factor for 12-hour shifts, at 2.6, is high, the agency only has to staff two shifts. It is roughly comparable to a relief factor of 1.7 for a department using 8-hour shifts. A department using 12-hour shifts with a relief factor of 2.6 must have at least 5.2 officers to ensure at least one can be scheduled for each shift, while a department using 8-hour shifts with a relief factor of 1.7 must have at least 5.1 officers to ensure at least one can be scheduled for each shift.

## Establish Performance Objectives

The fifth component of the staffing model is the performance objective. That is, we need to determine what fraction of an officer's shift should be devoted to calls for service and what portion to other activities. While there is no accepted standard for this allocation it can be instructive to explore how agencies have faced this challenge.

In developing one of the earliest workload-based models three decades ago, the IACP suggested that officers should devote one-third of their time to calls for service, one-third to proactive (patrol) time, and one-third to administrative activity. While superior to the per capita method for estimating staffing needs, this approach is still simplistic. In fact, our experience suggests that for most agencies a careful analysis of calls for service would find officers spending far less than one-third of their time on calls for service.

4. Twelve-hour shifts will result in a 42-hour workweek. If agencies want officers to work 12 hours on each shift it will require that officers be paid overtime.

Another approach for estimating workload is the Police Allocation Manual (PAM) developed by William Stenzel (Northwestern University Traffic Institute 1993; Stenzel 2007). It is widely used by law enforcement agencies to estimate police staffing needs. Stenzel argues that on-duty time has four components:

- Reactive: Time spent responding to calls for service
- Proactive: Time spent on self-initiated activities
- Proactive (patrol): Time spent free or uncommitted
- Administrative Time: All other activities while on patrol

In the PAM approach, *obligated* time is defined as reactive time plus administrative time plus proactive time. Patrol time is considered unobligated. Stenzel suggests using total obligated time and a performance factor to estimate total unobligated time. For example, an agency could suggest 20 minutes out of each hour (the performance factor) be unobligated. The number of officers required would be based on the total obligated time plus the total unobligated time.

We base our estimate of officers required on the known community-generated workload (calls for service), because it is easiest to measure and best reflects demand for police service. We believe that this approach is very reliable, because other activity categories are often duplicative. First, consider the self-initiated (proactive) category. Much of this activity involves traffic stops and contacts of suspicious persons. Suppose an officer parks a patrol vehicle along the highway and looks for speeders for 30 minutes. The officer records this time as self-initiated activity. In the PAM approach this would be counted as obligated time. But, given that the officer would be available to handle calls for service, we suggest that this self-initiated activity (obligated in the PAM approach) is, in fact, discretionary (and not obligated). Or consider an officer that is directed to increase patrol in an area with gang activity. The officer records this time as a directed assignment (proactive time), but is it really patrol (classified as uncommitted in the PAM approach)?

Noting the possible confusion of categories does not denigrate these activities. Rather, the point is that many police activities are discretionary. If an officer were occupied on a call, these activities would not be performed, or would be of a shorter duration. In the PAM approach, 50 percent of a shift would be available for patrol. That time would be in addition to the patrol-like activities previously described.

In our analysis, we can accurately define the time consumed by community-generated activities. The community, through policy-makers, must then determine what fraction of an officer's day should be available for other activities. Insight on community preferences, values, and expectations with regard to how officers spend their time can be obtained through a variety of sources, such as surveys, community meetings and forums, focus groups, individual and group interviews, media reports, etc. Some communities might want officers to be available for patrol for at least half their shift. Others, like Chicago, devote considerable resources to specialized patrol units; as a result, beat cars need less time for officer-initiated activities. Once the community sets a performance objective, we can estimate the number of officers required. If that number is greater than are available, the community can either add capacity or adjust its performance demands to available resources. One useful tool to determine the appropriate amount of discretionary time is to conduct interviews and focus groups with elected officials as well as representatives of neighborhood and business organizations.

### Table 3.8: Modified Calls for Service Data for Delaware, Ohio, June 2007 to May 2008

| Shift | CFS | 25% | Total (CFS+25%) |
|---|---|---|---|
| One | 5,741 | 1,368 | 7,109 |
| Two | 8,176 | 2,044 | 10,220 |
| Three | 3,289 | 822 | 4,111 |

*Source: Delaware Police Department*

### Table 3.9: Estimated Hours Required by Shift to Fulfill Delaware, Ohio, Calls for Service

| | Total Time | |
|---|---|---|
| Shift | Minutes | Hours |
| One | 220,379 | 3,673 |
| Two | 316,820 | 5,280 |
| Three | 127,441 | 2,124 |

*Source: Delaware Police Department*

## Provide Staffing Estimates

Having described the method for estimating the officers required for patrol, we provide examples of how this approach is applied. The first examines Delaware, Ohio.

We constructed staffing models for three shifts:

- Shift One (0700 to 1459 hours)
- Shift Two (1500 to 2259 hours)
- Shift Three (2300 to 0659 hours)

The first step in building our staffing model is to determine the number of officers required to answer calls for service. In order to compensate for the failure of the CAD to capture multiple officer dispatches, we add 25 percent to the number of calls per shift. Table 3.8 illustrates the modified calls for service data.

Table 3.9 presents estimates of officer time required to handle these calls for service. We multiply the modified number of calls by 31 minutes, the average time per call, to estimate the hours required to meet them (rounding to the nearest hour).

### Table 3.10: Minimum Officers Required per Shift to Fulfill Delaware, Ohio, Calls for Service

| Shift | Hours | Officers Required |
|---|---|---|
| One | 3,673 | 1.26 |
| Two | 5,280 | 1.81 |
| Three | 2,124 | 0.73 |

*Source: Delaware Police Department*

### Table 3.11: Minimum Officers Required per Shift to Meet Delaware, Ohio, Performance Objectives

| Shift | Officers Required to Fulfill Calls for Service | Officers Required to Meet Performance Objectives (middle column times four) |
|---|---|---|
| One | 1.26 | 5.03 |
| Two | 1.81 | 7.23 |
| Three | 0.73 | 2.91 |

*Source: Delaware Police Department*

An officer working 8 hours per day 365 days per year would work 2,920 hours per year. To determine the number of officers required to handle the calls for service, we divide the total hours on calls for service by 2,920. Table 3.10 shows the results of these calculations.

Next we examine the performance objective. In Delaware, Ohio, patrol officers are responsible for conducting the vast majority of follow-up investigations. This is clearly a time-consuming activity. Based on these requirements we have developed a model that proportions officer time as follows:

- 25% CFS
- 25% Patrol and Self-Initiated
- 25% Administrative
- 25% Criminal Investigation Follow-up

In order to apply this model to our data, we multiply the number of officers required to answer calls for service by four. Table 3.11 illustrates the number of officers required per shift to meet our performance objective.

This estimate assumes officers work 365 days per year. To adjust for the actual number of days that an officer is likely to work we multiply the minimum number of officers required to meet Delaware, Ohio, performance objectives by the shift relief factor, which for Delaware, Ohio, is 1.8. Table 3.12 on page 39 presents this number, as well as a rounded-up estimate (given it is impossible to provide a fraction of an officer).

In short, to have fulfilled its calls for service and met other performance objectives, the Delaware, Ohio, department required a minimum of 30 officers, of which 10 were needed for assignment to the first shift, 14 to the second shift, and six to the third shift.[5]

5. This only includes officers that are fully available to handle calls for service.

### Table 3.12: Minimum Officers for Assignment to Each Shift to Manage Delaware, Ohio, Police Workload

| Shift | Number of Officers Required to Meet Performance Objectives Multiplied by Shift-Relief Factor of 1.8 | Number of Officers Needed for Assignment to Each Shift |
|---|---|---|
| One | 9.06 | 10 |
| Two | 13.02 | 14 |
| Three | 5.24 | 6 |
| Total | | 30 |

*Source: Delaware Police Department*

### Table 3.13: Modified Calls for Service Data for Rockford, July 2007 to June 2008

| Shift | CFS | Accidents | CFS less Accidents | Estimated Calls for Back-up Officers | Modified CFS |
|---|---|---|---|---|---|
| Night | 21,353 | 663 | 20,690 | 5,172 | 25,862 |
| Day | 37,517 | 1,000 | 36,517 | 9,129 | 45,646 |
| Evening | 39,730 | 1,000 | 38,730 | 9,683 | 48,413 |

*Source: Rockford Police Department*

Next, we examine patrol staffing in Rockford.

In this analysis we have divided the day into three 8-hour shifts:

- Night Shift (Midnight to 8:00 AM), 21,353 CFS
- Day Shift (8:00 AM to 4:00 PM), 37,517 CFS
- Evening (4:00 PM to Midnight), 39,730 CFS

The analysis of calls for service revealed that officers outside of patrol investigated 2,663 traffic accidents. Thus we have removed them from the total.[6] The "subtotal" represents the result of this adjustment.

We also adjusted for calls that require a back-up officer. The Rockford data system did not time how long back-up officers remain on calls, making it difficult to accurately account for back-up officers. We estimated that 25 percent of calls require a back-up unit and that this unit stays for the entire time of the call. This increases the number of calls for service by 25 percent. Table 3.13 shows the total number of calls for service in Rockford and the number of calls adjusted for the number of accidents and for our estimated number of calls for back-up officers in a recent year.

6. We allocated these investigations in proportion to the distribution of other calls.

### Table 3.14: Estimated Hours Required by Shift to Fulfill Rockford Calls for Service

| Shift | Total Time Consumed in Hours |
|---|---|
| Night | 17,069 |
| Day | 30,126 |
| Evening | 31,956 |

*Source: Rockford Police Department*

### Table 3.15: Minimum Officers Required Per Shift to Fulfill Rockford Calls for Service

| Shift | Total Time Consumed in Hours | Officers Required |
|---|---|---|
| Night | 17,069 | 5.8 |
| Day | 30,126 | 10.3 |
| Evening | 31,956 | 10.9 |

*Source: Rockford Police Department*

The next element of our model is the time devoted to calls. During our period of study, the average travel time for all calls was 8 minutes and the average time on scene was 32 minutes. We therefore estimated a call consumed 40 minutes or 0.66 hours. Table 3.14 presents our estimates on the total time consumed on calls for service by shift, which is calculated by multiplying the average time consumed per call (0.66 hours) by the modified calls for service for each shift.

We next estimate the number of officers required to handle these calls by dividing the total number of hours consumed in calls by the number of hours an officer could work each year assuming 365 8-hour shifts (2,920). Table 3.15 presents these results.

We provide two models for allocating time. The first assumes that officers spend 50 percent of their time on calls for service and 50 percent on the other activities. In order to produce this estimate we multiply the number of officers required for calls for service by two. The second model assumes that officers will spend one-third of their time on calls for service, one-third on administrative activities, and one-third on officer-initiated activities. In this case we multiply by three the minimum number of officers needed to fulfill CFS by shift. Table 3.16 presents our calculations.

### Table 3.16: Minimum Officers Required Per Shift to Meet Varying Rockford Performance Objectives

| Shift | Officers Required for CFS | 50% Obligated | 33% Obligated |
|---|---|---|---|
| Night | 5.8 | 11.6 | 17.4 |
| Day | 10.3 | 20.6 | 30.9 |
| Evening | 10.9 | 21.8 | 32.7 |

*Source: Rockford Police Department*

These values indicate the numbers of officers that must be on duty to reach these specific performance levels. We now estimate the number of officers that needs to be assigned to each shift in order to ensure that the appropriate number of officers is on duty, using a shift relief factor of 1.7 (as calculated using the method described above). Table 3.17 on page 41 presents our calculations.

### Table 3.17: Minimum Officers Required per Shift to Manage Rockford Police Workload Under Varying Performance Objectives

| | 50% Obligated | | 33% Obligated | | |
|---|---|---|---|---|---|
| Shift | Officers Required CFS | Minimum Officers Required (x 1.7) | Officers Required per Shift-relief Factor | Minimum Officers Required (x 1.7) | Officers Required per Shift-relief Factor |
| Night | 5.8 | 11.6 | 19.7 | 17.4 | 33.5 |
| Day | 10.3 | 20.6 | 35.0 | 30.9 | 52.5 |
| Evening | 10.9 | 21.8 | 37.1 | 32.7 | 55.6 |

*Source: Rockford Police Department*

In short, to fulfill its calls for service and provide appropriate levels of shift-relief, the Rockford department required a minimum of 93 officers for a 50-percent performance objective and 143 to meet a 33-percent performance objective (sum of rounded-up officers required per shift-relief factor for all shifts under each performance objective, respectively).

Finally, we look at staffing for a sample Chicago police district. Table 3.18 presents the results of our calculations. The first column (Time) shows the times of the different shifts. The second column (Backup) helps denote three different assumptions about percentage of calls requiring a backup unit during the day shift. (Because the evening and night shifts use two-officer cars, we assume that every call then gets two officers. On some calls, more than one two-officer car is assigned, and officers may "self-assign" to calls.) The third column (CFS) shows the total CFS by shift for the year. The fourth column (Adj) shows the additional CFS calculated under the three daytime backup scenarios. The fifth column (Total CFS) shows the actual plus adjusted CFS. The sixth column (Hours) shows the total time consumed in hours for CFS, based on an average of 45 minutes for each call. The seventh column (Units) shows the minimum number of police units needed to handle these calls (calculated, as above, by the total number of hours needed to respond to CFS by 2,920, the total number of hours in a given shift over the course of a year).

### Table 3.18: Minimum Staffing Calculations for a Sample Chicago Police District, August 2008 to July 2009

| Time | Backup | CFS | Adj | Total CFS | Hours | Units | RF | 50% Time | 2 Officer | Officers |
|---|---|---|---|---|---|---|---|---|---|---|
| 0800–1600 | 25% | 16,511 | 4,127 | 20,638 | 15,478 | 5.3 | 10.3 | 20.6 | | 21 |
| 0800–1600 | 50% | 16,511 | 8,255 | 24,766 | 18,574 | 6.4 | 12.4 | 24.8 | | 25 |
| 0800–1600 | 75% | 16,511 | 12,383 | 28,894 | 21,670 | 7.4 | 14.4 | 28.8 | | 29 |
| 1600–2400 | | 20,679 | 0 | 20,679 | 155,509 | 5.3 | 10.3 | 20.6 | 41.2 | 42 |
| 0000–0800 | | 12,321 | 0 | 12,321 | 9,240 | 3.1 | 6.1 | 12.2 | 24.2 | 25 |

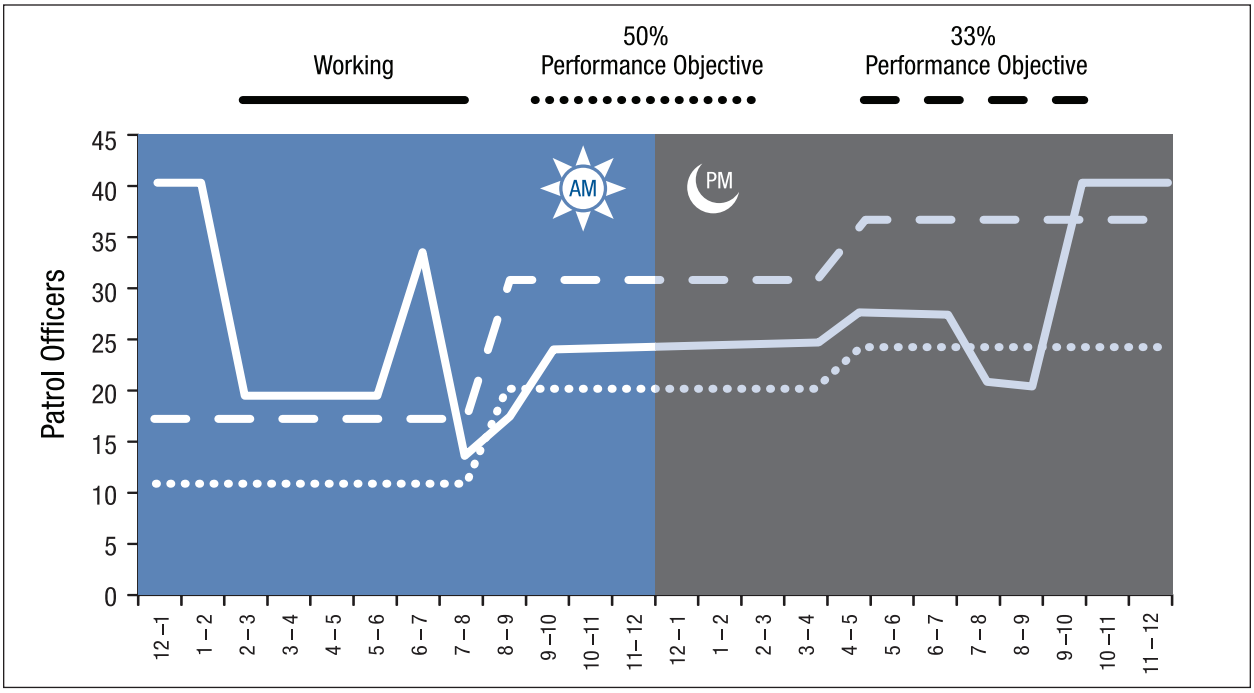
*Source: Chicago Police Department*

The eighth column (RF) multiplies the minimum number of police units needed to handle CFS by 1.94, the relief-factor for Chicago. The ninth column (50% Time) shows the number of officers needed assuming a 50-percent performance objective for responding to CFS. The tenth column (2 Officer) shows the number of officers needed for the evening and night shifts given that officers on these shifts work in pairs. The eleventh (and last) column (Officers) shows the minimum number of officers needed for each shift given the assumptions of the previous column and rounding up.

Workload data and subsequent estimates of the required number of officers can also help evaluate performance. Figure 3.5 illustrates the relationship between resources required and resources available for the Rockford Police Department in 2010. The dotted line illustrates the number of officers required each hour of the day under a 50-percent community-generated performance standard. The dashed line illustrates the number of officers required to meet a 33-percent community-generated performance standard. Finally, the solid line illustrates the average number officers working.

Under the 50-percent performance standard, the Rockford Police Department, which uses a 10-hour shift schedule, has excess capacity almost every hour. Under the 33-percent performance standard, it has excess capacity from 9 PM to 6 AM but insufficient capacity in nearly all other hours. It is clear that the 10-hour shift schedule leads to unnecessary overlap times and that the increased staffing during those times is at the expense of the other hours.

Figure 3.5: Staffing Availability and Requirements under Differing Performance Standards for the Rockford Police Department in 2010




*Source: Rockford Police Department*

Table 3.19: National Data Illustrating the Difficulty of Using the Workload-Based Approach with Less than 15,000 Annual Citizen-Generated Calls for Service

| No. Calls for Service | CFS | Adj | Minutes | Hours | Units | 50% Time | RF | 66% Time | RF |
|---|---|---|---|---|---|---|---|---|---|
| 600–1800 | 6,449 | 8,061 | 209,586 | 3,493 | 0.8 | 1.6 | 4 | 2.4 | 6 |
| 1800–0600 | 4,364 | 5,455 | 141,830 | 2,364 | 0.54 | 1.1 | 3 | 1.62 | 4 |

*Source: Notional data for illustration*

## Limitations of the Workload-Based Model

When using the workload-based approach it is important to consider some of the potential limitations. First, this model relies heavily on averages in producing the estimates. To the extent that workload demands exceed averages, relying on averages for scheduling may affect agency performance. An example of where this might occur is during substantial emergencies, concurrent major calls, or some unplanned event. In these sorts of unpredictable situations, the workload-based model, like other approaches, may not provide for an adequate number of officers. The main effect of this shortfall will be to reduce the availability of discretionary time. Second, the models do not differentiate about the job functions of the police units. That is, we assume that calls are handled by police officers. To the extent that calls are handled by supervisors or by non-sworn staff, officer staffing requirements will diminish. Third, we include the response time as a component of the call for service time, which we believe is reliable in most communities. In communities with large geographical patrol zones, agencies may find that even when officers are available for calls for service, travel time to answer calls exceeds that needed to provide acceptable performance. In these agencies it is important to consider re-designing patrol zones to ensure that officers can respond to calls appropriately.

Finally, it is important to note that the workload-based approach works best when a community responds to at least 15,000 citizen-generated calls per year. Otherwise, the time required for calls for service is so low that the number of officers recommended is far fewer than is thought reasonable. Table 3.19 illustrates this type of outcome. In the 50% Time column we see that the model indicates that only one officer is recommended to be on duty.

In these communities police staffing is typically determined through a "coverage," or minimum staffing approach. That is, the community makes a subjective judgment about the appropriate level of policing required for deterrence, rapid response, and to ensure officer safety. Of course, there are typically varied views about these objectives. For example, research suggests that as few as 5 percent of police calls for service require a rapid response (McEwen, Connors, and Cohen 1986), and yet most police departments are organized and staffed to respond rapidly to every call. Sometimes the number of officers is a function of citizen willingness to pay for those services. For example, the City of Holland, Michigan, employs about 60 sworn police officers, but Holland Township, which is about the same size and similar in nature, contracts for service with the county sheriff who covers the township with 16 sworn officers.

One approach to this coverage problem is to treat police response like one would examine a fire department response. That is, we could examine each location in the community and determine the time required to respond to an emergency from a central location. If that time were outside acceptable limits, it would suggest the need to assign additional resources.

In general, rural communities have lower rates of crime and higher levels of social control. The long distances required to respond tend to challenge most agencies that provide services in rural areas. Most citizens understand this, and thus they have more modest expectations about response time. For example, the average quarterly response time from 2008 to 2011 to priority one calls by the Albemarle Virginia County Police Department typically varied from about 12 to 14 minutes—the target being a 10-minute average (Albemarle County n.d.). We can see that response times are considerably greater than one would expect in an urban area.

## Work Schedule

The second component of patrol resource analysis is the work schedule. The work schedule is critical because it helps ensure that resources are aligned with organizational objectives.

Police work schedules come in all forms. Although each schedule seems unique, there are several ways to compare them. Among the important components of a work schedule are:

- Average work week
- Shift length
- Number of consecutive work days
- Weekend time off
- Staffing by day of week
- Percentage of officers on duty each day

Table 3.20: Notional Scheduling of Officers Working Five 8-Hour Shifts Weekly

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | Off | Off |
| 2 | Off | Off | | | | | |
| 3 | | Off | Off | | | | |
| 4 | | | Off | Off | | | |
| 5 | | | | Off | Off | | |
| 6 | | | | | Off | Off | |
| 7 | Off | | | | | | Off |
| % On duty | 71 | 71 | 71 | 71 | 71 | 71 | 71 |

*Source: Notional data for illustration*

## Eight-Hour Shifts

Consider an agency that works 8-hour shifts, with each officer having two days off each week. In this schedule, each officer or group of officers is assigned permanently to a day-off group. Table 3.20 illustrates this configuration.

This schedule features

- Fixed days off
- Three groups of officers having a full or partial weekend off
- Equal staffing by day of week
- An on-duty cycle of five days

Importantly, every day 71 percent of the officers are on duty, and the number of officers on duty each day is the same. The proportion and numbers of officers on duty are two very important criteria that can be used in evaluating a work schedule.

Fluctuations in group size can provide some scheduling flexibility. Consider, for example, a workgroup with nine officers. Each officer is assigned a day-off group, but groups two and three each have two officers. This allows the reduction of staffing on some days and an increase on others. This schedule is particularly attractive to employees that want fixed days off. It works well for officers that are attending school, and may help those with child-care needs. The disadvantage is that a substantial portion of employees never have a weekend off. In this schedule, the department is able to staff to match a workload that is more intense on weekends. Table 3.21 on page 46 illustrates this schedule.

## Table 3.21: Notional Scheduling of Officers Working Five 8-Hour Shifts Weekly Allowing Flexibility to Meet Peak-Demand Days

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | Off | Off |
| 2 (2) | Off | Off | | | | | |
| 3 (2) | | Off | Off | | | | |
| 4 | | | Off | Off | | | |
| 5 | | | | Off | Off | | |
| 6 | | | | | Off | Off | |
| 7 | Off | | | | | | Off |
| On duty | 6 | 5 | 6 | 7 | 7 | 7 | 7 |
| Off duty | 3 | 4 | 3 | 2 | 2 | 2 | 2 |
| % On duty | 66 | 55 | 66 | 77 | 77 | 77 | 77 |

*Source: Notional data for illustration*

A scheduling variation providing every officer with occasional weekend days off work is the 4 on–2 off schedule. Table 3.22 illustrates this schedule.

This schedule has a 6-week cycle and days off rotate each week. During the cycle each officer receives three full or partial weekends off. Two thirds of the officers work each day. This schedule requires that officers have rotating days off.

Because in some weeks officers will have 3 days off work, this schedule results in an average work week of 37.33 hours. Under this system, there are three possible means for officers to achieve an average 40-hour work week. First, the officer could "pay back" one day every 3 weeks. If the shift length were increased to 8.25 hours, then the average workweek would be 38.5 hours, and the officer would have to provide 6 "payback" days every 33 weeks. If the shift length were increased to 8.5 hours, then the average work week would increase to 39.67 hours, and officers would only be required to pay back 2 days every 51 weeks.

## Table 3.22: Notional Scheduling of Officers Working Five 8-Hour Shifts Weekly Allowing Rotation of Off Days

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|---|
| 1 | | | | | Off | Off | |
| 2 | | | | Off | Off | | |
| 3 | | | Off | Off | | | |
| 4 | | Off | Off | | | | |
| 5 | Off | Off | | | | | Off |
| 6 | Off | | | | | Off | Off |
| % On duty | 66 | 66 | 66 | 66 | 66 | 66 | 66 |

*Source: Notional data for illustration*

### Table 3.23: Notional Scheduling of Officers Working Four 10-Hour Shifts Weekly

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|---|
| 1 | Off | Off | | | | | Off |
| 2 | | | | Off | Off | Off | |
| % On duty | 50 | 50 | 100 | 50 | 50 | 50 | 50 |

*Source: Notional data for illustration*

## Ten-Hour Shifts

More than 30 years ago, several law enforcement agencies began adopting the "4–10" plan. Under this plan, officers work four 10-hour shifts and have 3 days off each week. The plan appeals to officers because it reduces the number of days worked, the likelihood of working on a holiday, and commuting time.[7] The plan can also appeal to agencies. Because the work schedules have an "overlap" period between shifts, when officers on two shifts are working, the agency can double staffing during peak demand times.

Having two groups of officers working four 10-hour shifts weekly would allow every employee a weekend day off, as Table 3.23 illustrates.

Agencies scramble to find activities to fill the excess capacity on days when all officers are scheduled to work (e.g., Wednesday in schedule above), but most excess capacity becomes lost time. It is possible, of course, to implement 10 hour shifts that better conform to the workload, such as the schedule below. For example, Table 3.24 illustrates the 10-hour shift schedule used by the Rockford Police Department.

### Table 3.24: Rockford Police Department (10-Hour) Shift Schedule

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|---|
| 1 | Off | Off | Off | | | | |
| 2 | | Off | Off | Off | | | |
| 3 | | | Off | Off | Off | | |
| 4 | | | | Off | Off | Off | |
| 5 | | | | | Off | Off | Off |
| 6 | Off | | | | | Off | Off |
| 7 | Off | Off | | | | | Off |
| % On duty | 57 | 57 | 57 | 57 | 57 | 57 | 57 |

*Source: Rockford Police Department*

7. Typically, officers on a 5–8 schedule work about 260 days per year whereas those on a 4–10 schedule work about 208 days. With fewer days worked, officers on a 4–10 schedule have a smaller probability of being scheduled on a holiday and commute to work less frequently.

Compared to 8-hour shifts, the above 10-hour schedule significantly reduces the proportion of officers on duty. This happens because the agency must use the same number of officers that are used to provide 24 hour staffing to provide 30 hours of staffing a day. In many agencies, those additional 6 hours of coverage are unnecessary. Moreover, 10-hour shifts require additional police vehicles to cover overlap times, which may reduce productivity for some officers.

Proponents of 4–10 plans have argued that departments would not need additional resources to meet performance objectives. In theory, departments would staff the overlap by reducing staffing during 6 non-peak hours, keeping constant the total number of officers. An agency can accomplish this if using a workload-based approach to staffing. Such a model can be very efficient but problematic with minimum staffing. For example, an agency with ten officers assigned to each 8-hour shift will have minimum staffing of 7 on each shift under a schedule in which each officer works 5 days weekly. An agency adopting a 10-hour schedule will have 6 hours of overlap between shifts. If the agency retains its minimum staffing requirements for the entire day, then, unless the department allocates more resources to patrol, it will have chronic understaffing and need to hire off-duty officers to fill vacant spots.

Recent empirical research has pointed to additional advantages of the 10-hour shift. In their compressed work schedule experiment, Amendola, Weisburd, Hamilton, Jones, and Slipka (2011) discovered that, compared to those working an 8-hour shift, those working 10-hour shifts had a higher quality of work life, and averaged more sleep and less overtime.

## Twelve-Hour Shifts

One of the most interesting recent changes in police work scheduling has been the widespread adoption of the 12-hour shift. Hundreds of agencies have adopted this approach, and more are doing so. Evidence, both anecdotal and more systematic, suggests that this approach can be highly effective.

The 12-hour schedule is relatively straightforward. It is a 14-day duty cycle. The pattern consists of: 2 days on, 2 days off, 3 days on, 2 days off, 2 days on, 3 days off. This schedule results in a 42-hour average workweek. Over the 2-week cycle officers would earn four additional hours.[8] Table 3.25 on page 49 illustrates how two groups of officers might be scheduled to cover a 12-hour shift over a 14-day duty cycle.

Officers have rotating days off during the duty cycle, with the pattern repeating every 2 weeks. Officers assigned to this pattern would also have every other weekend off. Twelve-hour schedules are better for meeting workload requirements than 10-hour shifts because agencies provide 24 rather than 30 hours of service daily. This results in a more even distribution of officer hours, as Table 3.26 on page 49 illustrates.

8 To accommodate this situation, most agencies adjust schedules so that officers work only 40 hours.

### Table 3.25: Notional Scheduling of Two Groups of Officers on a 12-hour Shift Over a 14-Day Duty Cycle

| Group | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|---|
| **Week 1** | | | | | | | |
| 1 | | | Off | Off | | | |
| 2 | Off | Off | | Off | Off | Off | |
| **Week 2** | | | | | | | |
| 1 | Off | Off | | Off | Off | Off | |
| 2 | | Off | Off | | | | |

*Source: Notional data for illustration*

### Table 3.26: Notional Coverage on a 12-hour Shift Schedule

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|---|
| 1 (7) | | | Off | Off | | | |
| 2 (7) | Off | Off | | | Off | Off | Off |
| On Duty | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| % On Duty | 50 | 50 | 50 | 50 | 50 | 50 | 50 |

*Source: Notional data for illustration*

At first glance, it appears 12-hour shifts reduce resource availability, but recall that the agency need only staff two shifts per day. Staffing seven officers on 12-hour shifts is equivalent to staffing 10 8-hour officers.

Twelve-hour shifts, as noted, offer several advantages. They require fewer shift changes and two rather than three shifts to administer, and they provide officers more days off per year. Additionally, compared to 8-hour shifts, 12-hour shifts result in less overtime and less sick leave (Amendola et al. 2011; Sundermeier 2008). Nevertheless, while growing in popularity, 12-hour shifts also have several disadvantages. Because they result in fewer work days per officer per year, it is more difficult to maintain communications with officers. Officers with fewer work days may also be more likely to engage in outside activities conflicting with their duties and to live further away. More off days also increases the likelihood of more off-duty court time and makes it more difficult to schedule training. The use of 12-hour shifts leads to uniform staffing by day of week and shift with little or no opportunity to adjust the schedule to meet peak demands.

Agencies that adopt 12-hour work schedules are particularly concerned about fatigue. The evidence on this issue is mixed (Fritsch et al. 2009; Peacock, Glube, Miller, and Clune 1983). However, Amendola et al.'s (2011) recent experiment determined that, compared to those working 8-hour shifts, officers working 12-hour shifts experienced greater levels of sleepiness and lower levels of alertness. While they detected no performance differences, they warned of the importance of this finding given the nature of police work where the need may exist to make life and death decisions.

The key to successful implementation of the 12-hour shift is effective management of off-duty time, particularly during the 12-hour break between consecutive days on duty. It is critical that officers get sufficient rest during their time off. Departments should closely monitor off-duty employment, court, and other obligations that may diminish the opportunity for rest.

## Concluding Remarks

There are several approaches to estimating an agency's staffing allocation, each with its own advantages and disadvantages. From an efficiency standpoint—that is, from the perspective of optimizing resources to best complete a given agency's work and accomplish its objectives—the preferred method is one that specifically considers workload, performance objectives, and work schedules. While conducting this form of assessment may seem complicated or costly, the approach we present is fairly straightforward, applicable to most agencies, and can help identify if and where staffing adjustments can be made to significantly enhance overall efficiency and effectiveness.

Our analysis in this chapter has assumed that all calls for service are alike. In fact, they differ substantially, in urgency and feasible means to handle them. In the next chapter, we explore alternative means for responding to calls for service, and how they might help police departments manage their workloads.

# CHAPTER FOUR

## Alternative Delivery Systems

Patrol staffing analyses may not always support perceptions of workload. For example, Gascon and Foglesong (2010) note that Mesa, Arizona, police officers believe there has been an "incessant increase in calls for service," leaving officers feeling as though they are "running from call to call," even though many calls may not warrant a police response. Available data do not support views that there has been a sharp increase in calls for service, but evolving police duties, including expectations for community policing or problem solving, may help create such a perception. In most communities police officers believe that they are very busy, and that there is little time to engage in activities like community policing or problem solving (Maguire and Gantley 2009). A close examination of calls for service demand in most law enforcement agencies, however, would reveal a significant amount of discretionary time.

There are several contributors to *perceptions* of demand not matching the actual data.

- While calls for services are relatively predictable by time of day and day of week, there are occasions (e.g., a major crime or traffic accident) when a police department finds all of its units busy. Even if this occurs infrequently, it can re-enforce notions that the department is understaffed.
- In many police organizations officers complete their reports subsequent to their time on the scene of a call. Many officers, for example, will complete reports at the station. This affects the officer's perception of his availability. Each incident results in both on-scene time and some variable amount of additional time. An officer may not know how long the report writing process will take, and when he will complete it.
- Administrative processes can affect call stacking, or how calls are held in queue. For example, many departments spend a great deal of time in briefing at the beginning of a shift. At the same time, some departments will hold non-emergency calls for service that are received near the end of a shift. When the on-coming shift clears its briefing, officers may find calls that have been holding for nearly an hour. In some communities it may take hours to eliminate this backlog. Compounding this problem, it is not uncommon for law enforcement agencies to conduct shift change during the busiest hours of the day.
- Because many departments use a minimum staffing approach, rather than one based on workload, they find peak demand exceeds supply.

While all the above are significant contributors to officer and management perceptions about demand, the larger problem, in our view, is that few organizations attempt to manage how citizens request police services and how those services are delivered. In most communities the police will respond to every call even if, as a result, every officer on duty is assigned to a call.

In this chapter we examine three ways in which law enforcement agencies can more effectively manage the demand for police services. First, we examine alternative ways that police departments can more effectively manage non-emergency calls for service. Next we look at different ways that citizens can report crimes and traffic accidents to the police. Finally, we examine ways in which law enforcement agencies can use non-sworn personnel to handle calls.

## Mobilizing the Police

In the 1960s, the United States introduced a universal three-digit number for citizens to obtain emergency services. The idea behind 911 was simple and straightforward: the number would be easy to remember and be available virtually anywhere in North America. Since that time 911 systems have proliferated and improved. Now, so called "enhanced 911 systems" provide information about the location of the call, and can be linked with computer aided dispatch systems to provide information about the appropriate police unit to assign. Moreover, 911 systems now work well with mobile phones and VOIP phone systems.

The Police Foundation has recently launched a study of automated vehicle locator systems. The project description suggests that, "Currently, police agencies have little ability to assess the effectiveness of their deployment strategies in relationship to their goals. Developments in technology, such as the Automated Vehicle Locator (AVL)—a global positioning device that can be placed in a vehicle for monitoring its location across real time/space—promise to provide an invaluable tool to inform CompStat and other directed patrol strategies (e.g., hot spots policing) in police agencies through measurement of police presence at all places and at all times" (Police Foundation n.d.).

It is clear that 911 provides an easy and effective method for citizens to contact police. The police have marketed the 911 systems very heavily. It is quite common to see "call 911" emblazoned on a police vehicle. In some communities it can be difficult to find a non-emergency number to call the police. The dilemma for the police is that while 911 was designed for obtaining emergency services and rapid response, most calls for police service are not emergencies and do not require a rapid response. Nonetheless, citizens use 911 to request all types of police service.

Three other related factors also hamper police-communication systems. First, most law-enforcement agencies use non-sworn personnel to serve as call-takers and dispatchers. This is efficient, but these individuals are usually not equipped to resolve issues as an officer would. Second, turnover rates for public-safety communication personnel are relatively high, which in turn limits knowledge and experience among these personnel (Avsec 1998). Third, communities are increasingly consolidating their communications functions and creating centralized dispatch centers that cover police, fire, and EMS. Moreover, these communication centers may be responsible for several different communities. For example, the Southwest Central Dispatch in suburban Chicago provides service for 16 agencies. Differing policies and procedures of multiple agencies participating in such a consolidated system would further limit the ability of a dispatcher to resolve issues without sending an officer.

For many years communities have sought ways to better manage the call intake process. Such efforts led to development of 311 as a number for nonemergency calls. The Baltimore Police Department was one of the first to adopt a 311 system. In the first year of the program, the department experienced a 25-percent reduction in 911 calls, with those in the lowest priority category dropping 99.7 percent (National Institute of Justice 2005).

Nonemergency call systems are now common in many large cities. In some cases the police department manages the 311 system. More frequently, 311 is used as a general number for customer service, which could be managed by non-sworn personnel. Recently, 311 systems have helped support 911 systems during major incidents. For example, during a significant weather event citizens are instructed to contact 311 for information. This reduces 911 demands.

Although 311 systems have appeared primarily in large communities, they are beginning to emerge in smaller cities. Evanston, Illinois (population 77,000), for example, recently implemented a 311 center. Not only does it support citizen requests by telephone, but the city also maintains a website where many of the answers sought over the phone can be viewed on-line (City of Evanston 2011).

In addition to training communication staff on effective alternative approaches to customer service, a jurisdiction may also find it valuable to carefully define some group of calls to which the police will not typically respond. In lieu of police response, citizens may be instructed to visit a police station or use other means for submitting a report.

The Colorado Springs Police Department, for example, will not send an officer for (City of Colorado Springs 2011):

- Traffic accidents with no injuries, vehicles that can be driven from the scene, and with each vehicle incurring less than $1,000 in damage
- Found property that does not pose a health or safety risk, and is not evidence in a crime
- Offences that are not in progress and for which there is no evidence or suspect information (e.g., shoplifting)
- Medical calls not requiring police intervention

## Handling Reports

When citizens call the police they often do so in order to file a report about an offense or traffic accident. In most communities, police officers are dispatched to the scene of the incident to gather information for the report. For many of these incidents, there is little likelihood that the case will be solved, and in some cases there will be little or no follow-up. Nonetheless, citizens often need evidence that a report was filed (typically for insurance purposes), and police do want to know about all offenses so as to better understand patterns and hot spots. Many police departments have found ways to satisfy these needs while avoiding the inconvenience of filing reports.

In 1980 the National Institute of Justice conducted a "Differential Police Response" program in Garden Grove, California; Greensboro, North Carolina; and Toledo, Ohio (McEwen et al. 1986). The project was designed to test alternative ways of collecting reports, including walk-in, mail-in, officer response by appointment, and telephone reporting units. The results showed overwhelming citizen support for these approaches. Evidence indicated that such approaches could reduce patrol workload as much as one-fifth, in part because police could take as much as 45 percent of reports over the phone (Kennedy 1993).

One of the more popular strategies for alternative response is telephone-reporting units. These units receive citizen complaints and, when appropriate, prepare a police report. Their organization varies by the type of offenses they handle and how they are staffed.

The Rockford, Illinois, Police Department, for example, operates a Crime Reporting Unit (CRU) at its headquarters. Non-sworn personnel handle citizen "walk-in" reports and also take reports on the phone. The department estimates that 25 percent of all reports are prepared by the CRU (City of Rockford 2011).

The Portland, Oregon, Telephone Reporting Unit (TRU) is part of its detective division and is staffed by sworn officers. TRU calls include those for:

- Violation of restraining orders by suspects with unknown location
- Certain thefts and fraud
- Identity theft
- Additional information on previously reported cases
- Telephone and other harassment
- Hit-and-run
- Missing juvenile (ages 14–17)
- Missing adult where the complainant is calling from outside Portland
- Vandalism
- Child-abuse calls referred from the Child Abuse Team

Each month the Portland TRU handles approximately 3,700 calls, 11 percent of the police bureau's call load, and writes 1,800 reports, 17 percent of all reports written by the police bureau (City of Portland 2011).

The TRU of the Sunrise, Florida, Police Department is housed in the Communication Dispatch Center. This TRU consists of four part-time Police Service Aides who handle telephone reports of all non-violent property crimes without suspect information as well as general police-information reports (City of Sunrise 2012).

Some departments also allow citizens to submit reports electronically. The Sacramento Police Department (SPD), for example, allows citizens to use its website for reports of:

- Accidents
- Harassment/threats/bias
- Financial crimes/theft/burglary/lost property
- Insufficient funds (checks)
- Vandalism
- Violation of restraining order
- Drug, gang, criminal or suspicious activity

Citizens who use this system immediately receive a report number and ability to print and review it (City of Sacramento 2011).

Another significant demand on law enforcement agencies is preparation of traffic accident reports. Traffic accident investigation is time consuming and may pose risks to citizens and emergency personnel at the scene. The city of Toronto has implemented one very promising approach to this issue (City of Toronto 2011). Several police organizations have collaborated with the insurance industry and a private company to create accident-reporting centers. These facilities are located throughout the region.

These centers are very customer-focused. Drivers involved in property damage collisions must report within 24 hours to such a center, where a police officer inspects the vehicle damage. The driver then completes a simplified government collision report form that is checked by a police officer. Once the reports are completed, drivers may use the insurance services offered at the center. In some cases, the driver's own insurance provider is represented on site. This allows for the timely reporting of the collision to the insurance provider and an early resolution of the claim process. The Toronto Police receive about 250 reports each day at the reporting centers.

## Non-Sworn Staff

Until recently law enforcement agencies were organized so that nearly all functions were performed by sworn police officers. Many departments now employ a significant number of non-sworn employees to provide support to police operations. In 2007, the number of full-time non-sworn employees in local police departments was about 138,000 (Reaves 2010).

The growth in non-sworn personnel has led to use of these individuals to perform tasks once thought to be the exclusive domain of sworn officers. Reasons for this change include:

- Freeing up time for sworn officers to do community policing and other tasks
- Non-sworn staff often having skills more appropriate for the immediate task
- The cost of non-sworn personnel being less than that of sworn personnel

One of the most common ways in which duties are moved from sworn personnel is through the use of community service officers (CSO). (Police-service aides and police cadets may perform similar functions.) These members perform a wide range of tasks previously performed by sworn officers, or they may work in conjunction with sworn officers. CSOs usually wear a uniform but are unarmed. They typically have limited police authority. In Minneapolis, assignments of CSOs can include:

- Assisting patrol officers in non-enforcement activities
- Responding to citizen requests for service
- Maintaining police vehicles and equipment
- Picking up and delivering correspondence for the department and community organizations
- Identifying and reporting criminal activities
- Assisting citizens in identifying crime prevention techniques
- Recovering abandoned property
- Assisting in traffic control of special events, major fires, parades, and accidents
- Assisting department officers or other agencies in providing transportation as requested (City of Minneapolis 2011)

Other departments use non-sworn personnel in more specialized roles:

- Several departments (e.g., Yuma, Arizona; Fayetteville, North Carolina; Albuquerque, New Mexico) use non-sworn traffic accident investigators. These investigators are often well equipped to do so (some have backgrounds in mathematics and physics). Because they handle traffic crashes, sworn officers can devote more time to enforcement (City of Yuma 2012; Bergamine 2009; Northwestern University Center for Public Safety 2007).

- Many agencies use non-sworn staff as evidence technicians and to manage and staff property and evidence facilities. Some also use them to provide prisoner transportation (Salt Lake County Sheriff's Office 2012; Tucson Police 2012).
- The City of Chicago has created a traffic-management authority staffed by non-sworn traffic control aides. They are assigned to traffic control during rush-hour, as well as during special events, emergencies, and at the airports. This has resulted in thousands of hours of police time redirected to policing (Hilkevitch 2006).
- The Oakland Police Department employs neighborhood service coordinators to help coordinate community groups, collaborate with problem-solving officers, and assist citizens needing other city services (Wilson and Cox 2008; Wilson et al. 2007).
- The San Francisco Police Department has developed a plan to use non-sworn investigators to handle non-violent crimes (Fenton 2011).

For some issues, the use of non-sworn officers is so common that standards have been developed. For example, the International Association of Chiefs of Police (2002) has developed standards for using non-sworn staff to respond to alarms.

All these strategies represent efforts to provide quality service at lower cost while ensuring that departments can continue to provide adequate staffing for patrol.

## Concluding Remarks

While much public discussion centers on finding ways to increase the supply of officers to effectively meet the demand for police service, it is important to simultaneously consider alternative ways to manage that demand. As illustrated in this chapter, several options exist to help manage demand, such as the ways in which calls are taken, reports are processed, and non-sworn staff is deployed. These strategies reduce effort required of sworn staff, thereby reducing the need for sworn officers to address certain issues and freeing their time to focus on other substantive tasks. Future research should identify additional alternatives to delivering police service and more fully explore their costs and benefits.

One of the principal reasons that police agencies must manage additional demand is, as noted, the expectations among residents, businesses, elected officials, and others for the police to engage in community policing and problem-solving activities. In the next chapter, we conclude our work by examining alternative ways police agencies may manage community policing.

# CHAPTER FIVE

## Staffing for Community Policing

Just as the police role in society has expanded historically, so too has its responsibilities, especially in recent decades. Community policing perhaps provides the prototypical example of how a more dynamic police environment influences personnel planning, affecting both substantive tasks of police and the demand for them and for specific skills (Wilson et al. 2011). Given that most agencies claim to practice community policing, it is a critical issue for personnel management (Reaves 2010; Wilson 2006).

The definition and implementation of community policing has varied across agencies and over time (Bayley 1988; Bayley and Worden 1996; Maguire, Kuhns, Uchida, and Cox 1997; Eck and Rosenbaum 1994; Greene and Mastrofski 1988; Wilson 2006). The Office of Community Oriented Policing Services (COPS Office) defines it as:

> [A] philosophy that promotes organizational strategies, which support the systematic use of partnerships and problem-solving techniques, to proactively address the immediate conditions that give rise to public safety issues such as crime, social disorder, and fear of crime (COPS 2009, 3).

COPS (2009, 3–4) identifies three fundamental dimensions of community policing:

- *Community partnerships*—Collaborative partnerships between the law enforcement agency and the individuals and organizations they serve to develop solutions to problems and increase trust in police
- *Problem solving*—The process of engaging in the proactive and systematic examination of identified problems to develop and rigorously evaluate effective responses
- *Organizational transformation*—The alignment of organizational management, structure, personnel, and information systems to support community partnerships and proactive problem solving.

While some broad-based approaches place community policing in a larger context of community governance (Drew and Weiss 2009), just the dimensions mentioned above alone have tremendous implications for police staffing. They increase demand by requiring officers to devote considerable time and effort (and to develop specialized skills) to building community capacity and solving problems. The structure of the organization influences how this work is differentiated and managed within the organization. When assessing workforce demand for a particular agency, then, it is important to answer *if* and (if so) *how* it wishes to implement community policing. Below we explore the most prevalent approaches to implementing community policing and their implications for staffing allocation and deployment. The merits of alternative approaches are beyond the scope of our work, but it is important to identify common approaches because they have implications for police staffing.

## Basic Approaches to Community Policing Implementation

Advocates have long argued that the most effective way to implement community policing is to make it a fundamental component of the entire organization. Consider two of the 10 principles of community policing identified by Trojanowicz, Kappeler, and Gaines (2002):

> Community policing's organizational strategy first demands that everyone in the department, including both non-sworn and sworn personnel, must investigate ways to translate the philosophy into practice. (311)
>
> Community policing must be a fully integrated approach that involves everyone in the department, with the [community-policing officers] as specialists in bridging the gap between the police and the people they serve. (313)

At the line level, this means every officer would be trained in community policing and able to assist community members with a wide range of problems and issues without having to refer them to another unit. Despite the merits of a "generalized" approach claimed by many looking to improve fundamental police–community partnerships, some agencies took a "specialized" approach and implemented community policing through a specific unit, often referred to as a "split-force." As a result, throughout the 1990s police agencies became even more specialized (Maguire et al. 1997).

As of 2007, 14 percent of all agencies (60 percent of agencies serving populations between 50,000 and less than 1 million residents) had a specialized community-policing unit (Reaves 2010). Nearly half of all agencies (47 percent) and over two-thirds of agencies serving populations of at least 25,000 had dedicated community policing officers, even if not part of a formal unit. Maguire and Gantley (2009) identified several contributors toward a specialized approach, including:

- Perception that there is not enough time to conduct community policing while responding to calls for service
- Belief that funding agencies prefer specialized models
- Symbolic value in visibly demonstrating the commitment to community policing
- Challenge of training large numbers of officers

Nevertheless, specialization has many challenges. Among those Maguire and Gantley (2009) identified are:

- Balancing supervision and autonomy of community-policing officers
- Developing and measuring performance metrics
- Animosity of traditional officers toward community-policing officers
- Fully engaging the community given that traditional officers view community interaction as the function of someone else
- Unevenness in community-policing training, with community-policing officers receiving more than traditional officers

Others have made similar assessments of the split-force approach. Wilkinson and Rosenbaum (1994), in their analysis of community policing in two medium-sized cities in Illinois, concluded:

> Although community policing can survive within the constraints of special units, this does not mean that such activities will flourish or even survive for an extended period of time given the cultural and organizational forces that continue to work against this arrangement. (124)

Some agencies have sought to adopt community policing in a way that mixes generalized and specialized approaches. For example, an agency might have a dedicated problem-solving unit but fully train all officers in community policing and expect them to engage the community and attempt to address underlying crime problems as part of their normal work routine. Maguire and Gantley (2009) referred to such approaches as "hybrid models" that agencies may use as a transition from a specialized to a generalized community-policing model.

## Implications of Community Policing for Staffing

There is no standard benchmark to assess appropriate levels of staffing for community policing. Rather, levels tend to be determined locally based on qualitative assessments, performance objectives, and practical considerations (e.g., resource availability, demand for staff throughout the organization). Below we describe the relationship between the generalized and specialized approaches to community policing, staffing allocation, and deployment.

## Maximizing the Discretionary Time of Patrol Officers

Agencies that implement community policing throughout the organization expect all officers to engage in community policing. Yet, typically the brunt of this effort is borne by patrol officers who are most closely tied to community interaction. Community policing requires that patrol officers have the time necessary to build community partnerships and solve problems. The challenge is determining how much time is practical given a *desired* level of service and that which can actually be achieved.

We earlier discussed the importance of articulating obligated (e.g., responding to calls) and unobligated (e.g., officer-initiated) time as part of an agency's performance objective. The most direct connection between community policing and the demand for staffing relates to the officer-initiated, or discretionary, time objective. Generally, an agency that adopts a generalized approach and expects all patrol officers to engage in community policing must provide greater discretionary time to the officers than an agency that adopts a specialized approach to be implemented primarily by a special unit.

Our earlier discussion of Rockford police staffing exemplifies this. Controlling for other characteristics (e.g., workload, relief factor), Rockford, if expecting officers to spend half their time on unobligated tasks, would require more than 90 patrol officers. If expecting that officers would spend two-thirds of their time on unobligated tasks, it would require more than 140. Under this scenario, increasing unobligated time to facilitate community policing activities requires a 55 percent increase in patrol staff.

As our earlier examples illustrate, it is fairly easy to estimate patrol staffing demand for alternative performance objectives once the initial model is constructed. Although standards do not exist for the amount of discretionary time that should be set aside for community policing, agencies may seek to estimate staffing demands for various assumptions (e.g., 50 and 66 percent) and then determine what they can afford.

## Creating a Special Unit

Agencies taking a specialized approach to community policing place a lesser workload burden on patrol officers because other officers handle community-policing duties. Therefore, discretionary time for patrol officers is minimized with this model and instead the number of officers required to staff the specialized unit must be estimated. As with the generalized approach, there are no standards for determining this number; instead, agencies may determine it by considering qualitative preferences, geography, community characteristics, and available staff and budget resources.

The following examples highlight differing ways jurisdictions have chosen to determine staffing levels for community-policing units.

- Oakland, California, a city of approximately 391,000 residents, passed legislation to hire and deploy 57 problem-solving officers—covering the whole city, there was to be one for each of the city's community policing beats (Wilson, Cox, Smith, Bos, and Fain 2007; Wilson and Cox 2008);
- In Traverse City, Michigan, a city of approximately 14,500 residents, the police agency staffed a sector-policing unit to interact with neighborhood associations and conduct problem-solving activities. Headed by a sergeant, the unit had five officers, one assigned to each sector of the city, but, due to budget cuts, three officers were transferred to patrol (Weiss and Wilson 2011).
- In Green Bay, Wisconsin, a city of approximately 100,000 residents, the police maintained 18 community policing officers who worked in teams of two in nine neighborhoods (Wells and Fisher 2009).
- Greenville, South Carolina, a city of approximately 57,400 residents, employs 30 officers and 2 non-sworn staff differentiated among various assignments, including business communities and housing complexes, crime prevention, bike patrol, schools, drug and alcohol resistance education, and recreation coordination (King and Shields 2009).
- In 2007, on average, agencies serving populations of at least 500,000 residents employed more than 130 dedicated community-policing officers (Reaves 2010). Those serving populations between 50,000 and 500,000 employed 20 to 50 such officers. Those with population less than 50,000 employed less than 10 on average.

These examples show there is no single solution to the number of dedicated community policing officers any given agency requires. Rather, the number of community policing officers varies by local preferences and constraints. What is clear, however, is that those engaged in community policing need time to conduct their activities. The way in which that work is assigned—be it to patrol or dedicated community policing unit—determines where staffing resources must be placed.

## Future Directions

It would be useful for future research to consider developing work-load-based models to assess staffing need for community policing, while also considering the "time" (by hour of day and day of week) during which the efforts should occur. Unlike patrol, which can be fairly well predicted based on the easily measurable time to respond to calls for service, an approach to determining staffing needs for community policing would need to account for 1) fluctuations in the definition and operationalization of community policing; 2) the opportunity and need to engage the community and solve problems over time; 3) the difficulty of measuring the "time" to complete the typical "community policing activity;" and 4) the need to strategically engage the community regarding the implementation of and staffing for community policing. Until such resources exist, it is likely that agencies will continue to staff for community policing based on general expectations of time commitment required or what can be afforded (e.g., a certain percentage of patrol officers' shifts or number community policing officers per beat) rather than on a formal community policing workload assessment.

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# About the Authors

**Jeremy M. Wilson** (Ph.D., The Ohio State University) is an associate professor and research director in the School of Criminal Justice at Michigan State University (MSU). He recently founded and directs the MSU Anti-Counterfeiting and Product Protection Program. Prior to joining MSU, Wilson was a Behavioral Scientist at the RAND Corporation, where he served as founding associate director of the Center on Quality Policing and founding director of the Police Recruitment and Retention Clearinghouse. He has been a visiting scholar in the Australian Resource Council's Centre of Excellence in Policing and Security at Griffith University, the Willett Chair in Public Safety in the Center for Public Safety at Northwestern University, and an adjunct professor of public policy at Carnegie Mellon University. Wilson has collaborated with police agencies, communities, task forces, and governments throughout the United States and the world on many salient public safety problems. He has written broadly in the areas of police administration, violence prevention, product counterfeiting, and internal security. Wilson's research and commentary have been featured in numerous books, professional journals, and in various forms of national and international media. His most recent books include *Recruiting and Retaining America's Finest: Evidence-Based Lessons for Police Workforce Planning, Police Recruitment and Retention for the New Millennium: The State of Knowledge*, and *Impact of 9/11 on Police Forces*. His current projects focus on police staffing, resource allocation, consolidation, and the development of anti-counterfeit strategy.

**Alexander Weiss** (Ph.D., Northwestern University) is president of Alexander Weiss Consulting, LLC. He has over 30 years experience as a public safety practitioner, researcher, trainer, and consultant. For 9 years he was director of the Northwestern University Center for Public Safety and Professor of Management and Strategy at the J.L. Kellogg Graduate School of Management. Prior to his appointment at Northwestern, Weiss was a member of the faculty of the department of criminal justice at Indiana University, Bloomington. During that time he also served as a senior advisor to the Indianapolis Police Department. Weiss has 12 years of experience with law enforcement agencies in Colorado. During his tenure with the Colorado Springs Police Department he served as a field supervisor and director of operations analysis. Weiss has written and lectured widely on topics such as resource allocation and work scheduling, police innovation, highway safety, program evaluation, and racial profiling. For the past 6 years he has directed the Illinois Traffic Stop Study, an analysis of traffic stop data for some 1,100 Illinois law enforcement agencies. He has served as a consultant to the National Institute of Justice, the National Research Council, and the U.S. Department of Transportation. In 2010, Weiss was appointed adjunct professor of criminal justice at Michigan State University, and, in addition, he was invited to join the senior leadership council at Hillard Heintze, an independent panel of current and retired major city police chiefs and senior federal, state, and local law enforcement leaders.

***A Performance-Based Approach to Police Staffing and Allocation*** summarizes the research conducted by the Michigan State University team. It highlights the current staffing allocation landscape for law enforcement agencies and provides a practical step-by-step approach for any agency to assess its own patrol staffing needs based upon its workload and performance objectives. Additionally, it identifies some ways beyond the use of sworn staff that workload demand can be managed, and discusses how an agency's approach to community policing implementation can affect staffing allocation and deployment. This guidebook will be particularly useful for police practitioners and planners conducting an assessment of their agency's staffing need, and for researchers interested in police staffing experiences and assessment methods. A companion document, entitled *Essentials for Leaders*, which offers an overview of the issues discussed here, may be of particular interest to police executives and policymakers.

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Washington, DC 20530

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