

**LOUISVILLE METRO POLICE DEPARTMENT
STAFFING STUDY**



ALEXANDER WEISS
CONSULTING

FINAL REPORT
May 3, 2015

Table of Contents

Introduction.....1
Patrol Operations.....7
Work Schedule.....27
LMPD Deployment and Special Details.....34
Managing the Demand for Police Services.....36
Support Unit Staffing.....38
LMPD and Community Expectations.....43
Conclusion and Recommendations.....46

Figures and Tables

Figure 1 LMPD Organization.....	5
Figure 2 LMPD Division Map	6
Figure 3 CFS by Division	13
Figure 4 CFS by Hour (City-wide).....	14
Figure 5 CFS by Hour by Division.....	14
Figure 6 CFS by Day of Week (city-wide)	15
Figure 7 CFS by Month (city-wide)	15
Figure 8 CFS by Shift (city-wide)	16
Figure 9 CFS Resulting in a Report.....	20
Figure 10 Example of 5-2 Work Schedule.....	28
Figure 11 Example of 5-2 schedules with variable staffing by day of week	29
Figure 12 LMPD 6/2 Work Schedule	29
Figure 13 LMPD 4-10 Plan.....	30
Figure 14 Comparison of 8 and 10-hour deployment	31
Table 1 Number of Members by Rank	4
Table 2 Span of Control for Sworn Staff	4
Table 3 Components of CFS Time (city-wide)	17
Table 4 Components of CFS Time by Division	17
Table 5 Station Notify Time by Division	18
Table 6 CFS by Type (city-wide)	18
Table 7 Summary of Benefit Time Off	19
Table 8 Calculation of Shift Relief Factor	19
Table 9 Staffing Estimates (25% Backup)	21
Table 10 Staffing Estimates (50% backup assumption).....	22
Table 10a Staffing Estimates 12 Hour Shift (25 % Backup).....	23
Table 10b Staffing Estimates 12 Hour Shift (50 % Backup).....	24
Table 11 Range of Staffing Estimates	26
Table 12 one-week deployments under hybrid schedule	32
Table 13 Example of 12 Hour work schedule	33
Table 14 Police on duty time on major events	35
Table 15 Responses to burglar alarms	36

Louisville METRO Police Department Staffing Study

In November 2014 the Louisville METRO Police Department (LMPD) engaged Alexander Weiss Consulting, LLC to conduct a staffing and organizational analysis. This report describes the results of that analysis. Our work is based on interviews with department staff and examination of records policy and procedure.

Introduction

The Louisville METRO Police Department is a full service law enforcement agency. The FY 2014-15 budget for the agency was \$174,157,800 of which eighty-eight percent (\$153,387,700) is devoted to salary and benefits.

As of January 1, 2015 the department staffing was as follows:

Rank	Number of Members
Chief	1
Deputy Chief	1
Assistant Chief	3
Major	13
Lieutenant	55
Sergeant	155
Police Officer	963
Recruits	46
Non-Sworn	294
Total	1531

Table 1 Number of Members by Rank

The span of control for sworn positions is as follows:

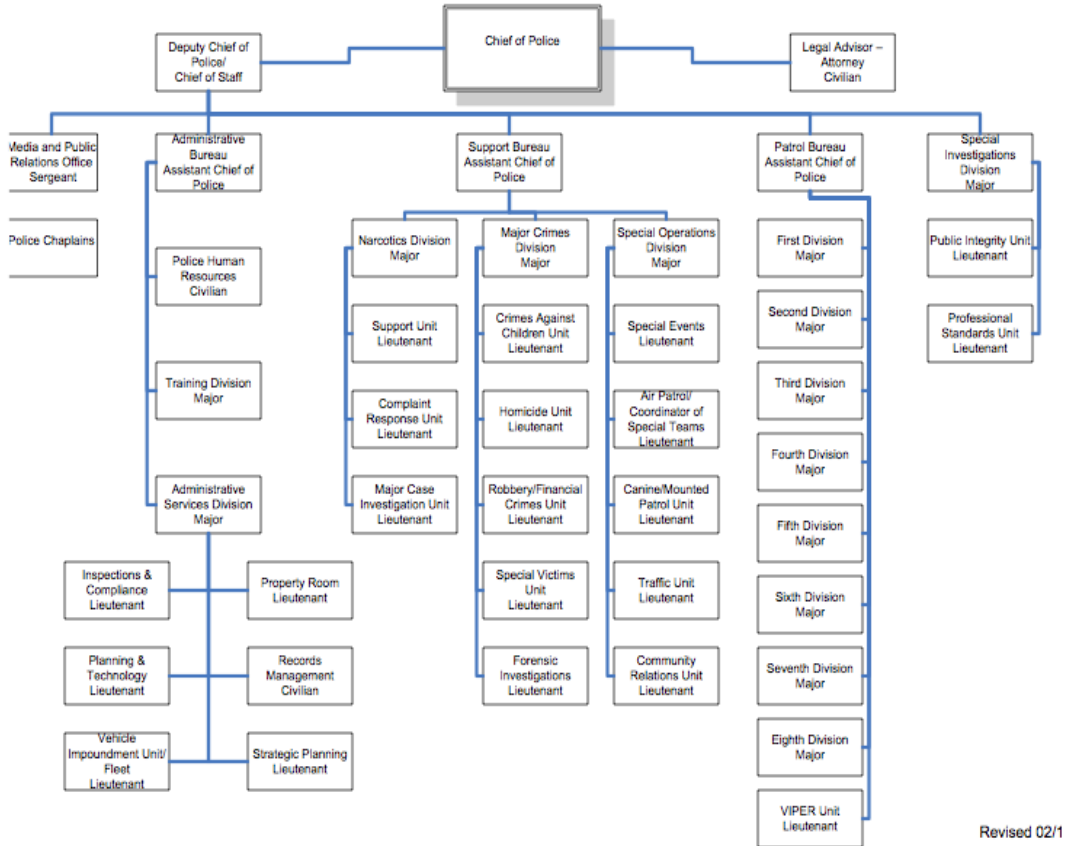
Major: Lieutenant	1:4.2
Lieutenant: Sergeant	1:2.8
Sergeant: Police Officer ¹	1:6.5

Table 2 Span of Control for Sworn Staff

¹ Includes recruit officers

The department has three major bureaus. A deputy chief serves as the chief of staff and supervises three assistant chiefs who direct the Administrative, Patrol and Support Bureaus.

Louisville Metro Police Department Organizational Chart



Revised 02/1

Figure 1 LMPD Organization

The METRO Police (LMPD) is a highly decentralized organization. Most of the agency’s resources are assigned to eight divisions, each directed by a major. The following map illustrates the LMPD divisions.

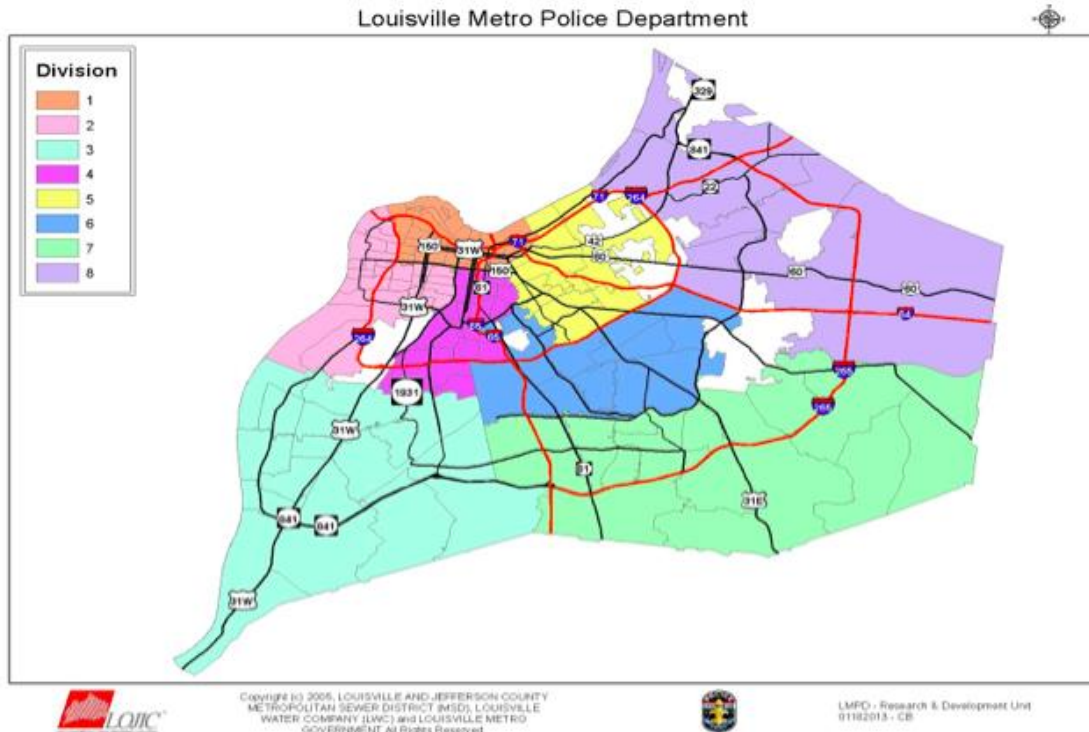


Figure 2 LMPD Division Map

Each division provides a number of services including:

- Patrol
- Investigations
- Narcotics
- Traffic
- Community Resources and Crime Prevention

Our study of staffing and deployment examines a number of key questions including:

- Is the patrol division staffed and organized to perform its core mission?
- Do the agency structures support concepts of unity of command, and span of control?
- Are lines of authority and responsibility well defined?
- Is authority temporally or spatially focused?
- What is mix of sworn and non-sworn positions? Are sworn personnel occupying positions that could be performed more efficiently or effectively by non-sworn personnel?
- What is the degree of functional specialization and how does that influence performance?
- To what extent, if any, do employee labor agreements limit the ability to effectively and efficiently manage resources?

- Does the organizational structure impede effective internal communication?

To summarize, our study will attempt to answer five questions:

- What does the police department do?
- What does it want to accomplish?
- How does it do it?
- Are there better ways to do what they do now?
- How many people are needed to accomplish its mission?

Patrol Operations

In the face of increasing costs and shrinking revenues, many communities are asking how many police officers are required to ensure public safety. 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, law enforcement administrators 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.

The sections that follow 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. Where possible, workload-based approaches are superior to others in that they can help provide a better and more objective way to determine staffing needs. Additionally, comprehensive assessments for patrol help to answer a host of critical questions regarding resource allocation and deployment.

Traditionally, there have been four basic approaches to determining workforce levels: per capita, minimum staffing, authorized level, and workload-based. Each differs in its assumptions, ease of calculation, usefulness, validity, and efficiency. Each is reviewed 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. The *per capita* method compares the number of officers with the population of a jurisdiction. 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 a similar size. Although it is difficult to determine the historical origin of, or justification for, the per capita method, it is clear that substantial variations exist among police departments.

Advantages of the per capita approach 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. The disadvantage of this method is that it addresses only the relative quantity of police officers 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. There are several reasons for this. First, a generally accepted benchmark for the optimum-staffing rate does not exist. Rather, there is considerable variation in the police rate depending on community size, region, and agency structure and type. For example, it is generally known that police rates are substantially higher in the northeastern than in the western regions of the United States. When comparing individual jurisdictions, it is not uncommon for similar communities to have per capita rates that are substantially different.

Given the disadvantages noted above as well as others, experts have strongly advised against using population rates for police staffing. The IACP warns, "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. The use of minimum staffing

approaches is fairly common 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, policy makers in many communities believe a minimum number of officers are 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 of officers 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.

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. 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, agencies 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. 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.

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. Additionally, 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.

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 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. *Workload-based* approaches

derive staffing indicators from demand for service. 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. 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. 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. 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: The agency allocates personnel to, and distributes them within, all organizational components in accordance with documented workload assessments conducted at least once every three 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. 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.

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 and comprehend; is 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. 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 should include the following:

1. *Examining the distribution of calls for service by hour, day, and month.* Calls for service can differ by the hour of the day, the day of the week, and the month of the year. Peak call times can also differ by agency. Knowing when peak call times occur can help agencies determine when they must have their highest levels of staff on duty.
2. *Examining the nature of calls for service.* Reviewing the nature of calls can help better understand the work that an agency's officers are doing. Types of police work required can vary by area within a single jurisdiction and require agencies to staff differing areas accordingly.
3. *Estimating time consumed on calls for service.* Determining how long a call takes, from initial response to final paper work, is key to determining the minimum number of officers needed for a shift. This is most straightforward when a single officer handles the call and completes resulting administrative demands (e.g., reports, arrests) prior to clearing it.
4. *Calculating agency 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 of officers is working each day.
5. *Establishing performance objectives.* This encompasses determining what fraction of an officer's shift should be devoted to calls for service and what portion to other activities. For example, an agency might build a staffing model in which officers spend 50 percent of their shift on citizen-generated calls and 50 percent on discretionary activities.
6. *Providing staffing estimates.* Staffing needs will, as noted earlier, vary by time of day, day of week, and month of year, among other variables. Agencies should distribute their officers accordingly. For example, a shift with only half the number of calls than another shift will require half the number of officers. These numbers may also vary by the type of calls, and the time and officers they require, in each shift. For example, one large urban agency assigns two officers to each unit in its evening shift, affecting the number of officers needed for units to respond to calls. Another responds to the same type of calls in different ways in different shifts (for example, sending a unit in some shifts, but requesting citizens file a report in person at a station during others).

Following this model we will now describe our staffing analysis for Louisville. We examined data for the period of November 1 2013 - October 31 2014. During that period the department handled 577,507 citizen-generated calls for service (CFS). We define these calls as those in which a citizen contacts the police and an officer (s) are dispatched. This category of calls does not include officer initiated activity like traffic stops or department initiated activity like directed patrol.²

To provide some sense of the magnitude of call demand, consider that 577,507 calls equate to about 1582 CFS per day or the equivalent of 66 calls per hour. The following illustrates CFS by division. As we can see there is some variation by division. The fourth division, for example, had 71 percent more calls for service than the fifth division.

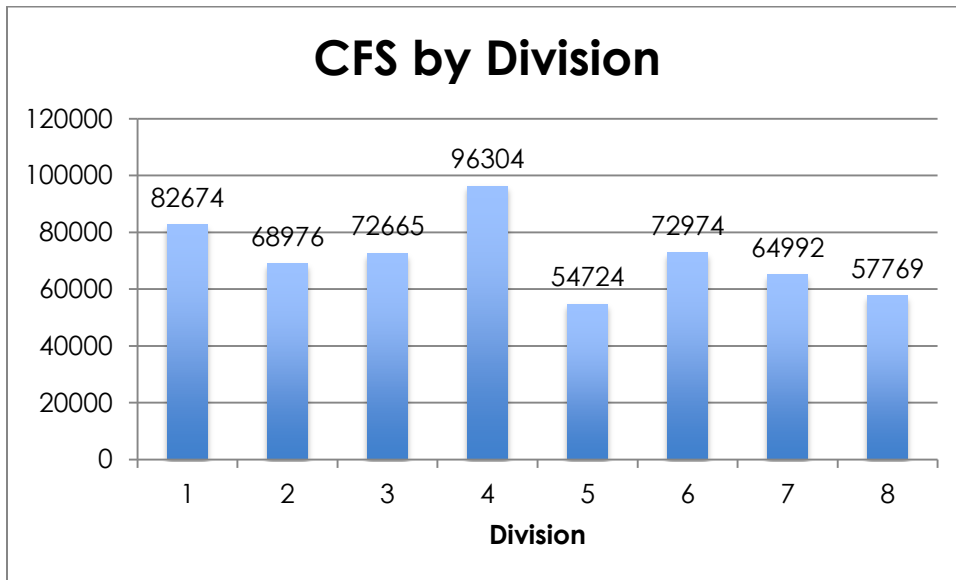


Figure 3 CFS by Division

Figure 4 illustrates the distribution of citizen-generated calls for service by hour of day for the department. Like most police agencies the peak demand for service occurs in late afternoon hours. Note, that after that time demand remains relatively stable until midnight, when calls begin to drop off. Note also that during the hour of midnight to one AM there are 25,000 calls annually, or about 68 on average per day. This is a time period when the department normally deploys the highest number of officers.

² It can be difficult to disaggregate citizen-generated calls from others and while there may be some calls in our data that are officer-initiated, we are confident that the data can be used reliably in this analysis.

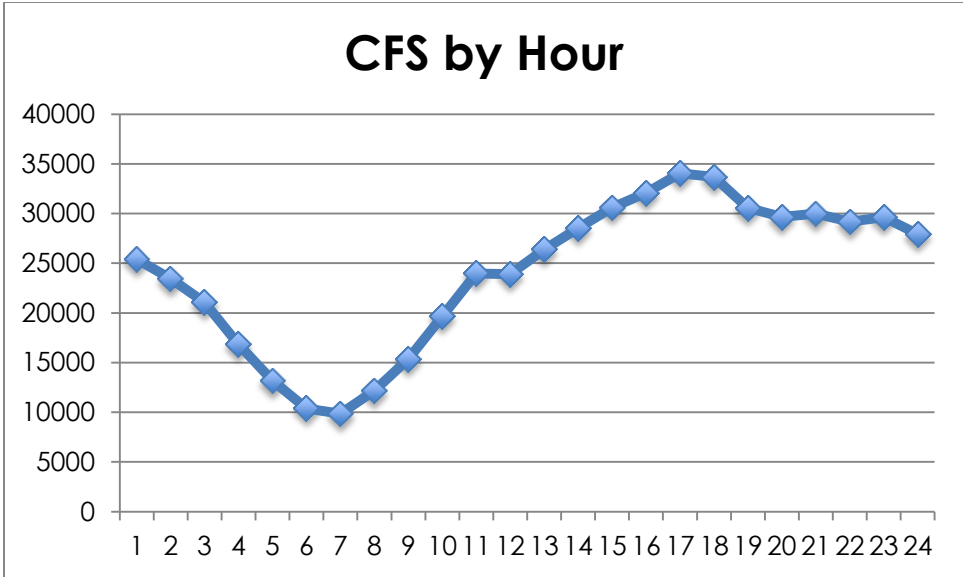


Figure 4 CFS by Hour (City-wide)

In figure 5 we observe the distribution of calls by hour of day in each of the eight divisions. Although the number of calls varies by hour, the hourly patterns are similar in each division.

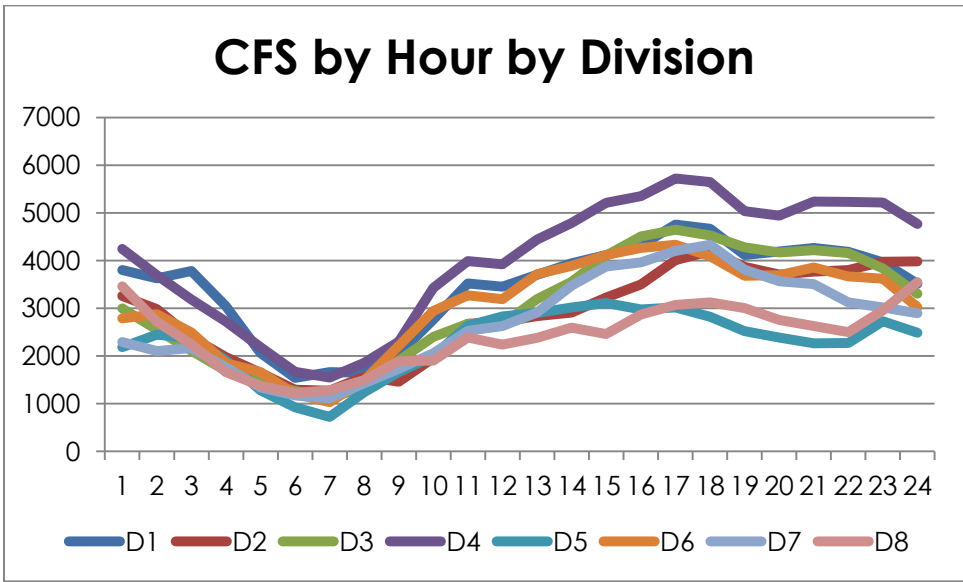


Figure 5 CFS by Hour by Division

Figure 6 shows the distribution of calls by day of week. There is relatively little variation by day of week. This is particularly important because the work schedule currently in use by LMPD patrol results in nominally equal numbers of officers working each day.

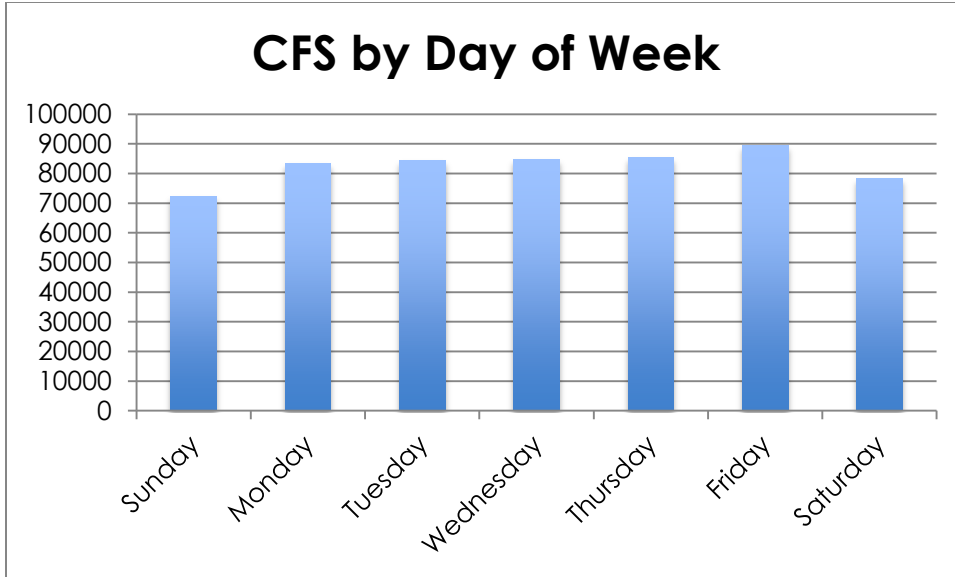


Figure 6 CFS by Day of Week (city-wide)

Next we observe the distribution of calls by month. Again, this is what we expect based on experience with similar agencies.

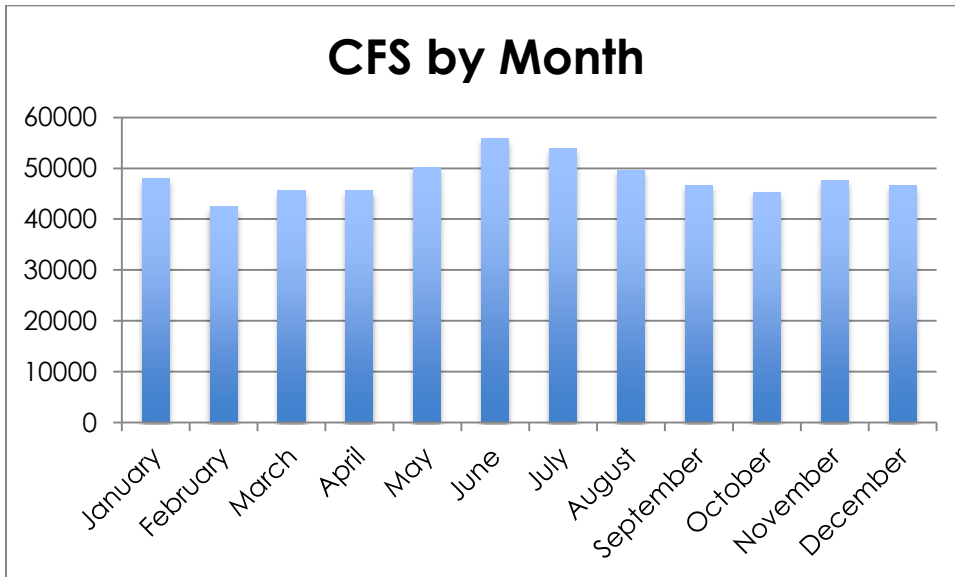


Figure 7 CFS by Month (city-wide)

Finally, we observe the percentage of calls by shift.

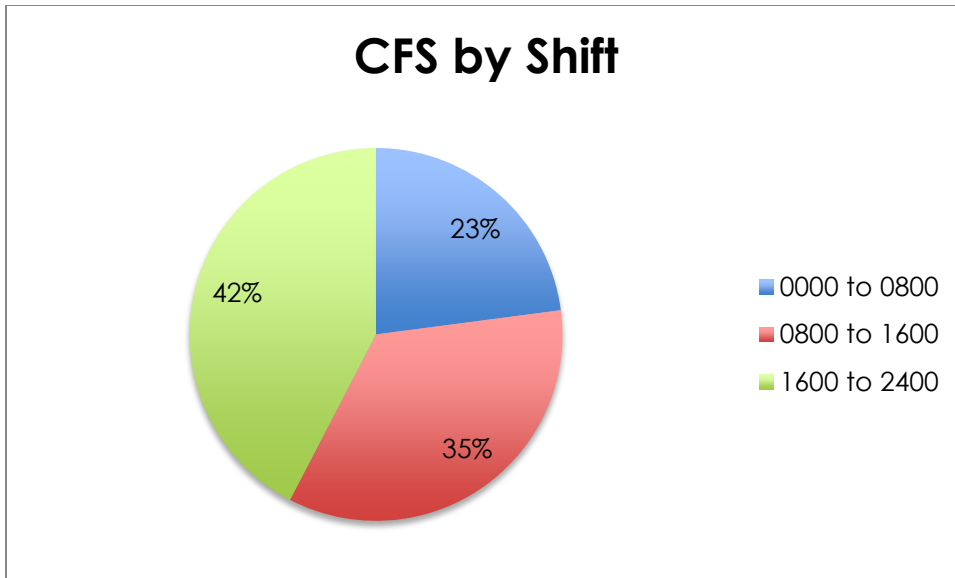


Figure 8 CFS by Shift (city-wide)

The following figure illustrates how we consider time in the context of a call for service.

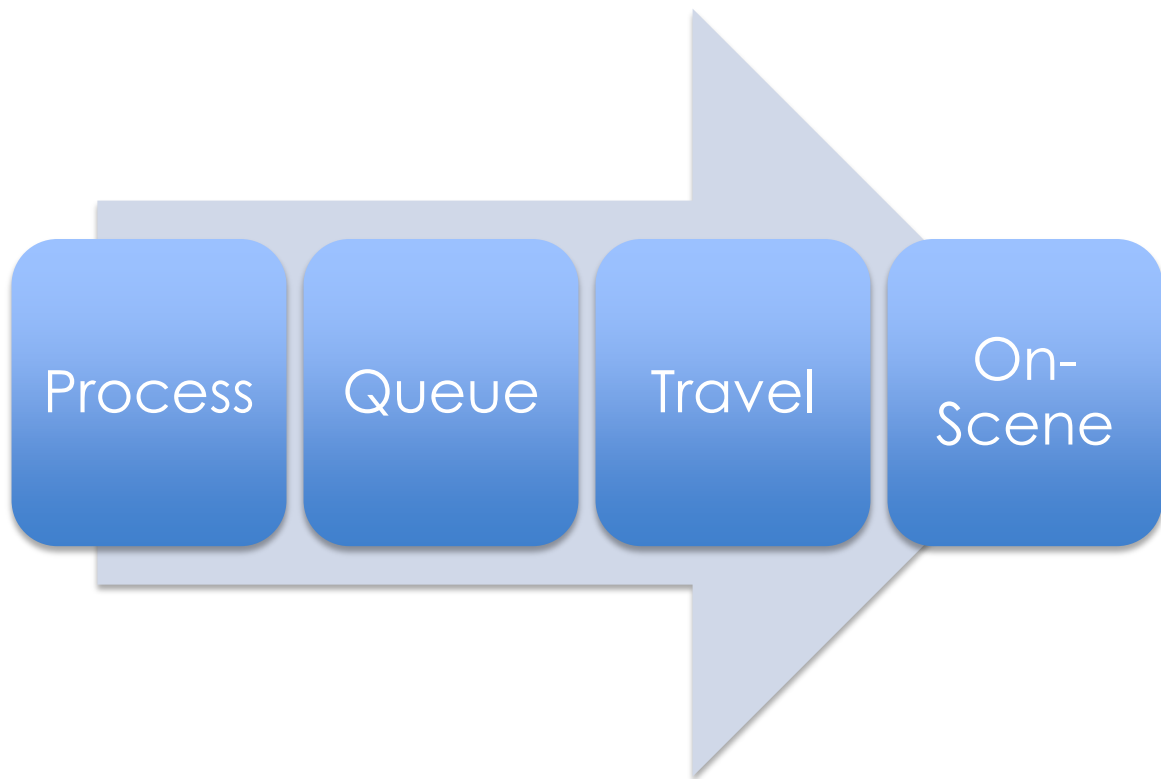


Figure 8 Components of CFS Time

The **process** component includes the time from when a call is received to the time it is created in the CAD system. Once that happens it is placed in **queue** awaiting dispatch. **Travel time** is the time from when the call is dispatched until the first officer arrives on scene. In our analysis the **time consumed** on the call is reflected by the time from dispatch until the time the call is cleared. Table 3 illustrates the average times in each category for LMPD.

Process	43 SECONDS
Queue	4 MINUTES 55 SECONDS
Travel	4 MINUTES 20 SECONDS
Dispatch to Clear	28 MINTUES 55 SECONDS

Table 3 Components of CFS Time (city-wide)

Our analysis indicated that the average time on a call for service was 28 minutes and 55 seconds. This call duration is quite typical.

The following table illustrates the time components by division. We note that performance in relatively similar across divisions except in division 3 in which calls wait in queue longer, and travel times are longer. In general, this is indicative of difficulty in finding units to dispatch and longer travel times that result from cross division dispatch.

Division	Process	Queue	Travel	Total Time
1	45s	4m 03s	3m 10s	27m 15s
2	43s	5m 55s	3m 50s	29m 36s
3	52s	8m 52s	6m 09s	35m 48s
4	46s	4m 51s	3m 58s	26m 23s
5	33s	2m 24s	3m 15s	24m 07s
6	42s	4m 15s	4m 38s	28m 09s
7	43s	5m 40s	5m 21s	31m 51s
8	37s	3m 04s	5m 02s	28m 45s

Table 4 Components of CFS Time by Division

One of anomalies of the LMPD dispatch protocol is “station notify.” Station notify is a procedure used by METROSAFE when calls are pending but all units are assigned to other calls. When that occurs METROSAFE will notify the division supervisor and seek guidance. For a high priority call the supervisor can take action to free up a unit. If the supervisor instructs the dispatcher to keep the call in queue the call is reassigned to the station notify category until such time that a car is available. During our study period “station notify” was activated 132,297 times. Importantly, once a division gets to station notify status, one can assume that every subsequent call will generate a notification until the staffing is resolved.

The following table illustrates the average station notify queue time by division. Consistent with other findings the third division has the longest station notify queue time. Given that these calls are generally of a low priority these times seem reasonable. Nevertheless, we recommend that it would be beneficial if the department could capture the actual time each call is in queue. It would be a better measure of officer availability.

Division	Station Notify Queue Time
1	16m 13s
2	19m 35s
3	24m 12s
4	17m
5	14m 57s
6	16m 53s
7	20m 57s
8	15m 29s

Table 5 Station Notify Time by Division

Next, we examine the nature of calls for service. Table 6 illustrates the top call for service categories. These call types represent 23 % of all calls for service. There are a few interesting items to consider while examining this list:

- There are category types (e.g. investigation, report) that do not adequately describe the nature of the call
- LMPD investigates nearly 38,000 traffic crashes annually, of which some 25,000 are property damage only
- LMPD responds to 25,000 burglar alarms, the vast majority of which are false.

Type of Call	Number
Investigation	112193
Miscellaneous Trouble	70218
Traffic Accidents	37966
Domestic	36768
Report	36058
Burglar Alarms	25585
Suspicious Person/ Vehicle	17277
Disorderly Persons	14932
Reckless Driver	11371
See the Subject	10593

Table 6 CFS by Type (city-wide)

The next step in our staffing estimate is to calculate the shift relief factor. The shift relief factor tells us the number of officers that we need to assign to a shift in order to ensure that a sufficient number of officers are on duty to meet performance objectives. We obtained data for the study period concerning time off for 956 sworn personnel. That data is shown in Table 7.

Type of Benefit Time Off	Hours
Sick Time	62882
Vacation	128090.5
Regular Days Off	795766
Light Duty	26072
Other	33721
Total	1,046,531.5

Table 7 Summary of Benefit Time Off

In Table 8 we calculate the ratio of the maximum hours they could have worked to the hours worked. That result is 1.6.

Total Time Off	Maximum Possible	Time Working	SRF
1,046,531.5	2,791,520	1,744,988	1.6

Table 8 Calculation of Shift Relief Factor

The shift relief factor tells us how many officers we would have to assign to a shift in order to ensure that a sufficient number were working. For example, if we wanted 10 officers to be on duty during the day shift we would need to assign 16 officers to the shift (10 X 1.6)³.

One of the factors that can influence a staffing model is time spent on preparation of reports. In some communities officers respond to calls for service and prepare their reports while on-scene. As a result, the time for report preparation is included in the total call time. However, if an officer clears the call and prepares the report at a subsequent time that time will appear as uncommitted. In order to understand this issue in Louisville we looked at the disposition of calls and whether a report was prepared. As we can see, a relatively small fraction of calls for service result in a report.

³ The shift relief factor is based on the assumption that officers work five eight-hour shifts per week. The shift relief factor will be large for officers that work four ten-hour shifts per week. See section on work schedules.

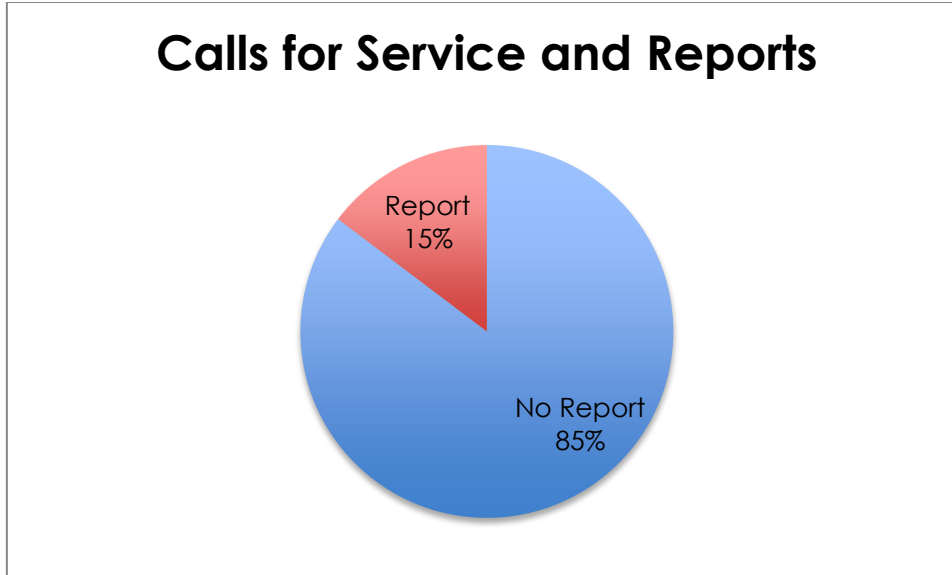


Figure 9 CFS Resulting in a Report

Now we can turn to our staffing estimate. Estimates based on an eight-hour schedule are shown in Tables 9 and 10. Estimates based on a 12-hour schedule are shown in Tables 10a and 10b⁴. These tables do not include staffing for the Downtown Area Patrol, part of the First Division. The unit does not normally handle calls for service, but respond to crime in the downtown central business district. The unit provides supplemental staffing for businesses, after hours events, concerts, sports events and Waterfront Park. There is a public commitment from the chief to expand the unit from its current staff of 11 officers, 1 sergeant and 1 lieutenant to 24 officers, 3 sergeants and 1 lieutenant.

⁴ Because we had limited data we used a shift relief factor of 2.5 when we prepared the staffing estimates for 12-hour shifts. As a result, the estimates for the 12-hour schedules are slightly higher than for the estimates for the eight-hour configuration.

Louisville METRO Police Department
Staffing Study

1	2	3	4	5	6	7	8	9	10	11	12	13	14
D1 ⁵	CFS	25%	ADJCF5	TIME	UNITS	40% CFS	XSRF	UNITS	50% CFS	XSRF	UNITS	60% CFS	XSRF
Midnight	21170	5293	26463	11908	4.1	10.3	17	4.1	8.2	14	4.1	7	12
Day	27851	6963	34814	15666	5.4	13.5	22	5.4	10.8	18	5.4	9.2	15
Afternoon	33653	8413	42066	18930	6.5	16.25	26	6.5	13	21	6.5	10.4	17
D2													
Midnight	16397	4100	20497	9907	3.4	8.5	14	3.4	6.8	11	3.4	5.8	10
Day	21272	5318	26590	12851	4.4	11	18	4.4	8.8	15	4.4	7.5	12
Afternoon	31307	7828	39135	18915	6.5	16.3	27	6.5	13	21	6.5	11.1	18
D3													
Midnight	14536	3634	18170	10902	3.7	9.3	15	3.7	7.4	12	3.7	6.3	11
Day	24944	6236	31180	18708	6.4	16	26	6.4	12.8	21	6.4	10.9	18
Afternoon	33135	8284	41419	24851	8.5	21.3	35	8.5	17	28	8.5	14.5	24
D4													
Midnight	21093	5273	26366	11425	3.9	9.8	16	3.9	7.8	13	3.9	6.6	11
Day	33416	8354	41770	18100	6.2	15.5	25	6.2	12.4	20	6.2	10.5	17
Afternoon	41795	10449	52244	22639	7.8	19.5	32	7.8	15.6	25	7.8	13.3	22
D5													
Midnight	13087	3272	16359	6543	2.2	5.5	9	2.2	4.4	8	2.2	3.7	6
Day	21131	5283	26414	10566	3.6	9	15	3.6	7.2	12	3.6	6.1	10
Afternoon	20506	5127	25633	10253	3.5	8.8	15	3.5	7	12	3.5	6	10
D6													
Midnight	15399	3850	19249	8983	3.1	7.8	13	3.1	6.2	10	3.1	5.3	9
Day	27613	6903	34516	16107	5.5	13.8	23	5.5	11	18	5.5	9.4	16
Afternoon	29962	7491	37453	17478	6	15	24	6	12	20	6	10.2	17
D7													
Midnight	13384	3346	16730	8644	3	7.5	12	3	6	10	3	5.1	9
Day	23166	5792	28958	14962	5.1	12.8	21	5.1	10.2	17	5.1	8.7	14
Afternoon	28442	7111	35553	18369	6.3	15.8	26	6.3	12.6	21	6.3	10.7	18
D8													
Midnight	15463	3866	19329	9020	3.1	7.8	13	3.1	6.2	10	3.1	5.3	9
Day	18722	4681	23403	10921	3.7	9.3	15	3.7	7.4	12	3.7	6.3	11
Afternoon	23584	5896	29480	13757	4.7	11.8	19	4.7	9.4	16	4.7	8	13
							478			385			329

Table 9 Staffing Estimates (25% Backup)

*

⁵ Estimates do not include downtown area patrol
Alexander Weiss Consulting, LLC

Louisville METRO Police Department
Staffing Study

1	2	3	4	5	6	7	8	9	10	11	12	13	14
D1	CFS	50%	ADJCFS	TIME	UNITS	40% CFS	XSRF	UNITS	50% CFS	XSRF	UNITS	60% CFS	XSRF
Midnight	21170	10585	31755	14290	4.9	12.3	20	4.9	9.8	16.0	4.9	8.3	14.0
Day	27851	13926	41777	18800	6.4	16.0	26	6.4	12.8	21	6.4	10.9	18
Afternoon	33653	16827	50480	22716	7.8	19.5	32	7.8	15.6	25	7.8	13.3	22
D2													
Midnight	16397	8199	24596	12298	4.2	10.5	17	4.2	8.4	14	4.2	7.1	12
Day	21272	10636	31908	15954	5.5	13.8	23	5.5	11	18	5.5	9.4	11
Afternoon	31307	15654	46961	23481	8	20.0	32	8	16	26	8	13.6	22
D3													
Midnight	14536	7268	21804	13802	4.7	11.8	19	4.7	9.4	16	4.7	8.0	13
Day	24944	12472	37416	22450	7.7	19.3	31	7.7	15.4	25	7.7	13.1	21
Afternoon	33135	16568	49703	29822	10	25.0	40	10	20	32	10	17.0	28
D4													
Midnight	21093	10547	31640	13605	4.7	11.8	19	4.7	9.4	16	4.7	8.0	13
Day	33416	16708	50124	21553	7.4	18.5	30	7.4	14.8	24	7.4	12.6	21
Afternoon	41795	20898	62693	26958	9.2	23.0	37	9.2	18.4	30	9.2	15.6	25
D5													
Midnight	13087	6544	19631	7852	2.7	6.8	11	2.7	5.4	9	2.7	4.6	8
Day	21131	10566	31697	12679	4.3	10.8	18	4.3	8.6	14	4.3	9.0	15
Afternoon	20506	10253	30759	12304	4.2	10.5	17	4.2	8.4	14	4.2	7.1	12
D6													
Midnight	15399	7700	23099	10857	3.7	9.3	15	3.7	7.4	12	3.7	6.3	11
Day	27613	13807	41420	19467	6.7	16.3	27	6.7	13.4	22	6.7	11.4	19
Afternoon	29962	14981	44943	21123	7.2	18.0	29	7.2	14.4	24	7.2	12.2	20
D7													
Midnight	13384	6692	20076	10640	3.6	9.0	15	3.6	7.2	12	3.6	6.1	10
Day	23166	11583	34749	18417	6.3	15.8	26	6.3	12.6	21	6.3	10.7	18
Afternoon	28442	14221	42663	22611	7.7	19.3	31	7.7	15.4	25	7.7	13.1	21
D8													
Midnight	15463	7732	23195	11134	3.8	9.5	16	3.8	7.6	13	3.8	6.5	11
Day	18722	9361	28083	13480	4.6	11.5	19	4.6	9.2	15	4.6	7.8	13
Afternoon	23584	11792	35376	16980	5.8	14.5	24	5.8	11.6	19	5.8	9.9	16
							574			462			393

Table 10 Staffing Estimates (50% backup assumption)

Louisville METRO Police Department
Staffing Study

	CFS	25%	ADJCFS	TIME	UNITS	40% CFS	XSRF	UNITS	50% CFS	XSRF	UNITS	60% CFS	XSRF
D1													
0800-2000	45582	11396	56978	25640	5.9	14.8	37	5.9	11.8	30	5.9	10	25
2000-0800	37092	9476	46568	20956	4.8	12	30	4.8	9.6	24	4.8	8.2	21
D2													
0800-2000	37052	9263	46315	23158	5.3	13.3	34	5.3	10.6	27	5.3	9	23
2000-0800	31924	7981	39905	19953	4.6	11.5	29	4.6	9.2	23	4.6	7.8	20
D3													
0800-2000	42617	10654	53271	31963	7.3	18.3	46	7.3	14.6	37	7.3	12.4	31
2000-0800	30048	7512	37560	22536	5.1	12.8	32	5.1	10.2	26	5.1	8.7	22
D4													
0800-2000	54764	13691	68455	29436	6.7	16.8	42	6.7	13.4	34	6.7	11.4	29
2000-0800	41540	10385	51925	22328	5.1	12.8	32	5.1	10.2	34	5.1	8.7	22
D5													
0800-2000	31883	7971	39854	15942	3.6	9	23	3.6	7.2	18	3.6	6.1	16
2000-0800	22841	5710	28551	11420	2.6	6.5	17	2.6	5.2	13	2.6	4.4	11
D6													
0800-2000	43409	10852	54261	25503	5.8	14.5	37	5.8	11.6	29	5.8	9.9	25
2000-0800	29565	7913	37478	17615	4	10	25	4	8	20	4	6.8	17
D7													
0800-2000	39069	9767	48836	25883	5.9	14.8	37	5.9	11.8	30	5.9	10	25
2000-0800	25923	6481	32404	17174	3.9	9.8	25	3.9	7.8	20	3.9	6.6	17
D8													
0800-2000	30673	7668	38341	18404	4.2	10.5	27	4.2	8.4	21	4.2	7.1	18
2000-0800	27096	6774	33870	16258	3.7	9.3	24	3.7	7.4	19	3.7	6.3	16
							497			405			338

Table 10a: 12 Hour Schedule (25% Backup)

Louisville METRO Police Department
Staffing Study

	CFS	50%	ADJCFS	TIME	UNITS	40% CFS	XSRF	UNITS	50% CFS	XSRF	UNITS	60% CFS	XSRF
D1													
0800-2000	45582	22791	68373	30767.9	7.0	17.6	44	7.0	14	35	7.0	11.9	30
2000-0800	37092	18546	55638	26149.9	6.0	14.9	38	6.0	12	30	6.0	10.1	26
D2													
0800-2000	37052	18526	55578	27789.0	6.3	15.8	40	6.3	12.6	32	6.3	10.8	27
2000-0800	31924	15962	47886	23943.0	5.5	13.7	35	5.5	11	28	5.5	9.3	24
D3													
0800-2000	42617	21309	63926	38355.3	8.8	21.9	55	8.8	17.6	44	8.8	14.9	38
2000-0800	30048	15024	45072	27043.2	6.2	15.4	39	6.2	12.4	31	6.2	10.5	27
D4													
0800-2000	54764	27382	82146	35322.8	8.1	20.2	51	8.1	16.2	41	8.1	13.7	35
2000-0800	41540	20770	62310	26793.3	6.1	15.3	39	6.1	12.2	31	6.1	10.4	26
D5													
0800-2000	31883	15942	47825	19129.8	4.4	10.9	28	4.4	8.8	22	4.4	7.4	19
2000-0800	22841	11421	34262	13704.6	3.1	7.8	20	3.1	6.2	16	3.1	5.3	14
D6													
0800-2000	43409	21705	65114	30603.3	7.0	17.5	44	7.0	14	35	7.0	11.9	30
2000-0800	29565	14783	44348	20843.3	4.8	11.9	30	4.8	9.6	24	4.8	8.2	21
D7													
0800-2000	39069	19535	58604	31059.9	7.1	17.7	45	7.1	14.2	36	7.1	12.1	31
2000-0800	25923	12962	38885	20608.8	4.7	11.8	30	4.7	9.4	24	4.7	8.0	20
D8													
0800-2000	30673	15337	46010	22084.6	5.0	12.6	32	5.0	10	25	5.0	8.6	22
2000-0800	27096	13548	40644	19509.1	4.5	11.1	28	4.5	9	23	4.5	7.6	19
							598			477.0			409

Table 10b: 12 Hour Schedule (50% Backup)

Table 9 is based on the assumption that 25% of all calls require a backup unit and Table 10 is based on the assumption that 50% of calls require a backup.⁶ In all other respects the tables are the same. As you can observe there is a staffing estimate for each division.

In the first column we have divided the day into 3 eight-hour shifts. You will note the number of calls during each shift in column 2. In the third column we make the backup unit adjustments (adding 25 and 50% of calls respectively). Column 4, which includes the backup unit adjustment, is the basis for our analysis. In Column 5 we estimate the total time consumed on calls (in hours) by shift.⁷ In the next column we identify the number of units required to handle these calls if a unit worked every day and 365 days per year. This calculation is based on the total time consumed divided by 2920, the number of hours that an officer would work if they worked an eight-hour shift every day. **The unit value (Column 6) is the number of officers that should be on duty if they only answered calls for their entire shift, and if they worked every day.**

Next we multiply the unit value times the performance objective. For example, if the unit value is six, and we want officers to spend 40% of their time on citizen-generated calls for service and 60% of their time on discretionary activities, we would multiply 6×2.5 ($100\% / 40\%$). The result of 15 would indicate the number of officers required to be **on duty** to meet that objective. This is illustrated in column 7.

In column 8 we multiply the required units times the appropriate shift relief factor. This tells us the number to **assign** to the shift in order to ensure that the appropriate number of units were on duty.⁸

In columns 9 to 14 we repeat this process for different performance objectives (50% time on calls for service, columns 9-11; 60% calls for service, columns 12-14).

Using these tables we can get a sense of the potential staffing requirements. This analysis is illustrated in Table 11.

⁶ It is very difficult to obtain reliable data about backup units from CAD Data, so we estimate that value.

⁷ We used the average call for service time for each division.

⁸ The convention is to round up at this point.

	40% CFS	50% CFS	60% CFS
25% Backup	478	385	329
50% Backup	574	462	393

Table 11 Range of Staffing Estimates

In order to use this model agencies must make two critical decisions. First, the agency must decide whether it is more appropriate to assume that 25% or 50% of calls require a backup. The most reliable choice will be based on consideration of the setting. LMPD responds to many calls that require backup including alarms, domestic violence, and many traffic crashes. Of course, the incidence of calls that require backup will vary significantly by neighborhood and time of day.

The second decision focuses on the allocation of officer time. We know that police officers do many things other than answer citizen calls for service. Our model includes time for those other activities at various levels. We are often asked whether there is some standard or benchmark that an agency should adopt in this area. In fact, this should be a community-based decision. There are a number of factors that influence that choice:

- Some agencies have a high degree of specialization including traffic, street crime, and tactical units. Those agencies generally have lower expectations about proactive activities by patrol officers than those that are more generalized
- Some agencies expect patrol officers to engage in community policing and problem-solving activities. These task can take up a lot of time
- In some agencies there is a philosophy that the principle job for officers assigned to patrol is to answer citizen calls for service and to remain available for emergency response.

Most police executives agree that the key question is not how much discretionary time is available, but how is that time being utilized.

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. For example, in Division Three travel times are generally longer than in other divisions. This has the net effect of increasing the total time on calls for service. So the average time on a call in Division 3 is 36 minutes, whereas the average time in Division 4 is 24 minutes. So even if the two divisions experienced the same number of calls, the time required to respond to these calls would be about 30 percent greater in the third division.

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. While this is generally not an issue in large communities, we do see some evidence of this problem in the LMPD analysis. For example, several divisions had fewer than 15,000 calls on the midnight shift, and as a result, the staffing estimates may be unreasonably low. It is important for the agency to utilize its institutional knowledge to address these anomalies.

Work Schedule

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

Our work in Louisville suggests that patrol performance is significantly affected by work schedule. Among the critical issues are:

- Work schedules are not well aligned with the workload
- There are several different work schedules in use, resulting in unnecessary complexity
- In some cases work schedules were implemented to motivate police officer performance. While this may have been beneficial for the officers, it appears that these schedules are not based on deployment requirements.

In order to better understand these issues it is instructive to review the scheduling process.

Police work schedules come in all shapes and sizes. Although each seems unique there is a methodology to apply so that we can compare work schedules. 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.

Consider the following figure that illustrates a common work schedule.

	S	M	T	W	T	F	S
1	Off	Off					
2		Off	Off				
3			Off	Off			
4				Off	Off		
5					Off	Off	
6						Off	Off
7	Off						Off
% On	71	71	71	71	71	71	71

Figure 10 Example of 5-2 Work Schedule

Figure 10 illustrates a work schedule in which officers work a five-day on/two-day off schedule with eight-hour days. We observe that the shift has unique properties:

- Fixed days off
- Three groups of officers have either a full or partial weekend day off
- Equal staffing by day of week
- Longest on duty cycle is five days.

Importantly, we observe that on every day 71 percent of the officers are assigned to be on duty, and that the number of officers on duty each day is the same. These are two very important criteria that can be used in evaluating a work schedule.

Figure 11 shows how we can build a schedule that increases staffing on weekends. Let's say we have a workgroup with nine officers and we wish to provide staffing proportional to the daily workload. 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 the increase on others. This schedule is particularly attractive to employees that want fixed days off. It works well for officers that are going to school, and may be beneficial for those that assist in childcare. The disadvantage is that a substantial portion of employees never gets a weekend off.

	S	M	T	W	T	F	S
1	Off						Off
2 (2)		Off	Off				
3 (2)			Off	Off			
4				Off	Off		
5					Off	Off	
6						Off	Off
7	Off	Off					
On	7	6	5	6	7	7	7
Off	2	3	4	3	2	2	2
% On	77%	66%	55%	66%	77%	77%	77%

Figure 11 Example of 5-2 schedules with variable staffing by day of week

Some officers in LMPD work what is commonly described as a “six and two” schedule. Over the course of the seven-week duty cycle each officer will work the following pattern:

- 6 on 3 off
- 5 on 3 off
- 6 on 2 off
- 6 on 2 off
- 6 on 2 off
- 6 on 2 off

It is illustrated below.

Week	S	M	T	W	TH	F	S
1			Off	Off			
2				Off	Off		
3					Off	Off	
4						Off	Off
5	Off						Off
6	Off	Off					
7		Off	Off				
% On	71	71	71	71	71	71	71

Figure 12 LMPD 6/2 Work Schedule

This schedule has several interesting attributes:

- The percentage of officers assigned each day is the same as a 5/2 schedule
- Rotating days off
- Each officer gets two three-day weekends during each duty cycle.

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. 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. The LMPD 4/10 plan is illustrated below.

	S	M	T	W	T	F	S
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
%	57	57	57	57	57	57	57

Figure 13 LMPD 4-10 Plan

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.

Consider the following example. A division has 84 officers assigned to patrol (28 officers are assigned to each eight-hour shift). On each shift we would expect about **20 officers** (71%) to be assigned to duty.

The department decides to implement a 4/10 plan with shift times of 0600 to 1600, 1400 to 2400, and 2200 to 0800. If we continue to assign 28 officers to each shift we would expect that on each shift **16 officers** (57%) would be assigned to work. The resulting deployment scheme is illustrated below.

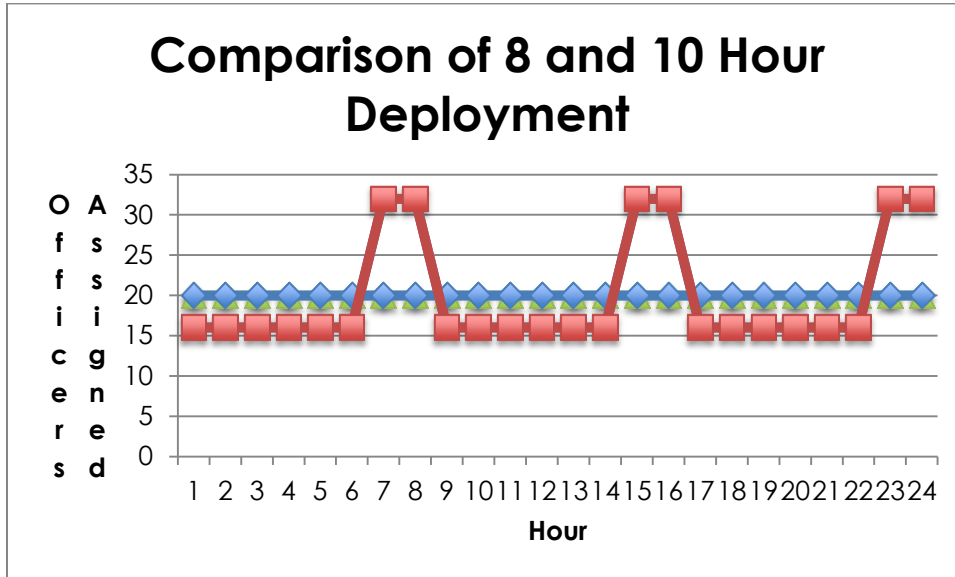


Figure 14 Comparison of 8 and 10-hour deployment

In Figure 14 we observe what happens when we shift from an eight-hour to a 10-hour work schedule with the same number of officers. The blue line depicts the eight-hour schedule. As we see, except for the six hours of overlap when the staffing doubles, there are fewer officers assigned than when officers are working eight-hour shifts. The only way to reach the level of staffing provided under the eight-hour scheme is by adding officers. Importantly, it may be the case that an agency can use the additional capacity that comes from the ten hour plan to its advantage, but they must understand that any advantage it experiences may be at the expense of another goal.

LMPD uses a “hybrid shift” in some divisions. For example:

- **4th Division’s First Platoon:**

Shifts are start at either 2200 to 0800, or 0000 to 0800
4 weeks of 8-hour days, 3 weeks of 10-hour days.

- **4th Division Second Platoon (Day Shift):**

Shifts start at 0700 and end at 1700 start at 0800 get off at 1600
4 weeks of 8-hour days. 3 weeks of 10-hour days.

Our interviews indicated that division commanders in consultation with division officers designed these “hybrid” schedules. As is the case with ten-hour schedules, one must evaluate the hybrid schedules in terms of their effect on deployment.

In the fifth division the hybrid schedule is intended to produce additional staffing from 2200 Hours until 0000 Hours. We would expect that this effect would occur regularly. However, we chose a week at random from February of this year to examine how this works in practice for the first platoon. The results are shown below. Recall that the overlap only occurs when officers are assigned to 10-hour shifts. While the extra staff on Friday and Saturday seems reasonable, it is difficult to understand the random nature of the other days. In our view the hybrid schedule, while it may be popular, does not seem to work well for deployment.

	S	M	T	W	T	F	S
Officers on 8 Hour Schedule	4	8	10	10	8	6	4
Officers on 10 Hour Schedule	3	3	0	0	2	5	5

Table 12 one-week deployments under hybrid schedule

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 the number of implementations continues to increase. Evidence, both anecdotal, and more systematic

suggests that this approach can be highly effective⁹. One of the advantages for such a schedule is that it would eliminate the inefficiency of the 10-hour schedules currently in use.

The twelve-hour schedule is relatively straightforward. It is a fourteen-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 two-week cycle officers would earn four additional hours. All officers are assigned to one of two groups. A typical work schedule is illustrated below.

	Su	M	T	W	T	F	Sa
One				Off	Off		
Two	Off	Off	Off			Off	Off
% On	50	50	50	50	50	50	50

Table 13 Example of 12 Hour work schedule

As can be seen, officers have rotating days off during the duty cycle, but the pattern is repeated every two weeks. Thus, an officer could expect, for example, to have every other Monday and Tuesday off. Officers assigned to this pattern would have every other weekend off.

At first glance it looks like 12hour shifts actually reduce resource availability, but recall that the agency need only staff two shifts per day. Staffing 7 officers on 12 hour shifts is equivalent to staffing 10 eight hour officers.

Twelve-hour shifts, while growing in popularity, do have several disadvantages including:

- Officers engage in more outside activities
- Officers are more willing to live farther from the community
- The potential of more off-duty court time
- More difficult to schedule training
- Greater fatigue/ lower productivity
- Uniform staffing by day of week and by shift
- Fewer works days per officer per year
- More difficult to maintain communications
- Results in 42 hour average work week

⁹ A Look at the 12-Hour Shift: The Lincoln Police Department Study. Captain Jon Sundermeier, Lincoln, Nebraska, Police Department. *The Police Chief*. March 2008.

There are a number of advantages to this approach:

- Two shifts instead of three-easier to administer
- Fewer shift changes
- More days off per year
- More time for outside activities
- Fewer trips to and from work
- Less overtime
- Less sick leave
- Greater productivity
- Easier supervision

Agencies that adopt 12-hour work schedules are particularly concerned about fatigue. The evidence on this issue is mixed. On its face a 12-hour shift seems very long and one could easily predict an increase in accidents and injuries related to fatigue. However, the schedule does provide significant amounts of time off, and most agencies that adopted this approach have not experienced those anticipated increases. In fact, most agencies report that officers on 12-hour schedules use less sick time, and have lower levels of stress and illness.

The key to successful implementation 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. For the department that means closely monitoring off-duty employment, court, and other obligations that may diminish the opportunity for sleep.

LMPD Deployment and Special Details

In our discussions with police officers, supervisors, command staff and citizens there was near unanimous concern about the use of on-duty police officers on special events. The concerns were as follows:

- Police officers were particularly concerned about changes in their work schedule that are necessitated by assignment to special details
- Supervisors expressed frustration about having to make last minute changes to work schedules to accommodate special events, particularly when the event had been scheduled for months
- Division commanders also found the special details disruptive and, moreover, worried that division resources were being diverted

Of course, while there is consensus about the problems related to special details, the solutions to this issue are not nearly as clear. The basic elements of the debate are as follows:

- There is a cost associated with using police officers on special details, but some of these events generate significant revenues for the region
- Charging event sponsors for police services may deter some from holding the event
- The cost might be particularly problematic for neighborhood associations that have limited resources. Since those associations often play a critical role in community organizing and communication, eliminating these gatherings may have a negative consequence on crime prevention activities.

In order to get some idea of the magnitude of these on-duty assignments we received a listing of police officer hours assigned to special events. Unfortunately, the department was unable to disaggregate police officer hours from traffic aides, so the hours reported are in many cases more than the actual number of police officer hours.

During 2014, a total of 72,704 on duty hours were assigned to special details, and 32,112 hours were assigned on overtime.

The events that required the most number of hours were:

Event	On-Duty Hours
Mini/Full Marathon	3331
Crime Prevention Detail 5-1-5-4	4272
Pegasus Parade Security	4058
Oaks/Derby Traffic	3610
Ky. Oaks and Derby Security	4200
Thunder over Louisville Traffic	3546
Thunder over Louisville Security	4344
2014 PGA Championship	15443
Papa John's 10 Miler	5672
Ironman Triathlon	5538

Table 14 Police on duty time on major events

There are, arguably, two schools of thought with respect to the cost of 72,704 hours. First, one could argue that the cost is relatively modest. If we were to think about the 956 police officers in LMPD, this represents about four percent of their on-duty time. On the other hand, it does represent, in some cases, the diversion of four percent of agency resources away from

their primary mission. Irrespective of one's point of view the department still needs to consider alternative approaches to how these events are handled.

Managing the Demand for Police Services

Much of our discussion to this point has focused on supplying enough police officers to meet citizen demands for service. Now we examine ways in which LMPD can more effectively manage demand.

Reducing Calls for False Alarms

During our study period LMPD responded to the following burglar alarms:

BURGLAR ALARM-COMMERCIAL BURGLAR ALARM	10251
BURGLAR ALARM-IMPROPER CODE **PERSON ON SCENE**	1241
BURGLAR ALARM-NOT FROM ALARM CO	906
BURGLAR ALARM-PANIC ALARM **RESIDENCE ONLY**	1720
BURGLAR ALARM-POTENTIAL DVO INVOLVEMENT	1
BURGLAR ALARM-RESIDENTIAL BURGLAR ALARM	11466

Table 15 Responses to burglar alarms

The average time committed to these calls was 15 minutes, but since most require two officers we can conclude that the typical response requires 30 minutes of officer time. Thus the department spent nearly 13,000 officer hours on burglar alarm calls.

The following data describes LMPD response to alarms for the past four years.

	# ALARMS DISPATCHED	# FALSE (Charged)
2011	24,548	16,603
2012	25,599	17,488
2013	26,193	17,777
2014	28,132	15,111

Nationwide, police departments respond to millions of false alarms annually at a cost that tops \$1 billion. In cities for which we have data, 90 to 99 percent [of these alarms] are false. False alarms are a wasteful use

of police resources and a problem that many law enforcement agencies struggle to manage. "Solving the problem of false alarms would by itself relieve 35,000 officers from providing an essentially private service." Moreover, an alarm signal is NOT an indicator of a criminal activity; in most instances, it is designed to detect motion, including "human error, system malfunctions and abnormal conditions, most of which have little to do with crime." Police departments and the municipalities that finance their needed services can realize significant savings and increase productivity by reducing this often unproductive use of officers' time.¹⁰

Many communities are taking an aggressive approach to reducing response to false alarms. For example, the Milwaukee Police Department implemented the Verified Response Policy for burglar alarms in September 2004. Under this policy the Milwaukee Police Department does not respond to the report of a burglar alarm activation that was not first verified by a Private First Responder Service. Milwaukee reduced the number of calls for service due to alarms from more than 30,000 to 620 in 2012 as a result of their policy change.

Web-based Crime Reporting

LMPD is currently using a telephone reporting unit (TRU) to take citizen crime reports by phone. TRU handles the following types of incidents:

- Theft reports with a total value under \$10,000 - except for thefts involving controlled substances
- Harassment and harassing communications (other than domestic violence)
- Misdemeanor assault and intimidation (other than domestic violence)
- Auto theft/unauthorized use of a motor vehicle
- Theft of motor vehicle registration plates and decals
- Thefts other than shoplifting
- Crimes involving fraud, forgery, identity theft or criminal possession of a forged instrument
- Criminal mischief under \$10,000
- Lost or missing property
- Any type of miscellaneous report (other than domestic violence)
- Follow-up reports to previously reported incidents

¹⁰ Opportunities for Police Cost Savings Without Sacrificing Service Quality: Reducing False Alarms. Philip S. Schaeenman, Aaron Horvath, Harry P. Hatry, The Urban Institute, January 2013

While this is a sound approach to managing demand some agencies are moving towards a web-based approach to citizen crime reporting.

For example, in Fairfax County, Virginia citizens can file on-line reports for the following:

- Bicycle Theft
- Civil Dispute
- Destruction of Private Property/Vandalism
- Larceny/Theft from Motor Vehicle or Parts
- Larceny/Theft Under \$5,000
- Lost Property
- Suspicious Person/Vehicle/Vehicle
- Solicitor Violations
- Telephone Harassment/Threats
- Trespassing
- Unoccupied Hit and Run Accidents

One advantage to this approach is that the victim receives a report number immediately and prints a copy of a report.

Support Unit Staffing

This section of the report examines the assignment and utilization of resources currently committed to specialized units within the department. When analyzing the staffing for specialized or support units, it is important to note that there is no universally accepted “one size fits all” formula for police departments. Rather, the evaluation must be based on a number of factors such as:

- The agency's policing philosophy
- The agency's policies and procedures defining the roles and responsibilities of support units
- The availability of alternative resources to provide equivalent services currently being provided by the support and specialized units
- The effectiveness of the support and specialized units
- Community expectations
- City and police department budgets and resources
- Collective bargaining agreements

ADMINISTRATIVE BUREAU

The Property Room currently has two detectives assigned to the drug vault. As CALEA points out, “ In the past two decades there has been a

discernable movement away from the traditional assignment of sworn personnel staffing the property room. Many agencies now have either a blend of both sworn and civilian staff, or the property function has been totally civilianized.”¹¹ We recommend that non-sworn personnel staff the property room function.

The Training Division provides training and recruitment services for the LMPD. The Division is providing all training and recruitment services through the combined use of full-time sworn personnel and part-time certified instructors who are active police officers not assigned to the Training Division. The division has been able to provide all required Basic and In-Service training, as well as conduct firearms re-qualification for the entire department twice per year, continued to actively recruit qualified interested applicants for the department, and represent the department at quarterly Kentucky Law Enforcement Council meetings.

In general, we concluded that others could do some of the tasks currently performed by police officers in the training unit. For example, persons with background and education in curriculum and adult learning could be tasked with preparing course objectives and lesson plans. Moreover, they may be able to develop instructional technologies that are more in keeping with the technological sophistication of today's younger officers. It may be possible to form a partnership with a local university to accomplish some of these tasks. While it may be advantageous for police officers to serve as classroom instructors, much of the “back room” preparation could and should be done by others.

RECRUITMENT AND SELECTION UNIT- Members of the Training Division Recruitment Team conduct most recruitment activities on a regional basis. While personal outreach and interaction is beneficial to the recruitment effort, the ability to recruit highly qualified officers could be enhanced by a robust social and multi-media approach to recruitment. It should also be noted that the International Association of Chiefs of Police (IACP) **Best Practices Guide for Recruitment, Retention and Turnover in Law Enforcement** recommends that every officer in the Department should be encouraged to become a “recruiter” of potential qualified candidates. Placing this responsibility on just a few selected individuals in the organization limits the ability of the organization to take advantage of the vast network of personal and social media contacts accessible by Department members. Additionally, identifying high potential recruitment activities would prove more cost effective in terms of time, manpower

¹¹ <http://www.calea.org/calea-update-magazine/issue-94/property-and-evidence-control-hidden-and-ticking-time-bomb>

and travel costs. Further, establishment of a recruiting timetable would allow for efficient scheduling of recruitment efforts by Training Division staff.

Finally, the utilization of retired police officers to conduct background investigations for the recruitment and selection Unit, on a part-time basis, would allow the department to re-deploy some or all of the personnel currently used to conduct background investigations.

SUPPORT BUREAU

LMPD uses a mixed approach to the enforcement of narcotics laws. Each division "FLEX" squad is charged largely with street level narcotics activity. Complaints that come in through the anonymous tip line are routed to the Narcotics Division and are subsequently handled by narcotics or by division level officers.

The *Narcotics Division* is organized as follows:

- Narcotics Major Case Squad
- Complaint Response Unit
- Technical Operations Team
- Asset Forfeiture Unit
- Prescription Drug Diversion Unit
- Airport Interdiction Squad

We offer the following observations concerning this division:

- It is hard to offer any rationale to explain why the majority of officers assigned to narcotics work are assigned to work during the day, Monday through Friday
- All of the functions of the asset forfeiture unit could be performed by non-sworn staff
- It is critical that the department establish a mechanism to ensure that citizens that provide information about drug offenses receive some feedback if so requested. During our community forums we repeatedly heard from individuals that had notified the police about such activity and received no feedback

SUPPORT BUREAU-MAJOR CRIMES DIVISION

The *Homicide Unit* had a 56% clearance rate for criminal homicides in 2013, and generally investigates approximately 50- to 60 homicides each year, the first three months of 2015 have seen an early "spike" in homicides (fifteen). Due to the complexities of investigating and processing homicides scenes, sufficient trained personnel are critical. The Homicide Unit currently has two vacancies. It is also recommended that

Missing Persons Squad Detectives be cross-trained to investigate homicides as a more efficient and effective use of personnel.

An examination of personnel assignments for the Special Victims Unit (SVU) disclosed a gap in assignment times for detectives assigned to investigate crimes against seniors, sex crimes and domestic violence. It is a stated goal for the Major Crimes Division that the detectives assigned to these squads be cross-trained to be able to assist each other with their investigations. Consultants recommend that the cross training plan be expedited, with an emphasis on all of these detectives be trained to handle all of the SVU investigations. It is further recommended that LMPD assess the call volume and detective call-outs to determine if there is a need to expand SVU coverage hours.

The Robbery Unit currently operates 24 hours per day, 7 days per week, but only has two Sergeants to supervise this group of Detectives. This unit conducts investigations into first-degree robberies of fixed location businesses, first-degree street robberies that involve the same suspect(s) and involve more than one division, and have initiated the Armed Suspect Apprehension Program to remove violent offenders from the streets of Louisville.

The department has recently introduced policy that requires periodic review of cases by supervisors. This is an important component of the management of criminal investigation resources.

SUPPORT BUREAU-SPECIAL OPERATIONS DIVISION

The LMPD Air Unit flies directed patrols, hot spot patrols, works major event details, and flies limited rescue missions. The current unit policy is to have one pilot man the aircraft during daytime and two persons at night. The assignment of one person (a pilot with no spotter or co-pilot) causes the pilot to perform multiple tasks in addition to the complexities of piloting a helicopter.

Approximately 20% of all agencies with 100 or more sworn officers had aviation units in 2007 (the last year for which national data was available). The percent of agencies with aviation units varied depending on agency type and size. Approximately 75% of the 89 agencies with 1,000 or more sworn officers had aviation units. ¹²

¹² Bureau of Justice Statistics. Aviation Units in Large Law Enforcement Agencies, 2007. July, 2009

The LMPD Traffic Unit provides 7 days per week coverage from 0600 through 0300 hours. The Traffic Unit patrols and responds to traffic crashes on the Interstates in the LMPD jurisdiction. It also investigates traffic crashes involving fatalities and life-threatening injuries. Traffic unit officers patrol high crime areas for two to three hours each day, and will assist patrol units with specific problems when possible.

The Canine Unit currently utilizes 14 Police/Canine teams to provide support. They responded to over 2300 calls in 2013. Canine Unit Officers work 6 different shifts on a regular basis, with a gap in service from 0600 to 0800 hours. Personnel interviewed stated anecdotally that these shift assignments have existed for a long time and tend to coincide with calls for canine services.

The Mounted Unit provides crowd control at special events and provides a highly visible police presence when deployed throughout the City. 3 permanently assigned personnel currently staff the unit. There is also a vacancy for the Sergeant's position. Many communities use police horses to aid in traffic and crowd control and to increase police visibility. The unit makes effective use of a Mounted Unit Auxiliary with part time officers.

The River Patrol Unit patrols the Ohio River in an effort to promote boater safety and provide homeland security through preparation vigilance and critical infrastructure checks. 1 Sergeant and 3 Officers accomplish these duties. This staffing appears to be appropriate.

The remaining Special Operations Division service teams appear to be staffed and functioning effectively. The most notable of these teams is the SWAT team. The Team was activated for a significant number of events during 2013. As stated earlier, the Team has also been very busy during the early part of 2015. This unit appears to be a common model as noted in the IACP Position Paper on Special Weapons and Tactics (March 2011):

"Part-time team. The vast majority of teams nationwide (approximately 99 percent) are part-time teams, with members having primary duties and responsibilities outside of SWAT. The involved officers work full time in a variety of assignments such as uniformed patrol, investigations, and narcotics and are subject to being called out in certain circumstances as a member of the part-time SWAT team."

SPECIAL INVESTIGATIONS DIVISION

The Public Integrity Unit is responsible for the investigation of officer-involved shootings, in-custody deaths, deaths related to arrests, arrests of and criminal allegations against officers, arrests and criminal allegations against city employees and malfeasance by city employees. The PIU appears to be staffed adequately to accommodate all investigative responsibilities. When necessary, the hours of the assigned Sergeants will be adjusted to meet needs or they will respond to call-outs.

The Professional Standards Unit (PSU) functions in a traditional internal affairs capacity. As such, the PSU handles administrative investigations involving police officers.

The Violent Incident Prevention, Enforcement and Response Unit (VIPER) was established in 2012 to address violent crime by concentrating on “hot spot” of criminal activity, by identifying and arresting the “worst” offenders, and by addressing gang activity. This Unit also is charged with identifying and apprehending fugitives who are violent offenders. While the responsibilities of the VIPER Unit appear to have some overlap with other Units of the LMPD, the VIPER Unit has proven to be an effective strategy to reduce crime. The unit is not unlike many specialized gang enforcement, gang intelligence or violent street crime units throughout the country. While the efforts of this Unit appear to have a positive impact on crime in Louisville, there is also the need to ensure that personnel assigned are operating with accurate intelligence data and under appropriate and effective supervision.

Community Expectations and LMPD

On March 12 and 13, we conducted eight focus groups with citizens and various community stakeholders. We had a focus group in each division and, on average, 12 people participated. We had a specific protocol that we intended to follow, however, each group tended to focus on the issues that were important to their area and we primarily reacted to the issues raised. We learned a lot about citizen attitudes and perspectives of the police department as well as the major issues of the different areas. It is important to emphasize that citizens were overwhelming positive about the LMPD. It was amazing to experience the level of participation and willingness to speak frankly about LMPD. We were asking them to think about really tough issues, but there was no evidence of strong

tensions between citizens and the police. Overall, it was apparent that citizens actually really like and trust the police department. One of the interesting points that was clear from our discussions is that there is incredible variation across divisions in the nature of their concerns. Each of our discussions went in multiple directions and different points were raised. Importantly, however, there were some consistent themes and areas of concern. We highlight these themes below and then after each, we make some general recommendations as possible action items.

Communication Problems

One area where there seemed to be consistent concern is in the misunderstanding of how to best reach the department in order to share information and concerns. The problem is not necessarily citizens not knowing who or where to call (although we did hear some of these concerns), the bigger issue is that citizens appear to be providing information and concerns through many different channels. For example, citizens certainly know about and have used 9-1-1 and were generally quite pleased with the response. They were also aware that 9-1-1 should not be used for non-emergency situations and this seems to be the area where there is some confusion. We asked questions like: If you had concerns about a neighbor who you might think was selling drugs from their home, would you share this information with the police (unanimously they said yes), and how would you share the information. The responses to this second question represented a wide array of opinions: from having a specific officer's phone number to contact, to calling the tip line, to calling the nonemergency police number, to calling/using the 311 application, to raising the concern at a community meeting or sharing it with the neighborhood resource officer, to funneling the information through another source, such as their councilperson or neighborhood association leader. This variation in how to best get information into the police department was consistent across beats.

On the one hand, this is a very positive sign. That is, citizens obviously care about their community and think that the police department has an important role to play in responding to their concerns. However, the downside is that there is considerable confusion about sharing critical, actionable information and if there is confusion among the citizens we talked with (community leaders, etc.) then it is safe to assume that most residents are just as or probably more confused. Several respondents also noted that they have heard from residents that they are fearful of providing any information to the police because of retaliation from another community member. One possible solution is greater promotion of the use of LMPD's Tip Line, 574-LMPD.

The final issue that was raised in this area was whether the police department actually did anything after they made the call. It is apparent that there is no feedback loop in this process, and after citizen calls, they don't know whether the problem or issue was resolved or even if the department is working on it. In fact, we had several examples of where the community member said that the problem persists so they are assuming that their concern was just ignored.

Strategic Problem-Solving Efforts

We began each focus group with a discussion of the major issues faced by each community. As you could imagine, the responses varied widely by neighborhood, from concerns about street robberies and drug activity, to home burglaries and thefts, to traffic and graffiti. It is also apparent that there is a significant opportunity to problem-solve as a community to focus and respond to priority issues. The level of citizen commitment to participate in community-led activities amazed us, and we learned a lot about the efforts of neighborhood associations and the auxiliary boards. In short, there is an existing infrastructure where citizens are engaged and are very interested in taking community action. We understand that neighborhood community resource officers play some role with interacting with the neighborhood associations and other key citizen leaders (and people emphasized how terrific they are), but it seems as though this foundation of citizen engagement can be used more strategically to respond to problems. Based on our discussions with community representatives we offer three recommendations.

Use of Foot and Bike Patrols. Some of the discussion of lack of engagement may be linked to the time of year--officers may be in their cars more and citizens out less because of weather. However, increasing officers on bike and foot patrols will provide many opportunities for citizens to engage with officers. Again, the key is not to require widespread adoption of such patrols, but do them strategically--only in the areas with heavy pedestrian traffic at specific times of the day, concentrated locations where juveniles hang out, and areas where citizens complain about being harassed (by juveniles, homeless, etc.).

Strategic Marketing of the LMPD. As technologies have evolved, there are now multiple ways for citizens to engage the police, and it is particularly important to use innovative strategies to engage teenagers and young adults. There may be many programs and initiatives that LMPD are doing to engage citizens, but no one may know about them because of insufficient publicity. The news media is one outlet to promote such programs, but the focus of news media is reporting on crime incidents, with little focus on programs (and most youth and teenagers do not read

the newspaper). It would be helpful if the department, using the efforts of the public information officer, to promote such programs in the news as well as working to expand communication efforts to aggressively use social media outlets, such as Facebook and Twitter.

Adoption of Problem-Solving Strategies. One of the challenges that all police departments face is balancing the time available to respond to calls for service with using other time to strategically respond to particular issues and problems. When we asked citizens what they thought officers should do with their discretionary time, the discussions redirected us back to the major problems that are facing each area. Thus, it seems that the reliance on crime analysis and citizen input to determine hot spots and problem issues, coordination of efforts with citizen groups and government resources, and the deployment of evidence-based strategies to respond to problems would have significant potential for crime reduction and increasing citizen satisfaction with the police.

Conclusion and Recommendations

In a recent study conducted by the Police Executive Research Forum police respondents were asked to describe the effects of the economic downturn on their agency's staffing¹³. The actions taken included:

- Cut overtime spending: 66%
- Eliminated or reduced police employee salary increases: 58%
- Imposed a hiring freeze for sworn positions: 43%
- Imposed a hiring freeze for civilian positions: 43%
- Reduced staffing levels through attrition: 36%
- Laid off employees: 22%
- Implemented unpaid furloughs: 16%.

Indeed, the recent past has been extraordinarily challenging for communities as they struggled to provide high quality public safety services under unusual fiscal constraints. However, one of the byproducts of that effort has been a heightened awareness of how important it is to critically examine the deployment of police personnel. In many cases police executives have had to ask tough questions. Whereas in the past those inquiries focused largely on what the agency does and how does it do it; more recently that focus has shifted to why the agency does things and who should do it?

¹³ <http://policeforum.org/library/critical-issues-in-policing-series/Econdownturnaffectpolicing12.10.pdf>

Our study of staffing in Louisville revealed a very professional organization and staff, one that is highly respected by the community. Many of the programs the agency has implemented are at the cutting edge of the industry. Based on our analysis, the department appears to be adequately staffed. Nevertheless, we believe that there are areas in which their performance can be enhanced. Some of our recommendations appear in the body of the report, however, we provide a series of more global recommendations below.

Recommendation One. LMPD should adopt a workload-based method for deploying patrol personnel. We have provided a model that will permit the organization to deploy resources based on citizen-generated calls for service and expectations about the appropriate amount of time available for proactive and administrative activities. This model can be used by the agency to periodically reassign staff based on changing patterns of activity.

Recommendation Two. LMPD should abandon its use of both the ten-hour work schedule and the hybrid work schedule. Work schedules are a critical component of deployment and performance. It is important to implement a schedule that meets the needs of the organization **and** of the members. In our view, the ten-hour schedule and the hybrid schedule do not meet organizational needs. Moreover, the hybrid schedule adds unnecessary complexity to scheduling.

Adopting a new work schedule will be a complex undertaking, because many members have structured outside activities around that schedule. While there is no “magic bullet” schedule that will satisfy everyone we can suggest that the six on two day off schedule with eight-hour days seems a good fit for the agency and provides favorable access to weekend time off. Moreover, there is a history of its use in the agency. Twelve-hour schedules are increasingly popular in policing but they do necessitate rather large changes in departmental procedures and policies, particularly with regard to communications and managing off-duty activities.

Recommendation Three. LMPD should minimize the use of on-duty personnel for special details such as runs, walks and other similar events.

In general, communities are increasingly adopting policies that require cost recovery for privately sponsored events. When officers provide services for these events they usually receive extra compensation at a rate established by the community. We believe that this is a good model for Louisville. While it appears that the actual use of on-duty personnel is

not as frequent as the perceived use, there is an almost universal belief that the practice is disruptive.

Recommendation Four. The LMPD should adopt the verified response model for burglar alarms.

In January 2013, the LMPD brought the False Alarm Reduction Program in - house. The False Alarm Reduction Unit (F A R U) is responsible for the implementation and oversight of the false alarm ordinance. The FARU acts as a liaison and mediator between the department, the Department of Codes & Regulations, the Office of Management and Budget (OMB), alarm businesses, alarm technicians and alarm users.

While this unit has been acknowledged for its success, we believe that more could be done to reduce police response to false alarms.

Recommendation Five. LMPD should, whenever possible, assign non-sworn staff in positions that do not require police authority.

In general, a position should be sworn only if it requires the powers, skills, and abilities of a police officer (e.g., the authority to make arrests). On occasion, a position may not require the powers, skills, and abilities of a police officer, but using a police officer enhances the position, and the benefits outweigh the costs. Examples could include positions in training and recruiting.

There are several reasons for the national trend to employ more non-sworn staff in police departments when law enforcement training and skills or authority are not required. First, non-sworn staff can often perform tasks performed by a police officer at a significantly lower cost with less training. Non-sworn staff can begin working in their capacity more quickly and with less financial investment and job training.

A second reason for the use of non-sworn staff is that police officers are trained and commissioned to perform a wide range of duties for which they are uniquely qualified, and police departments should make the best use of sworn officers' specialized training and skills: sworn officers should perform those services that only a trained officer is qualified to perform. Finally, civilian employees often bring a better skill set to some tasks than a police officer. For example, individuals with education in forensic science would likely be better equipped to handle evidence at a crime scene than someone without such training.

Recommendation Six. LMPD should adopt a more strategic approach to criminal investigation.

A number of years ago LMPD partially decentralized its investigative function. Each division now has investigative resources, and, in addition, there are several centralized units including Homicide, Robbery, etc. While these units have performed well, we question the scope of their assignment. For example, the robbery unit handles commercial robbery and in 2013 they handled 195 cases (232 in 2014). However, in 2013 LMPD reported that 1427 robberies occurred in the jurisdiction. In other words, the robbery unit handled about 14% of the robberies and division detectives investigated the remainder. In 2014, among the eight detectives that were assigned for the entire year the average case assignment was 26 cases per year. It is difficult to understand the justification for this significant allocation of resources to a rather small fraction of cases.

For nearly thirty years researchers have sought to better understand the criminal investigation function and its relationship with other police personnel.¹⁴ Police administrators have found it difficult to make substantial changes in how investigations are conducted and how they are organized. In fact, a recent study done by researchers at Michigan State University concluded that, “the criminal investigation process has remained relatively unchanged in the face of the many paradigm shifts in the profession of policing over the past 30 years.”¹⁵

We recommend that the decision to decentralize an investigative unit should be based on what makes sense from an operational and organizational perspective.

¹⁴ For example see: John Eck. (1983) Solving Crime: A study of burglary and robbery. Police Executive Research Forum. Peter Greenwood, Jan Chaiken, and Joan Petersilia (1977) The Criminal Investigation Process. Heath.

¹⁵ Frank Horvath; Robert T. Meesig; Yung Hyeock Lee (2001) National Survey of Police Policies and Practices Regarding the Criminal Investigations Process: Twenty-Five Years After Rand