

Report on the Beat Analysis, Workload Assessment and Staffing Study

COLUMBIA, MISSOURI

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1 Introduction

1. Introduction and Study Background

The Matrix Consulting Group is a management consulting firm established in 2002 that focuses entirely on public sector analytical services, specializing in the area of public safety. The staff of the Matrix Consulting Group have provided analytical services to public safety agencies for over 30 years and have conducted over 250 individual studies of law enforcement services during their careers.

The firm was retained by the City of Columbia to conduct an analysis of the patrol and investigations services provided by the the Columbia Police Department. The project, which began in the summer of 2015, was designed to provide an assessment and evaluation of patrol deployment, including the effectiveness of the current beat structure and shift schedules, as well as to complete an analysis the workload and staffing of the Operations Division overall. Additionally, the project team conducted an assessment and analysis of the Criminal Investigations unit, organization, and staffing, as an add-on to the original scope of work of the study.

This report presents the results of the study, providing an overview of patrol and investigations workloads and service levels, in addition to identifying a number of opportunities for improvement.

The following introduction and executive summary provide a synopsis of the scope of work and overall context for the study, the methodologies used in evaluating the services of the department, and a summary of the recommendations made as a result of the analysis.

The Columbia Police Department is committed to providing high-quality, community-oriented policing services to the city. The department, and in particular its patrol and investigative functions, have experienced rapid change over the last few years.

Among these changes has been the decision, after assessing its environment to move toward a two-person patrol car service model in order to further officer safety. While two-person units improve officer safety, the change presents widespread impacts on the abilities of patrol units to respond the same volume calls for service as before. By reducing the number of units that can respond to calls pre-existing deployment issues, or inefficiencies in the shift schedule's ability to strategically deploy officers against call activity patterns, are exacerbated as a result.

At the same time, the impacts resulting from officers attending court off-duty on scheduled workdays, as well as a number of other factors, including the increased patrol workloads, have further strained the shift schedule and other aspects of patrol services.

2. Study Scope of Work and Key Issue Areas

In response to these important needs, the department has identified the need to examine the current patrol shift schedule, staffing, and organization, as well as a number of other deployment issues. Areas of focus for the study included the following:

- Patrol staffing levels, as well as current and future needs for both sworn and non-sworn personnel
- Effectiveness of the patrol beat structure
- Two-person versus one-unit deployment
- Efficiency of the patrol shift schedule, including an assessment of its current performance, as well as the development of alternative configurations
- Other practices and topics impacting the effectiveness of patrol services

Additionally, as an add-on to the original scope of the study, the department identified the need for a comprehensive analysis of investigative units. Similar to the experience of patrol functions, recent changes, combined with long-term trends in community-generated service needs, have created a number of critical issues affecting the ability of investigative units to perform at an optimal level. As a result, the department retained the project team to conduct an assessment of the staffing, organization, and case management practices of the investigative services provided by the department.

The following chapter provides an executive summary of the findings made from the analysis completed by the project team, including a number of recommendations to improve the efficiency and effectiveness of patrol and investigative services.

2 Executive Summary

1. Processes Utilized in Conducting This Study

The project team identified a number of potential issue areas through both the extensive on-site work and analysis of data, including through the following:

- Interviews conducted on site with department personnel.
- Desk audits of investigator active caseloads.
- Ride-alongs conducted in the field with patrol officers and sergeants, as well as personnel assigned to the Downtown Unit.
- Feedback, direction, and input given by the project steering committee, which included a combination of department managers, supervisors, and line staff.
- An anonymous employee survey, which provided opportunities for both structured and open-ended input to be given on a wide range of topics.
- Analysis of CPD data collected by the project team, including a year of computer aided dispatch (CAD) records.
- Additional analysis of data from outside sources, such as the US Census Bureau.

Through a combination of the various methods for identifying issues, a number of key areas emerged for further examination. These areas constitute the basis of the topics discussed and evaluated in this report, covering a wide range of issues that pertain to the patrol and investigative services provided by the department.

2. Key Issue Areas Analyzed in the Study

The report provides analysis, and eventually recommendations, to ‘answer’ and address the questions raised by the issue areas summarized in the table below:

Area of Focus	Potential Issues for Analysis
Community Trends and Emerging Service Issues	<p>How will the service needs of the community change over the next five years?</p> <p>What types of resources will best address the changing public safety needs over the next several years – do service gaps exist more in patrol, proactive enforcement, community outreach, etc.?</p> <p>Are there are long-term trends in crime and other workloads that should be addressed through new or additional resources?</p>
Patrol Beat Structure	<p>Is workload equalized among beats?</p> <p>Are boundaries between beats logical and effective?</p> <p>Is the beat structure a key focus in decisions regarding patrol deployment? How is geographic accountability affected by other deployment considerations (e.g., overlapping shift schedules, two-person patrol cars, etc.)?</p>
Patrol Unit Staffing and Deployment	<p>What effects does switching to two-person patrol units have on the level of service provided to the community?</p> <p>Is there a feasible alternative response model that can effectively divert a large percentage of non-emergency calls for service to a non-sworn response capacity?</p> <p>Is the current process for reviewing patrol reports effective, and how does it affect the field supervision practices?</p>
Patrol Shift Schedule	<p>Is the current shift schedule effective in allocating patrol staffing resources against peaks in community-generated workload levels? Do any other issues exist with the schedule?</p> <p>What are the ideal characteristics of a shift schedule, and how should the effectiveness of one be assessed?</p> <p>Are there opportunities to implement alternative shift schedules to improve the efficiency of patrol deployment?</p>

Area of Focus	Potential Issues for Analysis
Criminal Investigations	<p>Are investigative units staffed appropriately?</p> <p>Are the active caseloads of investigations appropriate for the types of cases they are assigned?</p> <p>How are cases managed in the investigative units? How can the case management process be improved?</p> <p>How is the performance of proactive investigative units reviewed?</p>

3. Summary of Recommendations

The results of the findings made from the analysis of these issues forms the basis of the project team's recommendations, summarized in the table below by category:

Area of Focus	Recommendation
Patrol Beat Structure	Reorganize the Downtown Unit within the Operations/Patrol division, formally placing the unit under the responsibility of the 2 nd Shift Commander position.
Patrol Unit Staffing and Deployment	<p>Hire six (6) additional CSA positions over the next three years as funding permits to handle low-priority, non-emergency calls for service that do not require the capabilities of a sworn officer.</p> <p>Restructure the roles of CSA positions, expanding the range of calls for service they handle. Individual assignments of CSAs should be oriented as 'generalist' roles, rather than being given specific focus areas.</p> <p>Discontinue the practice of detective sergeants being responsible for reviewing reports written by patrol officers, and instead transfer the responsibility back to patrol sergeants.</p> <p>Discontinue the deployment of two-person patrol cars across entire shifts.</p> <p>Two-person cars should be deployed based on the number of patrol personnel on-duty for a particular shift. Any units on-duty beyond the threshold number of officer needed to achieve targeted coverage levels, based on patterns in community-generated workload, should be deployed as two-person units in areas with the highest levels of call activity.</p>

Area of Focus	Recommendation
Patrol Shift Schedule	Transition to Alternative C, the 12-hour shift schedule featuring a 10-hour power shift, outlined within the report. The configuration features 21 officers deployed on each day shift, 12 on each night shift, and 8 on the swing shift (<i>a breakdown of approximately 60% – 30% – 10% between the three shift types</i>).
Criminal Investigations	<p>Maintain the current staffing of Crimes Against Persons until funding is available to add one (1) additional Homicide/Robbery Detective and two (2) additional Domestic Violence Detectives.</p> <p>Maintain current staffing levels for detectives assigned to investigate property crimes.</p> <p>Develop standardized case assignment and management policies for supervisors to use in the investigative units.</p> <p>Maintain the current staffing level of six (6) officers and one (1) Sergeant in the Street Crimes Unit.</p> <p>Develop performance measures for the Street Crimes Unit and report quarterly to the Chief and Command Staff on the performance of the unit compared to the established standards.</p> <p>Make no changes to the current staffing levels of the Vice and Narcotics Unit.</p> <p>Develop performance measures for the VNU and report quarterly to the Chief and Command Staff on the performance of the unit compared to the established standards.</p>

The following chapters present the full analysis and findings of the study leading to these recommendations, beginning with a descriptive profile of the current staffing, organization, and services provided by the department.

3 Descriptive Profile of Patrol Services

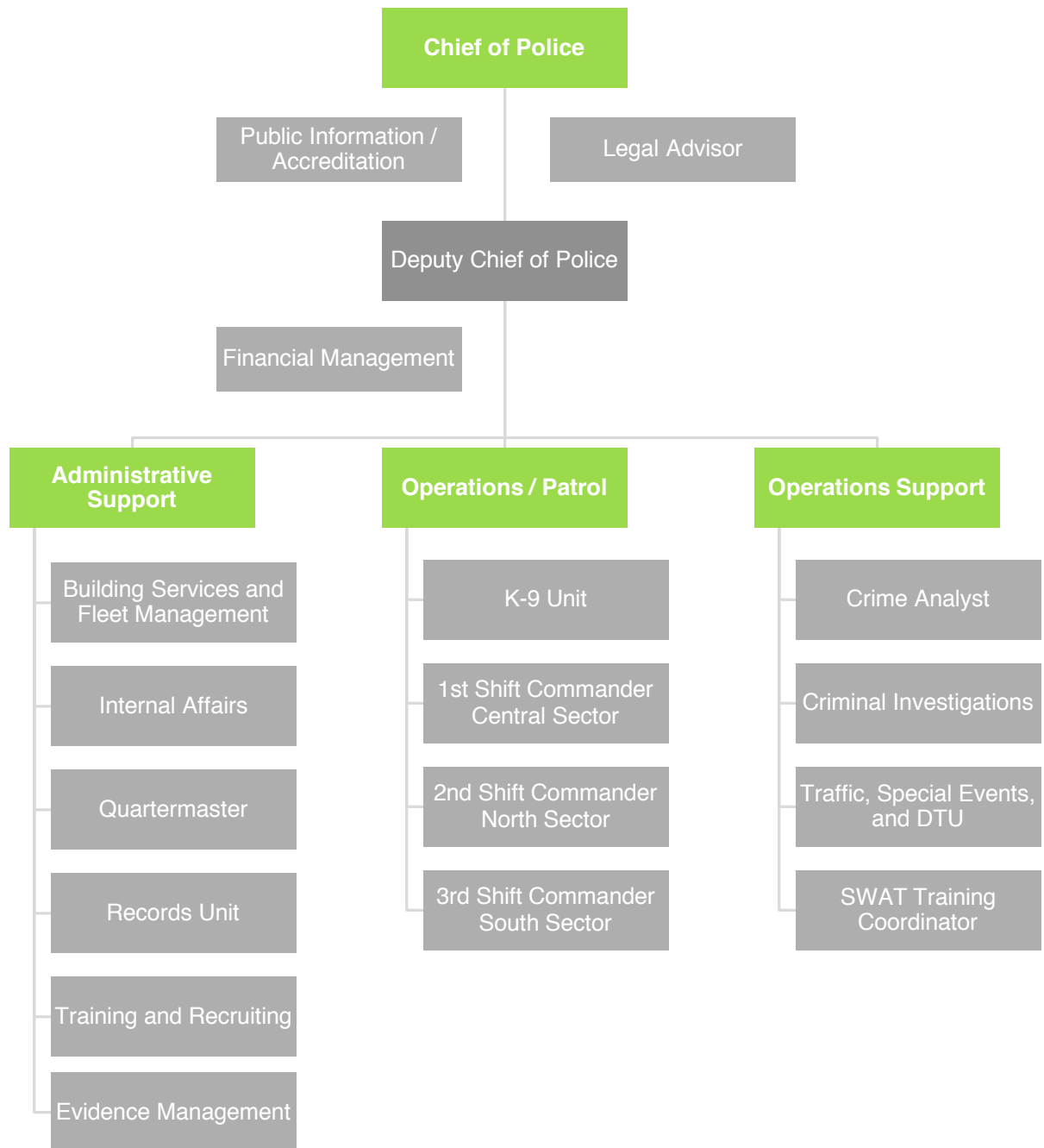
This chapter presents a descriptive profile of the patrol services of the Columbia Police Department. The profile is intended to be a reflection of our understanding of the organization and staffing of the department, and while it does present analysis of patrol workload, no conclusions or recommendations are made.

The information and data contained in this document have been gathered through a combination of:

- Interviews conducted within the department
- Review of budgets, personnel reports, and other documents
- Analysis of computer-aided dispatch data

(1) Organizational Structure

The department is divided into three major divisions, in addition to the Office of the Chief of Police. The following chart outlines this organizational structure:



(2) Staffing Levels and Assignments

An outline is presented below of the major roles and responsibilities, as well as the authorized staffing levels, of each field services unit:

Operations / Patrol

Division Management	1	Assistant Chief	<ul style="list-style-type: none"> – Assistant chief position is responsible a number of roles and responsibilities relating to the management of the division – Sergeant supervises all K9 units
	1	Sergeant	
K-9 Unit	3	Officers	<ul style="list-style-type: none"> – Responds to calls, largely in a backup capacity, providing special capabilities
1st Shift Commander Central Sector	1	Lieutenant	<ul style="list-style-type: none"> – Two patrol teams working mirrored 12-hour schedules, with each alternating 8-hour shifts on Sundays
	4	Sergeants	
	27	Patrol Officers	<ul style="list-style-type: none"> – Numbers include 2 vacancies at the officer position – Three CSAs serve primarily within the station master role
	1	Officer (Neighborhood Services)	
	5	CSAs	
2nd Shift Commander North Sector	1	Lieutenant	<ul style="list-style-type: none"> – Two patrol teams working mirrored 12-hour schedules, with each alternating 8-hour shifts on Sundays
	4	Sergeants	
	26	Officers (Patrol)	<ul style="list-style-type: none"> – Numbers include 2 vacancies at the officer position – One sergeant position oversees the Community Outreach Unit, in addition to being responsible for supervising a team of patrol officers – The Community Outreach Unit is tasked with making contacts within the community, as well as other non-enforcement roles – One CSA primarily serve within the station master role
	2	Officers (Community Outreach Unit)	
	3	CSAs	
3rd Shift Commander South Sector	1	Lieutenant	<ul style="list-style-type: none"> – Two patrol teams working mirrored 12-hour schedules, with each alternating 8-hour shifts on Sundays
	4	Sergeants	
	28	Officers	<ul style="list-style-type: none"> – Numbers include 3 vacancies at the officer position – CSA position serves in the station master role
	1	CSA	

Operations Support

Crime Analysis	1	Crime Analyst	– Provides statistic management services, conducts comparative research, and develops crime analysis products
Downtown Unit	1	Sergeant	– Patrols the Downtown beat, 70D, in patrol cars as well as on bikes
	5	Officers	– Starting program where officers will work with venue security staff in a training capacity to proactively address safety and conflict management issues

(3) Patrol Shift Schedule

Patrol officers work 12-hour shifts three days per week, and one eight-hour shift every other week. The following table outlines this schedule:

Monday - Saturday

Red	First Shift	0600 - 1800
	Second Shift	1500 - 0300
	Third Shift	1800 - 0600
Blue	First Shift	0600 - 1800
	Second Shift	1500 - 0300
	Third Shift	1800 - 0600

Sunday

Red	First Shift	0600 - 1400
	Second Shift	1400 - 2200
	Third Shift	2200 - 0600
Blue	First Shift	0600 - 1400
	Second Shift	1400 - 2200
	Third Shift	2200 - 0600

(4) Officer Turnover

The following chart displays turnover level for the department over the last three years, focusing only police officers only:

Officer Turnover, FY12-14¹					
Year	Retired	Voluntary	Involuntary	Total	Rate/Year
FY12	4	8	0	12	13.2%
FY13	5	8	1	14	15.4%
FY14	8	8	0	16	17.6%
3YR Avg.:					15.4%

Turnover has been consistently high over the last four years, with exactly eight voluntary terminations each year, in addition to a growing number of retiring officers. Overall, this equates to an average turnover level of 10.7% per year for the position.

¹ Turnover rates include all officer positions within Patrol, as well as those within the Downtown Unit (a total of 91 positions).

4 Results of the Employee Survey

As part of the study for the Columbia Police Department, our project team conducted an anonymous survey of Police employees using the online service Survey Monkey to gain their input and insight into issues related to staffing, shift schedules, current stress levels, and the beat structure. Although participation was voluntary, 144 unique responses out of 201 total invitations were received, reflecting a response rate of 72%.

1. THE MAJORITY OF RESPONSES WERE FROM PATROL OFFICERS IN THE OPERATIONS / PATROL AREA OF THE DEPARTMENT.

The table below provides a breakdown of the number of responses by area of department, and their average length of employment within the Police Department.

Breakdown of Respondents by Division

Division	# of Resp.	% of Total	Avg. Years
Administrative Support	18	13%	10.6
Operations / Patrol	91	63%	8.9
Operations Support	28	19%	10.7
Office of the Chief, Deputy Chief or Other Assignment	7	5%	7.3
Total	144	100%	9.4

The Operations / Patrol has the highest response rate, at 91 total respondents. This is expected, as this study is primarily related to patrol services, as such employees in operations / patrol are the target audience of the survey. The following tables display the breakdown of respondents by sworn / civilian on and by rank:

Breakdown of Respondents by Classification

Sworn/Civilian	# of Resp.	% of Total	Avg. Years
Sworn	120	83%	9.4
Civilian	24	17%	8.9
Total	144	100%	9.3

Breakdown of Respondents by Rank

Rank/Classification	# of Resp.	% of Total	Avg. Years
Lieutenant or higher	9	5%	12.7
Sergeant	21	15%	15.2
Officer	90	63%	7.7
Civilian	24	17%	8.9
Total	144	100%	9.3

A large majority of respondents are sworn officers, which is expected, given the study's focus on areas of field operations.

2. THE MAJORITY OF RESPONDENTS DISAGREED THAT CURRENT STAFFING LEVELS WERE ADEQUATE TO MEET THE LAW ENFORCEMENT NEEDS OF THE COMMUNITY, AND THAT THE EXPANSION OF THE CSA UNIT WOULD HELP WITH HANDLING CALLS FOR SERVICE.

The multiple choice questions asked to respondents each presented a statement, where respondents were able to choose one of five options: Strongly Disagree, Disagree, Agree, Strongly Agree, or No Response. In the charts contained in this section, response tallies are summarized under the following abbreviations:

- **SD** corresponds to "Strongly Disagree"
- **D** signifies "Disagree"
- **A** signifies "Agree"
- **SA** corresponds to "Strongly Agree"
- **#** indicates the total number of responses to that question (does not count "No Response" selections)

(1) Community Outreach

The following multiple-choice questions covered the Community Outreach Unit and meeting the needs of the community:

Statement	SD	D	A	SA	#
I am aware of the goals and objectives of the Neighborhood Outreach Team.	24%	32%	37%	6%	124
The Community Outreach Unit is an effective tool for improving relations within the Community.	27%	30%	33%	10%	116
The Community Outreach Unit is an effective tool for reducing levels of crime and disorder.	40%	35%	21%	3%	117
Our downtown policing unit provides a valuable service to the community.	15%	23%	43%	20%	127

- Respondents did not generally believe that the Community Outreach Unit was effective for either improving relations within the Community or for reducing levels of crime and disorder.
- Employees generally agreed that downtown policing unit serves a valuable resource to the community.

Respondents were not aware of the goals and objectives of the Neighborhood Outreach Team, and did not feel that the Community Outreach unit was effective in helping the community either by improving relations or by reducing crime.

(2) Calls for Service and Overtime

Employees were asked to respond to statements concerning calls for service and the amount of overtime worked:

Statement	SD	D	A	SA	#
The current call prioritization system is logical and effective.	32%	38%	28%	2%	112
I personally do not work too much overtime.	17%	30%	39%	13%	128
As a whole, the entire division does not work too much overtime.	37%	40%	22%	1%	115
Most patrol units usually have adequate time available to conduct proactive policing in between handling calls for service.	84%	14%	1%	1%	132

- The majority of respondents either strongly disagreed or disagreed that the calls for service are prioritized logically and effectively along with that there is enough time to handle them in between proactive policing.
- While the majority of respondents, 52% (agreed and strongly agreed) that they do not work too much overtime personally, the majority of respondents, 77%, disagreed and strongly disagreed that the division did not work too much overtime. As such based upon this response pattern it indicates that individuals do not work too much overtime, but on a whole the division does work a lot of overtime.

The amount of over-time worked individually is not an issue for employees, but generally the division does seem to work a lot of overtime. Additionally, officers are concerned that due to the ineffective prioritization and volume of calls that there is not enough time to proactively police.

(3) Staffing Resources

Police department employees responded to statements concerning staffing resources and the Community Services Aide Unit within the Department:

Statement	SD	D	A	SA	#
Patrol staffing resources are adequate to meet the law enforcement needs of the community.	85%	13%	2%	1%	136
Our Traffic Unit is staffed at an adequate level to be effective in the field.	51%	31%	15%	3%	124
Our K9 resources are adequate to meet service level needs.	21%	35%	37%	6%	124
We have adequate civilian staff to support patrol operation.	39%	36%	24%	24%	122
The expansion of the CSA unit would benefit patrol.	2%	5%	55%	39%	130
Our CSA resources are adequate to divert a significant number of low-priority calls for service away from patrol officers.	37%	45%	15%	2%	131

- A strong majority of respondents strongly disagreed that there are sufficient staffing resources to meet the needs of the community, including that the Traffic Unit is sufficiently staffed or the K9 unit.
- A slight majority of respondents skewed towards disagreeing that there was adequate civilian support for patrol operations.

- Approximately 55% of the respondents agreed that expanding the CSA unit would benefit patrol, therefore respondents disagreed that current CSA resources are adequate for diverting low priority calls away from officers.

Due to current insufficient staffing resources, many patrol officers believe that expanding the Community Service Aides unit can help divert low priority calls for service away from patrol officers, freeing up time for other activities.

In general, the lack of sufficient staffing resources was one of the foremost concerns raised in the narrative responses, as employees stated that staffing levels are low in comparison with the current call volumes, leaving insufficient time for proactive policing. Additionally, staff expressed concern that, due to lack of resources, low morale is widespread in the department, with individuals not being able to provide as much coverage during patrol, and that they are routinely taken away from beats to staff special projects, events, and other assignments. In general, many held that the limited staffing resources are affecting the ability of the department to meet the needs of the community.

(4) Beat Structure

The following table shows responses to the two questions asked regarding beat structure:

Statement	SD	D	A	SA	#
The current beat structure is highly effective and should not be substantially changed.	26%	47%	25%	2%	102
The boundaries of most beats make sense; borders between beats almost always fall along natural barriers and /or other logical boundaries.	20%	31%	49%	0%	97

Overall, respondents are significantly concerned that the current beat structure is not effective and that it does not make the most sense relative to natural or logical boundaries. This response pattern varies drastically from the responses filtered by just

patrol officers who are sworn and are in operations (discussed in the next section). Those employees stated that they were satisfied with the current beat structure and its set up. This suggests that while patrol officers might be satisfied with the current beat structure, other employees in the department do not feel that the beat structure is as effective or logical. The narrative section comments regarding beat structure show that respondents believe that the current structure is outdated based upon current staffing levels and community needs. Additionally, due to recent restructuring of the units to two-man patrol units, less beats are being covered and the beats need to be restructured. The majority of respondents suggested switching to a quadrant, instead of beat system, wherein the city is divided into four sections, with multiple units covering each quadrant of the city. This allows for greater beat accountability – which, according to patrol officers, is currently lacking in the existing beat structure.

(5) Shift Schedules

The following table shows responses to the five questions asked regarding shift schedules:

Statement	SD	D	A	SA	#
The current shift schedule I work is optimal for patrol officer performance.	34%	27%	27%	11%	106
During my work week, I generally feel well-rested.	35%	27%	35%	4%	139
The current shift schedule I work is optimal for my personal life.	19%	15%	36%	30%	129
I am content with my current shift schedule, and would not prefer switching to a different schedule.	18%	18%	32%	32%	122
In general, officer morale is not severely impacted by current shift schedule.	41%	30%	19%	11%	122

- There was no clear majority in any specific category, strongly agree, agree, disagree, or strongly disagree for any of the statements concerning shift schedules, suggesting the lack of strong feelings concerning shift schedules in general.

- While employees generally had negative sentiments towards the current shift schedule being optimal for patrol officer performance and letting them feel well-rested, they did agree that it was optimal for their personal life. As such, while the shift schedule is not the greatest for accomplishing goals of the organization or for providing sufficient rest to its employees, it is helpful in ensuring that officers have a persona life.
- Approximately 32% of employees both strongly agreed and agreed that they are content with keeping their current schedule, despite its lack of ability to result in a well-rested employee.

Overall, respondents have negative feelings towards the current shift schedule and believe it to be non-optimal for patrol performance, or for feeling well rested, and it also impacts employee morale. The narrative responses were consistent with this response pattern, as the primary consensus was that the current 12-hour shift schedule is very mentally and physically exhausting, but due to the fact that respondents get every other weekend off they are okay with this shift schedule. However, they would also be willing to consider a 10-hour shift schedule, but definitely not an 8-hour shift schedule.

3. QUESTIONS ASKED ONLY TO PATROL OFFICERS REVEALED MIXED ATTITUDES TOWARD DEPLOYMENT ISSUES.

Respondents who identified that they were sworn officers within either operations or operations support division were asked additional questions related to beat structures, shift schedules, and stress levels while on patrols. Initially, these employees were asked to identify which beat or beats they have been assigned to most frequently within the last two years. Respondents were allowed to choose multiple beats for this statement. The following table breaks out the total number of responses by beat number.

Breakdown of Respondents by Most Frequently Assigned Beat

Beat Number	#
10	14
20	19
30	13
40	19
50	18
60	16
70	13
70D	6
80	14
Relatively equal	6
Not Applicable	15
Total	153

There were only 88 unique employees that fit the criteria to respond to this statement. On average, officers indicated that they work more than one beat in particular, with most respondents selecting less than three beats. Responses were fairly evenly distributed, with the most commonly selecting beats being 20, 40, and 50. There was one respondent that chose all 9 beats, and very few respondents who chose more than 3 beats each (4 for 3 beats, 4 for 4 beats, and 1 for 5 beats).

The multiple choice questions in this section follow the same pattern as that noted in the previous multiple choice section.

(1) Patrol Unit Staffing and Operations

The following multiple-choice questions covered staffing of patrol units and use of technology, including how it impacts response times and proactive patrolling:

Statement	SD	D	A	SA	#
Doubling up patrol units improves officer safety.	16%	16%	27%	41%	70
Using two-person patrol cars in the evening and night shifts does not significantly impact response times.	58%	29%	10%	3%	69
Sergeants hold me accountable – either formally or informally for how I use my proactive time.	7%	29%	55%	9%	69

Statement	SD	D	A	SA	#
I am able to access crime analysis information in the field to make decisions about where to patrol.	16%	24%	50%	10%	68

- Respondents generally agreed (68%) that doubling up patrol units has improved officer safety; however, 58% of respondents strongly believe that this has negatively impacted response times.
- Generally respondents agree that not only do sergeants hold them accountable for how they use their proactive time but that they are able to access crime information in the field to make those proactive patrolling decisions.

The primary concern respondents seem to have regarding staffing patrol units is that doubling up on these units has negatively impacted their ability to swiftly respond to issues especially in evening and night shifts.

(2) Beat Structure

The following five questions were asked to respondents regarding the current beat structure:

Statement	SD	D	A	SA	#
I am assigned to cover the same beat most of the time.	9%	19%	53%	19%	69
There is an expectation for me to get to know the community in my beat.	1%	21%	60%	17%	70
I am usually assigned to the same beat for long enough to develop a network of contacts in the local community.	14%	33%	45%	8%	66
The boundaries of my beat make sense; its borders fall along natural barriers and/or other logical boundaries.	16%	25%	49%	10%	61
In the evening and night shifts, the use of two-person patrol cars does not hinder geographic accountability for covering certain areas.	48%	34%	16%	1%	67

- The majority of officers agree that they are assigned to cover the same beat most of the time. this response pattern is consistent with the fact that nearly all of the officers chose more than one beat as the beat they are most often assigned to over the past two years and rarely any officers chose more than 3 different beats.
- Respondents generally agreed (60%) that not only is there an expectation to get to know the community in their beat, but that they have been assigned to the beat for so long that they are able to build a network of contacts in that community (53%).

This response pattern is consistent with the fact that respondents are generally assigned to the same beat.

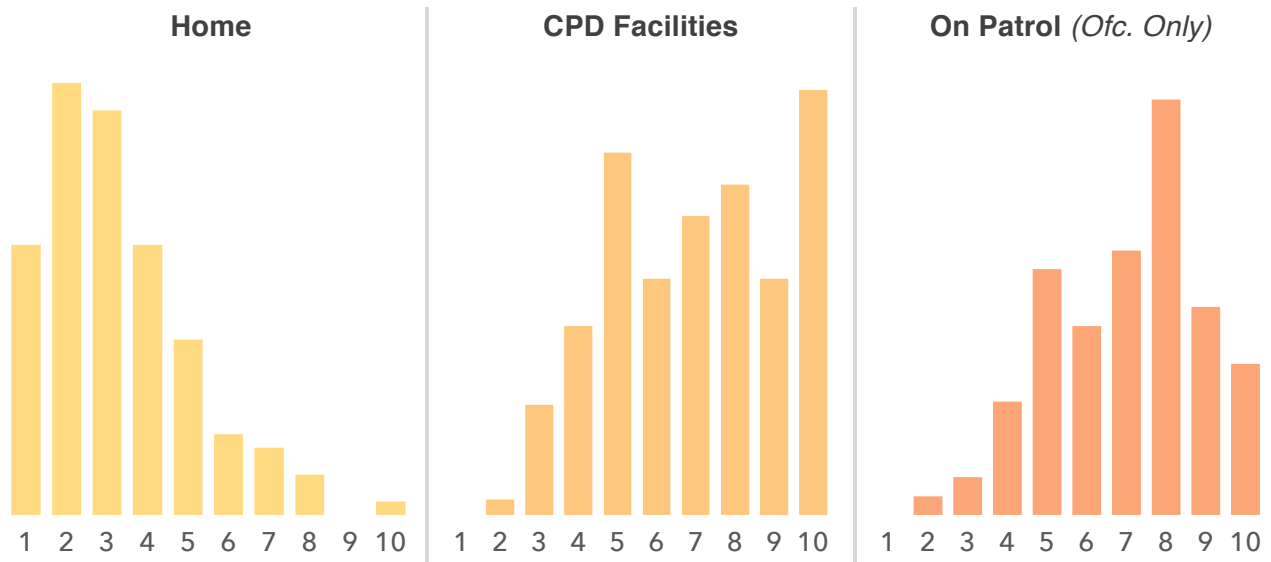
- Approximately 82% of respondents either strongly disagreed or disagreed that the use of two-person patrol cars did NOT hinder geographic accountability during evening and night shifts. Patrol officers responded similarly in the previous section in which they stated that two-person patrol cars greatly impacted response times especially for evening and night shifts.

Patrol officers are typically assigned the same beat in order for them to meet the expectation of getting to know the community and develop contacts within the community. Additionally, patrol officers generally agreed that the current beat boundaries made sense either due to natural borders or logical boundaries. However, respondents are troubled regarding the use of two-person patrol cars and their ability to be hindered geographically for covering certain areas within their beat.

4. STRESS LEVELS ARE HIGHEST FOR PATROL OFFICERS IN THE FIELD.

Respondents were asked to rate their stress levels from 1 (least stressed) to 10 (most stressed) through a variety of scenarios – patrol officers were asked to rate it while on patrol, and all respondents were asked to rate their stress level while at home and while at Columbia Police Department facilities. The following graph breaks out these responses based upon the stressor (patrol, home, CPD Facility) and the level of stress for each of the respondents.

Self-Perception of Stress Level by Location



- Most patrol officers (75%) ranked their stress level while on patrol at either 6 or higher. Of the 87 responses, 41 chose a stress level of 8 or higher.
- The majority of respondents (79%) when at home, seemed to indicate a stress level of 4 or lower, suggesting that while at home, generally employees are not stressed. Only 1 respondent chose that they are highly stressed when at home.
- The “stress level” was average and similar to the patrol officers while on patrol, with the majority of respondents in the moderate to high level of stress category. The plurality of responses at 27 was in the highest level of stress category.

Overall, employees generally tended to be more stressed while at one of the CPD facilities or out on patrol, comparative to being at home. This response pattern was expected as generally being out on patrol could lead to high stress situations, similarly while in one of the CPD facilities, employees are in an actively high stress environment that could require quick responses and reactions to situations.

5. RESPONDENTS RATED PROACTIVE TIME, RESPONSE FOR CALLS, BACKUP AVAILABILITY POORLY.

Respondents were also asked to rate the effectiveness and quality of the department’s services and performances according to one of five categories: Very Poor,

Poor, Fair, Good, and Very Good. The following table summarizes these questions:

Category	V. Poor	Poor	Fair	Good	V. Good	#
Backup availability for patrol units on the day shift.	28%	38%	22%	9%	3%	94
Amount of proactive time in the field	62%	33%	4%	0%	0%	127
Response times to low and medium-priority calls for service.	52%	34%	10%	3%	1%	126
Response times to high-priority calls for service.	5%	21%	29%	37%	9%	126
Officer interactions with citizens	2%	5%	31%	45%	17%	130
Coordination with the dispatch agency	15%	23%	42%	19%	0%	124
Timeliness and accuracy of dispatch information when responding to calls for service.	14%	21%	42%	20%	3%	120
Ties with the community.	7%	34%	41%	19%	0%	133
Coordination between investigation and patrol.	18%	26%	37%	18%	2%	129

- Community relations were not highly by respondents:
 - 41% of respondents rated ties with the community as being either “poor” or “very poor”.
 - Only 19% rated community ties as “Good” and no one selected “Very Good.”
- Despite this, officer interactions with citizens was rated highly with the majority of respondents either feeling that it was “good” or “very good”.
- Most do not rate the amount of proactive time as satisfactory, with about 62% rating it as “very poor”, and less than 1% rating it as either “good” or “very good”.
- Over half of the respondent felt that response times for low and medium priority calls for service were “very poor” and only 1% thought they were “very good”.

Overall, the distribution of ratings was largely mixed. Categories pertaining to response times to calls for service or the availability of backup for officer safety, received mostly negative responses, while those that focused on coordination and ties with the community received more positive responses.

5 Analysis of Patrol Workload and Deployment

1. Community Trends and Emerging Service Issues

Key Areas of Focus:





How will the service needs of the community change over the next five years?

What types of resources will best address the changing public safety needs over the next several years – do service gaps exist more in patrol, proactive enforcement, community outreach, etc.?

Are there are long-term trends in crime and other workloads that should be addressed through new or additional resources?

(1) Population Growth Trends

- The population of Columbia has been expanding in recent years, as illustrated by the chart below:

Year	Total Pop.	+ / –
2010	108,500	
2011	111,128	
2012	113,277	
2013	115,311	
2014	116,906	
5YR Change	7.7%	
3YR Avg. Growth Rate	1.7%	

- The column on the right, denoted by green bars of different sizes, corresponds to the number of additional residents added from the previous year.
- Overall, while the rate of increase has slowed somewhat since 2010-2011, the City of Columbia expects that the community will continue to grow in the coming years.
- The sustained growth of the city will present impacts to the service needs of the community, which may or may not significantly increase police workloads.



- It is important, to consider that population growth does directly translate to additional workload in a linear manner – ratio-based comparisons are largely misleading.

One of the most significant shifts in population has been the steady increase of housing throughout the downtown area. Several interviews conducted by the project team identified that these are largely occupied by university students, and is likely to result in increased call volume in the area. See the chapter “**Appendix: Reference Maps**” at the end of this report for a map of the current population density of the area.

(2) Major Crime Trends

While violent crime has diminished significantly over the last five years, property crimes have steadily increased over the same time period, as shown in the chart below:

Part I Crimes Reported to the FBI UCR Program, 2009 – 2013

	2009	2010	2011	2012	2013	
Violent Crime	501	530	582	476	416	
Murder and nonnegligent manslaughter	3	3	2	3	5	
Forcible rape	32	37	37	41	67	
Robbery	157	131	166	162	112	
Aggravated assault	309	359	377	270	232	
Property crime	3,906	3,816	4,263	4,221	4,359	
Burglary	692	552	798	784	703	
Larceny-theft	3,082	3,129	3,323	3,294	3,490	
Motor vehicle theft	132	135	142	143	166	
Arson	11	7	16	14	14	
Part I Crimes Per 1,000 Pop.	40.8					
5YR Violent Crime Change						▼ -17%
5YR Property Crime Change						▲ 12%

- It should be noted that the spike in incident totals for the forcible rape category from 2012 to 2013 is primarily the result of a change in the FBI’s definition of the crime for reporting purposes.

- Larceny-thefts have experienced one of the highest rates of increase over the last five years, rising by over 13% by 2013 in comparison to 2009.

Examining the data as a whole, it is difficult to make the case that the increase property is significant. The rising numbers can largely be attributed to spikes in larcenies and motor vehicle thefts in the last year of data. Burglaries, which peaked in 2011, have fallen about 12% in the years since. Robberies, and in particular, aggravated assaults, have seen marked and steady declines, which more reliably points toward longer-term trends.

These findings are particularly evident as the data range is expanded, as well as if the numbers are adjusted for population changes. As a result, it can be concluded that while the number of calls and overall workload handled by patrol units may be increasing each year, the city is not becoming more dangerous on a larger scale.

2. Patrol Unit Workload and Proactivity

The following sections provide an overview of the analysis of community-generated patrol unit workloads and the time available to conduct proactive activities.

(1) Methodology

Our project team has calculated the community-generated workload of the department by analyzing incidents records in the computer aided dispatch (CAD) database within calendar year 2014. For incidents to be included in the results of this process, the following conditions needed to be met:

- The incident must have been unique.
- The incident must have occurred within the specified time period, with a call creation time stamp signifying this.

- The incident must have involved at least one Columbia Police Department patrol officer or Downtown Unit officer (using the unit code naming conventions offered by the patrol watch sheets).
- The incident must have been originally initiated by the community (911 or non-emergency telephone source), as well as a valid call type corresponding to community-generated activity.
- There must be no major data irregularities/issues with the incident's record that would prevent sufficient analysis.

After filtering through the data as listed above, the remaining calls represent the community-generated calls for service handled by the department.

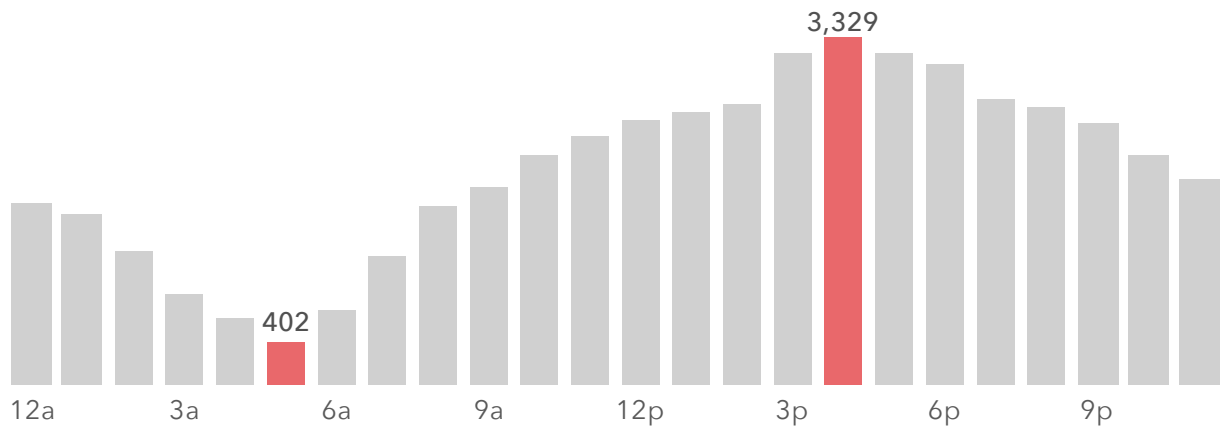
(2) Calls for Service by Hour and Weekday

The following table displays the total number of calls for service handled by patrol units by each hour and day of the week:

Calls for Service by Hour and Weekday

Hour	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
0000	386	167	177	207	185	256	355	1,733
0100	381	147	151	166	174	277	354	1,650
0200	276	99	128	122	153	203	286	1,267
0300	191	82	101	110	93	126	164	867
0400	140	66	78	80	86	78	117	645
0500	91	55	44	50	45	56	61	402
0600	89	111	134	104	97	84	90	709
0700	114	208	183	196	193	187	157	1,238
0800	147	233	287	281	263	289	206	1,706
0900	184	293	262	303	268	336	243	1,889
1000	272	335	322	334	303	350	300	2,216
1100	275	379	301	355	338	369	356	2,373
1200	285	387	370	342	344	406	393	2,527
1300	353	405	383	361	372	391	362	2,627
1400	345	422	363	401	368	429	370	2,698
1500	362	487	428	495	451	534	426	3,183
1600	416	469	443	447	522	574	458	3,329
1700	407	426	450	454	460	509	470	3,176
1800	412	450	451	417	419	483	449	3,081
1900	355	396	374	403	412	422	396	2,758
2000	333	400	371	361	368	422	415	2,670
2100	326	322	341	330	354	409	432	2,514
2200	283	249	275	298	327	375	393	2,200

Hour	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
2300	238	251	229	257	273	345	376	1,969
Total	6,661	6,839	6,646	6,874	6,868	7,910	7,629	49,427



Calls for service vary significantly throughout the day, with the most active hour (5pm) representing approximately 7.7 times the number of calls as the hour with the fewest number of calls (5am).

(3) Most Common CFS Categories

The following table shows the ten most common incident types recorded in the CAD database, as well as the average handling time for the primary unit:

Counts and Average Handling Times of the Most Common CFS Types

Incident Type	# of CFS	Avg. PU HT
911 CHECKS	9,286	12.4
FOLLOW UP	4,434	28.5
LAW ALARM	3,867	15.5
DISTURBANCE	3,439	37.3
SUSP INCIDENT	2,326	24.0
LARCENY	2,300	33.3
CIVIL MATTER	1,508	30.4
PEACE DISTURBANCE	1,396	16.9
TRESPASS SUBJECT	1,325	28.4
HARASSMENT	990	35.2
All Others	18,556	36.4
Total	49,427	28.3

Interestingly, the most common type call for service handled by the department, 911 checks, are often classified as a Priority Level 2 incident, with an average handling time of about 12.4 minutes for the primary unit.

(4) CFS by Month

The table below shows calls for service totals by month, as well as by quarter:

Calls for Service Volume by Month

Month	# of CFS	Qtr. Total
Jan	3,740	11,247
Feb	3,541	
Mar	3,966	
Apr	4,196	13,285
May	4,522	
Jun	4,567	
Jul	4,694	13,336
Aug	4,554	
Sep	4,088	
Oct	4,419	11,559
Nov	3,418	
Dec	3,722	
Total	49,427	

Call for service totals fall sharply during the winter, with an average of 3,605 calls per month occurring from November through February, far less than the overall average for the year. Overall, call activity is about 17% greater in the spring and summer quarters, compared with the fall and spring.

(5) Summary of CFS Workload Factors

Each call for service represents a certain amount of workload, much of which is not captured within just the handling time of the primary unit. The following table presents the various factors which also must be considered, some of which – as a result

of limitations in the measurability of certain workloads – are normative values that have been developed based on the experience of the project team:

Summary of Patrol Workload Factors

Category	Value	Pct.
Total Number of Calls for Service	49,427	
Avg. Primary Unit Handling Time (min.)	28.3	48%
Backup Units Per CFS	0.47	
Avg. Backup Unit Handling Time (min.)	20.4	16%
Reports Written Per CFS	0.33	
Time Per Report (min.)	45.0	25%
Jail Transports/Bookings Per CFS	0.10	
Time Per Jail Transport/Booking	60.0	10%
Avg. Workload Per Call (min.)	58.9	
Total Workload Hours	48,526	

Overall, each call for service represents about 58.9 minutes of workload on average for patrol officers. Primary unit handling time is around half of that time, and at 28.3 minutes per call, is slightly below the typical range for departments.

(6) Patrol Unit Availability and Overall Proactivity

Proactive time is calculated through an analytical approach that examines the community-generated workload handled by patrol units, as well as the current staffing levels of the division, in order to produce a realistic estimation of the department's staffing needs at its targeted service levels. The data required to complete the analysis has been obtained from the computer aided dispatch system and other statistical data maintained by the Columbia Police Department. A number of assumptions have been made in the approach in order to provide an accurate model of patrol workload. The following dot points provide a summary of these factors:

- Proactivity is calculated by subtracting the time spent by units handling community-generated workload from the total actual availability of patrol officers.
- While proactivity needs depend on the community served by the department, between 35% and 50% of the actual time worked in the field by patrol units should be used to handle community-generated workload. The remaining portion of time should be used to conduct proactive patrol and community policing.
- The estimated availability of patrol units is calculated by factoring in all leave, training, overtime, time spent performing administrative functions, and every other impact to actual officer availability from the base authorized staffing figures.
- Proactivity analysis focused only on patrol officers; the activity and staffing of all other functions provided by the department – including all investigative, support, management, and special services – are not included in any of the calculations.
- In some cases, data is not available to exactly represent every aspect of the department covered by the proactivity model. Time spent writing reports when not assigned to a call, for example, based on project team experience.
- The percentage of proactive time available to patrol units is understood as an overall average that varies constantly from day to day.

Overall, the goal of the analysis is to accurately model the ability of patrol units to be proactive given current staffing allocations, and should not be considered a performance measure of how the proactive time is being used. Instead, the analysis ties the workload completed by patrol units to staffing levels in order to provide the opportunity for effective proactive policing. A department should generally target between 35 and 55% as an effective level of overall proactivity.

While the analysis uses data from 2014, when some, but not all shifts were configured in two-person units, proactivity levels have been calculated assuming that *all* shifts use two-person patrol cars in order to best reflect the present reality of patrol proactivity.

Patrol Unit Availability and Overall Proactivity
(Current Schedule, Two-Person Units)

Category	Value
Work Week Length	40
Annual Work Hours	2,080
Total Leave Hours	255
On-Duty Training (hours)	40
On-Duty Court Time (hours)	30
Administrative Time Per Shift (minutes)	90
Total Administrative Hours	228
Net Available Work Hours	1,527
% Net Availability	73.41%
Number of Patrol Officers (Actual)	74
<i>Shifts Using Two-Person Cars</i>	<i>All</i>
<i>Remainders Deployed?²</i>	<i>Yes</i>
Overall Proactivity Level	24.3%








The overall proactivity level of the department, at approximately 24.3%, is relatively low. As a result, officers have very little time to be able to be proactive in their service area and conduct problem oriented policing activities.

(7) Proactivity by Time of Day

Proactivity is not constant throughout a 24-hour period, and it is critical to examine how it fluctuates throughout the day in consideration of how to best allocate and deploy resources. The table below displays proactivity levels in four-hour time blocks, beginning at 0200 hours:

² Corresponds when the number of officers on duty is not an even number. If, for example, five officers are available on a given shift, a “yes” value would mean that three cars are deployed, one of which having only one officer.

Proactivity by Time Block
(Current Schedule; Two-Person Units)

Time Range	Avg. # Ofc.	% Proactivity
0200 - 0600	6.7	67.2% 
0600 - 1000	5.7	-1.0% 
1000 - 1400	5.7	-34.4% 
1400 - 1800	9.9	11.5% 
1800 - 2200	10.6	41.6% 
2200 - 0200	10.9	62.0% 
Overall	8.0	24.3% 

Proactivity levels vary extensively by time of day, ranging from a high of about 67.2% from 0200 to 0600, and well into negative values from 1000 to 1400. These negative values are possible for a number of reasons, including the important distinction that workload involved in a call is credited to the hour in which the call occurred.

However, the ‘extreme’ negative values shown in the table above can largely be attributed to the fact that the workload data analyzed to produce the proactivity numbers was taken from a time when not all patrol units – mainly the day shift – were using two-person patrol cars. As a result, the impact of calls holding does not translate to handling times being pushed back later in the day. In essence, the analysis shows that it is highly likely for calls to hold, as not enough resources are deployed at periods of high workload.

2. Analysis of Beat Structure Effectiveness

Key Areas of Focus:

Is workload equalized among beats?

Are boundaries between beats logical and effective?

Is the beat structure a key focus in decisions regarding patrol deployment?

How is geographic accountability affected by other deployment considerations (e.g., overlapping shift schedules, two-person patrol cars, etc.)?

(1) The Roles of an Effective Beat Structure

The beat structure used for field unit deployment plays a pivotal role in the effectiveness of patrol services. By assigning areas of geographic accountability, officers are able to develop expertise, familiarity, and knowledge at a very local level. This expertise, whether in the form of community contacts, past experience in dealing with particular offenders, or awareness of community dynamics, increases the ability of patrol officers to solve problems within a community.

Geographic accountability is maintained through a combination of factors, including the effectiveness of a beat structure, the role played by supervisors in directing accountability for assigned areas, and staffing constraints which may render a beat structure 'unworkable.'

Proactive capabilities, or rather, the ability of officers to have time available outside of responding to calls to act proactively – are central to determining whether these kinds of problem solving and community policing activities can occur within their areas of responsibility. Assuming that officers are expected to be primarily responsible for handling the calls for service that occur in their beats, it is critical that the workload

levels represented by each beat be relatively equal. Otherwise, as is commonly case in many jurisdictions throughout the country, the ‘busiest’ areas – where proactive policing may potentially have the greatest impact on improving public safety outcomes – often feature the *least* amount of time available for officers to be able to function in a proactive capacity.

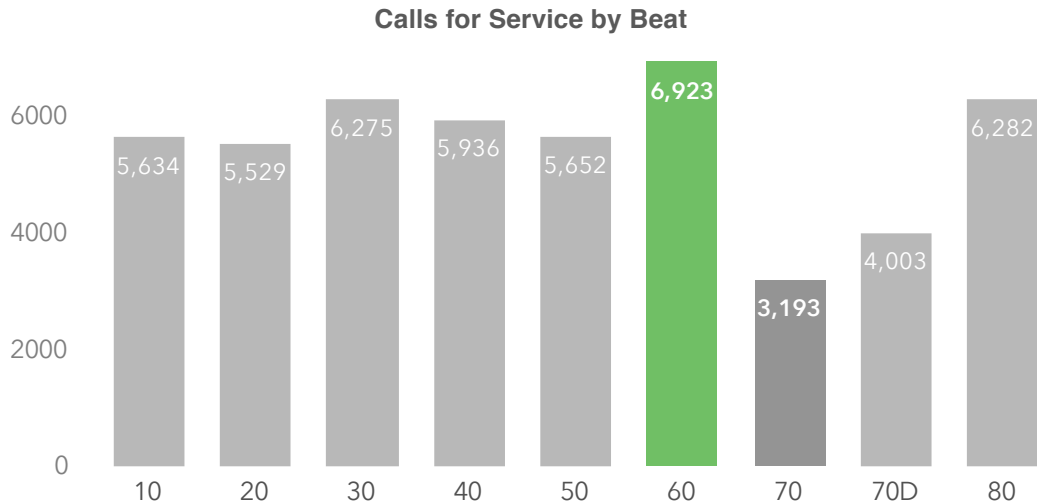
(2) Evaluation of Beat Structure Effectiveness

As a result, analysis of the number of calls handled by each beat is an effective method for assessing the ability of a beat structure to provide for community policing and high levels of service. To determine the distribution of calls for service handled by CPD units among individual beats, the project team mapped the locations of calls for service and totaled the number within each 2beat area.

The following table and chart present the results of this analysis, comparing the totals for each beat to the average for all beats, with 70 and 70D listed separately:

Calls for Service by Beat

Beat	# of CFS	% from Avg.
10	5,634	3%
20	5,529	1%
30	6,275	14%
40	5,936	8%
50	5,652	3%
60	6,923	26%
70	3,193	-42%
70D	4,003	-27%
80	6,282	14%
Total	49,427	—



- Patrol workloads are well-distributed throughout the group, with the vast majority of beats featuring call for service totals that are within $\pm 15\%$ of the group average.
- Beat 70, which has the lowest total, should be viewed in conjunction with beat 70D, the beat with the second-lowest total number of calls.
- Although beat 60 has the highest level of workload, its call activity is not greater by an extensive margin, with a total that is only 26% above the group average.

Overall, the relatively equal number of calls for service and other measures of workload across nearly every beat demonstrates that the beat structure itself is effectively positioned to facilitate proactive capabilities among patrol units. The results of the employee survey also largely expressed positive attitudes toward the current beat configuration, including when prompted on the topic of whether beat boundaries are logical and effective. As a result, there are no significant issues with the *geographic* structure for patrol deployment.

(3) Other Geographic Deployments

One issue that affects the ability of the beat structure to target workloads is the organization of the Downtown Unit. The unit works hours of peak activity in the downtown area of Columbia, represented by beat 70D, and reports to a dedicated sergeant, who is organized outside of the division. In comparison with patrol, there is more of a proactive focus on the unit's activity, including the recent shift toward bike patrol – which is recognized as a highly effective method of patrol and enforcement in areas near college campuses.

While the roles and responsibilities of the unit differ from that of regular patrol units, they are also closely similar. Downtown Unit officers directly respond to calls for service in their area as the primary unit, and in multi-unit responses, their roles do not noticeably differ from those of regular patrol units. To this point, Downtown Unit personnel are frequently coordinated with regular patrol units, and are essentially one 'team' – those responding to calls for service, as well as conducting proactive enforcement activities.

Despite this, units in regular patrol and the Downtown Unit report through different organizational structures, and possess different supervisors than patrol units. While their separation may not present any issues on a day-to-day basis, if personnel are part of the same function area, with similar duties and workloads, it is more effective for them to be part of the same organizational area as well. By reporting through a different supervisory structure, expectations and standards for work will inherently diverge over time. While this may not affect coordination in response to critical

incidents, it does affect the more general coordination of priorities and focuses. Alternatively, without changing the scope of the Downtown Unit's services, relocation within the organization will facilitate coordination and shared priorities between the two units.

Recommendation:

Reorganize the Downtown Unit within the Operations/Patrol division, formally placing the unit under the responsibility of the 2nd Shift Commander position.

3. Analysis of Patrol Unit Deployment

Key Areas of Focus:

What effects does switching to two-person patrol units have on the level of service provided to the community?

Is there a feasible alternative response model that can effectively divert a large percentage of non-emergency calls for service to a non-sworn response capacity?

Is the current process for reviewing patrol reports effective, and how does it affect the field supervision practices?

(1) Analysis of the Advantages and Effects of the Switch to Two-Officer Units

Within the last 16 months, the department has gradually shifted toward the deployment of patrol units in two-person cars. Beginning with the transition of those assigned to the swing shift, the deployment practice is now standardized throughout the entire division. The project team discussed this topic with a number of department officers, supervisors, and managers, gaining input on perceptions of the practice's strengths, drawbacks, and long-term effects of the change to be.

It is clear are a number of advantages to the use of two-person patrol cars, including the following:

- Foremost in importance among the advantages, however, are those relating to officer safety, including the following considerations:
 - Backup is automatically on the scene of the incident should it be needed.
 - In situations featuring rapidly changing dynamics, having additional ‘eyes’ on the scene increases awareness of potential dangers.
- Because officers do not have to wait for backup to accomplish certain tasks that require an additional unit to be present, the handling time required to handle some types of calls for service is decreased as a result.
- As a single patrol unit, some workloads and other activities may be completed simultaneously, such as in the following instances:
 - Two officers can follow-up with citizens on different issues concurrently.
 - A second officer is better able to review information about a call or suspect while in transit than a single officer would be able while driving.

The employee survey echoed the positive impact that two-person patrol cars have on officer safety, with the vast majority of respondents making that indication.

It is also clear, however, that the switch has brought about a number of largely adverse effects on the service levels provided in the field. By reducing the number of units available at any given time, the number of calls that the department can respond to simultaneously, as well as the rate at which calls can be handled, decreases significantly.

In recent months, this has been demonstrated by extensive queues of calls awaiting response by an officer, particularly during the afternoon to early evening hours. While the project team was on-site, call holding queues of up to 30 were observed while in the field, although at other times the number was somewhat smaller. However, it is

difficult to statistically represent this effect with the current export of CAD data as it does not capture the time frame following the switch to two-person cars for all shifts.

Alternatively, proactivity analysis provides a window into evaluating the issue from a standpoint of workload capacity, by evaluating whether or not the calls for service workload is being generated at a greater rate than patrol staffing levels are able to handle at a desired level of service. Given that the proportion of time that officers have available to be proactive versus the time in which they are handling workloads is a measure of this relationship, the impact is expressed directly through these numbers.

The following page contains a comparative analysis of the service levels achieved from deploying two-person patrol units, versus deploying only one-person units. using the same time period and data. The dot points below provide some of the assumptions used in this analysis:

- Patrol proactivity was calculated in the same manner as in the descriptive profile.
- However, refinements have been made to the calculation of primary unit handling time, resulting in a more accurate number.
 - The average primary unit handling time is slightly higher since the change.
 - Consequently, the total number of patrol workload hours is greater, and the overall proactivity level is about 2.4 points lower.
- Because the additional officer in a two-person patrol unit is not recorded as a backup unit, the rate of backup responses has been doubled in the single-person car calculations.
- Similarly, two-person cars potentially increase the efficiency patrol units, which may reduce the amount of the handling time needed to handle certain types of calls for service. Given that this effect is difficult to measure within the exported CAD data, an estimated four minutes have been added to the average primary unit handling time in the single-person car calculations.

Two-Officer Patrol Units

(Current Schedule)

Breakdown of Patrol Workload Factors

Category	Value	Pct.
Total Number of Calls for Service	49,427	
Avg. Primary Unit Handling Time (min.)	28.3	48%
Backup Units Per CFS	0.47	
Avg. Backup Unit Handling Time (min.)	20.4	16%
Reports Written Per CFS	0.33	
Time Per Report (min.)	45.0	25%
Jail Transports/Bookings Per CFS	0.10	
Time Per Jail Transport/Booking	60.0	10%
<hr/>		
Avg. Workload Per Call (min.)	58.9	
Total Workload Hours	48,526	

Patrol Unit Proactivity by Time Block

Time Range	Avg. # Ofc.	% Proactivity
0200 - 0600	6.7	67.2%
0600 - 1000	5.7	-1.0%
1000 - 1400	5.7	-34.4%
1400 - 1800	9.9	11.5%
1800 - 2200	10.6	41.6%
2200 - 0200	10.9	62.0%
Overall	8.0	24.3%

One-Officer Patrol Units

(Current Schedule)

Breakdown of Patrol Workload Factors

Category	Value	Pct.
Total Number of Calls for Service	49,427	
Avg. Primary Unit Handling Time (min.)	28.3	48%
Backup Units Per CFS	0.92	
Avg. Backup Unit Handling Time (min.)	20.4	16%
Reports Written Per CFS	0.33	
Time Per Report (min.)	45.0	25%
Jail Transports/Bookings Per CFS	0.10	
Time Per Jail Transport/Booking	60.0	10%
<hr/>		
Avg. Workload Per Call (min.)	58.9	
Total Workload Hours	48,526	

Patrol Unit Proactivity by Time Block

Time Range	Avg. # Ofc.	% Proactivity
0200 - 0600	12.1	77.1%
0600 - 1000	10.3	34.9%
1000 - 1400	10.3	13.0%
1400 - 1800	18.1	41.2%
1800 - 2200	19.4	59.3%
2200 - 0200	20.0	71.7%
Overall	14.6	47.2%

The findings from this comparison are clear:

- The negative proactivity levels shown in the results of the analysis of two-person patrol cars represents workload that cannot be handled during that time period – this directly translates to calls that are forced to remain holding in queue for often becomes extended time periods.
- With two-person patrol cars, the department is only able to reach an overall proactivity level of about 24.3%.
 - The level is far below the 35-40% range, which represents the minimum level of proactivity that can be considered to be an ‘effective’ level of service.
 - Comparatively, if one-person cars were used across the board – even after adjusting for a backup rate increase of 100% – overall proactivity is projected at about 47%, representing a far higher level of service.
 - **To achieve an overall proactivity level of 40% while mainly deploying two-person patrol cars, the department would need to add 26 additional patrol officer positions³**, without accounting for any new hires of supervisory or support staff that would likely be made necessary as a result.

It is clear that a long-term solution should be planned for in order to resolving the issue, as the significant number of calls pending on a daily basis is not a sustainable practice, particularly regarding the department’s desired relations with the community.

(2) Alternative Response and Deployment Strategies

Alternatively, a 40% level of proactivity could perhaps be achieved by having patrol officers respond to a *much* narrower range of calls.

- In this alternative, the department could either elect to dispatch non-sworn personnel to those incidents, or, given the volume of workload that this would represent, not provide a response at all to lower priority events, such as public nuisance complaints and other quality of life issues throughout the city. The project team will evaluate the number of non-sworn personnel this would take.
- It is unclear, however, that such a change would conform with community expectations for service, or with those of the elected municipal government.

³ The resulting staffing figure assumes that no other changes are made to deployment, the range of incidents that the department elects to respond to, or any other factor which would present an impact on this analysis. The figure does, however, include an adjustment for turnover at 10.7%, the average for CPD officer-level positions from FY12-14.

The following table presents statistics on the most major community-generated incident types that comprise much of the workload handled by patrol units, including the total number of calls, average handling time, total handling time, and percentage of total primary unit workload represented by each:

Top 20 Call for Service Types, by Primary Unit Workload⁴

CFS Category	# of CFS	Avg. HT	Hours	% of Total
DISTURBANCE	3,439	37.3	2,138	9.3%
FOLLOW UP	4,434	28.5	2,105	9.2%
911 CHECKS	9,286	12.4	1,916	8.3%
LARCENY	2,300	33.3	1,278	5.6%
LAW ALARM	3,867	15.5	998	4.3%
SUSP INCIDENT	2,326	24.0	932	4.1%
CIVIL MATTER	1,508	30.4	763	3.3%
VEH COLL./ACCIDENT	1,409	32.1	754	3.3%
ASSAULT	685	56.5	645	2.8%
BURGLARY	587	64.4	630	2.7%
TRESPASS SUBJECT	1,325	28.4	628	2.7%
HARASSMENT	990	35.2	580	2.5%
SHOPLIFTING	612	49.3	503	2.2%
LEAVING SCENE	695	41.8	484	2.1%
FRAUD	736	38.7	474	2.1%
SUICIDAL SUBJECT	439	56.6	414	1.8%
VANDALISM	700	35.1	409	1.8%
PEACE DISTURBANCE	1,396	16.9	393	1.7%
ASSIST CITIZEN (POLICE)	894	25.3	377	1.6%
CHILD ABUSE	306	73.9	377	1.6%
Total – Top 20 Categories	37,934	32.9	16,800	73.1%

Overall, the top 20 call types represent almost three-quarters of all call-related workload handled by patrol units. Notably, however, the vast majority of the call types would generally require a sworn response under present and potentially expanded guidelines for non-sworn personnel. Many require a sworn officer to respond because of

⁴ Includes only calls for service that were *not* handled by CSAs, and as a result, represents additional calls that may be diverted.

the potential for safety issues, such as 911 checks, peace disturbances, and civil matters. Other incident types on the list require a sworn response they involve serious crimes, or because of the high potential for an arrest to be made on-scene, such in calls relating to child abuse, assault, or shoplifting.

With a clear majority of call types, which together account for over 73% of officer workloads, requiring a sworn response, it is not feasible for as much as 40 to 50% of patrol unit workload to be transferred to non-sworn responders, regardless of any staffing level increase. While a complete shift in service delivery is not currently feasible, significant portions of officer workload may nonetheless be diverted to a non-sworn response without sacrificing the service level experienced by the community.

For instance, under a scenario in which the following call types are diverted to a non-sworn response: vehicle collisions/accident, harassment, fraud, vandalism, as well as 90% of burglaries (assuming cold burglaries, as opposed to in-progress or just-occurred), and 35% of follow-ups; patrol workload would be reduced markedly. In total, 3,521 hours that patrol units would otherwise be handling, or 15.3% of their overall workload, would be diverted to an alternative response capacity. At that level, the service level provided by patrol would be greatly enhanced, freeing officers up to conduct proactive policing, and/or enabling two-person units to be deployed without generating queues of waiting calls.

To determine the number of additional CSA positions that would be necessary to achieve the 15.3% level of call diversion, the patrol unit staffing model may be adapted with the following changes in order to reflect both the types of calls being handled, as well as the different availability factors that would be present for non-sworn units:

- Instead of estimating that 33% of calls generate an added 45 minutes of time for report writing as in the patrol officer staffing calculations, the analysis for CSAs assumes that 80% of calls generate an additional 30 minutes of workload.
 - The change equates to an increase of 60% more time spent writing reports on average per call.
 - This is due to the types of calls that CSAs typically handle and the related assignments that must be completed in conjunction.
- Instead of determining staff needed based on a proactivity target, the model will target a utilization rate of 70%, which represents the time spent responding to calls and completing other call-related workloads.
- Turnover is estimated at a relatively higher rate, placing it at 10% per year.
- It is assumed that non-sworn units would have half the number of administrative hours, and no time in court.

The following table presents the results of these calculations, given the modifications to availability and workload factors:

Non-Sworn Field Staff Needed to Achieve a 15% Level of Call Diversion

Category	Value
Net Available Hours Per Position	1671
Total Handling Time	3521
Total Additional Call-Related Time	2,600
<i>Total Workload</i>	<i>6,121</i>
Target Utilization Rate	70%
Turnover Rate	10%
Additional CSA Positions Required	6

Given these factors, an additional six CSA positions are required to achieve a 15% level of call diversion, significantly freeing up time for sworn patrol units without sacrificing the level of service provided to the community.

Recommendations:

- **Hire six (6) additional CSA positions over the next three years as funding permits to handle low-priority, non-emergency calls for service that do not require the capabilities of a sworn officer.**
- **Restructure the roles of CSA positions, expanding the range of calls for service they handle. Individual assignments of CSAs should be oriented as 'generalist' roles, rather than being given specific focus areas.**

(3) Report Review and Supervision

Detective sergeants are currently responsible for reviewing all reports written by patrol officers, reducing their ability to maintain case management practices and supervise investigators. However, the change enables patrol sergeants to be out in the field significantly more and spend far less time on administrative tasks than they would otherwise. Despite the increased time that patrol sergeants are able to spend in the field, important to consider how the change may affect the effectiveness and completeness of the first-line supervision functions they provide.

Given that report writing represents a major part of the workload handled by officers— occupying up to 20% of the time they spend on-duty – their ability to do so effectively is consequently a significant part of their ongoing training, development, and overall performance as patrol officers. Because of this, the review of officer reports is one of the foremost supervisory functions that must be performed. As a result, the transfer of this responsibility to detective sergeants means that to some degree, patrol officers have two supervisors, as first-lieutenant supervisory duties for day-to-day work has been split among two parties. Supervision and review of their work in the field is handled by patrol sergeants, while administrative work is reviewed by detective sergeants.

By increasing the complexity of reporting relationships, the organizational structure becomes less defined, which in turn reduces the importance of supervision and review. Under this system, for patrol sergeants to be able to proactively identify training needs among their officers relating to report writing, they must first communicate and coordinate with at least one detective sergeant – a position that does not have a formal reporting relationships with patrol officers. Additionally, because patrol sergeants do not have responsibility for the quality of reports that are written by their officers, the focus of their field management and supervisory decisions, is inherently shifted away from emphasizing that part of their workload, and toward the areas that they *are* responsible for.

It is critical for sergeants to have defined, clear roles within the organizational structure, and that they retain full responsibility for managing the personnel assigned to them. Given the number of issues that result from detective sergeants being responsible for reviewing patrol reports in diminishing the role of sergeants as first-line supervisors, it is clear that the practice should be discontinued.

Recommendation:

Discontinue the practice of detective sergeants being responsible for reviewing reports written by patrol officers, and instead transfer the responsibility back to patrol sergeants.

6 Shift Schedule Analysis and Alternatives

Key Areas of Focus:

Is the current shift schedule effective in allocating patrol staffing resources against peaks in community-generated workload levels?

What are the ideal characteristics of a shift schedule?

Are there opportunities to implement alternative shift schedules to improve the efficiency of patrol deployment?

1. Assessment of the Current Shift Schedule

The current shift schedule followed by the department is a 12-hour configuration featuring one day with three 8-hour shifts in order to align the schedule to a standard 40-hour workweek. The addition of two swing shift teams (with one working at a time) provides additional resources during hours of increased workload, coming on-duty at 1500 Monday through Saturday. The table below shows the current shift schedule for patrol:

Patrol Shift Schedule (Current)

Monday – Saturday

Red	First Shift	0600 - 1800
	Second Shift	1500 - 0300
	Third Shift	1800 - 0600
Blue	First Shift	0600 - 1800
	Second Shift	1500 - 0300
	Third Shift	1800 - 0600

Sunday

Red	First Shift	0600 - 1400
	Second Shift	1400 - 2200
	Third Shift	2200 - 0600
Blue	First Shift	0600 - 1400
	Second Shift	1400 - 2200
	Third Shift	2200 - 0600

Personnel assigned to any of the Monday through Saturday shift teams work the corresponding Sunday shift displayed in the second group of rows.

Given the effect of deploying two-person units on the ability of patrol units to respond to the same number of calls for service within a given timeframe, it is key that for the purpose of evaluating current and alternative shift schedules, that it be assumed all patrol cars are deployed as single-officer units. Two-person unit deployment represents a separate consideration, despite the ability of some shift configurations to deploy two-person units without significantly reducing service levels.

Using the same period of CAD data displayed in the patrol workload analysis, the following table provides proactivity levels in four-hour blocks, displaying the ability of the shift schedule to handle patterns in workload if all patrol cars be deployed as single-officer units:

Deployment and Proactivity by Time⁵
(Current Schedule, One-Person Patrol Units)

Time Range	Avg. # Ofc.	% Proactivity
0200 - 0600	12.1	77.1%
0600 - 1000	10.3	34.9%
1000 - 1400	10.3	13.0%
1400 - 1800	18.1	41.2%
1800 - 2200	19.4	59.3%
2200 - 0200	20.0	71.7%
Overall	14.6	47.2%

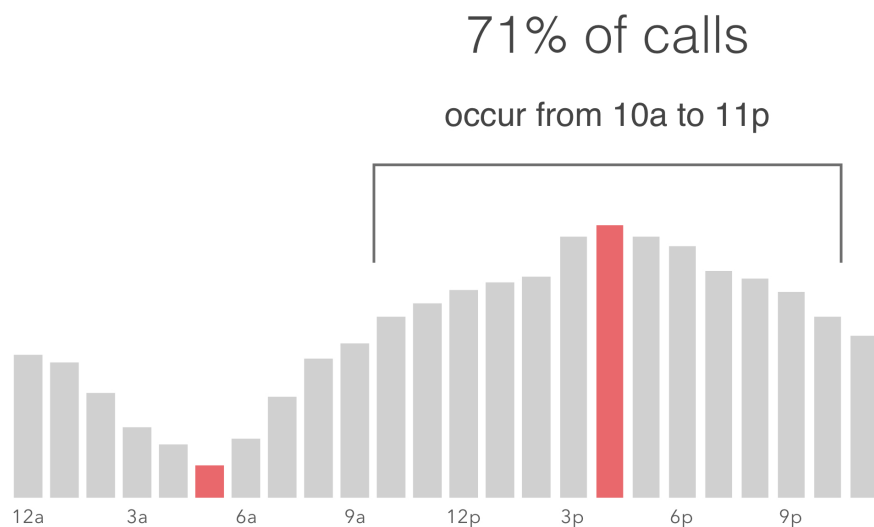
As shown in the table above, it is clear that officers are personnel resources are not deployed effectively against trends in workload, as too few staff are deployed during

⁵ *Note:* The numbers displayed above reflect the *estimated* increases to backup rate and primary unit handling time as part of the analysis of one-officer versus two-officer units. The schedule alternatives presented in this chapter, however, do *not* reflect these differences in assumptions, and instead reflect the actual results from the analysis of CAD data.

certain periods of high workload. This is demonstrated by proactivity levels reaching as low as 13.0 to 34.9% throughout the morning to early afternoon hours, while proactivity levels during the evening and night far exceed the 35-45% target range for effective patrol services. From this analysis, it is clear that critical issues exist within the current deployment schedule that should be addressed.

(1) Shift times and staffing levels are not effectively aligned to variations in call volume throughout the day.

- It is critical to use patterns in call volume and other workload, statistics as a guide to assign start and stop times for shifts.
 - For instance, the vast majority of calls occur over a fairly well-defined 13-hour period, as illustrated by in the chart below showing calls for service by hour:



- In general, it is evident that too many patrol units are deployed during times when workload is low, such as the nighttime and early morning hours.
 - Although call volume starts picking up rapidly at around 8am, the current day shift starts two hours earlier. As a tradeoff, it is unable to extend into the higher-volume hours that immediately follow the end of the shift.
 - Although it is not the case in the current shift schedule, given the relatively low call activity between 3am and 8am, there is virtually no benefit to scheduling overlapping shifts during that time period.

- From these considerations, it is clear that in potential 10 and 12-hour schedules with three shifts, the night/graveyard shift should be assigned no higher than the number of officers needed to maintain officer safety targeted response capabilities, as it would be supported by a swing/power shift during its busiest hours.

As a result of these factors, late morning and early afternoon hours feature inadequate resources to deal with the volume of incoming calls for service. This issue is currently exemplified by long queues of calls waiting throughout these hours, as workloads become too high for the call handling capacity of deployed patrol units.

(2) Likewise, the deployment schedule does not effectively match trends in call volume by day of week.

- On Thursday, Friday, and Saturday nights from 9pm to 3am, patrol workload is approximately *41% greater* than on other nights.⁶ Critical incidents are also more likely to occur.
 - Despite this, the nights with substantially greater workloads do not feature significantly increased staffing levels to handle the additional calls.
 - Given the increased occurrence of critical incidents, having augmented resources available to allow for improved backup capabilities is an important consideration.
- Although daytime workload is somewhat higher on Saturdays, morning and afternoon call volumes do not vary extensively throughout the rest of the week.
 - Because the afternoon and early evening hours represent such an extensive proportion of the total workload handled by patrol, the shift schedule should be designed in large part around matching resources to that time period.
 - While a swing shift end time of 0300 is optimal for Thursday, Friday, and Saturday night call volumes, it would not be particularly efficient for handling the typical workloads of other nights of the week. Granted, it would be difficult to have variable start times for the same type of shift (e.g., ‘nights’ or ‘days’).

⁶ Includes backup unit workload. Calculated as the number of total hours of workload.

(3) The altered eight-hour shift schedule on Sundays presents a number of issues.

- The Sunday schedule may amplify any issues with officer fatigue by occasionally causing officers to be scheduled to work for more days consecutively than they would otherwise.
- Furthermore, scheduling Sunday as a biweekly work day for officers lowers the number of weekend days that officers have off – a concern that was commonly identified among line-duty staff throughout the employee survey, ride-alongs, and other interviews conducted as part of the study.
- Given the previously discussed inefficiencies with day shift start times, and given the relatively flat distribution of staff by team, it is evident that the altered Sunday is comparatively less effective than the normal shift schedule.

From these considerations, there is a clear need to reconfigure the shift schedule in order to improve not only the efficiency of patrol deployment, but to address a number of other issues as well.

2. Objectives in Configuring a Shift Schedule

Designing an effective shift schedule critical to the effectiveness of patrol services. Shift configurations should be viewed as a tool to match staffing resources against workload levels and crime patterns.

As a result, in order to provide for the most effective deployment of patrol units, the following objectives must be met in designing an alternative shift schedule:

(1) Deployment Optimization

The schedule should ensure that patrol units are deployed efficiently against patterns in community-generated workload levels, assessed against the following standards:

- No overall four-hour time blocks with under 40% proactivity.
- Relatively few individual hours or days with four-hour time blocks with under 30% proactivity.

- Minimal or no hours that have under 10% proactivity.

By utilizing all three considerations of the same metric in the assessment, the efficiency and effectiveness of the schedule is evaluated from multiple perspectives – ensuring that performance is maintained at overall, general, and specific levels.

(2) Officer Safety and Response Capabilities

- In order to ensure officer safety and maintain an ability to respond effectively to critical incidents, no fewer than 11 officers should be scheduled to work at any one point throughout the day. After factoring in leave and other net availability factors, this equates to at least 8 officers on-duty.
- For officer safety concerns, as well as ability to handle expected workloads, on Thursday, Friday, and Saturday nights until 0300 hours, no fewer than 18 officers should be scheduled to work. After factoring in leave and other net availability factors, this equates to at least 12.8 officers on-duty.

(3) Feasibility

- The schedule should be workable and realistic for officers – fatigue should be minimized, and quality of life considerations should be furthered when possible.
 - For *eight-hour* shifts, officers should not be regularly scheduled to work for more than *five* days in a row.
 - For *ten-hour* shifts, officers should not be regularly scheduled to work for more than four *days* in a row.
 - For *twelve-hour* shifts, officers should not be regularly scheduled to work for more than *three* days in a row.
 - While the effectiveness of a shift schedule is the foremost concern in the analysis, officer concerns – such as distributing the number of weekend days off among all staff – should be addressed when opportunities exist to do so without sacrificing officer safety and service level objectives.

It is worth noting that outside of the efficiency and effectiveness area of focus, the criteria were not assessed or used with any form of weighting or scoring system.

In summary, the project team developed three alternative shift schedules around three major areas of concern, as outlined above: providing effective proactivity levels at all times and days of the week, ensuring officer safety and maintaining response capacity, and creating a schedule that is workable, and as possible, one that is appealing to officers.

3. Methodology and Assumptions Used in Developing Alternatives

The analysis provides for the following assumptions to be made in determining the effects of each shift schedule:

- For the proactivity calculations, it is assumed all patrol units are deployed as one-person cars. Recommendations will be made for each schedule configuration on how two-person patrol units can be incorporated and deployed effectively.
- No schedules were considered that leave below an average of 8 patrol units on-duty at any time, after absences due to leave and other factors impacting net availability have been factored in.
- All schedules follow an 80-hour biweekly workweek.
 - For 12-hour shift schedule alternatives, an explanation is provided in the section “**Management and Modification Considerations**” on how officer on-duty time should be managed in order stay within these guidelines.
 - Although the 12-hour schedules display seven shifts for every two weeks (a total of 84 hours), net availability has been adjusted in those instances so that the results are congruent with the 80-hour biweekly pay period, and as a result do not overestimate on-duty hours.

4. Analysis of Shift Schedule Alternatives

The following pages present the three most effective shift schedule configurations developed by the project team. Using the same variables for net availability and workload, the results of each schedule on officer proactivity are displayed at various time ranges, as well as on an overall level:

Alternative A 8-Hour Shift Schedule (With a 12-Hour Power Shift)

- Three 8-hour shifts and one 12-hour power shift running from Thursday to Saturday/Sunday in the evenings.
- Performs very well against workloads, while also maintaining an average of at least 10.7 units to be available and on-duty for each overall four-hour time block.
- On the 12-hour shift, sergeants will need to manage officers' time (through staggered 'early ins'/'early outs', amounting to two hours per officer per week) to ensure that they do not go over the 80-hour threshold for each biweekly pay period.
- In the diagram below, personnel working 8-hour shifts are shown without dedicated assignments, although each officer is only actually working five shifts per week.
- Allows for an average of **13.9 to 18.1 officers to be available and on-duty for Thursday and Friday evenings and nights** (varying by hour) until 0300 hours, with an additional 4 to 6 officers on-duty for Saturday nights.
- The following page contains a mirrored version of this schedule that shows personnel assigned to fix work schedules, as well as the results of the configuration.

Scheduled Workdays (Generalized; Assigned by Shift)

Shift	Start	End	# of Ofc.	Week 1							Week 2							Week 3							Week 4						
				S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa
Day	1100	1900	28																												
Evening	1900	0300	21																												
Night	0300	1100	19																												
Power	1500	0300	6																												

The same schedule is presented below, except with personnel assigned to fixed work schedules, rather than generalized shift teams. It should be noted that sergeants would not be attached to fixed teams in the same manner as officers, and would work the 'generalized' shifts shown previously.

Scheduled Workdays (Detailed Officer Assignments)

Shift	Start	End	# of Ofc.	Week 1							Week 2							Week 3							Week 4						
				S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa
Day	1100	1900	9																												
	1100	1900	10																												
	1100	1900	9																												
Evening	1900	0300	9																												
	1900	0300	6																												
	1900	0300	6																												
Night	0300	1100	6																												
	0300	1100	7																												
	0300	1100	6																												
Power	1500	0300	6																												

Time	Avg. Units	Overall Proac.	S	M	T	W	Th	F	Sa
0200 - 0600	10.7	78%	68%	84%	83%	82%	81%	78%	75%
0600 - 1000	10.0	62%	72%	58%	52%	52%	58%	57%	76%
1000 - 1400	13.5	53%	58%	45%	46%	47%	49%	47%	65%
1400 - 1800	16.5	49%	53%	40%	37%	36%	51%	45%	66%
1800 - 2200	14.3	49%	49%	38%	39%	43%	50%	46%	65%
2200 - 0200	13.4	61%	61%	64%	65%	58%	63%	57%	56%
Overall	12.9	57%	60%	54%	52%	52%	58%	53%	67%
# of Hours < 30%		1	0	0	0	1	0	0	0
# of Hours < 10%		0	0	0	0	0	0	0	0

Alternative B 12-Hour Shift Schedule (With a 12-Hour Power Shift)

- Performs exceptionally well overall, with only minor weaknesses occurring at certain individual hours.
- Reduces the number of teams needed down to five total, simplifying supervision and shift management.
- Allows for an average of **14.7 to 20.3 officers to be available and on-duty for Thursday, Friday, and Saturday evenings and nights** (varying by hour) until 0300 hours.
- Rotating/inconsistent workdays for officers, despite receiving a number of weekends off (depending on shift assignment).
- Sergeants will need to manage officers' time (through staggered 'early ins'/'early outs', amounting to two hours per officer per week) to ensure that they do not go over the 80-hour threshold for each biweekly pay period.

Shift	Start	End	# of Ofc.	Week 1							Week 2							Week 3							Week 4						
				S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa
Day A	0800	2000	21																												
Day B	0800	2000	21																												
Night A	2000	0800	12																												
Night B	2000	0800	12																												
Power	1500	0300	8																												

Time	Avg. Units	Overall Proac.	S	M	T	W	Th	F	Sa
0200 - 0600	9.1	74%	62%	80%	81%	81%	77%	76%	68%
0600 - 1000	11.5	67%	76%	65%	64%	64%	65%	65%	71%
1000 - 1400	14.7	57%	64%	53%	56%	57%	56%	54%	56%
1400 - 1800	16.5	50%	51%	43%	49%	42%	56%	50%	57%
1800 - 2200	13.9	50%	36%	33%	46%	40%	58%	54%	55%
2200 - 0200	10.8	54%	43%	51%	60%	50%	60%	60%	51%
Overall	12.9	57%	56%	53%	58%	55%	61%	58%	59%
# of Hours < 30%		7	3	2	1	1	0	0	0
# of Hours < 10%		0	0	0	0	0	0	0	0

Alternative C

12-Hour Shift Schedule (With a 10-Hour Power Shift)

- Alternative version of the previous schedule, using a 10-hour power shift.
- Performs exceptionally well overall, with only minor weaknesses occurring at certain individual hours.
- Allows for an average of **14.7 to 20.6 officers to be available and on-duty for Thursday, Friday, and Saturday evenings and nights** (varying by hour) until 0300 hours.
- Also allows for an average of at least 14.7 officers to be working each day throughout the afternoon and evening.
- As in the previous schedule alternative, for the 12-hour shifts, Sergeants will need to manage officers' time (through staggered 'early ins'/'early outs', amounting to two hours per officer per week) to ensure that they do not go over the 80-hour threshold for each biweekly pay period.

Shift	Start	End	# of Ofc.	Week 1							Week 2							Week 3							Week 4						
				S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa	S	M	T	W	Th	F	Sa
Day A	0800	2000	21																												
Day B	0800	2000	21																												
Night A	2000	0800	12																												
Night B	2000	0800	12																												
Power	1700	0300	8																												

Time	Avg. Units	Overall Proac.	S	M	T	W	Th	F	Sa
0200 - 0600	9.2	75%	62%	80%	81%	79%	81%	77%	69%
0600 - 1000	11.5	67%	76%	65%	64%	64%	65%	65%	71%
1000 - 1400	14.7	57%	64%	53%	56%	57%	56%	54%	56%
1400 - 1800	15.5	46%	51%	43%	43%	46%	47%	40%	49%
1800 - 2200	14.9	52%	36%	33%	35%	61%	59%	55%	56%
2200 - 0200	11.7	57%	43%	51%	54%	57%	69%	61%	52%
Overall	12.9	57%	57%	53%	54%	60%	62%	57%	58%
# of Hours < 30%		7	3	2	1	0	0	1	0
# of Hours < 10%		0	0	0	0	0	0	0	0

6. Management and Adjustment Considerations

Adaptations to deployment and scheduling will be needed to adopt the twelve-hour shift schedules into the standard 40-hour workweek, in addition enabling the strategic deployment of two-person units to be prioritized. The following sections detail how these various issues and considerations can be managed effectively.

(1) Workweek Management

The current shift schedule worked by patrol units is able to do so by assigning officers work three days per week, with one 8-hour shift every two weeks. By contrast, each of the 12-hour schedules outlined previously account for exactly seven 12-hour shifts per biweekly pay period, or 84 hours in total biweekly⁷. In these configurations, officers alternate working three and four days per week.

As a result, adjustments need to be made to ensure that officers work only 80 hours per week in order to avoid the significant costs associated with built-in overtime hours, as well as any potential issues associated with officer fatigue. The most effective way of addressing these concerns – when *more* hours are scheduled for officers to work than their workweek specifies – is to alternate ‘early in/early out’ units.

Under this strategy, sergeants are tasked with assigning officers on individual shifts to either begin their shift a number of hours early, or to end their shift a number of hours late. In order to maximize coverage, these assignments should be staggered as much as possible. For an individual 12-hour shift team with 14 officers, for example, the assignments may be made in either of the following ways:

⁷ Only for the teams that follow 12-hour shift schedules. In the 12/10-hour mixed schedule, these modification needs do not affect the two 10-hour shift teams.

- For each 12-hour shift shift, **one** officer would start working **four** hours late, and one would officer stops working four hours early.
- Alternatively, for each 12-hour shift, **two** officers would start working **two** hours late, and two officers would stop working two hours early.

Because there would be seven shifts per week, on average, one-seventh of a shift team must work four hours less than normally scheduled on a workday. Because of leaves, extended notice to officers on the days that they will be working fewer hours cannot necessarily be an expectation.

It should be noted that the effects of these issues on officer availability have been reflected in the calculations of each schedule's performance against expected workloads. Additionally, it is worth noting that this issue affects only the teams working 12-hour schedules – 8 and 10-hour shift teams can work their hours as scheduled.

(2) Potential Strategies for Deploying Two-Person Patrol Cars

It is difficult to apply a single guideline for the deployment of two-person units, as staffing resources will typically vary from night to night. Despite this variance however, it can be assumed that the targeted level of patrol coverage remains the same for a given time and day, regardless of how many officers are actually on-duty. As a result, the ability of the department to deploy two-person units should vary accordingly with respect to the number of officers that are on-duty at that time.

If we assume that patrol units should maintain a proactivity levels of 40% across all times and days of the week, the following resources are needed at each time:

Number of Patrol Units Needed to Achieve a 40% Level of Proactivity
(All Shift Schedules)

Hour	Sun	Mon	Tue	Wed	Thu	Fri	Sat
0000	17	8	8	12	9	11	16
0100	17	7	8	9	9	12	16
0200	13	6	6	7	8	11	16
0300	11	5	5	6	4	6	7
0400	7	4	4	4	5	5	6
0500	5	3	2	3	3	3	4
0600	5	6	7	5	5	5	5
0700	6	10	8	9	9	9	7
0800	7	11	14	13	13	12	9
0900	9	14	13	15	13	15	13
1000	13	16	15	15	14	15	14
1100	12	17	15	16	15	16	17
1200	12	17	17	15	16	18	16
1300	15	18	18	16	17	17	17
1400	16	22	17	18	17	19	17
1500	16	20	20	23	20	24	21
1600	19	21	22	21	24	26	20
1700	20	19	22	22	20	22	22
1800	19	21	21	17	19	21	19
1900	17	17	16	17	17	18	17
2000	16	18	18	16	18	18	17
2100	16	15	14	14	16	18	19
2200	15	13	12	13	15	16	18
2300	12	13	10	12	12	15	18

Of course, officers cannot be deployed in the manner illustrated in the chart above – shifts are many hours long, and minimum numbers of staff should be on duty at certain times in order to maintain officer safety and response capabilities. However, the results of this analysis can be used as a guide for when two-person units may be deployed. While the ability to do so depends on the shift schedule followed, the table provides a general guide for the basic threshold of officers, where if any additional units are present, those may be deployed as two-person cars without sacrificing service level capabilities or patrol coverage.

Given these factors, it is clear that 8-hour shifts provide the greatest ability to deploy two-person units, as it is easier to dedicate smaller periods of time to two-person

assignments. To this point, it is less likely that patrol coverage will eventually become insufficient over the shift period for the volume of workload that is being generated that day. Overall, however, it is also evident that swing shifts represent the most significant opportunities to deploy two-person units, and that additional resources should be focused during those time periods as much as possible, in order to handle the elevated activity levels of calls for service, crimes, and other workload factors. These units should be deployed in the areas where activity is most highly concentrated, considering both call for service and crime concentrations. See “**Appendix: Reference Maps**” for hot spot analysis maps for both types of activity concentrations.

Recommendations:

- **Discontinue the deployment of two-person patrol cars across entire shifts.**
- **Two-person cars should be deployed based on the number of patrol personnel on-duty for a particular shift. Any units on-duty beyond the threshold number of officer needed to achieve targeted coverage levels, based on patterns in community-generated workload, should be deployed as two-person units in areas with the highest levels of call activity.**

7. Comparison and Evaluation of Shift Schedule Alternatives

Overall, the core objectives in configuring alternative shift schedules were the following:

- **Deployment Optimization:** The schedule should ensure that patrol units are deployed efficiently against patterns in community-generated workload levels.
- **Officer Safety and Response Capabilities:** In order to ensure officer safety and maintain an ability to respond effectively to critical incidents, the schedule must ensure that minimum staffing levels – set variably by hour and day of week – are regularly met.

- **Feasibility:** The schedule should be workable and realistic for officers. Fatigue should be minimized, and quality of life considerations should be facilitated when possible.

All three proposed shift schedules offer improved abilities to address each of the three concerns. Staffing levels are improved at key times of high-activity, such as late evenings and nights Thursday through Saturday, as well as the late morning and early afternoon hours throughout the week. To varying degrees, the three schedules provide for better ‘workability’, and enable officers to take more weekend days off without sacrificing service levels or officer safety.

(1) Comparison of Shift Schedule Options

Through the results of the proactivity analysis, is clear that there are a number of advantages and disadvantages to each schedule option. While one schedule may perform particularly better at certain times of the day, for instance, another may have better overall coverage, or could have fewer ‘weak points’ over the entire week. Proactivity calculations allow for the workload at a given time or day to be measured against the staff available to handle it, proving to be an effective tool in evaluating the effectiveness of shift schedules.

The table located on the following page presents a comparison of the performance of each schedule, as well as the basic factors of configurations, among other important considerations:

Comparison of Shift Schedule Alternatives

	Alternative A 8-Hour Schedule	Alternative B 12-Hour Schedule (First Version)	Alternative C 12-Hour Schedule (Second Version)
Description			
Type	Staggered 8hr w/ 12hr power shift	12hr w/ 12hr power shift	12hr w/ 10hr power shift
# of Shift Types	Four	Three	Three
# of Teams	Shift assignments	Five	Five
Work Period	80 hours biweekly	80 hours biweekly	80 hours biweekly
Rotation Period	Two weeks	Four weeks	Four weeks
Deployment Optimization			
0200 - 0600	78%	74%	75%
0600 - 1000	62%	67%	67%
1000 - 1400	53%	57%	57%
1400 - 1800	49%	50%	46%
1800 - 2200	49%	50%	52%
2200 - 0200	61%	54%	57%
# of Hours < 30%	1	7	7
# of Hours < 10%	0	0	0
Safety / Response Capabilities (2000 - 0300)			
# of Ofc. Scheduled: Thu/Fri/Sat Nights	15-20 (varies)	20	20
# of Ofc. Scheduled: Other Nights	17-24 (varies)	12+	12+
Feasibility / Misc. Factors			
Weekend Days Off	Very few; some teams	Yes; all teams	Yes; all teams
Regular Sergeants	No	Yes	Yes
Early In/Out Cars	One shift only	All shifts	All shifts

(2) Advantages of the 8-Hour and 12-Hour Options

Because the two 12-hour shift schedules are highly similar in both their configuration and performance, it is best to first decide between the 8-hour and 12-hour options in general, rather than weighing all three against each other simultaneously.

The 8-hour shift schedule possesses a number of ideal characteristics – it provides for a detailed deployment structure, does not require much management (i.e., no ‘early in/out’ cars), and no four-hour time period has less than 49% proactivity, assuming that all officers are deployed in one-person patrol cars. In fact, the 8-hour schedule is a more consistently performing schedule overall, averaging about only one hour per a weeklong period having below 30% proactivity. Furthermore, the schedule also involves a relatively simple rotation period that repeats every two weeks, rather than four.

A number of other factors must be considered in balance with this, however – officers are regularly assigned to the same sergeants, and do work with the same officers throughout the entire duration of their shift, potentially impacting coordination at times. While it is true that court time affects officers in 8-hour shift schedules somewhat less, the tradeoff would be having to work a five-day workweek.

By contrast, the 12-hour shift schedules retain almost all of the advantages of the 8-hour configuration, while both exceeding its performance in some areas, and possessing a number of additional benefits. Morning and early afternoon hours receive largely better coverage, and the hours from 1800 to 2200 are about equal in officer proactivity levels. More units are also available to be deployed on weekend nights – a key concern in designing the schedule alternatives, given the increased call workloads and potential for critical incidents. In total, however, both 12-hour options contain seven hours over a

weeklong period where proactivity falls below 30% – compared with just one such instance in the 8-hour shift schedule.

Despite these shortcomings, however, it is evident that these advantages are not major when examined on an individual basis – there is not a single category where the performance of the 8-hour schedule is significantly greater than the 12-hour option. To this point, in the more qualitative aspects of shift schedule effectiveness – the effectiveness and organization of first-line supervision, officer quality of life, and so forth – the 12-hour shift schedules stand far ahead of the 8-hour alternative. ahead of the 8-hour option.

As a result, it must be concluded that on an overall level, the 12-hour schedules better accomplish the objectives of shift configuration – in regards to deployment optimization, officer safety and response capacity, and schedule workability factors – while also more being relatively more in line with the feedback and concerns raised by officers.

The two 12-hour schedules are very similar, with any differences between the two being relatively minor. However, is clear that the second option, featuring regularly workdays for all officers, presents a significantly more workable schedule than the first alternative. Given these concerns, Alternative C is the most effective shift schedule option of the three, and should be implemented by the department.

Recommendation:

Transition to Alternative C, the 12-hour shift schedule featuring a 10-hour power shift, outlined within the report. The configuration features 21 officers deployed on each day shift, 12 on each night shift, and 8 on the swing shift (*a breakdown of approximately 60% – 30% – 10% between the three shift types*).

(3) Assignment of Officers as Changes in Staffing Levels Occur

The following section assumes that Alternative C is chosen and implemented – the 12-hour shift schedule featuring a single 10-hour power shift.

Because the scheduling analysis is based on a fixed staffing level of 74 officers being assigned to core patrol functions, including K9 units, it is necessary to project how any additional resources should be allocated beyond those numbers. Using this baseline assumption, however, it was possible to determine the optimum balance of officers by team in order to provide the highest level of effectiveness, officer safety, and response capabilities by time of day and day of the week. As a result, whenever the total number of officers available changes periodically throughout the year, the number of officers that should be assigned to each team changes as well. However, the proportion of officers that should be assigned to each team in order to achieve the ‘balance’ does not change – regardless of the overall the staffing level, the same percentages of this number should be distributed to each team.

The table below provides the exact numbers needed on each team to achieve this balance, representing the most optimal deployment of officers on patrol.

Recommended Shift Team Assignments by Total Staffing Level
(Schedule Alternative C)

Team	%	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
Day A	30%	21	21	22	22	23	23	24	24	25	25	25	25	25	26	26	27	27	27
Day B	30%	21	22	22	23	23	24	24	25	25	25	25	25	26	26	27	27	27	27
Night A	15%	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	14
Night B	15%	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	14	14
Power	10%	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9

- An overall staffing level of 74, highlighted in the table above, represents the baseline number of officers used in the scheduling analysis.

- Overall, around 30% of officers are deployed on each day shift, with another 15% on each night shift, and the remaining 10% on the power shift.
- Some special considerations were used in allocating staff at each additional level, using the following guidelines:
 - Day shift staffing numbers were increased to 25 on each team before officers were added to any of the nighttime or power shifts.
 - For each shift type, the “B” shift teams received an additional officer before “A” teams.
- As before, neither FTOs or those in the hiring process count toward the assignment numbers, while those on extended leaves of absence (e.g., military leave) *do* count toward the numbers (although discretion should be used in those instances).

Particularly in the initial stages of adding officers beyond 74, it is key that daytime shift staffing be focused on first, as the degree to which proactivity could be improved by increasing deployment levels so outweighs the significance of any issues associated with response capabilities on the nighttime and power shifts. With twelve officers assigned to each night shift at the baseline staffing level of 74, these concerns have largely been provided for – while issues stemming from calls pending and limited opportunity for proactivity may still present themselves during the daytime hours.

7 Analysis of Criminal Investigations

Key Focus Areas:

Are investigative units staffed appropriately?

Are the active caseloads of investigations appropriate for the types of cases they are assigned?

How are cases managed in the investigative units? How can the case management process be improved?

How is the performance of proactive investigative units reviewed?

This chapter is focused on the various criminal investigative functions of the Columbia Police Department. These functions include the Criminal Investigation Division, Vice and Narcotics Unit, and the Street Crimes Unit.

The chapter is broken down into a number of sections, each focusing on a major area of investigative service delivery. In each case, the project team evaluates staffing and any management issues that were discovered as part of the staffing study. The first section summarizes the allocation of responsibility among investigative units.

1. THE COLUMBIA POLICE DEPARTMENT HAS CLEAR LINES OF RESPONSIBILITY FOR THE INVESTIGATION OF CASES.

The Columbia Police Department has clearly developed policies and procedures for how criminal cases requiring further investigation are distributed among the various investigative units. The table, that follows, provides a breakdown of the cases (by type) that are assigned to each unit:

Areas of Responsibility for Investigative Units

Investigative Unit	Assigned Case Types
Crimes Against Persons	<ul style="list-style-type: none"> • Homicides • Kidnapping • Robbery • Adult Sex Crimes • Child Sex Crimes • Suspicious Deaths
Crimes Against Property	<ul style="list-style-type: none"> • Residential Burglaries • Commercial Burglaries • White Collar Crimes • Pawn Shops • Arson • Shots Fired
Vice and Narcotics	<ul style="list-style-type: none"> • Narcotic Trafficking • High-Level Drug Dealing • Drug Houses • Surveillance • Asset Forfeiture • DEA Narcotics Task Force • ATF Task Force
Street Crimes	<ul style="list-style-type: none"> • Career Criminal Apprehension • Fugitive Apprehension • Intelligence Gathering • Development of Informants • Gang Member Identification

The Police Department's records management system currently routes all reports to the respective Sergeant based on the type of case for report review and assignment to a detective for investigation or return to patrol for patrol officer follow-up.

2. BEST PRACTICES ASSESSMENT OF INVESTIGATIVE PRACTICES.

While the study of the Columbia Police Department is designed to provide a comprehensive analysis of the operations, organization and staffing requirements to provide effective services, it is important to make an assessment of the strengths and improvement opportunities of Criminal Investigations to identify areas where the CPD is

meeting established industry standards and areas where improvement opportunities are needed.

The following table provides this diagnostic assessment:

Performance Target	Does CPD Meet the Target?	Potential Improvements
CRIMINAL INVESTIGATIONS		
The agency has appropriately addressed general versus specialized investigations.	The CPD has detectives assigned by general investigative areas such as crimes against persons and crimes against property as well as in specialized areas such as child and adult sex crimes.	
Unit supervisors are utilizing a formal case management system that involves screening cases for solvability, assigning cases based on workloads, reviewing cases once assigned, and making decisions about proceeding based on case progress criteria.	There is no standardized case management system used in the Division. Supervisors are determining whether cases should be assigned during the reviewing of all patrol reports. There is no formal written standard or system used to determine assignment of cases for investigation.	The Division would benefit from standardizing case management practices to ensure all units are using like screening and case management systems to ensure unit workloads can be effectively tracked and cases monitored.
A comprehensive and consistently utilized case management system exists to assist with the assignment of cases, monitoring case activities, report reviews and approvals, and closing out or inactivating cases.	Currently the Sergeant's spend a considerable portion of their day on report review and case assignment. There is little case management occurring in the Division.	The CPD should re-examine the decision to have CID Sergeants review all patrol reports to allow more effective use of their time in case assignment, case management and personnel supervision.
Callout of staff on a rotating basis rather than night shifts of investigators.	CID utilizes a rotating call out system.	
Sworn personnel are not handling assignments that could be performed by non-sworn personnel	Sworn personnel in CID have assignments, which are appropriate for their sworn status. A retired officer conducts backgrounds and fraud investigations. Civilian personnel investigate pawnshops, process crime	

Performance Target	Does CPD Meet the Target?	Potential Improvements
	scenes and serve as a phone technician.	
The ratio of management and supervisory personnel is appropriate and approximates industry standards. One-on-one reporting relationships exist only in cases where they are justified by unusual or extenuating circumstances.	<p>Lieutenants in the Detective Division have reporting relationships of 1:2.</p> <p>Sergeants have reporting relationships in the 1:8 – 1:10 range.</p> <p>There are no instances of one on one reporting.</p>	
STREET CRIMES / VICE AND NARCOTICS		
Decisions are made at the appropriate level.	There are clear lines of authority in the Division. The Lieutenant And Sergeant have clearly defined roles and allow decision making to occur at the appropriate levels.	
Clearly defined mission that focuses on both street level as well as large-scale interdiction.	<p>The missions of the units are clear. The focus of Vice and Narcotics is centered around large, organized drug operations that are distributing and dealing dangerous and deadly drugs.</p> <p>Street Crimes focuses on career criminal and wanted person apprehension.</p> <p>The units support and assist each other effectively as needed.</p>	
Targets are tied to meeting the mission and are reviewed periodically.	The units conduct intelligence and surveillance to identify targets and assist in the prosecution.	
Internal systems and performance measures have been designed to provide for internal accountability.	There are no individual performance measures used in the units for internal accountability. Activity reports are maintained in the Units.	The units would benefit from developing specific performance objectives to ensure individual accountability is maintained.
Hot spot policing strategies are utilized by the division to improve the effectiveness and efficiency	The units seek active crime locations to identify and proactively improve the safety of	

Performance Target	Does CPD Meet the Target?	Potential Improvements
of patrol units.	high-activity areas.	

The following section provides the project team's evaluation of the workload and staffing requirements of the investigative units.

3. INVESTIGATIVE EFFECTIVENESS IS EVALUATED DIFFERENTLY THAN FIELD OPERATIONS.

The evaluation of staffing levels required by criminal investigations is more difficult than evaluating patrol staffing levels because, unlike field services, subjective and qualitative determinants of workload and work practices are more important. Factors making comparative analyses difficult include:

- Approaches used to screen, assign, and monitor cases are different among law enforcement agencies.
- What is actually investigated varies by agency. The extent to which agencies assign misdemeanor level property crime cases to detectives varies. Also, the extent to which patrol performs preliminary investigation varies widely and impacts detective caseloads.
- Work practices vary tremendously among agencies, relating to interviewing techniques, mix of telephone and in-person interviews, use of computer technologies, and the time devoted to clerical tasks.
- The nature of the caseload is also a critical factor to consider when examining quantitative factors relating to investigative activity. Each case is different in terms of leads, suspect description, and other available information. The way information in a single case combines with information on other cases also impacts investigative actions.
- Finally, the nature of the community itself is a factor in evaluating investigative workload and staffing needs. Citizen expectations translate into service levels impacting detectives in terms of what is investigated and how investigations are conducted.

Collectively, these factors portray a different type of workload compared to patrol workload. In patrol, workload can be characterized broadly by the following factors:

- High volume/fast turnaround work.
- Work oriented not toward solution of a complex case, but oriented toward documenting available evidence at a crime scene and initiating contacts with victims and witnesses.
- Deployment practices designed to result in a rapid response of personnel.

Therefore, unlike patrol, investigative workload cannot be converted into quantitative methodologies to arrive at required staffing levels. Investigative staffing requirements need to be examined from a variety of perspectives in order to obtain an overall portrait of staffing issues, case handling issues and philosophies having an impact on staffing needs. The perspectives we employed in our study of investigative staffing include the following:

- The project team reviewed case management practices through interviews with staff and obtained caseload data for each of the units, where available. The primary data source is the computerized databases used by the investigative units.
- The project team examined other measures of workload as well as effectiveness of investigative services.

It should be noted that caseload and workload data availability varies between agencies and the analytical methods used are improved by automated case management systems that accurately report investigator workloads and work progress. The Columbia Police Department has a records management system (RMS) that is fully integrated with investigations and utilized to monitor case assignments and dispositions. The next section provides a brief summary of the allocation of these cases by type between the various Units within Investigations.

4. THE STAFFING AND WORKLOAD FIGURES WERE DEVELOPED UTILIZING AVAILABLE REPORTS THAT WERE THEN COMPARED TO BENCHMARK STANDARDS.

In the experience of the project team analyzing a significant number of investigative agencies over a number of years, it is clear that every agency has different and unique methods of collecting and reporting investigative caseload data. In this study, the CPD maintained caseload investigative data for each investigator that was provided to the project team. This data was provided for four fiscal years and compared to investigators who were assigned to the unit during these periods.

To analyze the staffing and workload for the primary investigative units, the project team conducted “desk audits” with investigators to develop estimated caseload figures for each units’ detectives/investigators, which was then compared to benchmark standards, as summarized by the following points:

- The project team first identified the total number of **assigned** cases over each 12-month time period. For current staffing needs, the timeframe chosen included cases from October 1, 2014 through September 30, 2015 because it identified the most current workload of the investigative units.
- The project team used the data to develop an estimated **active** or **open** caseload volume. “Open” caseload data for the time period ending in October 2015 was used to develop a ratio for an estimated number of “active” cases. “Active” cases are those cases that have been actively worked within the last 30 – 45 days.
- Finally, the project team compared the CPD detectives to benchmark standards for detective “active” caseloads. From this, the project team was able to assess staffing need for each investigative unit by calculating the variance with the “low” and “high” benchmark standards. The final recommended staffing additions or reductions were based on the average staffing variance between the “low” and “high.” These caseload ranges utilized are:
 - 5 cases annually as a lead investigator in Homicides.
 - 6 - 8 cases per month for the investigation of Robberies.

- 8 – 12 cases assigned per month for the detectives investigating Assaults
- 5 – 7 cases per month assigned to the detectives responsible for investigating Sex Crimes.
- 12 – 15 cases per month assigned to the detectives responsible for investigating domestic violence and family issues.
- 10 – 15 cases per month assigned to the detectives investigating burglaries.
- 8 – 12 cases per month assigned to detectives investigating major theft.
- 8 – 12 cases per month assigned to detectives investigating forgery or fraud.

Using the above approaches, the project team analyzed each unit, as presented in this chapter. Overall, for each investigative unit, the analysis is organized as follows:

- Brief profile of the unit (i.e., staffing and area of responsibility).
- Caseload information utilizing the previously noted reports.
- Caseload analysis using the reported data and comparative information.
- Staffing recommendation.

The sections, that follow, provide the project team's assessment of the staffing and workload of Investigations.

5. THE INDIVIDUAL INVESTIGATORS ARE AT THE HIGH END OR ABOVE INVESTIGATIVE CASE WORKLOAD TARGETS.

The following subsections describe the case workload for each investigative unit, utilizing the analytical approaches discussed in the previous section of the report. The following table illustrates the number of cases assigned for violent and property crimes to detectives in the each of the four fiscal years:

Violent Crimes by Type, FY2012-15

Case Type	FY12	FY13	FY14	FY15	4YR Change
Assault	768	894	748	876	14.1%
Homicide	2	5	4	5	150.0%
Robbery	115	149	75	169	47.0%
Total	885	1,048	827	1,050	18.6%

As shown above, each of the violent crime categories have seen an increase in case assignments to detectives over the four-year period. Overall violent crime case assignments increased 18.6% from FY 2012 to FY 2015.

Property Crimes by Type, FY2012-15

Case Type	FY12	FY13	FY14	FY15	4YR Change
Burglary	757	648	765	879	16.1%
Larceny/Theft	2,491	3,689	3,267	2,734	9.8%
Arson	16	10	29	24	50.0%
Total	3,264	4,347	4,061	3,637	11.4%

As was shown in the violent crime data, each of the property crime categories have also seen an increase in case assignments to detectives over the four-year period. Overall property crime case assignments increased 11.4% from FY 2012 to FY 2015

(1) Crimes Against Persons

This unit is comprised of one (1) Sergeant, seven (7) full time detectives and one part-time investigator focused on backgrounds and fraud. Detectives (2 Robbery/Homicide, 2 Child Sex Crime, 1 Adult Sex Crimes, 2 Domestic Violence) are responsible for investigating homicides, suspicious deaths, robberies and sex crimes During the one-year period for FY 2015, the there were 1,050 cases of crimes against persons investigated.

The following table illustrates the case assignments by month for the Crimes Against Persons:

Violent Crime Case Assignments *(All Investigators)*

Case Type	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Assault	70	63	71	77	84	68	65	80	89	74	58	77	876
Homicide	2	0	1	1	1	0	0	0	0	0	0	0	5
Robbery	10	13	35	11	9	13	11	13	15	17	8	14	169
Total	82	76	107	89	94	81	76	93	104	91	66	91	1,050

As shown above, violent crime case assignments varied from a low of 66 cases assigned in August to a high of 107 cases assigned in December of FY 2015.

The next table identifies the raw data for reported case assignment information for the period between October 1, 2014 and September 30, 2015 for the investigators assigned to investigate crimes against persons. These totals do not include cases assigned to a part-time investigator. It is also important to note that detectives will be assigned cases that result from being called in while on call, therefore actual case assignments will vary from the unit totals shown above.

Violent Crime Case Assignments *(Excluding Part-Time Investigators)*

Name	Assigned	Cleared
A – Homicide / Robbery	95	17
B – Homicide / Robbery	65	11
C – Sex Crimes Adult/Assault	78	25
D – Sex Crimes Child / Assault	118	28
E – Sex Crimes Child / Assault	124	55
F – Domestic Violence	331	11
G – Domestic Violence	373	78
Unit Total	1,184	225
Avg. Annual Cases	169	

Case Clearance Rate: 41.6%

The data shown above was used for the one-year period to identify the cases used in the table below (“Actual Assigned Cases”). The annualized data is shown in the following table:

Investigator	# of Det.	Actual Assigned Cases	Avg. Annual Assigned Cases Per Det.	Est. Monthly Caseload Per Det.
Homicide/Robbery	2	160	80	7
Assault/Sex Crimes	3	320	107	9
Domestic Violence	2	704	352	29

The following points highlight the information displayed above:

- There were 5 homicide cases and 169 robberies that are primarily assigned to two detectives. This equates to an average of 2.5 homicides and 84.5 robbery cases assigned per investigator. Broken out separately there are five homicides where a detective is assigned as a lead investigator, which is the recommended caseload. Additionally, there are 169 cases or an average of 14 cases assigned per detective each month during the one-year period for robbery investigations, which is above the 6 – 8 cases per month workload target for robbery investigators.
- There were a total of 320 cases assigned to the sex crimes detectives. This equates to an average of 107 cases assigned annually or an average caseload of approximately nine (9) new cases each month per detective. This is above with the workload target of 5 – 7 case assignments per month for detectives assigned to investigate sex crimes.
- There were a total of 704 cases assigned to the two detectives assigned to investigate domestic violence cases. This equates to an average of 352 cases annually or an average caseload of approximately 29 new cases assignments per month per detective. This is well above the workload target of 12 – 15 case assignments per month for detectives assigned to investigate domestic violence and family issues. During interviews it was discovered that much of this caseload is handled via telephone calls so the workload is appropriate.
- Estimated “active” or “open” caseloads based upon an analysis of open cases actively worked during the latest 30-day time period indicates that there are approximately 12.5 active cases per detective in the Unit.
- Crimes against persons had an overall clearance rate of 41.6% in FY 2015 this included 34.1% of assigned cases being cleared by arrest.

Overall, Crimes Against Persons is above the workload targets on a per detective basis for active cases and the number of cases that should be assigned to the detectives, based on the current workloads. Homicide/Robbery would require one additional detective, sex crimes one additional detective and domestic violence two additional detectives to effectively handle current caseloads. Until such funding becomes available these types of crimes will not receive fully effective services from the CPD due to excessive workloads of these personnel.

Recommendation:

Maintain the current staffing of Crimes Against Persons until funding is available to add one (1) additional Homicide/Robbery Detective and two (2) additional Sex Crime Detectives.

(2) Property Crimes

This unit is comprised of one (1) Sergeant and six (6) detectives. Detectives investigate both residential and commercial burglaries, arson, shootings, forgery, fraud, embezzlement and theft. There is also one civilian assigned to investigate pawnshops, one civilian that serves as a phone technician for gathering evidence from cell phones and 2 civilian crime scene investigators in the Unit. During the one-year period from October 1, 2014 – September 30, 2015, there were 3,637 property crimes investigated by CPD detectives.

The following table shows the monthly breakdown of property crimes investigated in FY 2015:

Property Crimes Investigated (*Sworn and Civilian Investigators*)

Case Type	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Burglary	85	82	109	72	33	61	66	52	74	129	64	52	879
Larceny/Theft	266	211	243	191	193	214	186	231	206	316	211	266	2,734

Arson	2	5	5	3	0	5	0	0	3	0	1	0	24
Total	353	298	357	266	226	280	252	283	283	445	276	318	3,637

As shown above, property crime case assignments varied from a low of 252 cases assigned in April to a high of 445 cases assigned in July of FY 2015.

The next table identifies the raw data for reported case assignment information for the period between October 1, 2014 and September 30, 2015 for the investigators assigned to investigate property crime. These totals do not include cases assigned to the civilians in the property crime unit. It is also important to note that detectives will be assigned cases that result from being called in while on call, therefore actual case assignments will vary from the unit totals shown above. Also detectives will only investigate thefts over \$1,000 so many theft cases are returned to patrol for follow-up investigation.

Property Crimes (*Sworn Investigators Only*)

Investigator	Assigned	Cleared
A – Burglaries	222	55
B – Burglaries	187	29
C – Burglaries	51	14
D – Arson / Shots Fired	158	46
E – Forgery	110	48
F – Embezzlement / Theft	86	23
Unit Total	814	215
Average Annual Cases	136	

Case Clearance Rate: 18.2%

The data shown above was used for the one-year period to identify the cases used in the table below (Actual Assigned Cases). The annualized data is shown in the following table:

Category	# of Detectives	# of Cases/yr. ⁸	Avg. Annual Cases Per Det.	Est. Monthly Caseload Per Det.
Burglary	3	460	153	13
Arson/Shots Fired	1	158	158	13
Forgery	1	110	110	9
Embezzlement/Theft	1	86	86	7

- The actual number of unique cases was 814, or 136 cases assigned per detective during the one-year period. This equates to an average of 11.3 cases assigned per month per detective.
- There were a total of 460 cases assigned to the three detectives assigned to investigate burglary cases. This equates to an average of 153 cases annually or an average caseload of approximately 13 new cases assignments per month per detective. This is in line with the workload targets of 10 – 15 case assignments per month for burglary investigators.
- There were a total of 158 cases assigned to the detective assigned to investigate arson and shots fired cases. This equates to an average of 158 cases annually or an average caseload of approximately 13 new cases assignments per month per detective. This is slightly above the workload target of 8 – 12 cases assignments per month for a generalist property crime investigator.
- There were a total of 110 cases assigned to the forgery detective. This equates to an average of 110 cases annually or an average caseload of approximately 9 cases per month. This is in line with the workload target of 8 – 12 cases per month assigned to forgery or fraud detectives.
- There were a total of 86 cases assigned to the detective assigned to investigate embezzlement/major theft cases. This equates to an average of 86 cases annually or an average caseload of approximately seven (7) new cases per month. This is slightly below the workload target of 8 – 12 cases per month assigned to major theft/embezzlement detectives.
- Estimated “active” or “open” caseloads based upon an analysis of open cases during the latest 30-day time period indicates that there are 13.5 active cases per detective in the Unit.
- When compared to benchmark targets, the property crime detectives are generally in line with workload targets with the exception of the detective investigating shots fired and arson cases, who is slightly above workload targets.

⁸ Total number of actual unique cases, excluding duplicates per year.

- Property crimes had an overall clearance rate of 18.2% in FY 2015 this included 17.3% of assigned cases being cleared by arrest.

Overall, the Property Crimes is inline with workload targets on a per detective basis for active cases, when compared to benchmark targets. The workload figures should be revisited on an annual basis, particularly as the case screening and management systems are improved, which may impact workloads for these personnel.

Recommendation:

Maintain current staffing levels for detectives assigned to investigate property crimes.

6. CASE MANAGEMENT PRACTICES IN THE INVESTIGATIVE UNITS CAN BE IMPROVED.

The current records management system (RMS) in use by the Columbia Police Department possesses the features needed to function as an effective case management tool, allowing investigative supervisors to effectively screen and manage cases within the RMS. The fact is that the current practice of forwarding all patrol reports to the investigation sergeants for review is ineffective and inefficient and has led to less than ideal case screening to ensure there are appropriate leads, evidence, suspect information and other factors prior to making case assignment determinations. Patrol sergeants should be tasked with the initial review of reports to ensure they contain complete and thorough documentation of the call responded to by patrol officers and the crime meets the elements of the offense prior to being sent to the detectives for follow-up investigation. This is a key functional element of a patrol supervisor and further ensures they are effectively evaluating the work product produced by employees under their supervision.

The CPD should return the responsibility for reviewing field reports to patrol supervisors and free up time for investigative supervisor to develop formal case screening and case management procedures that require standardized case assignment practices and periodic follow-up with investigators to determine if cases should remain open.

Recommendation:

Develop standardized case assignment and management policies for supervisors to use in the investigative units.

7. THE STREET CRIMES UNIT FOCUSES ON PROACTIVE LAW ENFORCEMENT

The Street Crimes Units is a proactive unit focused on the apprehension of career criminals and serious offenders with outstanding warrants, locating suspects for detectives, developing informants and maintaining an active list of gang members. The unit is organized into two workgroups.

- Daytime Officers – Two uniformed officers
- Evening Officers – Four Uniformed officers
- The unit is supervised by Sergeant that works flexible hours and assists with staffing needs on either shift due to planned and unplanned leave.

The proactive nature of the work conducted by the street crime officers makes the development of staffing related to their work difficult. These positions exist to improve the quality of life in Columbia and minimize the impact that career criminals and gang activity has on residents and those visiting the City. Their role in the overall mission of the CPD is important and should continue. From a staffing perspective, these types of units can only operate with a minimum of two personnel due to the nature of the work they are conducting and the types of individuals they deal with on a daily basis. Therefore, the

current staffing plan ensures that two personnel can be scheduled to work on most occasions.

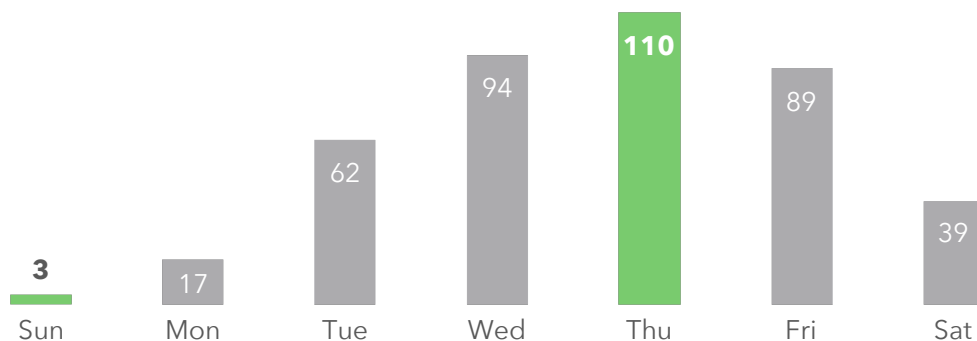
The Street Crimes Units has been compiling workload information for the Unit since January 2015. The following table illustrates the top 10 activities of the SCU in 2015 through the month of September:

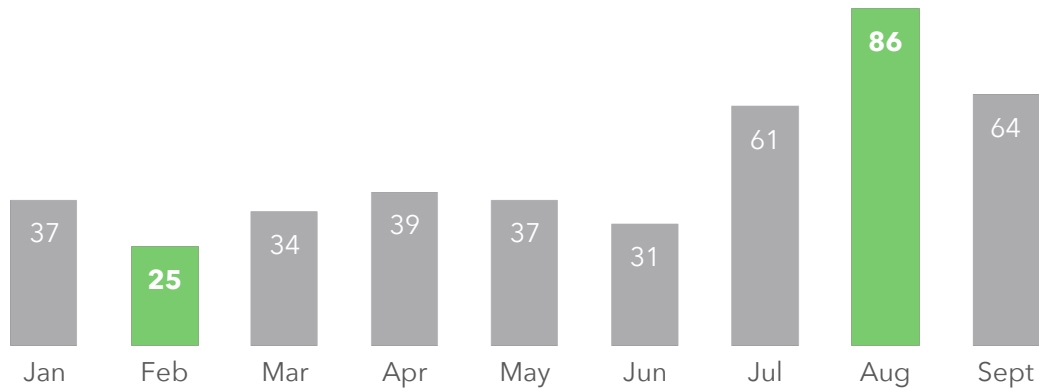
SCU – Most Common Activities

Activity Category	Total	%
Traffic Stop	174	42.0%
Check Subject	100	24.2%
Training	42	10.1%
TTL/Code Red	15	3.6%
Search Warrant	13	3.1%
Surveillance	6	1.4%
Disturbance	4	1.0%
Pursuit	4	1.0%
Shots Fired	4	1.0%
Other	52	12.6%
Total	414	100%

The following charts show the above activity by day of the week and month of the year in 2014:

Street Crimes Workload by Day



Street Crimes Workload by Month

As indicated by the above graphs, the busiest days of the week in terms of activity for the SCU are Wednesday – Friday and the busiest months July – September.

Additionally, it is important to note that the statistics currently maintained by the Street Crimes Unit are limited to activities, rather than the performance or outcomes as they relate to the unit's mission. The SCU should develop and focus their efforts toward achieving specific performance objectives.

Recommendations:

- **Maintain the current staffing level of six (6) officers and one (1) Sergeant in the Street Crimes Unit.**
- **Develop performance measures for the Street Crimes Unit and report quarterly to the Chief and Command Staff on the performance of the unit compared to the established standards.**

8. THE DRUGS AND VICE DIVISION IS APPROPRIATELY STAFFED.

The Vice and Narcotics Unit (VNU) is managed by the same Lieutenant that manages the Street Crimes Unit. A Sergeant supervises the unit which is staffed with three (3) detectives. Two other personnel in the Unit are detached and serve on task forces as noted earlier in the chapter. This staffing results in the Sgt. being an integral working part

of the Unit as all Unit functions require a minimum of three personnel to ensure the safety of the operations.

The VNU is focused on long term investigations of drug distribution in the City of Columbia. Their primary focus is on drugs that result in serious injury or death to the users, such as heroin and methamphetamines. The unit also responds to all heroin overdoses in the City and conducts dignitary protection as needed. Their work hours are flexible as much of their primary focus is on undercover work and will vary depending on when suspected drug activity is occurring. Typically, the unit works Monday – Friday.

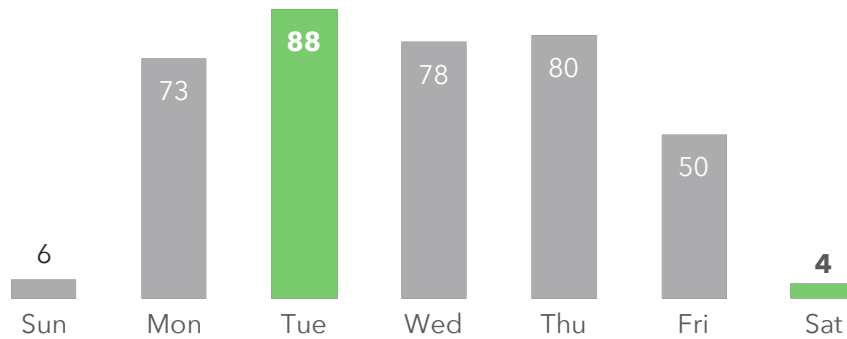
This type of Unit is important and should continue to ensure a high quality of life in a City such as Columbia, particularly with the high population of college aged students in the City that are susceptible to the pressures of drug use.

The VNU has been maintaining workload statistics for the entire FY 2014 – 2015 fiscal year, but much like in the SCU it only reports on activities and does little to discuss the performance of the Unit compared to any established performance measures developed by the CPD.

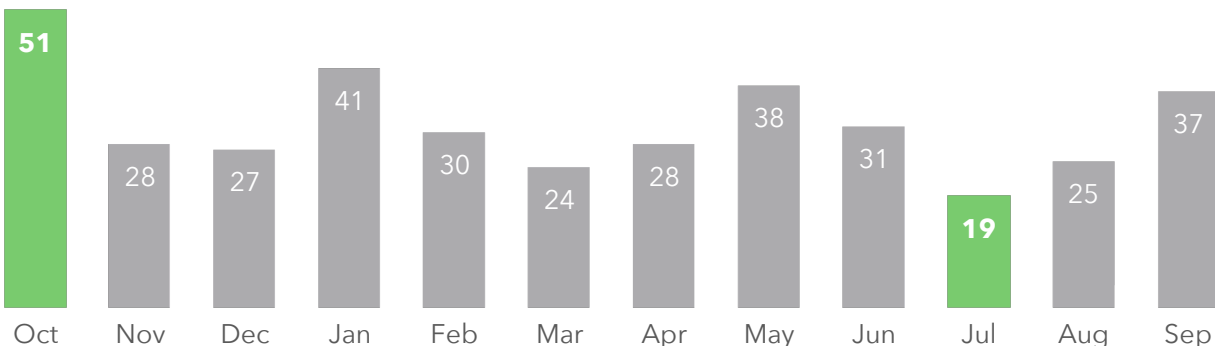
The following table and charts show the activity of the VNU in terms of highest workload indicators and activity by day of the week and month of the year in FY2014/15:

Activity Category	Total	%
Surveillance	38	10.0%
Casework	23	6.1%
Search Warrant	17	4.5%
Meet with CI	16	4.2%
CC Buy	13	3.4%
Controlled Buy	13	3.4%
Training Day	12	3.2%
Woodpusher Indictments	11	2.9%
Court	7	1.8%
Other	229	60.4%
Total	379	100.0%

VNOC Workload by Day



VNOC Workload by Month



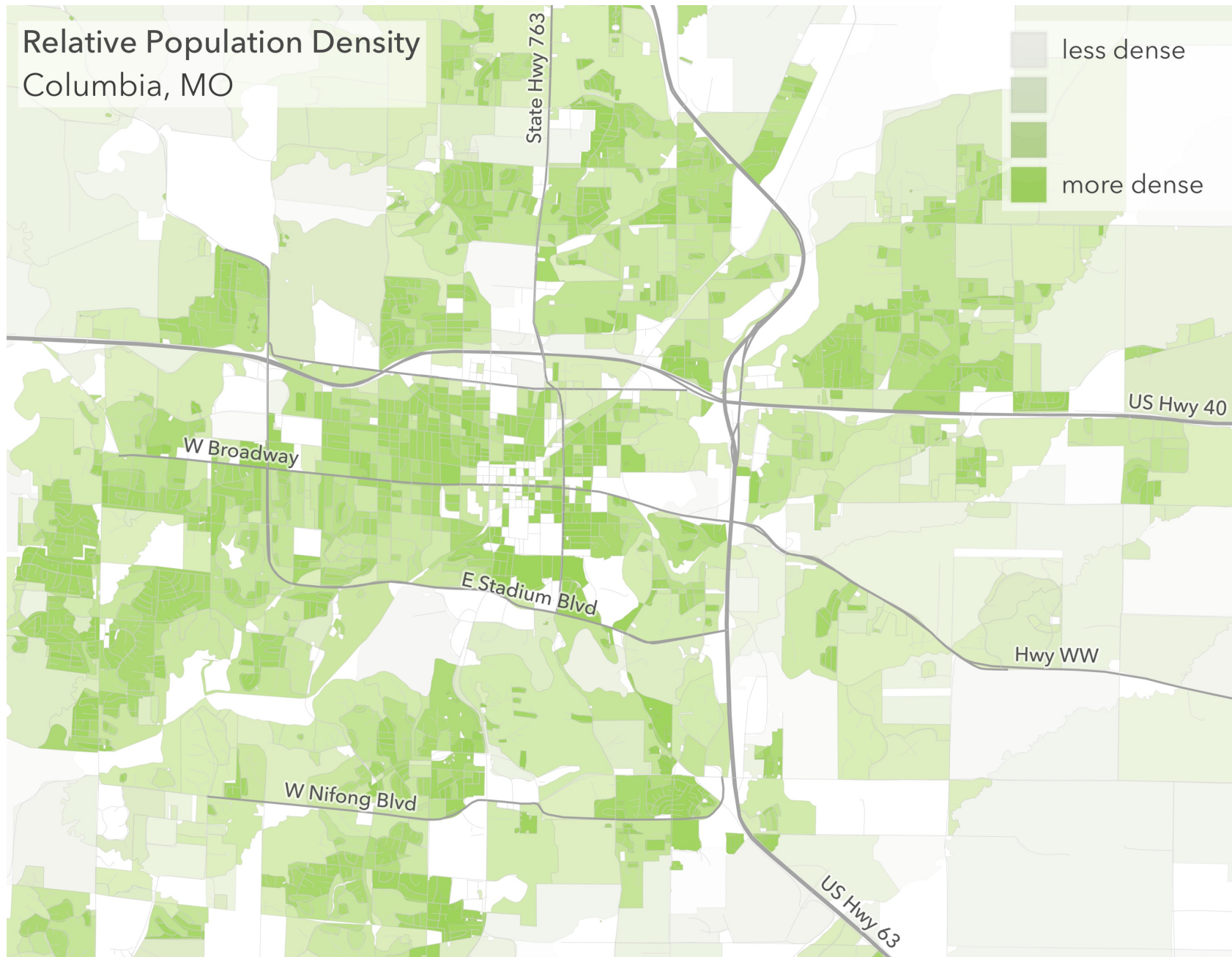
As shown above, the unit is currently only tracking work tasks, but has no method for determining success against measurable performance objectives. The most common activity is surveillance. The busiest days of the week are Monday – Thursday, and October is the busiest month.

It is important to note that the current staffing levels in the Vice and Narcotics Unit allows them to focus as a team on single narcotics investigations. Due to the staffing levels and officer safety issues related to buy-busts and narcotics surveillance there is no opportunity to investigate new narcotics complaints without removing resources from existing investigations. The following table illustrates the caseload activity from July – September 2015 for the VNU, open cases are cases where there is enough information to warrant an investigation, but the current staffing resources are inadequate to allow the investigation to be active. As shown in the following table, from July – September there were such cases in the VNU.

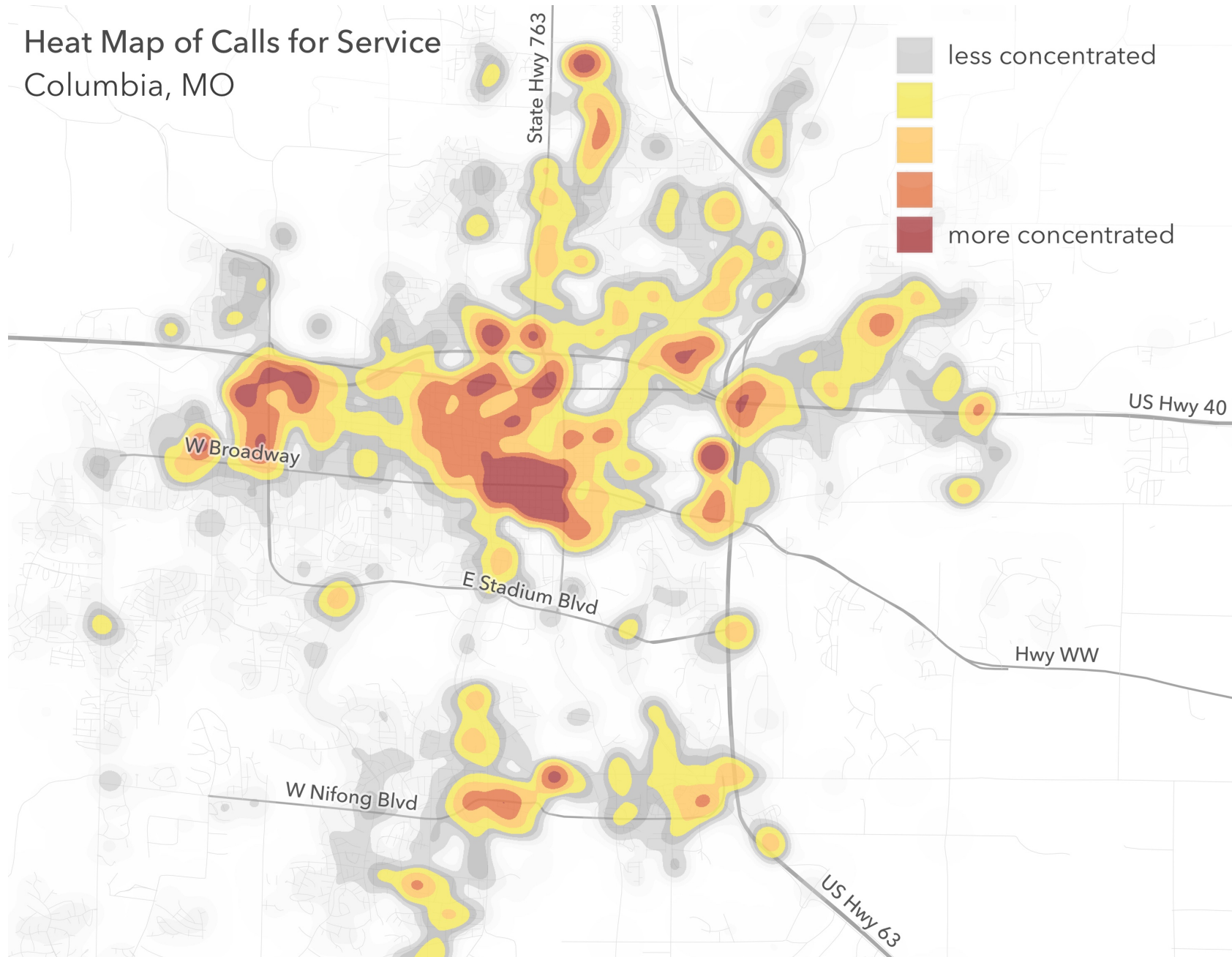
Case Results	Total
Active	14
Open	51
Reassigned to other unit	12
Closed	21
Not Investigated	9
Total	93

Recommendations:

- **Until funding is available to staff an additional team in the VNU, make no changes to the current staffing levels of the Vice and Narcotics Unit.**
- **Develop performance measures for the VNU and report quarterly to the Chief and Command Staff on the performance of the unit compared to the established standards.**



Heat Map of Calls for Service Columbia, MO



Heat Map of Crime Incidents Columbia, MO

