

**A Mixed Methods Analysis of Immediate & Near Future
Staffing Needs of the Flagler County Sheriff's Office***

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DISCLAIMER

This report relates the methods and outcomes, including hiring recommendations, resultant of the analysis herein. The conclusions, opinions, and suggestions are those of the authors and do not necessarily represent the official positions of the Flagler County Sheriff's Office or the funding agency.

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Executive Summary

During the last two decades politics and public perception have impacted law enforcement agencies substantially as evident by a shortage of deputies and police officers, making the future of policing somewhat uncertain. Staffing concerns are nothing new for law enforcement despite the current circumstances as noted by one pundit long ago: “taxes, coupled with continual manpower shortages...and the jaundiced eye with which all legislators view requests for additional budget money, it is imperative that the administrator get the maximum efficiency from what manpower he has” (Walton, 1958, p. 165). Now, more than ever before, police face the task of doing more with less making this old observation pointedly relevant during these particularly challenging times. Irrespective of current difficulties, police leaders are routinely asked to justify requests for additional staffing and maintain current staffing levels (McCabe, 2013), which requires facts, not opinions or best estimates. As Brotheim (2003, p. 9) noted, “as requests for staffing projections increase in this age of tighter municipal budgets, law enforcement agencies are faced with an ever-growing demand to accurately and constantly foresee staffing needs and to present a methodology for the projections and request.” To date there have been various methods or models developed to specify size of force. Collectively, these models entail analysis of law enforcement agencies’ staffing needs and has traditionally have been referred to as *manpower analysis* and, now more commonly, *staffing analysis*.

This report relates the methods and outcomes of a staffing analysis performed for the Flagler County Sheriff’s Office (FCSO) in central coastal Florida that was oriented around three objectives, including to: 1) optimize a new mixed methods law enforcement staffing analysis model with measurement refinements, site-based data collection, and additional noted methodological enhancements (Vose, Miller, & Koskinen, 2020); 2) administer the new model to

empirically specify the immediate and near future hiring needs of the FCSO; and 3) demonstrate the utility of the model for other agencies' staffing analysis needs. The current analysis of FCSO personnel and CFS data followed a stepwise process (detailed in the research methods section of this report) to estimate the minimum number of new deputies needed to respond to the number of calls for service (CFS) per a supply and demand logic. At present, deputies spend the majority of their shiftwork time responding to CFS as the capability to respond quickly when dispatched is a non-negotiable law enforcement expectation. Analysis of call data and related service demands relative to the department's current staffing level yielded findings that indicate the need to immediately hire additional FCSO deputies. Specifically, results herein indicate the current need for a minimum of 71.26 deputies (24.49 deputies for the day shift and 46.77 for the night shift) assigned to responding to CFS and a maximum of 144.62 deputies assigned to responding if the agency preference is for the older IACP suggested standard of a 33% obligation to CFS. Assuming a 5% population growth during the next five years, FCSO will need 151.85 deputies to respond to CFS to maintain current basic services. Assuming a 10% population growth over ten years, FCSO will need 159.08 deputies assigned to respond to CFS to maintain an approximate level of service.

Steps of the Mixed Methods Law Enforcement Staffing Analysis Model

1. Examining the distribution of calls for service by hour, day, and month. Calls for Service (CFS) are collected and evaluated based on hour, day, and month to identify temporal trends in demand for service.
2. Examining the nature of CFS. Identifies call type (e.g., traffic collision, assault investigation, 911 call) to specify the workload demand for different types of CFS.
3. Estimating time consumed on CFS. Determines the length of each CFS, including response time, duration on scene, and time expenditure for associated administrative tasks.

4. Calculating agency shift-relief factor (SRF). The SRF represents the number of days a deputy can actually work. Due to days off, vacation, training, and other time making deputies unavailable for dispatch, the SRF allows agencies to know how many deputies are required to ensure basic services.
5. Establishing performance objectives. Established by an agency, performance objectives are the amount of time a deputy's shift is devoted to different work domains (e.g., CFS, police community relations, & administrative tasks). Measures of these time expenditures are determined by operationalizing focus group interview responses.
6. Providing staffing estimates. Based on the results of the previous steps, staffing needs are identified by the hour and distributed across department shifts to ensure adequate response capability for CFS.
7. Workload analysis by district/sector. Calculations from steps 1-6 are applied to a spatial patrol zone, enabling enhanced service through abbreviated response time.

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The authors wish to thank Flagler County Sheriff Rick Staly, Chief of Staff Mark Strobridge, and Chief Jon Welker for engaging with the research team with professionalism and patience to enable execution of the current study. Law enforcement staffing analysis requires detailed, meticulous stepwise work dependent on data quality. We appreciate these administrators' efforts in collecting and transmitting copious amounts of calls for service, scheduling data, arranging deputy availability, and facilitating a multi-day series of focus group interviews that enabled the new mixed methods staffing analysis featured in this report.

Introduction: Meeting Staffing Challenges in Trying Times

System-wide personnel shortages in criminal justice have become a widespread problem, especially for law enforcement. Without sufficient manpower, the ability to meet basic law enforcement functions becomes increasingly difficult, especially in this era of mental health, substance abuse, mass violence, and related social problems commanding ever more deputy and officer dispatch. The combination of COVID-19 pandemic effects and anti-police sentiment have prompted early retirements, transfers, and general attrition that has resulted in understaffed situations for most agencies across the United States (Vermeer, Stickle, Frame, & Hein, 2020). Calls for services increased during the pandemic, have remained high since, and pronounce the need to efficiently manage remaining personnel. Criminal justice system reform trends of offender declassification and prison overcrowding have only further intensified the staff shortage problem through relocating lower level felony offenders and their treatment programming from state corrections to county jails and probation offices thus requiring additional detention deputies at the expense of patrol slots.

While law enforcement is now expected to provide a wider range of social services, at a minimum it is critical to maintain a size of force adequate to fill patrol shifts and provide response ability. In the face of understaffing, police managers can engage alternative delivery systems such as minimizing dispatch pressure through redirecting reporting of nonemergency incidents not requiring an immediate response, attempt to increase efficiency through experimenting with different scheduling formats such as 8, 10, and 12 hour shifts, and better utilize non-sworn staff, but ultimately increases in service demands attributable to population growth, crime increases, and related social problems necessitate increased staffing (Wilson, 2022). The question consistently remains, how many deputies does a sheriff's office need? To

answer this vital question for the Flagler County Sheriff's Office (FCSO), which serves a quickly growing coastal county in central Florida, a team of applied criminologists executed a new and enhanced law enforcement staffing analysis model.

Applied research has addressed the staffing issue through various methodological approaches – a body of research known as *manpower analysis*. While there are multiple calculation models (detailed in the next section), the most comprehensive strategy is the *workload-performance* model (Wilson & Weiss, 2012; 2014) that factors in the nature of actual services provided and calls answered across shifts. Though the research literature to date on law enforcement staffing indicates that performance-based calculation is a preferable analytic approach to determining agency staffing needs, a recent research article (see “Law Enforcement Manpower Analysis: An Enhanced Calculation Model” by Vose et al. in *Policing: An International Journal of Police Strategies and Management*, Vol. 43, Number 3, 2020, pp. 511-523) revealed how the performance model is less than optimal for specifying size of force, generally, and the number of deputies required to handle CFS, specifically. Notable methodological shortcomings include measurement of key staffing level considerations, including deputy shiftwork time allocation, shift relief, and personnel needs that vary across jurisdiction sectors. As such, the new model offers a scientifically rigorous mixed methods strategy that seeks to address these methodological limitations.

Unlike previous approaches that are solely vested in statistical analysis, the new staffing model employs mixed methods (quantitative and qualitative research techniques) to realize improved measures, factor deputy shiftwork time accurately through self-reporting, and perceive contextualizing influences driving time such as agency culture and community realities apt to go unnoticed without on-site research activity. With enhanced analytic

capability, this new mixed-methods staffing model has been well received by the general law enforcement community since its introduction just two years ago. The new model was the topic of the 2021 keynote address at the Florida Sheriffs Association Executive Leadership Conference, presented at the 2021 Tennessee-Kentucky FBI National Academy and at the June 2022 National Sheriffs' Association Annual Conference, disseminated at the Academy of Criminal Justice Sciences in 2021, the Southern Criminal Justice Association in 2022, and the American Society of Criminology in 2022.

It is important to note that law enforcement performance is also heavily influenced by local socioeconomic factors that command police resources to different extents across and sometimes within districts/sectors of jurisdictions (Chamlin, 1989; Terrill, Rossler, & Paoline, 2014). Thus, variability in demands for services by units across the jurisdiction must also be factored into the size of force determinations overall as well as manpower allocation within jurisdictions (Maloney & Moty, 2002). Drawing upon official county and state agency data, the following report relates the seven-steps comprising the new model as executed for the Flagler County Sheriff's Office (FCSO). Below, we briefly review other leading law enforcement staffing models noting their respective strengths and weaknesses informing improvement opportunities reflected in the improved model. After relating the details of the seven steps comprising the new approach, we present findings and recommendations regarding FCSO staffing needs. Conclusions center on reiteration of immediate and near future empirically specified hiring needs and the utility of the new model for addressing law enforcement staffing needs in general.

Background: Determining Size of Force through Staffing Analysis

Law enforcement agencies began to experience staffing shortages at the turn of the

century that accelerated with the economic downturn of the late 2000s when cutbacks reduced staff and even eliminated some departments.² The number of police officers in the United States declined, for example, by nearly 81,500 officers between 2008 and 2013 (Hayland, 2018). As the economy has picked up over the past decade, police agencies have continued to struggle to hire enough officers which suggests more is at play than just the economy in what has become a quickly growing manpower shortage crisis. While some of this difficulty is attributable to more lucrative opportunities in the private sector and, becoming increasingly problematic, more attractive employment with other law enforcement agencies, hiring practices also compound the problem by culling applicants with even minor recreational drug histories, for debt, obesity, tattoos, and even facial hair that echo a police milieu rooted more in a militaristic than contemporary sociopolitical culture. Such issues limiting applicants predated the current staffing climate that due to the novel COVID-19 pandemic and a host of simultaneous compounding social problems have created a truly unprecedented and categorical human resources challenge for sheriffs and police departments.

The Current Law Enforcement Staffing Climate

The criminal justice system, particularly law enforcement as the frontline responders most interactive with the public, has confronted unprecedented challenges and been forced into novel adaptations to maintain daily operations around minimizing exposure and spread of contagion during the COVID-19 pandemic. Focal to this report on law enforcement staffing, COVID affected serious attrition reflected in still lingering personnel shortages throughout the entire justice system (Jennings & Perez, 2020; Miller & Blumstein, 2020). Though noted above, the combination of early retirements, resignations to leave law enforcement for other lines of work, and limited new applicants due to the pandemic (Davis, 2021), as well as anti-

police sentiment (Mourtgos, Adams, & Nix, 2022), have resulted in grim personnel shortages that cannot be ignored and difficult to overstate (Collazo, 2021; Lum, Koper, & Wu, 2022).

Manpower shortage is indeed especially concerning for law enforcement with COVID effecting not just a wave of early retirements and a sharp decrease in new applicants, but also considerable resignations in large part due to ongoing anti-police sentiment contextualized in and fueled by racial disparities in the criminal justice system. Unlawful excessive use of force incidents against Black Americans, particularly the murder of George Floyd, has prompted a national controversy regarding the role of law enforcement and signals the need for reform. Hiring more police (a bipartisan idea common with Republicans and supported by the Clinton and Obama administrations) has long been a reflexive response to rising crime and social order problems (Mello, 2019). Scholars have argued otherwise, however, pointing to the Kansas City Preventative Patrol experiments finding adding additional peace officers only pushes crime from one part of a city to another while minimally lowering the overall crime rate, if at all (Kelling, Pate, Dieckman, & Brown, 1974). This criminological axiom, however, is increasingly out-of-touch and inconsistent with the pressures that the COVID-19 pandemic, rising crime, the opioid and methamphetamine epidemics, and the growing national mental health crisis have placed on contemporary understaffed law enforcement agencies. All of the current overlapping realities has been the solidification of what has become a perfect storm situation of too few police, generally.

How Many Deputies Are Really Needed?

With limited manpower, supervisors must increasingly prioritize deputy dispatch while minimizing officer-initiated activity, community relations efforts, and lesser crime investigations to ensure response capacity (McCabe, 2013). Continuing media coverage has

been coupled with an alarming and increasing number of reports of a new national crime spree highlighted by violence and brazen broad-daylight retail store theft. In general, these crimes follow decreased law enforcement presence that began during the COVID-19 pandemic and continues today with too few officers and deputies available to signal effective deterrence. In addition to the ostensible correlation between recent force reductions and crime increases in many cities, a larger police presence theoretically deters crime thereby reducing CFS and, in turn, a need to arrest per greater crime. Moreover, many important and evidence-based practices and strategies are increasingly common if not expected, such as justice mental health, co-responder approaches, and similar diversion initiatives, as well as more pedestrian community policing, all require agencies to adopt more manpower-intensive practices (Vermeer et al., 2020; Wilson, Dalton, Scheer, & Grammich, 2010; Wilson & Grammich, 2009; Wilson, Rostker, & Fan, 2010).

It is unreasonable, on a practical level, to expect law enforcement, particularly jurisdictions with increasing populations and related socioeconomic diversification, such as Flagler County, Florida, to maintain normative core mission services (most vitally, being able to respond quickly) with less than the minimum number of personnel necessary – a fundamental premise all the more valid in the present overlapping contexts of COVID-19 pandemic recovery, drug and mental health crises, rising crime, and recruitment shortfalls (Nalla, Lynch, & Leiber, 1997). The current law enforcement “staffing crisis” is a vital and pressing budgetary concern for county commissions and city councils regarding new hires and prioritizes the need to identify needed size of force that is answerable through careful staffing analysis. In many cases, agencies have responded with innovative ways to meet the public safety needs of society (Terrill et al., 2014), but as agencies face shortfalls, cutbacks related to

hard decisions such as which sectors to underserve and which officer-initiated activities to discontinue linger.

Despite the current circumstances, staffing challenges are a longstanding concern as noted by a law enforcement pundit a half century ago: "taxes, coupled with continual manpower shortages...and the jaundiced eye with which all legislators view requests for additional budget money, it is imperative that the administrator get the maximum efficiency from what manpower he has" (Walton, 1958, p. 165). Strategic management notwithstanding, now more than ever there are limits to supervisory efficiency and "doing more with less" that manifests in diminished services, less perceptual and literal deterrence, and predictable crime increases without an adequate workforce (Hayland, 2018). Sheriffs and chiefs are routinely asked to justify requests for additional staff and sometimes to even maintain current staffing levels (McCabe & O'Connell, 2017) which requires facts - not opinions or best estimates (Stenzel, 2007). As Brotheim (2003, p. 9) noted, "as requests for staffing projections increase in this age of tighter municipal budgets, law enforcement agencies are faced with an ever-growing demand to accurately and constantly foresee staffing needs and to present a methodology for the projections and request."

The various challenges confronting policing ostensibly compels a need for increased law enforcement presence as the need to efficiently and adequately staff agencies is perhaps more important than ever. The question consistently remains, how many deputies does an agency need? This question is both a function of structure and management beginning with how many deputies are available for shiftwork (structure) and how they should be deployed (management), with the latter dependent on the former. Analyses to determine the appropriate size of force have historically occurred through four approaches: 1) authorized level, 2)

minimum staffing, 3) workload-based, and 4) per capita. Below, we briefly describe each approach along with their respective strengths and weaknesses.

A Review of Existing Staffing Models

Authorized Level Approach

The authorized level method is likely the most straightforward approach to police staffing. This logic for determining staffing levels focuses on budgetary specification of the number of law enforcement officers hired (Wilson et al., 2011), which assumes resource needs have been adequately anticipated. How this number is established across jurisdictions may vary; however, it is believed that little consideration is usually given to factors beyond available finances and related political decisions (Wilson & Weiss, 2014). As a result, authorized staffing levels rarely reflect what is actually necessary to fulfill the police mission. Further, authorized level estimates provide limited insight into how police should be assigned within the agency or consideration of metrics determining efficiency. As a result, while most agencies have a maximum number of allowable hires, this approach cannot meaningfully indicate how many are needed, much less when, where, or how to assign them.

Minimum Staffing Approach

Minimum staffing is similar to the authorized level approach; however, it is usually set within a department and is structured around past practices, policies, or supervisory discretion (McCabe & O'Connell, 2017). Minimum staffing involves police supervisors and administrators estimating the number of deputies needed to maintain both deputy safety and protection for the public (Orrick, 2008; Wilson & Weise, 2014), which is often reinforced through organizational policies stating that a minimum number of deputies must be available for patrol on each shift. Collective bargaining agreements and, occasionally, city ordinances may also require minimum

staffing levels. Regardless of the basis for establishing minimums, this method entails limited analysis identifying objective standards to specify needed staffing levels (Orrick, 2008; Wilson & Weise, 2014). Agencies that utilize a rigid minimum staffing approach may experience understaffing on one shift while overstaffing another and have difficulty adjusting to systemic or fluctuating workload demands. As a result, this approach may negatively impact community safety and deputy safety and satisfaction.

Per Capita Approach

The per capita approach establishes staffing levels by calculating a ratio of deputies to citizens in the community (Orrick, 2008). This approach provides some enhancements from authorized and minimum staffing approaches as it attempts to equate police resources to the community size. Agencies often use the per capita approach for comparison purposes (McCabe & O'Connell, 2017; Wilson & Weiss, 2014). For example, comparing the ratios of one peer city with 2.09 officers per 1,000 residents with their city, which only has 1.29 officers per 1,000 residents. These comparisons may be presented at budget meetings or in a labor-management context to justify raising the authorized level of officers or requiring a hard-minimum number of officers assigned to a specific task.

However, there are some limitations to using the per capita approach to staff agencies. For example, the per capita approach does not consider essential differences within a jurisdiction such as environmental conditions (e.g., weather and service area size), how deputies spend their time, community racial and economic demographics, officer deployment (e.g., shifts, patrol areas), the intensity of workload, crime levels, policing styles, daily changes in a jurisdiction's population, and more. As a result, several police management organizations have discouraged using this approach. For instance, the International Association of Chiefs of Police (IACP)

explains that ratios should not be used as a basis for agency staffing decisions stating, “...universally applicable patrol staffing standards do not exist. Ratios, such as officers-per-thousand population, are totally inappropriate as a basis for staffing decisions” (IACP, 2004, p. 2). Further, the International City/County Management Association states, “the use of officers per thousand for police...is an ineffective performance measure,” and the FBI states on their Police Employee Data webpage, “law enforcement’s differing service requirements and functions as well as the varied demographic traits and characteristics of jurisdiction, use caution when drawing comparisons between agency staffing levels...” (FBI, 2022, para 2).

Workload-Based Approach

Historically, the least used method for staffing police agencies is the workload-based approach (Srinivasan et al., 2013; Wilson & Heinonen, 2011). Workload-based approaches systematically utilize an agency’s activity records and community demographics to analyze historical workload demand, and project staffing needs consistent with the agency’s goals and community desires. As such, the workload-based approach is viewed as the most accurate method to evaluate police staffing levels (Wilson & Weiss, 2012; McCabe, 2013). The process is an evidence-based, data-driven, complex endeavor reflective of specific community conditions and policing styles. The approach is encouraged by the Commission on Accreditation for Law Enforcement Agencies (CALEA), ICMA, and IACP (McCabe & O’Connell, 2017; IACP, 2004).

A limitation is the lack of a common standard for conducting a workload-based analysis. That said, agencies can follow several recommended steps to complete a workload-based staffing analysis. These have been identified by Wilson and Weiss (2012) with an enhanced seventh step and numerous measurement enhancements added by Vose, Miller, and Koskinen (2020). We briefly overview each step, including the newly developed seventh step, below.

1. Examining the distribution of calls for service by hour, day, and month. Calls for Service (CFS) are collected and evaluated based on hour, day, and month to identify temporal trends in demand for service.
2. Examining the nature of CFS. Identifies call type (e.g., traffic collision, assault investigation, 911 call) to specify the workload demand for different types of CFS.
3. Estimating time consumed on CFS. Determines the length of each CFS, including response time, duration on scene, and time expenditure for associated administrative tasks.
4. Calculating agency shift-relief factor (SRF). The SRF represents the number of days a deputy can actually work. Due to days off, vacation, training, and other time making deputies unavailable for dispatch, the SRF allows agencies to know how many deputies are required to ensure basic services.
5. Establishing performance objectives. Established by an agency, performance objectives are the amount of time a deputy's shift is devoted to different work domains (e.g., CFS, police community relations, & administrative tasks). Measures of these time expenditures are determined by operationalizing focus group interview responses.
6. Providing staffing estimates. Based on the results of the previous steps, staffing needs are identified by the hour and distributed across department shifts to ensure adequate response capability for CFS.
7. Workload analysis by district/sector. Calculations from steps 1-6 are applied to a spatial patrol zone, enabling enhanced service through abbreviated response time.

These steps provide agencies with a workload-based analysis framework, offering a more scientifically rigorous and thus enhanced model by which to empirically specify the number of deputies a sheriff's office actually needs. However, there can be variation within each step as data availability across agencies is not consistent (Wilson & Weiss, 2014). For example, some agencies may have accurate data on time spent by multiple officers responding to the same call, while others must estimate time spent by additional personnel. Further, agencies can calculate the actual shift-relief factor based on historical time off rather than accrued hours, providing more accurate staffing needs estimates.

Aligning Demands, Resources, and Performance Objectives

Since its application to policing, the workload-based approach has been enhanced to provide agencies with better tools to evaluate their staffing needs. However, one area that police researchers have neglected is step five, establishing performance objectives. Performance objects determine what proportion of an officer's shift should be devoted to calls for service instead of other activities (Wilson & Weiss, 2012). While there is no accepted standard, many departments follow the IACP suggested model of thirds; one-third of an officer's time is devoted to calls for service, one-third is devoted to proactive patrol and one-third to various administrative tasks. However, Wilson and Weiss (2012, p. 35) believe this model is too simplistic, stating, "experience suggests that for most agencies a careful analysis of calls for service would find officers spending far less than one-third of their times on calls for service."

Another performance objective model has been presented in the Police Allocation Manual (PAM) (Northwestern University Traffic Institute, 1993; Stenzel, 2007). The PAM model suggests there are four components to police patrol:

- (1) Reactive time, time spent responding to CFS,
- (2) Proactive time, time spent on self-initiated activities,
- (3) Proactive (Patrol), time spent free or uncommitted, and
- (4) Administrative time, time on all other activities on patrol.

The PAM model specifies that reactive time (e.g., CFS) and administrative time should be considered a total unit of time officers are obligated to, while the other two categories are unobligated. Consequently, indicating that an officer should have around fifty percent of their shift devoted to proactive or self-initiated activities and fifty percent to obligated responsibilities.

Regardless of which model is followed (IACP, PAM, or the new model used in this study), law enforcement agencies must consider manpower deployment in three areas. First is the basic need to respond to typical CFS (e.g., traffic collisions, criminal complaints). Second, agencies must be adequately staffed to respond quickly and with enough resources (i.e., deputies) to respond to emergency calls for service. Emergency calls are distributed unevenly (both temporally and for total staffing needed), making planning difficult. Nevertheless, the community's safety and responding deputies' safety are paramount considerations. Third, a sheriff's office needs enough unobligated staff time to allow deputies to be proactive within a community, engage in useful self-initiated activity, and not be burned out with too heavy of a dispatch-driven workload. How these three critical objectives are calculated and measured is often not well defined; instead, agencies may assume performance objectives, adopting the faulty IACP or PAM models that can result in disproportionate staffing and difficulty in measuring success indicative of performance objectives.

Agencies should establish performance objectives that reflect their community and agency. Wilson and Weiss (2012) suggest that agencies "conduct interviews and focus groups" (p. 37) to help establish appropriate objectives. Moreover, Koper, Maguire, & Moore (2001), after a survey of 1,270 police agencies and a review of 55 empirical studies, conclude that there are a "rather weak and inconsistent set of findings" (p. 25) on the determinates of police strength. They join Nalla et al. (1997) in calling for,

"...quantitative analysis [that] captures some dimensions of those forces which shape policing, qualitative assessments and data may further clarify police growth patterns. For instance, we need further research on the actors' interpretive

processes and the organizational contexts in which they make decisions about the increase in police personnel and budgets” (p. 140).

Because there is no one-size-fits-all model for staffing, establishing agency-specific performance metrics is the best method for setting a “legitimate standard [to] help local government managers set realistic performance targets, which in turn can promote them to reassess staffing levels and deployment, training, equipment, and operating methods as they strive to reach their targets” (Ammons & Edwards, 2008, p.186). However, a staffing model is likely to be inaccurate without a thorough understanding of the amount of time deputies are expected to spend on various activities. The history of staffing analysis to date is defined by a statistical assessment of available and assumed (assigned) measures.

Application of this *enhanced workload-performance analysis* model will entail application of an improved *seven-step* arithmetical process (explained in detail in the main narrative below) and generate findings important for the FCSO while improving the scientific rigor of performance-based staffing and allocation research. Below, we relate a new mixed methods approach that, while requiring multi-day site visits to law enforcement agencies, enables actual measurement rather than estimates of time demands and expenditures toward improving law enforcement staffing analysis. By any estimate from any social science orientation or paradigm, measuring is irrefutably preferable to and thus more scientific than assigning based on assumption which is, at best, an informed guesstimate.

Research Design: A Mixed Methods Law Enforcement Staffing Model

Law Enforcement Site (Flagler County, FL)

The project site for the current staffing analysis was Flagler County, FL which is located on the east coast of central Florida. Flagler County Sheriff’s Office (FCSO) has a jurisdiction of

483 square miles, and is home to tourist destinations including Palm Coast and Flagler Beach. According to U.S. Census Bureau estimates (2020), Flagler County has a population of 115,378 persons, and 74.4% of the population is White (Non-Hispanic) followed by African American (10.9%), Hispanic (10.9%), and Other Races (3.8%). The median household income is \$54,514, and 31.2% of the population is aged 65 and older. The county is divided into three districts for patrol purposes.

The issue of allocation is particularly vital to sheriff's office that are responsible for providing law enforcement services for cities within their counties such as FCSO's services to the City of Palm Coast through special contractual agreement for enhanced services. Population growth and social change in the City is outpacing county-wide growth and create imbalances between law enforcement service demands and response capacity that need reassessment to inform future contracting terms to address both City and County expectations. Complicating the increase in crime and calls for service is the large geographic size of the county and a slow infrastructure growth that impacts the speed of responding to calls for service, a rapidly expanding population, and the complex nature of transpiring socioeconomic diversification. A timely sheriff's office response to CFS is, again, seemingly evermore challenged by spiraling contemporary social problems of mental health, substance abuse, and justice system controversies (Lee et al., 2018).

Data Collection

Data for the current study included official FCSO calls for service and deputy shiftwork records (quantitative data) and interview data obtained from a series of focus groups (qualitative data). A random number generated selected deputies comprising the focus groups to ensure respondents were representative of the agency as a whole to estimate shiftwork and other drivers

of deputy time as well as explore respondent-introduced issues germane to their shiftwork realities as determined by agency priorities as heavily mitigated by citizen services demand and related dispatch.

Quantitative Data: The data utilized for the current staffing analysis represents all calls for service (CFS) to the Flagler County Sheriff's Office (FCSO) that occurred from March 1, 2019 – February 29, 2020.¹

Qualitative Data: Previous staffing models have assumed deputy and deputy shiftwork time to be allocated in even thirds across work domains of 1) being dispatched/on a call for service, 2) participating in some type of police-community relations or other officer-initiated activity, and 3) administrative work such as report writing, training, and court appearances. Per the very different functions performed by sworn personnel within an agency and the many differences in populations served, severity and nature of crime problems, and the level of agency resources across agencies, the equal third measure seems to be likely limited in a real-world application. A major enhancement to this staffing analysis has been the construction of a semi-structured questionnaire enabling deputy input regarding their actual time expenditures across law enforcement patrol work domains (dispatch, community policing, and paperwork) domains (see Appendix A) and then operationalized as percentage of shift expenditure for calculus in the new seven step model as detailed below.

Research Methods

Workload or performance-oriented staffing analyses to date have relied on a six-step model (Wilson & Weiss, 2014) that, while preferable to other approaches, lacks scientific rigor

¹ The time frame for the data pull was purposeful in an effort to avoid any observable or unknown COVID-19 lockdown and related impacts on CFS that may not necessarily best represent the typical CFS volume of FCSO in any given year. Also, officer-initiated activity was excluded.

regarding measurement, especially shiftwork expenditure, and is vested in a questionable process of guesstimates (the assumption of an equal split of one third of shift time for dispatch, outreach, and paperwork). As described above, measurement refinement based in a mixed methods approach and the addition of a seventh spatial step (see Vose et al., 2020) offers an enhanced and more empirically robust means by which to determine staffing needs. With recognition of this series of seven arithmetic steps, along with noted methodological enhancements, the analytical process proceeds in a sequential fashion to estimate the minimum number of deputies needed (supply) to respond to CFS (demand). Specifically, **Step 1** documents the number of CFS received by the FCSO during March 1, 2019 – February 29, 2020 for the 12-hour day shift and for 12-hour night shift. **Step 2** involves the calculation of deputy time (in minutes and in hours) that is spent addressing each CFS on average based on CFS type. CFS frequently result in more than one deputy “working the call” either due to proximity to call, policy requirement (i.e., domestic violence), etc. Historically, traditional staffing analysis has either not accounted for CFS that involves multiple deputies or has added a conservative guesstimate adjustment to the CFS volume to account for CFS that involves more than one deputy (see Vose et al., 2020 who performed a 5% upward adjustment to the CFS). Acknowledging these limitations, the current staffing analysis offers an *enhancement* by adding a multiplier for the number of deputies to the CFS time estimation for those CFS that include more than one deputy who “worked the call”.

Step 3 focuses on a determination of the minimum number of deputies needed per shift to respond to the CFS volume. Essentially, this step begins by dividing the CFS volume by 4,380 hours, which is based on a deputy theoretically working 12 hours per day, 365 days a year. The existing performance obligation expectations of deputy time proffered by the IACP-suggested standards (Wilson & Weiss, 2012) is that deputy time is divided equally across three work

categories: 1) responding to calls for service (reactive), 2) patrol (proactive), and 3) administrative duties. As deputy time is not necessarily shared equally across work categories by shift, by district, etc., the current staffing analysis implements an *enhancement* to **Step 4** to better define the typical workload distributions by the administration of a brief questionnaire (see Appendix A) to the FCSO deputies. In this vein, the sampling frame and list of deputies who were employed during the time period of the CFS data being analyzed (March 1, 2019 – February 29, 2020) was obtained.

Approximately 25% of the deputies (n=28) were subsequently randomly selected by shift (day or night) and by shift assignment (A, B, C, or D) to participate in several focus groups of 4-5 deputies on average. The research team engaged with the deputies during the focus groups in a semi-structured format in an effort to gather the estimates of the actual percentage of time that a deputy spent toward each of the three work categories on a “typical shift”: 1) responding to calls for service (reactive), 2) patrol (proactive), and 3) administrative duties. An average percentage of time per category was calculated from the deputies’ responses to generate “real world” workload distribution estimations. Several additional IACP-informed (i.e., equal thirds) and other arbitrary workload distributions (100% of time spent per shift devoted to CFS, 66% of time spent per shift devoted to CFS, and 50% of time spent per shift devoted to CFS) are also estimated for comparative purposes.

Following the performance obligation adjustments, **Step 5** entails the calculation of the shift-relief factor (SRF) that acknowledges the difference between the number of days/hours that a deputy *can* and actually *does* work. Or in other words, the number of hours that a deputy takes off from work (i.e., personal, vacation, sick, military, holiday, bereavement, seven days off per 14-day period, etc.) is subtracted from the total number of hours that a deputy can theoretically

work (365 days * 12-hour shift = 4,380 hours). The SRF is then computed by dividing the number of hours that a deputy can theoretically work by the number of hours actually worked. As traditional staffing analysis often relies on accrual time off, the current staffing analysis provides an *enhancement* where data on actual time *taken* off for the deputies during the March 1, 2019 – February 29, 2020 time period was collected and averaged to generate a better estimate of *actual* time off (i.e., deputy availability) versus the time that *could be* taken off, but was not.

Step 6, the final step in traditional staffing analysis, is to calculate the minimum number of deputies needed for each shift (day/night) based on the CFS volume, performance objective obligations, and the SRF. Similar to Step 4 above, these calculations are computed for the IACP-informed (i.e., equal thirds) workload distribution for CFS, several other arbitrary workload distributions (100% of time spent per shift devoted to CFS, 66% of time spent per shift devoted to CFS, and 50% of time spent per shift devoted to CFS), and for the “real world” workload distribution obligations (derived from the focus group interviews) for comparative purposes. The final step in the current staffing analysis (**Step 7**) is informed by the additional optional step implemented by Vose et al. (2020). Specifically, **Steps 1-6** are re-calculated in the same step-by-step process, but they are calculated separately for each of FCSO’s three districts in order to derive district-specific staffing estimates as crime is not randomly distributed across geography (i.e., Flagler County).

Findings

The total CFS volume for FCSO between March 1, 2019 – February 29, 2020 was 43,385 calls for service. The majority of these calls occurred on the 12-hour night shift (n= 28,082; 64.8%) compared with the 12-hour day shift (n= 15,303; 35.2%) (**Step 1**; see Table 1). The average amount of deputy time per CFS is 119.28 minutes for the day shift and 123.74 minutes

for the night shift. These time estimates include the *enhancement* adjusting for the number of deputies who “worked the call” (**Step 2**; see Table 2). Overall, deputies spent 1,825,341.84 minutes (30,422.36 hours) responding to and handling the CFS on day shift and 3,474,823.17 minutes (57,913.72 hours) responding to and handling the night shift CFS. The minimum number of deputies needed to respond to the CFS volume after dividing the total time spent by the theoretical number of hours a deputy can work annually (4,380 hours) is 6.95 deputies for the day shift and 13.22 deputies for the night shift (**Step 3**; see Table 3).

Table 1. Number of Calls for Service (March 1, 2019 – February 29, 2020)

Shift	N (%)
Day	15,303 (35.2%)
Night	28,082 (64.8%)

Table 2. Deputy Time Spent on Calls for Service

Shift	Average Time Per CFS Call
Day	119.28 minutes
Night	123.74 minutes

Table 3. Deputy Time Spent on Calls for Service and Minimum Deputies Required by Shift

Shift	Minutes	Hours	Deputies Required
Day	1,825,341.84	30,422.36	6.95
Night	3,474,823.17	57,913.72	13.22

The minimum number of deputies needed to manage the CFS volume after adjusting for the various performance objectives and related workload obligations is displayed in Table 4 (**Step 4**). Considering the arbitrary workload obligations for the percentage of time deputies are working CFS: 6.95 deputies are needed for the day shift and 13.22 deputies are needed for the night shift, assuming a 100% workload obligation allocated to CFS; 10.43 deputies are needed for the day shift and 19.83 deputies are needed for the night shift, assuming a 66% workload

obligation allocated to CFS; and, 13.90 deputies are needed for the day shift and 26.44 deputies are needed for the night shift, assuming a 50% workload obligation allocated to CFS. Under the IACP-informed 33% workload obligation to CFS, 20.85 deputies are needed for the day shift and 39.66 deputies are needed for the night shift. Finally, Table 5 presents the minimum number of deputies needed by shift after applying the “real world” workload obligations that were derived from the focus group interviews: 67.5% for CFS, 18.5% for proactive/patrol activities, and 14.0% for administrative tasks. Based on these “real world” workload obligations, 10.29 deputies are needed for the day shift and 19.57 deputies are needed for the night shift.

Table 4. Minimum Number of Deputies by Shift with Varying Performance Objectives

Shift	Obligated 100%	Obligated 66%	Obligated 50%	Obligated 33%
Day	6.95	10.43	13.90	20.85
Night	13.22	19.83	26.44	39.66

Table 5. Minimum Number of Deputies by Shift with Varying Performance Objectives, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	6.95	10.29	10.43	13.90	20.85
Night	13.22	19.57	19.83	26.44	39.66

A SRF of 2.39 was calculated based on a division of the theoretical number of hours a deputy could work annually work (12-hour shifts, 365 days a year= 4,380 hours) by the number of hours worked after accounting for the average actual time taken off per deputy during the March 1, 2019 – February 29, 2020 time period (Step 5). Table 6 displays the minimum number of deputies needed to manage the CFS for the varying arbitrary workload obligations, “real world” workload obligations, and for the IACP-informed 33% workload obligations adjusted by the SRF. Or in other words, the most robust staffing analysis estimates from the current staffing

analysis suggests that the minimum number of deputies needed to respond and handle the CFS volume are: 16.61 deputies for the day shift and 31.60 deputies for the night shift with a 100% CFS obligation; 24.49 deputies for the day shift and 46.77 deputies for the night shift with a 67.5% “real world” CFS obligation; 24.93 deputies for the day shift and 47.39 deputies for the night shift with a 66% CFS obligation; 33.22 deputies for the day shift and 63.19 deputies for the night shift with a 50% CFS obligation; and 49.83 deputies for the day shift and 94.79 deputies for the night shift with a 33% CFS obligation.

Table 6. Minimum Number of Deputies per Shift by Performance Objective including the Shift Relief Factor, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	16.61	24.49	24.93	33.22	49.83
Night	31.60	46.77	47.39	63.19	94.79

The results from the final step (Step 7), which involves district-specific re-calculations of the initial Steps 1-6, are illustrated in Tables 7-12 (District 1), Tables 13-18 (District 2), and Tables 19-24 (District 3). Generally, the district-specific staffing analysis calculations suggest that a greater number of deputies are needed in District 2, followed by District 3 and District 1. And, these staffing recommendations apply to the staffing analysis calculations for both the day shift and the night shift.

District 1

Table 7. Number of Calls for Service (March 1, 2019 – February 29, 2020)

Shift	N (%)
Day	1,170 (35.2%)
Night	2,154 (64.8%)

Table 8. Deputy Time Spent on Calls for Service

Shift	Average Time Per CFS Call
Day	119.36 minutes
Night	105.54 minutes

Table 9. Deputy Time Spent on Calls for Service and Minimum Deputies Required by Shift

Shift	Minutes	Hours	Deputies Required
Day	139,651.20	2,327.52	0.53
Night	227,333.16	3,788.89	0.87

Table 10. Minimum Number of Deputies by Shift with Varying Performance Objectives

Shift	Obligated 100%	Obligated 66%	Obligated 50%	Obligated 33%
Day	0.53	0.80	1.06	1.59
Night	0.87	1.30	1.73	2.60

Table 11. Minimum Number of Deputies by Shift with Varying Performance Objectives, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	0.53	0.79	0.80	1.06	1.59
Night	0.87	1.28	1.30	1.73	2.60

Table 12. Minimum Number of Deputies per Shift by Performance Objective including the Shift Relief Factor, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	1.27	1.89	1.91	2.53	3.80
Night	2.07	3.06	3.11	4.13	6.21

District 2

Table 13. Number of Calls for Service (March 1, 2019 – February 29, 2020)

Shift	N (%)
Day	12,164 (34.8%)
Night	22,750 (65.2%)

Table 14. Deputy Time Spent on Calls for Service

Shift	Average Time Per CFS Call
Day	115.85 minutes
Night	121.70 minutes

Table 15. Deputy Time Spent on Calls for Service and Minimum Deputies Required by Shift

Shift	Minutes	Hours	Deputies Required
Day	1,409,199.40	23,486.66	5.36
Night	2,768,675.00	46,144.58	10.54

Table 16. Minimum Number of Deputies by Shift with Varying Performance Objectives

Shift	Obligated 100%	Obligated 66%	Obligated 50%	Obligated 33%
Day	5.36	8.04	10.72	16.09
Night	10.54	15.80	21.07	31.61

Table 17. Minimum Number of Deputies by Shift with Varying Performance Objectives, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	5.36	7.94	8.04	10.72	16.09
Night	10.54	15.59	15.80	21.07	31.61

Table 18. Minimum Number of Deputies per Shift by Performance Objective including the Shift Relief Factor, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	12.82	18.98	19.22	25.62	38.46
Night	25.18	37.26	37.76	50.36	75.55

District 3

Table 19. Number of Calls for Service (March 1, 2019 – February 29, 2020)

Shift	N (%)
Day	1,969 (38.3%)
Night	3,178 (61.7%)

Table 20. Deputy Time Spent on Calls for Service

Shift	Average Time Per CFS Call
Day	140.40 minutes
Night	150.72 minutes

Table 21. Deputy Time Spent on Calls for Service and Minimum Deputies Required by Shift

Shift	Minutes	Hours	Deputies Required
Day	276,447.60	4,607.46	1.05
Night	478,988.16	7,983.14	1.82

Table 22. Minimum Number of Deputies by Shift with Varying Performance Objectives

Shift	Obligated 100%	Obligated 66%	Obligated 50%	Obligated 33%
Day	1.05	1.58	2.10	3.16
Night	1.82	2.73	3.65	5.47

Table 23. Minimum Number of Deputies by Shift with Varying Performance Objectives, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	1.05	1.56	1.58	2.10	3.16
Night	1.82	2.70	2.73	3.65	5.47

Table 24. Minimum Number of Deputies per Shift by Performance Objective including the Shift Relief Factor, Factoring in Real World Obligated Time for CFS

Shift	Obligated 100%	Real World Obligated 67.5%	Obligated 66%	Obligated 50%	Obligated 33%
Day	2.51	3.73	3.78	5.02	7.55
Night	4.36	6.45	6.52	8.72	13.07

Conclusions and Hiring Recommendations

The empirical results observed from analysis of FCSO data inform current and near-future hiring needs to maintain public safety, effectively respond to calls for service, and continue providing proactive and community policing services. Specifically, the staffing needs

can best be summarized as a range depending on specified assumptions and population growth projections. For example, on the low end of the range is 48.21 deputies (16.61 day shift and 31.60 night shift) based on the unlikely assumption that all FCSO deputies spend their entire 12-hour shifts responding to CFS volume. The high end of the range is 144.62 deputies (49.83 day shift and 94.79 night shift), assuming all deputies spend only one-third of their 12-hour shift dispatched responding to CFS (a limited assumption of the previous workload-performance oriented model, but a lofty goal for community policing-oriented sheriff's offices).

Our series of focus group interviews for this staffing analysis confirmed that FCSO deputy and specialty officers engage in a range of shiftwork duties, including proactive community outreach and report writing as well as similar administrative activities in addition to a primary focus and time expenditure on patrol which is dispatch-driven and even more so when too few deputies are available per shift. A fundamental finding regarding FCSO staffing needs and for future staffing analyses, is confirmation of the most basic assumption of the new mixed methods staffing model. Specifically, the assumptions regarding the expenditure of shiftwork time in equal thirds of dispatch, officer-initiated, and report writing was not upheld and is an unreasonable assumption given the multifaceted demands upon understaffed law enforcement agencies today. Relatedly, engaging mixed methods proved invaluable as the focus groups enabled actual measures of shiftwork time expenditures and enabled deputy input that calls attention to time and resource drivers that likely otherwise would have gone unnoticed by researchers analyzing statistical data only, which is always the process with all of the older staffing models.

In fact, the focus group interviews revealed a real-world percentage obligation of FCSO deputy time devoted to CFS as 67.5% in a typical 12-hour shift. Therefore, the

recommendations from this staffing analysis dictate that FCSO, at a minimum needs 71.26 deputies (24.49 day shift and 46.77 night shift) as indicated by 2019-2020 data to meet the baseline standards to effectively manage and handle CFS volume, acknowledging other workloads functions. These observations are considered the minimum number of needed deputies at the current/most recent CFS volume. Should workload functions shift toward more proactive/community policing and/or additional administrative paperwork, required training, and similar duties in the future, then these staffing estimates would need to be recalibrated. Particularly, in order to achieve the IACP-standard of 33% obligation to CFS, FCSO needs at a minimum of 144.62 deputies (49.83 day shift and 94.79 night shift). Also, should population size increase in the next five years (as is currently the case and projected trend for Flagler County and the larger central Florida region), these staffing estimates need to be adjusted accordingly. For example, assuming a 5% population growth in five years, FCSO will need a minimum of 50.62 deputies at 100% obligation to CFS. Assuming a 10% population growth in ten years, FCSO will need 53.03 deputies at 100% obligation. If FCSO maintains its 67.5% obligation to CFS in the coming years, then a 5% population growth in five years will require 74.82 deputies, and a 10% population growth in ten years will require 78.39 deputies. Finally, if FCSO were to adopt the older IACP endorsed workload-performance model with the assumed equal thirds of time distribution, then a 5% population growth in five years will require 151.85 deputies, and a 10% population growth in ten years will require 159.08 deputies.

Hiring Recommendations

Immediate Hiring Needs: The FCSO is currently pointedly understaffed. In order to meet the 2019-2020 CFS volume, FCSO needs a minimum of 71.26 deputies (67.5% real world

obligation) and a maximum of 144.62 deputies assigned to responding to CFS on the force if the agency preference was to be at a 33% obligation for CFS to handle the CFS volume.

Near Future Hiring Needs: Assuming a 5% population growth in five years and that FCSO maintains its 67.5% obligation to CFS, then FCSO will need a minimum of 74.84 deputies assigned to respond to CFS on the force in five years. Assuming a 10% population growth in ten years and that FCSO maintains its 67.5% obligation to CFS, FCSO will need a minimum of 78.39 deputies assigned to respond to CFS on the force in ten years.

Appendix A. Deputy Interview Questionnaire

Questionnaire

- I. Dispatch time (estimated for an average shift)
 1. How many hours are spent responding to calls for service/a dispatch?
 2. What are the leading issues for dispatches (i.e., crime, emergency, nuisance/911)?
Top three:
 3. Which of these require the most time, including, if carried over to the next shift(s)?
 4. “Hot Spots”: Districts/Sectors/where? And Temporal patterns/when (day vs. night and time of year)?

- II. Community policing/community relations/officer-initiated (OI) activities
 5. Are there FCSO required officer-initiated programs/activities (e.g., community policing)?
Two most common examples:
 6. Factors influencing officer-initiated activity?
Constraining/limiting factors:
Enabling factors:

- III. Paperwork/administrative activity/training

Per shift, please estimate in hours how much time is allocated to:

 7. Reports & other paperwork:
Per month, please estimate in hours how much time is allocated to:
 8. Training:
 9. Court preparation, depositions & appearances:

- IV. Other

Effects of:

 10. Transitory/commuter population:
 11. COVID:
 12. Drug Control reforms:

- VI. Are there any other important factors or issues affecting shiftwork that we did not cover?

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