Data Analysis Report
Public Safety Department
Grosse Pointe, Michigan

POLICE OPERATIONS POLICE OPERATIONS

CENTER FOR PUBLIC SAFETY MANAGEMENT

Submitted by and reply to:
ICMA Center for Public Safety Management
International City/County Management Association
777 North Capitol Street NE, Suite 500
Washington, DC 20002
PublicSafety@icma.org
202-962-3607

ICMA
Leaders at the Core of Better Communities

Background

About ICMA

The International City/County Management Association (ICMA) is a 100-year-old, nonprofit professional association of local government administrators and managers, with approximately 9,000 members located in 28 countries.

Since its inception in 1914, ICMA has been dedicated to assisting local governments in providing services to their citizens in an efficient and effective manner. Our work spans all of the activities of local government: parks, libraries, recreation, public works, economic development, code enforcement, brownfields, public safety, and a host of other critical areas.

ICMA advances the knowledge of local government best practices across a wide range of platforms including publications, research, training, and technical assistance. Our work includes both domestic and international activities in partnership with local, state, and federal governments as well as private foundations. For example, we are involved in a major library research project funded by the Bill & Melinda Gates Foundation and we are providing community policing training in El Salvador, Mexico, and Panama with funding from the United States Agency for International Development. We have personnel in Afghanistan assisting with building wastewater treatment plants and have teams in Central America conducting assessments and developing training programs for disaster preparedness working with SOUTHCOM.

ICMA *Center for Public Safety Management*

The ICMA *Center for Public Safety Management (*ICMA/CPSM*)* is one of four Centers within the ICMA's U.S. Programs Division, providing support to local governments in the areas of police, fire, emergency medical services (EMS), emergency management, and homeland security. In addition to providing technical assistance in these areas, we also represent local governments at the federal level and are involved in numerous projects with the U.S. Department of Justice and the U.S. Department of Homeland Security.

ICMA/CPSM is also involved in police and fire chief selection, assisting local governments in identifying these critical managers through original research and the identification of core competencies of police and fire managers and also by providing assessment center resources.

Our local government technical assistance includes workload and deployment analysis, using operations research techniques and credentialed experts to identify workload and staffing needs, and identifying best practices. We have conducted approximately 140 such studies in 90 communities ranging in size from 8,000 population (Boone, Iowa) to 800,000 population (Indianapolis, Indiana).

Thomas Wieczorek is the Director of the Center for Public Safety Management. Leonard Matarese is the Director of Research & Project Development for the Center.

Methodology

The ICMA Center for Public Safety Management team follows a standardized approach to conducting analyses of fire and other departments involved in providing services to the public. We have developed this standardized approach by combining the experience sets of dozens of subject matter experts in the areas of police, fire, and EMS. Our collective team has more than one hundred years of conducting research in these areas for cities in and beyond the United States.

The reports generated by the operations and data analysis team are based upon key performance indicators that have been identified in standards and safety regulations and by special interest groups such as the International Association of Fire Chiefs, International Association of Fire Fighters, Association of Public Safety Communication Officials International, and through the Center for Performance Measurement of ICMA. These performance measures have developed following decades of research and are applicable in all communities. For that reason, comparison of reports will yield similar reporting formats, but each community's data are analyzed on an individual basis by the ICMA specialists and represent the unique information for that community.

The Public Safety Management team begins most projects by extracting calls for service and raw data from a public safety agency's computer-aided dispatch system. The data are sorted and analyzed for comparison to nationally developed performance indicators. These performance indicators (e.g., response times, workload by time, multiple-unit dispatching) are valuable measures of agency performance regardless of departmental size. The findings are shown in tables and graphs organized in a logistical format. Due to the size and complexity of the documents, a consistent approach to structuring the findings allows for simple, clean reporting. While the categories for the performance indicators and the overall structure of the data and documents follow a standard format, the data and recommendations are unique to the organization under scrutiny.

The team conducts an operational review in conjunction with the data analysis. The performance indicators serve as the basis for the operational review. The review process follows a standardized approach comparable to that of national accreditation agencies. Prior to the arrival of an on-site team, agencies are asked to provide the team with key operational documents (e.g., policies and procedures, asset lists, etc.). The team visits each city on-site to interview fire agency management and supervisory personnel, rank-and-file officers, and local government staff.

The information collected during the site visits and through data analysis results in a set of observations and recommendations that highlight strengths, weaknesses, opportunities, and threats of the organizations and operations under review. To generate recommendations, the team reviews operational documents; interviews key stakeholders and observes physical facilities; and reviews relevant literature, statutes and regulations, industry standards, and other information and/or materials specifically included in a project's scope of work.

The standardized approach ensures that the ICMA Center for Public Safety measures and observes all of the critical components of an agency, which in turn provides substance to benchmark against localities with similar profiles. Although agencies may vary in size, priorities, and challenges, there are basic commonalities that enable comparison. The approach also enables the team to identify best practices and innovative approaches.

In general, the standardized approach adopts the principles of the scientific method: We ask questions and request documentation upon project start up; confirm accuracy of information received; deploy operations and data analysis teams to research each unique environment; perform data modeling; share findings with the jurisdiction; assess inconsistencies reported by client jurisdictions; follow up on areas of concern; and communicate our results in a formal, written report.

ICMA Center for Public Safety Project Contributors

Thomas J. Wieczorek, Director
Leonard A. Matarese, Director, Research & Project Development
Dov N. Chelst, Director of Quantitative Analysis
Priscila A. Monachesi, Quantitative Analyst
Dennis Kouba, Editor

Contents

Tables

Figures

Introduction

This is the data analysis report on public safety patrol operations for Grosse Pointe, Michigan, and which was conducted by the ICMA Center for Public Safety Management. This report focuses its analysis on three main areas: workload, deployment, and response times. These three areas are related almost exclusively to patrol operations, which constitute a significant portion of the public safety department's personnel and financial commitment.

All information in this report was developed directly from data recorded by the city's dispatch center and stored by Oakland County's Courts and Law Enforcement Management Information System (CLEMIS). The purposes of this report are to provide the city with our findings and to allow the department to review and bring to our attention any dispatch information that may be inconsistent with other internal records of the agency.

The majority of the first section of the report, concluding with Table 8, uses the call and activity data for the entire year. For the detailed workload analysis and the response-time analysis, we use two four-week sample periods. The first period is August 2011 (August 1 to August 28), or summer, and the second period is February 2012 (February 1 to February 28), or winter.

We make no recommendations in this report.

Workload Analysis

As with similar cases around the country, we encountered a number of issues when analyzing the dispatch data. We made assumptions and decisions to address these issues.

- A moderate number of events (7 percent or approximately 500) involving patrol units showed less than thirty seconds of time spent on scene. We call this zero time on scene.
- There were 540 different event descriptions, which we reduced to eighteen categories for our tables and eleven categories for our figures.

Our study team has often worked with similar data in other jurisdictions. To identify events that were canceled en route, we assumed zero time on scene to account for a significant portion of them. As stated, any event with an on-scene time of less than thirty seconds was labeled zero time on scene.

When we analyze a set of dispatch records, we go through a series of steps that we detail as follows.

- We first process the data to improve its accuracy. For example, we remove duplicate units recorded on a single event. In addition, we remove records that do not indicate an actual activity. We also remove incomplete data. This includes situations where there is not enough time information to evaluate the record.
- At this point, we have a series of records that we call "events." We identify these events in three ways.
    - We distinguish between patrol and nonpatrol units.
    - We assign a category to each event based upon its description.
    - We indicate whether the call is "zero time on scene," "police-initiated," or "other-initiated."
    - Then, we remove all records that do not involve a patrol unit to get a total number of patrol-related **events**.
    - At important points during our analysis, we focus on a smaller group of events designed to represent actual **calls** for service. This excludes events with no officer time spent on scene, along with out-of-service activities.

In this way, we first identify a total number of records, and then limit ourselves to patrol events, and finally focus on calls for service.

To briefly review the data received, in the period from July 1, 2011, to June 30, 2012, there were approximately 4,700 calls recorded within CLEMIS. Of that total, about 4,000 calls included an adequate record of a patrol unit as either the primary or secondary unit. We also included approximately 2,922 additional activities (mainly traffic stops) that were recorded but were not assigned incident numbers.

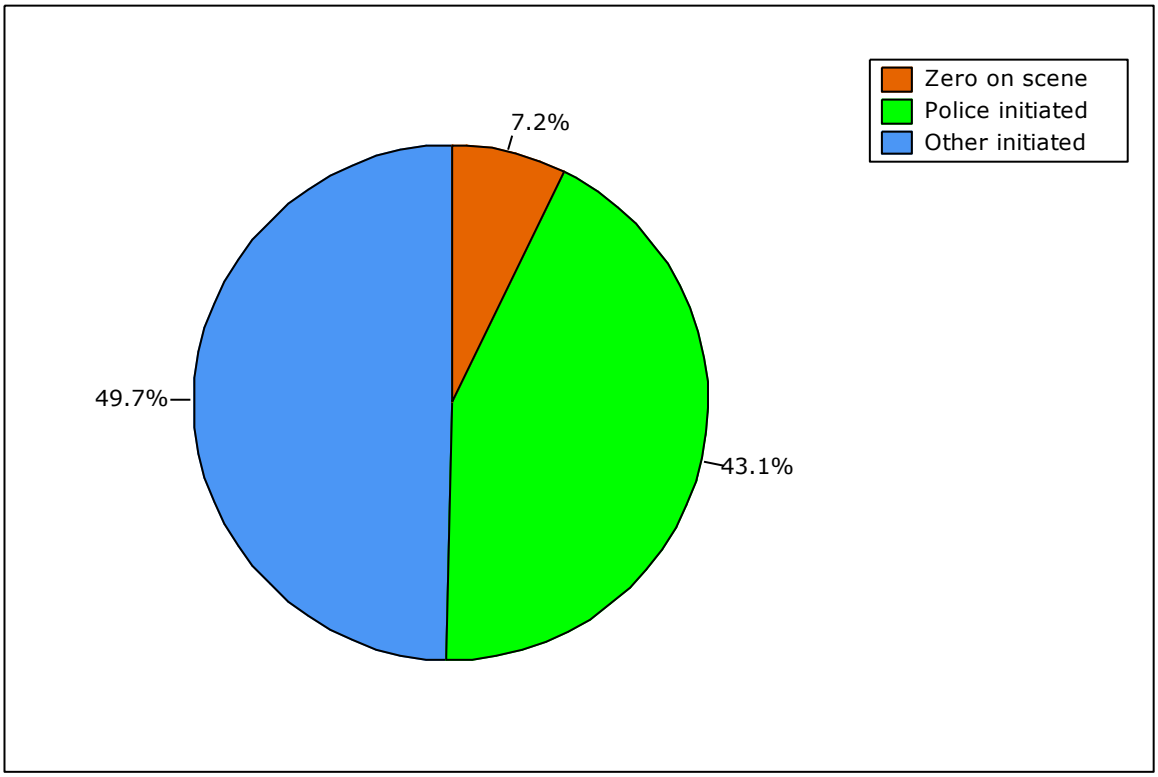
In the period from July 1, 2011 to June 30, 2012, the department reported an average of 19 events per day. As mentioned, approximately 7 percent of these events (1.6 per day) showed no unit time spent on the call.

In the following pages we show two types of data: activity and workload. The activity levels are measured by the average number of calls per day, broken down by the type and origin of the calls and categorized by the nature of the calls (e.g., crime, traffic, etc.). Workloads are measured in average work hours per day.

We routinely used nineteen call categories for tables and eleven categories for our graphs. These are shown in the following chart.

Table Categories	Figure Categories
Prisoner–arrest	Arrest
Prisoner–transport	
Assist other agency	Assist other agency
Crime–persons	Crime
Crime–property	
Directed patrol	Directed patrol
Fire/EMS-related	Fire/EMS
Animal calls	General noncriminal
Miscellaneous	
Alarm	Investigations
Check/investigation	
Juvenile	Juvenile
Out of service–administrative	Out of service
Out of service–personal	
Disturbance	Suspicious incident
Suspicious person/vehicle	
Accidents	Traffic
Traffic enforcement	

FIGURE 1: Percentage Events per Day, by Initiator



Note: Percentages are based on a total of 6,889 events.

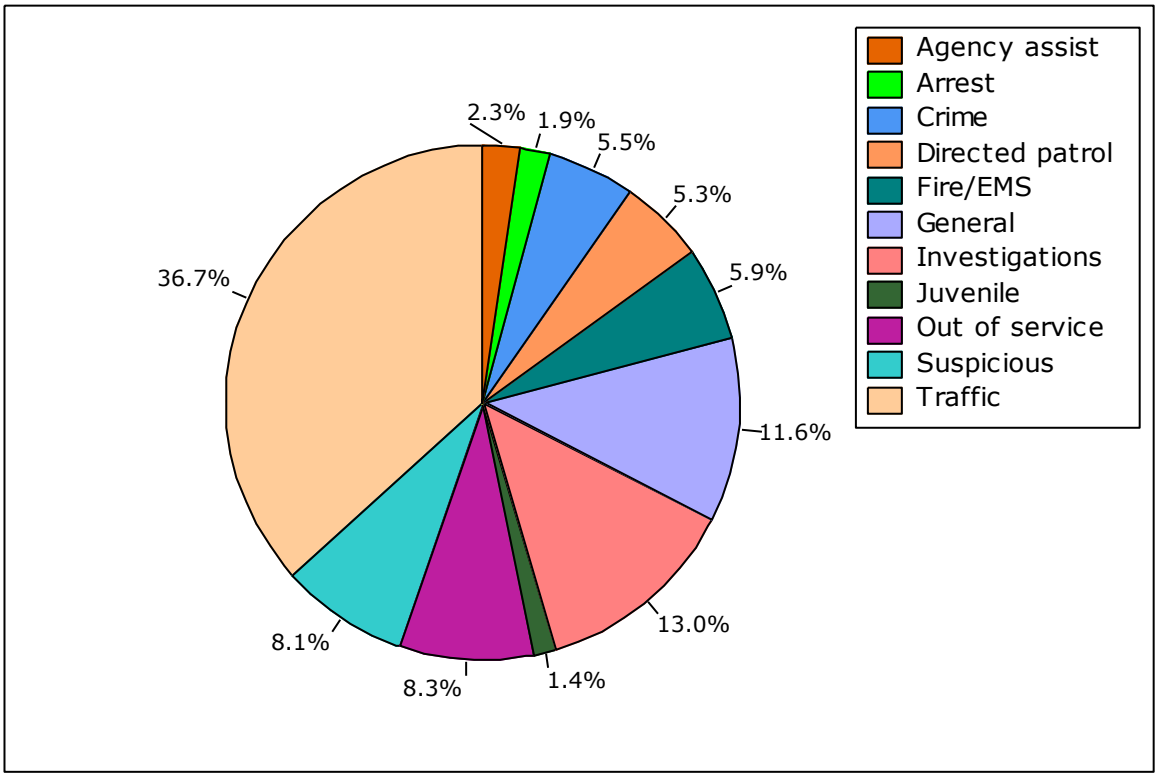
TABLE 1: Events per Day, by Initiator

Initiator	Total Events	Events per Day
Zero on scene	495	1.6
Police–initiated	2,969	8.1
Other-initiated	3,425	9.4
Total	**6,889**	**18.8**

Observations:

- 7 percent of the events had zero time on scene.
- 43 percent of all events were police-initiated.
- 50 percent of all events were other-initiated.
- There was an average of 19 events per day, or 0.8 per hour.

FIGURE 2: Percentage Events per Day, by Category



Note: The figure combines categories in the following table according to the description on page 3.

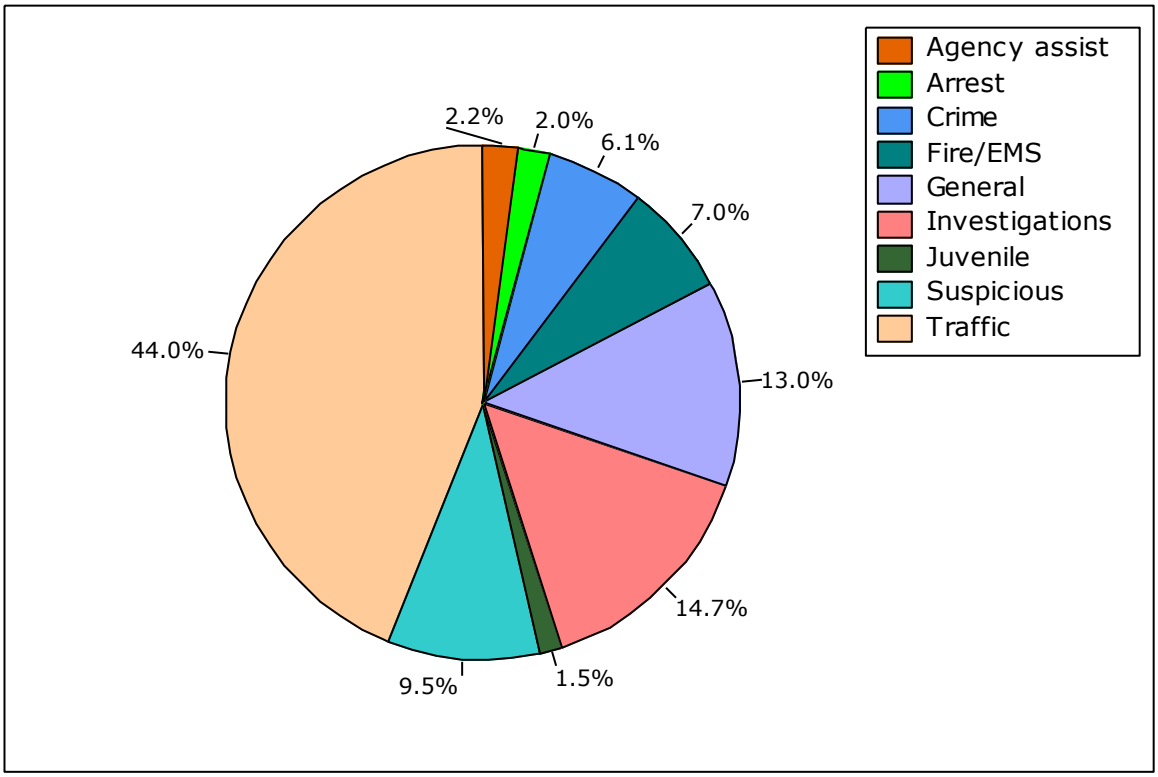
TABLE 2: Events per Day, by Category

Category	Total Events	Events per Day
Accidents	59	0.2
Alarm	414	1.1
Animal calls	215	0.6
Assist other agency	159	0.4
Check/investigation	479	1.3
Crime–persons	39	0.1
Crime–property	337	0.9
Directed patrol	366	1.0
Disturbance	196	0.5
Fire/EMS-related	408	1.1
Juvenile	97	0.3
Miscellaneous	583	1.6
Out of service–administrative	275	0.8
Out of service–personal	297	0.8
Prisoner–arrest	97	0.3
Prisoner–transport	36	0.1
Suspicious person/vehicle	363	1.0
Traffic enforcement	2,469	6.7
Total	**6,889**	**18.8**

Observations:

- The top three categories (traffic, investigations, and general) accounted for 61 percent of events.
- 37 percent of events were traffic-related.
- 13 percent of events were investigations.
- 12 percent of events were general (animal calls and miscellaneous).
- 6 percent of events were crime-related.

FIGURE 3: Percentage Calls per Day, by Category



Note: The figure combines categories in the following table according to the description on page 3.

TABLE 3: Calls per Day, by Category

Category	Total Calls	Calls per Day
Accidents	50	0.2
Alarm	392	1.9
Animal calls	195	1.5
Assist other agency	120	0.4
Check/investigation	419	1.7
Crime–persons	32	0.4
Crime–property	306	1.8
Disturbance	189	0.9
Fire/EMS-related	385	1.3
Juvenile	84	0.3
Miscellaneous	518	1.4
Prisoner–arrest	81	0.2
Prisoner–transport	27	0.1
Suspicious person/vehicle	334	0.9
Traffic enforcement	2,372	6.5
Total	**5,504**	**15.0**

Note: We focus here on recorded calls rather than recorded events. This means we removed events with zero time on scene, directed patrol events, and out-of-service activities.

Observations:

- There were 15 calls per day, or 0.6 per hour.
- The top three categories (traffic, investigations, and general) accounted for 72 percent of calls.
- 44 percent of calls were traffic-related.
- 15 percent of calls were investigations.
- 13 percent of calls were general (animal calls and miscellaneous).
- 6 percent of calls were crime-related.

FIGURE 4: Calls per Day, by Initiator and Months

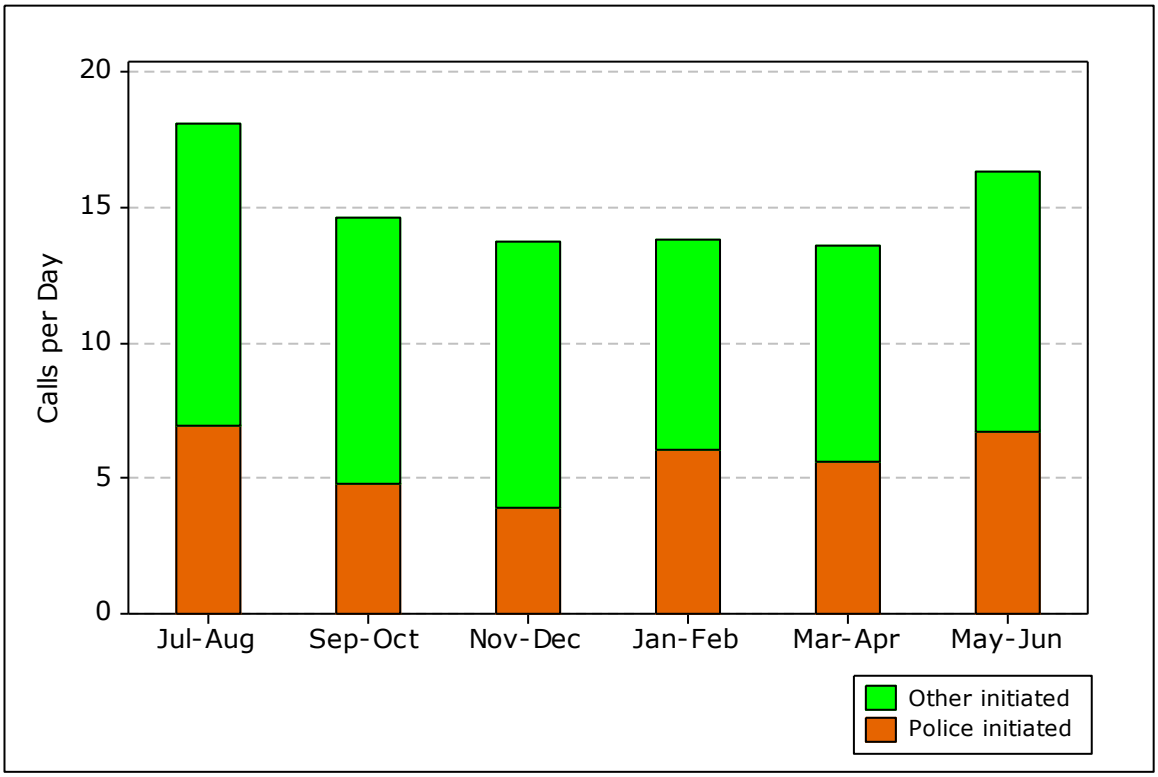


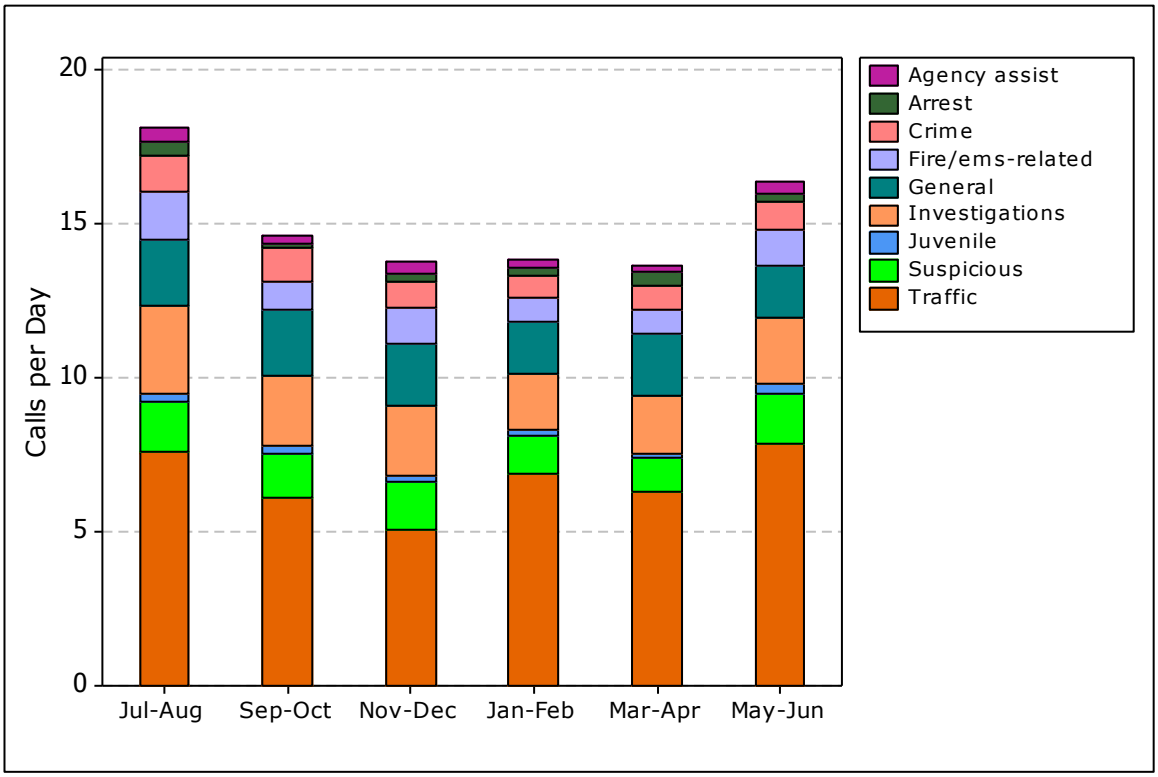
TABLE 4: Calls per Day, by Initiator and Months

Initiator	July–Aug.	Sept.–Oct.	Nov.–Dec.	Jan.–Feb.	Mar.–Apr.	May–June
Police-Initiated	7.0	4.8	3.9	6.1	5.6	6.7
Other-Initiated	11.1	9.8	9.8	7.7	8.0	9.6
Total	**18.1**	**14.6**	**13.7**	**13.8**	**13.6**	**16.3**

Observations:

- The number of calls per day was lowest in March–April 2012.
- The number of calls per day was highest in July–August 2011.
- The months with the most calls had 33 percent more calls than the months with the fewest calls.
- July-August 2011 had the most police-initiated calls, with 79 percent more than the period of November–December 2011, which had the fewest.
- July–August 2011 had the most other-initiated calls, with 44 percent more than the period January-February 2012, which had the fewest.

FIGURE 5: Calls per Day, by Category and Months



Note: The figure combines categories in the following table according to the description on page 3.

TABLE 5: Calls per Day, by Category and Months

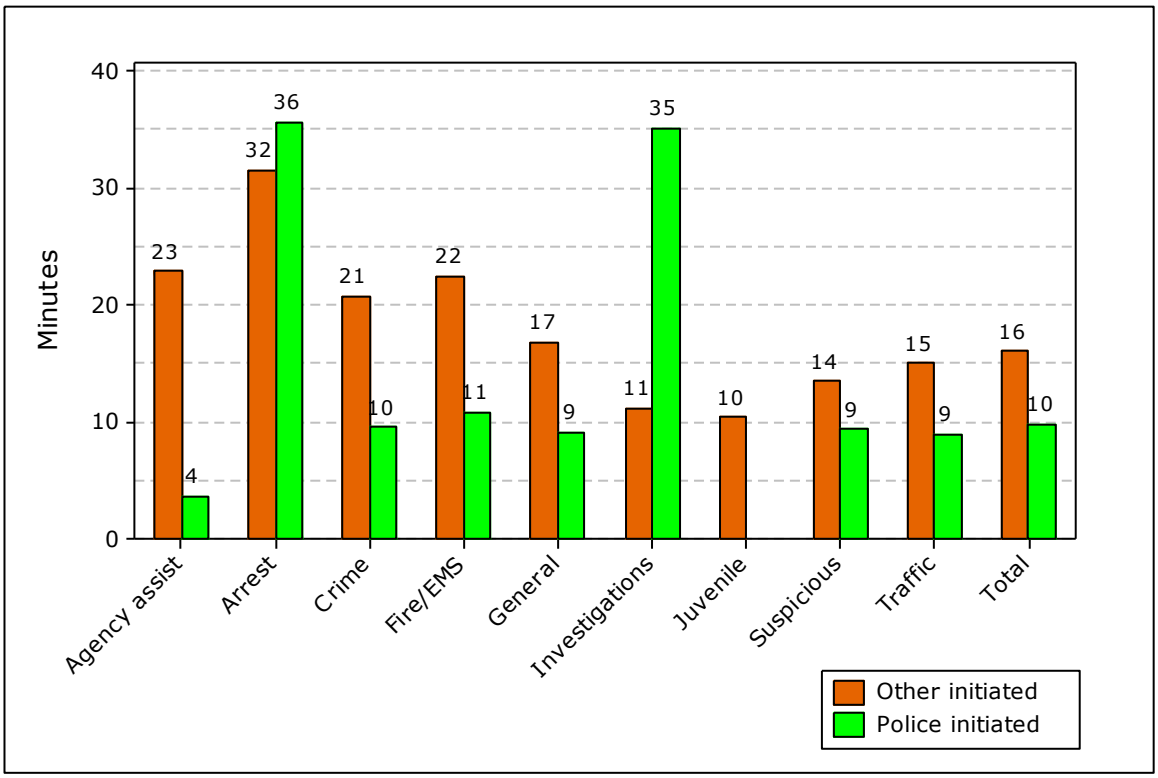
Category	July–Aug.	Sept.–Oct.	Nov.–Dec.	Jan.–Feb.	Mar.–Apr.	May–June
Accidents	0.1	0.1	0.1	0.2	0.1	0.1
Alarm	1.6	1.0	0.8	1.0	0.9	1.1
Animal calls	0.4	0.8	0.6	0.4	0.7	0.4
Assist other agency	0.4	0.3	0.4	0.3	0.2	0.4
Check/investigation	1.3	1.4	1.4	0.8	1.0	1.1
Crime–persons	0.1	0.1	0.0	0.1	0.1	0.1
Crime–property	1.0	1.0	0.8	0.7	0.7	0.9
Disturbance	0.7	0.5	0.5	0.5	0.3	0.5
Fire/EMS-related	1.5	0.9	1.2	0.8	0.8	1.1
Juvenile	0.2	0.2	0.2	0.2	0.2	0.3
Miscellaneous	1.7	1.3	1.5	1.3	1.3	1.3
Prisoner–arrest	0.4	0.1	0.1	0.2	0.4	0.2
Prisoner–transport	0.1	0.1	0.1	0.1	<0.1	<0.1
Suspicious person/vehicle	0.9	0.9	1.0	0.8	0.8	1.1
Traffic enforcement	7.5	5.9	4.9	6.6	6.2	7.7
Total	**18.1**	**14.6**	**13.7**	**13.8**	**13.6**	**16.3**

Note: Calculations were limited to calls rather than events.

Observations:

- The top three categories (traffic, investigations, and general) averaged between 68 and 75 percent of total calls throughout the year.
- Traffic averaged between 5.1 and 7.8 calls per day throughout the year.
- Investigations averaged between 1.8 and 2.9 calls per day.
- General noncriminal calls averaged between 1.7 and 2.1 calls per day.
- Crime calls averaged between 0.7 and 1.2 calls per day throughout the year and accounted for 5 to 7 percent of total calls.

FIGURE 6: Average Occupied Times, by Category and Initiator



Note: The figure combines categories using weighted averages from the following table according to the description on page 3.

TABLE 6: Primary Unit's Average Occupied Times, by Category and Initiator

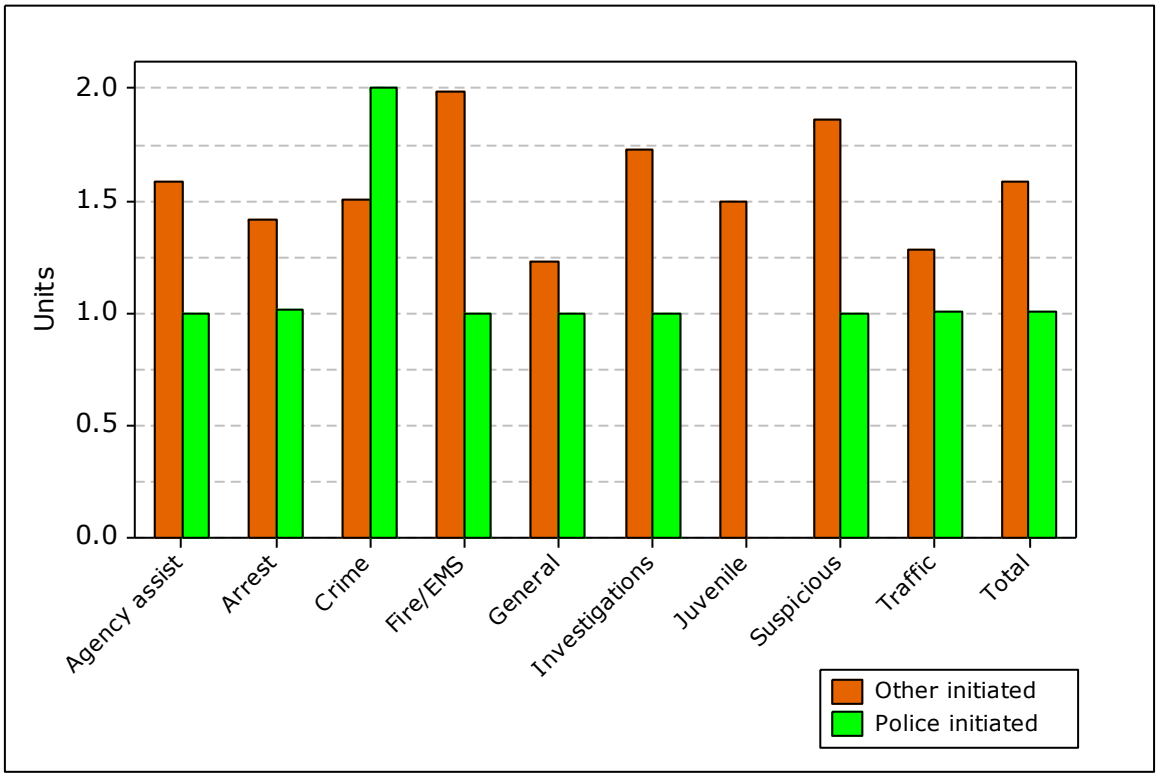
Category	Police-initiated		Other-initiated	
	Minutes	Total Calls	Minutes	Total Calls
Accidents	N/A	0	21.3	50
Alarm	N/A	0	7.4	392
Animal calls	N/A	0	13.0	195
Assist other agency	3.6	3	22.8	117
Check/investigation	35.1	1	14.7	418
Crime–persons	15.5	1	18.1	31
Crime–property	3.6	1	21.0	305
Disturbance	N/A	0	18.0	189
Fire/EMS-related	10.8	1	22.4	384
Juvenile	N/A	0	10.4	84
Miscellaneous	9.1	6	18.3	512
Prisoner–arrest	35.5	62	25.9	19
Prisoner–transport	N/A	0	35.5	27
Suspicious person/vehicle	9.4	1	10.9	333
Traffic enforcement	9.0	2,003	14.2	369
Total	**9.8**	**2,079**	**16.0**	**3,425**

Note: This information is limited to calls and excludes all events that show a zero time on scene. A unit's occupied time is measured as the time from when the call was received until the unit becomes available. The times shown are the average occupied times per call for the primary unit, rather than the total occupied time for all units assigned to a call.

Observations:

- Considering only categories with more than 10 calls per year, a unit's average time spent on a call ranged from 11.2 to 35.5 minutes overall.
- The longest average times were for police-initiated arrest calls.
- Average time spent on crime calls was 20.7 minutes.

FIGURE 7: Number of Responding Units, by Initiator and Category

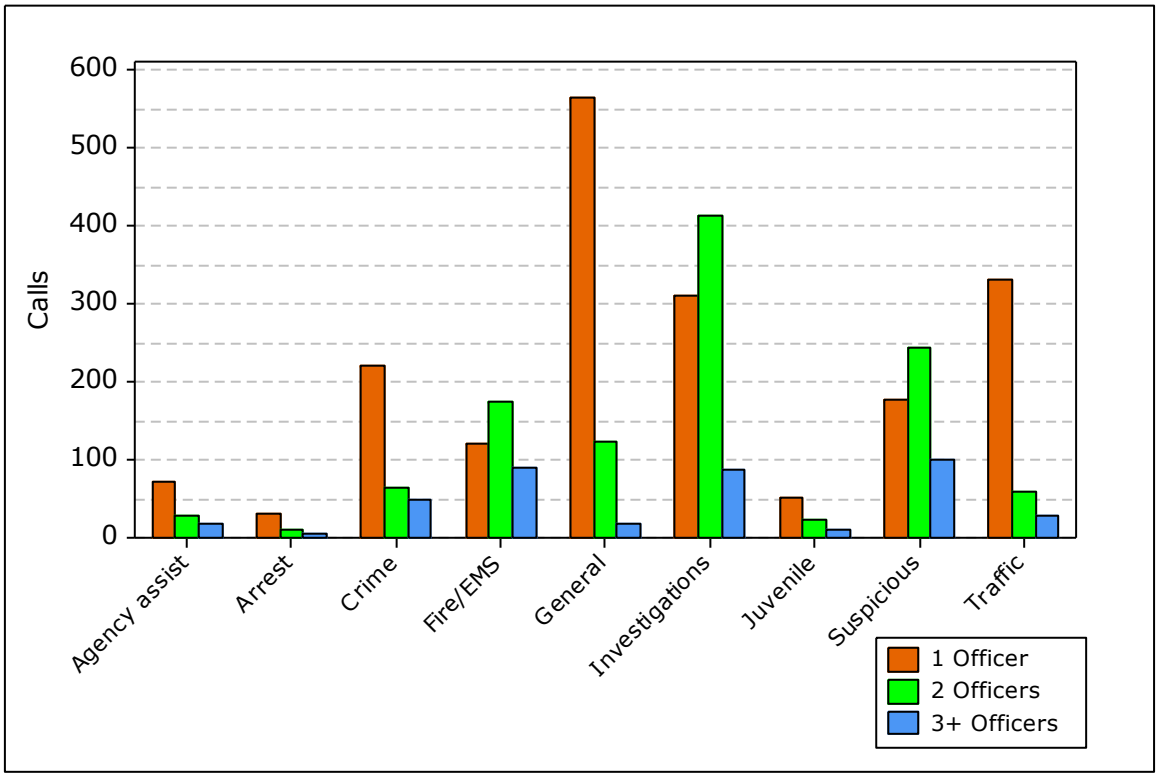


Note: The categories in this figure use weighted averages to combine those of the following table according to the description on page 3.

TABLE 7: Number of Responding Units, by Initiator and Category

Category	Police-Initiated		Other-Initiated	
	Average	Total Calls	Average	Total Calls
Accidents	N/A	0	1.4	50
Alarm	N/A	0	2.1	392
Animal calls	N/A	0	1.2	195
Assist other agency	1.0	3	1.6	117
Check/investigation	1.0	1	1.4	418
Crime–persons	3.0	1	1.8	31
Crime–property	1.0	1	1.5	305
Disturbance	N/A	0	1.9	189
Fire/EMS-related	1.0	1	2.0	384
Juvenile	N/A	0	1.5	84
Miscellaneous	1.0	6	1.3	512
Prisoner–arrest	1.0	62	1.8	19
Prisoner–transport	N/A	0	1.1	27
Suspicious person/vehicle	1.0	1	1.9	333
Traffic enforcement	1.0	2003	1.3	369
Total	**1.0**	**2,079**	**1.6**	**3,425**

FIGURE 8: Number of Responding Units, by Category, Other-Initiated Calls



Note: The categories in this figure use weighted averages to combine those of the following table according to the description on page 3.

TABLE 8: Number of Responding Units, by Category, Other-Initiated Calls

Category	Responding Units		
	One	Two	Three or More
Accidents	37	6	7
Alarm	34	303	55
Animal calls	165	28	2
Assist other agency	71	27	19
Check/investigation	276	110	32
Crime–persons	15	8	8
Crime–property	207	57	41
Disturbance	71	76	42
Fire/EMS-related	121	174	89
Juvenile	51	24	9
Miscellaneous	400	96	16
Prisoner–arrest	8	7	4
Prisoner–transport	23	4	0
Suspicious person/vehicle	107	167	59
Traffic enforcement	294	53	22
Total	**1,880**	**1,140**	**405**

Note: The information in Table 7 and Figure 7 is limited to calls and excludes events with zero time on scene, as well as out-of-service records. The information in Table 8 and Figure 8 is further limited to other-initiated calls.

Observations:

- The overall mean number of responding units was 1.0 for police-initiated calls and 1.6 for other-initiated calls.
- The mean number of responding units was as high as 2.0 for crime calls that were police-initiated.
- 55 percent of all other-initiated calls involved one responding unit.
- 33 percent of all other-initiated calls involved two responding units.
- 12 percent of all other-initiated calls involved three or more units.
- The largest group of calls with three or more responding units involved suspicious incident calls.

FIGURE 9: Percentage Calls and Work Hours, by Category, Summer 2011

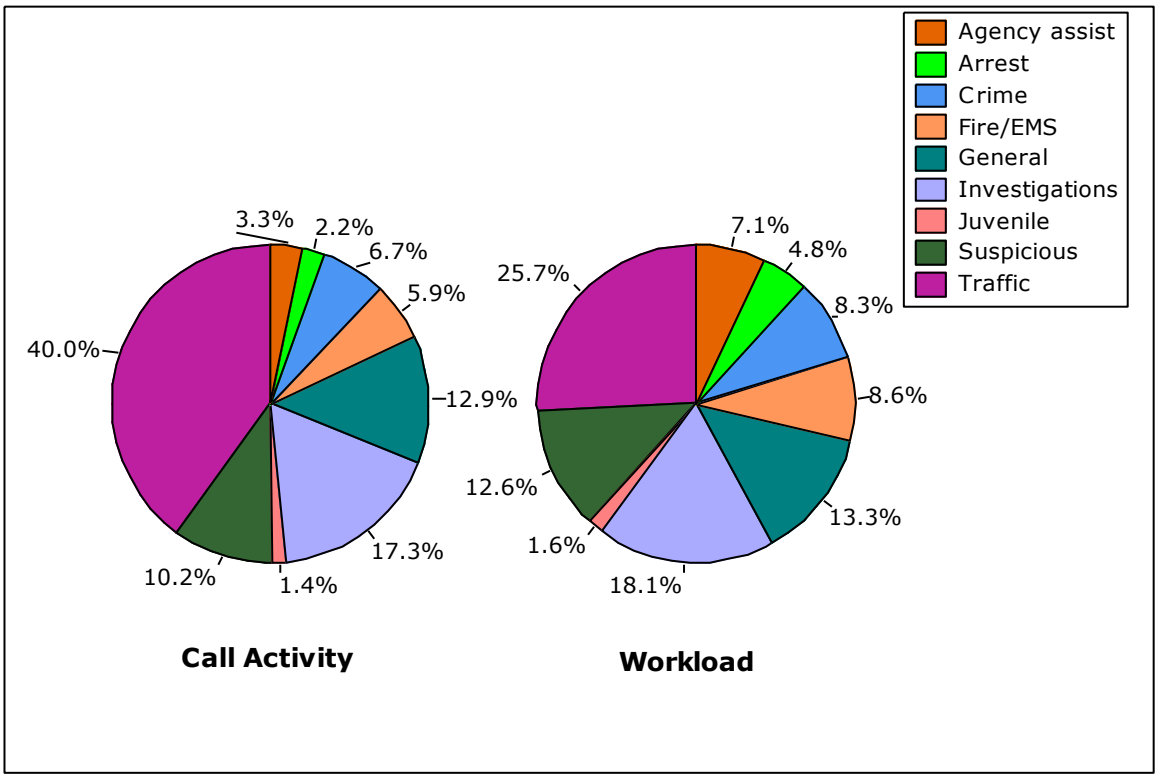


TABLE 9: Calls and Work Hours per Day, by Category, Summer 2011

Category	Per Day	
	Calls	Work Hours
Arrest	0.4	0.2
Assist other agency	0.6	0.3
Crime	1.2	0.4
Fire/EMS-related	1.0	0.4
General noncriminal	2.3	0.6
Investigations	3.0	0.8
Juvenile	0.3	0.1
Suspicious incident	1.8	0.5
Traffic	7.0	1.1
Total	**17.5**	**4.3**

Observations:

- Total calls were 17.5 per day, or 0.7 per hour.
- Total workload was 4.3 work hours per day, meaning that an average of 0.2 officers per hour were busy responding to calls.
- Traffic constituted 40 percent of calls and 26 percent of workload.
- General noncriminal constituted 13 percent of calls and 13 percent of workload.
- Investigations constituted 17 percent of calls and 18 percent of workload.
- Crimes constituted 7 percent of calls and 8 percent of workload.
- Fire and EMS constituted 6 percent of calls and 9 percent of workload.

FIGURE 10: Percentage Calls and Work Hours, by Category, Winter 2012

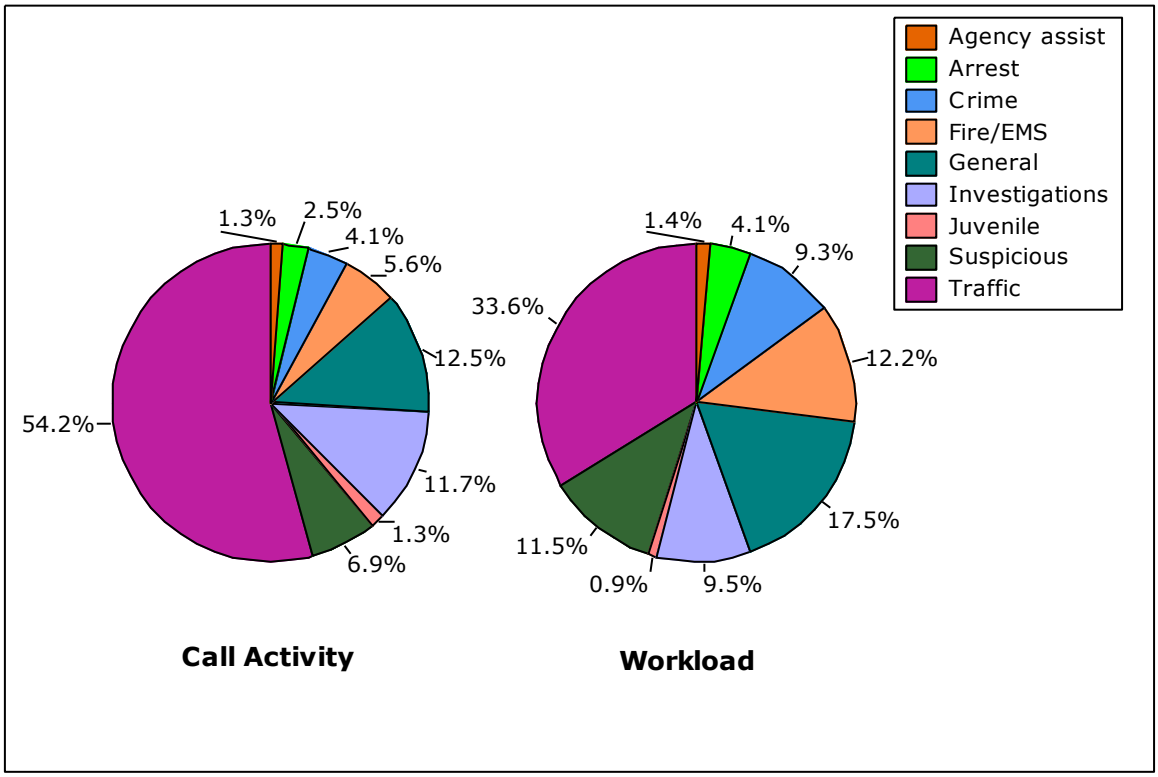


TABLE 10: Calls and Work Hours per Day, by Category, Winter 2012

Category	Per Day	
	Calls	Work Hours
Arrest	0.4	0.2
Assist other agency	0.2	0.1
Crime	0.6	0.3
Fire/EMS-related	0.8	0.4
General noncriminal	1.8	0.6
Investigations	1.6	0.3
Juvenile	0.2	0.0
Suspicious incident	1.0	0.4
Traffic	7.6	1.2
Total	**14.0**	**3.7**

Note: Workload calculations focused on calls rather than events.

Observations:

- The total calls per day were fewer in the winter than in the summer. Similarly, the winter workload was smaller than in summer.
- Total calls in winter were 14.0 per day, or 0.6 per hour.
- Total workload was 3.7 work hours per day, meaning that an average of 0.2 officers per hour were busy responding to calls.
- Traffic constituted 54 percent of calls and 34 percent of workload.
- General noncriminal constituted 13 percent of calls and 18 percent of workload.
- Investigations constituted 12 percent of calls and 10 percent of workload.
- Crimes constituted 4 percent of calls and 9 percent of workload.
- Fire and EMS constituted 6 percent of calls and 12 percent of workload.

Deployment

The public safety department's main patrol force includes patrol officers and supervisors. For this study, we only examined deployment information for four weeks in summer (August 2011) and four weeks in winter (February 2012). The department's main patrol force is scheduled on two 12-hour shifts that start at 7:00 a.m. (day) and 7:00 p.m. (night), respectively.

The department deployed an average of 4.1 officers per hour during the 24-hour day in summer 2011 and 4.3 officers per hour during the 24-hour day in winter 2012.

In this section, we describe the deployment and workload in distinct steps, distinguishing between summer and winter, and between weekdays and weekends:

- First, we focus on patrol deployment alone.
- Next, we compare the deployment against workload based upon other-initiated calls for service.
- Finally, we draw a comparison based upon "all" workload, which includes police-initiated calls and directed patrol activities.

Comments follow each set of four figures, with separate discussions for summer and winter.

FIGURE 11: Deployed Officers, Weekdays, Summer 2011

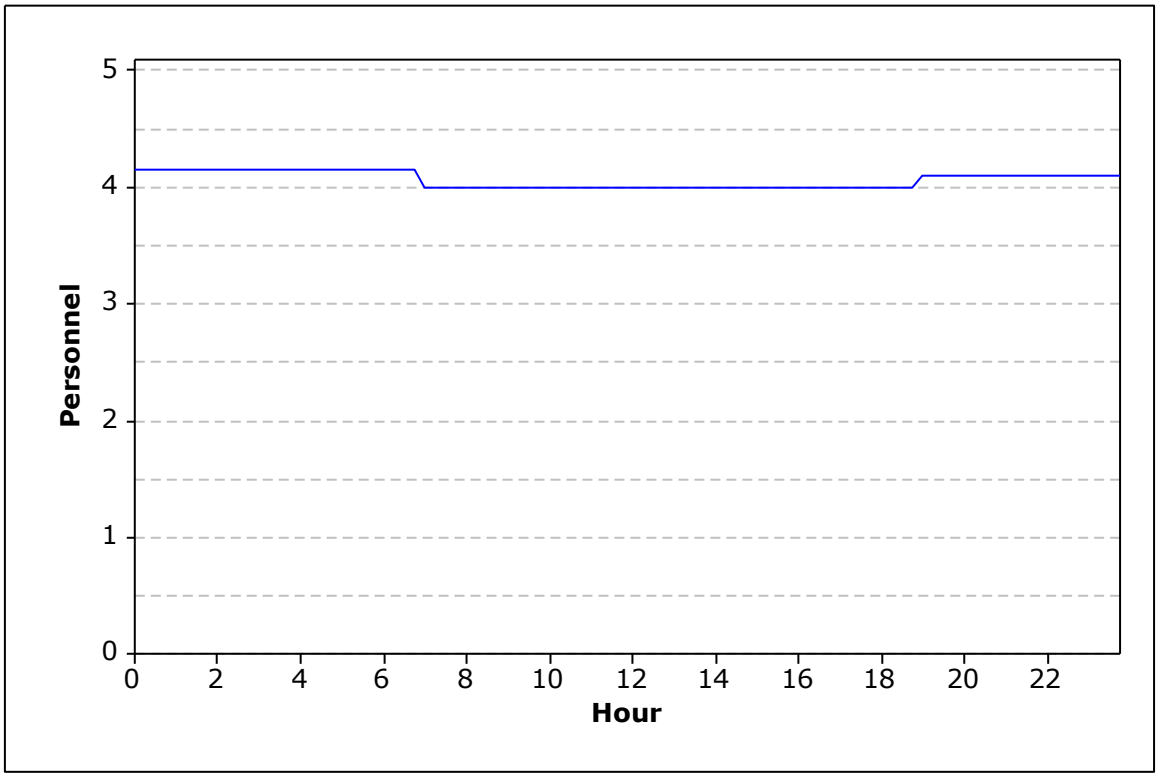


FIGURE 12: Deployed Officers, Weekends, Summer 2011

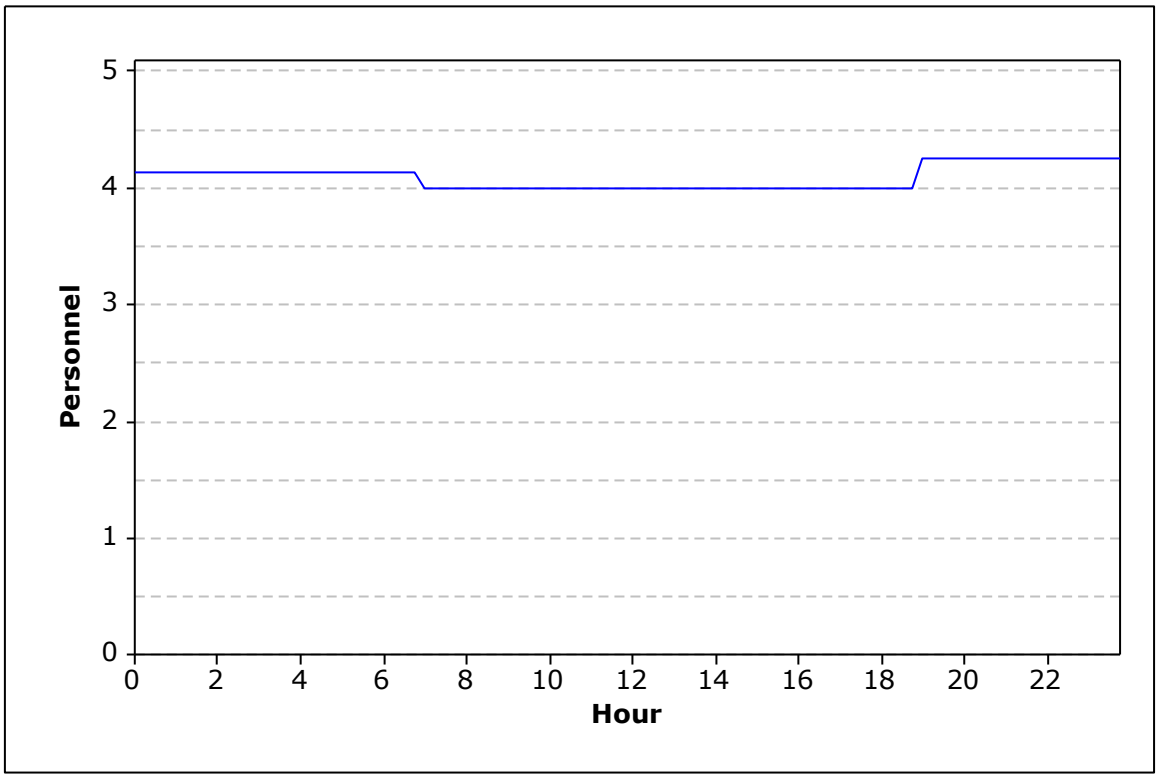


FIGURE 13: Deployed Officers, Weekdays, Winter 2012

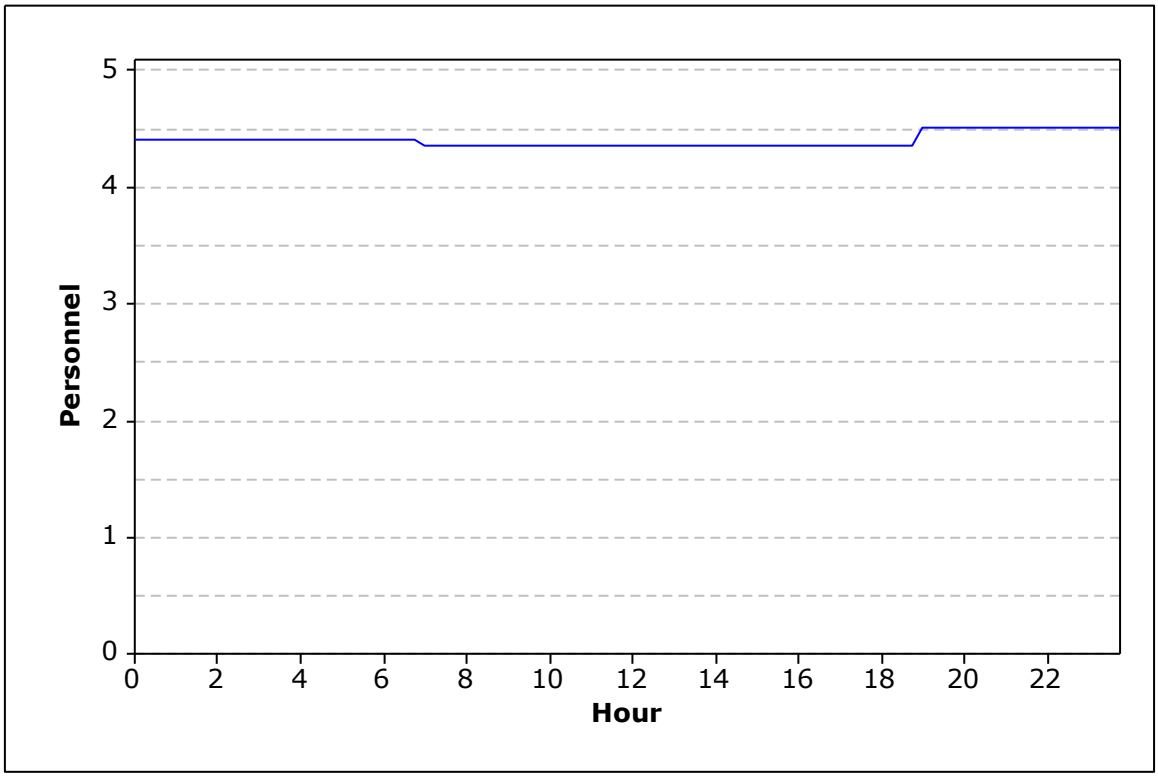
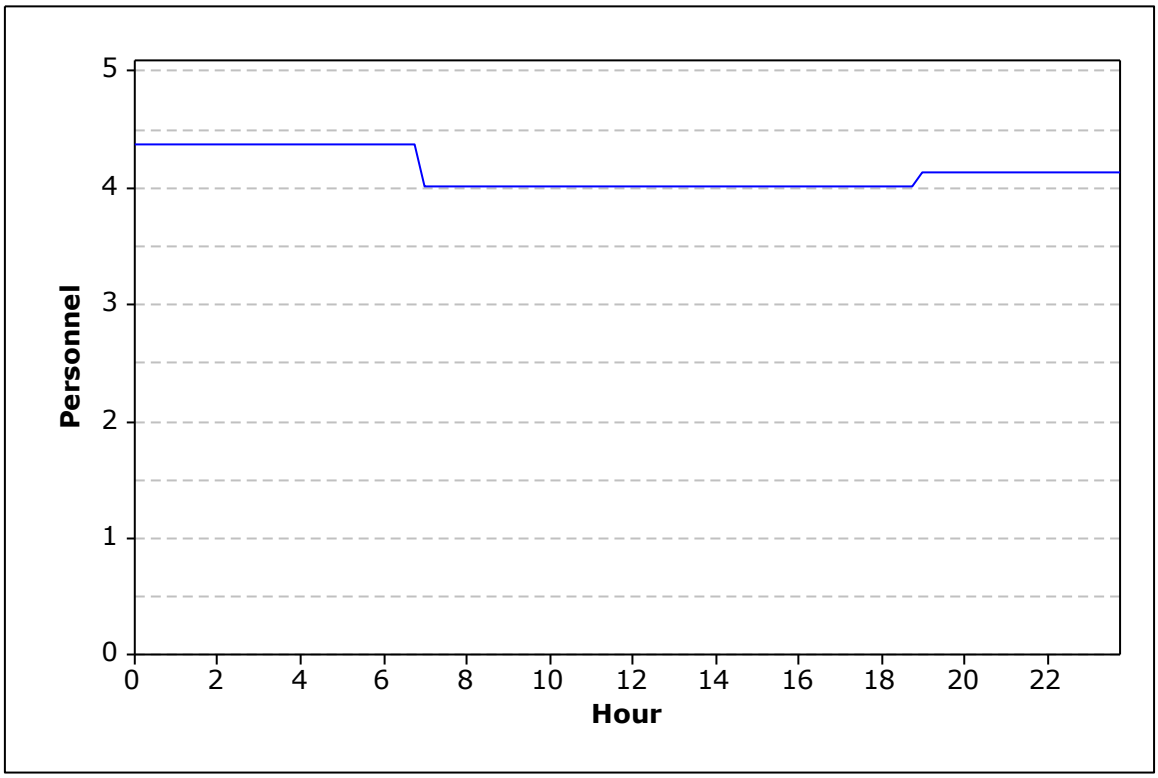


FIGURE 14: Deployed Officers, Weekends, Winter 2012



Observations:

- For summer 2011:
  - The average deployment was about 4.1 officers per hour during the week and on weekends.
  - Deployment varied between 4.0 and 4.2 officers per hour on weekdays, and between 4.0 and 4.3 officers per hour on weekends.
- For winter 2012:
  - The average deployment was about 4.4 officers per hour during the week and 4.1 officers per hour on weekends.
  - Deployment varied between 4.4 and 4.5 officers per hour on weekdays, and between 4.0 and 4.4 officers per hour on weekends.

FIGURE 15: Deployment and Other-Initiated Workload, Weekdays, Summer 2011

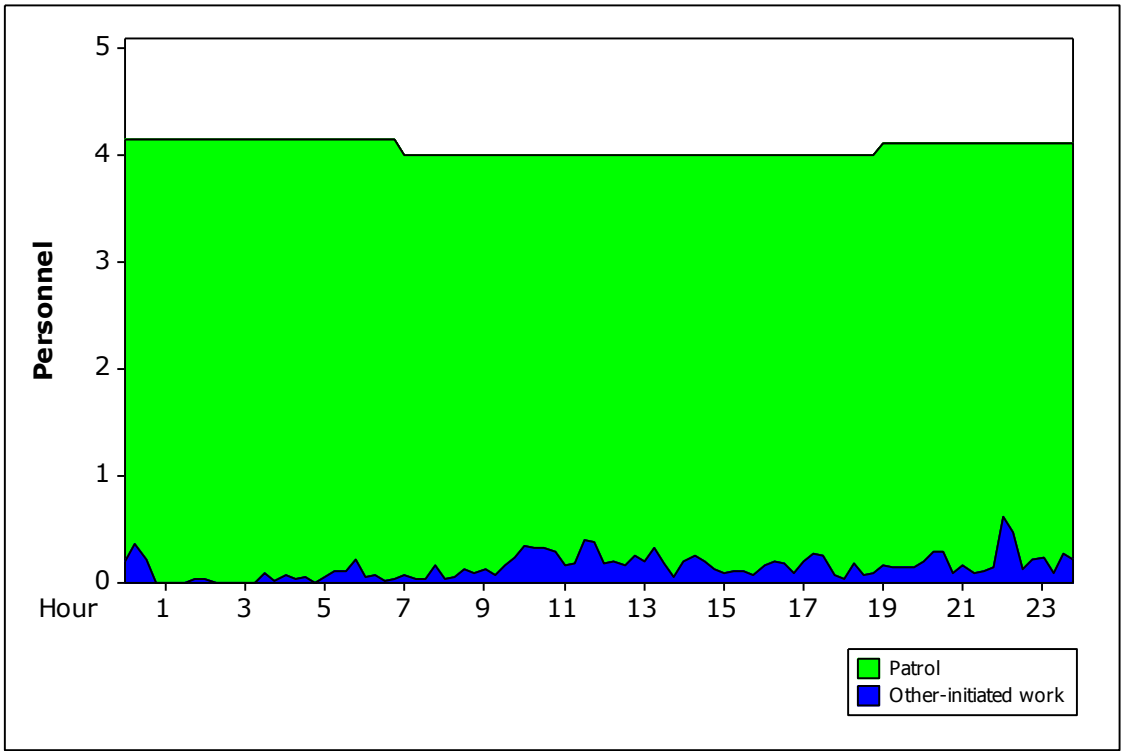


FIGURE 16: Deployment and Other-Initiated Workload, Weekends, Summer 2011

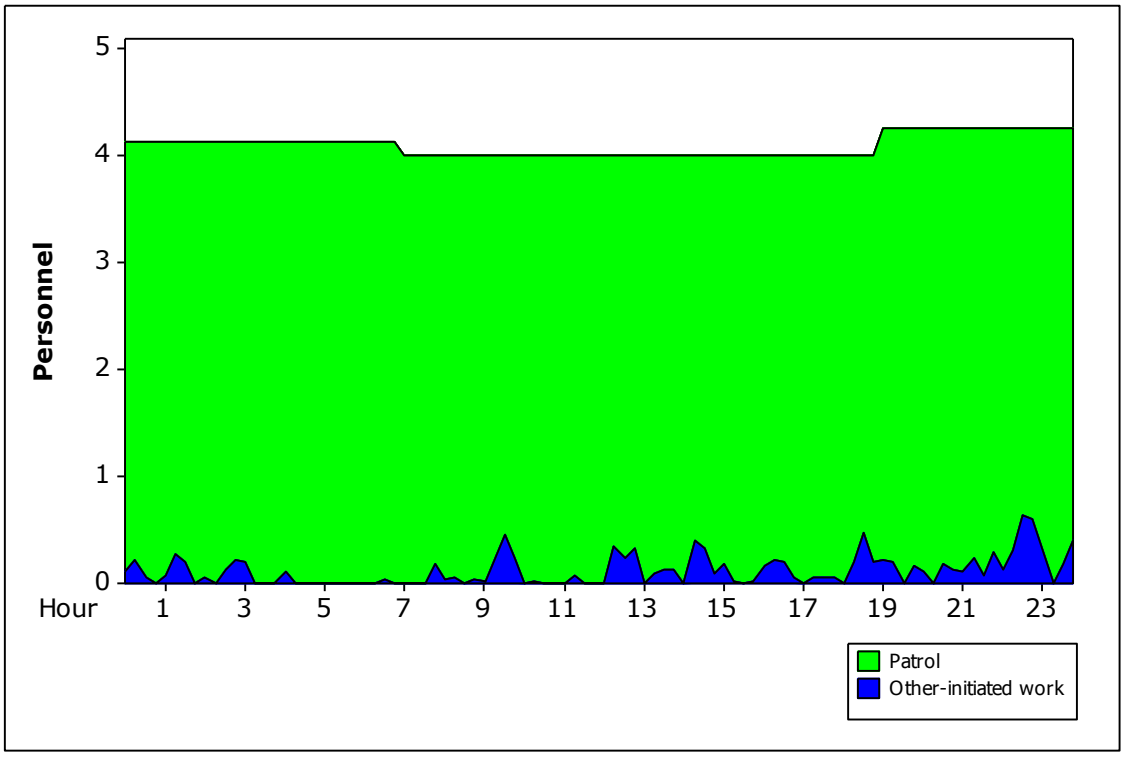


FIGURE 17: Deployment and Other-Initiated Workload, Weekdays, Winter 2012

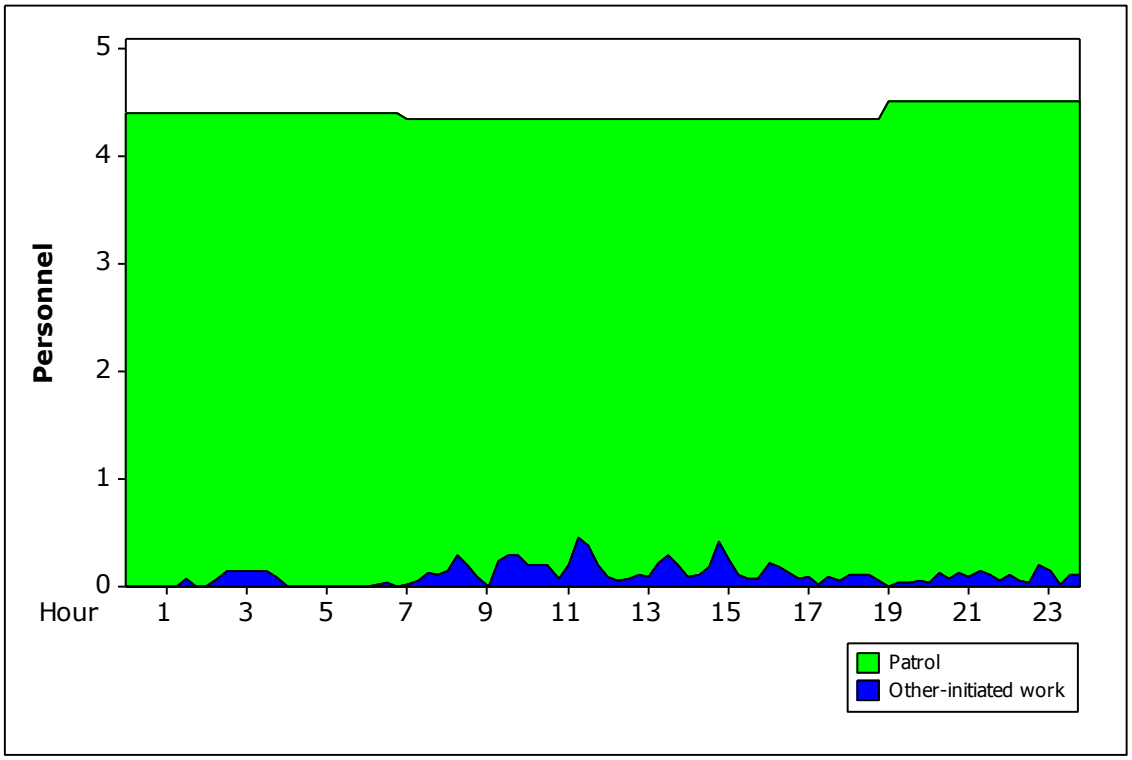
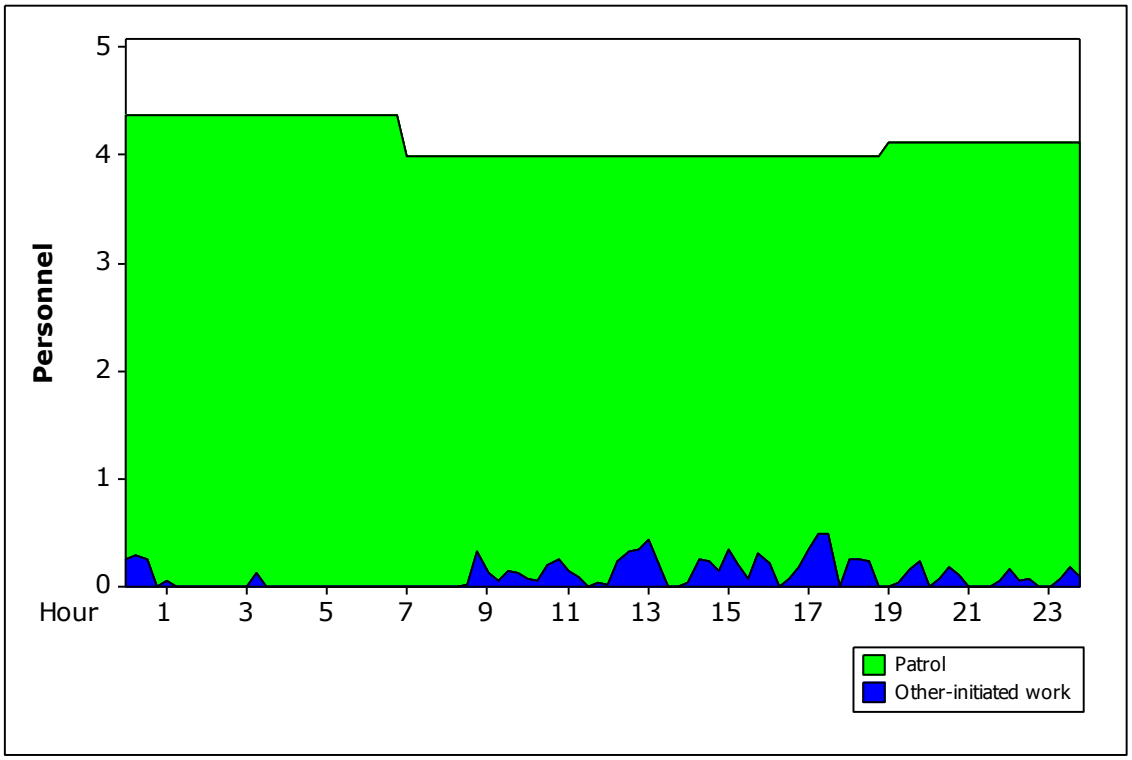


FIGURE 18: Deployment and Other-Initiated Workload, Weekends, Winter 2012



Observations:

- For summer 2011:
  - Average other-initiated workload was 0.2 officers per hour during the week and 0.1 officers per hour on weekends.
  - This was approximately 4 percent of hourly deployment during the week and 3 percent of hourly deployment on weekends.
  - During the week, workload reached a maximum of 15 percent of deployment between 10:00 p.m. and 10:15 p.m.
  - On weekends, workload reached a maximum of 15 percent of deployment between 10:30 p.m. and 10:45 p.m.
- For winter 2012:
  - Average other-initiated workload was 0.1 officers per hour during the week and on weekends.
  - This was approximately 2 percent of hourly deployment during the week and on weekends.
  - During the week, workload reached a maximum of 11 percent of deployment between 11:15 a.m. and 11:30 a.m.
  - On weekends, workload reached a maximum of 12 percent of deployment between 5:30 p.m. and 5:45 p.m.

FIGURE 19: Deployment and Main Workload, Weekdays, Summer 2011

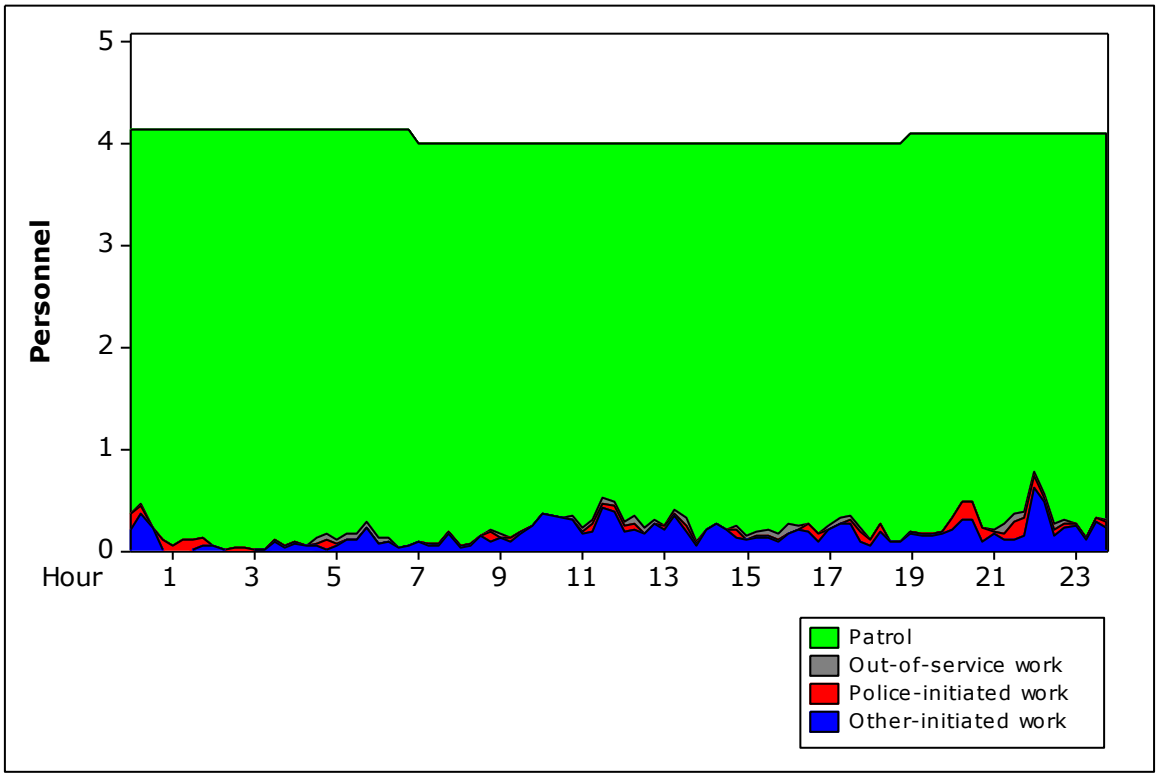


FIGURE 20: Deployment and Main Workload, Weekends, Summer 2011

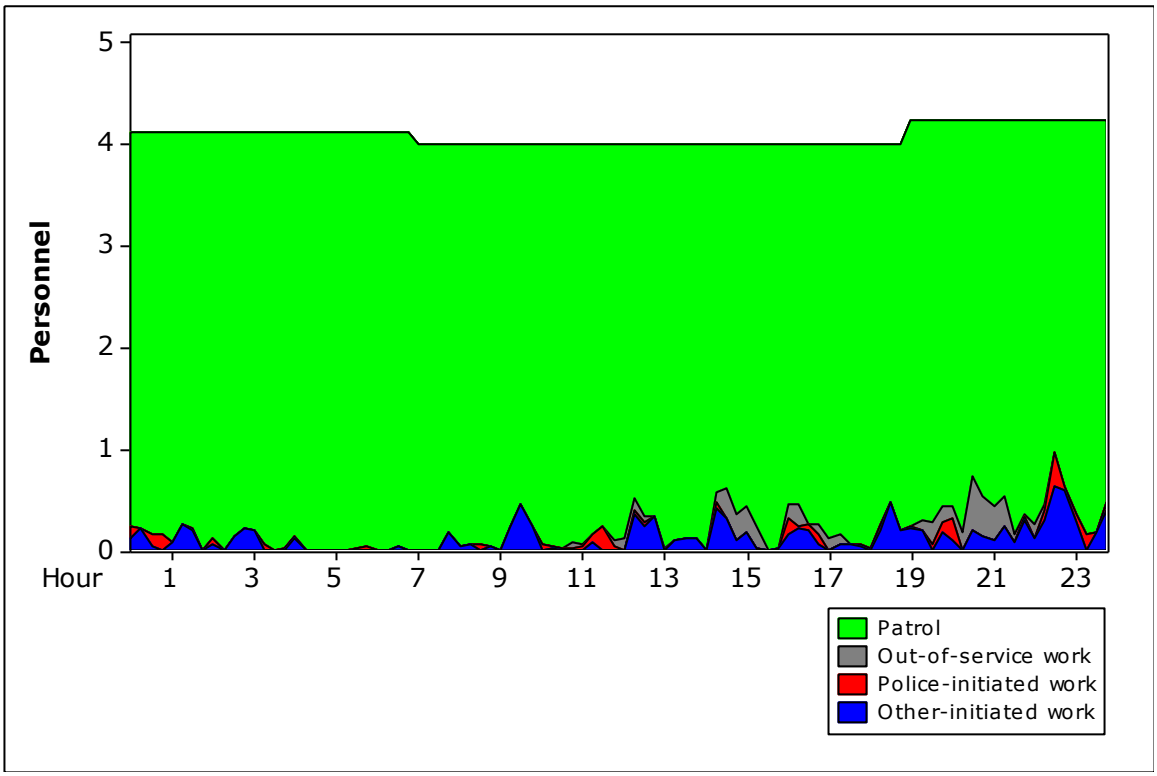


FIGURE 21: Deployment and Main Workload, Weekdays, Winter 2012

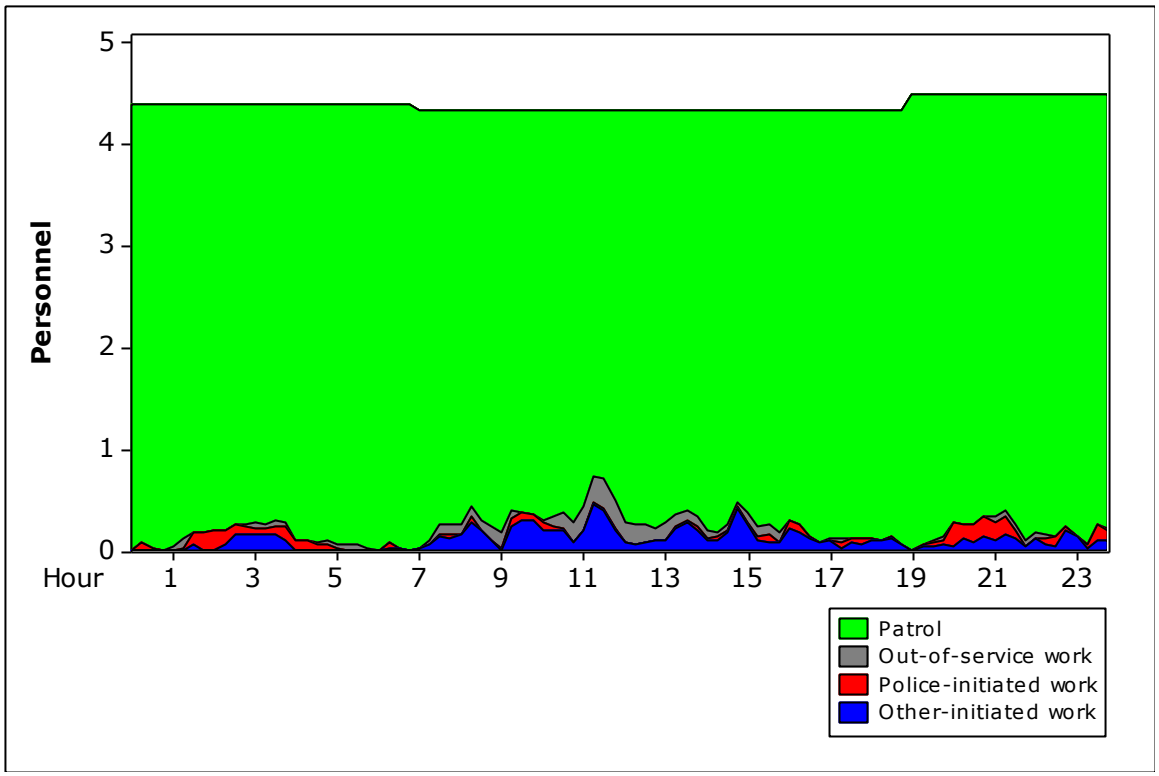
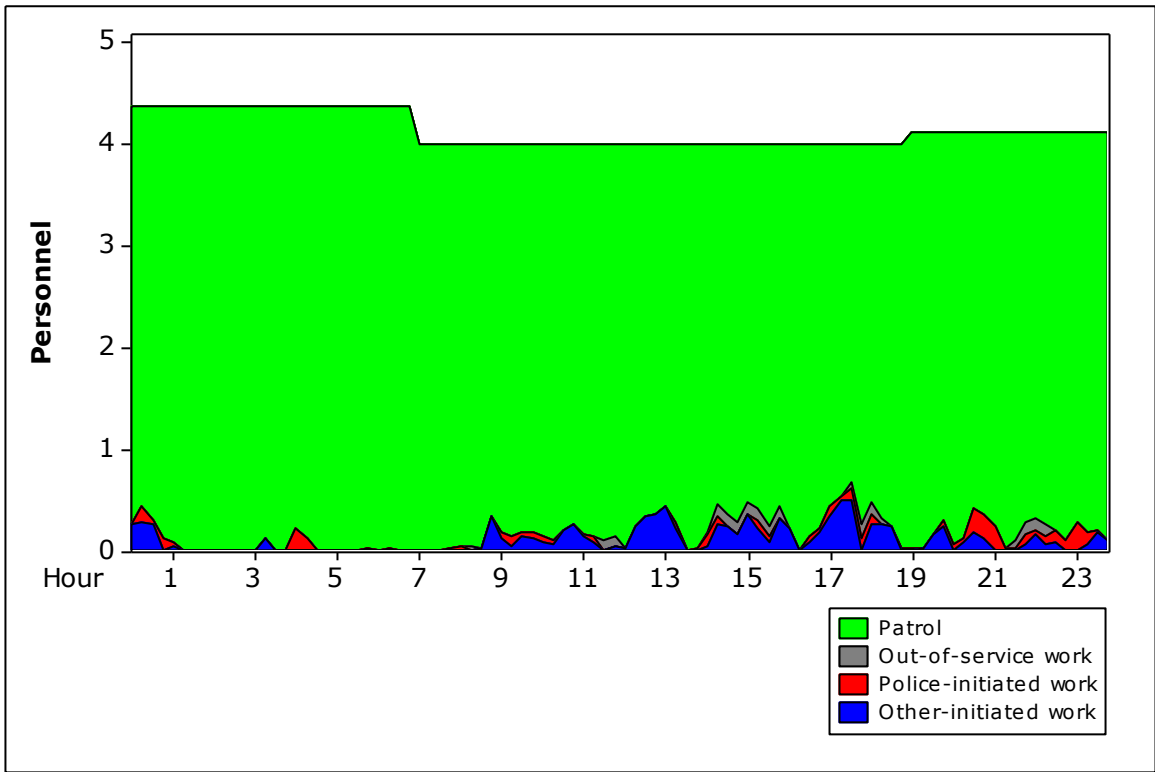


FIGURE 22: Deployment and Main Workload, Weekends, Winter 2012



Methodology:

These figures include deployment along with all workload from other-initiated, police-initiated, and out-of-service activities.

Observations:

- For summer 2011:
  - Average workload was 0.2 officers per hour during the week and on weekends.
  - This was approximately 5 percent of hourly deployment during the week and on weekends.
  - During the week, workload reached a maximum of 19 percent of deployment between 10:00 p.m. and 10:15 p.m.
  - On weekends, workload reached a maximum of 23 percent of deployment between 10:30 p.m. and 10:45 p.m.
- For winter 2012:
  - Average workload was 0.2 officers per hour during the week and on weekends.
  - This was approximately 5 percent of hourly deployment during the week and 4 percent of hourly deployment on weekends.
  - During the week, workload reached a maximum of 17 percent of deployment between 11:15 a.m. and 11:30 a.m.
  - On weekends, workload reached a maximum of 17 percent of deployment between 5:30 p.m. and 5:45 p.m.

FIGURE 23: Deployment and All Workload, Weekdays, Summer 2011

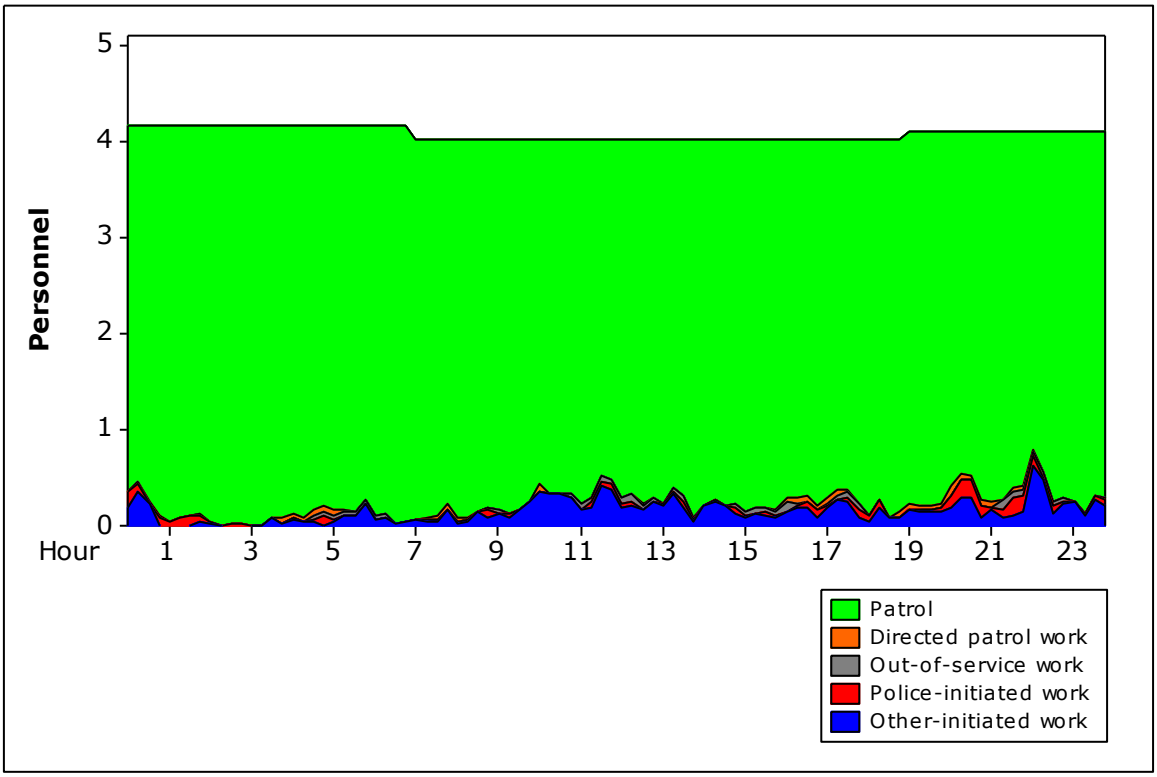


FIGURE 24: Deployment and All Workload, Weekends, Summer 2011

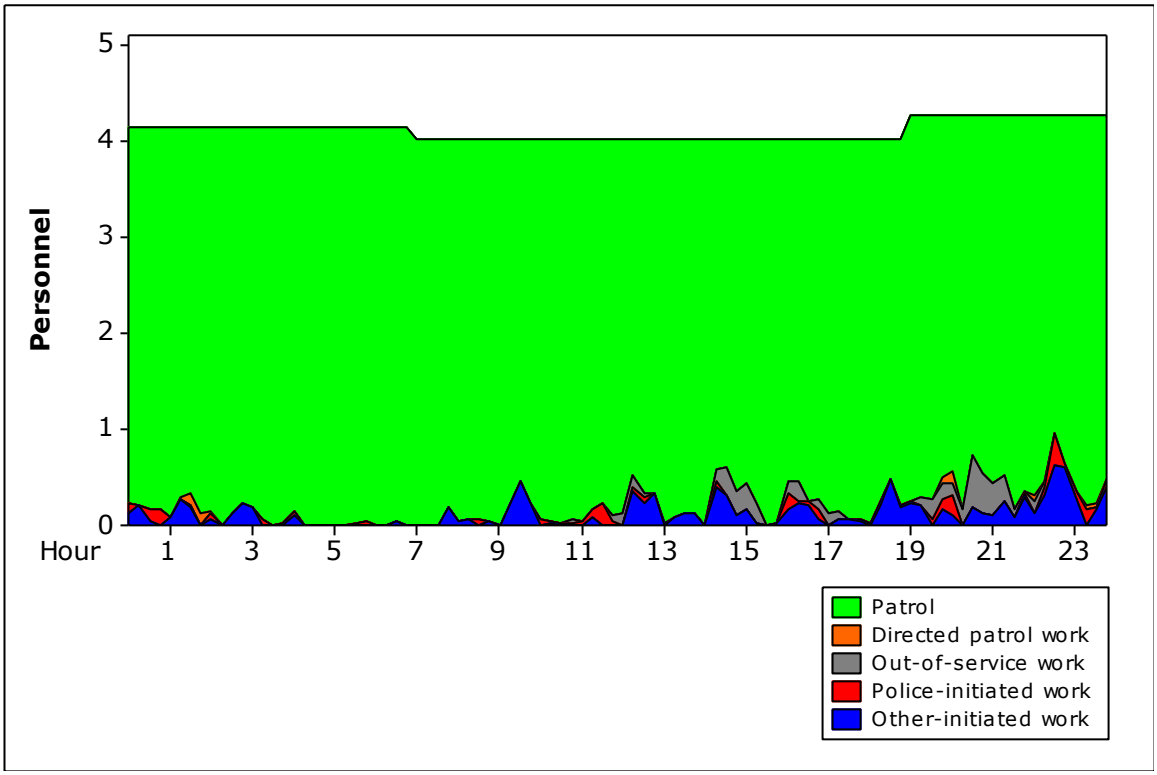


FIGURE 25: Deployment and All Workload, Weekdays, Winter 2012

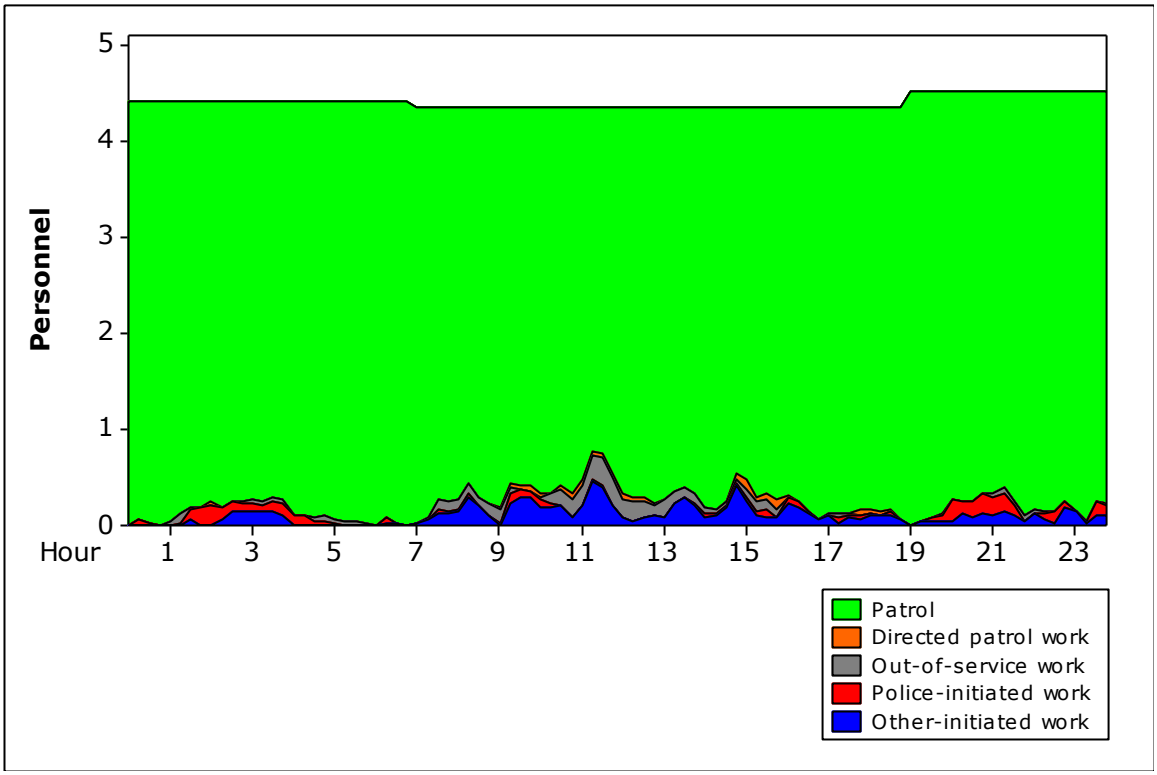
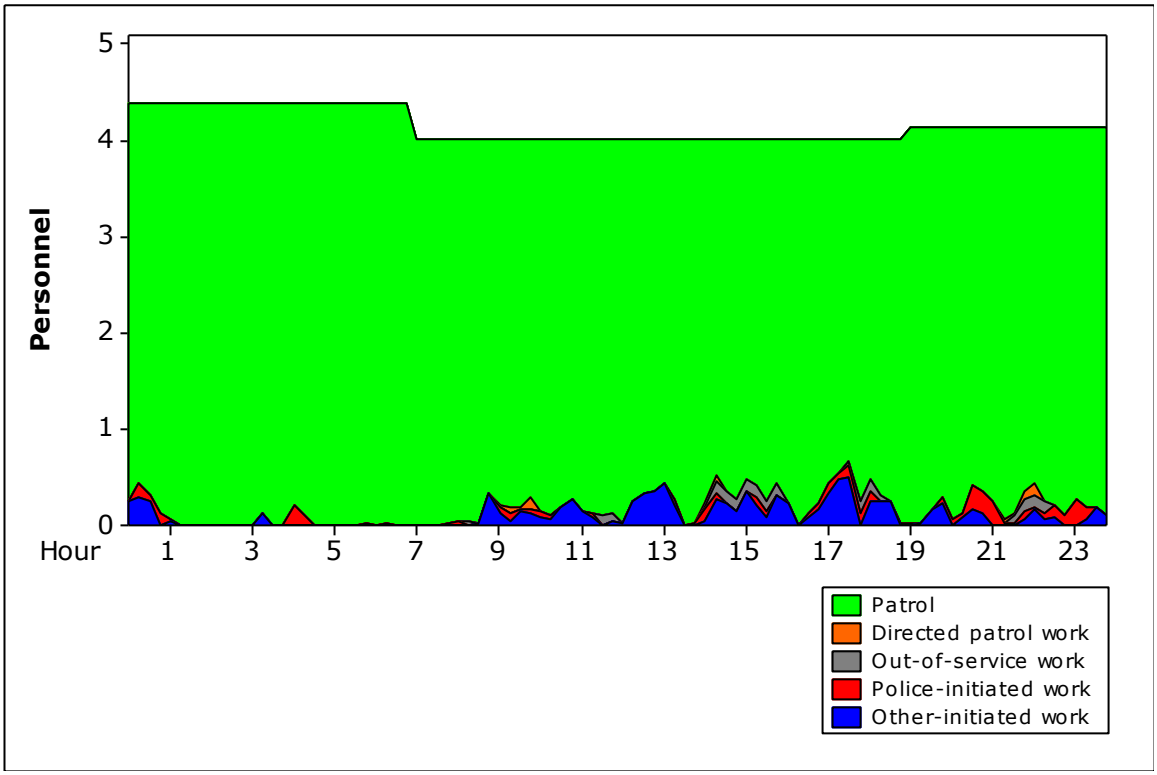


FIGURE 26: Deployment and All Workload, Weekends, Winter 2012



Note: These figures include deployment along with all workload from other-initiated, police-initiated, out-of-service, and directed patrol activities.

Observations:

- For summer 2011:
  - Average workload was 0.2 officers per hour during the week and on weekends.
  - This was approximately 6 percent of hourly deployment during the week and 5 percent on weekends.
  - During the week, workload reached a maximum of 19 percent of deployment between 10:00 a.m. and 10:15 p.m.
  - On weekends, workload reached a maximum of 23 percent of deployment between 10:30 p.m. and 10:45 p.m.
- For winter 2012:
  - Average workload was 0.2 officers per hour during the week and on weekends.
  - This was approximately 5 percent of hourly deployment during the week and 4 percent on weekends.
  - During the week, workload reached a maximum of 18 percent of deployment between 11:15 a.m. and 11:30 a.m.
  - On weekends, workload reached a maximum of 17 percent of deployment between 5:30 p.m. and 5:45 p.m.

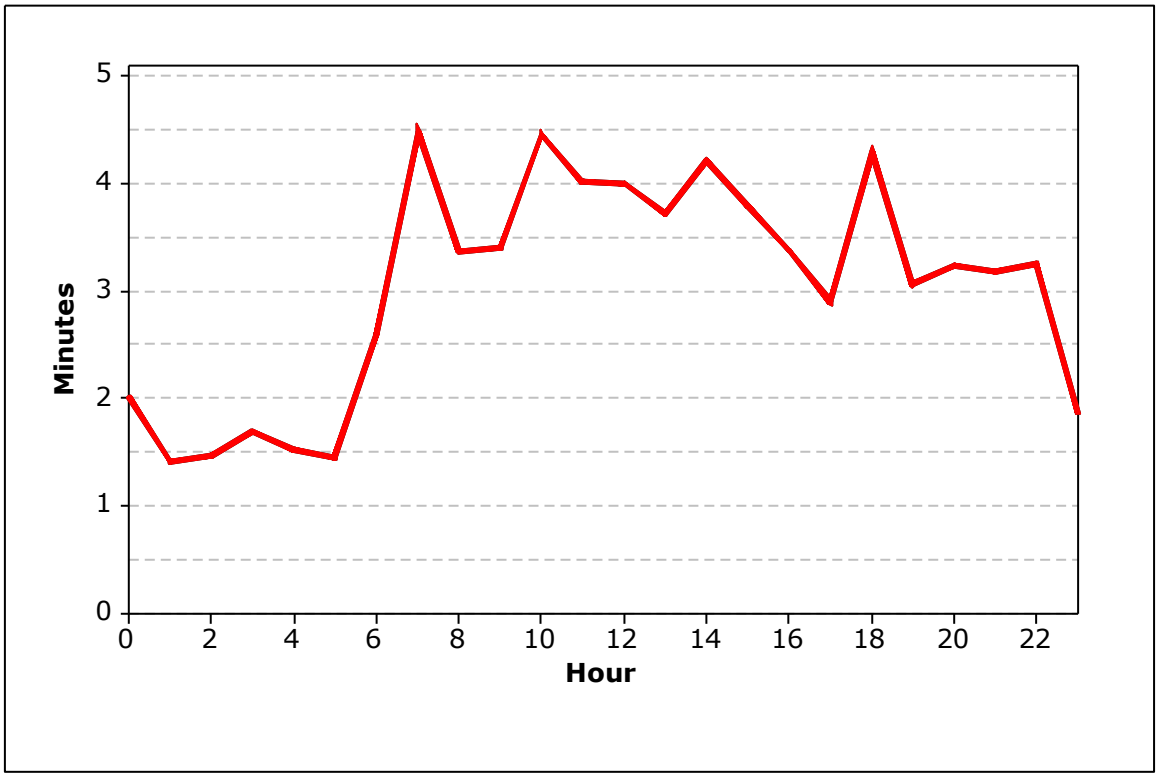
Response Times

We analyzed the response times to various types of calls, separating the duration into dispatch and travel times. We begin the discussion with statistics that include all calls combined. We analyzed several types of calls to determine whether response times varied by call type.

Before presenting the specific figures and tables, we summarize our observations. We started with 583 events for summer 2011 and 471 events for winter 2012. We limited our analysis to other-initiated calls. We also encountered some calls without arrival times that we were forced to exclude from our analysis due to lack of information. This left 258 calls in summer and 175 calls in winter for our analysis.

Our analysis does not distinguish calls based on their priority. Instead, it examines the difference in response by time of day and compares summer and winter periods. Response time is measured as the difference between when a call is received and when the first unit arrives on scene. This is further divided into dispatch delay and travel time. Dispatch delay is the time between when a call is received and when the first unit is dispatched. Travel time is the remaining time until the first unit arrives on scene.

FIGURE 27: Average Response Time, by Hour of Day



Observations:

- Average response times varied significantly by hour of day.
- Throughout the year, the longest average response times were between 7:00 a.m. and 8:00 a.m., with an average of 4.5 minutes.
- Throughout the year, the shortest average response times were between 1:00 a.m. and 2:00 a.m., with an average of 1.4 minutes
- In summer, the longest average response times were between 10:00 a.m. and 11:00 a.m., with an average of about 5.5 minutes.
- In winter, the longest response average times were between 11:00 a.m. and 12:00 p.m., with an average of 7.6 minutes.

FIGURE 28: Average Response Time by Category, Summer 2011

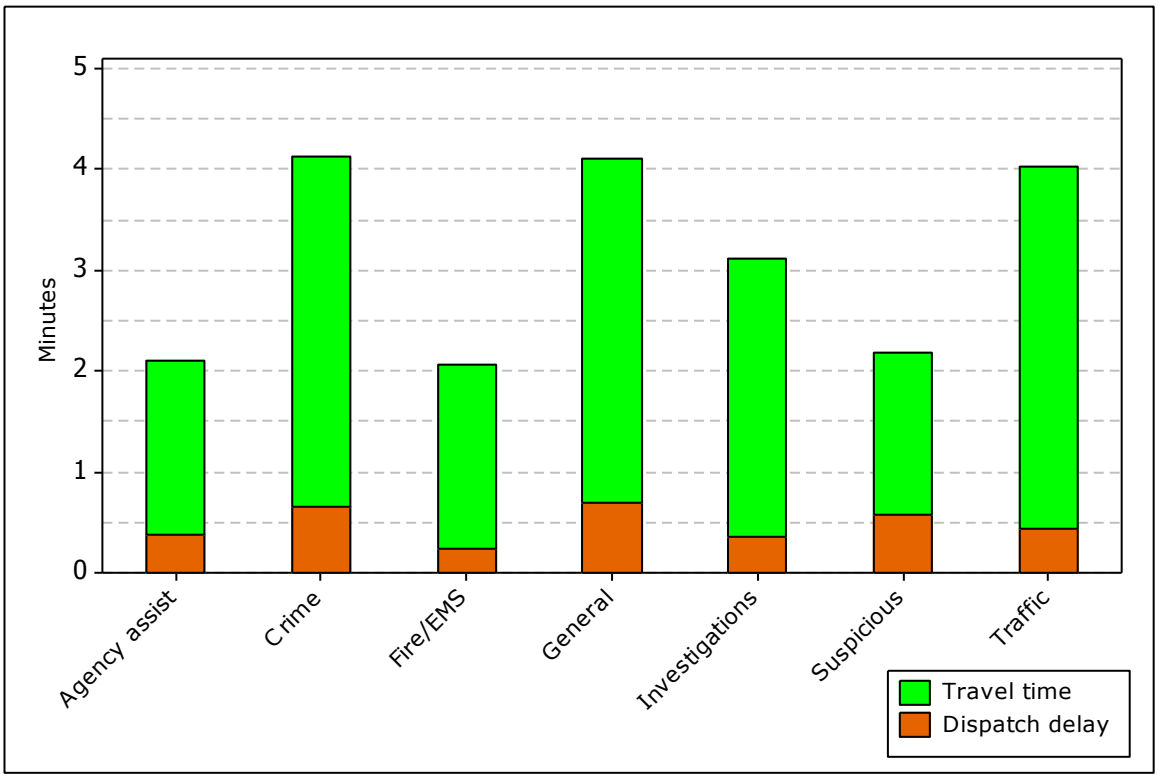


FIGURE 29: Average Response Time by Category, Winter 2012

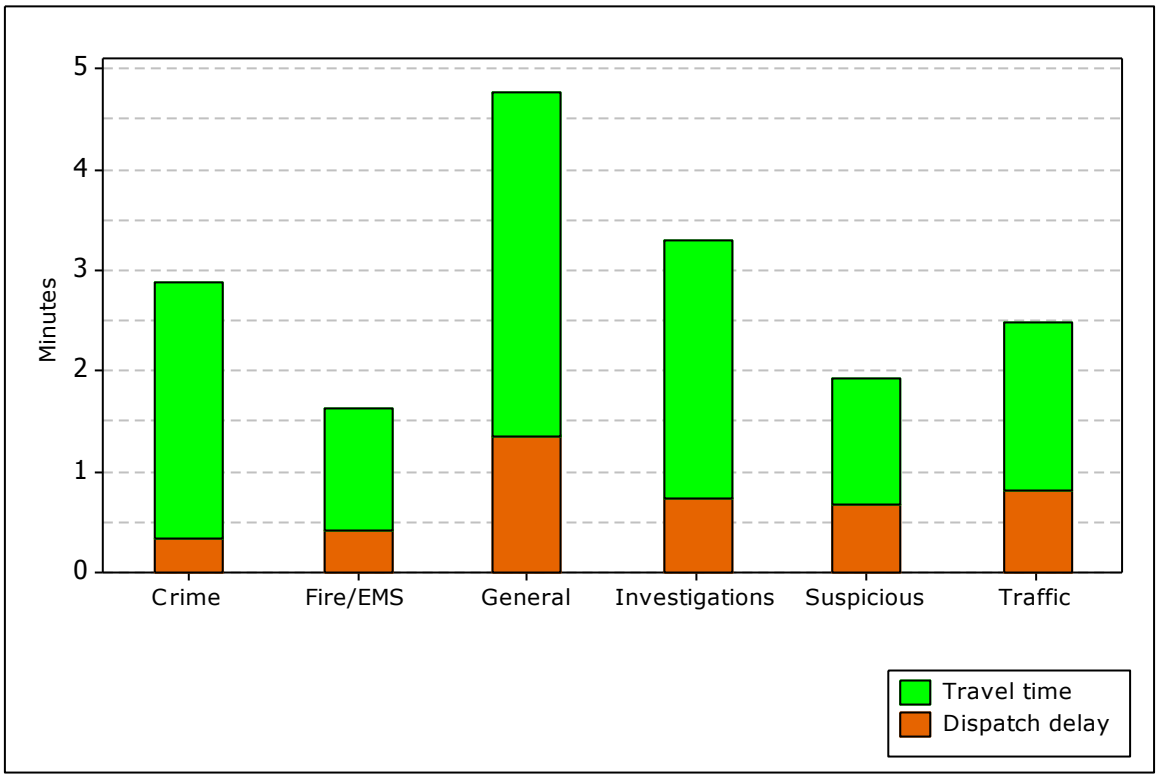


TABLE 11: Average Response Time Components, by Category

Category	Summer 2011			Winter 2012		
	Dispatch	Travel	Response	Dispatch	Travel	Response
Assist other agency	0.4	1.7	2.1	N/A	N/A	N/A
Crime	0.7	3.5	4.1	0.3	2.5	2.9
Fire/EMS-related	0.2	1.8	2.1	0.4	1.2	1.6
General noncriminal	0.7	3.4	4.1	1.4	3.4	4.8
Investigations	0.4	2.8	3.1	0.7	2.6	3.3
Suspicious incident	0.6	1.6	2.2	0.7	1.3	1.9
Traffic	0.4	3.6	4.0	0.8	1.7	2.5
Total	**0.5**	**2.7**	**3.2**	**0.9**	**2.4**	**3.2**

Note: The total average is weighted according to the number of calls per category. Categories with fewer than 10 calls (all arrests, all juveniles, and agency assists in winter) are excluded from this display.

Observations:

- In summer, average response times for most categories were between 2 minutes and 4 minutes. The average response time was as short as 2.1 minutes (for agency assists and fire/EMS calls) and as long as 4.1 minutes (for crime and general noncriminal calls).
- In winter, the average response times for most categories were between 2 minutes and 5 minutes. The average response time was as short as 1.6 minutes (for fire/EMS calls) and as long as 4.8 minutes (for general noncriminal calls).
- The average response time for crimes was approximately 4.1 minutes in summer and 2.9 minutes in winter.

TABLE 12: 90th Percentiles for Response Time Components, by Category

Category	Summer 2011			Winter 2012		
	Dispatch	Travel	Response	Dispatch	Travel	Response
Assist other agency	1.6	6.6	7.1	N/A	N/A	N/A
Crime	2.8	9.0	9.3	1.2	8.9	9.0
Fire/EMS-related	0.6	5.2	5.3	1.0	2.9	3.4
General noncriminal	0.8	7.8	8.0	5.2	10.8	13.5
Investigations	0.8	5.9	6.3	1.6	5.5	8.3
Suspicious incident	1.8	4.2	5.5	1.7	3.7	6.5
Traffic	1.4	10.9	12.2	3.1	4.7	6.1
Total	**0.9**	**6.8**	**7.1**	**1.6**	**5.8**	**8.1**

Note: A 90th percentile value of seven minutes means that 90 percent of all calls are responded to in fewer than seven minutes. For this reason, the columns for dispatch delay and travel time will not add to total response time.

Observations:

- In summer, 90th percentile values for response times were as short as 5.3 minutes (for fire/EMS calls) and as long as 12.2 minutes (for traffic calls).
- In winter, 90th percentile values for response times were as short as 3.4 minutes (for fire/EMS calls) and as long as 13.5 minutes (for general noncriminal calls).

Appendix

TABLE A: Fire/EMS-related Call Types

Call Type	Number of Calls	Calls per Day	Call Percentage
ALS	116	0.3	28
BLS	26	0.1	6
Other	65	0.2	16
EMS Total	**207**	**0.6**	**51**
Structure fire	8	<0.1	2
Outside fire	9	<0.1	2
Hazard	84	0.2	21
Alarm/false alarm	62	0.2	15
Public service	20	0.1	5
Training	13	<0.1	3
Fire Total	**196**	**0.5**	**48**
Mutual aid	5	<0.1	1
Total	**479**	**1.3**	**100**

TABLE B: Correspondence between CAD Incident Type and Call Type

CAD Incident Type Description	Fire Call Type
C3235 INJURED PERSON	EMS
5308 False Fire Alarm	Alarm/False Alarm
C3255 - Occupational Injuries	EMS
C3255 Occupational Injuries	EMS
C3262 - Hospice Death	EMS
C3262 Hospice Death	EMS
C3331 - Assist Medical	EMS
C3331 Assist Medical	EMS
C5015 - Single Family Dwelling Fire	Structure Fire
L3529 - Fireworks - No Report - GR	Hazard
L3529 Fireworks - No Report - GR	Hazard
L5015 - Fire-Dwelling Single/Multiple Family - GR	Structure Fire
L5015 FIRE-DWELLING-	Structure Fire
L5015 Fire-Dwelling Single/Multiple Family - GR	Structure Fire
L5022 - Fire Alarm - GR	Alarm/False Alarm
L5022 Fire Alarm - GR	Alarm/False Alarm
L5022 FIRE-FIRE ALAR	Alarm/False Alarm
L5030 - Fire - Misc Buildings - GR	Structure Fire
L5045 - Fire-Misc Outside Fires - GR	Outside Fire
L5045 Fire-Misc Outside Fires - GR	Outside Fire
L5052 - Fire-Fuel Spill - GR	Hazard
L5054 - Fire-Wires Down - GR	Hazard
L5054 Fire-Wires Down - GR	Hazard
L5055 - Fire-Smoke Investigation - GR	Public Service
L5055 Fire-Smoke Investigation - GR	Public Service
L5057 - Fire-Natural Gas Leak - GR	Hazard
L5057 Fire-Natural Gas Leak - GR	Hazard
L5059 - Fire-Carbon Monoxide Detector - GR	Alarm/False Alarm
L5059 Fire-Carbon Monoxide Detector - GR	Alarm/False Alarm
L5065 - Fire-Mutual Aid to other Dept - GR	Mutual Aid
L5065 FIRE-MUTUAL AI	Mutual Aid
L5199 - Fire-Special Detail Includes Training - GR	Training
L5199 Fire-Special Detail Includes Training - GR	Training